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Munn & Co. G

PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

December 2, 1910.

J. E. Church, Jr., Esq.,
Reno, Nev.

Dear Sir:-

Your favor of the 24th ult., enclosing blue print and description of your Snow Sampler instrument has been received.

In looking over your papers, there appear to be two separate inventions, which will require two patents, which we probably can obtain for you. One is the tube sampler constructed as you describe, with the tool for rotating the tube in the snow, and the other is the weighing scale and the special adjustment you have on that.

The total cost of a patent on each invention will be \$75., or, \$150. for the two. The usual fee to be remitted first is \$25. on account of each invention. We then prepare the papers and send the latter to you for examination. The balance of the first fee, or \$30. for each invention, becomes payable, and the application is filed in the Patent Office at Washington. When the patent is allowed, the last Government fee, of \$20. in each case, is payable within six months.

It will be advisable to not make your inventions public until after the patents on both are allowed. We shall be pleased to

J. E. C., Jr., Esq., -2-

December 2, 1910.

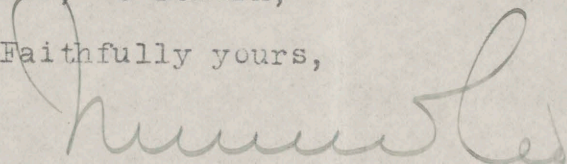
publish descriptions of your improvements later on, in the Scientific American, presuming you can supply good photographs of same.

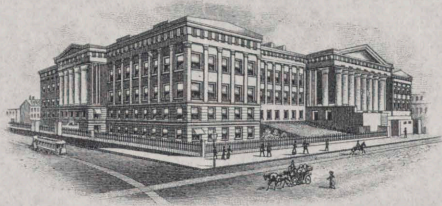
Usually it takes about two months to work a patent through to issue.

We enclose our Hand Book on Patents, containing additional information.

Awaiting your further favors, we remain,

Faithfully yours,

A handwritten signature in cursive script, appearing to read "H. E. C. Jr.", is written over the typed name "Faithfully yours,".



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361 BROADWAY

New York

H

December 14, 1910.

Mr. J.E. Church, Jr.,
Reno, Nevada.

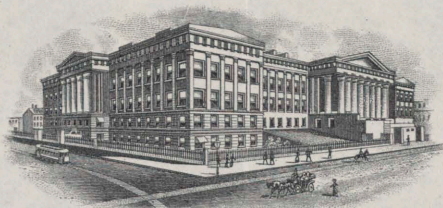
Dear Sir:

We are in receipt of your favor enclosing draft for \$50.00, which is made payable to Dunn & Co., in place of Munn & Co.

We herewith return it, and request that you send one made payable to Munn & Co.

In the meantime we will carefully consider your invention, and write to you fully in a few days.

Faithfully yours,



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Munn & Co.

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361 BROADWAY

New York

WC

December 15, 1910.

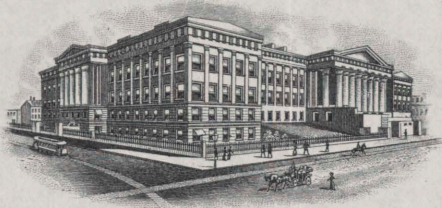
Mr. J. E. Church, Jr.,
Reno, Nevada.

Dear Sir:-

In further reply to your favor of December 18th, we beg to state that we have carefully gone over the matter and have to advise you that the two devices cannot be considered as forming parts of a imitary invention. If both devices were included in a single application the Patent Office would undoubtedly require a division.

We will therefore prepare both applications, and the papers will be mailed to you in due course.

Faithfully yours,



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Munn & Co.

PATENT ATTORNEYS

H

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

December 30, 1910.

Mr. J.E. Church, Jr.,
Reno, Nevada.

Dear Sir:

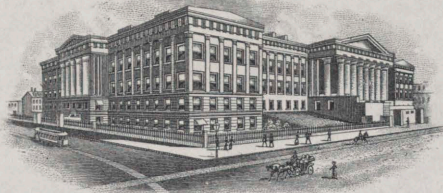
Your favor of the 24th instant covering \$50.00 is received,
for which please accept our thanks.

Faithfully yours,

2 cases

CHARLES ALLEN MUNN

FREDERICK C. BEACH



UNITED STATES PATENT OFFICE

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CABLE ADDRESS: ETMAN NEW YORK

Munn & Co.

PATENT ATTORNEYS

L

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

January 16, 1911.

Messrs. J. E. Church and J. E. Stubbs,
Reno, Nevada.

Gentlemen:

We enclose herewith your patent papers for examination and signature. Kindly execute them most carefully in accordance with the directions on the enclosed leaflet and return them to us with the amount of fees now due, \$60.00.

We beg to call your attention to the necessity of carefully reading the specification before returning it to us.

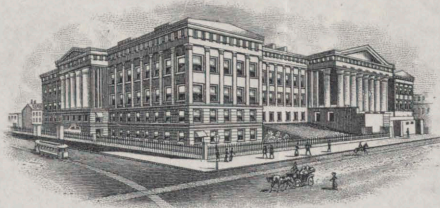
The rules of the Patent Office now require that the application papers be fastened together by a ribbon or tape and the ends of the ribbon or tape placed under a seal, previous to the impression of the seal by the officer before whom the oath is taken.

Therefore if on the return of the executed papers, minor changes are to be made in the specification and these are absolutely necessary, please indicate your suggestions on a separate sheet and point out the page and line in the specification where such changes are required, and we will make the corrections.

If however, the corrections are of such a character as to require extensive amendment of the specification, please return the papers to us and we will make the necessary revision, and again forward the papers to you to be executed.

Upon official examination the Patent Office may object to certain claims or other parts of the specification, and if we are satisfied that the objections are well founded, we shall, as your attorneys, proceed to make the required changes, and push the case forward without delaying the matter by corresponding with you, unless you direct otherwise when the papers are returned to us, to be filed in the Patent Office.

Faithfully yours,



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Munn & Co.

PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES. L

361 BROADWAY

New York

January 18, 1911.

J. E. Church, Jr., Esq.,
Mt. Rose Meteorological Observatory,
University of Nevada,
Reno, Nevada.

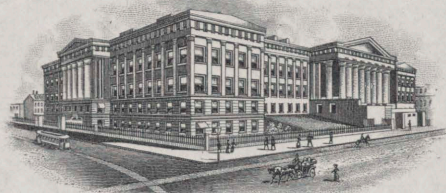
Dear Sir:

We are in receipt of your favor of the 11th inst. and beg to say that your patent application papers were forwarded to you for execution yesterday, and we trust you will find everything satisfactory.

After your patent is obtained, you can prevent everyone, even the Weather Bureau Department, from making use of any invention covered by the claims of your patent, without your consent.

We have referred your query in regard to preparing an article on the Relationship of Forests to the Conservation of Snow to the Editor, and he would like to have you submit the article and photographs that you speak of for examination. As you are aware, Mr. Moore, of the Department, has recently made a statement that he does not consider that deforestation has resulted in droughts or floods. He cites the statistics of the rise and fall of rivers in France and the rise and fall of certain rivers in this country, notably the Ohio. Of course, such a contention is at variance with the generally accepted views on this subject. We do not know whether your article bears upon this subject, but should think it a very interesting point to take up and dwell upon.

Yours faithfully, *Munn & Co.*



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361 BROADWAY

New York

L

February 4, 1911.

Mr. Jas. E. Church, Jr.,
Reno, Nev.

Dear Sir:

We are in receipt of your favor enclosing \$60
and specifications.

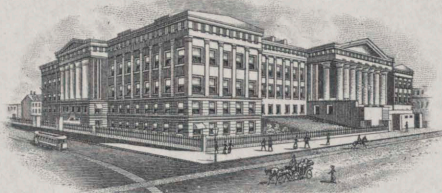
We have corrected the specifications and are sending the
papers herewith for re-execution by you. Mr. Stubbs called at
our office, and in accordance with his instructions we have pre-
pared an assignment which we submit herewith for signature.

Yours faithfully,

2 cases

CHARLES ALLEN MUNN

FREDERICK C. BEACH



UNITED STATES PATENT OFFICE

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CABLE ADDRESS: ETMAN NEW YORK

Munn & Co.

PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

N

New York

February 6, 1911.

James E. Church, Jr.,
Reno, Nevada.

Dear Sir:

We enclose herewith your patent papers for examination and signature. Kindly execute them most carefully in accordance with the directions on the enclosed leaflet and return them to us with the amount of fees now due, \$5.

We beg to call your attention to the necessity of carefully reading the specification before returning it to us.

The rules of the Patent Office now require that the application papers be fastened together by a ribbon or tape and the ends of the ribbon or tape placed under a seal, previous to the impression of the seal by the officer before whom the oath is taken.

Therefore if on the return of the executed papers, minor changes are to be made in the specification and these are absolutely necessary, please indicate your suggestions on a separate sheet and point out the page and line in the specification where such changes are required, and we will make the corrections.

If however, the corrections are of such a character as to require extensive amendment of the specification, please return the papers to us and we will make the necessary revision, and again forward the papers to you to be executed.

Upon official examination the Patent Office may object to certain claims or other parts of the specification, and if we are satisfied that the objections are well founded, we shall, as your attorneys, proceed to make the required changes, and push the case forward without delaying the matter by corresponding with you, unless you direct otherwise when the papers are returned to us, to be filed in the Patent Office.

Faithfully yours,



UNITED STATES PATENT OFFICE

PATENTS
TRADE MARKS
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CABLE ADDRESS: ETMAN NEW YORK

Munn & Co.

PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

LS

February 25, 1911.

Mr. James E. Church,
Reno, Nev.

Dear Sir:-

We are in receipt of your remittance of \$5.00 with specification and assignment.

We have made the required corrections.

The application will be filed in the Patent Office at once and have our careful attention.

Yours faithfully,

ADDRESS ONLY
THE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

SERIES OF 1900.

No. 610,979

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., Feb 27, 1911.

Sir:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged IMPROVEMENT IN

Scale.

with FIFTEEN DOLLARS as the first fee payable thereon.

The annexed notice needs no answer; it is merely to show that your application has been filed and will be examined by the Patent Office in its turn.

MUNN & CO.

Very respectfully,

E. B. Moore.

Commissioner of Patents.

J. E. Church Jr
% Munn + Co.
City.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings), and to pay the required fee.

No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application to the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

118/11

ADDRESS ONLY
THE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

SERIES OF 1900.

No. 610.979

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., Feb 27, 1911.

Sir:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged IMPROVEMENT IN

Scale.

with FIFTEEN DOLLARS as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order

You will be duly advised of the examination.

Very respectfully,

E. B. Moore.

Commissioner of Patents.

J. E. Church Jr
% Munn + Co.
City.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings), and to pay the required fee.

No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

118/11

ADDRESS ONLY
THE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

SERIES OF 1900.

No. 610,980

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., Feb 27, 1911

Sir:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged **IMPROVEMENT IN**

Snow Samplers.

with **FIFTEEN DOLLARS** as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken

The annexed notice needs no answer; it is merely to show that your application has been filed and will be examined by the Patent Office in its turn.

MUNN & CO.

You will be duly advised of any further action.

Very respectfully,

E. B. Moore.

Commissioner of Patents.

J. E. Church, Jr.
J. Munn & Co
City

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings), and to pay the required fee. No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should be addressed to the Commissioner of Patents, Washington, D. C.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

118/11

ADDRESS ONLY
THE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

SERIES OF 1900.

No. 610,980.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., Feb 27, 1911

Sir:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged **IMPROVEMENT IN**

Snow Samples.

with **FIFTEEN DOLLARS** as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order

You will be duly advised of the examination.

Very respectfully,

E. B. Moore.

Commissioner of Patents.

J. E. Church, Jr.
of Mason & Co
City.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings), and to pay the required fee. No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

118/11

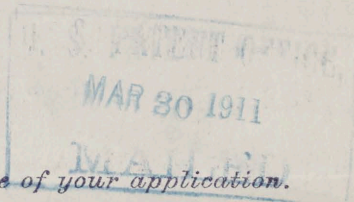
Address only
 "The Commissioner of Patents,
 Washington, D. C."

All communications respecting this
 application should give the serial number,
 date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR
 UNITED STATES PATENT OFFICE

WASHINGTON March 30, 1911.

James Edward Church, jr.,
 c/o Munn and Co.,
 City.



Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed February 27, 1911, for Snow Sampler.

E. B. Moore

Commissioner of Patents.

Case considered.

The statement commencing with "Certain" in line 8, page 3, is unnecessary, also somewhat indefinite and should be erased.

The tool described in lines 12 - 22 inclusive, page 5, if new, is a separate and distinct invention from a sampler, and its description and illustration in connection with the sampler is unnecessary. Change "flatten", line 6, page 5, to either "flat" or "flattened". The introductory clause of a claim is no restriction of the elements thereafter set forth.

Claims 1 - 4 inclusive, are met by Lyman, May 13, 1879, #215,230; or Gray, June 4, 1907, #855,849. There is no additional patentability in providing a sampler with a scale of gradations. Such is old in devices of this character - see Tagliabue, May 5, 1863, #38427; and Card et al. Nov. 30, 1875, #170,545. For which reason claim 5 has no patentability over claim 2.

The term "constricted" in lines 3 and 4, claim 3, is indefinite.

Claim 6 is met by Tagliabue cited.

No patentability is seen in having openings on

11871911

610,980 - 2

opposite sides of the tube nor having the openings of the opposite sides overlap. For which reason claim 7 is held to be met by either Lyman cited, or Gray cited.

Claim 8 is met by Lyman cited.

Claim 9 is met by Morningstar, March 19, 1899,

#399,687.

Claims 1 - 9 inclusive, are rejected.

All the references are in class 83, Grain Samplers.

Examiner, Div. 25.

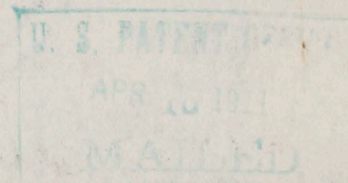
Address only
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON April 18, 1911.

James Edward Church, jr.,
c/o Munn and Co.,
City.



Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed Feb. 27, 1911, for Snow Samplers.

118/1911

Commissioner of Patents.

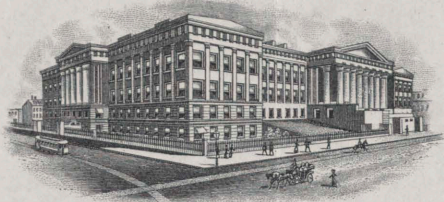
In response to amendment filed April 11, 1911:

Claims 1, 2 and 4 as amended seem allowable so far as
now known.

Claim 3 as amended has no patentability over Lyman,
of record, in view of it being old to provide devices of the
character at bar with gradations. It is immaterial as to the
character of the gradations.

Claim 5 (former 7) is held to be met by the art cited
thereto in last office letter and is rejected.

Examiner, Div. 25.



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Munn & Co.

PATENT ATTORNEYS

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SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

April 20, 1911.

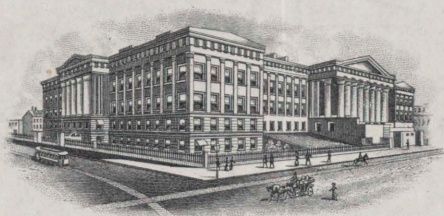
Mr. James H. Church, Jr.,

Dear Sir:--

In the matter of your application for patent for Snow Samplers, we have to report that two official actions have been taken, and we think there is but little doubt that a patent will be granted, the patent Office having conceded that the invention possesses patentable features.

We are proceeding with the prosecution of the case, and will spare no pains in our endeavor to protect your interests. As soon as decisive official action has been taken, you will be advised.

Faithfully yours,



UNITED STATES PATENT OFFICE

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CABLE ADDRESS: ETMAN NEW YORK

Munn & Co.

PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York B

May 9, 1911.

Mr. James E. Church, Jr.,
Dear Sir:-

In the matter of your application for patent for Scale, we have to report that two official actions have been taken, and we think there is but little doubt that a patent will be granted, the Patent Office having conceded that the invention possesses patentable features.

We are proceeding with the prosecution of the case and will spare no pains in our endeavor to protect your interests. As soon as decisive official action has been taken, you will be advised.

Yours faithfully,

Directions for Signing and Authenticating the Patent Papers.

Your full signature must occur in **THREE** places,
signed in ink.

- (1) Sign the petition on the first page. For example,
not "J. B. Doe," but "John B. Doe."
- (2) **Sign under the claims** on the last page of the specification in the presence of two witnesses who should write their signatures with ink under the word "Witnesses."
- (3) **Sign the affidavit** on the last sheet before a Notary Public, a Justice of the Peace, or U. S. Consul.
☞ Such official must impress his seal in the paper.
☞ If made before a Justice of the Peace, a certificate of the County Clerk or of a Court must be attached, showing that said Justice is in commission and authorized to administer oaths.
Please see that the official before whom the oath is taken fills in the venue at the top of oath, and that your citizenship is stated in both the Petition and the Oath.
- (4) *When the papers are duly signed and executed, please return them to us, together with remittance, as stated on preceding page. Send the money by Postal Order, Bank Draft, or by Express.*

MUNN & CO., 361 BROADWAY, NEW YORK,
SOLICITORS OF PATENTS.

FOREIGN PATENTS.

We beg to call your attention to the following important differences between the patent laws of most foreign countries and ours.

First. In almost every country the first applicant is entitled to a patent, whether he be the inventor or not. Care should therefore be taken to prevent anybody from applying for foreign patents ahead of you.

Second. Publication of a full description of your invention in a patent, in newspapers, periodicals, etc., before the filing of the foreign applications, will in most foreign countries deprive you of the right of obtaining patents in those countries.

We have recently reduced our fees for foreign patents, which may now be obtained at about a half of the expense incurred a few years ago. We shall be pleased to furnish you with full particulars. We enclose our Hand Book on Foreign Patent Practice.

MUNN & CO.

"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON May 18, 1911.

James Edward Church, jr.,
c/o Munn and Co.,
City.

U. S. PATENT OFFICE
MAY 16 1911
MAILED

Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed Feb. 27, 1911, for Snow Sampler.

E. B. Moore

Commissioner of Patents.

118/1911

In response to the amendment filed May 16, 1911:

In view of it being common to apply ~~graduations~~ ^{graduations}

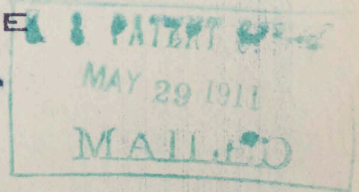
to measuring instruments as shown in Gard et al. (170,545) ⁸
of record, and others, and as it is also old to form a
tester with open ends as shown in either Lyman of record, Gray
of record, or Meylor, July 28, 1885, #323,057, (83, Grain
Samplers), claim 3 is rejected. If before "slots", line 24,
page 4, the wor "overlapping" be inerted, claim 5 may be allowed. ✓

Examiner, Div. 25.

