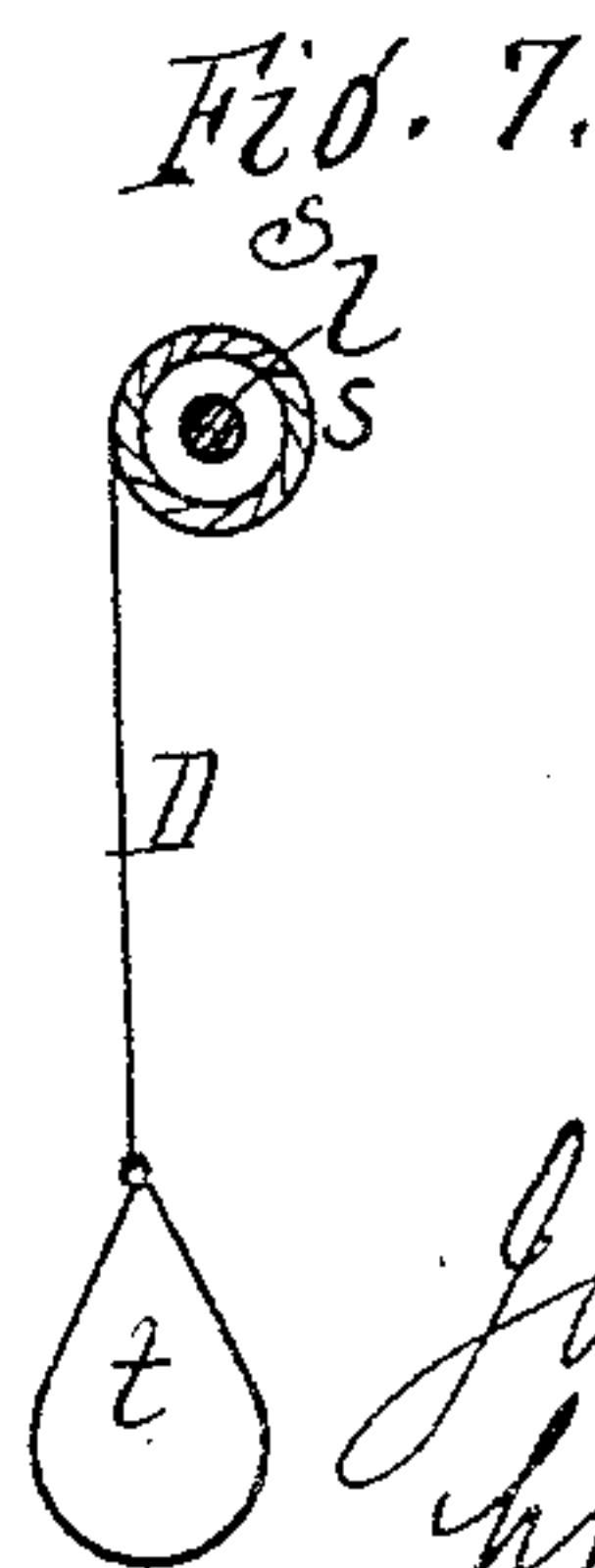
