

F. SANDERS.  
NUMBERING MACHINE.

No. 541,182.

Patented June 18, 1895.

Fig. 1.

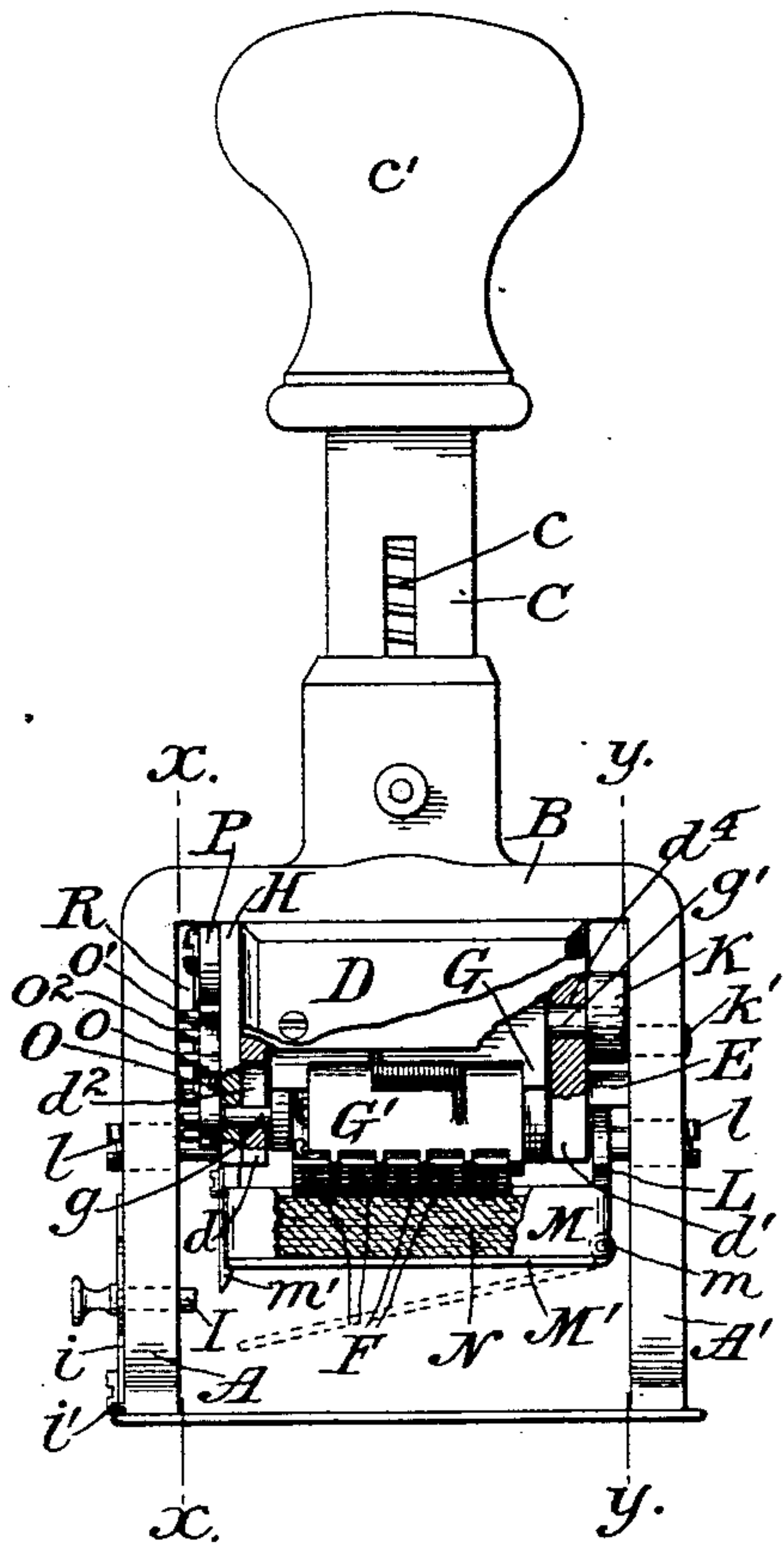


Fig. 2.