DEPARTMENT OF THE INTERIOR
 UNITED STATES PATENT OFFICE

WASHINGTON May 29, 1911.

James Edward Church, jr.,
 c/o Munn and Co.,
 City.



Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed Feb. 27, 1911, for Snow Samplers.

E. B. Wilson

Commissioner of Patents.

In response to the amendment filed May 24, 1911:

On further consideration claim 1 which covers no more than a holder and a removable cutting member is held to be met by Rathbone, December 31, 1867, #72,903, (164 - 29); and is rejected.

Claim 2 is rejected because it does not appear that the particular means for mounting the cutter in the lower end of the sleeve bears any coactive relation to the sight openings, - which latter being conventional expedients in this art.

Claim 3 is rejected for reasons assigned in rejection of claim 2, and additionally because the graduations appear to be aggregated and unpatentable expedients.

Examiner, Div. 25.

118/1911

SPECIFICATIONS OF THE MOUNT ROSE SNOW SAMPLER.

To all Whom it may concern;

Be it known, that I, J.E.Church Jr. a citizen of the United States, residing at Reno, in the county of Washoe and State of Nevada, have invented a new and useful snow sampler and weigher of which the following is a specification;

My invention relates to improvements in the sampling and weighing of snow by means of a tube and spring balance; and the objects of my improvement are, first, to assure the easy driving of the sampler and a perfect core in all conditions and depths of snow; second, to detect any inaccuracy in the core; third, to determine depth of snow and corresponding length of core from the sampler tube itself; fourth, to determine by dial reading alone, and without further computations, the equivalent number of inches of water in the snow sample taken, whatever the net weight of the sampler may be; fifth, to clear the sampler readily of the core; sixth to provide a support in soft snow for the standard of the spring balance.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which the essential parts are shown in Figs. 1, 2, and 3, consisting of several pieces of standard steel tubing (A), one of which is provided with a cutter (B) of which the orifice is smaller at the tip than at the inner edge and the inner edge smaller than the tube so that a section or sample of snow will pass readily into the body of the tube without clogging it.

For the purpose of determining the completeness of the core and assisting the removal of the same after it has been measured, two opposite rows of longitudinal slots are cut into the tube, those in the back overlapping those in front, as shown by the dotted lines at (C), so that the length of the section can readily be determined.

A scale is engraved on one side, through its entire length, and on the opposite side only where the slots overlap.

The tool shown in Fig. 6 is employed in cleaning the tube. The handle of this tool is slightly tapered so that it may be used as a gage in testing the cutter (B) whenever the edge becomes deformed by contact with stones, etc.

The scale of inches marked on the handle facilitates the determination of the length of the core, when the lower end of the core is forced above the orifice of the cutter.

The sections of the tube are united by means of the screw coupling (Fig.3), of which only the central portion is threaded, so that the corresponding threads on the tubes are always protected while the unthreaded portion ^D serves as a sleeve to keep the sections in alignment while being screwed together. The coupling is firmly screwed to one section the end of which serves as a stop to the movable one, thereby preventing it from becoming jammed.

When working at great depths, the wrench shown in Figs. 4 and 5 is useful to overcome the friction of the snow against the sampler or ~~the~~ ^{to} release of the latter when firmly gripped by the adhering snow. The wrench is a wooden bar ^{curved} ~~ground~~ to fit the sampler, to which it is clamped by means of the strap (M). This strap is slotted so that the T shaped head of the bolt (S) can pass through it, thus admitting of quick tightening or loosening. A stop (O) prevents the bolt from turning when it is being tightened. A coating of shellac or fine machine oil over interior and exterior of tube and cutter protects the sampler almost completely from adhering snow.

The water content of the snow is quickly obtained by weighing the sampler containing it on the spring balance shown in Fig. 7 (Seven). The dial (P) of this scale is engraved upon a wormwheel movable upon its axis, so that the zero of the scale may be adjusted to samplers of different weights, or to

the varying weight of a siggle sampler consisting of two or more sections. The worm (G) is intended for fine adjustments, but being pivoted at H is readily moved out of mesh with the dial when it is necessary to move the latter quickly through a large range. A flat spring (F) retains the worm-arbor in or out of the mesh as desired. The hooks (K) in which the sampler is supported, are covered with rubber tubing to prevent slipping. The dial is graduated to show equivalent depth of water in inches or centimeters instead of weight in ounces or grams to facilitate comparison with the precipitation of rain in summer.

For convenience and accuracy in weighing the spring balance is hung on an iron shed staff, as shown in Figs. 8 and 9, to the bottom of which is attached the extension ^{wings} (T) to afford additional stability to the staff when the snow is soft and feathery.

For ease in handling the sampler, the diameter of the orifice of the cutter should be $1\frac{1}{2}$ inches. The inner diameter of the tube should be therefore, slightly in excess of $1\frac{1}{2}$ inches, and must vary according to the gage of the tubing used. The gage of the tubes should depend upon the depth and character of the snow to be measured. For measuring snow in high mountains or in drifts where depths of 18 feet or more are encountered, 16 gage is most efficient, while in shallower snow of heavily forested regions a gage as thin as 20 or 22 may be employed.

The length of the sampler should depend upon the depth of snow to be measured, but in the case of very deep snow, the sampler should be made in sections, the longest of which should not exceed 100 inches. The last section of the sampler should be short and contain a cutter at its upper end, and a scale of inches arranged in reverse order for use as a short sampler for measuring under trees where the low canopy prevents the use

of the long sections.

I am aware that prior to my invention sharpened steel tubes with closed upper ends were used to measure shallow snow but were abandoned as impracticable, and furthermore that spring balances with dials ruled in inches instead of ounces were employed to determine the water content of snow caught in weighing gages. I, therefore do not claim tubes as such, nor tubes and spring balances in combination; but I claim;

1. A combination of a tube and a cutter, whose orifice is smaller than the diameter of the tube to which it is joined, substantially as described.
2. An open upper end of the tube, substantially as set forth.
3. A scale of linear measurement attached to or engraved upon the tube, substantially as set forth.
4. A series of longitudinal slots cut into the tube substantially as described.
5. The use of a coating of shellac or oil over interior and exterior of tube and cutter, substantially as set forth.
6. A wrench for manipulating sampler in deep snow, substantially as set forth.
7. A tool for cleaning sampler of snow and measuring cutter and distance of lower end of core from orifice of cutter, substantially as described.
8. An adjustable dial for ready determination of net weight or water content of snow, substantially as set forth.
9. A special extension of the staff of the spring balance to obtain additional stability for the staff

in soft snow.

Witnesses

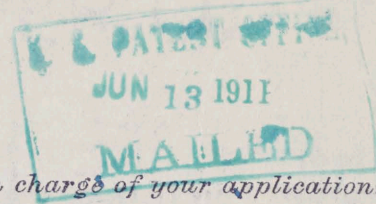
J. E. Church, Jr.

J. B. Doten,

AKBAK

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON June 13, 1911.

James Edward Church, jr.,
c/o Munn and Co.,
City.

Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed Feb. 27, 1911, for Snow Samplers.

118/1911

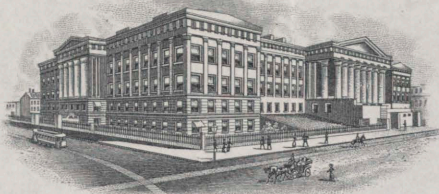
Commissioner of Patents.

In response to the amendment filed June 7, 1911:

The amendment to claim 1 is immaterial so far as the combination set forth in said claim is concerned; and the claim as amended is rejected on the art cited thereto in last office letter. Further, elongated test tubes are old as shown in the art already cited, and as further reference showing a tubular cutter connected with the holder as described in said claim, see Mulkerins, August 7, 1900, #655,409, (146, Bread Cutters), - figure 4 thereof. No reason is seen to change the office action of former letter in claim 2, as the function of the series of sight openings described is in no way affected by the specific form of the tubular cutter set forth therein. Claim 3 as amended has no patentability over either Lyman of record Gray of record, in view of ~~either~~ the specific tubular cutter shown in either Mulkerins cited or Rathbone of record.

Claims 1, 2 and 3 are rejected.

Examiner, Div. 25.



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Munn & Co.

PATENT ATTORNEYS/G

SCIENTIFIC AMERICAN OFFICES.

361 BROADWAY

New York

August 2, 1911.

Mr. J. E. Church, Jr.,
University of Nevada,
Reno, Nev.

Dear Sir:-

We beg to acknowledge receipt of your communication of the 26th ult. and have carefully noted the contents thereof.

We from the beginning appreciated the fact that the particular form of tubular cutter which you employ with the snow sampler is of importance, and made every effort to cover it by specific claims. We believe that the Patent Office will eventually allow us a claim such as you desire. We shall continue the prosecution of the application with this purpose in view. The Patent Office has already favorably considered one claim covering the arrangement of the sight openings, and consequently there is but little doubt that a patent will be granted.

Faithfully yours,

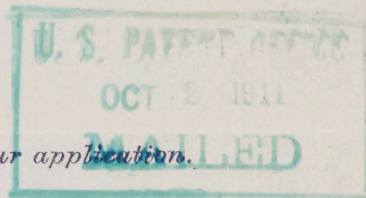
A handwritten signature in dark ink, appearing to read "Munn & Co.", written in a cursive, flowing style.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON

Oct. 2, 1911.

James Edward Church jr.,
c/o Munn and Co.,
City.



Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed Feb. 27, 1911, for Snow Samplers.

E. B. Moore

Commissioner of Patents.

11/8/1911

In response to amendment filed Sept. 27, 1911:

New claim 1 has no patentability over ~~exterior~~ Lyman (215,230) of record, in view of Mulkerins (655,409) of record (see figure 4). To form the lower end of the sampler shown in the former named patent in the manner of that shown in the latter does not involve patentability. For which reason said claim is rejected. On further consideration, no patentability is seen in claim 2 (former 4). To duplicate the openings shown in the art cited on the opposite sides of the several devices so that the openings on one side overlap those on the other is thought to be merely a matter of arrangement within the scope of the maker of the device. For which reason said claim is rejected.

Claims 1 and 2 are rejected.

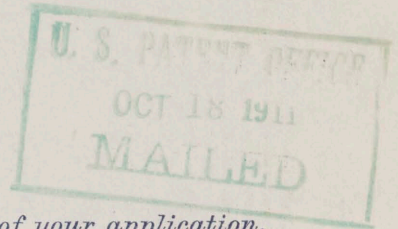
Address only
 "The Commissioner of Patents,
 Washington, D. C."

All communications respecting this
 application should give the serial number,
 date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR
 UNITED STATES PATENT OFFICE

WASHINGTON October 18, 1911.

James Edward Church, jr.,
 c/o Munn and Co.,
 City.



Please find below a communication from the EXAMINER in charge of your application.

No. 610,980, filed February 27, 1911, for Snow Sampler.

E. B. Moore

Commissioner of Patents.

In response to the argument filed Oct. 14, 1911:

No reason is seen to change the office action of October 2, 1911, relative to the rejection of the two claims at bar. The introductory clause of a claim is no limitation of the combination of elements set forth therein. The patent to either Gray or Lyman of record shows "a substantially uniform elongated hollow member" with a piercing or cutting member at its lower end. To substitute the cutter shown in Mulkerin's patent (655,409) of record (figure 4) is to substitute one old form for another, the function being the same, and does not involve patentability. For which reason claim 1 is rejected.

Sight holes being common in the art, as shown, no patentability is seen in having such on opposite sides and overlapping as described. If in further prosecution of the case the citation of new references is unnecessary, the claims will be finally rejected in view of ex parte Miller, 139 O.G., 730.

Examiner, Division 25.

118/1911

Munn & Company

PATENT ATTORNEYS

361 BROADWAY

New York July 8, 1911.

Mr. James E. Church Jr.

Dear Sir :

We have the pleasure of informing you that your application for a patent for

Seal

was officially allowed on July 6, 1911 and the patent will be printed and issued as soon as you remit the final government fee of \$20, which please send to our New York office.

You have six months, if you desire it, within which to make this payment; meanwhile, the application will be held in the Secret Archives of the Patent Office.

One object of this time allowance is to enable you to secure foreign patents in advance of all other persons.

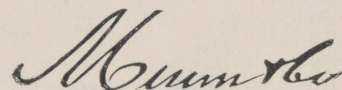
118 | 11

When your U. S. Patent is issued an appropriate notice of the same will appear in the *Scientific American* **free of charge**. If desired, we can, at an expense of \$5.00, arrange to have the notice illustrated with a reproduction of one of the figures of the patent drawing selected by the Editor. This will give you a circulation **among over 200,000 readers** and is probably one of the cheapest and best methods you can adopt to promote the introduction of your improvement.

A copy of the *Scientific American* is being forwarded to you by mail; if you are not already a subscriber, we shall be glad to have your name entered. We think you will be pleased with the investment—\$3.00 for one year, which includes postage.

Wishing you every success in the introduction of your invention, and hoping it may prove highly remunerative to you, we remain,

Faithfully yours,



Hundreds of circulars and letters from agents, ex-clerks, and brokers, will come to you as soon as your patent issues. Some will adroitly pretend your patent is defective; others purport to be able to sell the patent. Give them no attention. All have the same object—to get money from you.

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After an application for a patent has been officially examined and allowed, the final government fee of \$20 is to be paid, and when this is done the patent will be printed, issued and forwarded by mail.

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The applicant may pay the fee as soon as the case is allowed, and have the patent immediately printed, or he may wait, and make the payment at any time within six months from the date of allowance. If the fee is not paid within said six months, the case will lapse; but it can be revived within two years from the date of allowance by filing an application for renewal at an extra expense of \$25.

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The Patent Office will not, at present, sell to one person more than ten (10) copies of a patent.

The copies will be mailed about one week after the Letters Patent.

FOREIGN PATENTS.

We respectfully call your attention to the importance of securing patents for your invention in Europe. Patents for good improvements are quite as valuable there as in this country. If you contemplate securing foreign patents, the necessary steps must be taken before the second government fee is paid here.

We enclose our pamphlet on Foreign Patents Practice, and shall be happy to act for you. We have agencies for the prompt securing of patents in all parts of the world.

In case you are not prepared to proceed at present with your patent application in Canada, we can, if you wish, file an Official Notice at Ottawa stating your intention of hereafter applying for a Canadian patent. The effect of filing such notice will be to deter others from manufacturing your invention in Canada after your Canadian patent is granted. This notice will be good for one year from the date of your American patent. The cost to file such notice is \$5. This is not a patent, however, and affords no monopoly. The best course is to proceed at once for a Canadian patent.

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The Scientific American Supplement

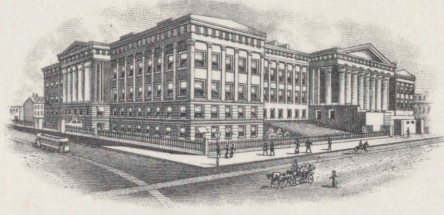
Established 1876

This journal is a separate publication from the SCIENTIFIC AMERICAN and is designed to extend and amplify the work carried on by the parent paper. In size and general make-up it is uniform therewith, covering sixteen pages of closely printed matter handsomely illustrated. It has no advertising pages, and the entire space is given up to the scientific, mechanical and engineering news of the day. It differs from the SCIENTIFIC AMERICAN in that it contains many articles that are too long to be published in the older journal, or of a more technical nature. College professors and students find this edition especially adapted to their wants. It contains reports of the meetings of the scientific societies both in this country and abroad. It has many short notes concerning the electrical, engineering and general scientific news of the day, together with a column of selected formulæ. Each number contains much foreign scientific news, and, when taken in connection with the SCIENTIFIC AMERICAN, it places before the reader a weekly review

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PATENT ATTORNEYS

LES

SCIENTIFIC AMERICAN OFFICES

361 BROADWAY

New York

July 10, 1911.

Mr. James E. Church, Jr.,
Reno, Nevada.

Dear Sir:

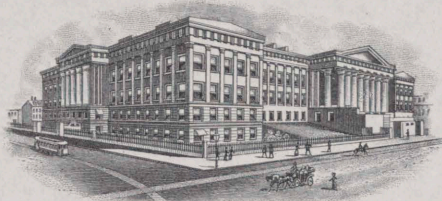
Enclosed find notice that your application for patent for Scale, was officially allowed on July 6, 1911.

During the progress of the case several patents were cited by the Patent Office as touching the subject. Under separate cover we send you copies of these patents, as they may be of interest to you.

There is no further occasion for delaying applications for any foreign patents that you may wish to secure. The terms for the principal countries are given in the enclosed pamphlet, but we will be able to quote somewhat lower charges if several countries other than Canada are applied for at one time.

In case you should decide to file foreign applications, we shall be pleased to have your orders as early as possible, in order that the application papers may receive the special attention required, with a view to protect your interests fully and comply with the particular character of the laws in the different countries.

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PATENT ATTORNEYS

SCIENTIFIC AMERICAN OFFICES
361 BROADWAY

CEH/K

New York

October 27, 1911.

Mr. James E. Church, Jr.,

Dear Sir:-

In the matter of your application for patent for Snow Sampler we regret to have to advise you that the Patent Office Examiner after having favorably considered certain claims cited new references in view of which rejections were declared and a final action has now been taken.

We are sending herewith the official letters received by us, and under separate cover send copies of the references cited.

Upon receipt of each of the previous actions we amended and argued the matter. You will note that in certain of the official letters claims were quoted as allowable, but these claims were afterward rejected in view of the newly cited references. The case may be prosecuted further by way of an appeal to the Board of Examiners in Chief prior to October 18, 1912. In view of the objections urged, however, we fear there is not much chance of success by such course and therefore hesitate to advise you to incur the additional expense which would be involved.

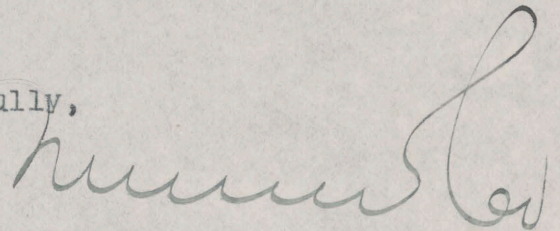
Should you wish to appeal the expense would be the Government fee of \$10, payable in advance, and the charge for our services which would be \$25, but of which the major portion, \$15, would be

contingent upon success on one or more claims.

Should you conclude to appeal please so advise us and remit \$20 on account. Also return the patent copies and official letters.

We have used our best endeavors in the effort before the Primary Examiner and the adverse termination of the case is very much regretted.

Yours faithfully,

A handwritten signature in cursive script, appearing to read "H. E. C.", is written over the typed text "Yours faithfully,".

