

W. H. HORNUM.  
FARE-REGISTERS.

No. 194,913.

Patented Sept. 4, 1877.

Fig. 2.

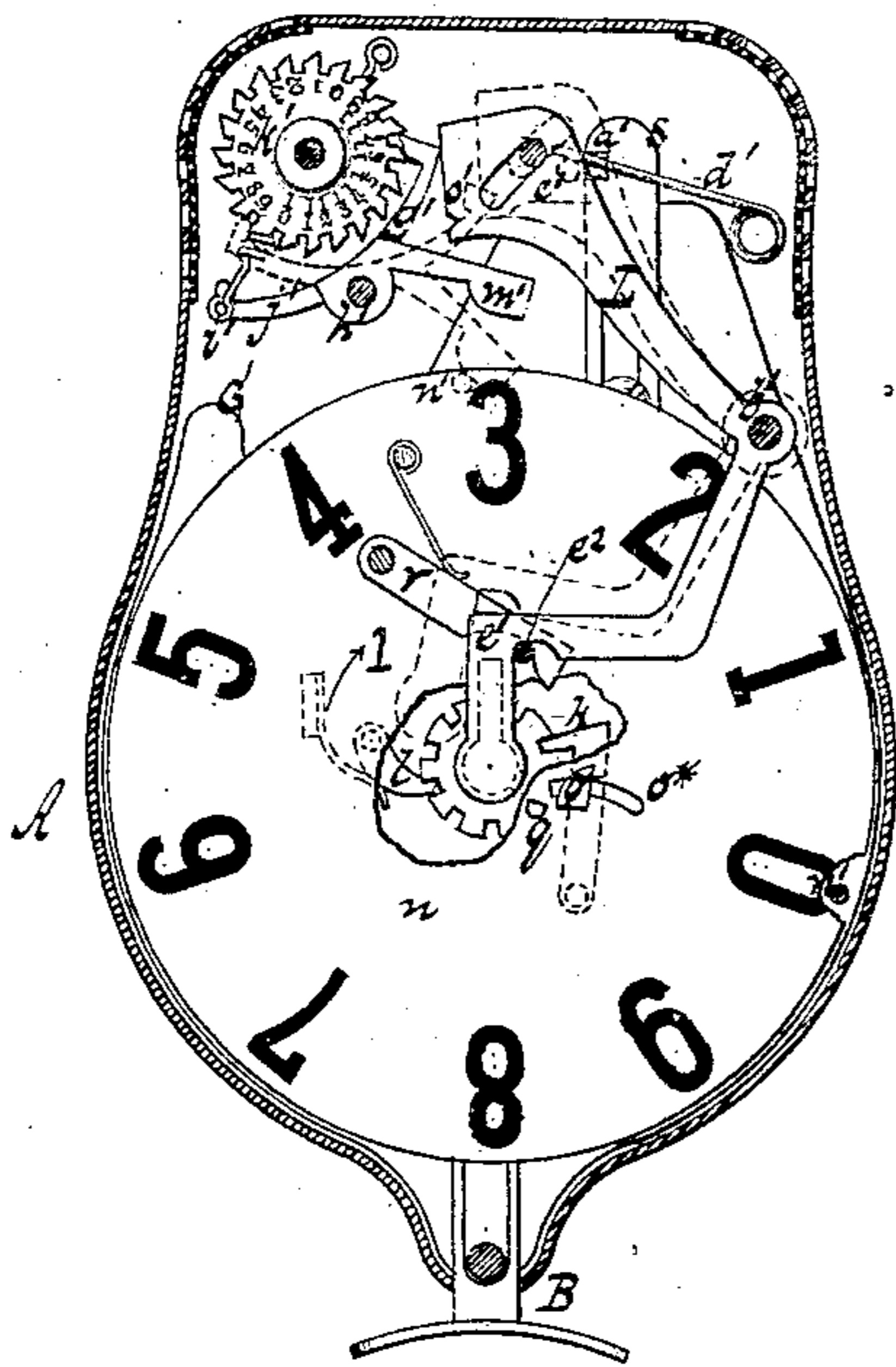


Fig. 1.

