

BLUE HILL
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

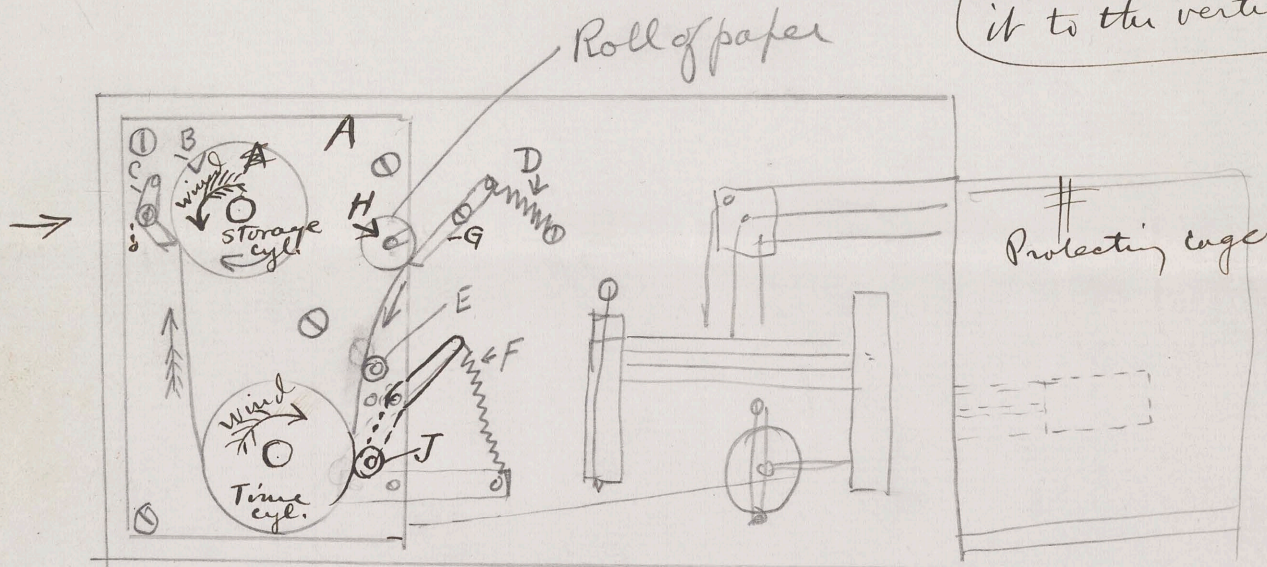
RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

190

Meteorograph for Mt. Rose.

To avoid risk of injury the two clock cylinders were packed separately. In "setting up", the top supporting plate ^A must be removed, by taking out the 4 screws holding it to the vertical columns



When set up the positions of the cylinders etc should be as above, the roll of fresh paper placed at H, and the paper passed under the roller E, and milled heads ^J ^{which} pressing the paper against the time cylinder cause it to unwind from the roll H. The end of paper should be slatted and secured over the clip on the storage cylinder, which as the the paper is released by the time drum, winds it up. Both drums are wound through their top axes. ~~in~~ the keys turning in the direction shown by the arrows. The smaller key winds the storage drum and ^{operates} regulates the adjusting-screws of thermograph and barograph.

BLUE HILLS
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

- 2 -

190.....

Do not wind too tight. The storage cylinder should not need re-winding, since pulling the used paper from it re-winds the spring. A stop C, may be set to hold this cylinder, while new paper is being put in, a notch B, being provided for this purpose. ~~Remove~~ ^{move back} stop-pawl C after paper is in place or cylinder will be stopped in one revolution and possible loss of record result.

Wax larger pins to connect links, an
Revision of thermogs to be properly set
Extra pins, esp large pins for velocity.
Oil-kale plug - on anemoscope.