MUNN & CO.
Patent Attorneys
361 BROADWAY,
NEW YORK



J. HOPKINSON.
SCALE.

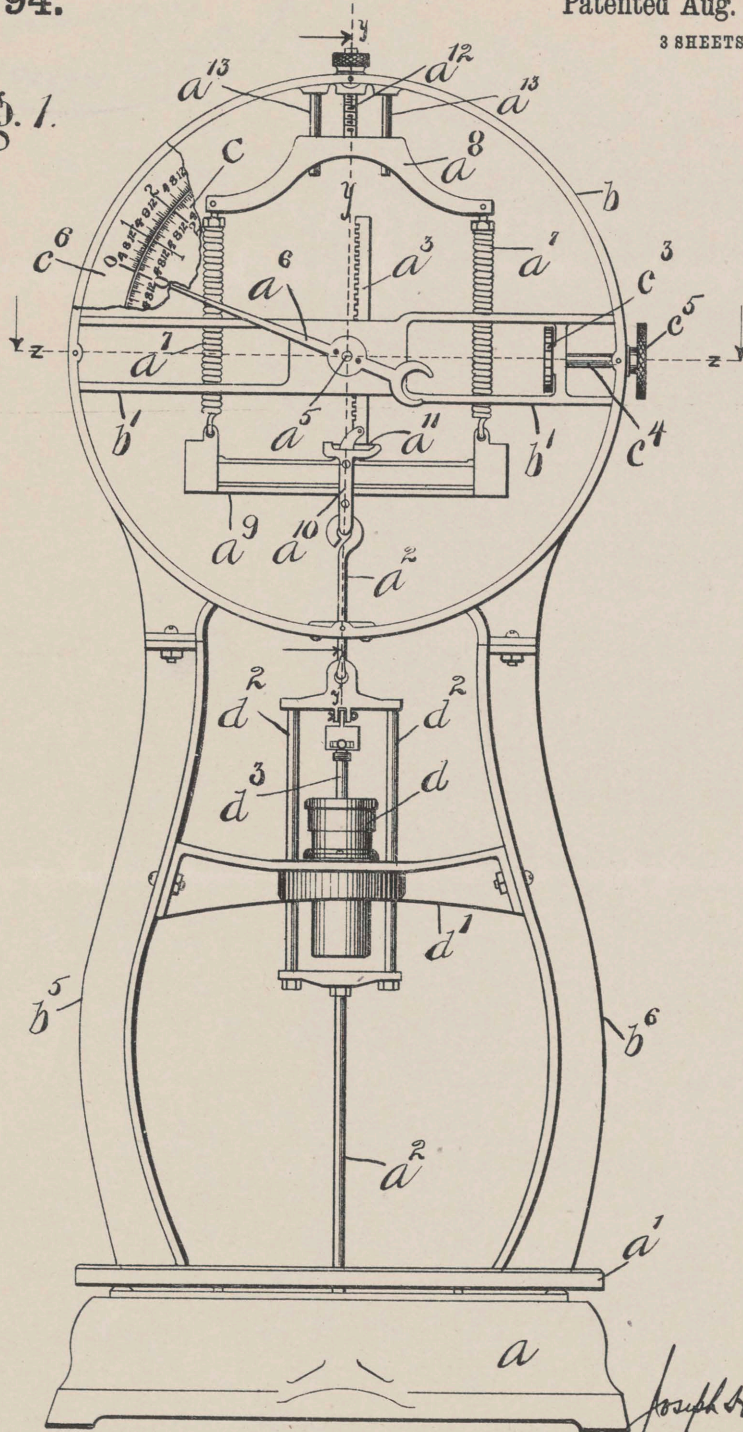
APPLICATION FILED MAR. 6, 1908.

967,194.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
G. A. Endter.
Chas. F. Welch

By

Inventor
Joseph Hopkinson
Stacy & Bowman
 Attorneys

J. HOPKINSON.

SCALE.

APPLICATION FILED MAR. 6, 1908.

967,194.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 2.

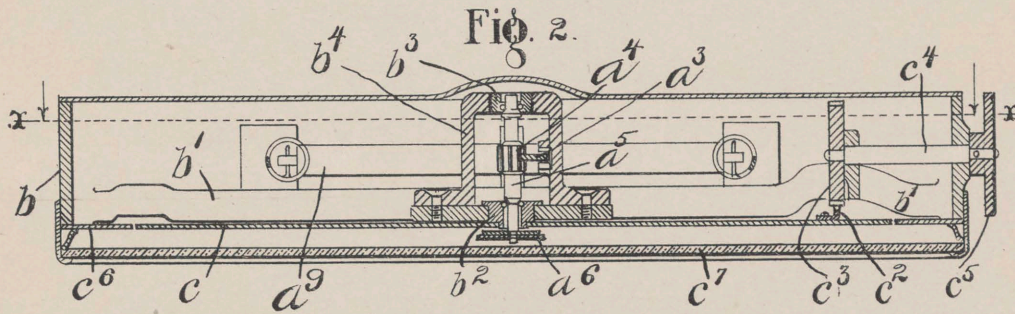
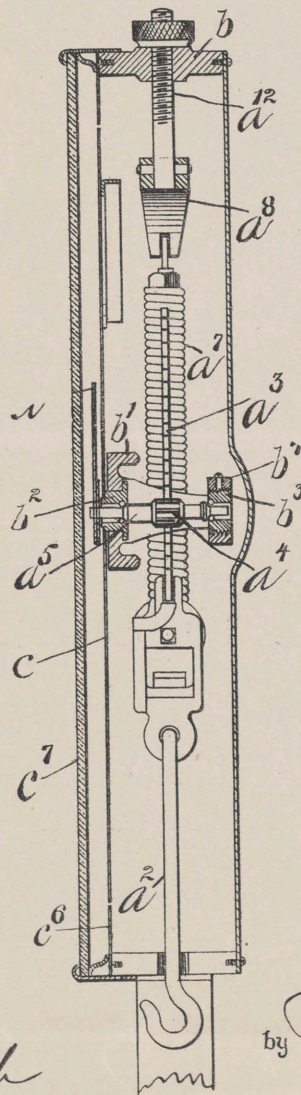


FIG. 3.



Witnesses
W. A. Easton.
Chas. J. Welch

Inventor
Joseph Hopkinson
by
E. J. Bowman
Attorneys

967,194.

J. HOPKINSON.
SCALE.
APPLICATION FILED MAR. 6, 1908.

Patented Aug. 16, 1910.
3 SHEETS—SHEET 3.

FIG. 4

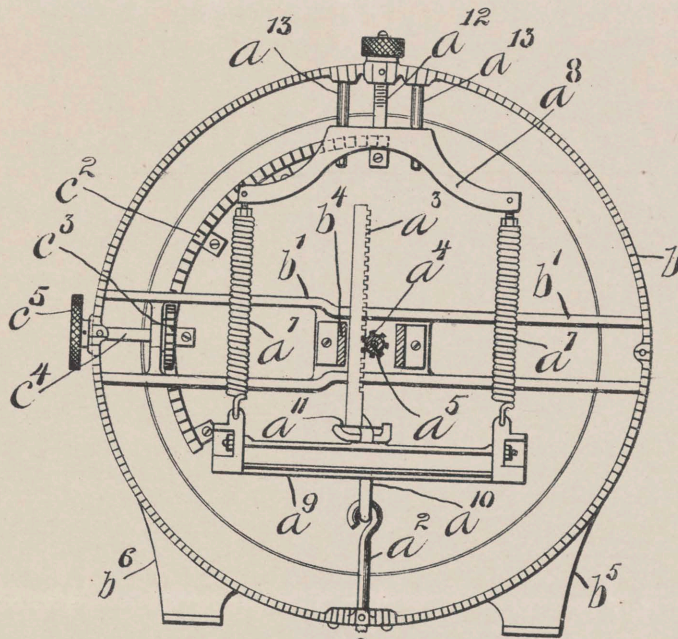
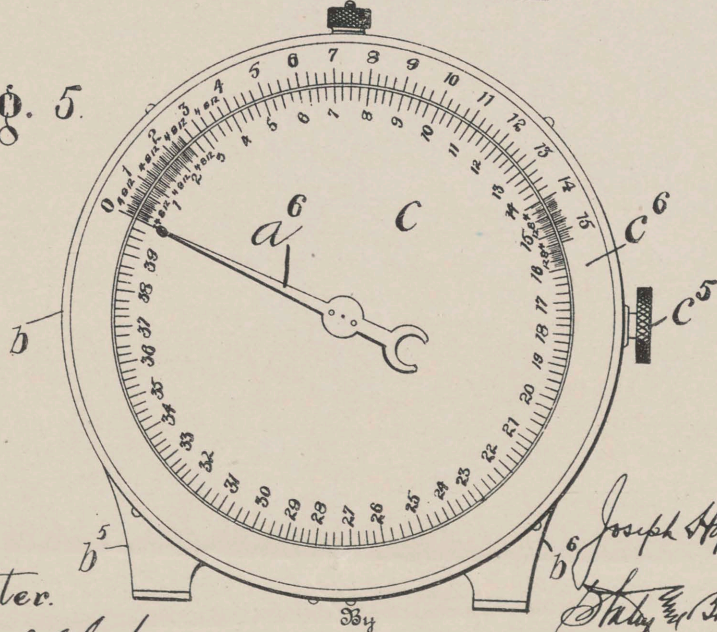


FIG. 5



Witnesses
S.A. Endter.
Chas. J. Welch

Inventor
Joseph Hopkins
Attorneys
Shelby & Bowman

UNITED STATES PATENT OFFICE.

JOSEPH HOPKINSON, OF DAYTON, OHIO, ASSIGNOR TO THE COMPUTING SCALE COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

SCALE.

967,194.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 6, 1908. Serial No. 419,550.

To all whom it may concern:

Be it known that I, JOSEPH HOPKINSON, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Scales, of which the following is a specification.

My invention relates to improvements in weighing scales of the spring balance type, and particularly to scales of this type employing an indicating dial and pointer.

The object of my invention is to provide in a scale of this kind means for taking out the tare so that the weight of the commodity may be read at a glance without mental calculation upon the part of the operator.

My invention consists in the constructions and combinations of parts hereinafter described and set forth in the claim.

In the accompanying drawings Figure 1 is a front elevation of a device embodying my invention with the front of the casing removed and the greater part of the dial broken away to expose the working parts. Fig. 2 is a transverse sectional view on the line $z z$ of Fig. 1. Fig. 3 is a vertical section on the line $y y$ of Fig. 1, looking to the right. Fig. 4 is a sectional view on the line $x x$ of Fig. 2 looking toward the front. Fig. 5 is a detail view of the dial and index hand.

Like parts are represented by similar characters of reference in the several views.

The type of spring balance scales to which I have applied my invention is one which has a supporting base, represented by a .

a^1 is a platform, which is supported in the usual way upon the platform levers located in the hollow of the base. These levers are connected through the medium of the rod a^2 with an operating rack a^3 , which rack meshes with a pinion a^4 secured to the shaft a^5 , which is located in the suitable bearings or bushings, $b^2 b^3$ in the frame work b^1 of the inclosing casing, b , which casing is supported by upwardly-extending arms, $b^5 b^6$, secured to the base. This frame work consists of a frame part b^1 extending from side to side of the casing, b , and having a rearwardly extending yoke, b^4 , which carries the bushing, b^3 , the bushing, b^2 being located in the frame proper, b^1 . The shaft, a^5 , has secured at its forward end an indicating hand or pointer a^6 , which is adapted to be moved by the weight of the load on the platform

around a dial c which is provided with proper marks to indicate the weight of the load or commodity. The weight of the load is resisted by the coil springs, a^7 , which are suspended from the cross-bar, a^8 , and are connected to the rod, a^2 , through the medium of the bar, a^9 , and link, a^{10} ; the rack a^3 being pivotally connected to the upper end of the link, a^{10} , and held yieldingly in engagement with the pinion by a flat spring a^{11} . The yoke a^8 is supported by an adjusting screw a^{12} , screw threaded in the upper part of the casing, b , this screw being for the purpose of adjusting the mechanism to bring the pointer to its normal position at zero, the yoke or cross-bar, a^8 , being guided and held in a straight horizontal position by the guide rods, a^{13} .

The dial, c , is secured to the bushing, b^2 , which is revolubly journaled in the frame work b^1 . The dial also has a circular rack, c^2 , which extends for a suitable distance around the rear side of the dial. Meshing with this rack, c^2 , is a pinion c^3 , secured to the shaft c^4 , which shaft is located in suitable bearings in the frame work b^1 , and casing and is extended through the side of the casing and provided with a knurled thumb-nut, c^5 . The dial, c , is somewhat smaller in diameter than its casing, a circular strip c^6 , which is also provided with marks or indications corresponding to and registering with those of the dial in the normal position of the dial, being inserted between the dial and casing and secured to the casing in any suitable way. The front of the casing is closed by a glass plate c^7 in the usual way.

For the purpose of causing the indicating hand or pointer to quickly settle to its proper position of indication, I have provided a dash-pot, d , located in a cross-bar d^1 , secured to the supporting arms, $b^5 b^6$. The connecting rod, a^2 , is bifurcated or provided with a yoke-shaped portion, d^2 , which has pivotally secured thereon the piston rod, d^3 , of the dash-pot.

In the normal position of the devices, the indicating hand a^6 , the zero mark of the dial, and the zero mark of the indicating plate, c^6 , will register. Placing a crock, box or other receptacle upon the platform, say of the weight of 10 ounces, will cause the index hand to swing to the indication "10" on the dial. The dial may then be turned

about its center, through the medium of the rack and pinion described, until the zero mark of the dial registers with the pointer. Then it will be seen that upon the placing
 5 of the commodity in the receptacle, the pointer will swing to properly indicate the weight of the commodity upon the dial, so that the necessity of mental calculation is obviated.

10 If the scale is being used to fill receptacles of uniform weight, such for instance as boxes which are being packed with a given commodity of a certain weight, the dial may be left at the proper tare indication, or at least very close to it. If it is desired to weigh any other object or commodity where the necessity for taking out
 15 tare is not present, it will be seen that this weight can be obtained from the indications on the indicating strip, *c*⁵, without disturbing the proper tare position of the dial, thus avoiding the necessity of turning the dial back to the zero position for that particular transaction.

Having thus described my invention, I 25
 claim:—

In a scale, a supporting base, a vertically-arranged casing supported from said base, levers supported in said base and a platform supported on said levers, a movable indi- 30
 cating dial arranged in the front of said casing, a stationary indicating member arranged about said dial, an indicating hand cooperating with said dial and stationary member, weighing mechanism comprising 35
 said levers connected with said hand, a circular rack on the back of said dial, a shaft extending through the side wall of said casing and having means on the outer end thereof for turning same, and a pinion on 40
 the inner end of said shaft meshing with said rack, substantially as specified.

In testimony whereof, I have hereunto set my hand this 27th day of February, 1908.

JOSEPH HOPKINSON.

Witnesses:

GEO. W. KEPLER,
 CHAS. E. NORTHWAY.



A large, faint, handwritten mark, possibly a signature or initials, is visible in the lower half of the page. It consists of a long, sweeping curve that crosses a shorter, more vertical stroke.

W. C. LYMAN.
Grain-Sampler.

No. 215,230.

Patented May 13, 1879.

Fig: 1.

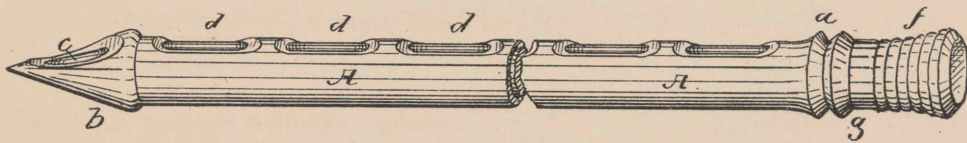


Fig: 2.

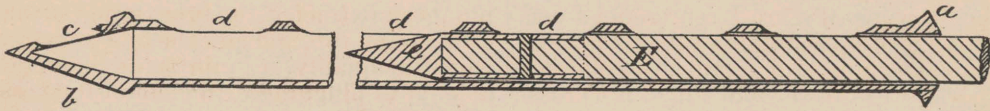
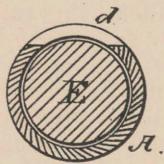


Fig: 3.



Witnesses

Ernst Jelsou
Emil H. Dronmann

By

Wilfred C. Lyman Inventor

Wm H. Lotz

Attorneys



UNITED STATES PATENT OFFICE

WILFRED C. LYMAN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN GRAIN-SAMPLERS.

Specification forming part of Letters Patent No. **215,230**, dated May 13, 1879; application filed September 16, 1878.

To all whom it may concern:

Be it known that I, WILFRED C. LYMAN, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Sampling-Tube or Grain Trier, of which the following is an exact and accurate description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to an instrument for testing the quality of grain while in bulk; and it consists in the construction and arrangement of the two parts composing the same, as fully hereinafter explained.

In the drawings, Figure 1 represents a perspective view of my sampling-tube; Fig. 2, a longitudinal section of the same, the plunger being partly withdrawn; and Fig. 3 is a cross-section.

A is a metallic tube, which should be perfectly cylindrical and smooth on its inner face. Its upper end is enlarged by a chamfered flange, *a*, while its lower end is secured in a hollow cone, *b*, the largest diameter of which is larger than the diameter of the tube, so as to form a swell. This cone, at one side, *c*, is slotted out from near its point to near its junction with the tube, and the tube is also provided with a series of oblong slots, *d*, being in line with slot *c* of cone *b*. All of these slots are chamfered, so as to be bordered by a sharp edge to the bore of the tube, as shown in Figs. 2 and 3, thereby preventing chaff and dust from working in between tube and plunger.

A wooden plunger, E, perfectly cylindrical in shape, and of such diameter as to make a nice fit with the bore of the tube A, so as to telescope therewith, is on its bottom end provided with a metallic conical point, *e*, of such taper as to fit into the hollow of the cone *b*. The upper end of said plunger E is enlarged to form a knob-handle, *f*, and is provided with a collar,

g, forming a shoulder against the upper end of tube A when the plunger is pushed into the tube, thereby obviating damage of the hollow cone *b* by the striking of the conical point *e* into it. Said collar *g* is chamfered similar to flange *a* of tube A, both these chamfers to exclude any obstruction before the shoulders will meet, and thereby to prevent the pinching of the skin of the hand while pushing the plunger into the tube.

For sampling grain in a car, barge, or canal-boat this instrument is pushed into it in an inclined direction, with the slots downward, until the point reaches the bottom, when the plunger is extracted, the tube turned so that the slots are on top, and now the tube is extracted, when the quality of grain throughout, or any amount of plugging with chaff or dust, can be ascertained.

The advantages of my invention over other instruments for the same purpose is, that by the swell of the cone *b* the tube is relieved of a large amount of friction while pushing into the grain; that by means of the slot in the cone *b* the grain can be sampled close to the bottom of the boat, barge, or car; and that by means of the chamfered collar *g* a shoulder is provided, which will save the points of the tube and plunger from being damaged.

What I claim as my invention is—

The grain-sampler described, consisting of a hollow slotted casing, provided with a conical slotted head, *b*, of larger diameter than the body of the casing, and with shoulder *a*, and a solid piston with a metallic head, *e*, and a handle, *f*, having a shoulder, *g*, all constructed and arranged substantially as and for the purposes set forth.

