

A. M. COMEY & H. G. PARKER.
RECORDING THERMOMETER.

No. 582,043.

Patented May 4, 1897.

Fig. 1.

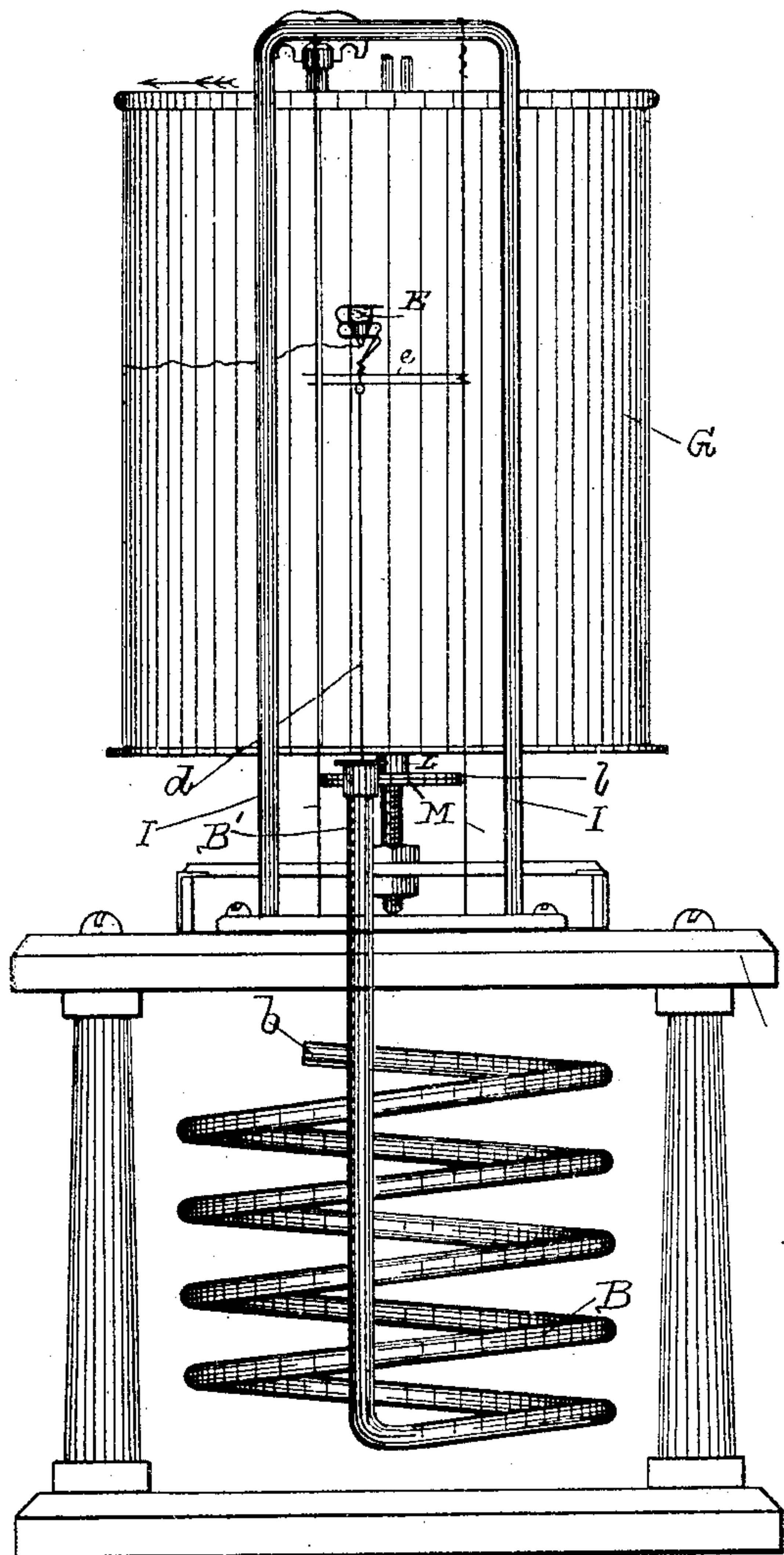


Fig. 2.

