

(No Model.)

2 Sheets—Sheet 1.

J. W. MEAKER.

FARE REGISTER.

No. 365,697.

Patented June 28, 1887.

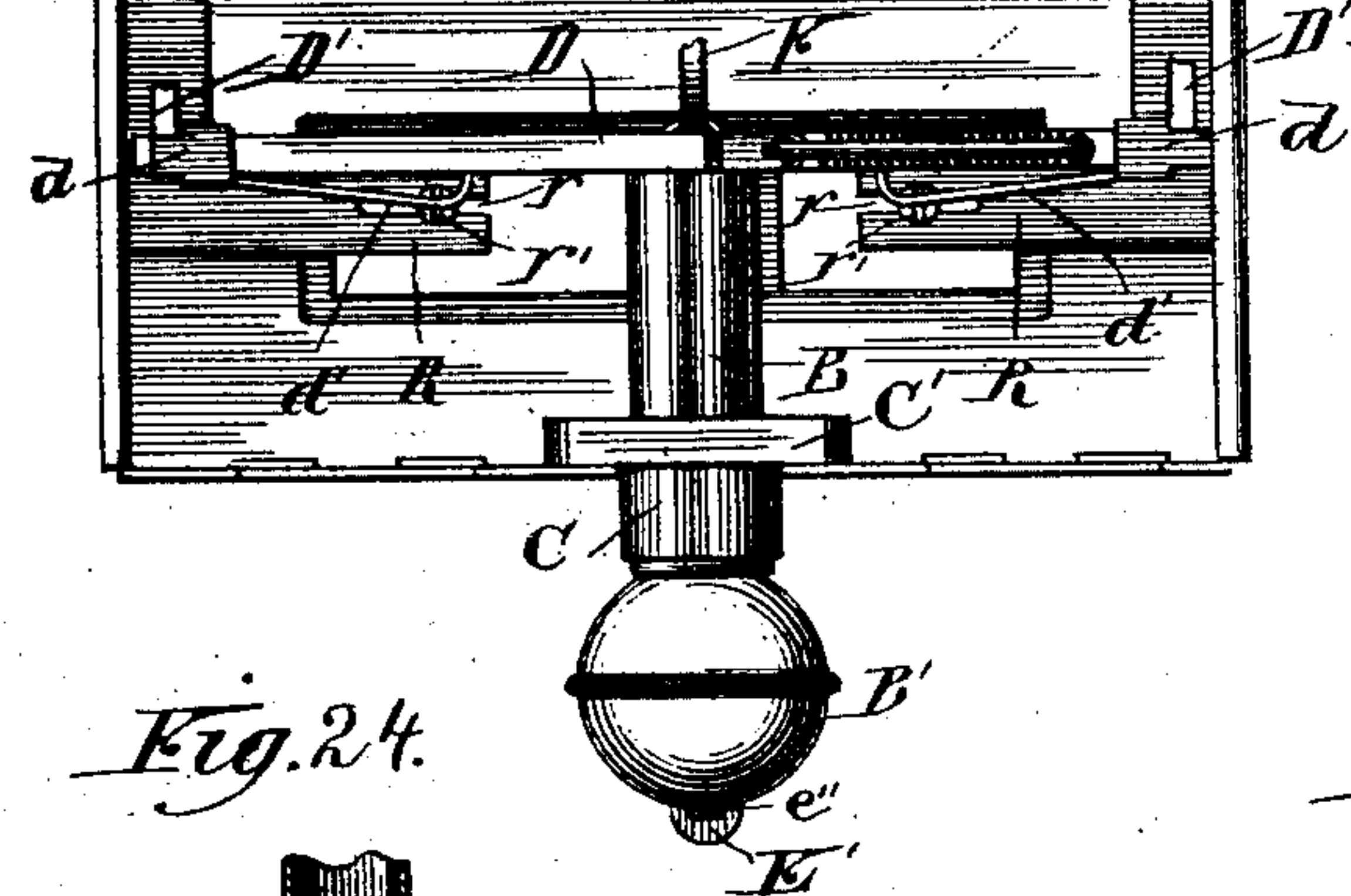
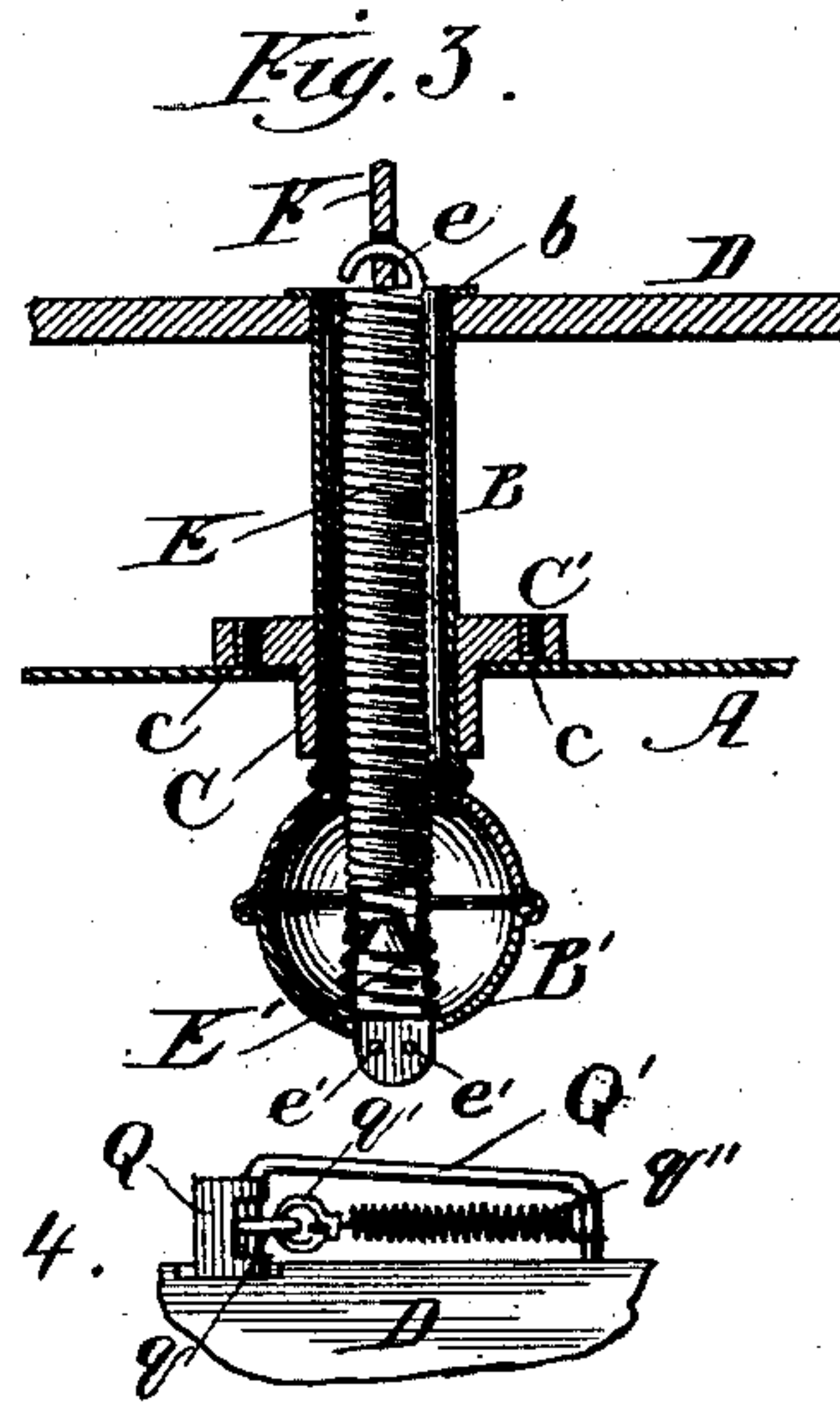
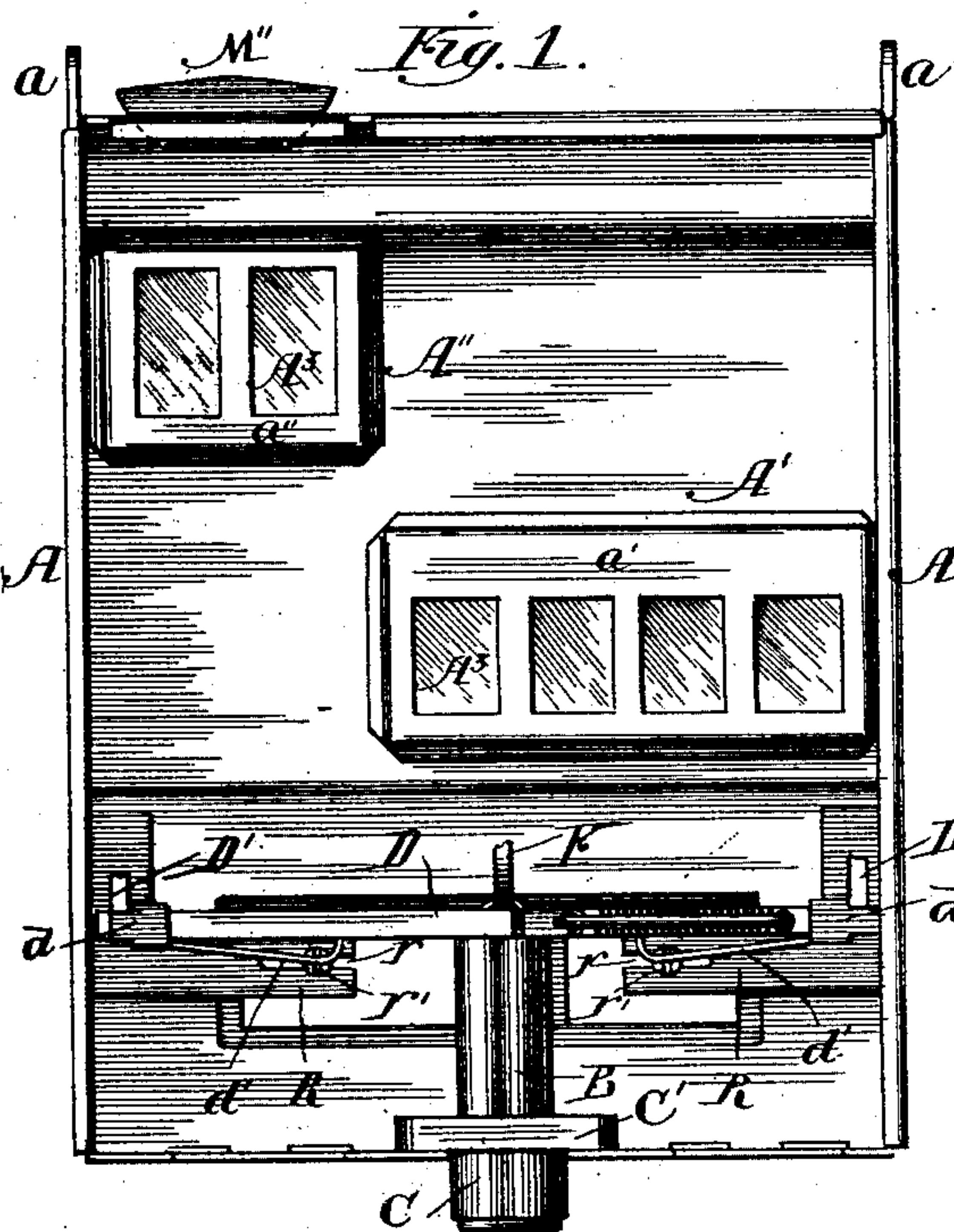