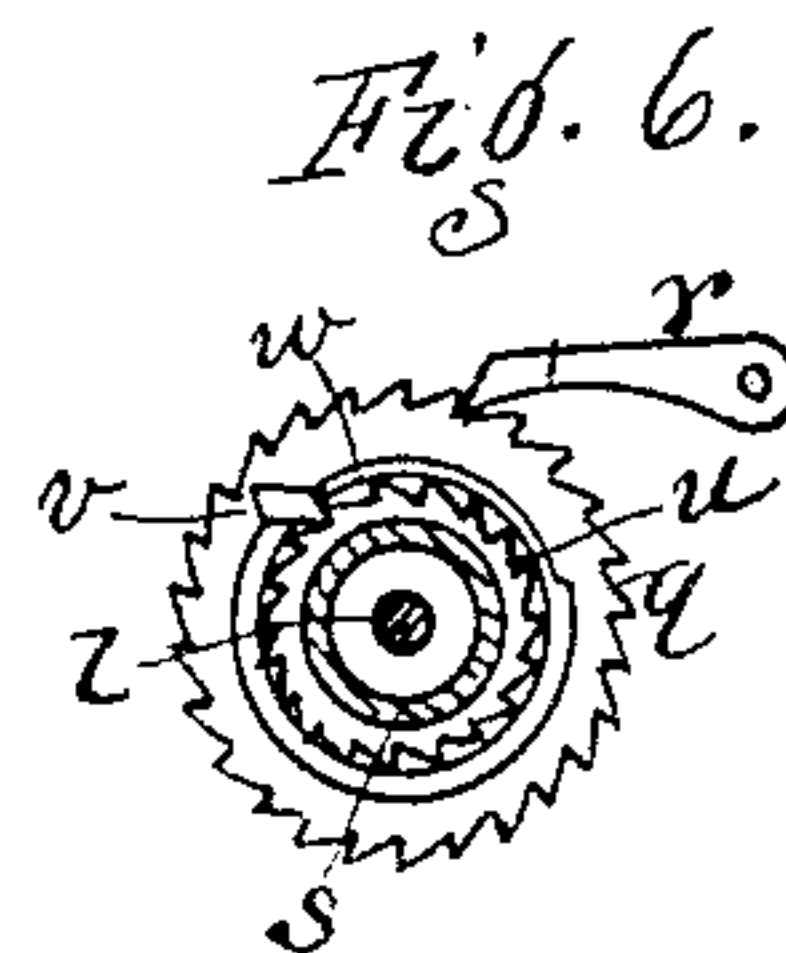
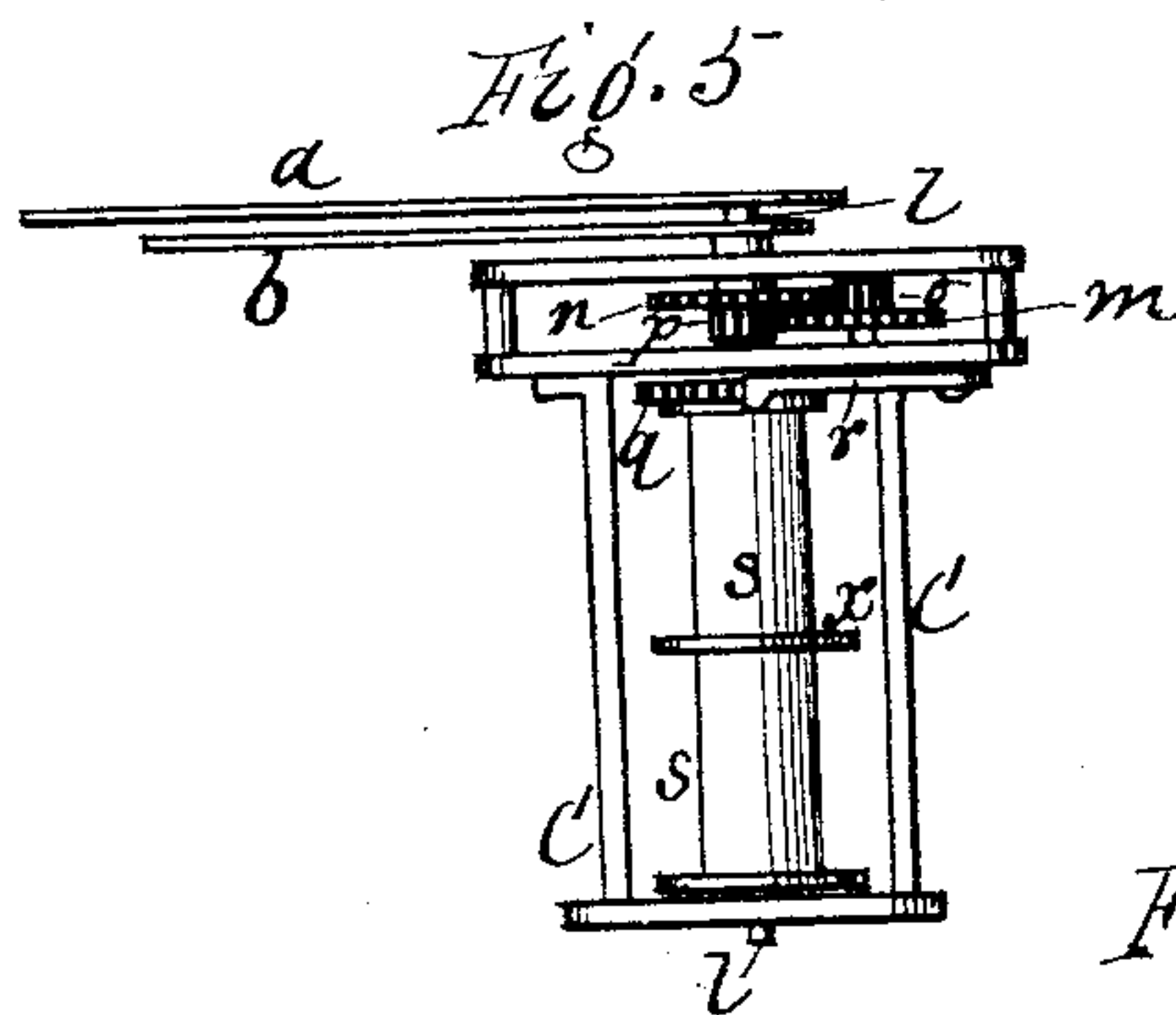