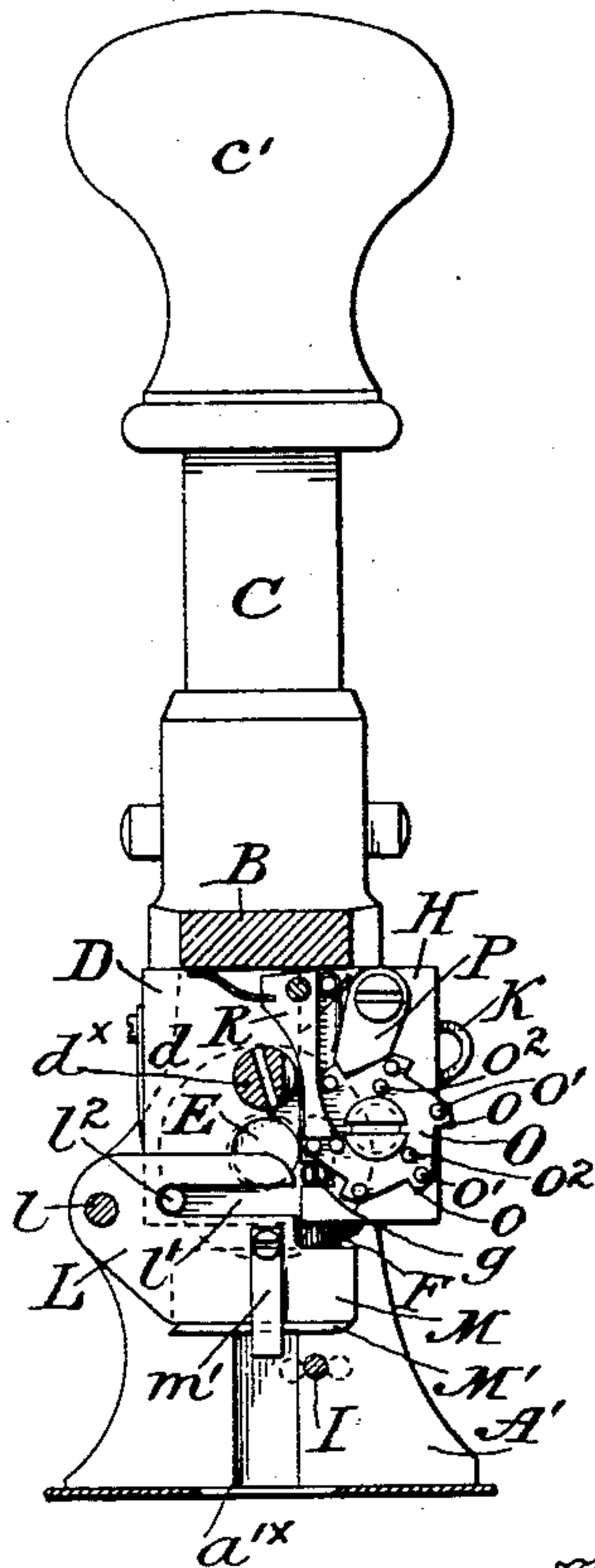


Fig. 3.

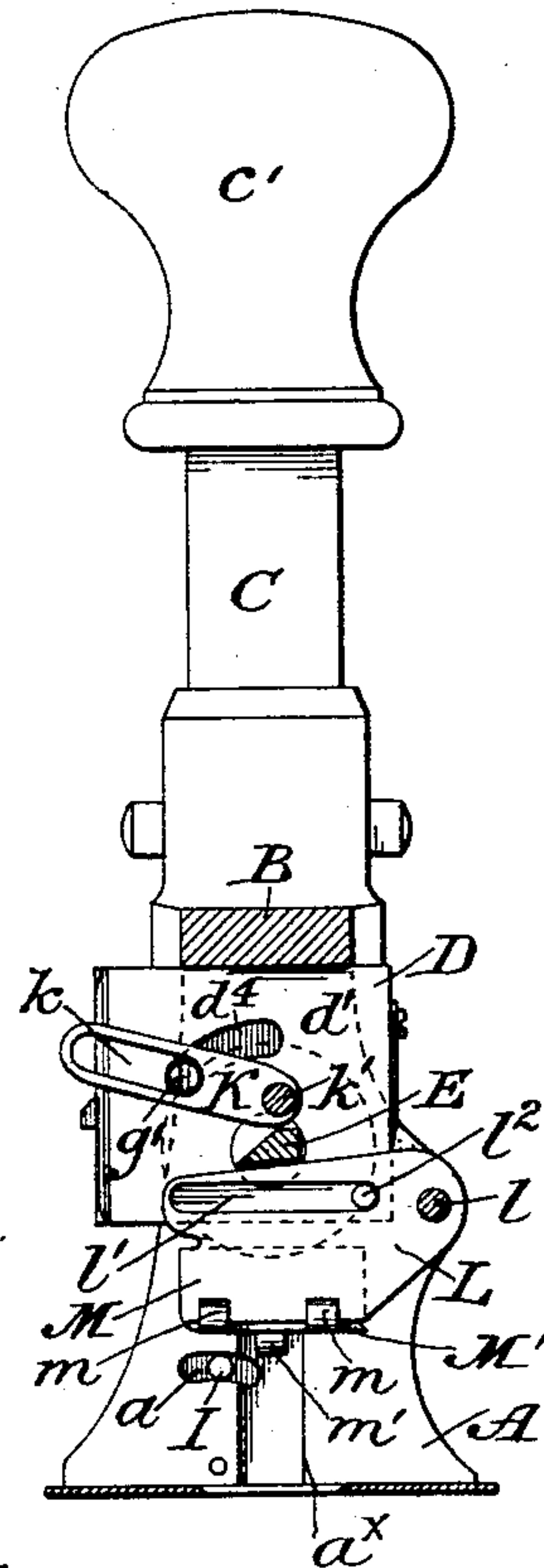


Fig. 4.