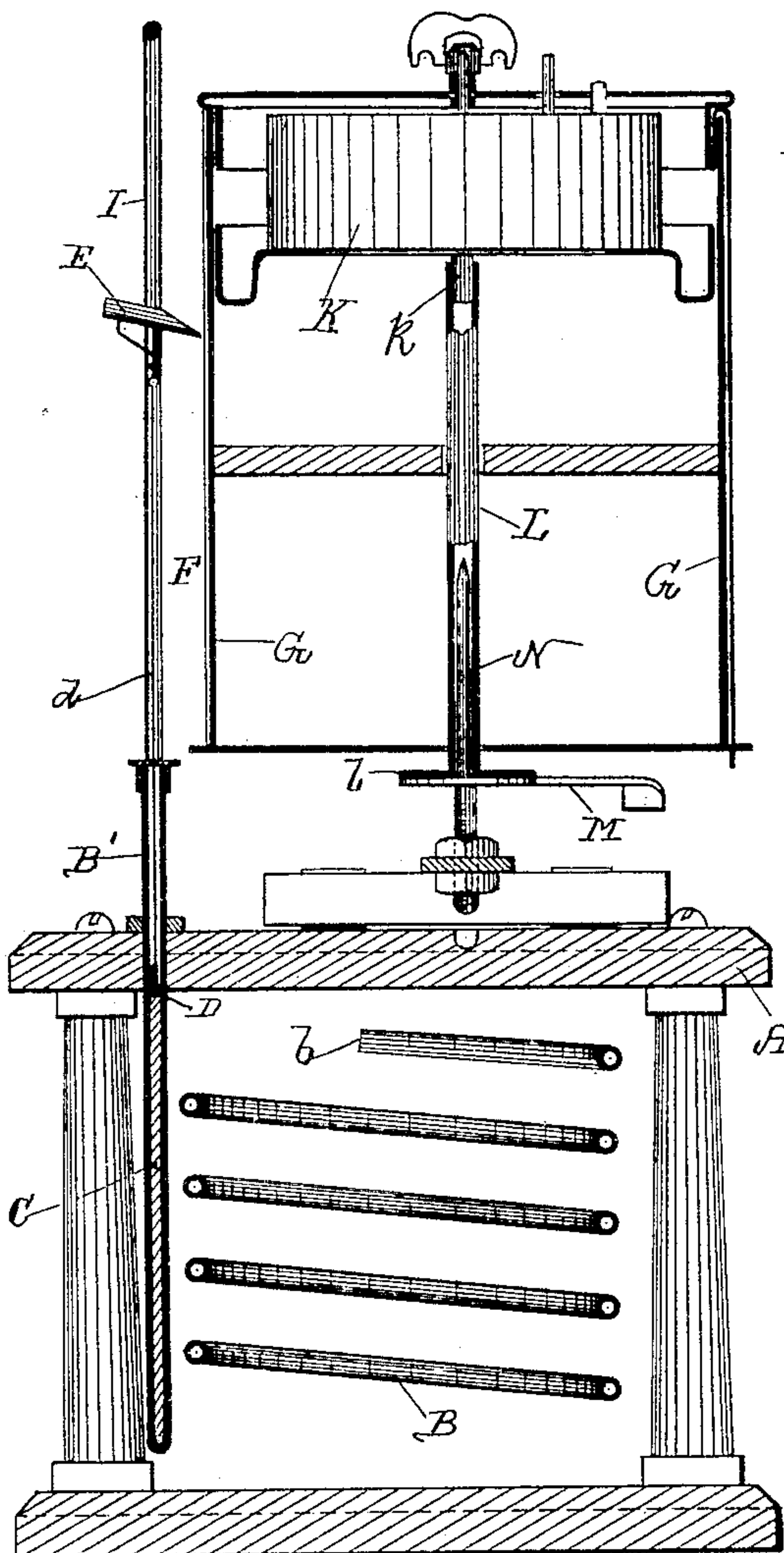