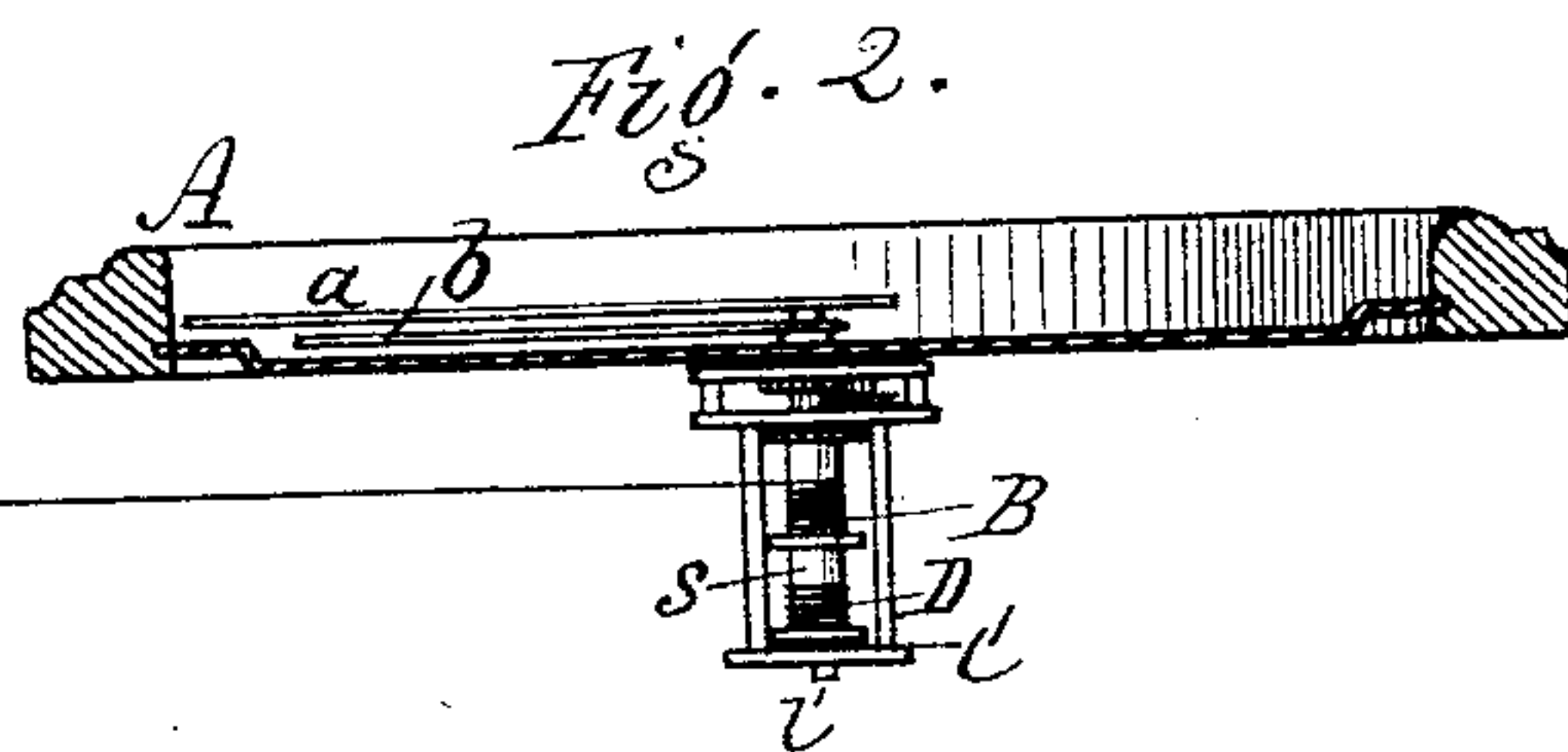