Shelter here 40 in. outside measurement.
Horizontal Bearings $1\frac{1}{2}$ each too short

BLICE • HILL
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

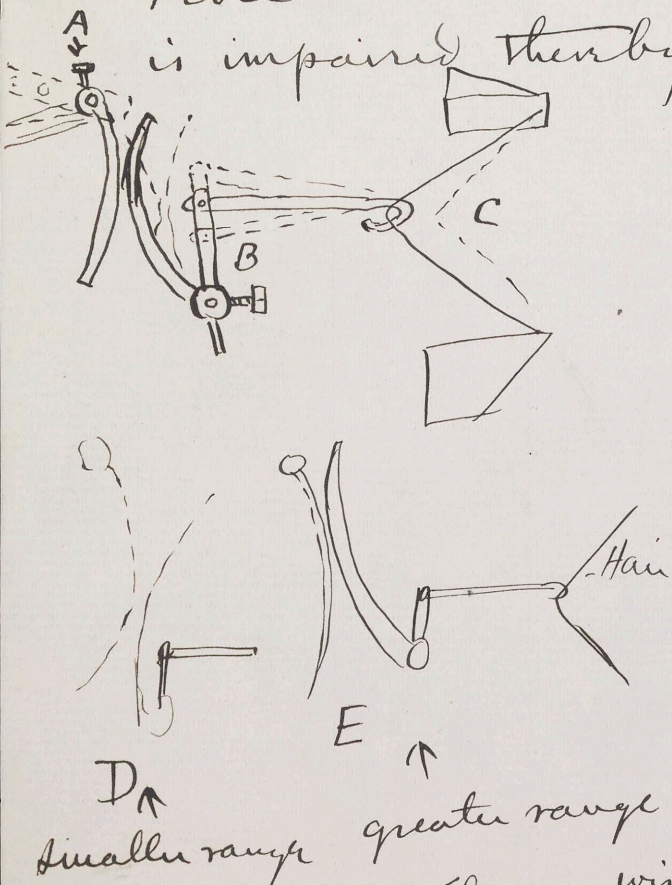
— 3 —

190

Registering Mechanisms

All pens, arms and parts likely to be damaged by motion are tied down. The strings should all be removed before any attempt to move the lever etc is made.

The hygrograph hair is disconnected from the hook connecting with the cams but may be easily replaced by means of a smooth hook like a shoe-button which has been washed in alcohol. Never touch the hair with the fingers - its sensitiveness is impaired thereby.



Adjustment of ^{height} pen on cylinder is best done by loosening slightly set screw (A) in cam on pen axis and turning it in the desired direction. Adjustment for range is done either by moving the connecting link in or out at B or altering the tension of the hair-bundle (by loosening one end) as at C so that the relation of the cams is altered. It is best to adjust at B.

NB. The ^{wire} base cage must be removed before connecting the thermograph & hygrograph mechanisms

BLAKE • HILL
METEOROLOGICAL
OBSERVATORY.

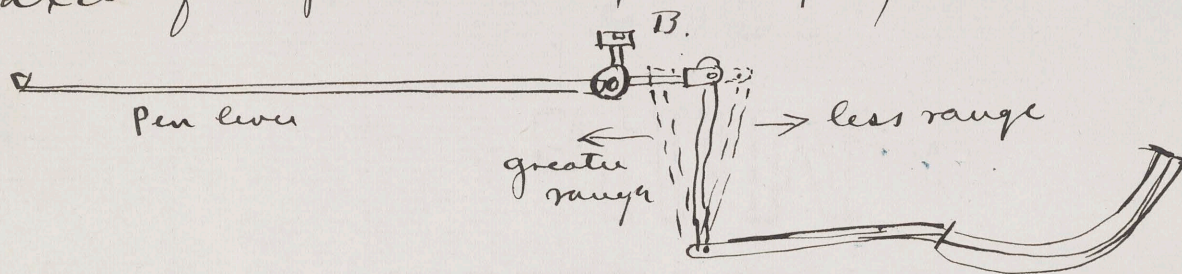
POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