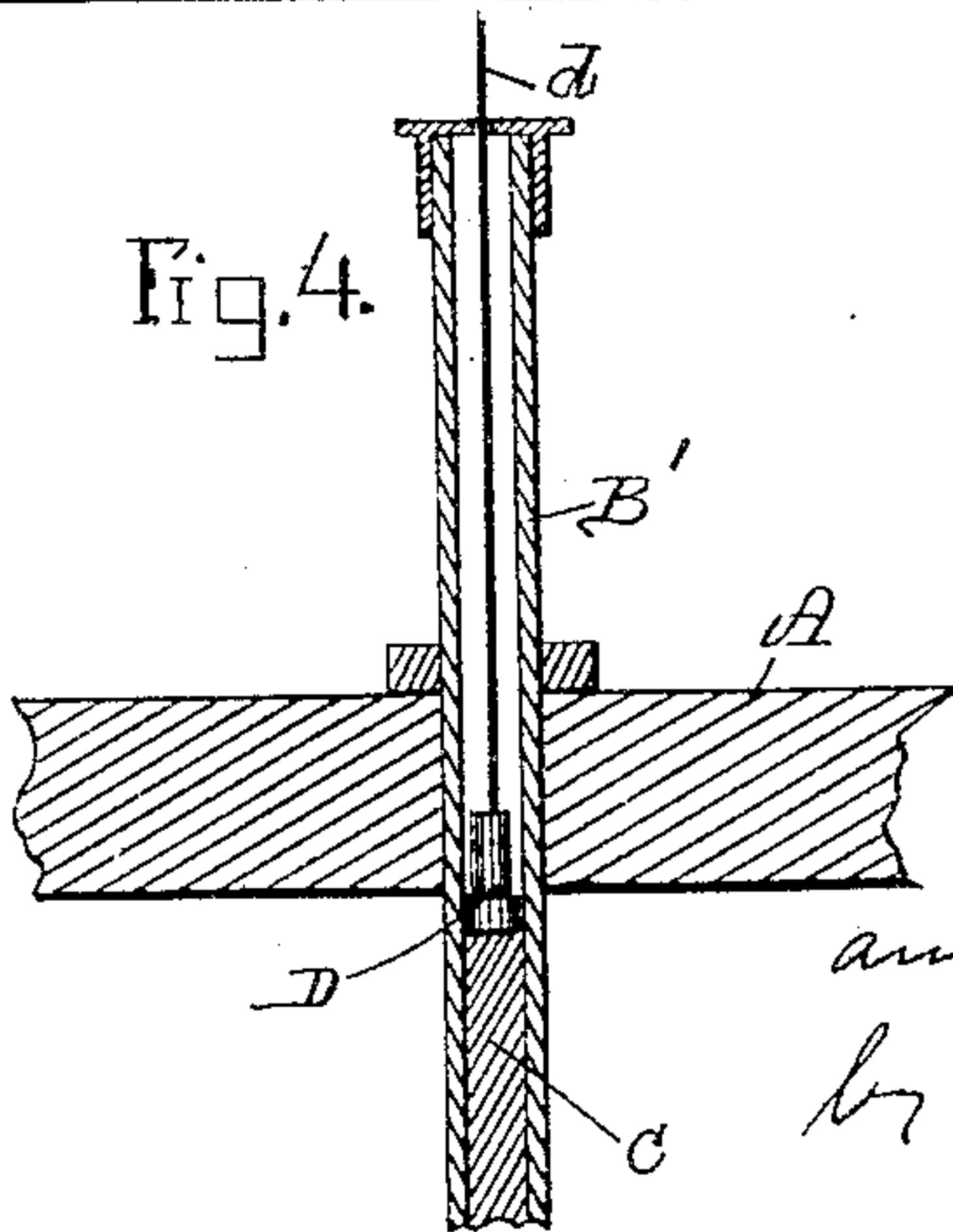