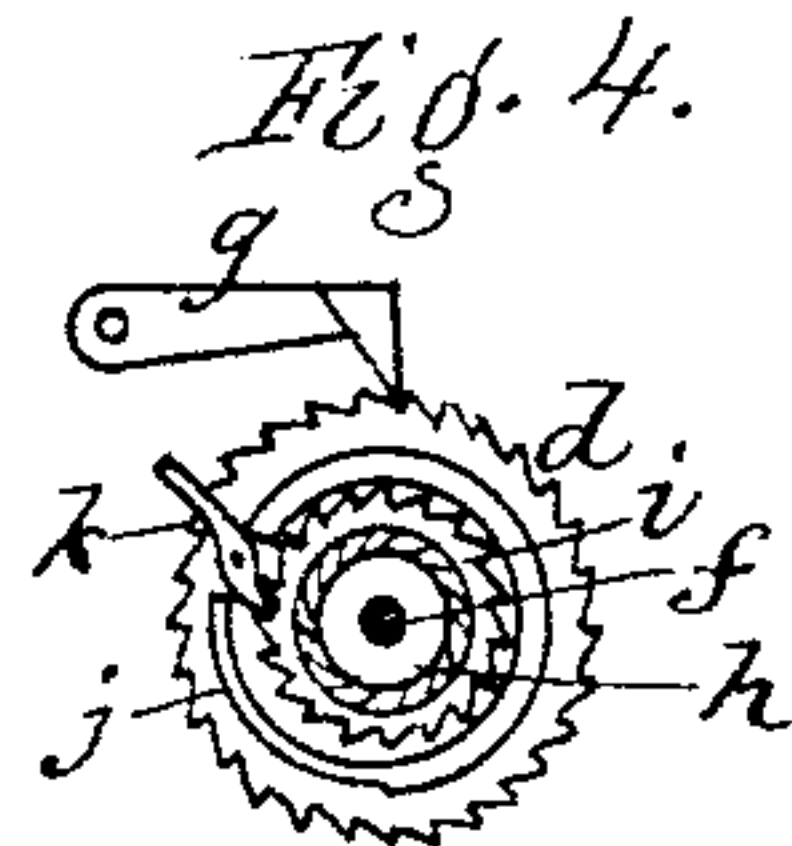
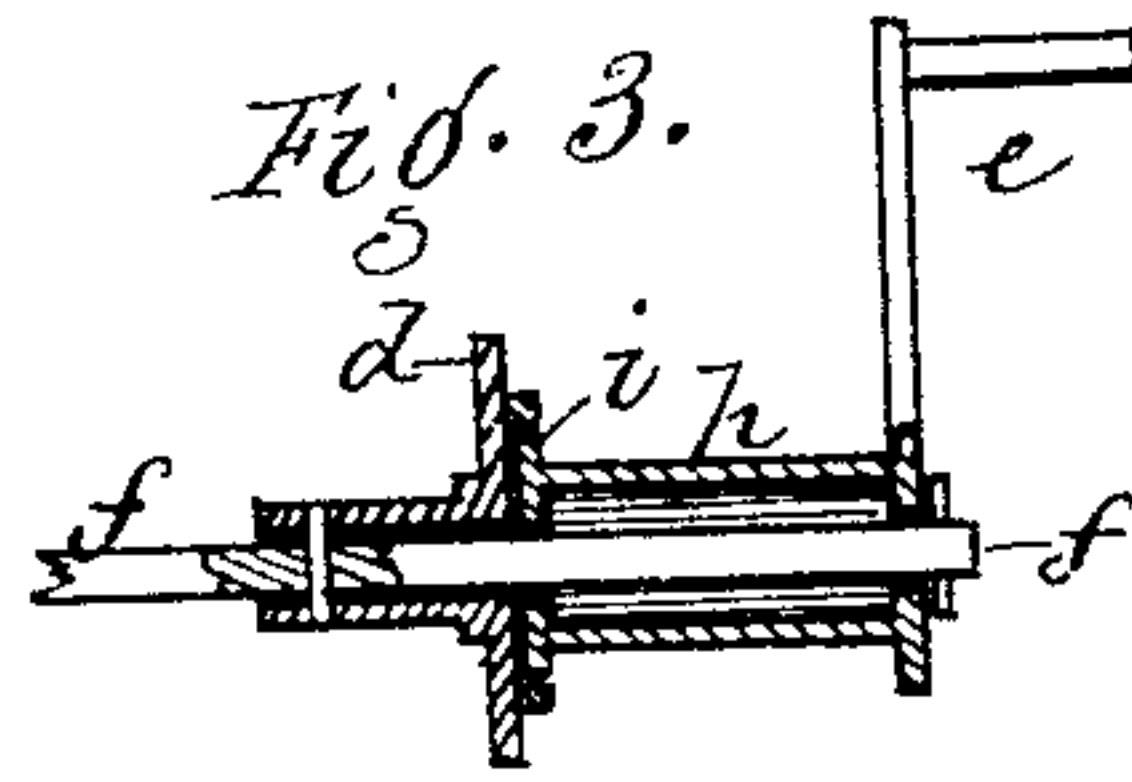