WILFRED C. LYMAN.

Witnesses:

EMIL H. FROMMANN,
ERNST JELSENN.



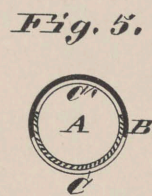
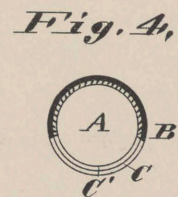
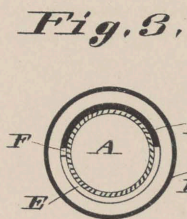
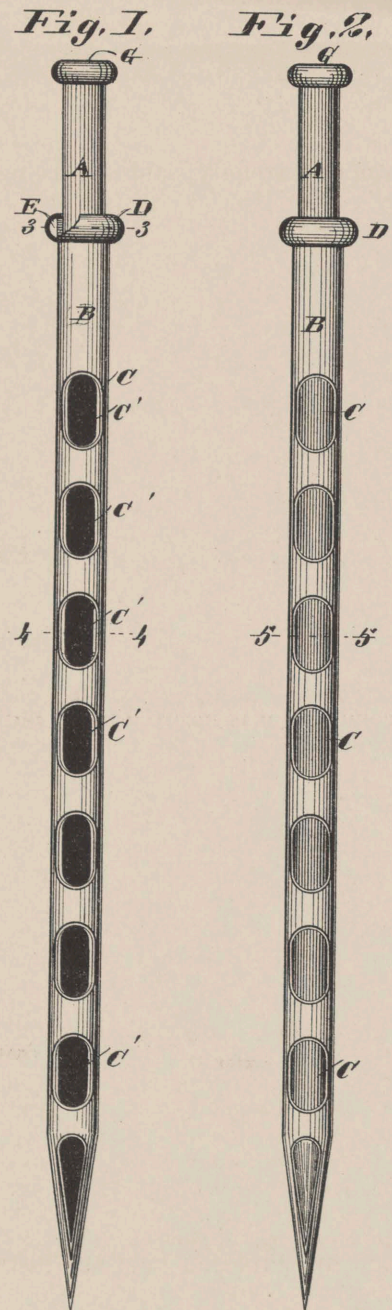
(No Model.)

T. MEYLOR.

GRAIN TRIER.

No. 323,057.

Patented July 28, 1885.



Attest
 Edward Stern
 Geo. L. Wheelock

Inventor:
 Thos Meylor
 By Wright Bros
 Atty's

UNITED STATES PATENT OFFICE.

THOMAS MEYLOR, OF ST. LOUIS, MISSOURI.

GRAIN-TRIER.

SPECIFICATION forming part of Letters Patent No. 323,057, dated July 28, 1885.

Application filed November 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MEYLOR, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Grain-Triers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side view of my grain-trier with its apertures open for the reception of the test samples, and with part of the coupling-ring broken away to show the inclosed slot or groove within which the gage-pin works. Fig. 2 is a similar view with the apertures closed. Fig. 3 is a transverse section on line 3 3, Fig. 1. Fig. 4 is a transverse section on the line 4 4, Fig. 1; and Fig. 5 is a similar view on line 5 5, Fig. 2.

My invention relates to that class of grain-samplers which consist of two tubes, one fitted snugly, but so as to be capable of partial rotation within the other, and both provided with a series of apertures or ports which are adapted to be closed or opened at will by simply rotating one of said tubes. In samplers of this character one of the tubes is usually provided with a transverse slot, while the other is provided with a pin projecting into said slot, whereby the relative rotation of the two tubes is limited. It has been found in practice that small particles of matter fall in this slot and prevent the proper working of the instrument.

The object of my invention is therefore to remedy this imperfection; and to this end my said invention consists in securing to one of said tubes an annular collar or ring, which covers the guide slot and pin and effectually prevents the choking of the instrument from the above-named cause.

A represents the inner tube of my grain-trier, and B the outer tube.

C represents the ports or apertures in the outer tube, and C' those in the inner one, said apertures being so arranged that they can be made to register by the operator, both for the entrance of the sample into the trier and for the inspection of the same.

D is the coupling-ring, secured by screw-threads or otherwise to the outer tube.

E is a slot cut through the tube B near its

upper extremity, said slot being covered by the ring D when the parts are secured together.

F is a stop or gage pin, which is secured to the tube A and projects into the slot E. This gage-pin answers a double purpose—namely, preventing the separation of the tubes, and gaging or regulating the extent of the rotation of the one within the other.

G is the outlet of the bore at the upper end of the tube A, through which the sample can be run when desired.

When the ports or apertures of the two tubes register, as in Figs. 1 and 4, the stop-pin F will be at one extremity of its slot E, and when said ports do not register, as in Fig. 5, the pin F will occupy the other extremity of its slot.

To use the instrument, the tubes are turned relatively to each other until the apertures are closed, as shown in Figs. 2 and 5, in which condition it is inserted in the bulk of grain or other material to be sampled, which may be in a sack, barrel, ear, the hold of a vessel, or elsewhere. When inserted the tubes are again turned relatively to each other in the reverse direction until their apertures register, as represented in Figs. 1 and 4, which permits the grain to run freely into the empty tube, the air displaced thereby escaping at the aperture G, thereby taking a sample of the grain at each opening throughout the entire length of the tube. The tube being full, the two are again rotated relatively to each in a reverse direction, thereby closing the ports so that in the withdrawal of the instrument the samples thus taken may not become intermixed with the grain through which it passes.

When the instrument is removed the sample can either be run out at the aperture G, (by inversion of the tube,) or, if the inspector requires a more perfect exhibit, he may close said aperture and hold the instrument in a horizontal position with the apertures on top in the tube B, so that when the tube A is rotated therein until the ports register he can readily see the varying condition, if any, of the samples. He can thus test not only the size and condition of the grain in any particular part or parts of its bulk or whether the top filling is a fair sample of that below, but by inverting the instrument and permitting

the sample to run out at the aperture G he has a fair average sample of all the grain in the bulk.

From Fig. 1 it will be seen that the ring D
5 completely incloses the gage-pin F and the slot E within which it works. This is found to be a very important feature, as by its use small seeds or grit cannot become lodged therein and thereby interfere with the free operation
10 of the instrument.

It will be seen that by unscrewing the coupling-ring D the instrument can readily be taken apart for cleaning, removing obstructions, or for any other purpose desired.

Having thus described my invention, the 15 following is what I claim as new therein and desire to secure by Letters Patent—

The combination, with the outer tube, B, having the slot E near its extremity, and the inner tube, A, having the pin F occupying 20 said slot, of the collar D, covering said slot and pin, substantially as set forth.

THOMAS MEYLOR.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.

MUNN & CO.
Patent Attorneys
361 BROADWAY,
NEW YORK

RECEIVED
MUNN & CO.
PATENT ATTORNEYS
361 BROADWAY
NEW YORK

UNITED STATES PATENT OFFICE.

FLORENTINE LESLIE KELLOGG, OF SANTA BARBARA, CALIFORNIA.

DIAL FOR SPRING-SCALES.

SPECIFICATION forming part of Letters Patent No. 667,018, dated January 29, 1901.

Application filed April 5, 1900. Serial No. 11,667. (No model.)

To all whom it may concern:

Be it known that I, FLORENTINE LESLIE KELLOGG, a citizen of the United States, and a resident of Santa Barbara, in the county of Santa Barbara and State of California, have invented certain new and useful Improvements in Weighing-Scales, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in weighing-scales whereby the scales indicate the weight of the goods contained in a receptacle placed with the goods in weighing position on the scales.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the improvement with the empty receptacle in position and the dial shifted ready for weighing the goods placed in the receptacle. Fig. 2 is an enlarged front view of the same with the dial in a normal position. Fig. 3 is a side elevation of the same with part in section. Fig. 4 is a sectional front view of the same on the line 4-4 in Fig. 3. Fig. 5 is a face view of a modified form of the improvement with part in section, and Fig. 6 is a similar view of another modified form of the improvement.

The weighing-scales illustrated in Figs. 1, 2, and 3 have a casing A, containing the usual weighing mechanism, (not shown,) a platform B extending above the casing for receiving a receptacle C, adapted to contain the goods or articles to be weighed. The weighing mechanism is also provided with the usual pointer D, secured on a spindle E and indicating on the graduation F' on a dial F, mounted to turn on a bearing G concentric with the spindle E and secured to or forming part of the casing A. A washer H engages the front face of the dial F, and a nut I, screwing on the threaded end of the bearing G, serves to force the washer H with more or less force in contact with the dial F, so as to allow turning of the latter on its bearing, but prevent accidental turn-

ing of said dial. On the front face of the dial F are formed small projections F² out of the path of the pointer D and adapted to be taken hold of by the operator to turn the dial on its bearing for the purpose presently to be described.

When it is desired to weigh, for instance, potatoes contained in the receptacle C, the empty receptacle is first placed on the platform B, the dial F being in a normal zero position, as indicated in Fig. 2. The weight of the receptacle C causes the pointer D to turn and indicate on the graduation F' the weight of said receptacle, and when this is done the operator turns the dial F so as to bring the zero-mark to the pointer D, as illustrated in Fig. 1. The receptacle C is now filled with potatoes or other goods to be weighed, and the pointer D is thereby caused to turn, the reading on the graduation F' at the point where the pointer comes to rest indicating the weight of the potatoes placed in the receptacle C.

From the foregoing it is evident that by shifting the dial F as described after the empty receptacle is in position the weight of the receptacle is automatically deducted from the total weight of the receptacle and its contents.

I do not limit myself to the particular mounting described of the dial on the casing A, as it is evident that the same may be varied. For instance, as shown in Fig. 5, the bearing G is dispensed with and the dial F³ is formed with segmental slots F⁴, engaged by screws or pins F⁵, secured to the casing A of the scales. By this arrangement the dial can be turned on the pins a sufficient distance for the weights of ordinary receptacles used on the scales.

As shown in Fig. 6, the dial F⁶ is mounted in bearings F⁷, secured to the casing and engaging the periphery and face of the dial, so that the latter can be turned for the purpose previously described. It is expressly understood that the weighing mechanism, the pointer, and platform of ordinary scales are not disturbed in the least, and only the dial is mounted to be manually turned, for the purpose above explained.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A weighing-scale, comprising a casing, a platform, a spindle projecting from the casing, a pointer on the end of the spindle, a fixed bearing on the spindle and having a screw-threaded outer end, a dial mounted to turn upon the bearing and upon which the pointer indicates, a washer on the bearing and engaging the dial, and a nut screwing on the said bearing and by means of which the washer can be forced with more or less pressure against the dial, substantially as described.

2. The combination with a casing, the pointer-spindle, and pointer thereon, of a bearing on the said spindle and having a screw-threaded outer end, a dial upon which the pointer in-

dicates, mounted on the bearing and provided with projections on its front face, a washer on the bearing and engaging the dial, and a nut screwing on the said bearing, whereby the dial will be so mounted that it can be readily turned, but prevented from accidental turning, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FLORENTINE LESLIE KELLOGG.

Witnesses:

JEROME T. JOHNSON,
DARWIN W. PIERCE

United States Patent

Office, Patent Attorneys

361 BROADWAY,
NEW YORK.

RANSOM RATHBONE, OF NEW YORK, N. Y.

Letters Patent No. 72,903, dated December 31, 1867.

IMPROVEMENT IN GUN-WAD PUNCHES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RANSOM RATHBONE, of the city, county, and State of New York, have invented a certain new and useful Punch for Cutting and Greasing Wads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a side elevation of a wad-punch constructed according to my improvement, in connection with a stock or carrier thereto.

Figure 2, a vertical section of the same at upright angles to fig. 1; and

Figure 3, a horizontal section thereof through the line *xx* in fig. 1.

Like letters indicate corresponding parts throughout the several figures.

The nature of my invention consists in a punch for cutting gun-wads, provided with perforations or ways at or near its delivery-end, and made to operate in combination with an oil or grease-box in such manner as that the wads, on or as they are being delivered from the punch, are greased on their edges by the oil or grease drawn or caused to flow from the box, through the ways or perforations of the punch, and whereby the wads are cut and greased by or during the reciprocating action of the punch.

Referring to the accompanying drawing, A represents the tubular wad-punch, connected, say, with a vertically-reciprocating stock or carrier, B, and operating to cut the wads from the sheet, and to pass or deliver them successively in an upward direction through the punch, as well known and understood in the action of other wad-punches, and as represented by red lines in fig. 2. The feed of the sheet, which may be made of any suitable fibrous material, to render absorbent the edges of the wads, and means for working the punch, may be variously devised and arranged.

As represented in the accompanying drawing, the upper end or portion of the wad-punch A, which may be extended for the purpose, is provided with a series of lateral perforations, *a*, in communication with a surrounding grease-box or chamber, C, that may be connected, at an aperture, *b*, with any suitable supply-tank containing the oil or grease, and which may either be made to reciprocate with the carrier B, or may be stationary and coupled to the box C by any flexible or jointed tubular attachment. The box C may also be stationary, if desired, and the punch made to reciprocate within or through it, with the ways or perforations *a* under cover of the box, but it is here represented as an attachment to the punch or its carrier, and reciprocating with the same. The lubricating ways or perforations *a*, for transmitting the oil or grease to the edges of the wads, may be of any desired form, size, and number, but I prefer to make them circular apertures arranged in rows, one below the other, so as to break joint as it were with each other.

From this description it will be obvious that as the punch A is reciprocated in the ordinary rapid manner, the wads, as they are cut by it, will in succession be forced upwardly through the punch and out at its top end, and that in being thus delivered, the edges of the wads will absorb oil or grease oozing or issuing from the perforations *a*. In this way are the wads formed and greased on their edges by or during the reciprocating action of the punch, and delivered therefrom as perfect or finished articles of the kind.

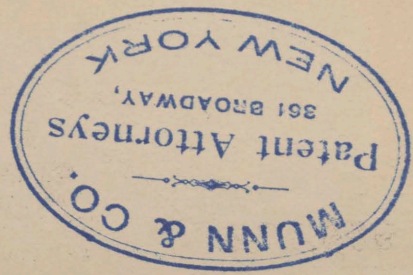
What I claim as my invention, and desire to secure by Letters Patent, is—

A wad-punch, provided at or near its delivery-end with lubricating ways or perforations, for operating in combination with an outside supply-chamber or box, from which the oil or grease is drawn or fed to the interior of the punch, for greasing the edges of the wads as or before they are delivered from the punch, substantially as specified.

RANSOM RATHBONE.

Witnesses:

HENRY T. BROWN,
J. W. COOMBS.



Patented May 17 1910



[Faint, illegible handwritten text and signatures, possibly including names like 'Munn & Co.' and 'Patent Attorneys']

H. B. PUFFENBERGER.
 SPRING SCALE WEIGHING DEVICE.
 APPLICATION FILED SEPT. 20, 1909.

958,172.

Patented May 17, 1910.

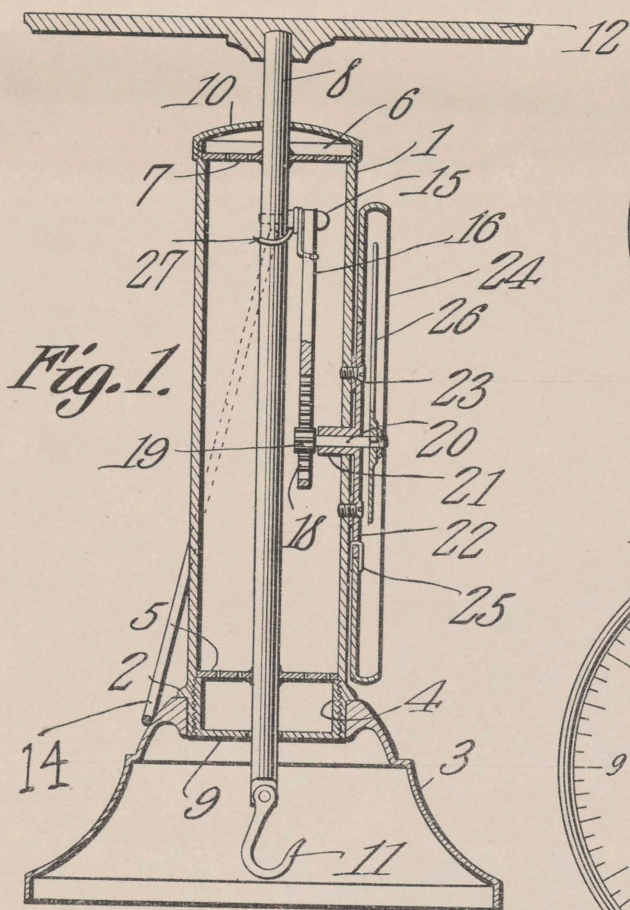


Fig. 1.

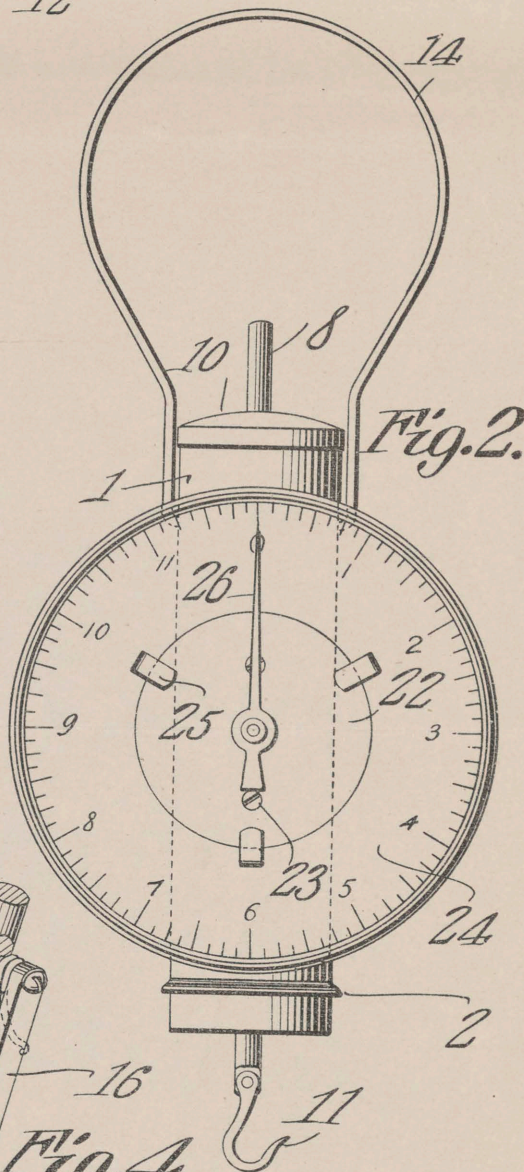


Fig. 2.