Fig. 4.



Witnesses.

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Fig. 3.

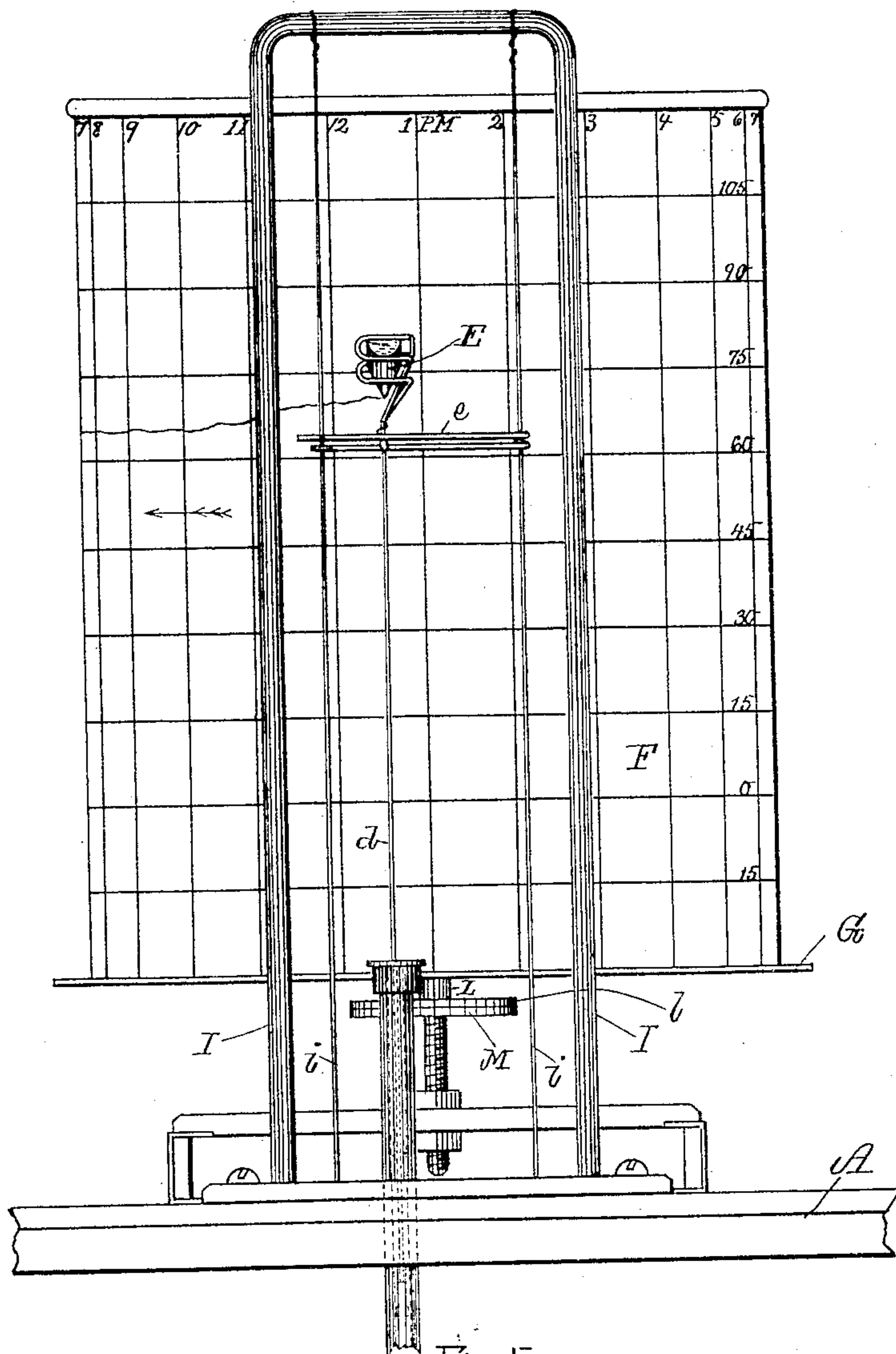
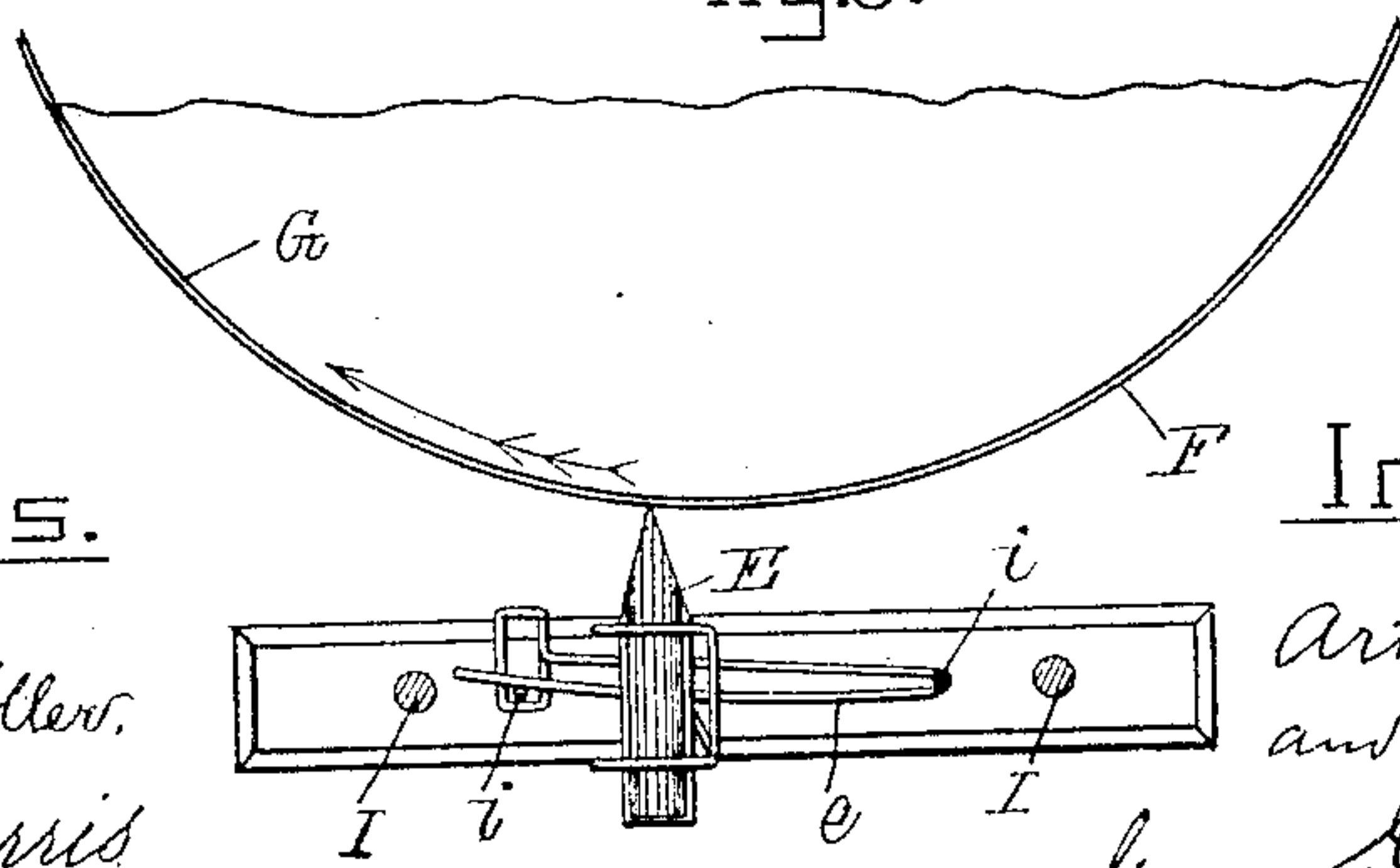