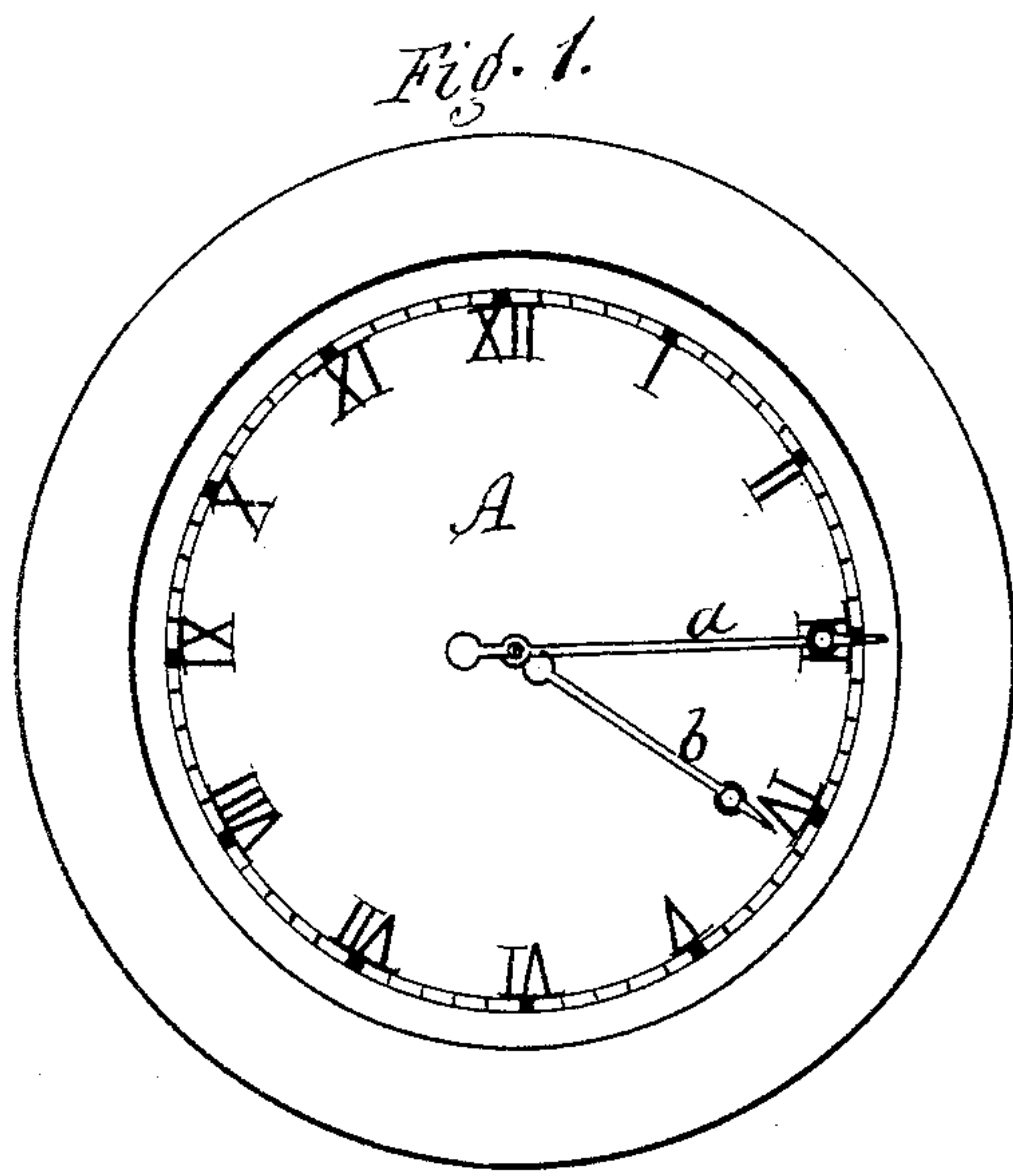