(Pressure, ⁴temperature) 190

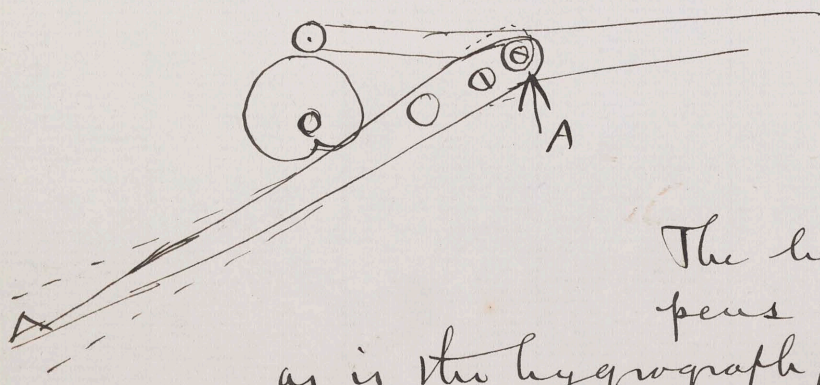
The different pens, may require adjustment for range. This is done, ~~by~~ as in case of the hygrometer by moving the connecting link (or rather the bar into which it works) from or toward the axis of the pen lever, clamping with set-screw B



~~All~~ These parts are disconnected from the aneroid shells and thermograph tube, but it will readily be seen when the connections are made. Pivot-pins are in their proper places and it is only necessary to remove them and replace with ^{the} links.

Velocity arm is already in position and the roller should simply ride on the cam.

Limited adjustment of the height of pen is made by loosening screw at A and swinging arm up or down.



The height of the four direction pens is adjusted in the same way as is the hygograph pen.

The time and "sunshine" pens can also be adjusted in the same way. The length of the mark made by

BLUE HILLS
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

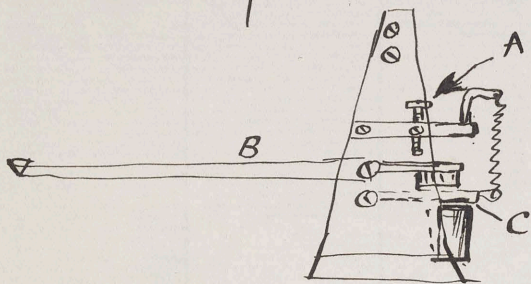
RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

- 5 -

190

these pens can be adjusted by means of a small screw (A) directly over the electro-magnet.

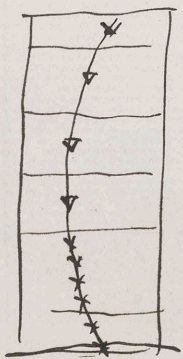


The pen-lever B is separate from the ~~electro~~ ~~magnet~~ (C) armature (C) and rests against it by gravity so that the violent shock incident to closing the circuit will not jar the ink from the pen. The equivalent

of two Columbia dry cells (No. 6) should be used for current.

Pens.

The four pens for the direction of the wind are made on the plan of Richard's earlier ones, but about three times as large. The others are new-pattern Richard pens. In setting pens, place a sheet of paper on the cylinder, on which is an arc drawn by one of the pens ^{time} before ^{being} connected, so that the entire width of the sheet is covered, then put on



pens so that all will touch this line. It may be necessary to smooth or file slightly the ends ^{some of} of the levers, but do not do this until all pens are in place and no other adjustment seems practicable.

The forces controlling the pens being slight, the latter should touch the paper without pressure. If ink does not flow readily, clean pen with alcohol and camels-hair brush.

BLUE HILL
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

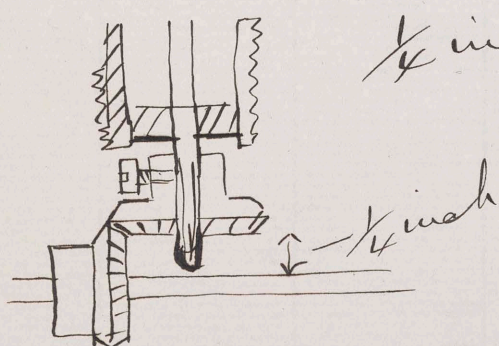
- 6 -

190

Installation of Instrument

The iron brackets sent with meteorographs are to keep the instrument above the floor or shelter out of snow that may accumulate there. These may be bent by a blacksmith to any height desired.