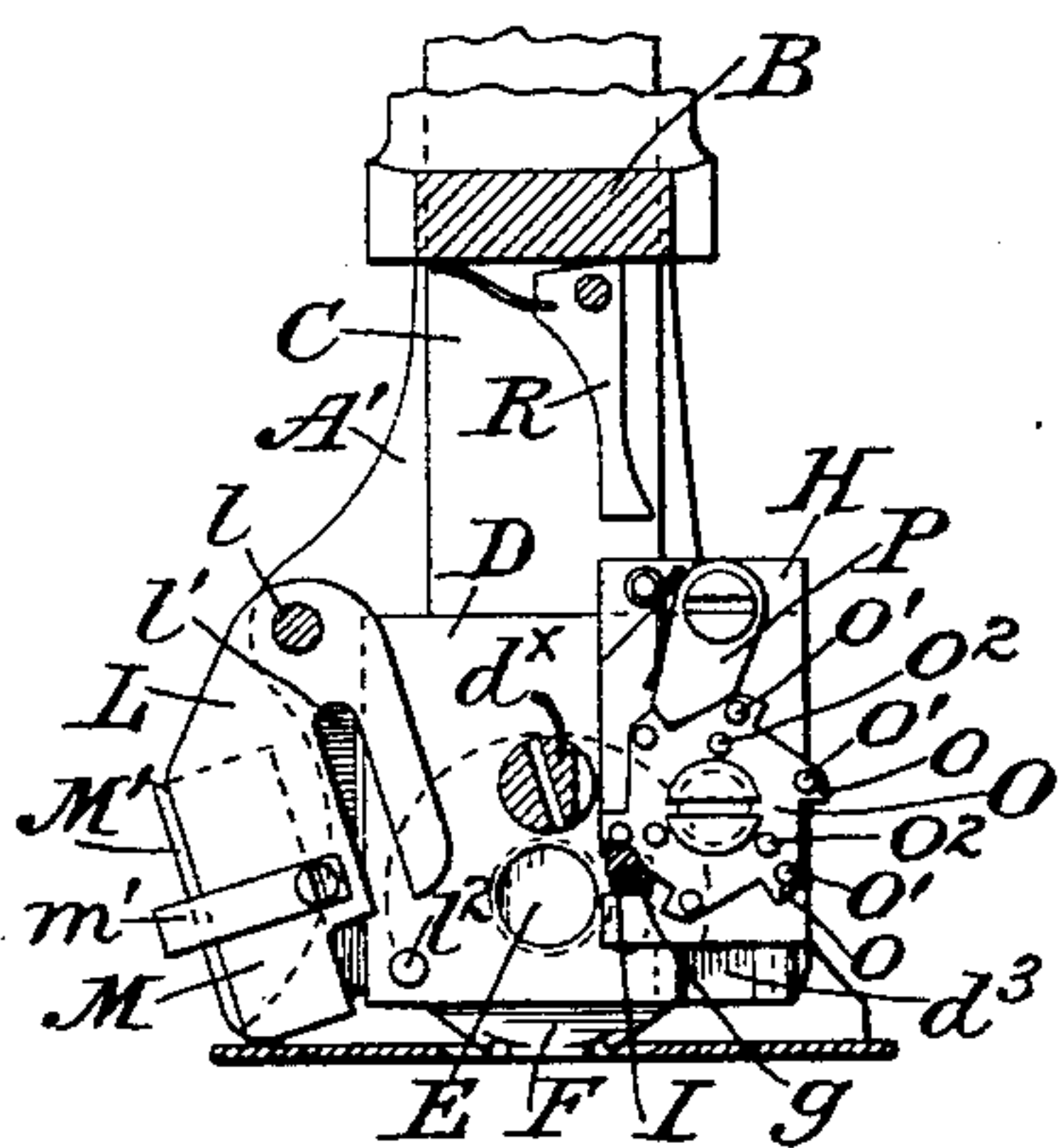


Fig. 5.