J. DITTMEIER.
Clock.

No. 218,368.

Patented Aug. 12, 1879.



Attest.
John C. Burnt.
Jacob Spuhler

Inventor.
John Dittmeier
per R. F. Cogood,
Atty.

UNITED STATES PATENT OFFICE.

JOHN DITTMEIER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN CLOCKS.

Specification forming part of Letters Patent No. **218,368**, dated August 12, 1879; application filed June 7, 1879.

To all whom it may concern:

Be it known that I, JOHN DITTMEIER, of the city of Rochester, county of Monroe, and State of New York, have invented a certain new and useful Improvement in Clocks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a face view of the dial. Fig. 2 is a horizontal cross-section of the same and a plan view of the cord or chain which leads therefrom to the clock-work. Figs. 3 and 4 are longitudinal and cross sections, respectively, of the arrangement for winding up the cord. Figs. 5 and 6 are a plan and cross-section, respectively, of the arrangement for giving motion to the clock-hands. Fig. 7 is a view of the weight arrangement.

My invention relates to certain improvements in clocks, in which, by the use of a cord or chain, motion may be properly imparted to the clock-hands where the dial is located some distance from the clock-works.

The invention consists in the construction and arrangement of parts, hereinafter more fully described.

A represents an ordinary clock-dial, and *a b* the minute and hour hands, which are arranged in the usual way. This dial may be mounted in any suitable place, and from this point a non-extensible cord or chain, B, extends from the dial, over pulleys *c c*, back to the clock-works, which are independent of the dial, and may be located at any convenient distance therefrom. By the unwinding of this cord as the clock moves, the proper motion is imparted to the hands on the dial-face by the following means:

d, Figs. 3 and 4, is a small ratchet-wheel, which is fastened to the post or shaft *f* of an ordinary clock, to which the hands are usually secured, but which, in this case, has no hands. With this ratchet-wheel engages a detent, *g*, which allows the wheel and shaft to move forward, but not backward.