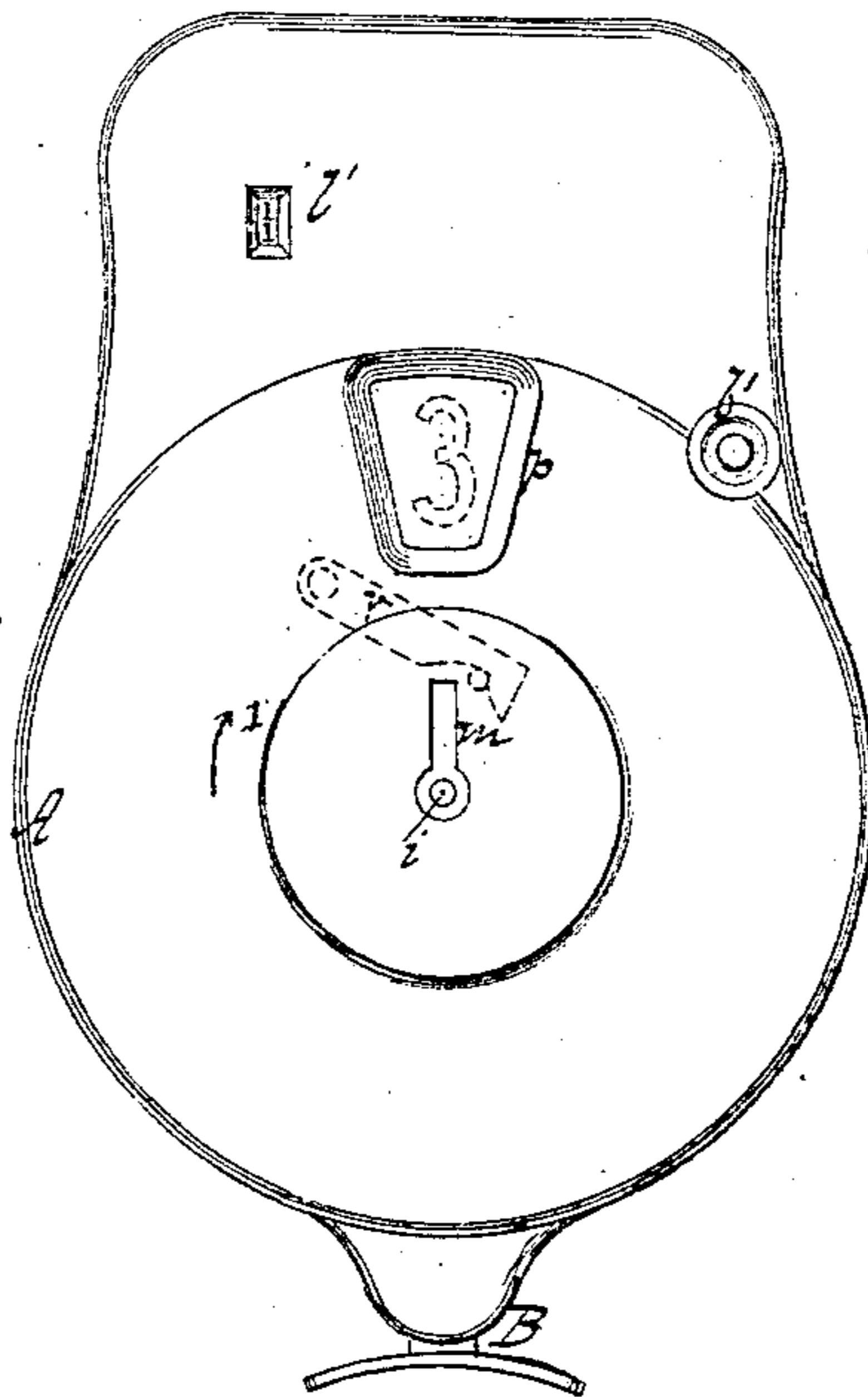


Fig. 3.

