

(No Model.)

2 Sheets—Sheet 1.

J. M. BLACK.
TICKET BELL PUNCH.

No. 374,288.

Patented Dec. 6, 1887.

FIG. 1.

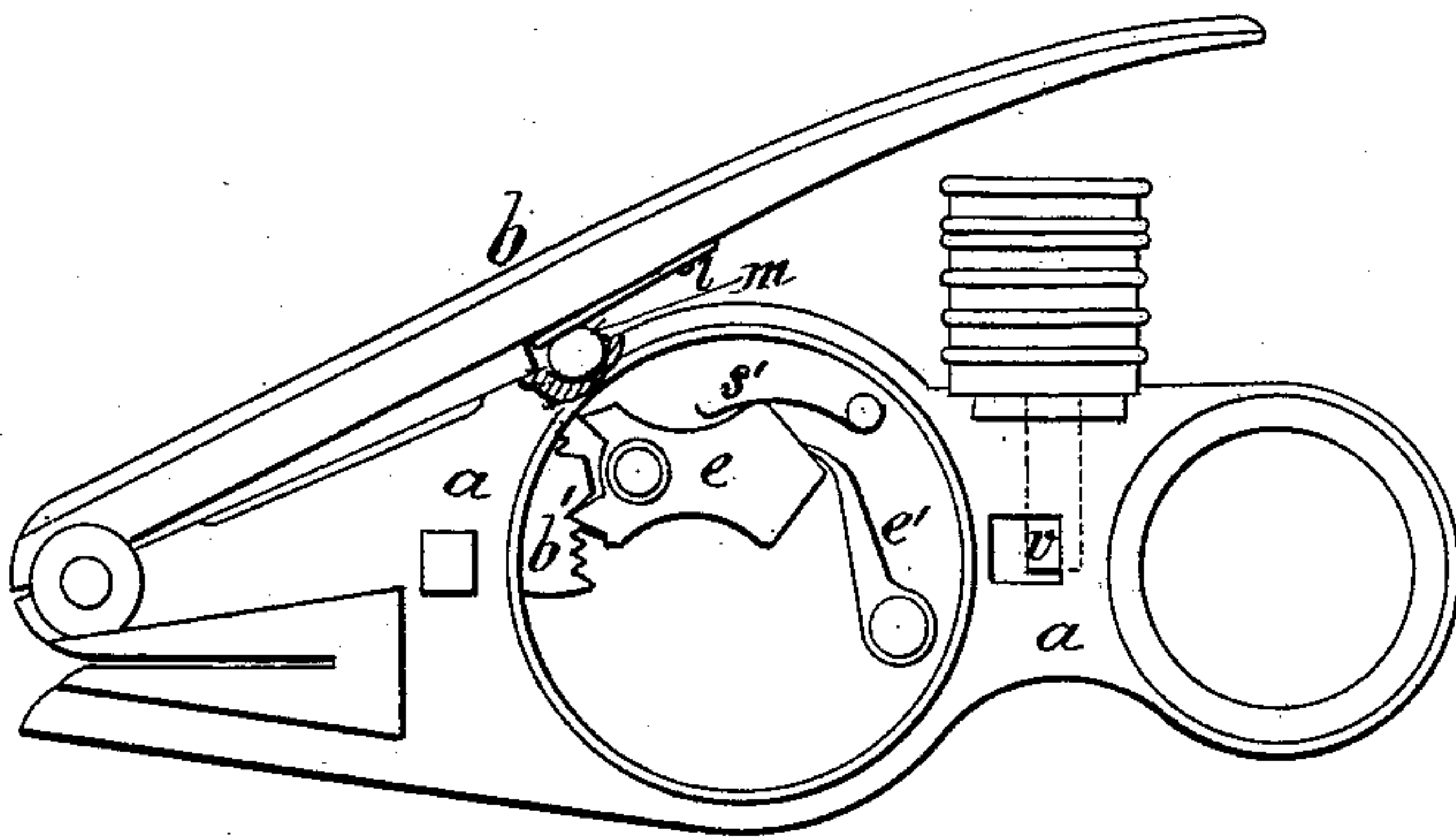


FIG. 5.