On the same shaft *f*, and outside of the ratchet-wheel, is a loose drum or spool, *h*, turned by a crank, *e*. On the inner end of the drum is a small ratchet-wheel, *i*, whose teeth

stand reversely to those of ratchet *d*; and with ratchet *i* engages a detent, *k*, pivoted to the ratchet *d*, and held in engagement by a spring, *j*. This allows the drum *h* to be turned backward by the crank, but not forward, except as it moves with ratchet *d*, the two being locked together.

By the means above described the running-movement of the clock causes the drum or spool *h* to move forward and unwind the cord B, which is connected therewith, and when said cord is unwound it can be wound up again by turning the spool backward by the crank, the whole being done without affecting the clock-works.

C is a frame made fast to the back of the dial, and forming a bearing for the support of a shaft, *l*, upon which are mounted the minute and hour hands *a b* in precisely the same way as they are mounted on the hand-post in an ordinary clock. The same spur-gears *m n* and pinions *o p* are also used to give motion to the hands as are used in a common clock.

q is a ratchet-wheel, made fast to shaft *l*, so as to revolve with it. It is held by a detent, *r*, which allows the shaft to run forward in proper direction to carry the hands over the dial, but to prevent it from running backward.

s is a long drum or spool, which runs free on shaft *l*, and is divided into two or more sections, separated by heads or flanges *x*, for the winding of two or more separate cords. The cord B, which extends from the clock-work, winds upon the inner section, while a separate cord, D, to which is attached a weight, *t*, winds upon the outer section, but in the reverse direction, so that as one cord winds up the other unwinds, and vice versa.

On the inner end of drum *s* is a small ratchet-wheel, *u*, whose teeth stand reversely to those of ratchet *q*, and with this engages a detent, *v*, attached to ratchet *q*, and held to engagement by a spring, *w*. This allows the drum to turn backward without carrying the shaft, which is necessary in winding up cord B upon the drum *h*, as before described. As this cord winds up on drum *h* it unwinds from drum *s*, and the weighted cord D winds up on drum *s*. This is equivalent in effect, so far as the hands are concerned, to the winding of an

ordinary clock, although in this case, of course, the clock proper is wound in the ordinary way independently of the mechanism above described.

The operation of the mechanism will be readily understood by the above description. As the clock moves the cord B gradually unwinds from drum *h* and winds on drum *s*, the cord D unwinding at the same time and producing the proper tension by means of its weight. The same motion is given to the hands as would be given if they were attached to the hand-post of the clock. When cord B is unwound it can be wound again by the means described.

It is necessary that the connection B should not stretch or contract; hence it would be best to make it of chain or wire.

By the means above described the dial or dials may be located at any desired distance from the clock, and the connection may be made in an indirect or tortuous way, which renders it more effective than where rods are used, as in what are known as "tower-clocks." The connection may be made in different angles by using suitable pulleys for the connection B to pass over.

By increasing the number of winding-sections on spool *s*, and having separate cords connect with the same, separate dials located at different points may be used. In such case only the single cord B, running from drum *s* to drum *h*, is necessary, and only one weighted cord D is required.

By making the weight *t* sufficiently heavy, the same may be used as the motive power for running the clock through the medium of the connections above described, in which case no spring or weight will be required in the clock-works.

Having thus described my invention, I claim as new—

In a clock, the combination, with an independent dial provided with a shaft having minute and hour-hands thereon, of an operating-drum resting on said shaft, a weight-cord attached to the drum for running it down, a cord or equivalent connection extending from the drum to the clock-work, and a winding-drum resting on the hand-post of the clock-work, to which said cord or connection is attached, the two drums turning loosely on their shafts, and being provided with suitable ratchets and detents to allow back action, the whole arranged, as described, so that the hands upon the dial receive motion from the clock-work through the medium of the cord or connection, and said cord or connection is rewound by turning back the drum on the hand-post of the clock, as herein specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN DITTMEIER.

Witnesses:

MOSES GUTMANN,
R. F. OSGOOD.