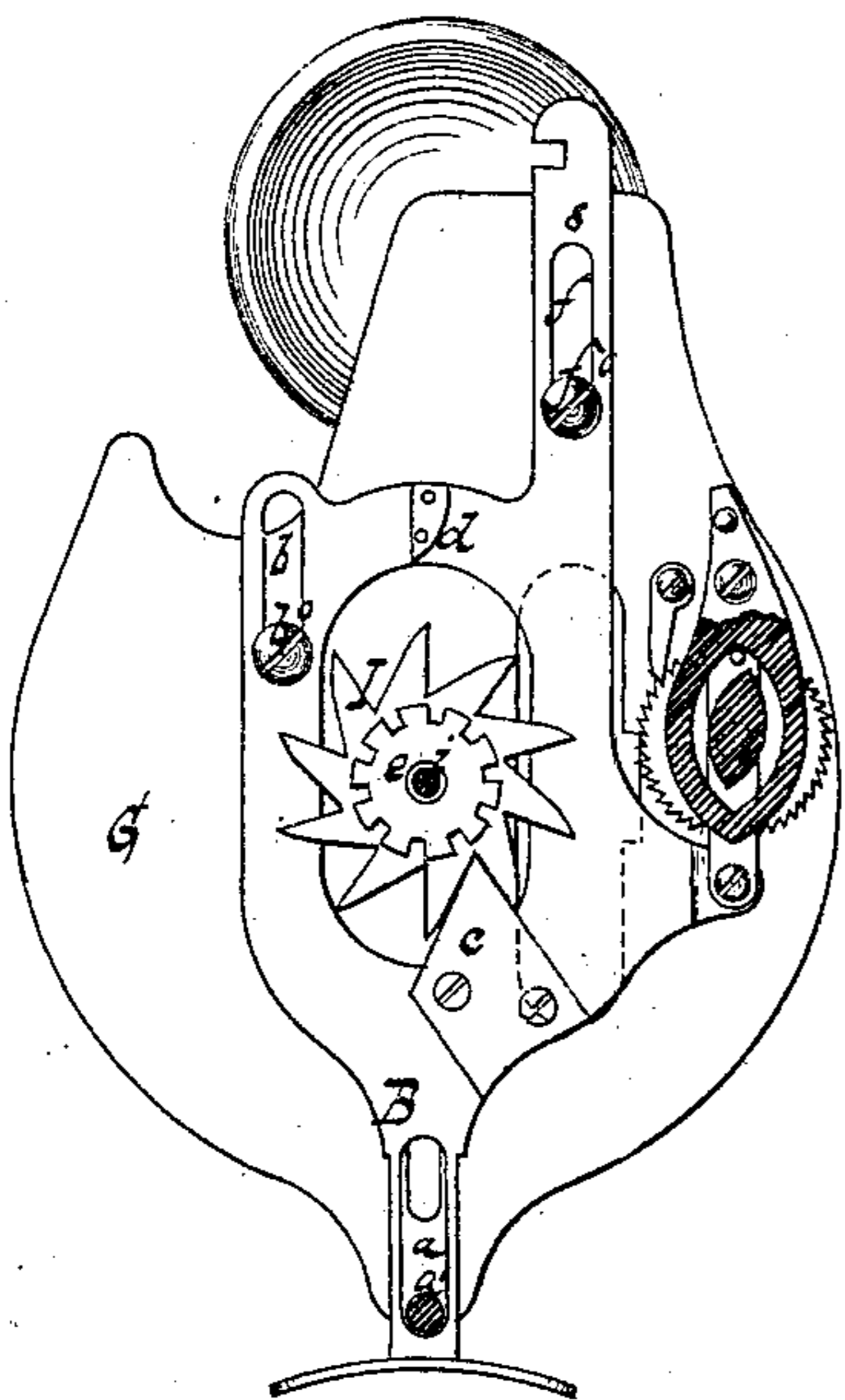
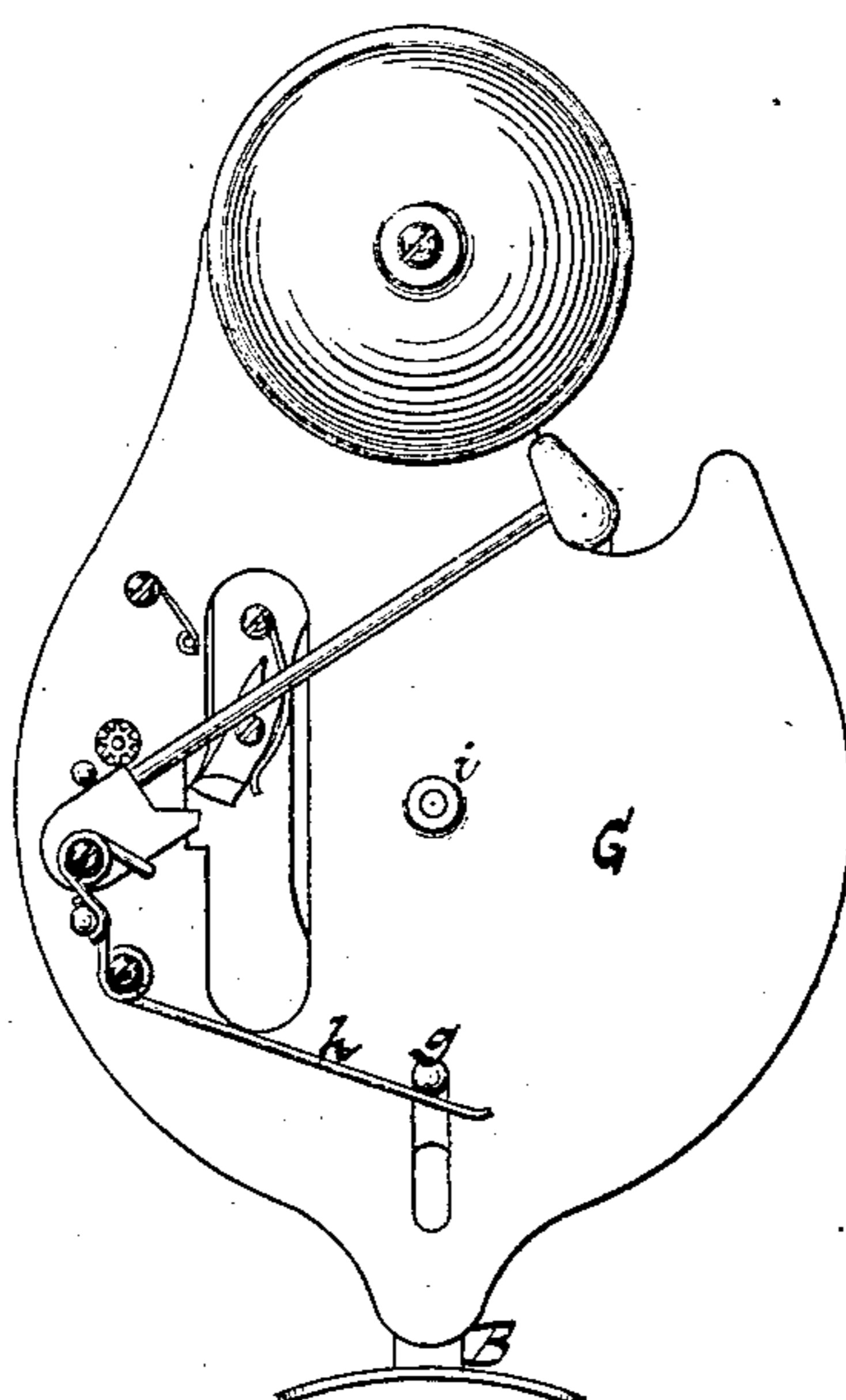