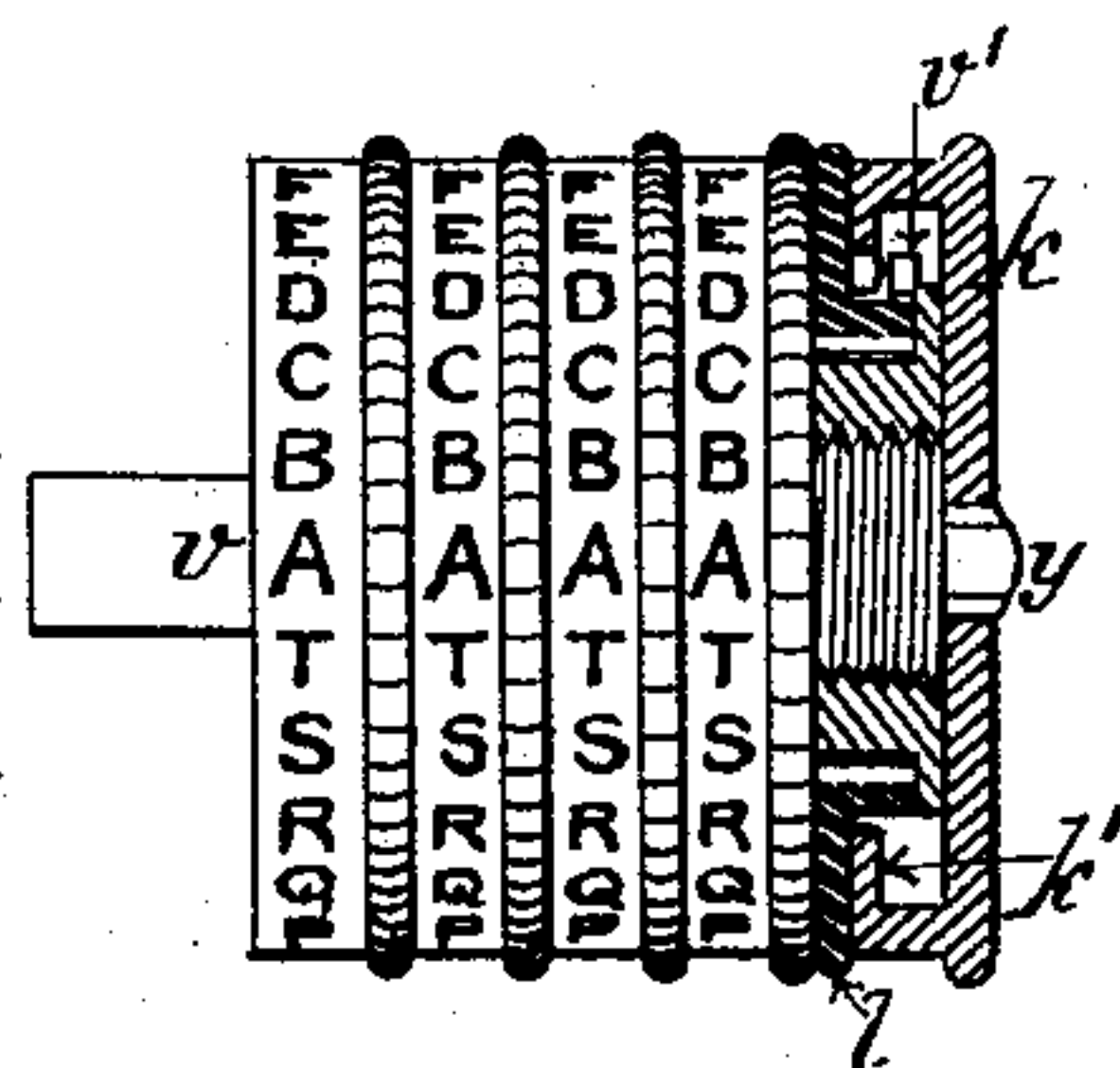


FIG. 6.