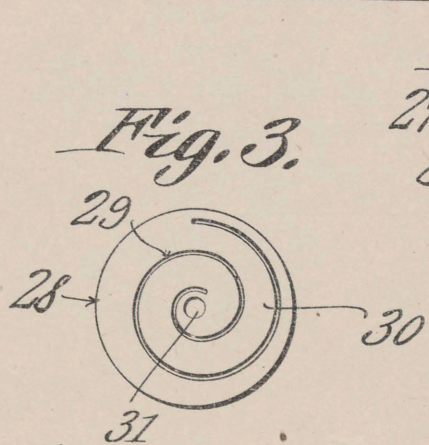


Fig. 3.

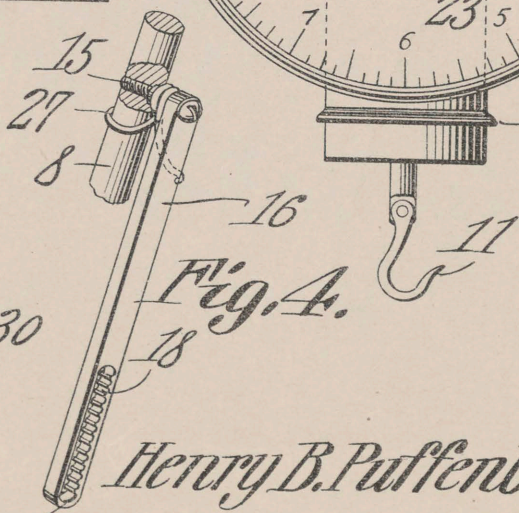


Fig. 4.

Witnesses
E. J. Stewart
Mason B. Lawton

Inventor
Henry B. Puffenberger
 By *C. A. Snow & Co.*
 Attorneys

UNITED STATES PATENT OFFICE.

HENRY B. PUFFENBERGER, OF TIFFIN, OHIO.

SPRING-SCALE WEIGHING DEVICE.

958,172.

Specification of Letters Patent. Patented May 17, 1910.

Application filed September 20, 1909. Serial No. 518,537.

To all whom it may concern:

Be it known that I, HENRY B. PUFFENBERGER, a citizen of the United States, residing at Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Spring-Scale Weighing Device, of which the following is a specification.

The objects of the invention are, generally, the provision in a merchantable form, of a device of the class above mentioned, which shall be inexpensive to manufacture, facile in operation, and devoid of complicated parts; specifically, the provision of a scale adapted to be mounted, removably, upon a base, to serve as an anteriorly supported weighing device, and, at the same time, adapted to be removed from the base to serve as a superiorly supported weighing device; the provision of a spring of novel and improved construction adapted to be used in a weighing device; and the assembling of the component parts of the structure in a novel manner to form an efficient and convenient scale; other and further objects being made manifest hereinafter as the description of the invention progresses.

The invention consists in the novel construction and arrangement of parts hereinafter described, delineated in the accompanying drawings, and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive features of the device, it being understood, that, within the scope of what hereinafter thus is claimed, divers changes in the form, proportions, size, and minor details of the structure may be made, without departing from the spirit or sacrificing any of the advantages of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the several figures of the drawings.

In the accompanying drawings;—Figure 1 is a vertical longitudinal section of the scale, the same being mounted upon its supporting base; Fig. 2 is a front elevation of the scale, the same having been removed from the base and adapted to be used as a suspended weighing device; Fig. 3 is a top plan of one of the springs; Fig. 4 is a fragmental perspective designed to show the arm, and the means whereby the same is connected with the scale bar.

In carrying out my invention, I provide

primarily, a tubular casing 1, provided, adjacent its lower end, with a circumscribing shoulder 2, adapted to contact with the upper end of a base into which the case 1 is adapted to be removably inserted. Mounted in the lower end of the case 1, is a sleeve 4, supporting upon its upper edge, the lower spring 5, the same being secured in any desired manner to the wall of the case 1. The upper end of the case 1 is cut away to form a shoulder 6 extending into the interior of the case, and upon this shoulder 6 is mounted the upper spring 7, the spring 7, like the spring 5, being secured to the wall of the case 1.

Axially mounted in the case 1, and adapted to reciprocate longitudinally therein, is a scale bar 8, which is secured to the springs 5 and 7. The scale bar 8 extends terminally beyond the case 1 and carries upon its upper end, removably, a platform 12, the lower end of the scale bar 8 being provided with a pivotally mounted suspension member, in the present instance shown in the form of a hook 11, the length of the hook 11 being such that it is adapted to be held within the base 3, without coming in contact with the counter, or other support, upon which the base 3 sets. The bottom 9 of the sleeve 4 is provided with an axial opening to receive the scale bar 8, and the lid 10 which is mounted upon the upper end of the case 1 is provided with a similar opening, the members 9 and 10 thus serving to receive the scale bar for reciprocation. A bail 14 is pivotally connected with the case 1, and adapted to descend in an out-of-the-way position, as shown in Fig. 1. The scale bar 8 is provided with a radially extending pintle 15, upon which is pivoted an arm 16, provided at its lower end with a slot 17 adapted to inclose a pinion 19 which is secured to the inner end of a shaft 20. The arm 16, in one of the side walls of the slot 17, is provided with a rack 18 adapted to mesh with the pinion 19, the engagement between the rack 18 and the pinion 19 being maintained, when the device is in operation, by means of a spring 27, the intermediate portion of which is wrapped about the pintle 15, one end of the spring being in engagement with the scale bar 8, the other end thereof being in engagement with the arm 16, below the point of suspension.

Secured to the outer face of the case 1, is a plate 22, provided with a bearing 21,

in which the shaft 20 is journaled for rotation. The plate 22 may be secured to the case 1 by means of screws 23 or other common means adapted to a like end. Surrounding the plate 22 and located in a common plane therewith, is an annular dial 24, the plate 22 being provided with clips 25, adapted to hold the dial 24 against displacement from the plate 22, without, however, interfering with the rotation of the dial 24 upon the plate. The outer end of the shaft 20 carries a hand 26, coöperating with graduations upon the dial, to indicate the weight.

Referring to Fig. 3, wherein, the springs 5 and 7 are shown in detail, it will be seen that these elements are fashioned from a flat plate 28, provided with a spiral slot 29, located entirely within the contour of the plate, and determining, within the plate, a spiral tongue 30, the extremity of which is provided with an opening 31, adapted to receive the scale bar 8.

The operation of the device is as follows:—Referring to Fig. 1, it will be seen that when the article to be weighed is superposed upon the platform 12, the scale bar 8 will move longitudinally within the case 1, the tongue 30 of the springs 5 and 7 being drawn downwardly and the members 9 and 10 serving as guides to direct the movement of the scale bar 8. While the scale bar 8 is thus being depressed the spring 27 will hold the rack 18 in mesh with the pinion 19, causing a rotation of the shaft 20, whereby the hand 26 will indicate the weight upon the dial 24. If desired, the bail 14 may be seized, the platform 12 being removed, and turned upwardly into the position shown in Fig. 2, the case 1 being lifted and the base 3, the hook 11 then being operated to suspend the article which is to be weighed.

By mounting the dial 24 rotatably upon the plate 22, it is possible to move the dial, for the purpose of setting off tare. By inclosing the pinion 19 within the slot 17, should the spring 27 break, the device would still operate, although, obviously, less satisfactorily owing to the friction between the teeth of the pinion 19 and the smooth wall of the slot 17. The form given to the springs 5 and 7 is noteworthy, since thereby an inexpensive yet efficient resilient member is produced. It is considered of advantage, that the slot 29 is located entirely

within the contour of the plate 28, since, by this construction, the periphery of the plate is maintained unbroken, thereby making more secure, the mounting of the springs 5 and 7 within the case 1.

From the foregoing, it will be seen that there is provided a simple and efficient scale, adapted to fulfil a wide variety of requirements.

Having thus described my invention, what I claim as new, and desire to protect by Letters Patent is:—

1. In a device of the class described, a case; a flat plate secured transversely in the case and having a slot terminating within the contour of the plate and determining a spiral tongue within the plate; and weighing mechanism connected with the end of the tongue.

2. In a device of the class described, a case; springs connected with the interior of the case adjacent the ends thereof; a scale bar extended axially through the casing and secured to the springs; a base arranged to receive removably, one end of the case; a suspension member secured to one end of the scale bar and arranged to be housed within the base; a platform removably mounted on the other end of the scale beam; and weight indicating mechanism operatively connected with the scale bar.

3. In a device of the class described, a case; a shaft rotatably mounted within the case, a pinion attached to the shaft within the case; an arm having a rack to engage the pinion; a scale bar mounted for reciprocation in the case, a pivot element connecting the arm with the bar; a resilient member having its intermediate portion wrapped about the pivot element between the arm and the bar, one end of the resilient member being engaged by the bar, and the other end thereof being engaged by the arm to hold the rack in mesh with the pinion; weight receiving means carried by the scale bar; and weight indicating means connected with the shaft.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HENRY B. PUFFENBERGER.

Witnesses:

F. R. MANN,
GEO. N. YOUNG.



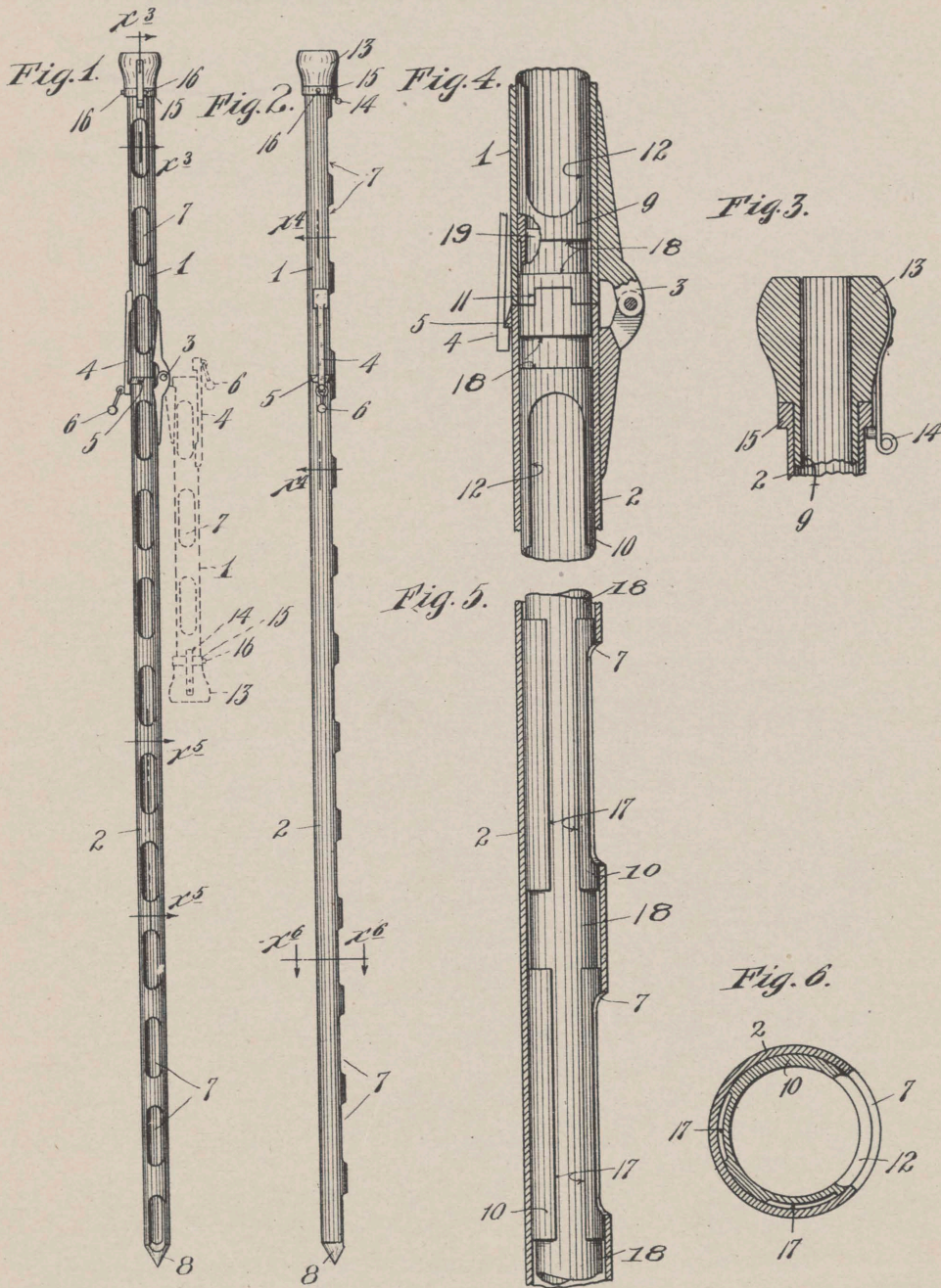
[Faint, illegible handwritten text or scribbles]

No. 855,849.

PATENTED JUNE 4, 1907.

H. M. GRAY.
GRAIN SAMPLER.

APPLICATION FILED FEB. 23, 1906.



Witnesses.

E. W. Jeppesen.

A. H. Opsahl.

Inventor:
Hubert M. Gray.
By his Attorneys.

Williamson Muckart

UNITED STATES PATENT OFFICE.

HUBERT M. GRAY, OF MINNEAPOLIS, MINNESOTA.

GRAIN-SAMPLER.

No. 855,849.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed February 23, 1906. Serial No. 302,407.

To all whom it may concern:

Be it known that I, HUBERT M. GRAY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Grain-Samplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to grain samplers for use in taking samples of grain from cars, and has for its especial object to improve the same, in the several particulars hereinafter noted.

The invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In large or heavily loaded cars, it is difficult to secure a sample of grain from the bottom of the cars. The distance between the top of the load and the top of the car will not permit the use of a rigid or integrally formed sampler long enough to reach through the body of grain. Some shippers of grain, being aware of this fact, fill in on the bottom of the car anywhere from one to two feet of grain of an inferior quality. This being the case, it is very desirable that the party receiving the car be able to secure samples of grain lying near the bottom of the car. It is also almost impossible to secure samples of flax seed with the samplers now in use, inasmuch as flax seed will work in between the outer and inner tubes of the sampler thereby causing them to bind, so that it becomes difficult to rotate the tubes with respect to each other. The only way to remove the flax seed lodged between said tubes is to separate the inner tube from the outer one, and then scrape the tubes. This of course, causes much delay and annoyance.

One feature of my invention consists of making a grain sampler in sections, so that the first section may be first forced down into the load of grain, and then by securing a second section to the first section, the complete sampler may then be forced down through the grain until its lower end touches the bottom of the car.

Another feature consists in grooving the tubes or sections of the sampler, so that they

will become self-cleaning, discharging flax seed or any dirt that may work in between the tubes or sections.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a front elevation showing the improved grain sampler, with some parts in dotted position. Fig. 2 is a side elevation showing the improved grain sampler. Fig. 3 is a vertical section on an enlarged scale, taken through a portion of the sampler on the line x^3x^3 of Fig. 1. Fig. 4 is a vertical section on an enlarged scale, taken through a portion of the outer tube of the sampler on the line x^4x^4 Fig. 2, and showing a portion of the inner tube in full. Fig. 5 is a vertical section on an enlarged scale, taken through a portion of the outer tube of the sampler on the line x^5x^5 of Fig. 1, and showing a portion of the inner tube in full; and, Fig. 6 is a horizontal section on an enlarged scale taken on the line x^6x^6 of Fig. 2.

In the drawings the numeral 1 indicates the upper section, and the numeral 2, the lower section of the outer tube of the improved sampler. Said sections being secured together by a hinge 3, for swinging movements, as shown by dotted line in Fig. 1. A spring finger 4 secured near the bottom of the upper section 1 has locking engagement with a lug 5 secured to top of the lower section 2. A finger piece 6 is pivoted to the lower end of the spring finger 4, to enable the operator to withdraw the said spring finger out of engagement with the lug 5. Each of the sections 1 and 2 are provided with ports, or openings 7 through which the grain may flow. The lower end of the section 2 terminates in a sharp or conical shaped point 8.

A sectional inner tube is mounted within the sections 1 and 2 of the outer tube; the numeral 9 indicates the upper section, and the numeral 10 the lower section of said inner tube. An interlocking clutch joint formed in the abutting ends of said sections 9 and 10, lock said sections together for common rotation within the sections 1 and 2 of the said outer tube. The sections 9 and 10 of the inner tube are also provided with ports or openings 12, which are adapted to be

moved into and out of registration with the corresponding ports or openings of the outer tube.

The upper end of section 9 of the inner tube terminates in a hand piece 13. The operator by taking hold of said hand piece 13 with one hand, and with the other hand take hold of section 1, may rotate the tubes with respect to each other. A spring latch 14 secured to the hand piece 13 has locking engagement with a flange 15 formed at the upper end of section 1 of the outer tube to prevent the sections of the outer and inner tube from moving end wise with respect to each other, while said sections are being rotated, and also to prevent section 9 from dropping out of section 1, when the same is turned into the position indicated by dotted lines in Fig. 1.

A pair of stop pins 16 projecting from the flange 15 of section 1 are located on either side of the spring latch 14, to limit the rotation of the tubes with respect to each other, and to enable the operator to tell when the ports 7 and 12 are in or out of registration one with the other, when the sections are submerged in the grain.

The sections 9 and 10 of the inner tube are formed with grooves 17 preferably (as shown) two in number running from the top to the bottom of said sections. Any number of grooves, however, may be used. As shown, wide grooves 18 run completely around the sections 9 and 10 and are located between the ports or openings 12 of said sections, connecting the grooves 17 one with the other.

The operation of the improved sampler may be briefly stated as follows; the outer and inner tubes are first rotated with respect to each other, so that the ports 7 and 12 are out of registration one with the other. Then by lifting the spring finger 4 out of engagement with lug 5, section 1 of the outer tube may be swung on the hinge 3 into a position indicated by dotted lines in Fig. 1. By this movement sections 9 and 10 of the inner tube will be separated at the clutch joint 11, and the section 9 will be carried with section 1. The sampler is now of such length that it may be inserted between the top of the load and the top of the car. The sampler is then forced down into the grain almost the entire length of section 1. This will give sufficient head room, so that section 1 may be turned up into the position indicated by full lines shown in Figs. 1 and 2 of the drawings. The sampler may now be forced the balance of the way through the grain until the lower end of section 1 strikes the bottom of the car. Then the inner and outer tubes are rotated to open up the ports 7 and 12. The grain will then flow through the said ports and fill the sampler. After sufficient time has been

allowed for the sampler to be completely filled with grain, the inner and outer tubes are again rotated with respect to each other, and the ports 7 and 12 moved out of registration one with the other. The sampler may now be partly withdrawn from the grain, first by lifting the sampler about half way out of the grain, this will give sufficient room, to allow section 1 to be swung again, into the position indicated by dotted lines in Fig. 1. The sample of grain held within the upper section of the sampler may be at this time emptied into a small sack for that purpose. After this is done the sampler may be completely withdrawn from the load of grain, and the balance of the sample of grain held within the lower section of the sampler may be emptied into the same sack, thus giving a complete sample of grain from the top to the bottom of the car.

