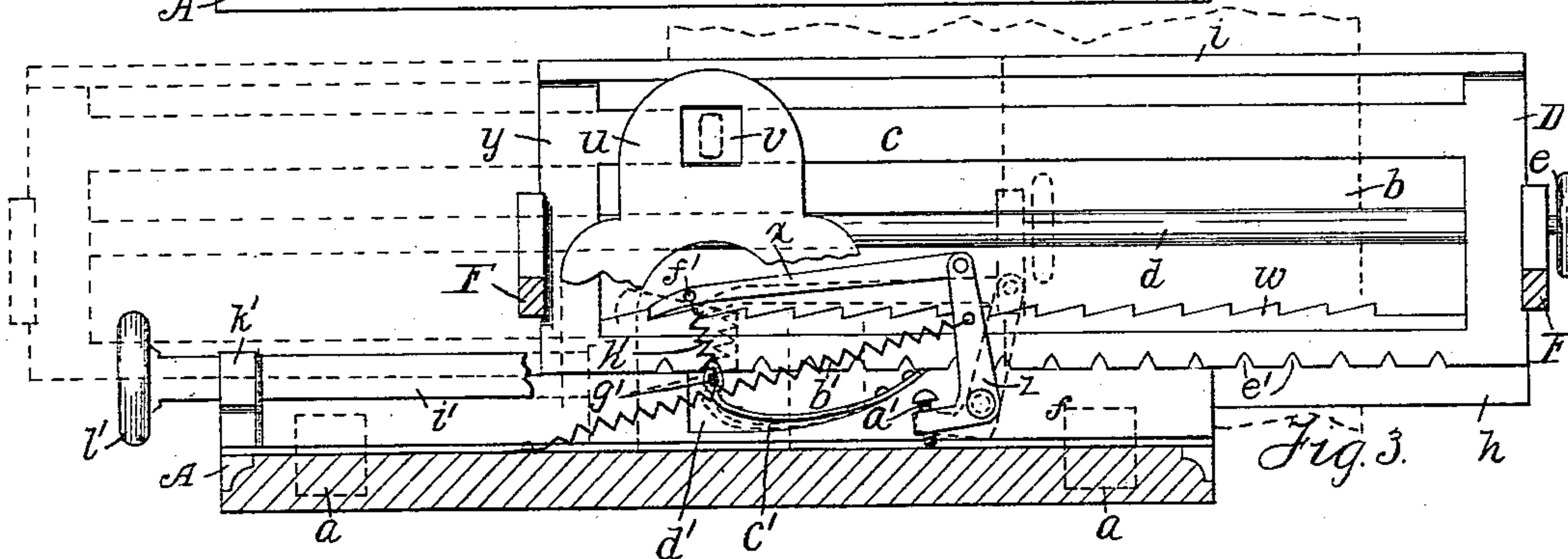
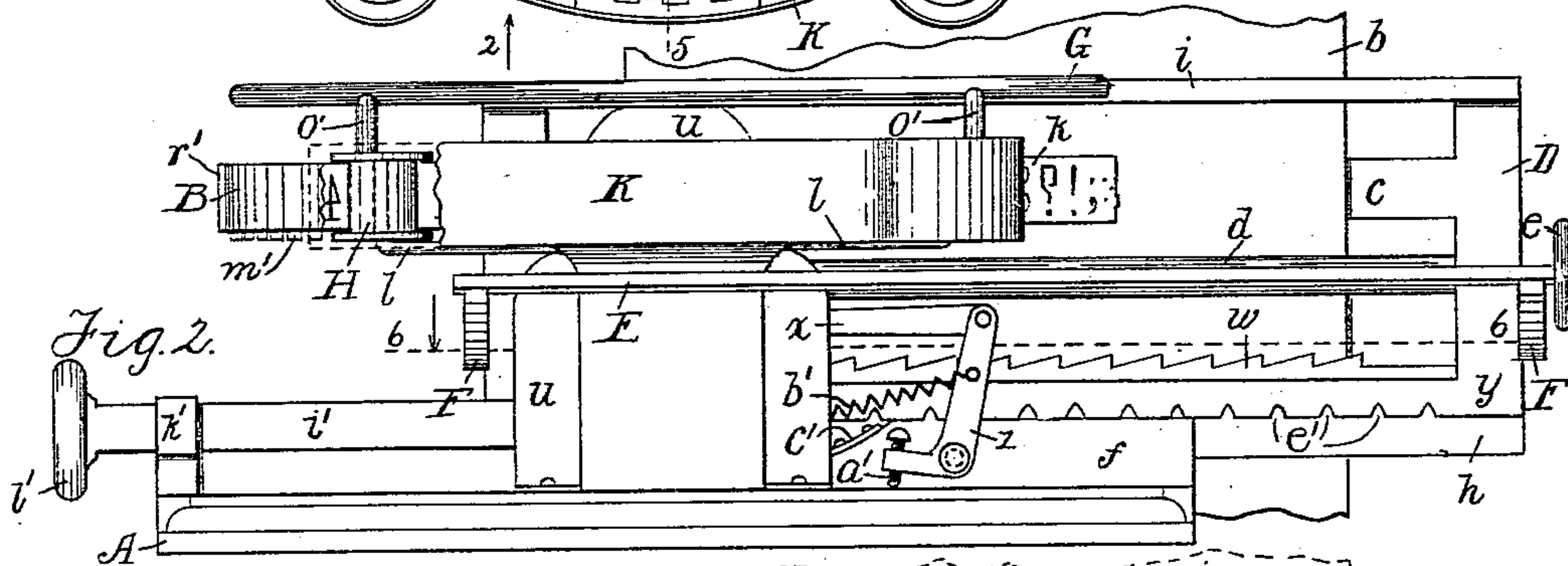
