

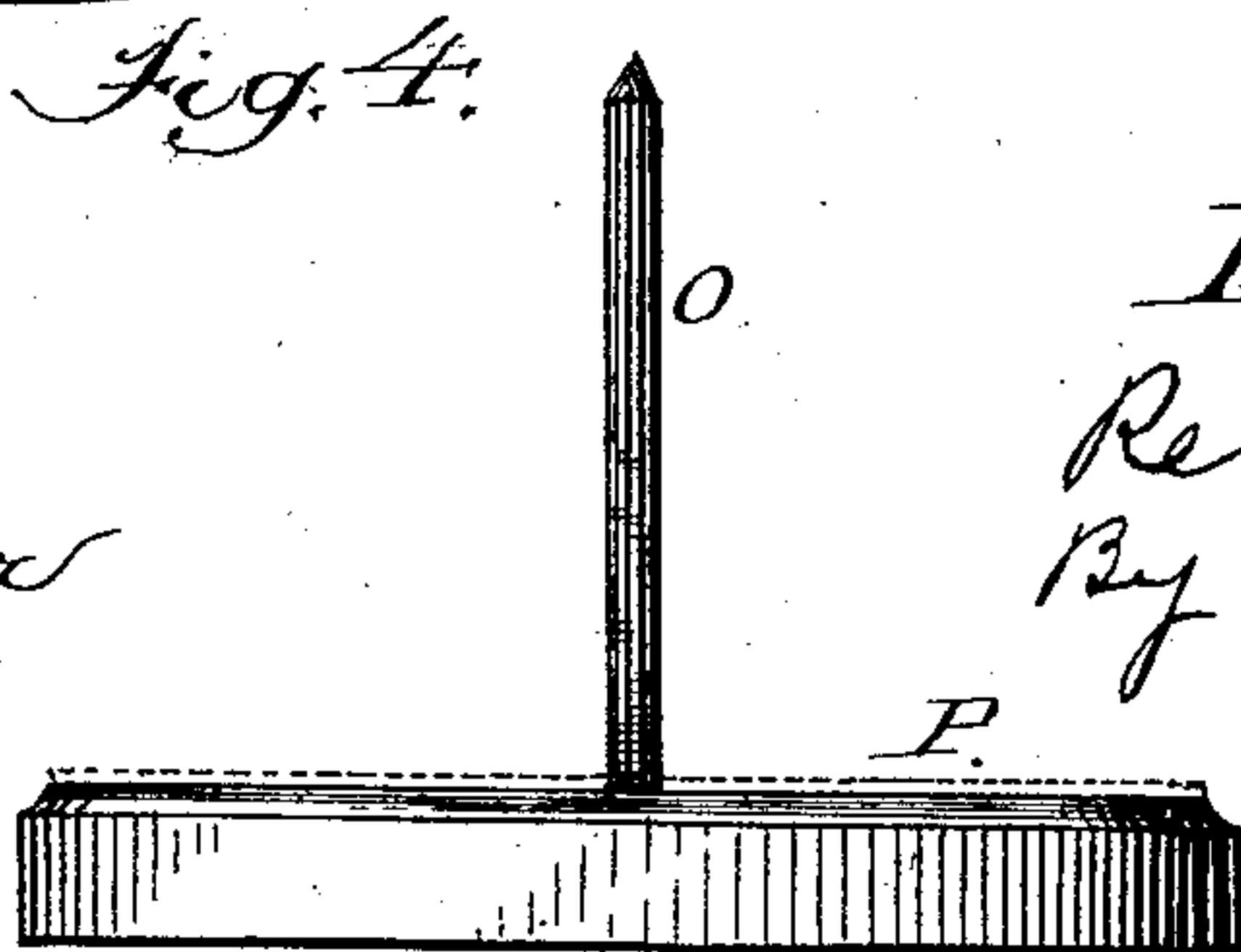