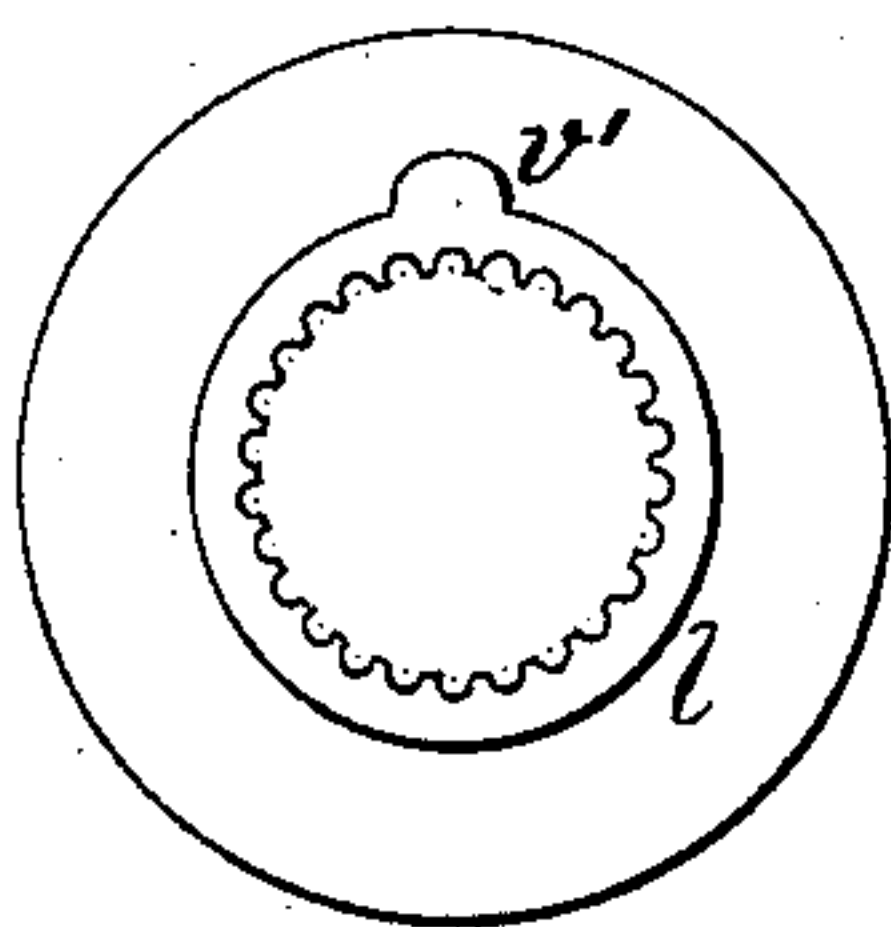


FIG. 7.

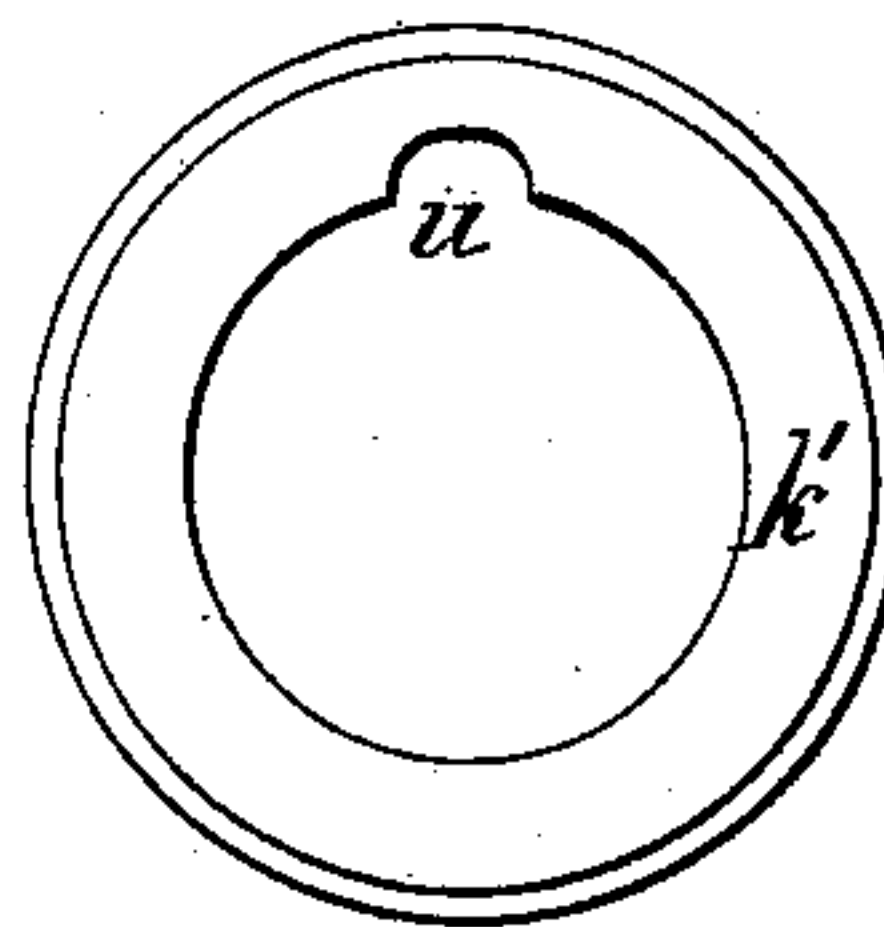


FIG. 8.