Fig. 4.



Witnesses

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Fig. 5.

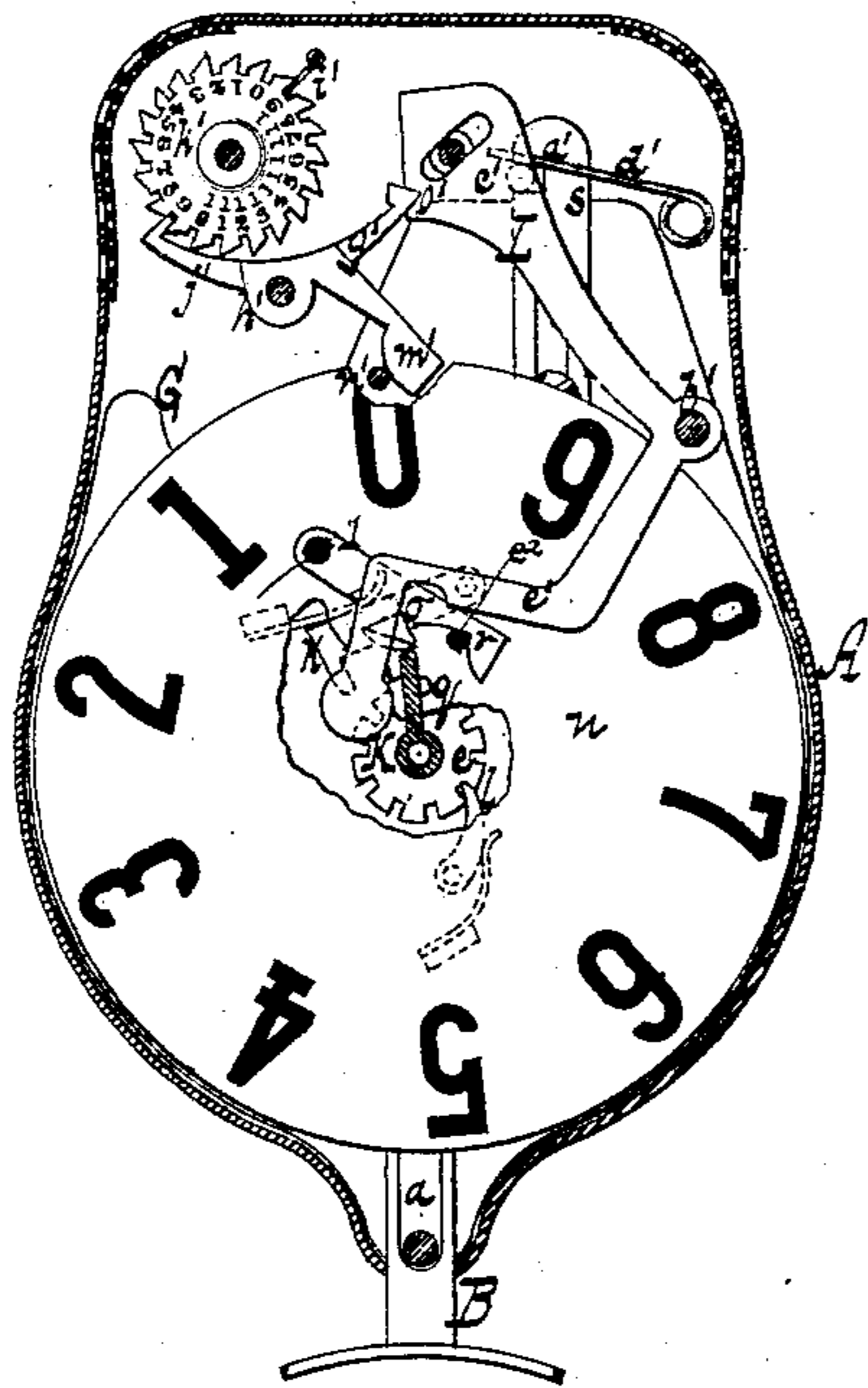