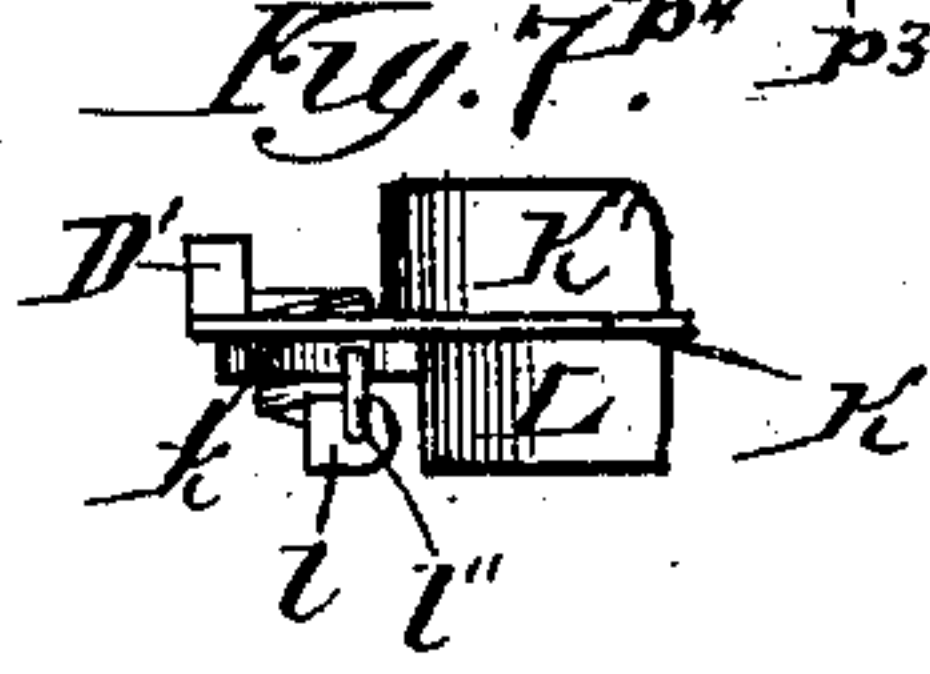
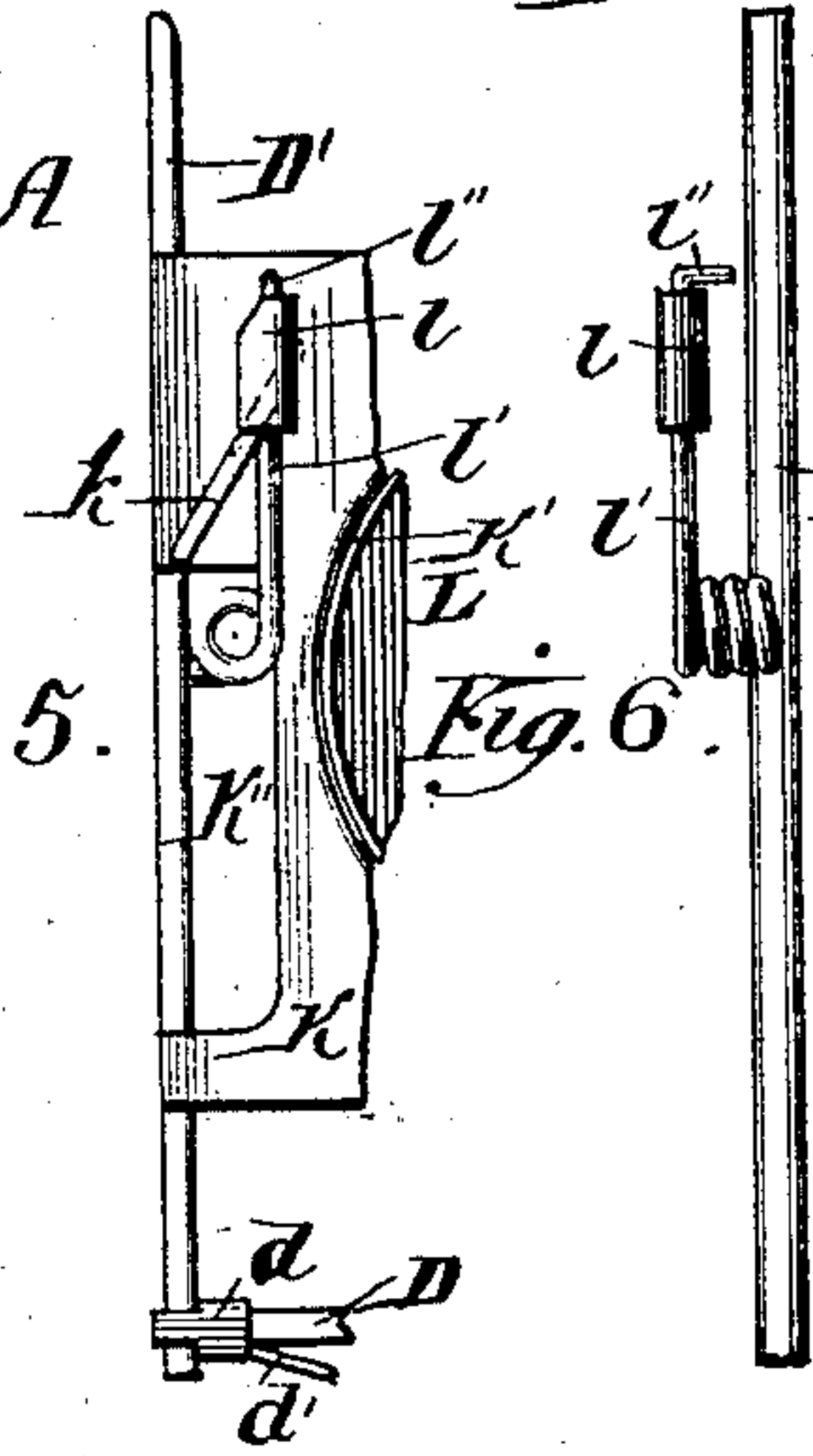