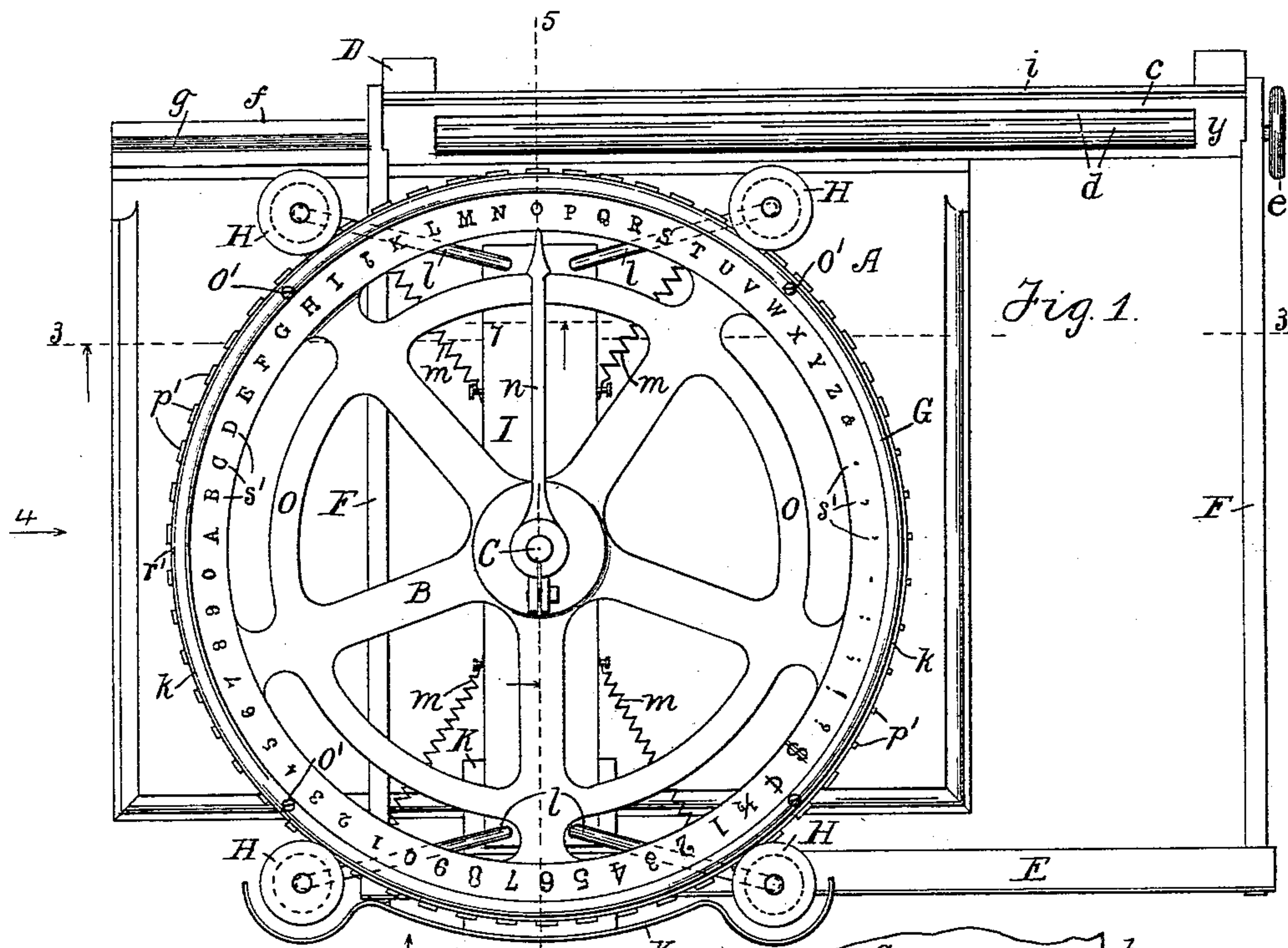