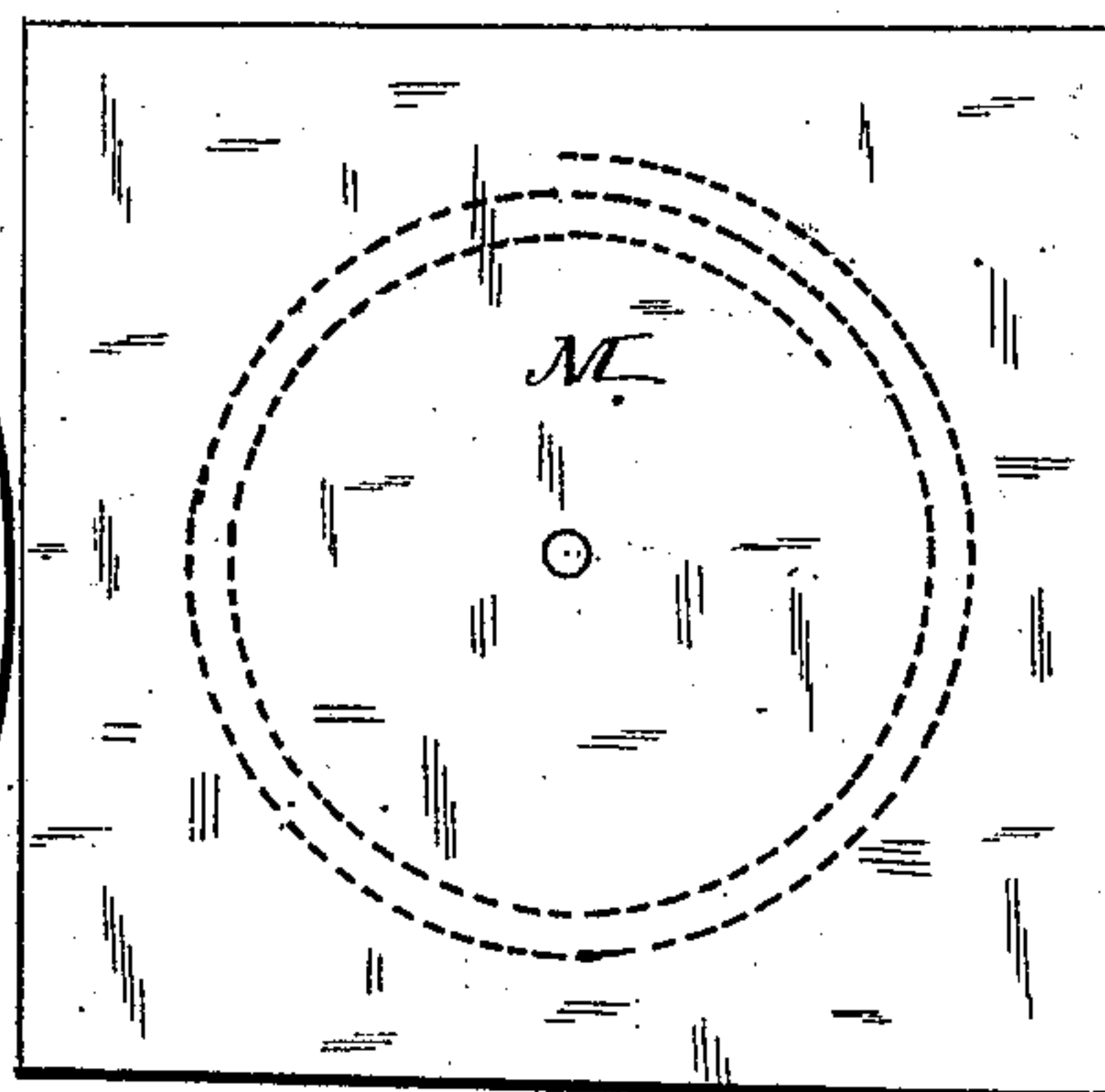
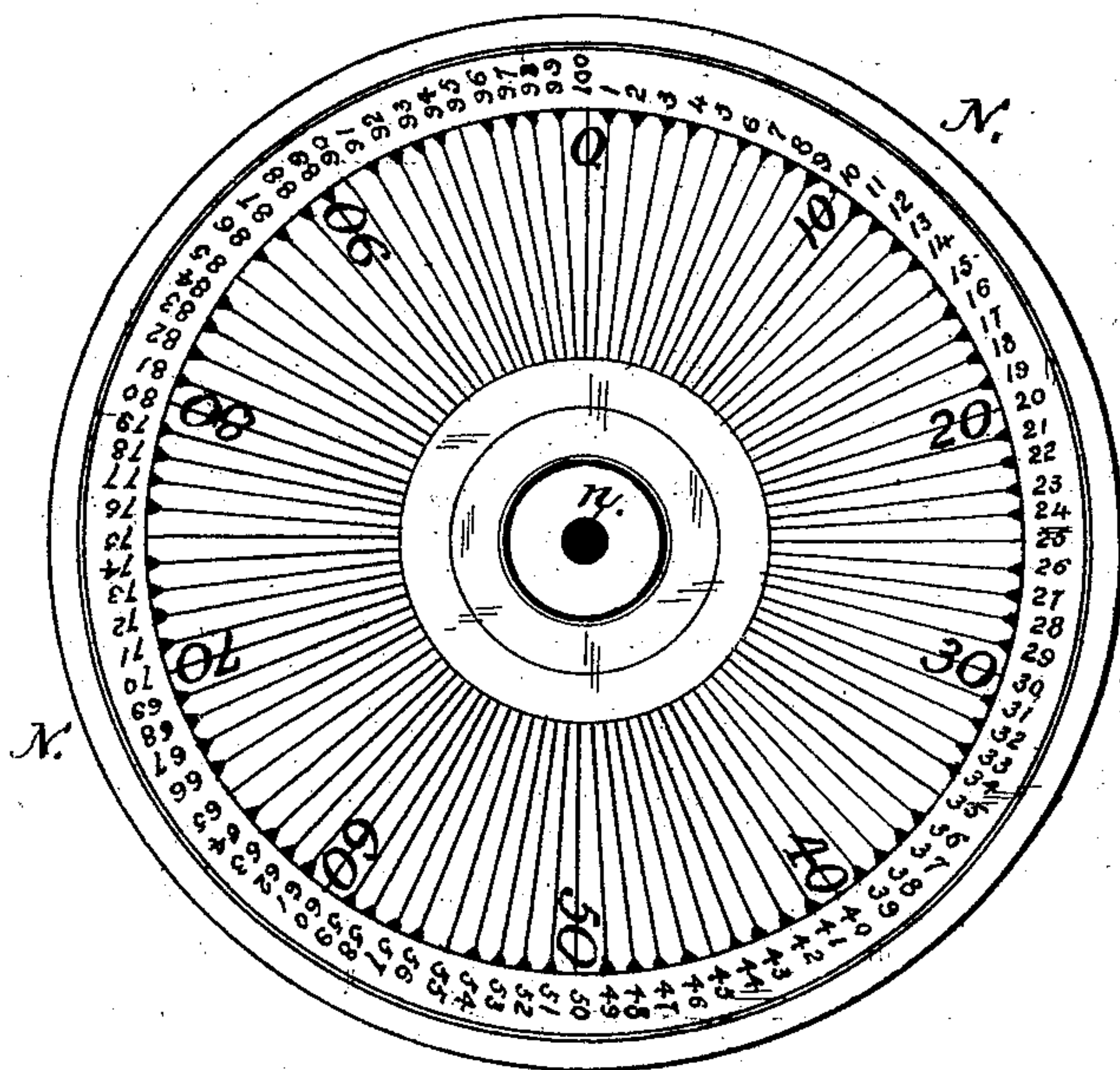