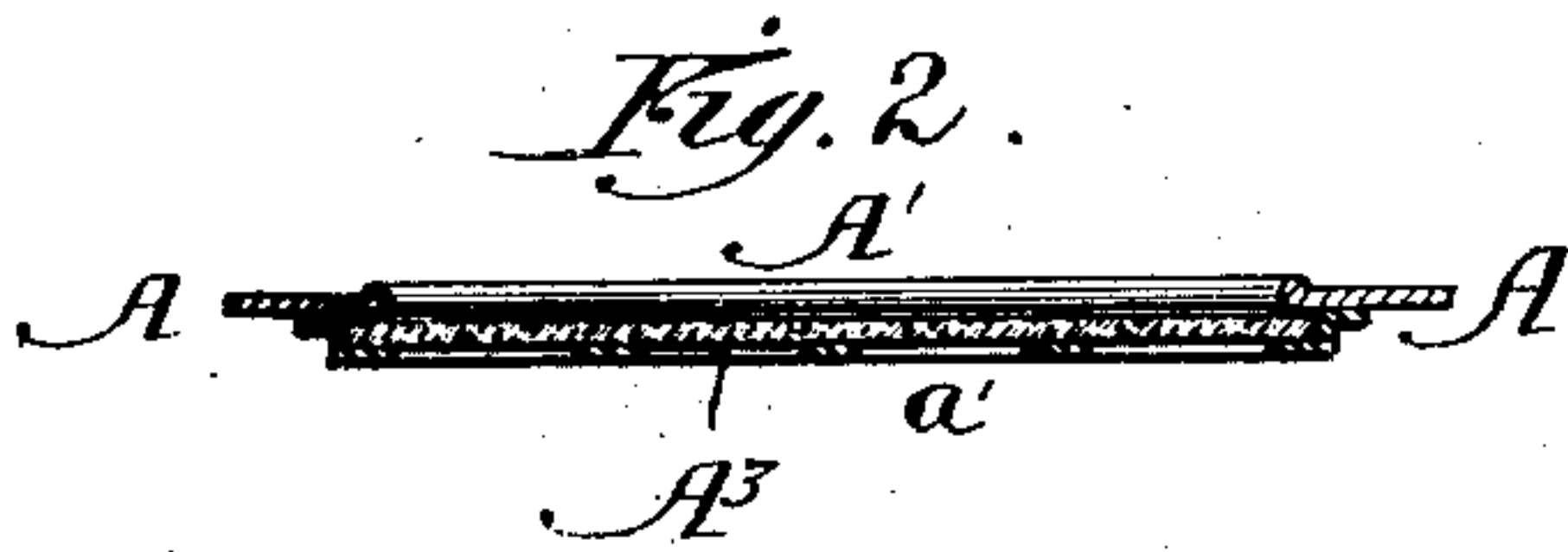
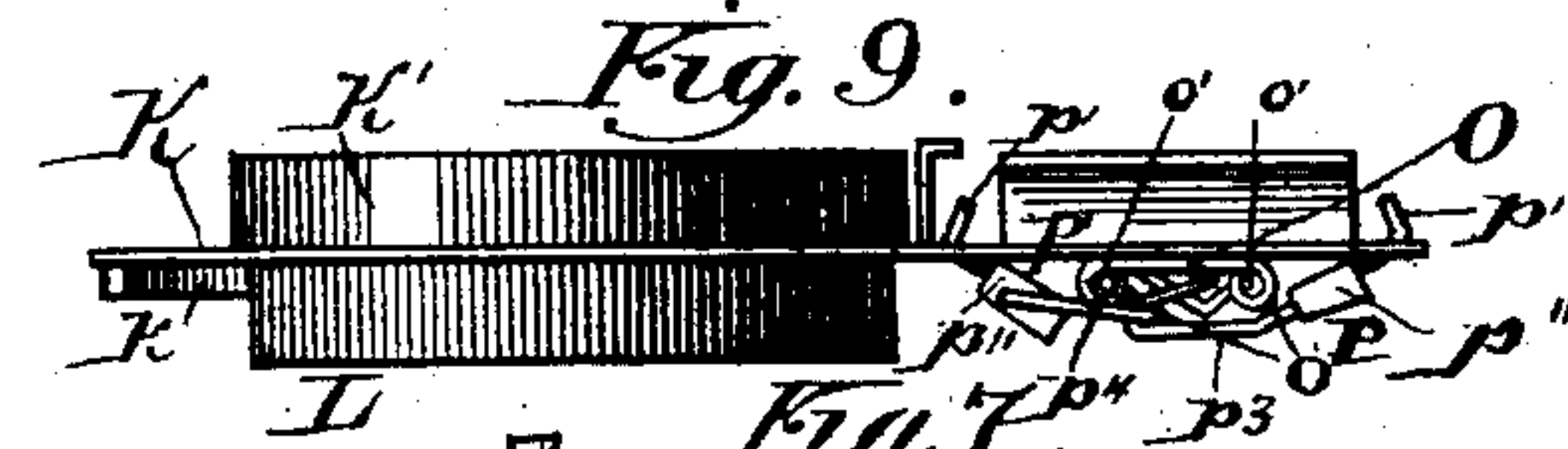
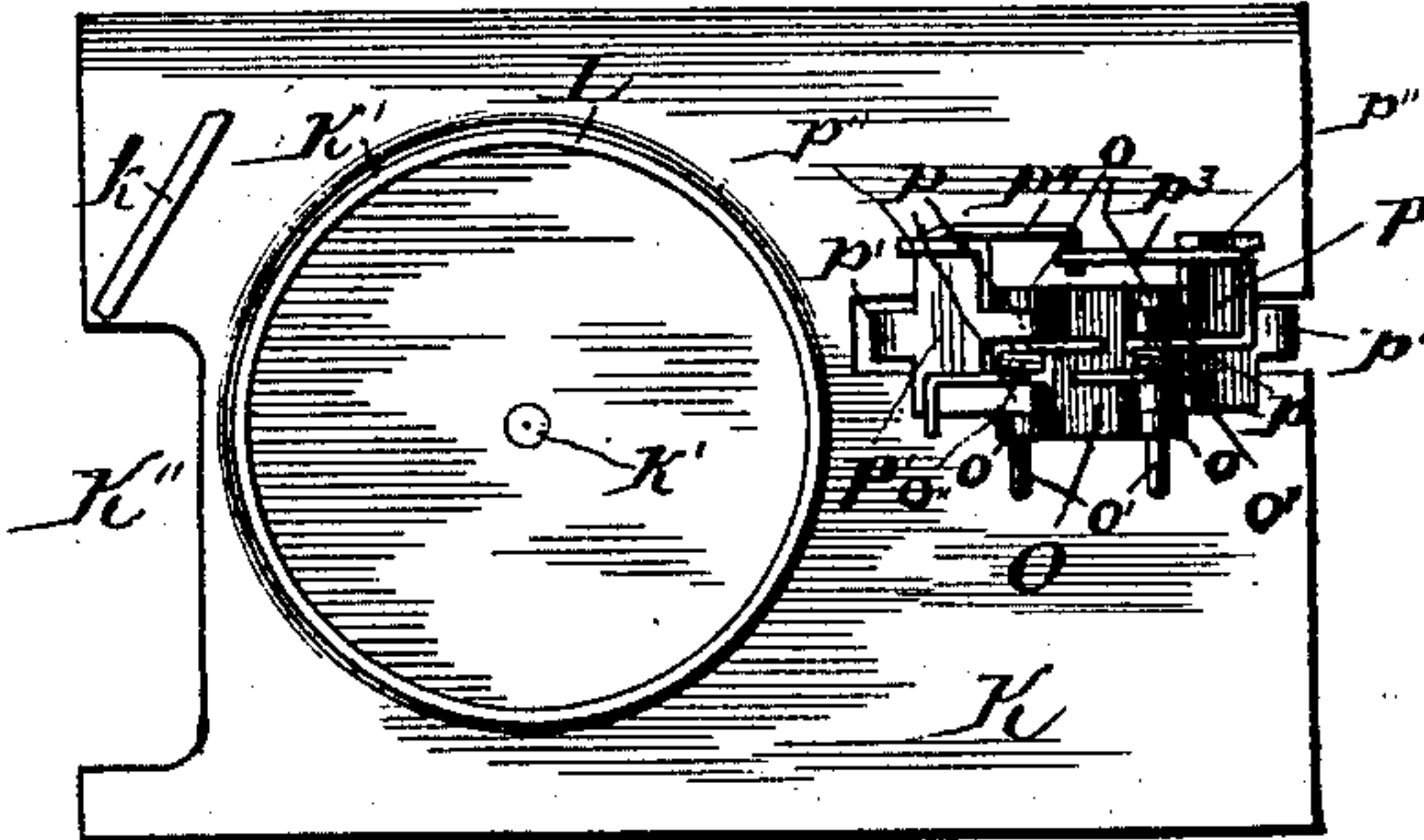