Fig. 6.

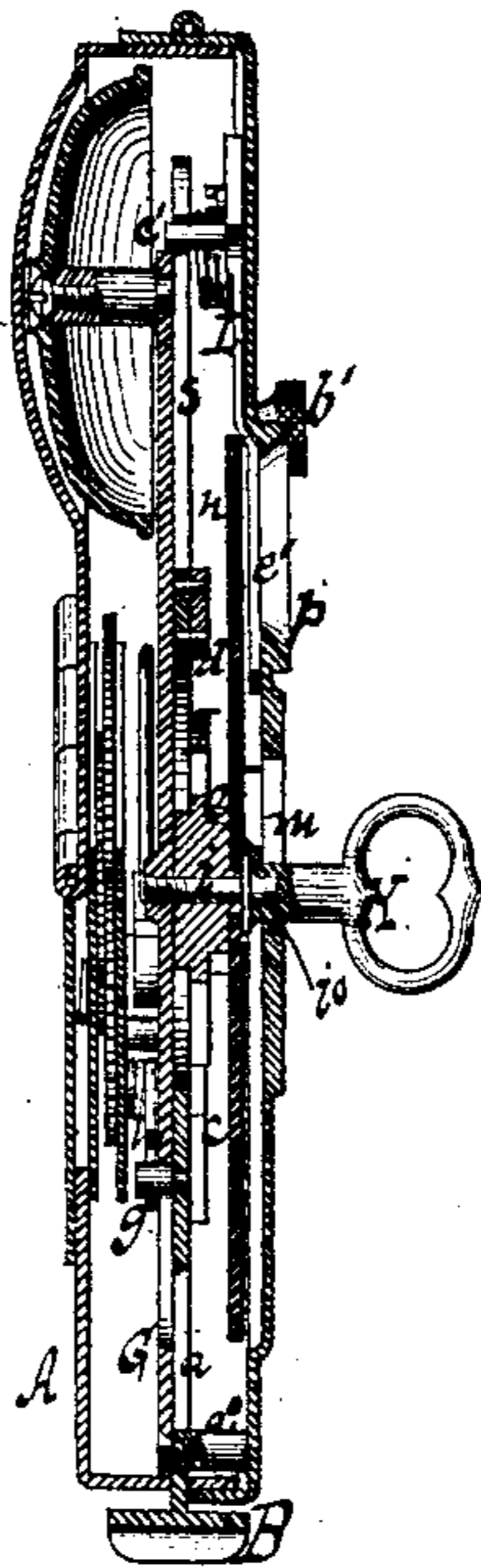
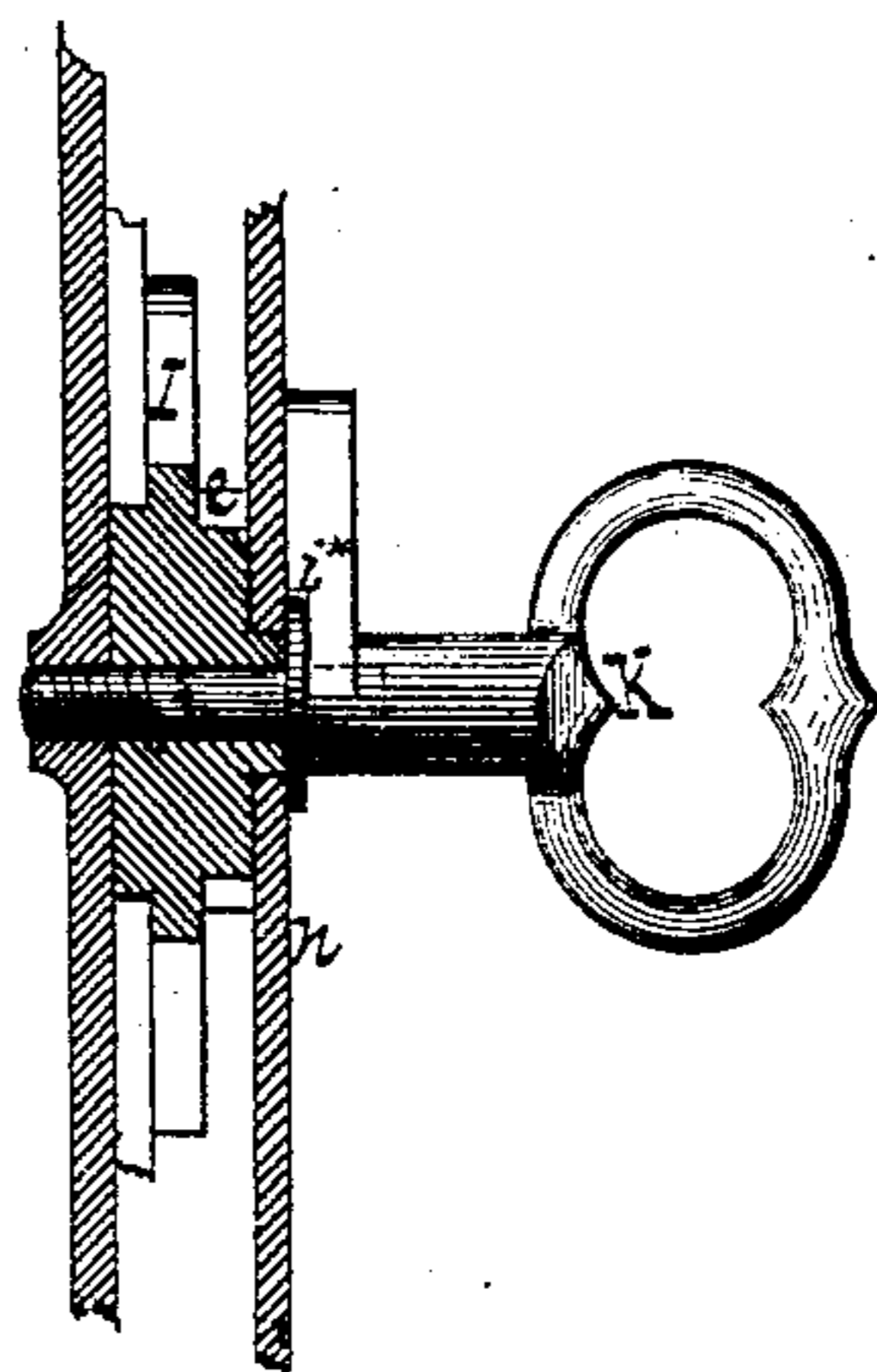