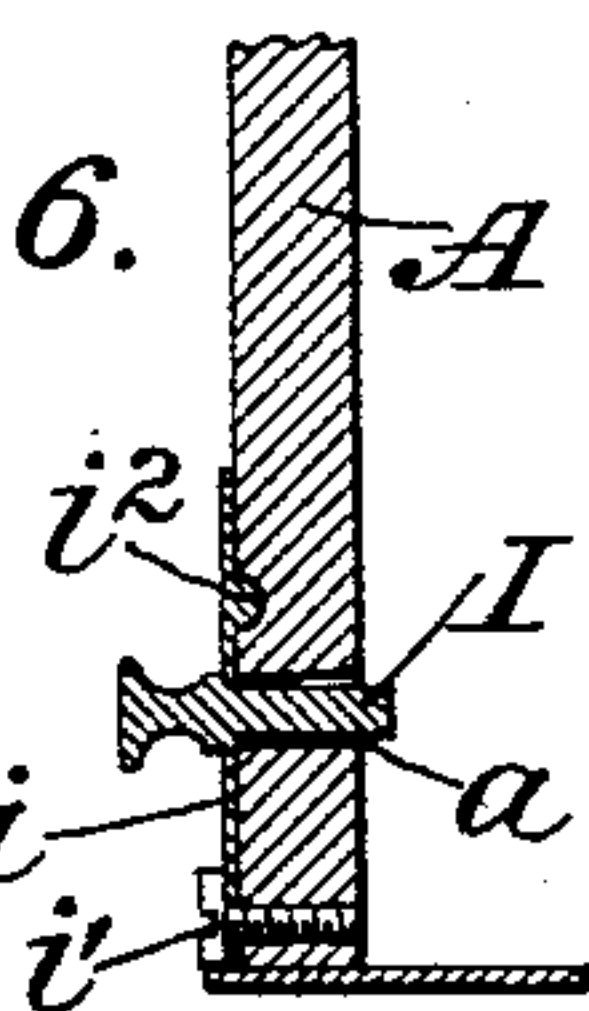
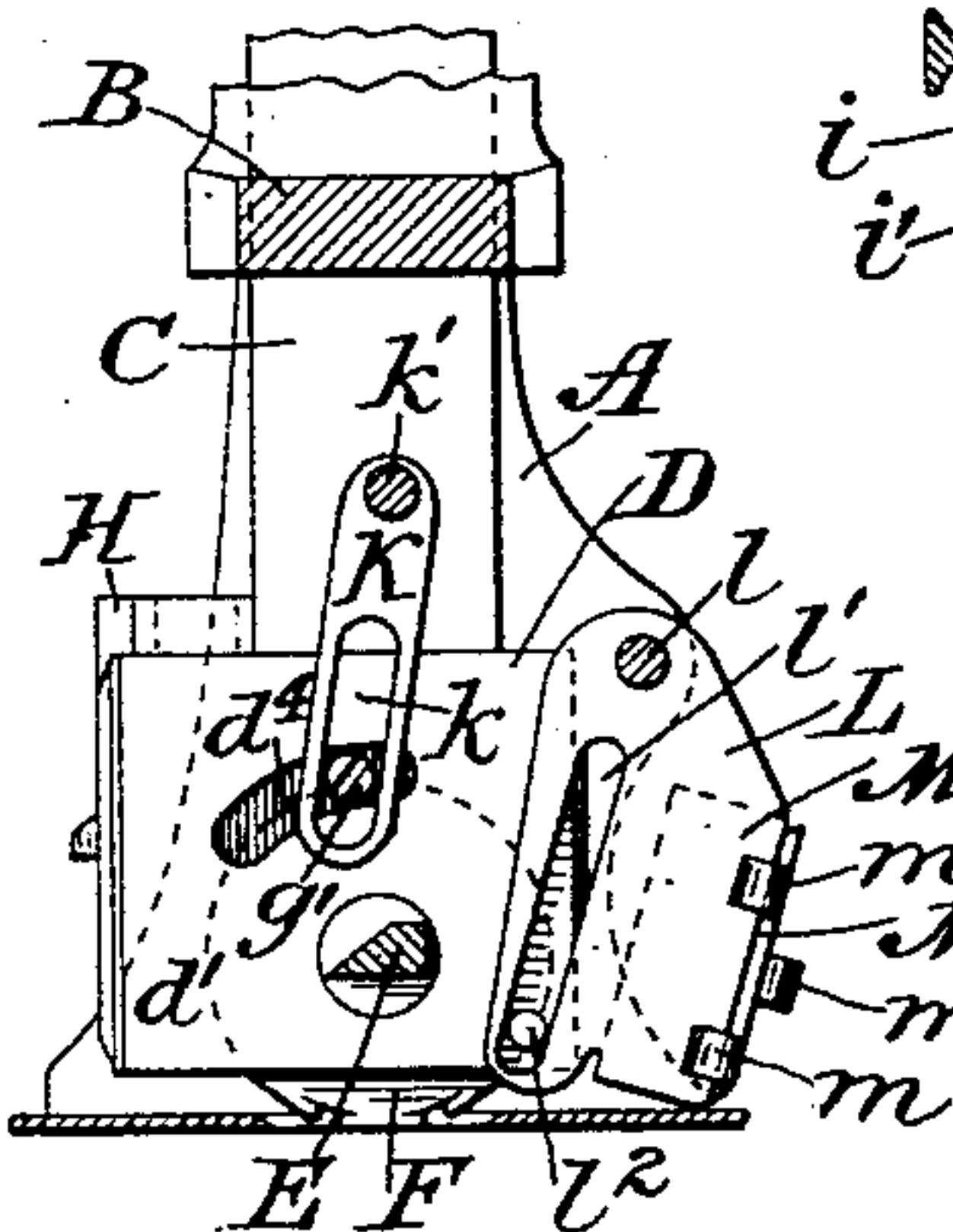


Fig. 6.

