

R. P. HINDS.

Counting-Registers.

No. 135,336.

Patented Jan. 28, 1873.

Fig. 4.

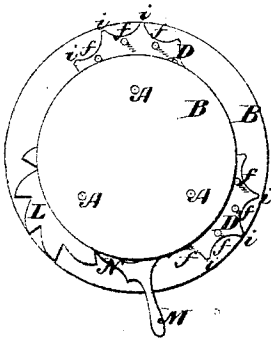


Fig. 3.

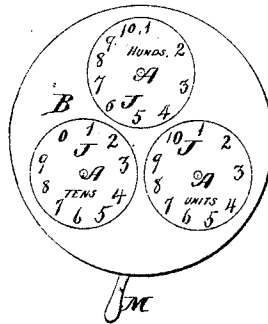


Fig. 5.

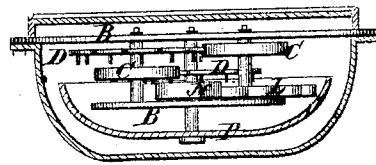


Fig. 1.

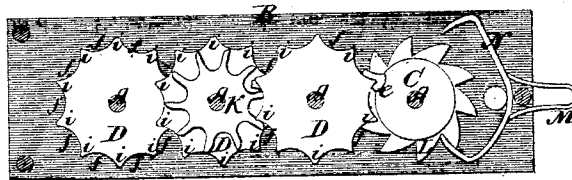
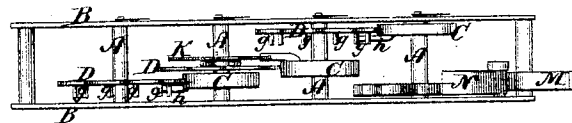


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

RUSSEL P. HINDS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN COUNTING-REGISTERS.

Specification forming part of Letters Patent No. 125,336, dated January 28, 1873.

To all whom it may concern:

Be it known that I, RUSSEL P. HINDS, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Mechanical Movement; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a top-plan view of my improved movement arranged in a rectangular case, the top plate of which is removed. Fig. 2 is an edge view of the same. Fig. 3 is a top-plan view of a modification, showing the movement arranged in a circular case. Fig. 4 is a bottom view, and Fig. 5 an edge view, of the same modification.

Similar letters of reference in the accompanying drawing denote the same parts.

My invention has for its object to provide improved means for transmitting rotary motion to be used upon meters of various kinds, calculating or counting machines, calendars, clocks, watches, &c.; and to this end the invention consists in the construction and combination of parts as I will now proceed to describe.

A represents a series of shafts having their bearings in two rectangular, circular, or other suitably-formed plates, B, and either arranged in line, as shown in Figs. 1 and 2, or at an angle with each other, as in Figs. 3 and 4. C C C are what I term "press-wheels," mounted upon the shafts so as to turn with or upon them; and D D D are recessed wheels, also mounted upon the shafts. The press-wheels are constructed with smooth peripheries, excepting at one point, where they are notched or recessed, as shown at *e*, and the larger wheels D are formed with concave recesses *f* in their peripheries, the radius of each concavity being equal, or nearly so, to the radius of each press-wheel. The wheels are so arranged that the press-wheel upon one shaft shall be in line with and bear against the concave surfaces of the wheel D upon the adjoining shaft, and so on throughout the entire train. *g g* are a number of pins projecting from the side of each wheel D at regular distances apart, and within the path of an arm or spur, *h*, projecting from the side of each press-wheel, as shown. The contact of the

press-wheels with the concave surfaces of the wheels D hold the latter from turning until the rotation of the former carries the arm *h* against one of the pins *g*. As the arm strikes a pin the points *i* of the wheel D between the concaves enter the notch *e* in the press-wheel and permit the wheel D to rotate the distance of one concave. Thus one revolution of a press-wheel moves the adjoining wheel D one concave, the concaves and pins being equal in number. By affixing dials J to the outside of either plate A of the case and attaching index-fingers to the shafts, the number of revolutions of the wheels D is easily recorded. It is evident that as many revolutions of the press-wheels are necessary to rotate each wheel D once as there are pins and concaves upon the latter, and that a system of wheels may be arranged to record tens, hundreds, thousands, &c., as in an ordinary gas or water meter. Instead of employing lateral pins *g* to engage the arms *h*, separate toothed wheels K may be mounted upon the shafts C beside the wheels D, as shown in Figs. 1 and 2.

I am aware that in a train of gear-wheels for transmitting rotary motion the driving-wheels have been formed with a peripheral tooth to engage with peripheral teeth in the adjoining wheels. This arrangement, however, contains defects which my invention is designed to overcome. In all wheels of this form, as well as gear-wheels, the point of contact between the teeth is always removed some distance from a straight line drawn between the centers of the wheels. For this reason the teeth are made to mesh loosely in order to prevent the wheels from binding and cramping. The play of the teeth, however, causes a great amount of friction, and a consequent increase in the power required to drive the train. By the employment of the press and concave wheels and the arrangement of the tripping arms and pins the tripping-arm comes in contact with the pins directly upon a straight line drawn between the centers of the two wheels. The pin is therefore merely touched and pushed out of the way by the arm in order to turn the concave wheel. The point of contact between the two being very small, the friction is reduced to the minimum, and less power is required to drive the mechanism. Neither is there any friction to overcome between the

press-wheel and concaves *e* at the moment of tripping, because these two surfaces are then out of contact. It is not absolutely necessary that the press-wheel should touch the whole of a concave surface, *e*, when the tripping-arm is out of contact with the pins, as it may, with equal effect, bear at two points only—*i. e.*, near the points *i*.

L is a ratchet-wheel mounted upon the first of the series of shafts *A*. A circular movement is imparted to it to drive the first press-wheel by means of the vibrating lever *M*, carrying two pawls, *N*, one of which engages the ratchet-teeth in rising and the other in falling. *O* is a spring attached to the fulcrum of the lever and arranged to bear against one of the pawls to hold it engaged with the ratchet-wheel. The lever may be operated by any suitable means.

Fig. 5 shows the application of a bell, *P*, to the case of the movement, which may be struck by any suitable mechanism operated from any of the shafts *C*, or from the wheels of the train, or from the spring-lever and pawls *M N*.

Having thus described my invention, what I claim is—

As a means for transmitting rotary motion from a smooth wheel to a wheel having a series of peripheral concaves, the arm *h* upon the former arranged to strike lateral pins upon the latter at a point directly in line with the center of the two wheels and midway between the points *i* of the concave wheel, substantially as described, for the purpose specified.

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Witnesses:

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