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FARE-REGISTERS.

Specification forming part of Letters Patent No. **194,913**, dated September 4, 1877; application filed July 31, 1877.

*To all whom it may concern:*

Be it known that I, WILLIAM H. HORNUM, of the city, county, and State of New York, have invented a new and useful Improvement in Fare-Registers, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a face view of my register when the same is closed up ready for use. Fig. 2 is a similar view of the same, the cover of the case being removed and some portions being broken away so as to expose the parts below. Fig. 3 is a face view of the partition-plate, which supports the principal working parts of my register. Fig. 4 is a rear view of the same. Fig. 5 is a similar view to that represented in Fig. 2, but showing the working parts in a different position. Fig. 6 is a longitudinal vertical section of the register. Fig. 7 is a detached view of the key, on a larger scale than the previous figures.

Similar letters indicate corresponding parts.

This invention consists in the combination, in a fare-register, of a single-trip registering mechanism, an alarm, a prime mover common to both, and a key-hole guard, connected to a latch, which serves to lock the prime mover, so that whenever the key-hole guard is thrown back and the key-hole open for the reception of the key the prime mover is locked, and the alarm mechanism (and the general register, when such is used) cannot be moved while the single-trip registering mechanism is turned by means of the key. Also, in the combination, in a fare-register, of a registering mechanism, a prime mover for imparting a step-by-step movement to said registering mechanism, a latch for locking the prime mover, a key or button for turning the registering mechanism to zero, and a dial for indicating the number of times the registering mechanism has been set to zero by the key or button. Further, in the combination, with an indicator-disk, a key, a ratchet-wheel, and a key-hole, of pawls, one of which is provided with a releasing-tappet, whereby the key is prevented from being withdrawn until the indicator-disk has been turned to zero. Also, in the combination, with an indicator-disk, a yielding zero-stop, which is acted on by the key and connected to the in-

dicator-disk, and a stationary pin or abutment, so that when the indicator-disk is turned by the key said key throws the zero-stop in such a position that it strikes the stationary pin or abutment, and the indicator-disk is arrested at zero; but if the indicator-disk is turned by the prime mover the zero-stop assumes such a position that it clears the stationary pin or abutment, and forms no obstruction to the movement of the indicator-disk.