Some experimenting may be necessary to get the vertical and horizontal shafts of wind instruments in proper position and it is suggested that the meteorograph be installed first, then the horizontal shafts put in place, after which the vertical shafts may be adjusted experimentally. The method of making coarse adjustment is shown in the sketches. When shaft is set up, fine adjustment may be made by raising or lowering the gear wheel on its lower end. The limit of this adjustment is about



All these shafts should be well supported because lack of alignment means more or less friction, which is especially harmful in case of the anemometer. Properly mounted the gearing runs smoothly and easily. In connecting up shafts be sure they are reasonably straight so that they

BLUE HILLS
METEOROLOGICAL
OBSERVATORY.

POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

- 7 -

190

do not touch the sides of the supporting tubes. The ends of all sections are plainly marked where connections are to be made.

Top bearing of wind vane should be filled with vaseline or other non-fluid oil. Head & tail of vane are easily removable from hub if changes in either become necessary.

The adjustable sections of ~~each~~ ^{the vertical} shafts, as well as the horizontal shafts are of standard $\frac{3}{16}$ inch phosphor bronze rod so that different lengths may be substituted for those furnished, without difficulty.

Anemometer

The cups rotate once for each two metres of wind, assuming that the wind moves 2.6 times as fast as the cups, or once for each 720 ^{metres?} miles assuming that the wind moves 3 times as fast as the cups.

The vertical and horizontal shafts rotate once for each 10 miles of wind and the cam once for each 100 miles, variations in velocity being shown by the varying slant of the line traced by the pen.

1 mm = 2 miles of wind.

The cups are clamped to the spindle by a set screw and a nut on the oil cup. The top of spindle is hollow so that oil may be delivered just above upper bearing by means of a wick. Use only a small string for

BLICE • HILL
METEOROLOGICAL
OBSERVATORY.

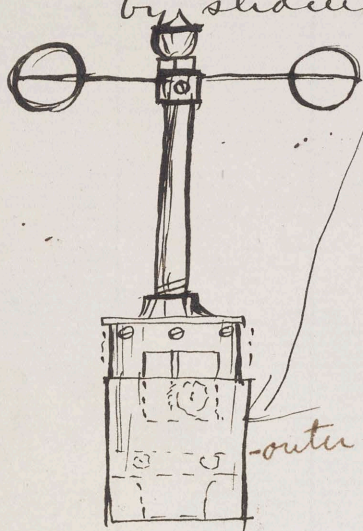
POST OFFICE,
HYDE PARK, MASS., U. S. A.

RAILROAD STATION,
READVILLE.

TELEPHONE NUMBER,
HYDE PARK, 71-2.

- 8 -

wick. Two sets of cups one brass and the other ¹⁹⁰aluminum are supplied. Access to the mechanism is obtained by sliding down the outer case. Upper bearing is removed for cleaning, ^{etc} by means of special wrench.



The pieces of tubing sent with anemometer were for protecting the spindles during shipment and not for other use.

outer casing

Scale Values

For convenience in reading all values are in metric units. One millimeter = 1° of temperature, 2 percent. of humidity, one mm. of pressure and 2 miles of wind-movement. It is not practicable to use a special sheet for this instrument and the simplest way to obtain time-lines is to set a pair of beam compasses or large dividers to the length of the pen levers used and draw the ^{time} arcs with these. This may be done very readily and accurately using the $\frac{5\text{mm}}{5\text{mm} = 2\text{hours}}$ vertical lines of the cross-section paper as a scale. As many or as few lines & figures as desired may be used. The pressure scale is readily converted to inches by assuming $1\text{mm} = \frac{1}{25}$ th inch and applying a small correction for extreme ranges.

or photo-printed
A scale engraved on glass could be used instead.
2.4 inches of paper = one day's record or 72" in 30 days