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

ARTHUR M. COMEY AND HARRY G. PARKER, OF CAMBRIDGE, MASSACHUSETTS.

RECORDING-THERMOMETER.

SPECIFICATION forming part of Letters Patent No. 582,043, dated May 4, 1897.

Application filed June 25, 1896. Serial No. 596,852. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR M. COMEY and HARRY G. PARKER, citizens of the United States, and residents of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Recording-Thermometers, of which the following, taken in connection with the accompanying drawings, is a specification.

10 This invention relates to improvements in recording-thermometers for the purpose of automatically recording variations in temperature upon a graduated indicator-card attached to a drum rotated by any suitable clock mechanism, preferably arranged within said drum. The card upon the drum is divided by vertical lines corresponding to hours and divisions thereof, and is also divided by horizontal lines corresponding to degrees of temperature. In connection with such device is used a suitable stylus or marker adapted to transfer a record upon the revolving graduated indicator-card. The said stylus is attached to a rod or wire provided at its lower end with a head or float-piston resting directly upon the mercury in the open end of a thermometer tube or fountain containing mercury, as will hereinafter be more fully shown and described, reference being had to the accompanying drawings, wherein—

30 Figure 1 represents a front elevation of our improved recording-thermometer. Fig. 2 represents a central vertical section of the same. Fig. 3 represents a detail front elevation of the rotary drum and recording mechanism. Fig. 4 represents a detail longitudinal section of the open upper end of the mercury-tube and piston or head resting on the mercury therein, and Fig. 5 represents a detail top plan view of the card-carrying drum and stylus or marker.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

45 A represents a suitable frame for the instrument, below which is located a thermometer tube or fountain B, containing mercury C. Said tube is closed at one end *b* and has at its other end a vertical portion B', open to the atmosphere, as shown in Fig. 4.

Directly upon the mercury C in the tube B' rests a head or float-piston D, to which is attached an upwardly-projecting stem *d*, the upper end of which carries a stylus, pen, or marker E, adapted to be held by a yielding pressure against a graduated card F, surrounding the rotary drum G, as shown.

In practice the stylus E is adjustably secured to a suitable spring clasp or holder *e*, guided on vertical wires *i i*, attached to standards I I and frame A, as shown in Figs. 1, 2, and 3.

Preferably within the upper portion of the drum G is secured a suitable clock mechanism K, on which *k* is the rotary spindle, which may be arranged to rotate, preferably, one revolution in twenty-four hours, or more or less, as may be desired. The spindle *k* is preferably frictionally held in the upper end of a tube L, projecting loosely through the bottom of the drum G and provided with a disk *l*, resting on a stationary plate M, secured to the frame of the apparatus.

The lower end of the tube L is guided on a stationary spindle N, which latter projects upwardly into the said tube L, as shown in Fig. 2.

During the rotation of the clock mechanism its spindle *k* is held attached to the upper end of the tube L and the latter is held from rotation by the frictional resistance between the disk *l* and support M, occasioned by the weight of the drum G and the clock-work K, as shown in Fig. 2.

If it is desired to adjust the position of the drum G relative to the stylus or marker E, this may readily be done simply by raising the said drum and the disk *l* free off the support M, when the drum may be turned around its axis more or less, so as to cause the stylus or marker to point to any desired portion of the graduated card F, according to the time for commencing the recording of the temperature in the place where the instrument is located.

It will be noticed that in this our device the mercury-containing tube is open at one end to the atmosphere and the stylus-carrying spindle is provided with a head or float resting directly upon the mercury in said

thermometer, thus making the instrument very sensitive and responsive to variations in the temperature of the atmosphere.

The operation is as follows: A graduated indicator-card F is attached in a suitable manner to the outside of the drum G and the stylus or marker E is adjusted for contact. The clockwork K causes the said card-carrying drum slowly to rotate, preferably, once in twenty-four hours, during which time the stylus is automatically caused to rise and fall in accordance with the expansion or contraction of the mercury in the tube B', on which such stylus is supported, thus producing the desired record on the card.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent, and claim—

In a recording-thermometer, the combination with a thermometer B open at one end,

of a piston D floating on the surface of the mercury and provided with an upwardly-projecting stem *d*, a stylus carried by said stem, a rotary drum G carrying a graduated indicator-card, a clock mechanism K for rotating said drum, a vertical tube L on which the drum is supported, a disk *l* fixed on the lower end of said tube and a fixed disk M on which the disk *l* rests, substantially as described and for the purpose specified.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 20th day of June, A. D. 1896.

ARTHUR M. COMEY.
HARRY G. PARKER.

Witnesses:

ALBAN ANDRÉN,
CHARLES E. MAXWELL.