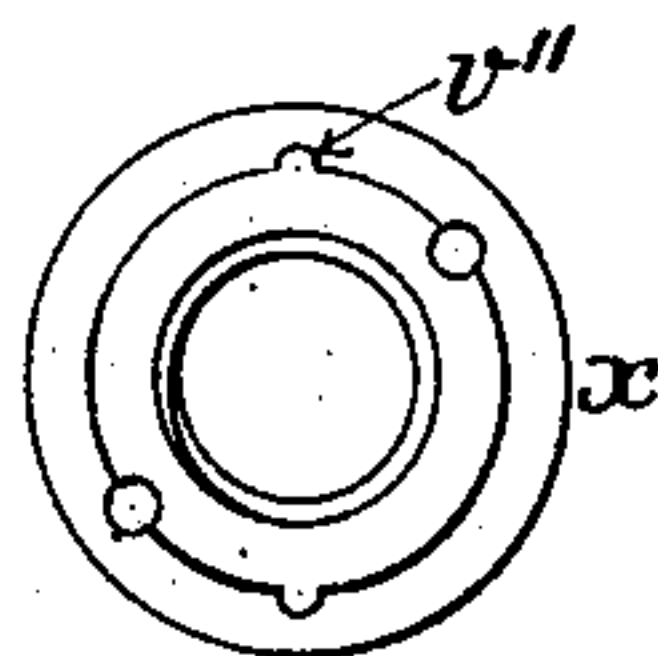
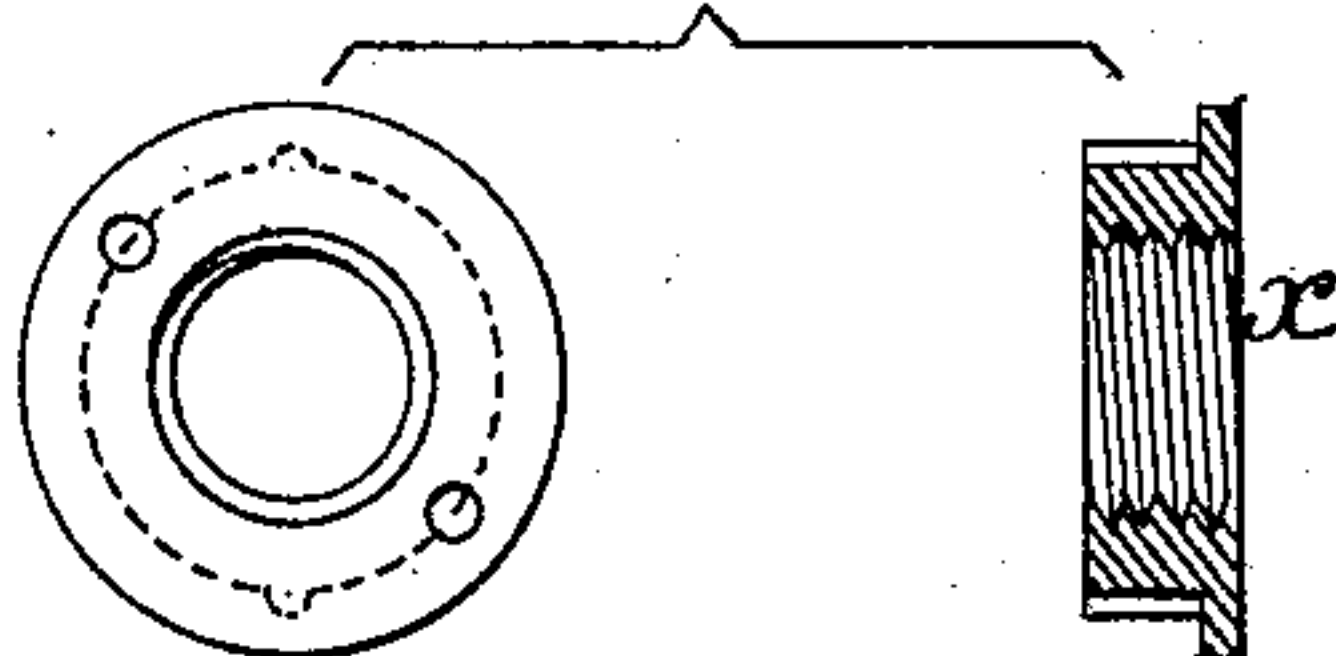


FIG. 8^a.



WITNESSES:

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INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

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TICKET BELL PUNCH.

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Patented Dec. 6, 1887.
F I G. 2.