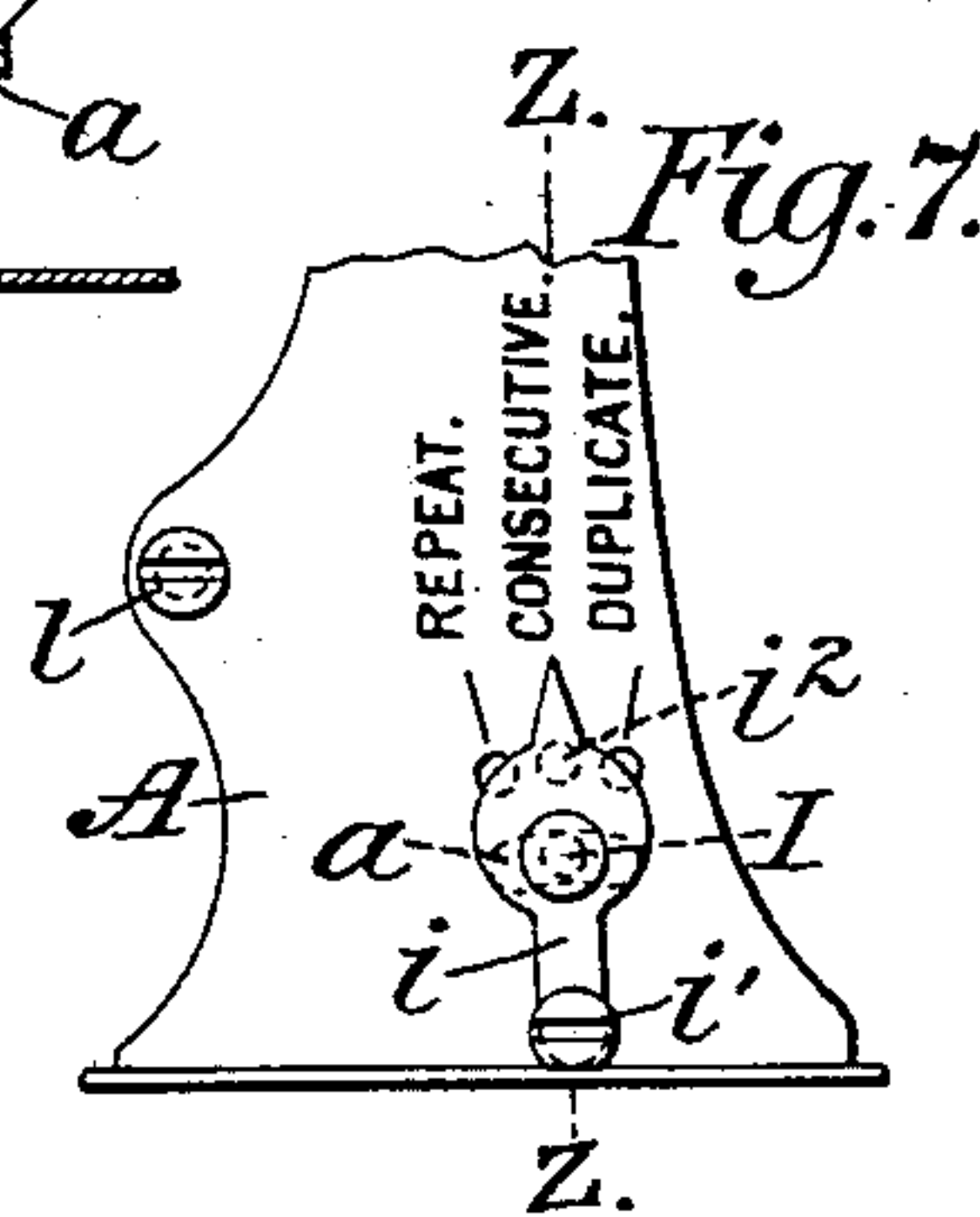


Fig. 7.

Attest:  
A. A. Jesbora,  
A. Liddell

Inventor:  
Frank Sanders  
by William B. Greeley  
Atty.

(No Model.)

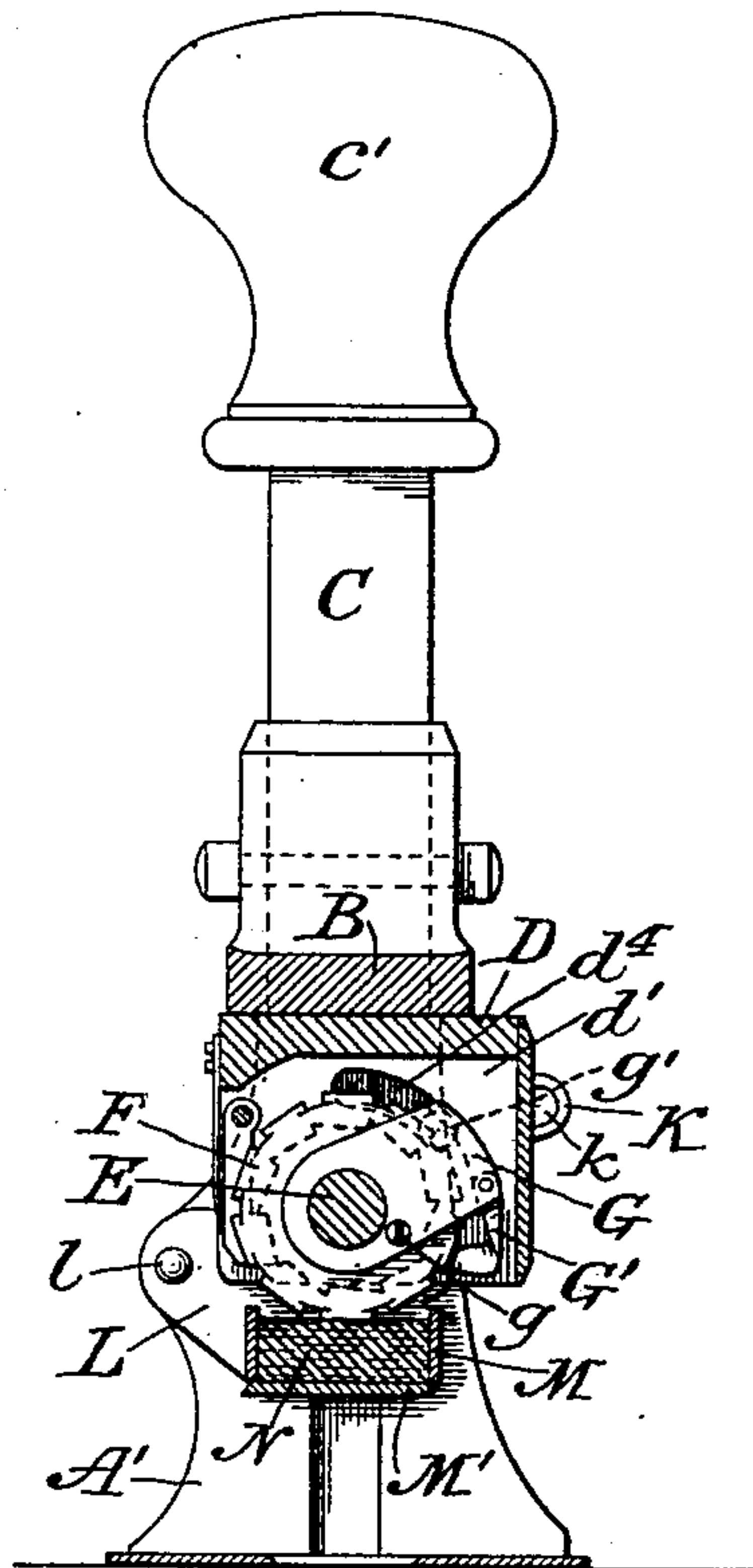
2 Sheets—Sheet 2.