Fig. 4.

Fig. 8.



Witnesses:
Albert H. Adams.
Harry T. Jones.

Inventor:
John W. Meaker

(No Model.)

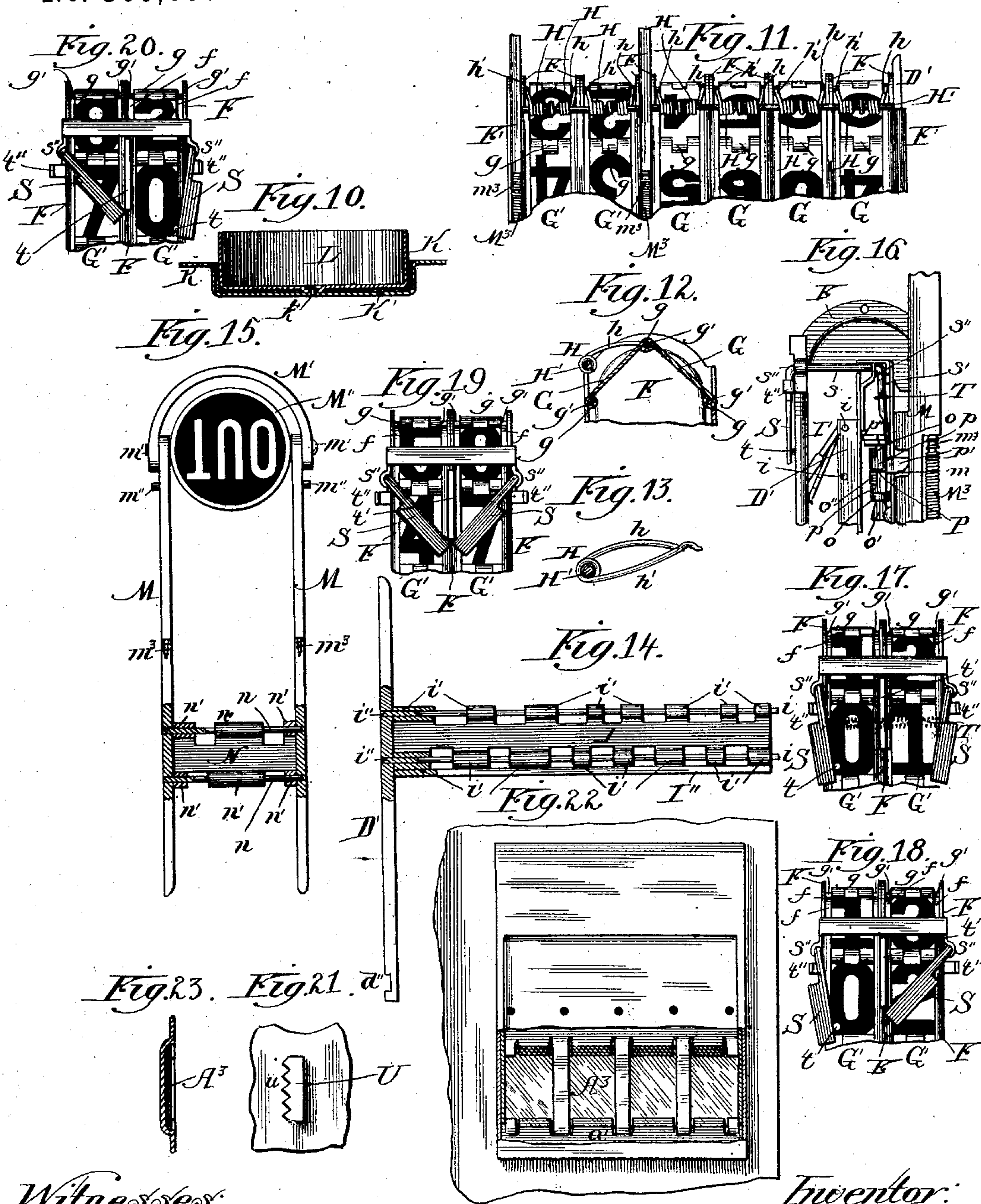
2 Sheets—Sheet 2.