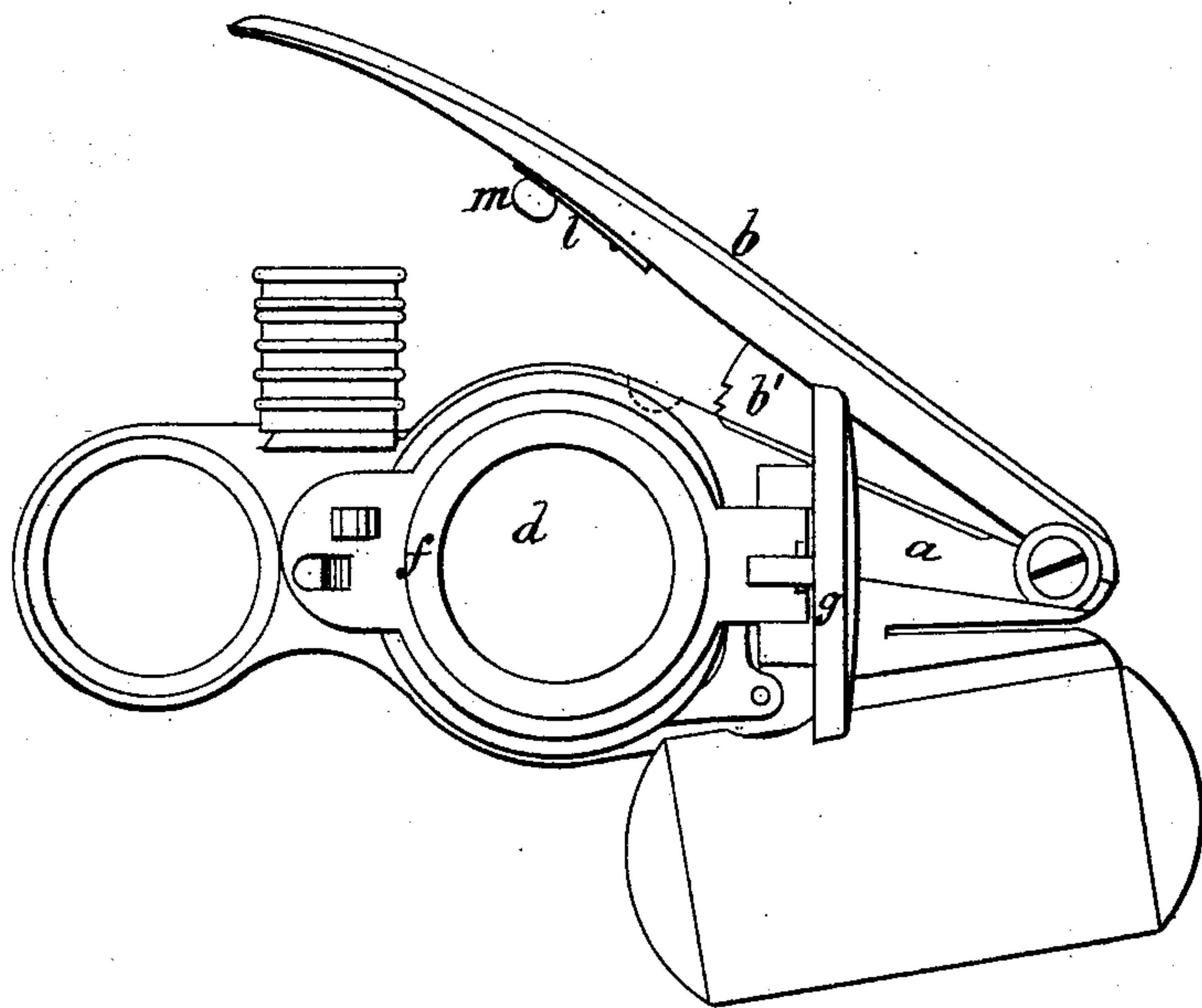


FIG. 3.