When the improved sampler is to be used in sampling flax seed, any seed that may work in between the inner and outer tubes, as the tubes are rotated with respect to each other, will be carried into the grooves 17, and through the said grooves will be carried down to and through the bottom of the sampler. In case the flax seed should pack within the grooves 17, the spring 14 may be lifted, so as to clear the pins 16, and the tubes rotated with respect to each other so that the grooves 17 will come in succession in line with the ports 7. In this way any flax seed held within the grooves, will either fall out or may be scraped out, without having to separate the tubes. Preferably a cork or disk like plug 19 may be inserted in the lower end of section 9 to prevent the grain from running out when the upper section of the sampler is being swung into the position indicated by dotted lines in Fig. 1.

What I claim is;

1. A grain sampler, having inner and outer tubes formed with ports that are adapted to be moved into and out of registration by the rotation of one of said tubes with respect to the other, and which tubes are formed in sections, the sections of the outer tube being capable of separation and the sections of the inner tube having locking engagement one with the other, so that they may be rotated together, substantially as described.

2. A grain sampler, having inner and outer tubes formed with ports that are adapted to be moved into and out of registration by the rotation of one of said tubes with respect to the other, said tubes being formed in sections, a hinge joint connecting the section of the outer tube, and the sections of the inner tube having locking engagement one with the other so that they may be rotated together, substantially as described.

3. A grain sampler, having inner and outer tubes formed with ports, that are adapted to

be moved into and out of registration by the rotation of one of said tubes with respect to the other, said tubes being formed in sections, a hinged joint connecting the sections of the outer tube means for locking said sections in an alined position, and the section of the inner tube having locking engagement one with the other, so that they may be rotated together, substantially as described.

4. A grain sampler, having inner and outer tubes formed with ports that are adapted to be moved into and out of registration by the rotation of one of said tubes with respect to the other, said tubes being formed in sections, a hinged joint connecting the sections of the outer tube, means of locking said section in an alined position, the sections of the inner tube having locking engagement one with the other, so that they may be rotated together, and means for preventing said inner and outer tubes from moving endwise with respect to each other, substantially as described.

5. A grain sampler, made up of outer and inner tubes, having ports adapted to be moved into and out of registration by the rotation of one of the tubes with respect to each other, and one of which tubes is provided with a longitudinal clearance groove adapted to catch and discharge flax seed, and other small particles, substantially as described.

6. A grain sampler, having an inner tube formed with ports and grooves, and an outer tube formed with ports that are adapted to be moved into and out of registration with the ports and grooves of its inner tube, by the rotation of the said tubes with respect to each other, substantially as described.

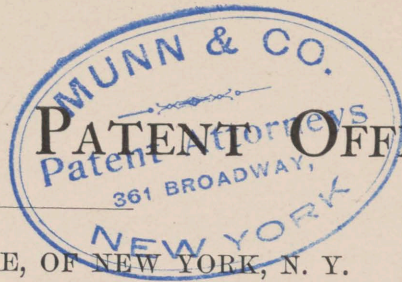
In testimony whereof I affix my signature in presence of two witnesses.

HUBERT M. GRAY.

Witnesses:

H. D. KILGORE,
F. D. MERCHANT.

UNITED STATES PATENT OFFICE.



GIUSEPPE TAGLIABUE, OF NEW YORK, N. Y.

IMPROVED INSTRUMENT FOR ASCERTAINING THE AMOUNT OF WATER, &c., IN BARRELS OF OIL, &c.

Specification forming part of Letters Patent No. 38,427, dated May 5, 1863.

To all whom it may concern:

Be it known that I, GIUSEPPE TAGLIABUE, of New York, N. Y., have invented an Improvement in Instruments for Ascertaining the Amount of Water, &c., in Barrels of Oil, &c., of which the following is a specification.

The following is a description of my improved instrument, with drawings annexed, and lettered from A to L, the letters in the description referring to the drawings.

Figure 1 is an outside view, and Figs. 2 and 3 sections.

A N is a quadrangular tube, constructed of metal and glass, A being the metal and N the glass, (the length of the tube is sufficient to reach through the bung-hole of a barrel or hogshead to the opposite side,) with a cylindrical attachment, C, at the bottom of the tube, and a valve-plate, G, screwed into the lower end of the cylindrical attachment C.

F is a valve, with an arm, E, working on a pivot. The arm E of the valve F is acted upon by the rod D, the rod D reaching to the top of the tube and through the cover B, and is worked by the pressure of the thumb or finger of the person wishing to ascertain the quality of the liquids in the barrel or hogshead under inspection. The glass sides N are held in their place by recesses in the metallic part of the tube, and are made tight by cement, &c. The metallic sides of the tube are kept in place by the cross-bars H H'. On the glass sides are marked lines and figures 1 2 3 4 5, &c., to designate the quantity of imperfect or defective liquid that is in the bottom of the hogshead or barrel.

B is a cover for the tube attached to the tube with screws for the purpose of taking it off the tube when necessary with handles J J' and a valve and arm, I. In the arm I is a hole through which the rod D extends, and

on the top of the rod is a knob, which, on being pressed with the finger, opens the valves F and I simultaneously, and on taking off the pressure the springs K and L close the valves F and I.

The glass sides may be graduated to any desired scale.

The manner of using the instrument is as follows: The bung is taken out of the barrel or hogshead. The instrument is then taken hold of by putting two fingers in the handles J J', and pressing on the knob of the rod D, when both valves will then be open. The instrument is then put into the bung-hole of the barrel or hogshead and thrust slowly down to the lower side of the barrel or hogshead, the valve F allowing the liquid in the barrel or hogshead to flow up into the tube, the valve I allowing the air in the tube to escape. The pressure is now taken off the knob of the rod D and both valves will be closed. The instrument is now lifted out and the liquids will be seen by looking through the glass sides of the tube exactly in the condition that they are in the various depths of the hogshead or barrel, and the figures on the glass sides will show what quantity of liquids are imperfect or defective.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The tube constructed of metal and glass.
2. The valves at top and bottom acted on by one rod, and opening and closing together.
3. The graduated scale on the glass sides of the tube, constructed as aforesaid.
4. The whole, constructed substantially as and for the purpose described.

GIUSEPPE TAGLIABUE.

Witnesses:

WARREN ROWELL,
R. H. SAUNDERS.

UNITED STATES PATENT OFFICE

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X

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[Handwritten scribble]

No. 655,409.

Patented Aug. 7, 1900.

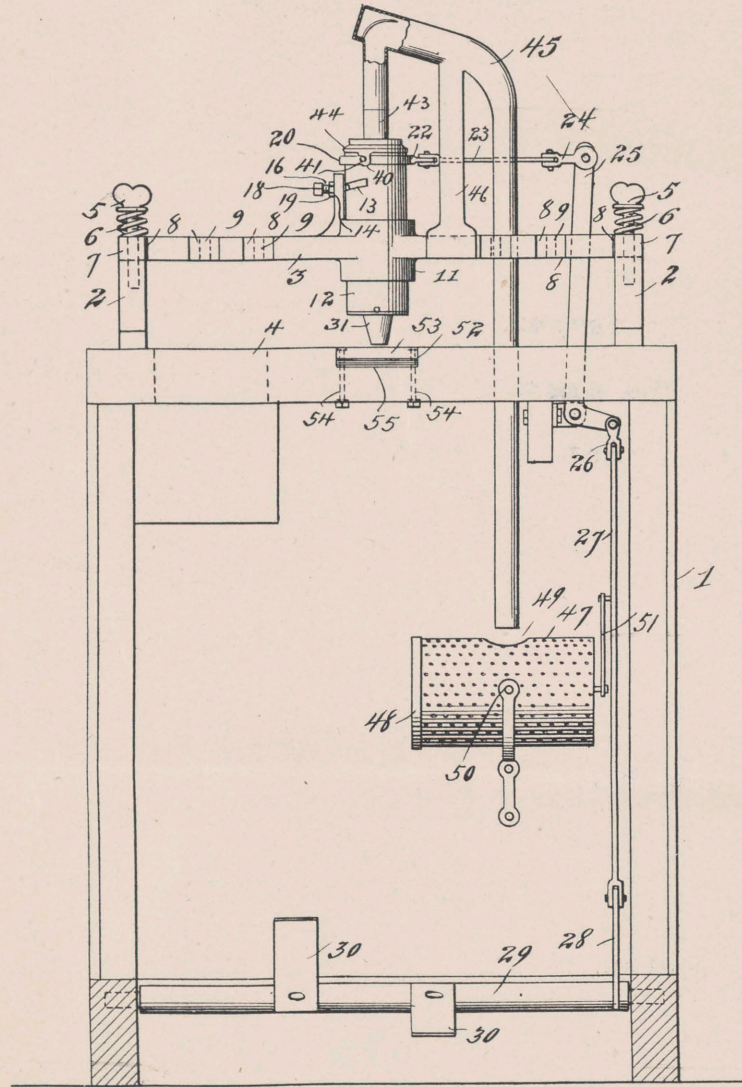
T. M. MULKERINS.
APPARATUS FOR CUTTING ALTAR BREAD.

(Application filed Sept. 14, 1896.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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No. 655,409.

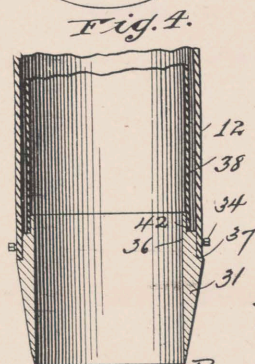
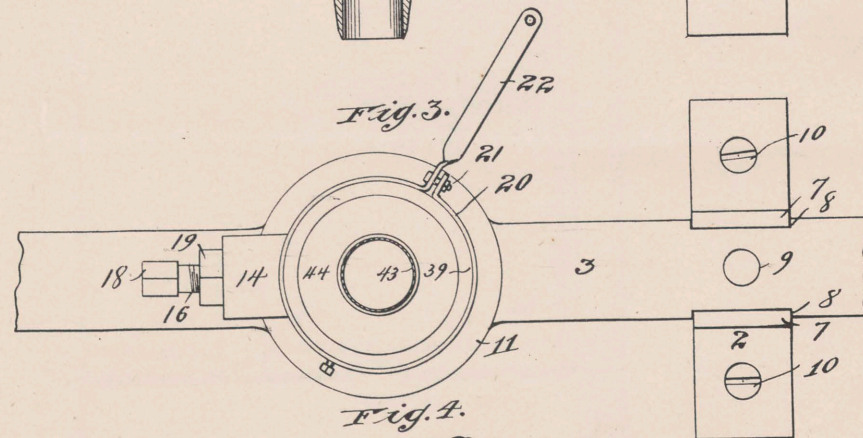
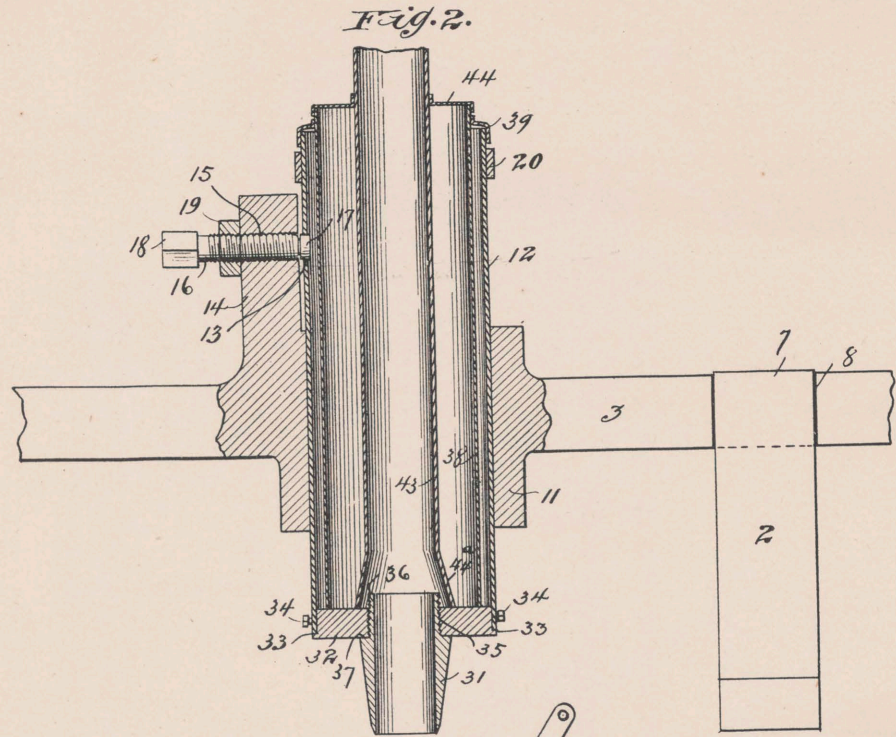
Patented Aug. 7, 1900.

T. M. MULKERINS.
APPARATUS FOR CUTTING ALTAR BREAD.

(Application filed Sept. 14, 1899.)

3 Sheets—Sheet 2.

(No Model.)



Witnesses,
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Frederick Goodwin

Inventor,
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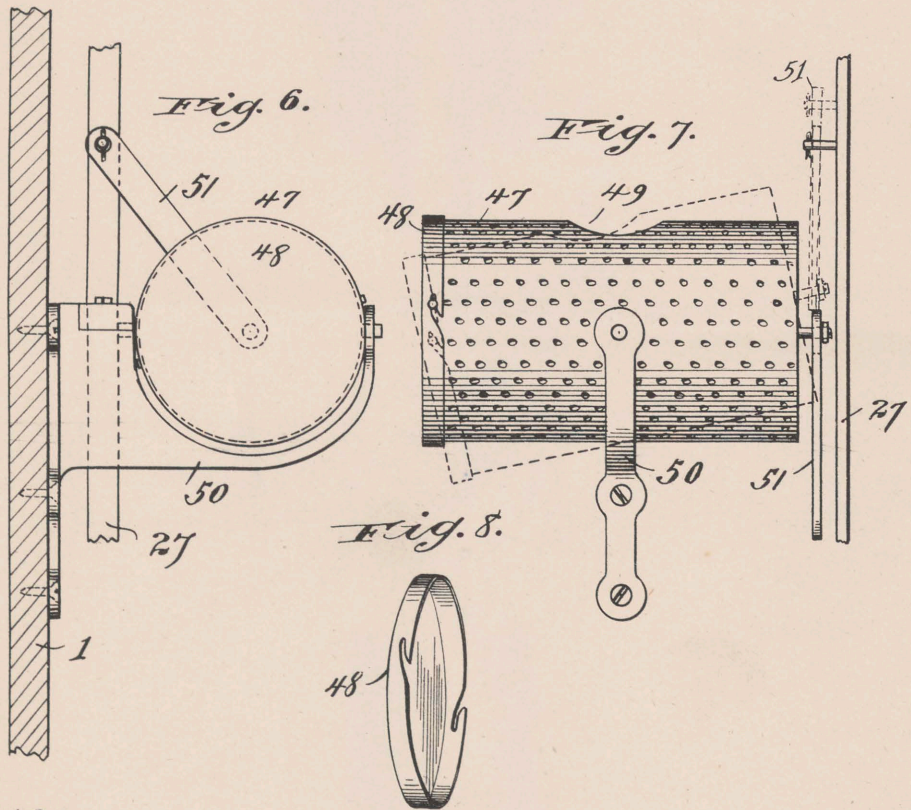
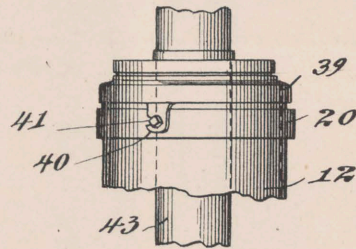
T. M. MULKERINS.
APPARATUS FOR CUTTING ALTAR BREAD.

(No Model.)

(Application filed Sept. 14, 1899.)

3 Sheets—Sheet 3.

Fig. 5.



Witnesses,
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Frederick J. Jordan

Inventor,
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UNITED STATES PATENT OFFICE.

THOMAS M. MULKERINS, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHN HANLEY, OF ST. JOSEPH, MICHIGAN.

APPARATUS FOR CUTTING ALTAR-BREAD.

SPECIFICATION forming part of Letters Patent No. 655,409, dated August 7, 1900.

Application filed September 14, 1899. Serial No. 730,436. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. MULKERINS, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Cutting Altar-Bread, of which the following is a specification.

This invention relates to apparatus for cutting altar-bread, and has for its object to provide a construction whereby sheets of bread may be readily and neatly cut into circular disks or wafers.

The invention has for its object more particularly to provide an efficient mechanism whereby the bread may be readily cut in a smooth and uniform manner, the machine being adapted to the production of wafers or disks of different sizes and to operation upon sheets or loaves of bread of varying dimensions, provision being made for the automatic delivery of the disks or wafers and for the removal therefrom of dust or crumbs.

To this and other ends the invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of an apparatus embodying my invention in one form. Fig. 2 is an enlarged detail view through the cutter and its associated mechanism, a cutter of small size being shown in place. Fig. 3 is a plan view of the structure shown in Fig. 2. Fig. 4 is a sectional view similar to the lower portion of Fig. 2, illustrating a large cutter in place. Fig. 5 is an enlarged detail view of the connection between the lining and sleeve. Fig. 6 is a detail sectional view showing the screening-receptacle and its associated parts in elevation. Fig. 7 is a front elevation of the screening-receptacle and its associated parts, and Fig. 8 is a perspective view of the closure for said receptacle detached.

In the said drawings, 1 indicates a supporting frame or casing upon which are mounted standards 2, which support a cross-bar 3, which carries the cutter. The standards 2 rest upon a bed or table 4, and the cross-bar 3 is yieldingly supported above said

bed or table by means of bolts 5, which pass loosely through the ends of the bar and screw into the standards, said bolts being provided with springs 6, which hold the bar yieldingly against the standards, while the standards are provided with upwardly-extending guide-flanges 7, which fit into grooves 8 in the sides of the bar. A plurality of the grooves 8 are formed along the bar 3, with corresponding apertures 9 for the passage of the bolts 5, and the standards 2 are adjustably secured by means of screws 10 to the table 4 in such manner that the standards may be adjusted closer to or farther from each other to adapt the machine for use with sheets of bread of varying size.

At its central portion the bar is provided with a bearing-ring 11, in which is mounted so as to both revolve and move vertically a sleeve 12. This sleeve is provided with a spiral groove 13, and the ring 11 is provided with a standard 14, having a threaded aperture 15 to receive a correspondingly-threaded pin 16, provided with a roller 17, which is adapted to fit within the groove 13. The pin 16 is provided with a wrench grasp or head 18, by means of which it may be turned so as to adjust it to cause the roller 17 to properly engage the spiral groove 13; and there is also provided a lock-nut 19, by means of which the pin may be secured in position after adjustment.

