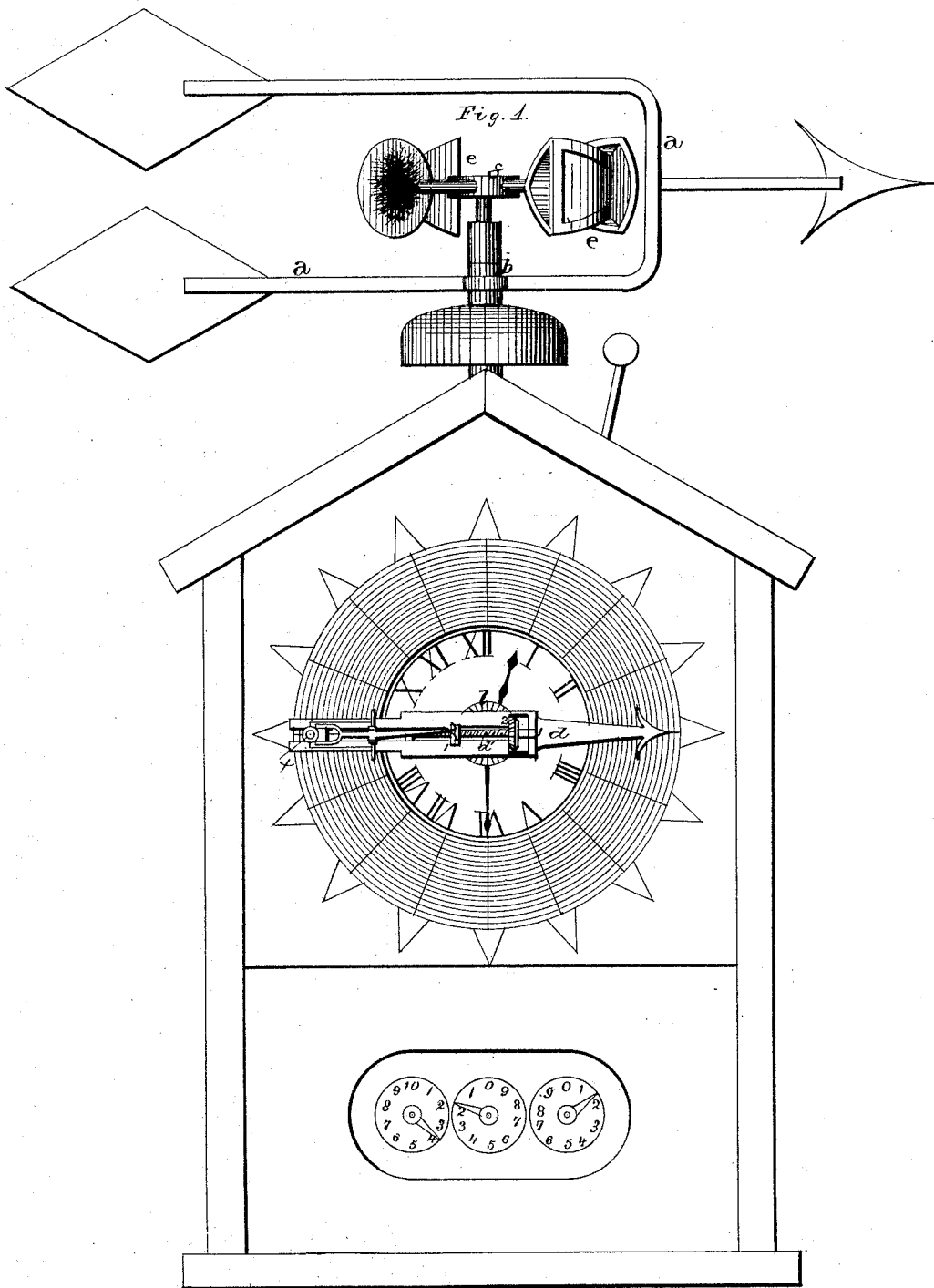


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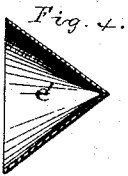
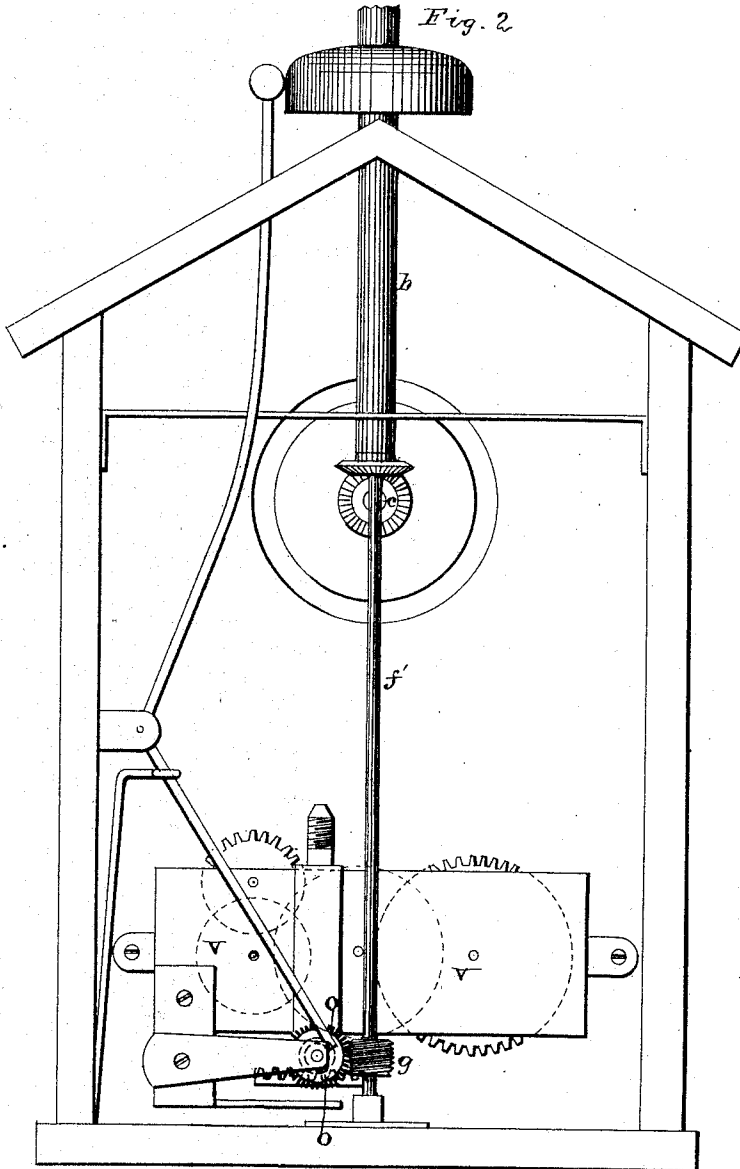
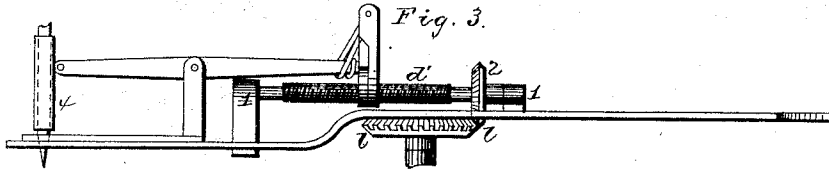
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UNITED STATES PATENT OFFICE.