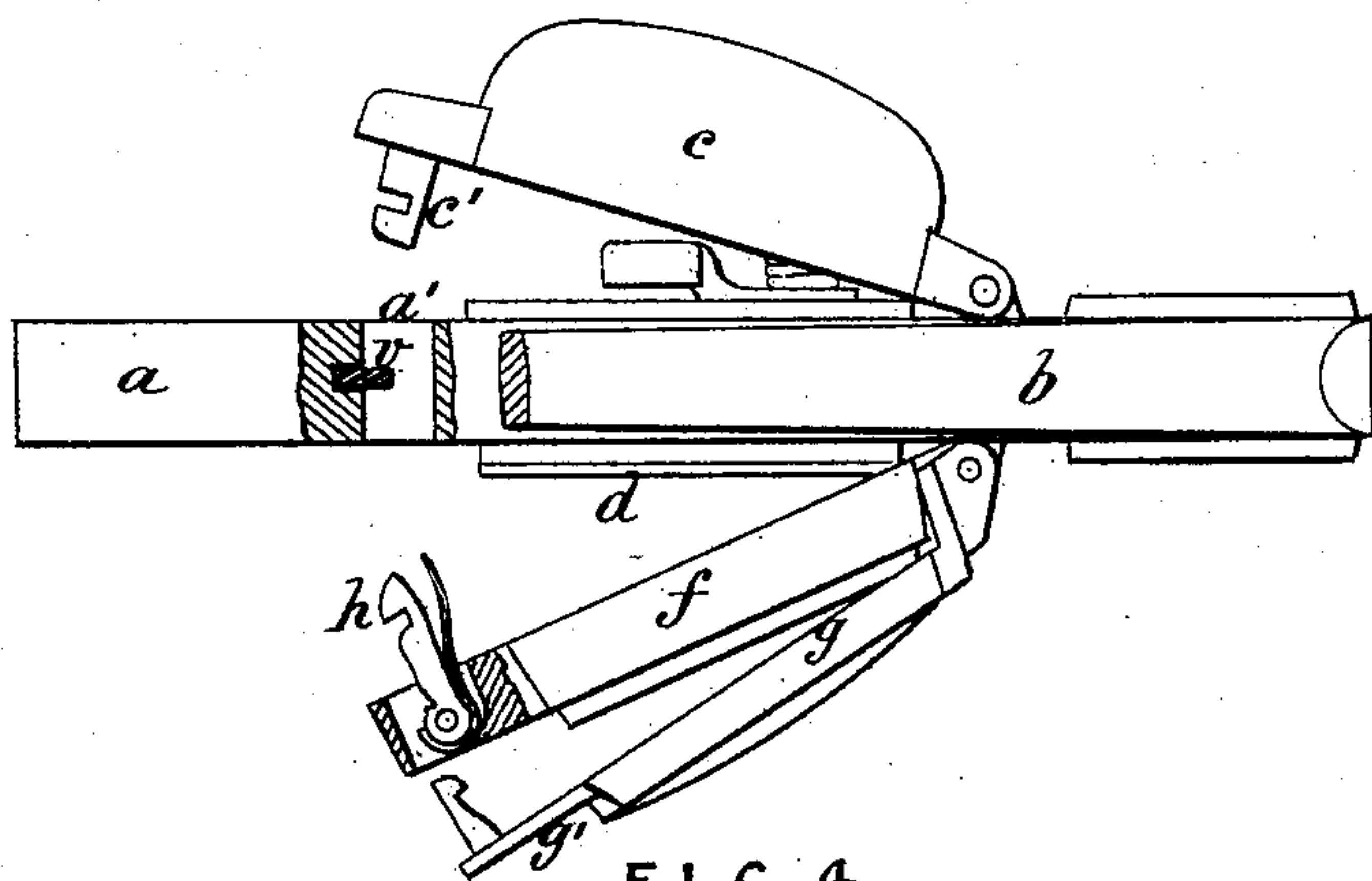
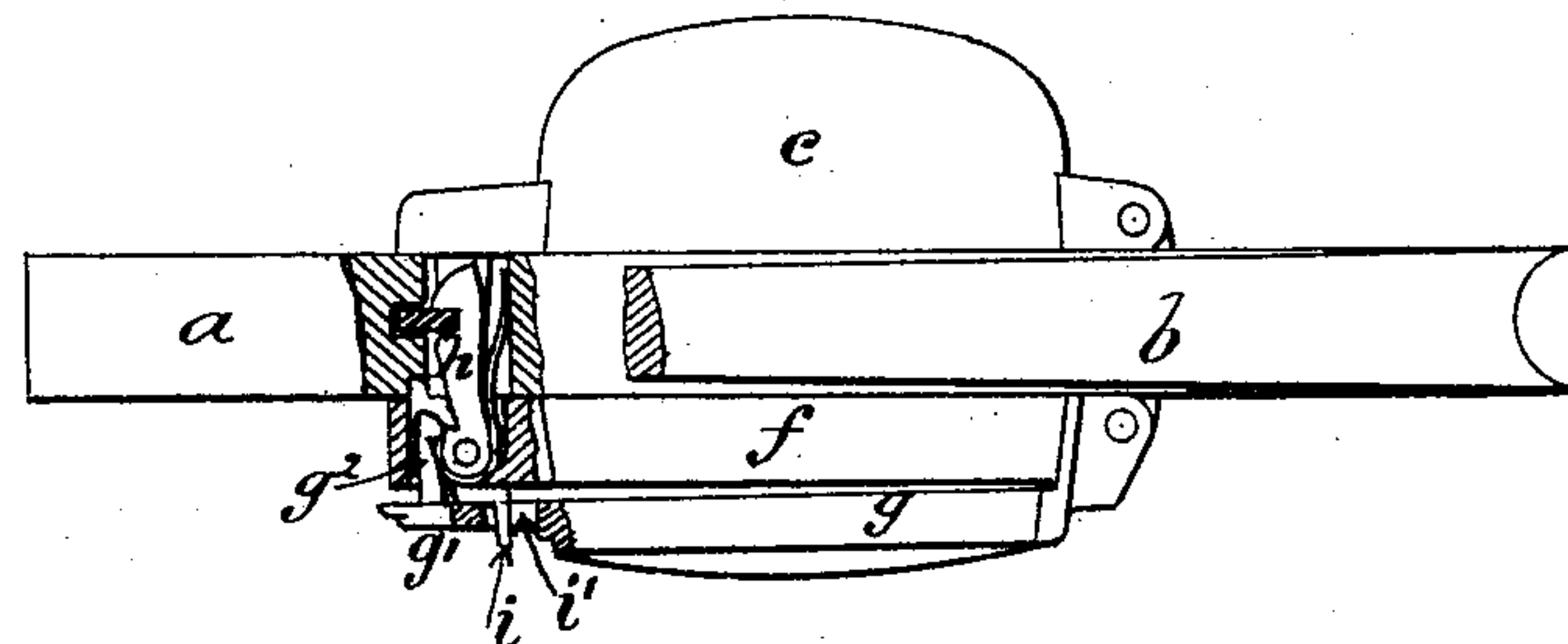


FIG. 4.



WITNESSES:

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INVENTOR

J. M. Black

UNITED STATES PATENT OFFICE.