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*Fig. 8.*



*Attest:*

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A. L. Liddell.

*Inventor:*

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# UNITED STATES PATENT OFFICE.

FRANK SANDERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOSEPH WETTER,  
OF SAME PLACE.

## NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 511,182, dated June 18, 1895.

Application filed February 2, 1894. Serial No. 498,823. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK SANDERS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Numbering-Machines, and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates in general to automatic numbering machines adapted for printing a series of numbers, and particularly to machines of this general character which are intended to be actuated by hand and not to be locked in the form with the type, although it will be obvious that the improvements herein set forth are not necessarily restricted in their application to hand numbering machines.

The general object of the invention is to produce a simple and comparatively inexpensive machine and one which at the same time shall be thoroughly reliable, not likely to get out of order or to be broken in use, and capable of being used for printing consecutive numbers singly, for duplicating consecutive numbers, or for repeating the same number indefinitely.

The invention consists particularly in the means for actuating the pawl-frame which drives the number-wheels and in the means for regulating or controlling the action of the machine.

In the accompanying drawings, Figure 1 is an elevation of a hand numbering-machine constructed in accordance with the present invention, parts being broken out. Fig. 2 is a vertical section on the line  $x x$  of Fig. 1, looking toward the right. Fig. 3 is a vertical section on the line  $y y$  of Fig. 1, looking toward the left. Fig. 4 is a partial section corresponding to Fig. 2, but showing the parts in different positions. Fig. 5 is a partial section corresponding to Fig. 3, but showing the parts in the position indicated in Fig. 4. Fig. 6 is a detail view in section through the fixed frame of the machine on the line  $z z$  of Fig. 7, showing the stop-pin. Fig. 7 is an elevation of the parts shown in Fig. 6. Fig. 8 is a vertical section looking to the right in Fig. 1,

the plane of section being just to the right of the plate marked  $d$  in said figure.

The fixed frame of the machine is formed as usual with two legs  $A$  and  $A'$  and a cross-head  $B$  through which the usual plunger  $C$  is guided, the latter being held normally in its elevated position by a spring  $c$  and being provided with a head or handle  $c'$ , as usual.

To the lower end of the plunger  $C$  is fixed the numbering-head, which may be of any ordinary construction so far as the present invention is concerned and which comprises preferably a frame or casing  $D$  having end plates  $d$  and  $d'$ , a shaft  $E$  mounted in said end plates, a series of number-wheels  $F, F$ , with their attached ratchet-wheels mounted on said shaft, and a pawl-frame  $G$  (see Fig. 1) which is preferably mounted to swing on the shaft  $E$  and which carries a series of pawls or a pawl-plate  $G'$  through which the movements of the pawl-frame are caused to actuate the number-wheels in the usual manner.

The numbering-head is guided in its movements by a stud  $d^x$  (Figs. 2 and 4) which enters a groove  $a^x$  (Fig. 3) in the leg  $A$ , and by the projecting end of the shaft  $E$  which enters a groove  $a'^x$  in the leg  $A'$ . This projecting end of the shaft  $E$ , in the construction shown, is cut away, as indicated in Figs. 3 and 5, to avoid interference with the movements of other parts hereinafter referred to.

As is usual in machines of this description the movement of the pawl-frame to actuate the wheels is effected by the movement of the numbering-head as a whole to make an impression and to return to its original position. The means which I have devised for the purpose of effecting the movement of the pawl-frame, although they bear a certain relation to the controlling or regulating devices hereinafter described, are yet advantageous in themselves without regard to the particular construction of the regulating devices because they make it possible to dispense with the spring usually employed for moving the pawl-frame in one direction.

The pawl-frame  $G$  is provided with a pin  $g$  which passes through a slot  $d^2$  in the end plate  $d$  of the casing  $D$  and engages a slide  $H$  which is mounted in a guide-way  $d^3$  (Fig. 4) formed on the end plate  $d$ , and thus is capable of a



limited vertical movement with respect to the casing D.