J. W. MEAKER.

FARE REGISTER.

No. 365,697.

Patented June 28, 1887.



Witnesses:
Albert H. Adams.
Harry T. Jones.

Inventor:
John W. Meaker

UNITED STATES PATENT OFFICE.

JOHN W. MEAKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE RAILWAY REGISTER COMPANY, OF SAME PLACE.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 365,697, dated June 28, 1887.

Application filed November 9, 1886. Serial No. 218,440. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. MEAKER, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Fare-Registers, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation with the sliding back or cover removed and the registering devices removed; Fig. 2, a cross-section through the sight-opening, showing the manner of holding the glass in place; Fig. 3, a detail in section, showing the attachment of the spring for the main pull. Fig. 4 is a detail view of the cross-bar of the main pull and attachments for locking the pull against movement in either direction unless a complete pull has been made; Figs. 5, 6, and 7, details showing the attachment of the bell-hammer to the main pull; Fig. 8, an inside face view of the plate carrying the bell, showing the stop for the cancelers; Fig. 9, an edge elevation looking from the top, showing the devices in Fig. 8; Fig. 10, a detail, being a cross-section through the bell and its carrying-plate; Fig. 11, a detail showing the stops for the registering-chains; Fig. 12, a detail showing a register-chain in section and its stop; Fig. 13, a detail showing the form of the stop for the register-chains; Fig. 14, an elevation, partly in section, showing the manner of attaching the clutch-bar to the side bars of the main pull; Fig. 15, a detail, being an elevation, partly in section, showing the manner of connecting the clutch-bar to the side bars of the resetting-pull; Figs. 16, 17, 18, 19, and 20, details showing the various positions of the cancelers in and out of use; Fig. 21, a detail showing the ratchet for the main-pull dog; Figs. 22 and 23, details showing a modification in the construction of the sight-glass fastening; Fig. 24, a detail showing a loosely-attached finger-piece.

This invention relates to fare-registers of that class for which Letters Patent of the United States have been heretofore granted to me, No. 338,426, dated March 23, 1886, and No. 347,437, dated August 17, 1886, and in which the register is kept by traveling chains, and has for its objects to improve the construction and operation of the stem from which the main pull is operated, to improve the means for stop-

ping the travel of the chains and preventing backward turning thereof, to improve the construction of the clutch-bar and its attachment to the pull, to improve the devices by which the alarm is struck, to improve the construction and operation of the devices by which the cancellation of the numerals on the trip-register chains is produced in case the resetting of the register is not properly done, to improve the operation of the clutch-dog by which the main pull is locked against movement in either direction when a partial pull only is had, and to improve generally the construction and operation of the several parts pertaining to the register as a whole; and its nature consists in the several parts and combinations of parts hereinafter described, and pointed out in the claims as new.

In the drawings, A represents the receiving shell or case, having a sight-opening, A', in its front face for observing the total register, and a sight-opening, A'', in its front face for observing the trip-register, and, as shown, at each upper corner of the case is an ear, a, for the attachment of a wearing strap or cord. The sight-openings A' A'' are covered by a glass or other transparent material, A³, and the glass A³ for the opening A' is held in place by a metallic frame, a', brazed or otherwise firmly secured to the inner face of the case, and a metal frame, a'', also brazed or secured to the inner face of the case, holds the glass for the opening A'' in place. The frames a' a'' yield with the metal of the case at the points where the sight-openings are located, and by using pieces of glass of a size to cover each opening, in connection with the yielding of the metal case bodily with the frames a' a'', the liability of breaking the glass is greatly decreased.

B is a hollow stem or tube having rigidly secured to its outer or projecting end a ball, B', forming a finger-piece for the operator.

C is a bushing encircling the stem B, and projecting through the end wall of the shell or case, as shown in Figs. 1 and 3, and, as shown, this bushing is attached to a base, C', which is secured to the end plate by screws c, and this bushing furnishes a long bearing for the stem and prevents any side pulling of the stem that would interfere with the operation of the register.

D is the cross-bar of the main pull, having at each end side bars, D' , which are locked to the cross-bar D by slides d , held in place when advanced by springs d' , each side bar having a recess, d'' , Fig. 14, to form a tongue, which enters a recess in the end of the cross-bar.

E is the spring for returning the pull, the inner end, e , of which is hooked into one of the frames on the registering-chains, as shown in Fig. 3, and the outer end of which receives a screw-threaded plug, E' , having a tongue, which passes through the wall of the ball B' , and in which are holes e' , through which a fastening, e'' , passes, locking the spring to the ball in a firm manner, as the screw-plug forms an attachment for the spring from which the spring cannot be detached in the operation of the pull.