The sleeve 12 is provided near its upper end with a ring 20, which may be clamped in position around said sleeve by means of a bolt 21, being thus readily removable, said ring being provided with a radially-extending arm 22, which is connected by means of a rod 23 and link 24 with the upper end of the long arm of a bell-crank lever 25. The lower short end of this bell-crank lever is connected by means of a link 26 with the upper end of a connecting-rod 27, and the lower end of this rod is pivoted to a radial arm 28, projecting from a rock-shaft 29, provided with treadles 30. The links 24 and 26 have their terminal pivots arranged at right angles to each other, so as to form, in effect, universal joints between the parts which they connect. It will be seen that motion imparted to the rock-shaft 29 in one direction will, through

the intervening connecting mechanism, rotate the sleeve 12 in one direction and at the same time cause it to move vertically in the bearing-ring 11, while motion imparted to the rock-shaft in the opposite direction will cause said sleeve to rotate and move longitudinally in directions the reverse of those just referred to.

The sleeve 12 carries the cutter by means of which the sheet of bread is cut into disks, and for this purpose I employ a hollow and tubular cutter 31, the lower edge of which forms the cutting edge, while the tubular interior is of a diameter such as to permit the disks cut thereby to pass upward through the interior of the cutter. In the particular construction shown in Figs. 1, 2, and 3 of the drawings the cutter is comparatively small, its external diameter being considerably less than the internal diameter of the sleeve 12, and in order to connect said cutter to the sleeve I employ a disk 32, having a peripheral seat 33 to receive the lower end of the sleeve 12, which is secured to the disk by screws 34 or other suitable means, while the central portion of the disk is provided with a threaded aperture 35 to receive a correspondingly-threaded tubular extension 36 of the cutter, which screws therein. Between this tubular extension and the body of the cutter is located a shoulder 37, which seats against the under face of the disk, and thus furnishes a firm bearing for the cutter. The tubular extension 36 preferably extends some little distance above the upper side of the connecting-disk 32 for the purpose hereinafter set forth.

Within the sleeve 12 is a lining 38, which is tubular in form and provided with a flange 39, which fits upon the upper edge of the sleeve 12, and in order to hold the lining in position it may be provided with one or more slotted lugs 40, which are adapted to engage with corresponding projections 41, carried by the sleeve 12. In the present instance one each of these lugs and projections is shown, and the projection 41 is located for convenience and strength upon the ring 20. By reason of this construction the lining-tube 38 may be readily inserted and secured within the cutter-sleeve and is readily withdrawn. This lining-sleeve is of an internal diameter substantially equal to that of the largest cutter which the machine is adapted to employ, and when said large cutter is employed in the machine the connecting-disk 32 is dispensed with, the cutter fitting directly within the sleeve 12, with its shoulder 37 abutting against the lower end of said sleeve and its tubular extension 36 fitting within the sleeve and being held by the said screws 34. With this construction of cutter the tubular extension 36 is provided with a seat 42 to receive the lower end of the lining-tube 38, and said tube forms the discharge-tube of the cutter through which the wafers pass after being cut in the manner hereinafter described. In

order to cooperate with the small cutter shown in Figs. 1, 2, and 3, I employ a discharge-tube 43, which is of a diameter corresponding substantially with the internal diameter of the small cutter and which is supported within the lining-tube 38 in any suitable manner. The construction which I prefer for this purpose is that shown, in which the tube 43 is provided with a flanged diaphragm 44, which fits over the projecting end of the sleeve 38, and thus serves to center and support the tube 43. The lower end of the tube 43 is enlarged or flared, as indicated at 44^a, for the purpose of receiving the projecting upper end of the tubular extension 36 of the small cutter and for facilitating the placing in position of the tube 43 when in use.

The discharge-tube arising vertically from the cutter is suitably connected with a downwardly-extending tubular discharge-chute 45, which may be supported from the bar 3 by means of a suitable standard 46, and which extends first in an inclined direction laterally and downwardly and then vertically downward to a point where it discharges into a suitable receptacle. I prefer to employ as such receptacle a screening or separating device by means of which all crumbs and bread-dust may be separated from the wafers. This device consists of a foraminous receptacle 47, preferably consisting of a perforated cylinder having a removable closure 48 and an opening 49, through which the wafers may be discharged into its interior from the chute 45. The cylinder is pivotally mounted in a bracket 50 and is connected with the rod 27 by means of a detachable link 51 in such a manner that the connection between the said receptacle and the link may be readily established or severed. The link 51 is shown detached in full lines in Fig. 7, and is shown connected up in dotted lines. The receptacle 47 is shown in its horizontal position in full lines in this figure and is shown tilted in dotted lines. The removable closure 48 is shown detached in Fig. 8 of the drawings.

In order to provide a suitable bed or plate against which the cutter may work, the table 4 is provided with a recess 52, in which is placed a cutting-block 53, of wood, soft metal, or the like, secured by bolts 54, so as to be readily removable. The block 53 gradually diminishes in thickness from use both by wear and by the necessary resurfacing, and as it is desirable that this upper surface should be maintained in the same plane as the upper surface of the table 4 I provide as a means for properly adjusting the position of said block a plurality of inserts 55, adapted to fit the recess 52 and to be inserted between the bottom of said recess and the under side of the block 53. By increasing or diminishing the number of these inserts the position of the upper surface of the block 53 may obviously be adjusted as desired, and by reason of the firm support which said inserts give to the entire bearing-surface of said block this

latter is firmly maintained and supported in such a manner as to cooperate with the cutter to the best advantage.

The operation of the apparatus, which will be readily understood from the preceding description, is generally as follows: The proper size of cutter having been placed in position along with its discharge-tube and the several parts of the machine properly adjusted a rocking motion is imparted to the shaft 29 by means of the treadles 30, whereupon through the intervening mechanism a combined movement of rotation and reciprocation is imparted to the sleeve 12 and to the cutter carried thereby. This movement causes the cutter to descend and cut a disk from the sheet of bread lying upon the table 4, the cut being made with a drawing action, owing to the rotation of the cutter as it advances, and thus insuring a clean sharp edge for the disk being cut. The block 53, properly adjusted and supported, serves to cooperate with the cutter doing this work, while the yielding support of the bar 3 prevents any damage to the cutter or the remaining portions of the mechanism in case the cutter is depressed too far or some obstacle is encountered during the advance of the cutter. After each disk is cut the cutter moves upward and the bread is shifted to present a new portion, whereupon the cutter is again depressed and another disk is cut. The successive disks press against those which have already preceded them into the interior of the cutter and its discharge-tube, and the disks are thus fed upward until they are discharged into the chute 45, through which they descend into the receptacle provided for them. In case the separating device is employed the wafers are discharged into the receptacle 47 while this latter is stationary, the link 51 being disconnected, and when a sufficient quantity of the disks or wafers has accumulated within this receptacle the link 51 may be connected, whereupon a vibratory motion will be imparted to the receptacle, and the shaking thus given to its contents will cause the discharge of the crumbs and bread-dust through the apertures thereof. By removing the closure 48 and tilting the receptacle 47 its contents may be discharged into any suitable receiving vessel.

I do not wish to be understood as limiting myself strictly to the precise details of construction hereinbefore set forth, as they may obviously be varied without departing from the principle of my invention.

I claim—

1. In an apparatus of the character described, the combination, with a fixed bed or

table, of a rotary tubular cutter supported in a suitable bearing above said table and adapted to advance and recede as it rotates, a rock-shaft provided with treadles and having a projecting arm, and a bell-crank lever and rods connecting said bell-crank lever with the rock-shaft arm and cutter respectively, the connections between said bell-crank lever and rods being universal, substantially as described.

2. In an apparatus of the character described, the combination, with a bed or table, of standards laterally adjustable toward and from each other, a cross-bar adapted to be connected with said standards at different points, and a rotary reciprocating tubular cutter carried by said cross-bar, substantially as described.

3. In an apparatus of the character described, the combination, with a rotating and reciprocating sleeve provided with a tubular cutter and having an inclined slot in its body portion, of a fixed pin engaging said slot, means for actuating said sleeve, a tubular lining for said sleeve provided with a flanged cover to fit said sleeve, and means for locking said sleeve and lining together, substantially as described.

4. In an apparatus of the character described, the combination, with the cutter and its operating mechanism, and a chute to receive the cut articles, of a foraminous receptacle to receive the articles from the chute, and means for connecting said receptacle with the cutter-operating mechanism to impart to the same a shaking motion, substantially as described.

5. In an apparatus of the character described, the combination, with a tubular cutter and means for actuating the same, of a chute to receive the cut articles from the cutter, a perforated cylinder pivotally mounted on a transverse axis, provided with an opening adjacent to the chute and with a removable closure at one end, and a link detachably connecting said cylinder with the cutter-operating mechanism, substantially as described.

6. In an apparatus of the character described, the combination, with a rotating and reciprocating sleeve, of a tubular cutter of smaller diameter connected with and extending upward into said sleeve, and a discharge-tube supported in said sleeve and having an enlarged end to pass over the upward extension of the cutter, substantially as described.

THOMAS M. MULKERINS.

Witnesses:

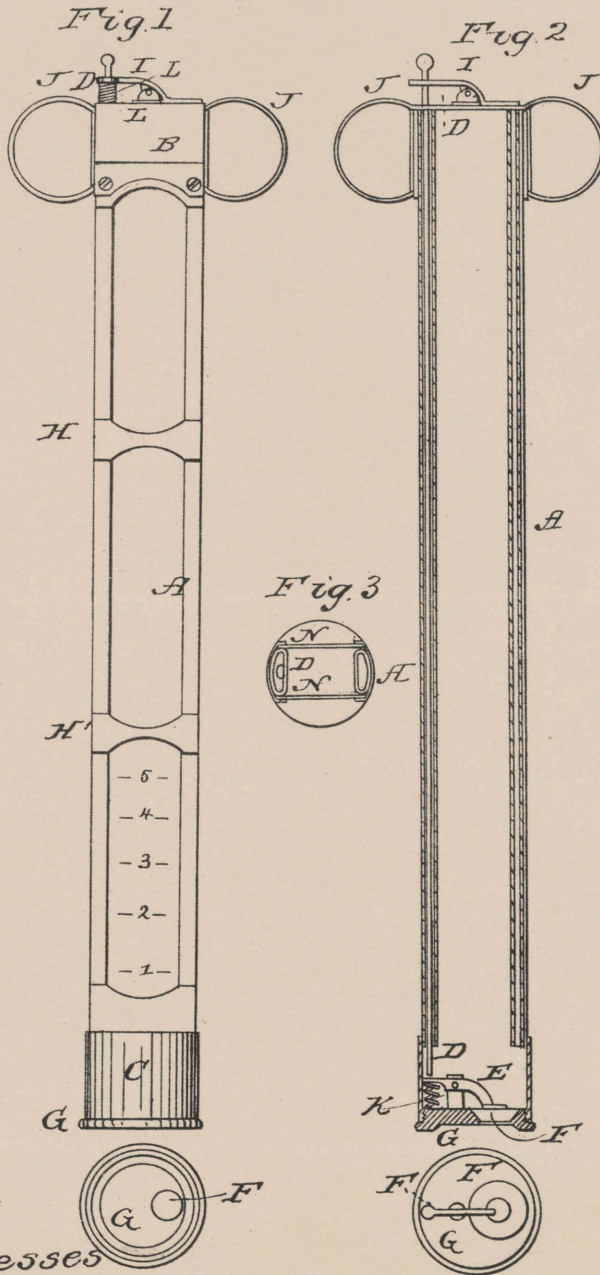
FREDERICK C. GOODWIN,
IRVINE MILLER.

G. TAGLIABUE.

Fire Test for Oil Barrels.

No. 38,427.

Patented May 5, 1863.



witnesses
Nathan Rowell
C. H. Saunders

Inventor
Giuseppe Tagliabue



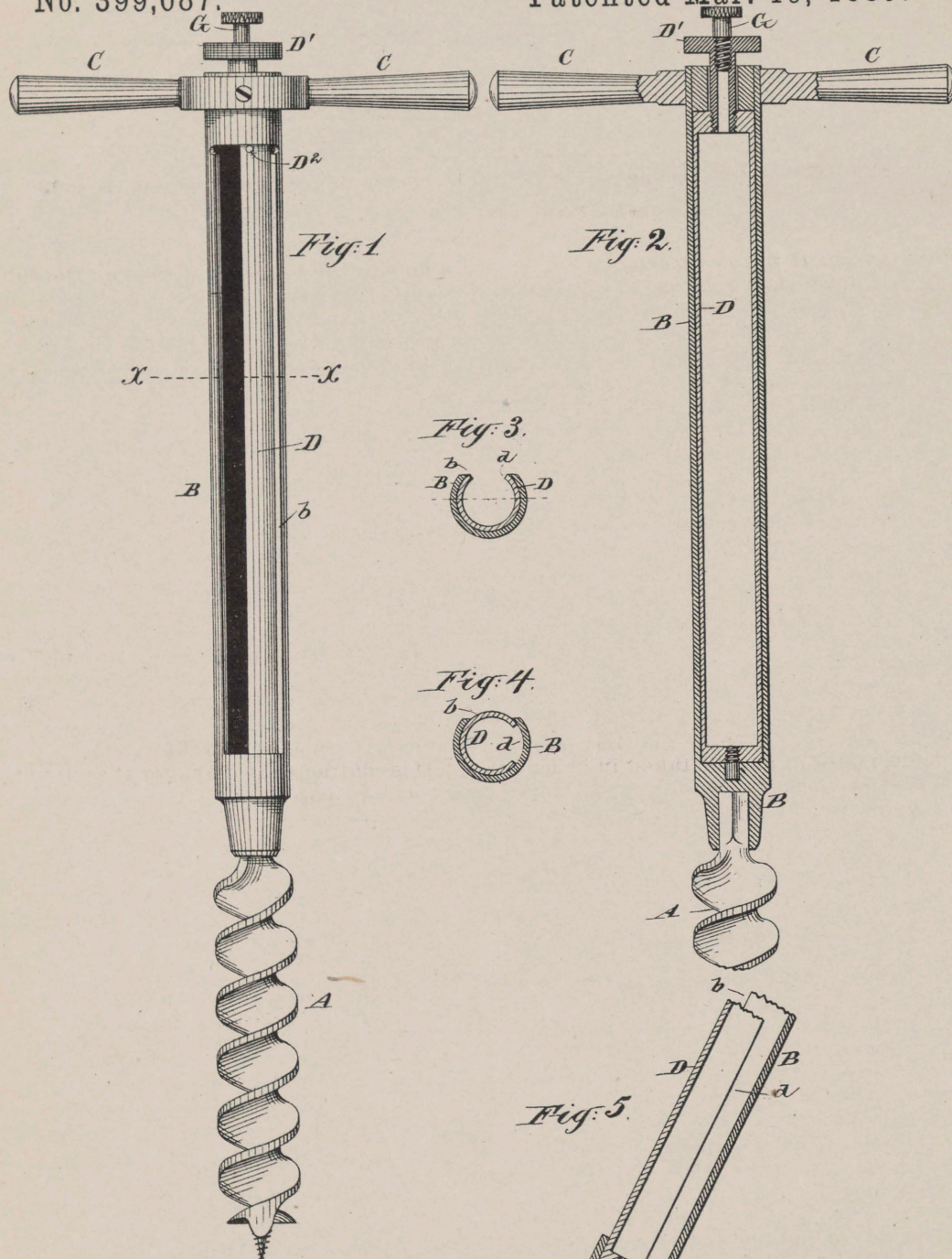
A large, handwritten mark in blue ink, resembling a stylized 'X' or a signature, is drawn across the middle of the page. It consists of two intersecting lines that cross each other in the center.

(No Model.)

B. F. MORNINGSTAR.
GRAIN SAMPLER.

No. 399,687.

Patented Mar. 19, 1889.



Witnesses:
H. J. Johnston.
W. B. Gonsalves.

Inventor:
B. F. Morningstar
By his attorney
James Drew Stearns

UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN MORNINGSTAR, OF BROOKLYN, NEW YORK.

GRAIN-SAMPLER.

SPECIFICATION forming part of Letters Patent No. 399,687, dated March 19, 1889.

Application filed March 1, 1888. Serial No. 265,879. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN MORNINGSTAR, of Brooklyn, Kings county, in the State of New York, have invented a certain new and Improved Sample-Trier, of which the following is a specification.

My instrument may be used in sampling liquids of all kinds. It may also be used with success in sampling loose material of various kinds—any kind in which the grains are small, and which is inclosed in wooden boxes or barrels. I will describe it as applied to sampling wine or analogous liquids contained in barrels or tierces. I employ an auger or boring-bit with a peculiar tubular shank open along one side. Within the tubular shank is inclosed a tight-fitting smaller tube correspondingly open along one side and provided with means for partially turning it. When the interior tube is turned in position relatively to the outer tube, so that the openings coincide, material may be taken in or let out. When it is turned in another position, the opening is closed. An end plug is provided to facilitate the removal of liquid contents after the withdrawal of the filled instrument from a barrel or other package in which it had been inserted.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is an elevation. Figs. 2 and 3 are cross-sections on the line *xx* in Fig. 1. Fig. 2 shows the device open and Fig. 3 shows the device closed. Fig. 4 is a central longitudinal section; and Fig. 5 is a corresponding section of the upper end with the instrument inverted, and with the plug removed to empty the contents through the end.

Similar letters of reference indicate like parts in all the figures where they appear.

A is a boring-bit of any ordinary or suitable character adapted to bore a smooth hole in wood or analogous material, say, three-fourths of an inch in diameter.

Instead of an ordinary solid shank of small diameter, I provide a tubular shank, B, open along one side, *b*. It is nearly as large as the bit A. When by strongly turning the instrument by its handle C the bit A has produced

a hole in the barrel, (not shown,) the tubular shank B *b* may be easily inserted by a simple thrusting motion and as easily withdrawn. A partial turning motion of the entire instrument while the tubular shank is properly inserted aids to fill its interior if the material be loose.

D is an internal tube having an open side, *d*. The interior of B is smooth and true. The exterior of D is smooth and true and of the exact size to fit tightly and easily within B, and these parts are applied together, with a smaller part of D extended out through the upper end of B and carrying a button, D', which allows D to be readily turned when required. A stop-pin inserted in D, as shown by D², matches into recesses provided for it in B, and prevents D from being ever turned too far.

G is an axial screw-plug controlling an opening in the upper or outer end of D.

D is contracted in diameter at each end, and is held in corresponding small holes in the ends of the hollow shank B, thus reducing the friction which opposes the turning of D to an almost inappreciable amount.

In the use of the device it will usually be applied from above and used to bore a hole and abstract a sample on the upper side. If the material be smooth, round, or approximately round grains, as wheat or rice, it will readily enter the shank when the interior tube, D *d*, is turned in the position to allow it, but will also escape readily when the instrument is drawn upward. This is especially the case if the contents of the barrel or other package be liquid. To avoid all difficulty, I turn the interior tube, D *d*, into coincidence with the shank B *b* prior to the boring, and keep it so during the first part of the period while the device is fully inserted; but before drawing it up I turn the knob or button D', thus turning the interior tube, D *d*, as far as it is allowed to turn. After it is thus filled and withdrawn, I take out the small plug G and invert the instrument over any suitable dish, into which the contents of the instrument will flow and may be examined at leisure.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The screw or other

boring-bit A may be shorter. It is sufficient that it be of such length as will bore through the staves or head of the thickest barrel or case.