In the downward movement of the numbering-head the slide H or some part carried there-  
 5 by strikes a fixed pin or projection I whereby, as the numbering-head completes its downward movement the slide H is held stationary and the pawl-frame G is swung in one direction to bring its pawl or pawls into position  
 10 for engagement with the next successive tooth of the proper number-wheel or wheels. The slide is preferably independent of the shaft E, as shown, so that the latter may be fixed or movable according to the construction of  
 15 the numbering head. The pawl-frame G has also a second pin  $g'$ , which is preferably fixed to the other end and projects through a slot  $d^4$  in the other end plate  $d'$  of the casing D. The outer end of the pin  $g'$  enters a slot  $k$  in  
 20 a link K which is pivoted at  $k'$  to the fixed frame of the machine. As the numbering-head rises after an impression has been made the pin  $g'$  strikes the upper end of the slot  $k$ —that is, the end next the pivot, and thereby,  
 25 during the continued movement of the numbering-head in the same direction, the pawl-frame is swung in a direction to cause its pawl or pawls to engage the tooth of the proper wheel or wheels and to advance such wheel  
 30 or wheels one step in readiness to make the proper imprint at the next operation. The proper advance of the numbering-wheels is thus caused to depend only upon the movements of the numbering-head and no spring  
 35 is required to be placed within the numbering-head to effect the movement of the pawl-frame in one direction or the other, as is usually the case.

It will be observed from what is shown in  
 40 Fig. 3 that during the last part of the upward movement of the numbering-head the link K moves through the horizontal position and therefore does not affect the swinging frame.

The parts are arranged in the relation shown  
 45 in order that the movement of the numbering-wheel may entirely cease before the ink-pad is brought into contact with the wheels to ink those characters thereon which produce the next impression. The ink-pad is carried  
 50 by a frame L which is pivoted to the fixed frame of the machine, as at  $l$ , and has its arms slotted as at  $l'$  for engagement by a pin or pins  $l^2$  which are fixed to the casing D of the numbering-head, all in the usual manner,  
 55 whereby the ink-pad is swung back out of the way as the numbering-head descends and is swung into contact with the number-wheels as the numbering-head rises and comes to rest in its highest position. It is necessary of  
 60 course, to remove the ink-pad N from its box M from time to time and various needlessly complicated and expensive arrangements have heretofore been devised to permit this to be done readily. In the present case the  
 65 box M is attached to or formed as a part of the frame L and its bottom  $M'$ , upon which the ink-pad N directly rests, is hinged to the

body of the box, as at  $m$ , while its free end is adapted to be engaged and held in place by a spring-latch  $m'$  which is secured at the op-  
 70 posite end of the body of the box. When it is required to remove the ink-pad the spring latch  $m'$  is pressed back, thereby releasing the bottom  $M'$  and permitting the pad to be removed without further trouble.

As hereinbefore stated a part of the present invention relates to the means for controlling or regulating the action of the numbering machine so that it may be caused to  
 75 print the consecutive numbers singly or to duplicate the successive numbers or to repeat any number as many times as may be desired. Heretofore various means have been devised for this purpose but for the most part they are so complicated as to be extremely liable  
 85 to get out of order and therefore to make the machine unreliable. It has been sought in the present invention to reduce the number of parts required for the purpose referred to and to make their action so direct and simple  
 90 as to make it practically impossible for the machine to get out of order or fail to perform the exact duty required of it. Instead of attempting to make provision for directly controlling the engagement of the pawls with  
 95 their respective ratchet-wheels of the numbering-head, as has been done heretofore, I have provided means for controlling directly the action of the movable frame which carries the pawls, whereby it may be caused to  
 100 have an effective movement at each operation of the machine or at every other operation of the machine or to be held out of action altogether.

In the construction represented in the draw-  
 105 ings a carrier in the form of a toothed wheel O is mounted on the slide H and a hold-pawl P is also mounted on the slide to prevent backward movement of the wheel O. The wheel is represented as having six teeth  $o$  and it  
 110 carries a series of laterally projecting pins  $o'$ , one for each tooth  $o$ , and a second series of pins  $o^2$ ,  $o^3$ , the number of which bears a certain relation to the number of pins  $o'$ ,  $o'$ , according to the number of times, two or three,  
 115 as the case may be, which it is desired that each consecutive number of a series shall be printed. In the construction shown there is one pin  $o^2$  for every second pin  $o'$  and the machine is therefore adapted to print the  
 120 same number twice before changing to the next consecutive number, as will more clearly appear hereinafter. These pins  $o'$  or  $o^2$ , as the case may be, constitute that part of the slide H which comes in contact with the pin I in  
 125 order to hold up the slide during the last part of the descent of the numbering-head, and the pin I is made movable laterally so that it may make contact with a pin  $o'$  or with a pin  $o^2$ , as the case may be, or may stand en-  
 130 tirely out of the path of said pins. For convenience in shifting the pin I it is mounted upon an elastic plate  $i$  which is pivoted, as at  $i'$ , to the outside of the fixed frame A, the pin



projecting through a slot  $a$  in said frame. The plate is provided with a knob  $i^2$  which enters a corresponding depression in the face of the frame A and retains the pin in the position in which it may have been set while permitting it to be shifted readily into any other position.