F represents the frames or guides for the measuring-chains.

G represents the chains for the total register, and G' the chains for the trip-register, Figs. 11, 12, 17, 18, 19, and 20.

H represents the stops for the chains G G' , each stop being formed of a wire having a coiled main body and ends h h' , the end of h lying above the hinge-pin g' for the chain-links and the end of h' lying in line with the travel of the hinge-pin at the top of the frames. A stop H is provided for each chain, and these stops are mounted on a wire, H' , attached to the frames near their upper ends, as shown in Figs. 11 and 12, and their location is on the back of the register, so that with the forward travel of the chains the hinge-pins g' will pass beneath the arms h h' to have the bend in the arm h receive the hinge-pin and stop the advance of the chain after each pull, and the arm h' at the termination of each pull lies behind the hinge-pin and forms a stop against turning the chain backward.

I, Fig. 14, is the clutch-bar, having on each edge sockets i' , for the passage of the wires i , which carry the clutches I' , as shown in Fig. 16, and, as shown, one edge of the clutch-bar has brazed or otherwise attached thereto a stiffening-bar, I'' , Fig. 14. The clutch-bar is attached to the side-bars, D' , at one side by pins i'' , firmly secured in the bar D' , which pins enter the first sockets i' , and these sockets are brazed or otherwise firmly secured to the pins i'' and to the bar D' , so as to make a rigid connection between the bar D' and the clutch-bar I, Fig. 14, and the wires i , which attach the clutches, pass through the sockets i' and enter the sockets attached to the bar D' , as shown in Fig. 14.

K is the plate carrying the bell, which is located in a depression, K' , and, as shown, the edge of the plate at the end adjacent to the bell has a cut-away portion, K'' , for the hammer, and on this plate is an incline, k , by means of which the hammer is drawn back.

L is the bell, formed, as shown, with a rim or wall standing at right angles, or nearly so, to the body, and this bell is secured in the recess at the center k' , so as to leave the body and

rim clear of the recess, as shown in Fig. 10. The hammer l for the bell is mounted on the end of a spring-wire, l' , secured to one of the cross-bars D' of the main pull, and having its outer end turned so as to engage the inclined face of the wall k in advance of the pull, drawing the hammer l back, so that when the end l'' passes the end of the incline k the spring l' will act to throw the hammer onto the rim of the bell to ring the alarm, and on the return of the main pull the end l'' passes the end of the wall k , so that when the parts are at rest the bell-hammer stands in relation to the wall k as shown in Fig. 5. It will be seen that by this construction the bell-hammer travels with the motion, and its actuating-cam is stationary, producing less friction in use and insuring the striking of the bell with each complete pull.

M represents bars connected at their outer ends by a loop, M' , and having a button, M'' , between them. These parts form the resetting-pull, and, as shown, the bars M are provided with screws m^3 , for the attachment of the return-springs M^3 , Fig. 16, and with stop-pins m'' , which limit the inward draw of the resetting-pull, and the bell is pivoted to the side bars by a suitable pin or pivot, m' .

N is the clutch-bar for the resetting pull, having on each edge sockets n' , for the passage of the pivoting-rods n , and, as shown, one end of the wires n passes through one of the bars M, and is brazed or otherwise firmly secured thereto, and the several sockets are slipped onto the wires n , and the other side bar M slipped onto the ends of N, and the wires n are held from end movement when the parts are together by not passing entirely through this side bar M, as shown in Fig. 15.

O is a plate secured to the plate K, and having ears o , through which pins o' pass.

P P' are the dogs for holding the canceler-arms out of use. Each dog has ears p , to pass between the ears o and be pivoted in position on the plate O by the pin o' , and the free end of each dog has a catch, p' , which, when the cancelers are out of use, lies below the under plane of the plate K, as shown in Figs. 8 and 9, and each dog at one side has an ear, p'' , and the dogs are held in the position shown in Fig. 8 by springs o'' , coiled around the pins o' , so as to have the free end act and hold the dogs down, as shown in Figs. 8 and 9. The ear p'' of the dog P has an arm, p^3 , attached thereto and extending inward, and the ear p'' of the dog P' has an arm, p^4 , attached thereto and extending inward, with its outer end turned at right angles to come in contact with the arm p^3 .

Q is the dog for locking the main pull against movement in either direction unless a complete pull or return has been made. This dog is mounted on a wire, Q' , which wire is secured to the main pull D, and to its stem q is connected an eye or link, q' , which connects with a spring, q'' , by which the dog is returned to its normal position, and by connecting the stem q to the spring q'' by the link q' an easier move-

ment for the dog is obtained with less strain on the parts.

R represents the plates, each having a slot for the screw r' , by which the seal is locked in place, as described in my patent of February 15, 1887, No. 357,725.

S represents the cancelers, one for the units and one for the tens chain of the trip-register. Each canceler extends out from a support, s , mounted in suitable bearings, s'' , and at the inner end of the support s extends out an arm, s' , the outer end of which engages with the projection or catch p'' of the holding-dog when the dog is down, as shown in Fig. 16, at which time the resetting-pull is at rest, and the projection p' lies in the recess m , Fig. 16, of the bar M of the resetting-pull; each bar M having a recess, m , Fig. 16, to receive the projection p' of the respective dogs P P', and when the projection p' lies in the recess m , Fig. 16, the canceler S is held out of use, as shown in Fig. 17. The zero-link of each chain of the trip-register has a pin, t , Figs. 16, 17, 18, and 20, projecting out from the face of the link to engage the canceler when across the link and move it by the travel of the chain out of use, and, as shown, the frame F, between the units and tens chains, has thereon a stop-piece, t' , to limit the inward throw of the cancelers, and the outward throw of each canceler is limited, as shown, by a stop, t'' , on the frame-piece F.

T is a coiled spring connecting the arms s' of the canceler S, and by which, when the arms are released from the holding-dogs, the cancelers are thrown across the face of their respective chains.