5 Parts of the invention can be used without the whole. I can dispense with the plug G and with the orifice which it controls. In such case I discharge the liquid contents from the follow shank in the same manner as loose
10 granular material, by simply turning D *d* within B *b*, so as to discharge through the coinciding openings *d b*.

I claim as my invention—

1. The sample-trier described, having, in
15 combination with the boring-bit A and hol-

low tubular shank B, with its open side *b*, the internal close-fitting tube, D, having an open side, *d*, and means, as the button D', for turning it, all arranged for joint operation as herein specified.

2. In a sample-trier, the plug G, in combination with the boring-bit A, shank B *b*, handle C, internal tube, D *d*, and turning means D', for the latter, all arranged to serve substantially as herein specified.

BENJAMIN FRANKLIN MORNINGSTAR.

Witnesses:

MAXIMILIAN M. RUTTCUAN,
JOHN H. CAVANAGH.

MUNN & CO.
Patent Attorneys
361 BROADWAY,
NEW YORK

W. J. GARD & N. STAUGHTON.

GRAIN-TESTER.

No. 170,545.

Patented Nov. 30, 1875.

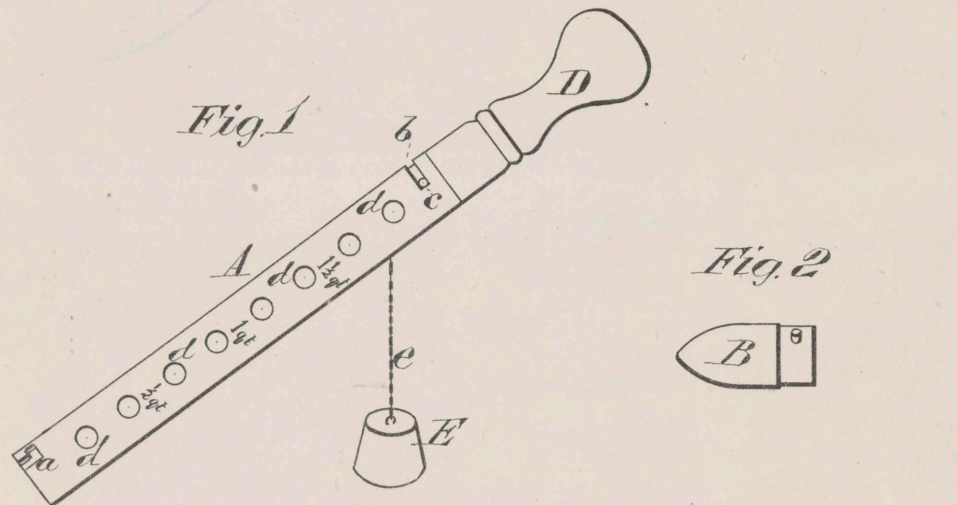


Fig. 2

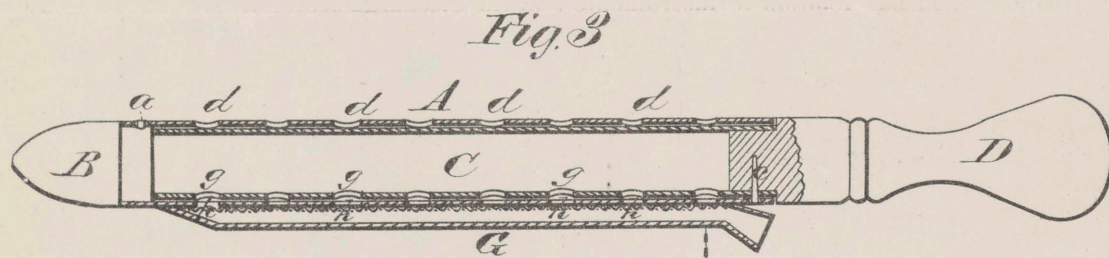
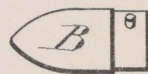
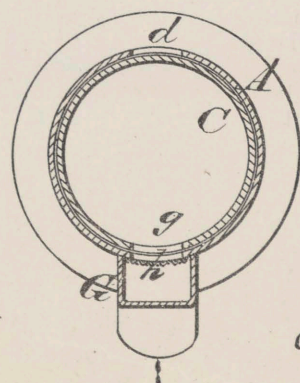


Fig. 4



WITNESSES

Robert Everett,
George C. Uphaus.

INVENTOR S.

William J. Gard,
Neville Staughton.
Chipman Hooper & Co
ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM J. GARD AND NEVILLE STAUGHTON, OF WINONA, MINNESOTA.

IMPROVEMENT IN GRAIN-TESTERS.

Specification forming part of Letters Patent No. 170,545, dated November 30, 1875; application filed October 23, 1875.

To all whom it may concern:

Be it known that we, WILLIAM J. GARD and NEVILLE STAUGHTON, both of Winona, in the county of Winona and State of Minnesota, have invented a new and valuable Improvement in Grain-Testers; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of our grain-tester, and Fig. 2 is a view of the stopper. Fig. 3 is a longitudinal central sectional view of our grain-tester, and Fig. 4 is a transverse sectional view thereof.

This invention has relation to instruments which are used for testing grain for the purpose of ascertaining the quality of, and the amount of impurities therein.

The nature of our invention consists in two perforated tubes, arranged one inside of the other, and having perforations through them, one row of which is covered with wire-gauze, a removable stopper, and a handle, which is secured to one end of the inner tube, for turning it, as will be hereinafter explained.

In the annexed drawings, A designates a case or cylindrical tube, which may be of any desired diameter and length. This tube A has two rows of perforations, *d h*, through it, arranged diametrically opposite each other, over one row, *h*, of which, wire-cloth, or its equivalent, is applied, as shown in Figs. 3 and 4. Inside of tube A is a tube, C, having one row of perforations, *g*, through it, arranged at the same distance apart as the perforations through the tube A, so that when tube C is adjusted, as shown in Figs. 3 and 4, the perforations *g h* will register with each other, and impurities in the grain contained in the instrument can be sifted into a conductor, G,

and from it emptied into the gage-cup E, which is marked off in ounces and fractions thereof. The two tubes A C are held together by means of a pin, *e*, which is fixed to tube C and passed through a semicircular slot, *b*, in tube A. B designates a pointed stopper, which is fitted into the end of the tube A, and which is removable for the purpose of emptying grain out of the instrument after completing a test. D designates the handle of the instrument, which is secured into one end of the inside tube C, and used for handling the instrument and adjusting the tube C about its axis.

The tube A should be properly marked off to indicate pounds and fractions of this measure.

In practice, the cup E will be made to fit on the discharge-orifice of the conductor G.

To use the instrument, the tube C is turned so that the perforations *g d* register with each other. The instrument is then plunged into the grain to be tested, and worked around. Before withdrawing the instrument from the grain the inner tube C is turned half around, so as to bring the perforations *g h* together. The instrument is then held horizontally and shaken, which will cause the foul seeds, &c., to fall into the conductor G.

What we claim as new, and desire to secure by Letters Patent, is—

An instrument for testing grain, consisting of the perforated tubes *a c*, and wire-cloth covering the perforations *h*, in combination with a conductor, substantially as described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

WILLIAM J. GARD.
NEVILLE STAUGHTON.

Witnesses:

C. G. MAYBURY,
F. D. HYDE.



ADD A NEW MODEL

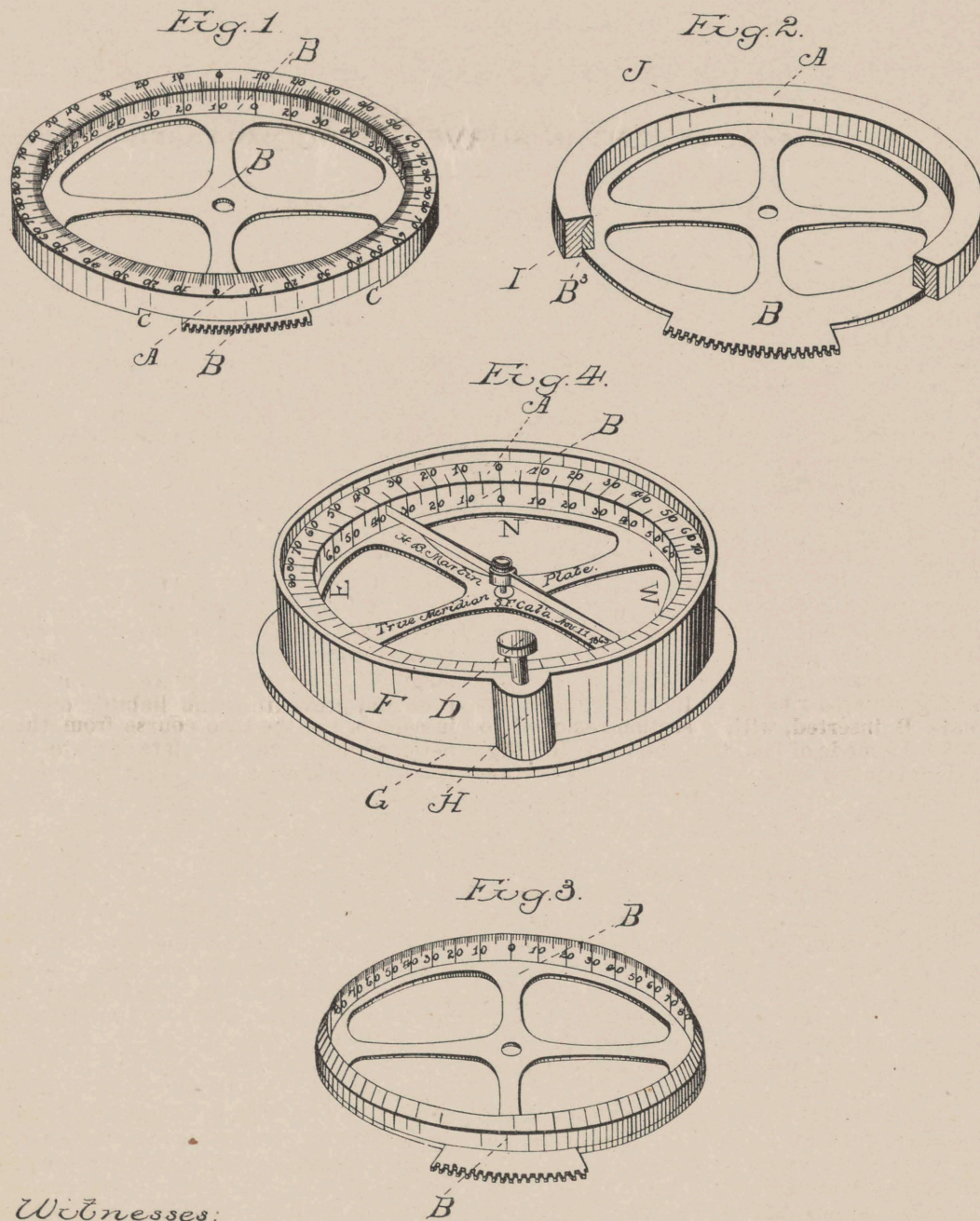
1887



H. B. MARTIN.
Surveyor's Compass.

No. 43,036.

Patented June 7, 1864.



Witnesses:
W. A. Eliason.
J. B. Southard

Inventor.
H. B. Martin



UNITED STATES PATENT OFFICE.

HORACE B. MARTIN, OF SANTA ROSA, CALIFORNIA.

IMPROVEMENT IN SURVEYORS' COMPASSES.

Specification forming part of Letters Patent No. 43,036, dated June 7, 1864.

To all whom it may concern:

Be it known that I, HORACE B. MARTIN, of Santa Rosa, in the county of Sonoma and State of California, have invented a new and useful Improvement on Surveying-Instruments, being a true-meridian plate to enable the surveyor to read his true meridian course at once from the needle, and at the same time preserve his magnetic bearings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents the graduated ring A common to all surveying-instruments, with the true-meridian plate B inserted, each graduated to degrees. Fig. 2 represents the common graduated ring A with the true-meridian plate B inserted, with a section removed to show the mode of inserting the plate B. Fig. 3 represents a perspective view of the true-meridian plate B, graduated to degrees, disconnected from the other parts of the instrument. Fig. 4 is a perspective view of, first, the compass-box F, differing from others only in the projection H to receive the key D, which connects with a small pinion that revolves the plate B; second, the common ring A, graduated to five degrees; third, the true-meridian plate B, inserted, graduated the same; fourth, the magnetic needle, with one end slightly depressed to enable the surveyor the more readily to read the lower graduation; fifth, the bed-plate G.

The improvement aforesaid consists of the movable graduated plate B, constructed, inserted, and operated as follows: I take the ordinary graduated ring A and turn out a recess, as shown at cross-section I, Fig. 2, beveling it to a fine edge at its upper and inner angle at the joint J. Then cut out slot C to receive the projection on the plate B. Then construct a ring with a bevel from the outside to a fine edge at its upper and inner angle. (See B³, Fig. 2.) This is set on a cir-

cular plate of equal diameter with the ring, the plate having a projection with gear cut in its exterior arc to receive a pinion, by which the key D gives it a rotary motion. (See Fig. 3.) The ring on plate B being fitted in the recess in ring A, with projection in slot C, with a center stud on which to revolve, I graduate the ring B the same as ring A. The parts being in their proper connection, (see Fig. 4,) the horizontal and perpendicular zero at the same point, it is adjusted for use as follows: Suppose the magnetic variation is ten degrees east. Turn the key D until it revolves the plate B ten degrees to the right, or until Q on plate B corresponds with 10 on plate A. (See Fig. 1.) Then the needle will track to the true-meridian courses on plate B and to the magnetic courses on plate A, thus saving time and preventing the liability of mistake in calculating the true course from the magnetic, while the vernier plate or plates are left free and independent, giving three separate graduations, thereby rendering the instrument more simple and convenient.

I am aware that there are means known and in use for laying off the variation by rotating the compass-box entire, and that the same thing can be effected with some transits on their verniers, but then the use of the vernier-plate is lost as well as the magnetic readings, and the surveyor must readjust his instrument to the variation every time he uses his vernier.

I claim—

The movable graduated plate B, as shown substantially in Fig. 3, acting within the compass-box, and connecting with the graduation of the stationary ring, so that the two graduations shall meet precisely at the end of the needle, the whole arranged substantially as and for the purposes set forth.

H. B. MARTIN.

Witnesses:
J. B. SOUTHARD,
W. A. ELIASON.

R. RATHBONE.
Gun-Wad Punch.

No. 72,903.

MUNN & CO.
Patented Dec. 31, 1867.
Patent Attorneys
361 BROADWAY,
NEW YORK

Fig. 2.

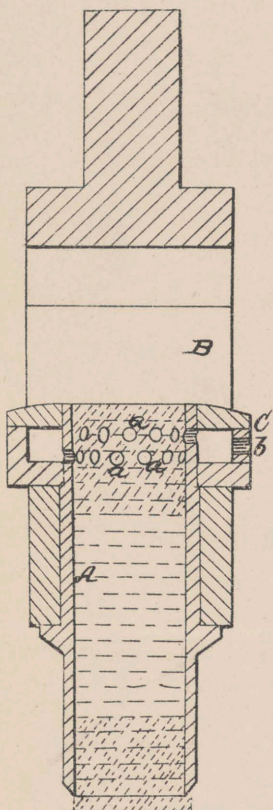


Fig. 1.

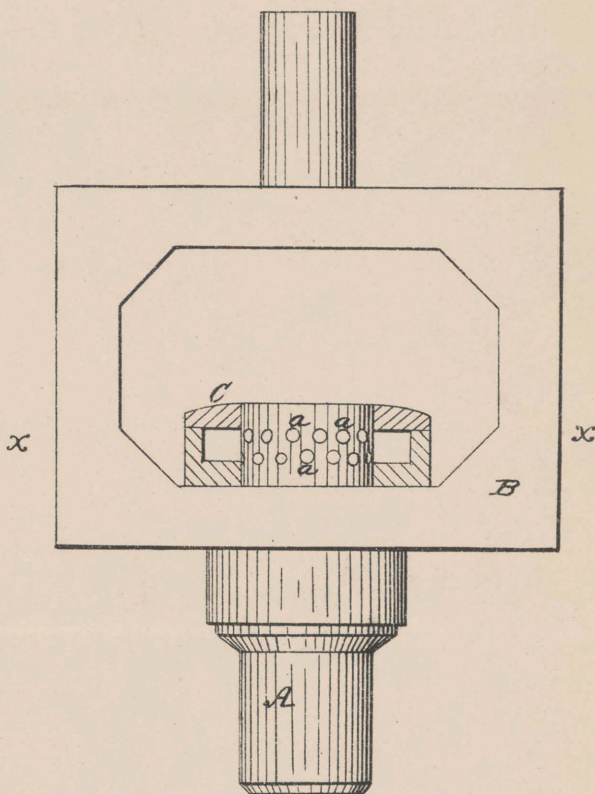
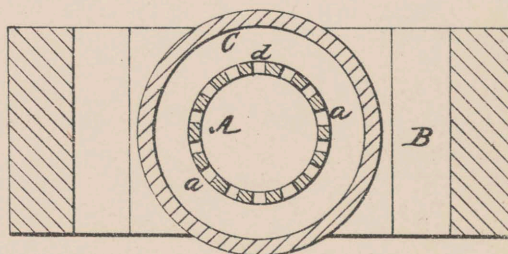


Fig. 3.



Witnesses:

J. Hooley
W. Reed

Inventor:

Ransom Rathbone.



SECOND NOTICE

Munn & Company

PATENT ATTORNEYS

361 BROADWAY

New York December 1, 1911.

Mr James C. Church Jr.

Dear Sir :

We again beg to inform you that your application for a patent for

Seals

was officially allowed on July 6, 1911

The patent will be printed and issued about four weeks after the payment of the final government fee of \$20, which please send here to our New York office.

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118/11

Wishing you every success in the introduction of your invention, and hoping it may prove highly remunerative to you, we remain,

Faithfully yours,

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P. S.—Unless the final fee is paid within six months from the date of allowance, the application will become lapsed and a renewal of the application will be necessary within two years from the date of allowance; this will involve an expense of \$25 in addition to the usual final Government fee of \$20 for the issue of the patent.

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In case you are not prepared to proceed at present with your patent application in Canada, we can, if you wish, file an Official Notice at Ottawa stating your intention of hereafter applying for a Canadian patent. The effect of filing such notice will be to deter others from manufacturing your invention in Canada after your Canadian patent is granted. This notice will be good for one year from the date of your American patent. The cost to file such notice is \$5. This is not a patent, however, and affords no monopoly. The best course is to proceed at once for a Canadian patent.

Hundreds of circulars and letters from agents, ex-clerks, and brokers, will come to you as soon as your patent issues. Some will adroitly pretend your patent is defective; others purport to be able to sell the patent. Give them no attention. All have the same object—to get money from you.