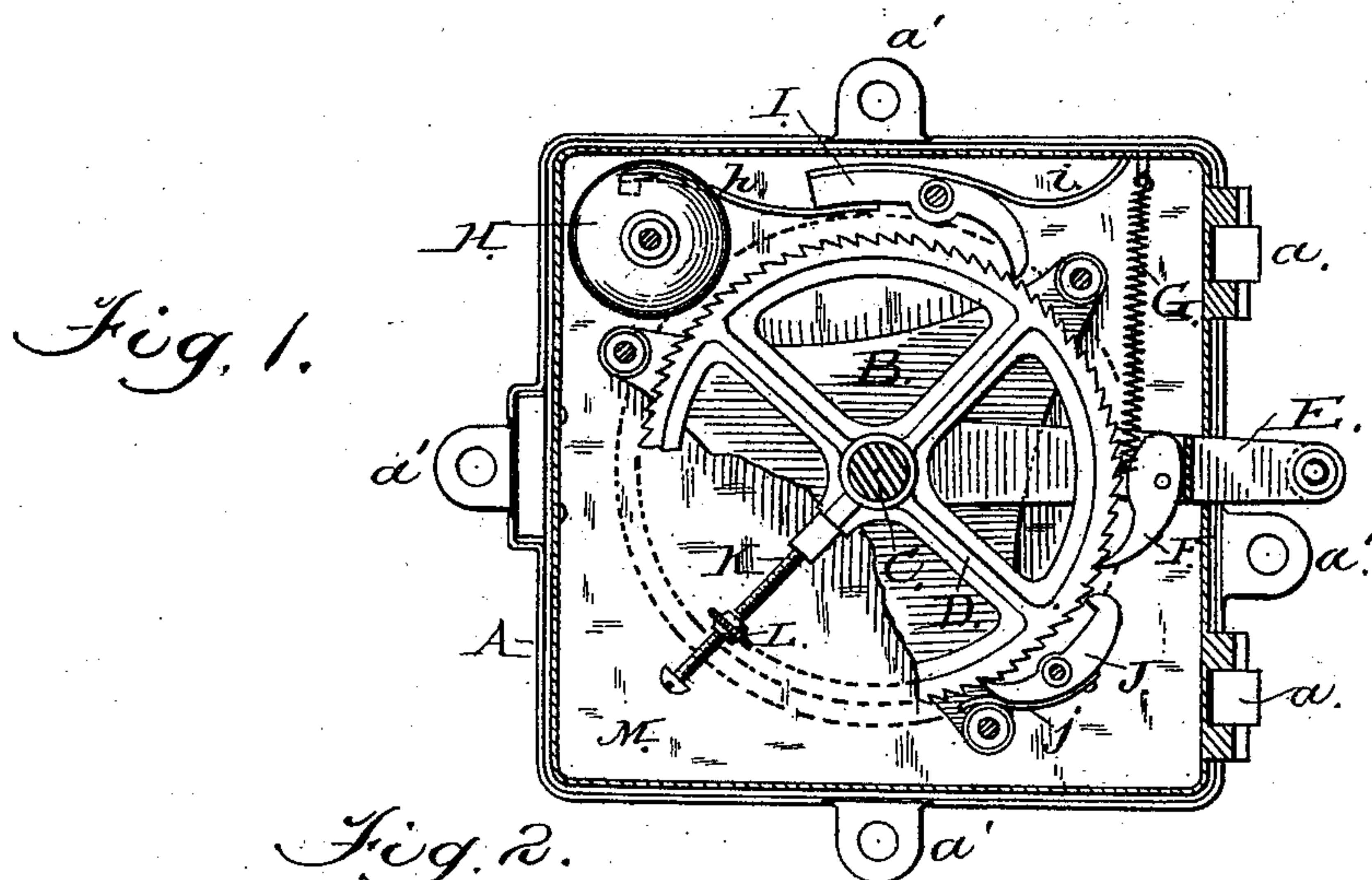
(No Model.)