In the drawings, the letter A designates a case, made of sheet metal or any other suitable material, in the form best adapted for the purpose for which it is to be used. In this case is situated a slide or prime mover, B, which serves to actuate the single-trip register, the alarm, and the general register, if such is used. Said prime mover is guided by slots *a b f*, catching over pins *a° b° f°*, which are secured in a plate, G, Fig. 3, that is secured in the case A, and forms a partition between the single-trip register on one side and the alarm and general register on the opposite side, and which supports the principal working parts of my apparatus. The end of the prime mover extends through a slot in the edge of the case, and is provided with a finger-piece, which serves to operate the same. In the under surface of the prime mover is secured a pin, *g*, which extends through a slot in the partition-plate G, Fig. 4, and bears on a spring, *h*, which has a tendency to throw said slide up to the position shown in the drawing.

On the prime mover are secured two teeth or pallets, *c d*, which engage with an escapement-wheel, I, which serves to impart motion to the single-trip register. These pallets are situated on opposite sides of the ratchet-wheel, so that when the prime mover is in its position of rest the pallet *c* engages with the escapement-wheel I, and when the prime mover is drawn out the pallet *d* is caused to act on said escapement-wheel, causing it to turn for the space of half a tooth; and when the prime mover is allowed to recede by the action of the spring *h*, the pallet *c* acts on another tooth of the escapement-wheel, so as to turn the same for the space of half a tooth. Consequently, for each up and down stroke of the prime mover the escapement-wheel is turned one tooth.

In the example represented by the drawing I have shown only the unit-disk  $n$  of the single-trip register. In practice, a ten-disk will be combined with this unit-disk. On the unit-disk are marked the figures from 0 to 9.

To the escapement-wheel I is firmly connected a ratchet-wheel,  $e$ , both these wheels being made to rotate on a pin or arbor,  $i$ , fixed in the partition-plate G. The ratchet-wheel  $e$  is provided with a tubular hub, which forms the bearing for the unit-disk  $n$ , Fig. 6, and on the under side of this unit-disk are secured two pawls,  $k$  and  $l$ , which engage with the ratchet-wheel, so that when both pawls are in gear the unit-disk cannot be turned in either direction independent of the ratchet-wheel; but when the pawl  $k$  is thrown out of gear, the unit-disk can be rotated in the direction of the arrow 1, Fig. 2, independent of the ratchet-wheel, but not in the direction opposite to this arrow.

The unit-disk is retained on the tubular hub of the ratchet-wheel  $e$  by a flange,  $i^*$ , formed on pin  $i$ , Figs. 6 and 7, and from this flange rises a stud,  $i^0$ , for the reception of a key, K, a detached view of which, on an enlarged scale, is shown in Fig. 7. This key is inserted through a key-hole,  $m$ , Fig. 1, in the cover of the case, and from the pawl  $k$  extends a tappet,  $o$ , through a slot,  $o^*$ , Fig. 2, in the unit-disk, said tappet and slot being in such relation to the key-hole  $m$  and to the figure 0 on the unit-disk that the key cannot be inserted when said tappet is situated between the key-hole and the figure 0; and, furthermore, the key cannot be withdrawn except at the time the unit-disk has been turned to zero, as will be presently more fully explained.

When either of the figures 1 to 9—for instance, the figure 3—stands opposite to the opening  $p$  in the cover of the case A, Figs. 1 and 2, and it is desired to turn the unit-disk to zero by means of the key, the key is inserted through the key-hole and turned in the direction of arrow 1, Fig. 2. The face of the tappet  $o$  is rounded, and as the bit of the key strikes this face it slides under the tappet, and the pawl  $k$  is thrown out of gear with the ratchet-wheel  $e$ . At the same time the bit of the key strikes a pin,  $q$ , secured in the unit-disk near to and inside of the slot  $o^*$ , Fig. 2, so that it cannot slip from under the tappet  $o$ , and that, by turning the key in the direction of arrow 1, the unit-disk is compelled to turn in the same direction. When the key has been turned far enough to come beneath the key-hole, which is the case when the unit-disk has been turned to zero, the key can be withdrawn; but it cannot be taken out before the unit-disk has reached this position. A pawl,  $r$ , secured on the inside of the cover prevents the key being turned backward in the direction opposite to arrow 1, in order to get it out without turning the unit-disk to zero. This pawl is so arranged that it swings out of the way when the key is turned in the direction of arrow 1. (See Fig. 1.) The pawl  $k$  is held

in gear with the ratchet-wheel  $e$  by a spring, and if an attempt is made to manipulate the registering mechanism with a key the bit of which is not long enough said pawl remains in gear with the ratchet-wheel, and the unit-disk cannot be turned.