JOHN MELTON BLACK, OF LONDON, COUNTY OF MIDDLESEX, ENGLAND.

TICKET BELL-PUNCH.

SPECIFICATION forming part of Letters Patent No. 374,288, dated December 6, 1887.

Application filed July 5, 1887. Serial No. 243,435. (No model.) Patented in England July 16, 1886, No. 9,253; in France August 6, 1886, No. 177,807; in Germany September 22, 1886, No. 39,844, and in Belgium March 5, 1887, No. 76,574.

To all whom it may concern:

Be it known that I, JOHN MELTON BLACK, a citizen of England, residing at Tabernacle Street, Finsbury, in the city of London, have
5 invented new and useful Improvements in Ticket Bell-Punches, (for which I have obtained patents in Great Britain on the 16th day of July, 1886, No. 9,253; in France on the 6th day of August, 1886, No. 177,807; in Belgium on the
10 5th day of March, 1887, No. 76,574, and in Germany on the 22d day of September, 1886, No. 39,844,) of which the following is a description.

This invention is designed for effecting certain improvements in that description of
15 ticket-punch (employed by conductors on public vehicles) for which patents were granted in the United States of America on the 22d day of February, 1870, No. 100,036, and on the
20 31st day of January, 1871, No. 111,345.

The specifications of the above-named patents describe an arrangement of apparatus to be used by the conductors of tram-cars or
25 other public vehicles for punching consecutively-numbered tickets, which as punched are delivered to passengers in exchange for their fares.

The objects for which these improvements are designed are, first, to provide a means
30 which will enable the conductor to see and compare the number on the concealed dial of the instrument with the corresponding number on his "way-bill" before the instrument is finally closed and handed to him; secondly,
35 to provide a means in connection with the so-called "bell-punch instrument," which will prevent any designed or accidental depression of the punch-lever after it has been delivered up by the conductor, which would count
40 against the conductor when the instrument is not in his possession; and, thirdly, to so construct the combination-lock of the instrument and holdfast or catch that the means employed for opening the box will be known only
45 to one duly-authorized person, and, further, that the cover closing in the registering-dial can be locked after the bolt of the combination-lock has been inserted and the rings by which the bolt is fixed or released have been

intentionally disarranged, so as to fix the said 50 bolt.

In order that the invention shall be well understood and explained in detail, I have hereunto annexed two sheets of drawings, made about full size, on which letters of refer- 55
ence are marked on corresponding parts on all the figures alike.

Figures 1, 2, 3, and 4 relate to the ordinary form of instrument known as the "bell-punch," to which the present improvements 60
are applied. Fig. 1 represents the bell-punch in elevation with the bell and cover removed, showing the means employed for fixing the punch-lever when in its partially-depressed condition during the time the box is closed. 65
Fig. 2 represents a similar view of the reverse side of the bell-punch to that shown at Fig. 1. In this view the crystal cap covering the registering-dials is closed and the outer cap
open. Fig. 3 represents a plan view of the 70
instrument, showing the cap closing in the bell and those closing in the registering-dials partially open. Fig. 4 represents a similar view to the last, showing the bell-cap closed and
locked, and the cap with the crystal face closed 75
and locked, and the outer cap shielding the crystal face in its semi-closed state; and Figs. 5, 6, 7, 8, and 8^a represent detail views (made about double the ordinary size) of the im-
proved construction of combination-lock. 80

In the above figures, *a* is the framing; *b*, the punch-lever; *b'*, the quadrant rack; *c*, the case containing the bell; *d*, the case contain-
ing the registering-dial, and *e* the tumbler-lever, all being old and well-known parts of 85
the bell-punch instrument. The punch-lever *b*, when being depressed, causes the quadrant-rack *b'* to catch in the teeth of the tumbler *e*, which, through the medium of the
spring-finger *e'*, prevents the lever *b* returning 90
until its full depression has been accomplished, at which time the central large tooth on the quadrant *b'* knocks over the tumbler *e*, in
which position it is again kept by the spring-
finger *e'* until the lever *b* assumes its highest 95
position ready for another depression. This arrangement of parts for preventing the re-
turn of the lever *b* to its normal position be-

fore it has completed its throw is also a part of the bell-punch well known, but is here described in order to illustrate more clearly the improvements in connection therewith, hereinafter described.

In carrying out the first part of these improvements, I provide the box with two covers for the numbering or registering dial *d*, one of which, *f*, has a crystal face, and the other, *g*, forms a shield or cover for the said crystal face. These covers *f* and *g* (see Figs. 2, 3, and 4) are hinged onto the same pin, and are so arranged that the crystal face *f* can be closed down and locked, as seen at Fig. 4, by the person in authority, and the outer cap, *g*, left open, so that the numbers on the registering-dial *d* can be noted and compared with the way-bill by the conductor before the outer cap, *g*, is closed.