R. M. ROSE.

DIAL AND READING DISK FOR FARE RECORDERS.

No. 281,301.

Patented July 17, 1883.



Attest;

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UNITED STATES PATENT OFFICE.

REUBEN M. ROSE, OF BROOKLYN, NEW YORK.

DIAL AND READING-DISK FOR FARE-RECORDERS.

SPECIFICATION forming part of Letters Patent No. 281,301, dated July 17, 1883.

Application filed February 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, REUBEN M. ROSE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Dials and Reading-Disks for Fare-Registers; 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 that class of fare registers and recorders in which the total number of fares received during each day is recorded on a removable paper dial; and the principal objects of my invention are to render it impossible for the inspector or other person removing the paper dials at the close of each day to anything more than approximately tell the number of fares that have been recorded, thereby rendering any collusion between inspectors and conductors an utter impossibility, as the exact number of fares recorded can only be ascertained in the superintendent's office; and also to do away with the trouble and expense of printing graduated marks and numerals on the paper dials.

With these ends in view my invention consists in a transparent graduated reading disk or key, by means of which it is made possible to use blank sheets of paper instead of graduated dials, as heretofore.

My invention also consists in the combination, with the operative parts of a fare register and recorder, of a blank piece of paper for receiving the permanent record.

My invention also consists in the combination, with a paper blank bearing only the marks or impressions made by the recording-arm, of a reading disk or key having graduated marks and numerals; and, finally, my invention consists in the combination, with the reading-disk, of a spindle and base, or equivalent device, for the purpose of centering the disk and the blank, all of which will be hereinafter fully described, and specifically designated by the claims.

In order to enable those skilled in the art to which my invention relates to make and use my improvement, I will proceed to describe the same, referring by letters to the accompa-

nying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the operative parts of a fare register and recorder, the dial being removed, the main shaft shown in section, and a portion of the operating-wheel broken away to show the indentations made by the recording-wheel on the piece of blank paper, which constitutes the permanent register of the number of fares rung up each day. Fig. 2 shows the reading-disk or key slightly enlarged. Fig. 3 shows the blank as it appears when removed from the register, the dotted spiral line representing the record of a day's work; and Fig. 4 shows a spindle, which may be used to "center" the blank and the reading-disk.

It is not deemed necessary to fully describe the operating parts of a fare register and recorder, as they form no portion of my present invention, which is intended to be used in connection with any register or recorder in which a removable paper dial forms an element. As a representation of this class of registers, reference may be made to patent to R. M. Rose, No. 244,314, July 12, 1881.

Similar letters of reference denote like parts in all the figures.

A represents the case, preferably of metal, which is hinged to a back plate. (Not shown.) *aa* represent portions of the hinges in section, and *a' a'* lugs projecting from the back plate for the reception of screws to retain the register in place.