It will be obvious from the foregoing that if the pin I be so set as to stand in the path of either pin  $o'$  or  $o^2$ , the slide will be held in the manner already described and the necessary movement of the pawl-frame will thereby be effected, while if the pin I be set in such a position that it will not be struck by a pin  $o'$  or  $o^2$ , the slide will not be held and no movement will be imparted to the wheels of the numbering-head. In the construction represented in the drawings the position last referred to is indicated by the word "Repeat" on Fig. 7. If the wheel O were not rotated upon its axis but remained always in the position represented in Fig. 2, it is obvious that whether the pin I were set in the path either of a pin  $o'$  or of a pin  $o^2$ , the slide would be held at every operation of the machine with the result that effective movement would be imparted to the pawl-frame at every operation and the machine would print the successive numbers singly. The wheel O, however, is shifted at every operation of the machine by a pawl R which is pivoted on the fixed frame and engages the successive pins  $o'$ ,  $o'$ , as the numbering-head returns to its highest position and thereby effects a forward movement of the wheel. Consequently, if the pin I is set in the position indicated by the word "Consecutive" on Fig. 7, it is struck by a pin  $o'$  at each operation of the machine and causes an effective movement of the pawl-frame at each operation, the wheel, as before described, being held from backward rotation by the hold-pawl P. If, however, the pin I be set into the position indicated by the word "Duplicate" on Fig. 7 it will be struck by one of the pins  $o^2$  and the slide will be held only at every other descent of the numbering-head, and on the alternate movements the slide will not be held because the wheel, being advanced one step at each operation, is in such a position during the alternate movements that there is no pin  $o^2$  in position to strike the fixed pin I. Consequently, when the pin I is in the position last referred to the pawl-frame will have effective movement only at every other operation of the machine and each number of the series will be printed twice before the next successive number is printed.

It will be obvious that the machine might be adapted for repeating each number two or more times by varying the relation of the second series of pins on the wheel O to the first series.

Various modifications of the construction and arrangement shown and described herein might be made without departing from the spirit of the invention and it is therefore to

be understood that the invention is not intended to be restricted to the exact construction and arrangement shown.

I claim as my invention—

1. In a numbering machine, the combination of a fixed frame, a numbering head adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted to reciprocate vertically in ways on said numbering head and adapted to actuate said pawl-frame, a stop carried by the fixed frame and movable into or out of the path of a projection from the slide whereby said pawl frame may or may not be moved in one direction during the movement of the numbering head in one direction, and a second stop carried by said fixed frame in the path of a projection from said pawl frame whereby the latter is moved in the opposite direction during the opposite movement of the numbering head, substantially as shown and described.

2. In a numbering machine, the combination of a fixed frame, a numbering-head adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted on said numbering-head and adapted to actuate said pawl-frame, a stop carried by the fixed frame in the path of a projection from the slide whereby the pawl-frame is moved in one direction during the movement of the numbering-head in one direction, and a slotted link pivoted on the fixed frame and adapted to engage a projection from said pawl-frame and to effect movement thereof in the opposite direction, substantially as shown and described.

3. In a numbering machine, the combination of a fixed frame, a numbering head adapted to be reciprocated in said frame and having a movable pawl frame whereby its wheels are actuated, a movable carrier supported by said numbering head and having a plurality of series of projections, intermediate means whereby the movement of the carrier actuates the pawl frame, means to advance the carrier at successive reciprocations of the head, a stop supported by the fixed frame and adjustable to stand in the path of one series or another of the projections on the carrier, and means to move the pawl-frame in a direction opposite to that in which it is moved by the carrier, substantially as shown and described.

4. In a numbering machine, the combination of a fixed frame, a numbering head adapted to be reciprocated in said frame and having a movable pawl frame whereby its wheels are actuated, a slide mounted to reciprocate in ways on said numbering head and adapted to actuate said pawl-frame and independent of the shaft of the numbering head, a stop for said slide supported by the fixed frame whereby effective movement is imparted to the pawl frame during the movement of the numbering head in one direction,



and means to move said pawl frame in the opposite direction, substantially as shown and described.

5. In a numbering machine, the combination of a fixed frame, a numbering-head adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted on said numbering-head and adapted to actuate said pawl-frame, a stop supported by said fixed frame and adapted to be moved into or out of the path of a projection carried by said slide, whereby effective movement may or may not be imparted to the pawl-frame at each operation of the machine and means to move said pawl-frame in the opposite direction, substantially as shown and described.

6. In a numbering machine, the combination of a fixed frame, a numbering head adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted on said numbering-head and adapted to actuate said pawl-frame, a wheel mounted on said slide and having a series of projections, means to advance said wheel step by step, a stop supported by the fixed frame in the path of the projections on said wheel, whereby the effective movement of the pawl-frame is determined by the position of the projections on said wheel, and means to move the pawl-frame in a direction opposite to that in which it is moved by the slide, substantially as shown and described.

7. In a numbering machine, the combination of a fixed frame, a numbering-head

adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted on said numbering-head and adapted to actuate said pawl-frame, a carrier mounted on said slide and having two series of lateral projections differentially disposed, means to shift said carrier, a stop supported by the fixed frame and movable into the path of either of said series of projections, and means to move the pawl-frame in a direction opposite to that in which it is moved by the slide, substantially as shown and described.

8. In a numbering machine, the combination of a fixed frame, a numbering-head adapted to be reciprocated in said frame and having a movable pawl-frame whereby its wheels are actuated, a slide mounted on said numbering-head and adapted to actuate said pawl-frame, a wheel mounted on said slide and having projections thereon, a pawl supported by the fixed frame and adapted to engage said wheel to advance the same step by step at each operation of the machine, a stop supported by said fixed frame in the path of the projections on said wheel, and means to move the pawl-frame in a direction opposite to that in which it is moved by the slide, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK SANDERS.

Witnesses:

W. B. GREELEY,  
WILLIAM WENZ.