When the instrument is being prepared for handing to the conductor, the cap and bell *c* are first closed, which causes the fixed catch *c'* to enter the recess *a'*. The bolt *v* of the combination-lock is then inserted, so as to fix the same, after which, the fingers on the registering-dial *d* having been set, the crystal cover *f* is closed, which causes its spring-catch *h* to snap over and become fixed by the bolt *v* of the combination-lock. At this time the outer lid or cap, *g*, is placed in a semi-closed position, as seen at Fig. 4, so as to cover and prevent any damage to the crystal face *f* and numbering-dial during the time the said cap remains unlocked. The said cover *g* in this semi-closed position is prevented from becoming finally closed and locked by reason of its projecting lip *g'* coming into contact with the projecting surface of the spring-catch *i*. In this position the cap *g* is maintained by reason of its fixed catch *g''* being caught in a slight notch of the yielding catch *h*. The cap *g*, when so caught, can be easily forced open to allow the conductor to note the number on the registering-dial *d* and compare the same with the number on the way-bill of the vehicle, after which, and before giving him possession of the instrument, the spring-catch *i* is forced back in the slot *i'* of the lip *g'*, which allows the said cap *g* to close and allow its fixed catch *g''* to be caught by the notch in the spring-catch *h*. In this condition the instrument is fully locked and handed to the conductor, in which locked condition it remains until it is again handed in to the office after the day's journeys; but in order to prevent any disturbance of the parts by an accidental or other depression of the punch-lever *b* when the instrument is given up the conductor first takes hold of the ball *m*, (see Fig. 1,) which is connected by the swiveling spring-finger *l* to the under surface of the punch-lever *b*, and reverses or places it immediately over the recess in the framing *a*. The ball *m*, when so placed, prevents the full depression of the lever *b*, which therefore becomes locked in that position, as its release

and ascent can only be accomplished after its depression has been completed, so as to throw over the tumbler *e* out of gear with the bottom portion of the quadrant-rack *b'*.

The tumbler *e* is maintained in its legitimate working condition (so as not to be disturbed by an accidental knock or blow) by means of the spring *s'*, which exerts a pressure thereupon in a direction which will counteract any undue vibration which might otherwise release the lever *b* from its locked position. When the instrument is opened by a duly-authorized person, the punch-lever *b* is released from its locked position by pushing the tumbler *e* over its center.

The construction of the combination-lock, together with its action, will now be understood by the following description, reference being had to Figs. 5, 6, 7, 8, and 8^a of the drawings on Sheet 2, which are made about double the ordinary size. The four rings, as ordinarily employed, as seen at Fig. 5, are arranged in position to allow the bolt *v* to enter; but before this can be effectually done a recess, *u*, (see Fig. 7,) in the flange *k'* of the bolt-head has to be so placed (indicated by a secret letter on the periphery of the bolt-head) that it will allow the projection *v'* (see Fig. 6) of the outer bush, *l*, to pass through, so as to allow the bolt *v* to be fully inserted. The secret letter which will allow the projection *v'* to pass, having been determined, the fixed key *v'*, on the inner screw-bush, *x*, (see Figs. 8 and 8^a, which are opposite views of the inner screw-bush, *x*,) is slid into one of the twenty-six channels of the outer bush, *l*. (See Fig. 6.) The said channels form keyways in the outer bush, *l*, and correspond in number with the alphabetical letters printed on the periphery of the cap *k*. The position in which the key *v'* is placed for entering one of the said channels corresponds with the secret letter which allows the projection *v'* to pass through the recess *u*. The inner and outer bushes, *x* and *l*, are then screwed home on the screw of the boss *y*. In this state the cap *k*, with the bolt *v*, is fully inserted, and the flange *k'* is free to be turned in the annular space behind the projecting tooth *v'*. The position of the rings of the combination-lock at this time are disturbed, and the bolt *v* becomes fixed.

I would here remark, in conclusion, that the description of bell-punch instrument herein described and shown can, with a slight modification of its parts, be constructed so that it could be attached to and work in connection with a box containing a roll or rolls of consecutively-numbered tickets.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with the operating mechanism of a bell-punch and its registering-dial, a movable glass face, *f*, covering said dial, a metal cover, *g*, for said glass face, and a catch

for said metal cover which engages with and locks the catch for said glass face, substantially as set forth.

2. In a bell-punch, the combination of the
5 ball *m* with the punch-lever and registering mechanism, said ball locking said lever, substantially as set forth.

3. In combination with the dial and its frame, the hinged covers *f* and *g*, the bolt *v*,
10 attached to said frame, the spring-catch *h*, attached to cover *f* and engaging said bolt, the

catch *g*², attached to cover *g* and engaging a notch on catch *h*, and the movable piece *i*, for locking said catches *h g*², substantially as set forth.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

JOHN MELTON BLACK.

Witnesses:

THOMAS WRIGLEY,

EDWD. N. HOBBS.

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