U is a ratchet-bar secured to the back of the case A, and having a series of notches, u , with which the pawl or dog Q engages to hold the main pull against a return until the full movement in either direction has been had.

The bushing C gives a long bearing for the stem B, by which side pulls, that would rack the bar D and disarrange the parts, cannot be had, and as the ball B' is rigidly connected with the stem B, and the stem B rigidly connected to the bar D by the flange b , as shown in Fig. 3, it will be seen that these parts will all move together as a single piece. The attachment of the return-spring E to the ball B', through the screw-threaded plug E', produces a firm union between the spring and ball, by which the spring cannot be detached in the operation of the register. The lock H for the chain, operating on the hinge-pins g' of the chain-links, does not cause any great amount of friction in use, and at the same time a positive stop for the advance of the chain is had through the arm h , and a positive stop against the return of the chain is had through the arm h' . The attachment of the clutch-bars at one side to the pull-bar and connecting the other pull-bar therewith forms in effect a rigid pull in which one side cannot advance or recede, and both sides of the pull will have to move together, thus preventing any drawing out of line at one side of the pull by which the clutches

might be rendered inoperative. The dogs P P' are operated by the withdrawal of the resetting-pull, which, through the projection p' , raises the dog and allows the arm of the canceler to go free, and the dog is raised by the withdrawal of the pull from the action of the wall of the notch m , in which, when the pull is at rest, the projection p' lies. The arm p^3 of the dog P lying above the arm p^4 of the dog P', it will be seen that the raising of the dog P must carry down the arm p^4 and operate the dog P', and in setting the dogs the unit-canceler, which is actuated by the dog P, can be set without resetting the other canceler, as when the tens canceler is across the numeral the raising of the dog P' does not affect the tens-canceler, as it is not held by its dog P', so that this canceler has to be set independent of the units-canceler and from the movement of its chain, the result being that until both cancelers have been thrown out of use by bringing their respective chains to zero the tens-canceler will show a cancellation, even if the units-canceler is out of use, thus indicating that the resetting of the trip-register has not been properly done. The cancelers, when out of use, are held in that position, as shown in Figs. 16 and 17, by the engagement of the arms s' with the catches p'' of the dogs P P', and if a reset of the trip-register is made when the units-chain has not made an entire revolution the canceler of the units-chain only will be thrown into use, as the canceler of the tens-chain is held out of use by the pin t on the zero-link, which has not been advanced, as shown in Fig. 18, and the canceler of the units-chain will not be returned until the resetting-pull has been operated to bring the zero-link of the units-chain around to have its pin t engage the canceler and carry it out of use. If both the units and tens chains have been advanced from the main pull and are to be reset, the first movement of the resetting-pull to advance the trip-register for a reset will disengage the projections p' from their notches m , and both cancelers will be thrown across their respective chains, as shown in Fig. 19, and will remain in that position until the zero-links of both chains have been carried around to engage the cancelers by the pins t and carry them around out of use, and as the arm p^3 overlies the arm p^4 it will be seen that when the zero-link of the units-chain has carried the canceler of such chain out of use the canceler of the tens-chain will not be affected thereby, and will remain across the face of the tens-chain, as shown in Fig. 20, until the zero-link of the tens-chain, through its pin t , moves the canceler around, by which means, if both chains have been advanced, the units-chain cannot be reset and remove the canceler of the tens-chain until such chain has been advanced to zero. The chains are composed of ten links, connected one with the other by suitable hinges, g , the connecting-pins g' of the hinges projecting beyond the edges of the chains and forming the bearing by which the

chains are carried around on the wall or track *f* of the frames *F*, as described in my aforesaid Letters Patent. The bushing *C* is removably attached, so that in case it becomes worn sufficiently to allow the stem *B* to play therein the bushing can be removed and replaced by a new one, and instead of having the finger-piece *B'* rigidly secured to the stem *B*, and the screw-plug passing through the end of the finger-piece, such screw-plug might pass through the end of the stem *B*, and be locked by the fastening *c''*, and the ball be attached to the projecting end of the plug by a hook or link, as shown in Fig. 24. The metallic frames *a' a''* form a back for the sight-glass *A*³, and instead of making such frames of separate pieces, as shown in Fig. 1, each frame might be formed by striking up the cross-bars thereof from the metal of the case to form a recess for the glass, and then securing the glass by an edge-piece attached to the body of the case, as shown in Figs. 22 and 23, in which figures the sight-opening for the total register is shown as being in the back instead of in the front of the case.

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

1. The combination of the case *A*, movable pull *D*, sliding stem *B B'*, spring *E*, and plug *E'*, substantially as shown and described.

2. A stop, *H*, having arms *h h'*, for stopping and locking the chain of a fare-register, in combination with a fare-register chain pro-

vided with means for engaging said stop-arms, substantially as specified.

3. The combination, with a fare-register chain having a hinge-pin, *g'*, of a series of stops, *H*, each having an arm, *h*, and an arm, *h'*, for interlocking with the hinge-pin on the chain for stopping purposes, substantially as specified.

4. The bar *I*, having sockets *i'* and wires *i*, in combination with the bars *D'*, and wires *d'*, for connecting the bars together, substantially as and for the purpose specified.

5. The bell-hammer *l*, spring *l'*, having the turned end *l''*, and bar *D'* of the main pull, in combination with a bell and the plate *K*, provided with an incline, *k*, for operating the hammer with the motion of the main pull, substantially as specified.

6. The dog *P*, having the arm *p*³, in combination with the canceling device, the resetting-pull, and the dog *P'*, having arm *p*⁴, for operating the canceling device of a trip-register from the movement of the resetting-pull, substantially as specified.

7. The dog *Q*, having the arm *q* and eye *q'*, and connected with the main pull of a fare-register, in combination with the support *Q'* and spring *q''*, substantially as and for the purpose specified.

JOHN W. MEAKER.

Witnesses:

ALBERT H. ADAMS,
HARRY T. JONES.