CHARLES E. HYDE, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN RECORDING-ANEMOSCOPES.

Specification forming part of Letters Patent No. **155,615**, dated October 6, 1874; application filed April 17, 1874.

To all whom it may concern:

Be it known that I, CHARLES E. HYDE, of Syracuse, New York, have invented certain Improved Meteorological Apparatus, of which the following is a specification:

A desirable self-registering anemometer and anemoscope has long been a desideratum with meteorologists, and it is particularly desirable to have a simple and cheap construction, at all times readily consulted and easy to read.

To produce such an instrument was the purpose of my invention, which I have succeeded in combining with a clock-movement for timing the registering of the direction and force of the wind at all times without the personal attention of the observer.

I construct my machine as hereinafter described, premising that the exact position of the several parts may be varied, and mechanical equivalents in the movement may be substituted for those herein named, without changing the character of the invention.

Reference is made to the accompanying drawing, in which Figure 1 is a front elevation of the apparatus placed in a building for operation. Fig. 2 is a rear view of the same, showing the internal mechanism. Fig. 3 is a side elevation of the register, &c. Fig. 4 shows one form of the wind-wheel buckets.

The same letters are used to indicate like parts.

The vane *a* is made of any desired configuration, sufficiently accurate for the purpose. That shown in the drawing illustrates the principle. This vane *a* is affixed to and supported on a tubular rod, *b*, which turns with it, and extends down vertically through the building to the apartment where the self-registering apparatus is located. It turns in proper bearings, so constructed as to give it the greatest freedom of motion, and the several parts are made as light as is consistent with strength sufficient for practical action. At its lower end this tube *b* bears a miter-pinion, gearing into another on a horizontal shaft, *c*, that runs through the center axis of a clock-movement, and projects beyond the face of the clock sufficiently to receive a long hand, *d*, that extends out beyond the face of the clock, sweeping round a large circle, and

moving in unison with the vane. The space between the outer circle of the clock-face and the end of the hand *d* I propose to form of slate, and mark it off in accurate divisions by concentric lines, broken by radial spaces that denote the points of compass, the lines representing the hours or time. To the outer side of the hand *d* are secured the two bearings 1, in which is journaled the screw-shaft *d'*. Upon one end of this shaft is placed a gear-wheel, 2, which meshes with the wheel *l*, and causes the shaft to revolve in either direction, so as to move the traveling nut 3 back and forth, and thus move the pencil or marker 4 in and out over the face of the slate.

Every revolution of the vane *a* causes a corresponding movement of the hand *d*, and as each movement of the hand causes a movement of the pencil or marker through the screw-shaft, every revolution of the hand is marked upon the slate surface, showing the position of the hand.

The time is indicated by the distance from the center, and the direction of the wind by the hand's position around the circle, which is marked at regular intervals.

To measure the velocity of the wind I employ a wind-wheel revolving horizontally, and shown at *e*, Fig. 1. This wheel has a series of cups or scoops opening toward the wind, so as to be freely revolved by it, as clearly seen in Fig. 1. One of these wind-scoops is shown detached at *e'*, Fig. 4, but can be varied in any desirable degree that experience shall indicate.

The wind-wheel *e* is secured to the shaft *f'*, which passes down through the hollow shaft *b*, and has a worm, *g*, near its lower end, which gears with a wheel, *o*, and, through this wheel, with an ordinary index, *v*, such as is used in gas-meters. By means of this index the number of revolutions made by the wheel *e* are recorded, and from the number of these revolutions the velocity of the wind can be computed. The number of these revolutions can be recorded at any desired intervals of time by means of a device similar to that of the anemoscope, or by the action of electricity, in any of the well-known ways of registering.

Having thus described my invention, I claim—

The combination of the wind-vane, the indicating-hand, moving in unison therewith over the face of the recording-dial, screw-shaft, and pencil-carrier nut, said shaft having its bearings on the indicating-hand, and

revolving by means of the two gear-wheels / 2, substantially as shown and described.

C. E. HYDE.

Witnesses:

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