The prime mover is provided with an extension,  $s$ , near the upper end of which is a notch,  $a'$ , and close beneath the cover of the case A is situated a latch, L, which can be turned by means of a button,  $b'$ , that projects through the cover, so that a nose or pin,  $c'$ , which is secured on said latch, can be thrown in gear with the notch  $a'$ , as shown in Fig. 5. A spring,  $d'$ , forces the latch back to the position shown in Fig. 2. On the inner end of the latch L is secured an arm,  $e^1$ , which extends down, and which, when the latch is in the position shown in Fig. 2, covers the key-hole, and consequently forms a key-hole guard, said arm being retained in position by a pin,  $e^2$ , in the cover of the case. By turning the latch to the position shown in Fig. 5, the key-hole guard is caused to swing from under the key-hole, so that it leaves the same free for the entrance of the key.

If the latch L is thrown in gear with the prime mover it is retained by a catch,  $g'$ , which swings on a pivot,  $h'$ , and is exposed to the action of a spring,  $i'$ , which has a tendency to throw said catch down to the position shown in Fig. 5. With this catch is combined an anchor,  $j'$ , which engages with an escapement-wheel,  $k'$ , so that each time the catch drops down and rises the escapement-wheel is turned one tooth. The face of this escapement forms a dial containing the figures from 0 to 20, more or less, one of which is visible through an aperture,  $l'$ , Fig. 1, in the cover of the case. By these means the number of the movements of the latch L is recorded.

On the catch  $g'$  is secured a toe,  $m'$ , and when the catch has been depressed to the position shown in Fig. 5, the outer end of this toe assumes such a position that a tooth,  $n'$ , projecting from the unit-disk  $n$  strikes the same at the moment the single-trip register has been turned to zero.

When the catch  $g'$  is in its locking position, as shown in Fig. 5, it engages with a V-shaped notch,  $o'$ , in the edge of the locking-latch, so that it requires a certain power to throw it out of gear. As soon as the tooth  $n'$  strikes the toe  $m'$  a slight pressure on the key in the direction of arrow 1, Figs. 2 and 5, releases the catch  $g'$ , leaving the key in position to be withdrawn. At the same time the tappet  $o$ , being forced outward by the bit of the key, strikes the pin  $e^2$ , thus preventing the unit-disk from being turned beyond zero by means of the key. As soon as the key is taken out the spring  $d'$  forces the locking-latch back to the position shown in Fig. 2, the dial  $k'$  advances one tooth, and the key-hole guard covers the key-hole, and the tappet  $o$  recedes, so that when the unit-disk is actuated by the prime mover said tappet forms no obstruction to its motion.

While the prime mover is locked by the latch L, and the single-trip register is set back to zero, neither the general register nor the alarm mechanism can be moved, and by the dial *k'* the number of times the single-trip register has been set to zero is registered.

The construction of the general register and that of the alarm mechanism is the same as that described in my patent No. 185,536, dated December 19, 1876, and I do not, therefore, give a detailed description of these parts in this specification. At the same time it must be remarked that the locking-latch, the key-hole guard, and the dial *k'* can be applied to fare-registers of different construction. For instance, for the unit-disk *n* a trip-hand may be substituted, and the construction of the general register may also be changed, as will readily suggest itself to a practical mechanic.

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

1. The combination, in a fare-register, of a single-trip registering mechanism, an alarm, a prime mover common to both, and a key-hole guard, connected to a latch, which serves to lock the prime mover, the whole being adapted to operate substantially in the manner and for the purpose herein shown and described.

2. The combination, in a fare-register, of a single-trip registering mechanism, a general register, an alarm, a prime mover common to all three, and a key-hole guard connected to a latch, which serves to lock the prime mover,

the whole being adapted to operate substantially in the manner and for the purpose herein set forth.

3. The combination, in a fare-register, of a registering mechanism, a prime mover for imparting a step-by-step movement to said registering mechanism, a latch for locking the prime mover, a key or button for turning the registering mechanism to zero, and a dial for indicating the number of times the registering mechanism has been set to zero by the key or button, substantially as shown and described.

4. The combination, with the indicator-disk *n*, key K, ratchet-wheel *e*, and key-hole *m*, of pawls *k* *r*, and tappet *o*, to prevent the key from being withdrawn until the indicator-disk has been turned to zero, substantially as set forth.

5. The combination, with an indicator disk or hand, and with a key, of a yielding zero-stop, connected to the indicator-disk, and of a fixed pin or abutment, whereby the indicator disk or hand when turned by the key is stopped at zero, while the same can turn without obstruction when actuated by the prime mover, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 25th day of July, 1877.

WILLIAM H. HORNUM. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.