B is one of the supporting-plates; C, a central shaft free to rotate in bearings in the supporting-plates.

D is the operating-wheel, having ratchet-teeth upon its periphery rigidly secured to the central shaft.

E is the actuating-lever projecting through a slot in the side of the case.

F is a pawl upon said lever, adapted to engage with the operating-wheel to move it a single step upon each actuation of lever E.

G designates a spring connected at one end to said pawl, and at the other to the case, which serves to keep the pawl against the operating-wheel, and also to raise the lever after each actuation.

H is a gong secured to the case, and *h* the

hammer, which is fixed to a pawl, I. This pawl is pressed against the toothed periphery of the operating-wheel by a spring, *i*.

J is a third pawl pressed against the operating-wheel by spring *j*.

It will be observed that pawl I rests upon a half-tooth while the others are engaged; hence the gong will be rung upon a half-movement, and the operating-wheel is prevented from being turned backward.

At the back of the case, and held in place by being clamped between the edge of the case and the back plate, is placed a piece of blank paper, M.

K is a radial arm attached to the back end of the central shaft. This arm is screw-threaded a greater portion of its length, and carries a toothed wheel, L, which is caused to press against the blank M by a spring. (Not shown in the drawings, but fully illustrated in my patent referred to above.) As the shaft is turned, the arm necessarily moves with it, and the toothed wheel, being turned by contact with the paper, is moved inward or outward by the screw-thread on the radial arm, so that it produces a continuous spiral line of perforations, indentations, or marks on the blank paper. As the arm cannot be moved backward, the wheel necessarily makes a permanent and accurate record of all fares rung up during the day upon the blank, which can only be compared with the conductor's returns in the superintendent's office. Should it be necessary for either the conductor or inspector to open the register at any time while in use, they could gain no accurate information in regard to the number of fares actually recorded. In fact, should a conductor become possessed of a private key, he would still be unable to tamper with the record or even to ascertain the number of fares indicated by the permanent register.

It will be understood, of course, that any other suitable device for perforating or marking the paper blank M may be used in lieu of the screw-threaded arm and toothed wheel, as these features form no part of my present invention.

N is the reading-disk or key, which may be made of glass or any other transparent or translucent substance.

l is a hole in the center to adapt it for use in connection with a spindle.

The disk is intended to be made of slightly greater diameter than the track of the marking-instrument, and is provided with graduated marks from one up to one hundred, and with corresponding numerals near its outer edge, the graduated marks being the exact distance apart that is traveled over by the recording-arm upon each actuation of the lever.

O in Fig. 4 represents a spindle fixed in a base, P, which may be used in connection with

the reading-disk. In practice the spindle may or may not be used, it being only necessary to "center" the blank having the indentations or marks upon it and the reading-disk over it, when the number of fares rung up is indicated with absolute accuracy. Instead of a perforation, the reading-disk may have a slight projection or teat in the center, to aid in centering the blank; or it may have a perforation or a teat near its outer edge corresponding with the perforation made in the blank by the pin in the back of the register.

I am aware that in drafting-instruments a transparent gage in the form of a segment of a circle has been used; but the construction of this gage is such as not to fit it for the uses I contemplate, while the uses for which it is adapted are entirely dissimilar from mine, and do not remotely suggest it.

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

1. A transparent or translucent reading-disk or key for fare registers and recorders in which a continuous record is made upon a removable paper, said disk having graduated marks the exact distance apart that is traveled over by the recording-arm upon each actuation of the device.

2. In a fare register and recorder, the combination, with a recording device upon a radial arm, a shaft, operating-wheel, and actuating-lever, of a piece of paper, free from marks of any kind, adapted to receive the impressions or marks made by the recording device, and a key for reading the same.

3. The combination, with a paper blank having only the marks or impressions made by the recording-arm of a fare register and recorder, of a reading-disk or key having graduated marks and numerals the exact distance apart that is traveled over by the recording-arm at each actuation of the device, substantially as described.

4. The combination, with the circular reading-disk having graduated marks, as described, and a perforation in the center, of the spindle and base for the purpose of centering the blank and the reading-disk, all as described, and for the purposes set forth.

5. The herein-described method of detecting frauds in the use of fare-recorders, which consists in causing the marker to travel in a spiral line over a blank piece of paper, and reading the record so made by means of a transparent disk having radial graduations, the intervals between which are equal to the movement given to the marker at each actuation.

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

REUBEN M. ROSE.

Witnesses:

A. M. WOOSTER,
W. T. HAVILAND.