F. W. MAXSON.  
MACHINE FOR PRINTING SIGN CARDS.

No. 555,106.

Patented Feb. 25, 1896.



Attest:

M. L. Winston.  
Wm. C. Hefel

Inventor:

F. W. Maxson,  
By E. B. Whitmore,  
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

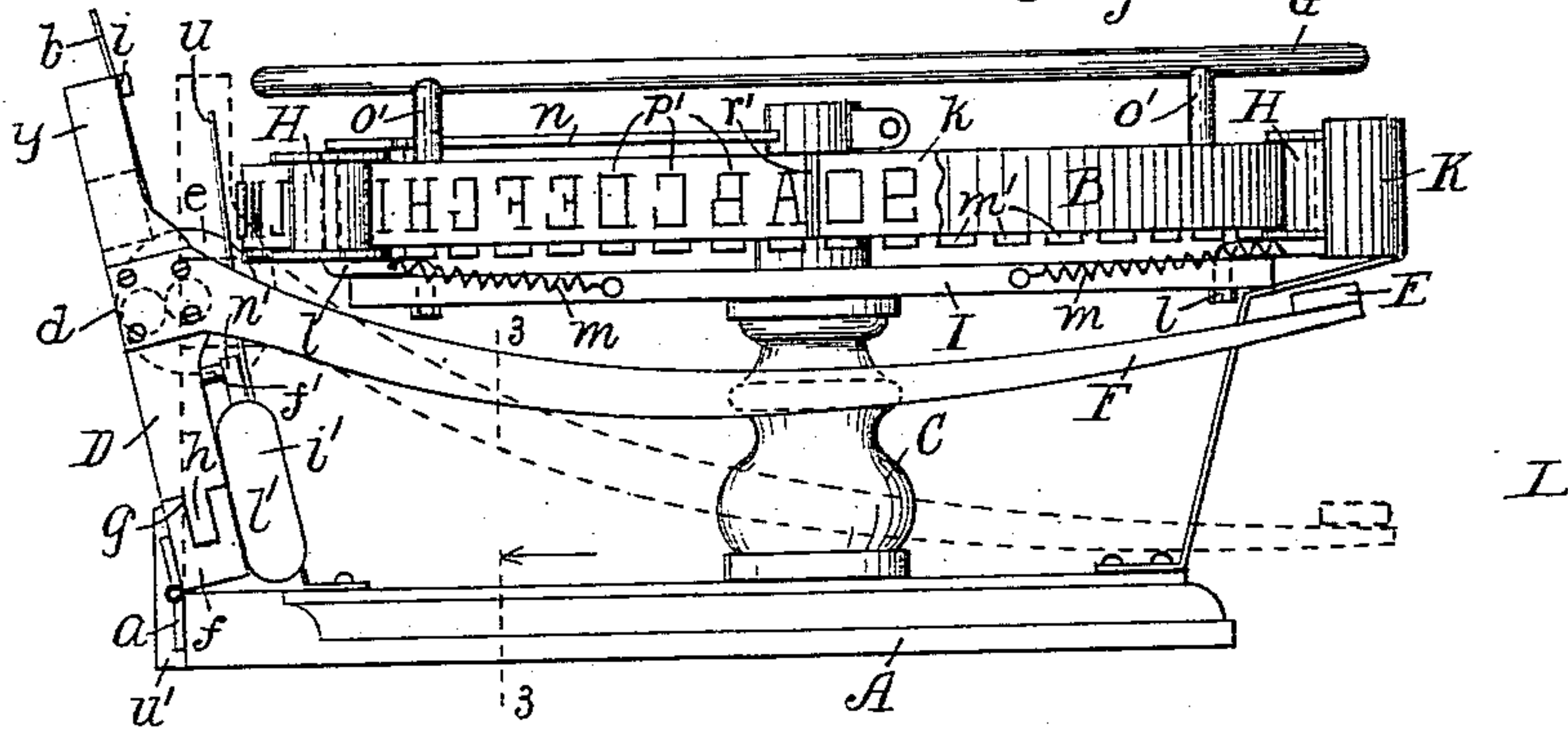


Fig. 13.

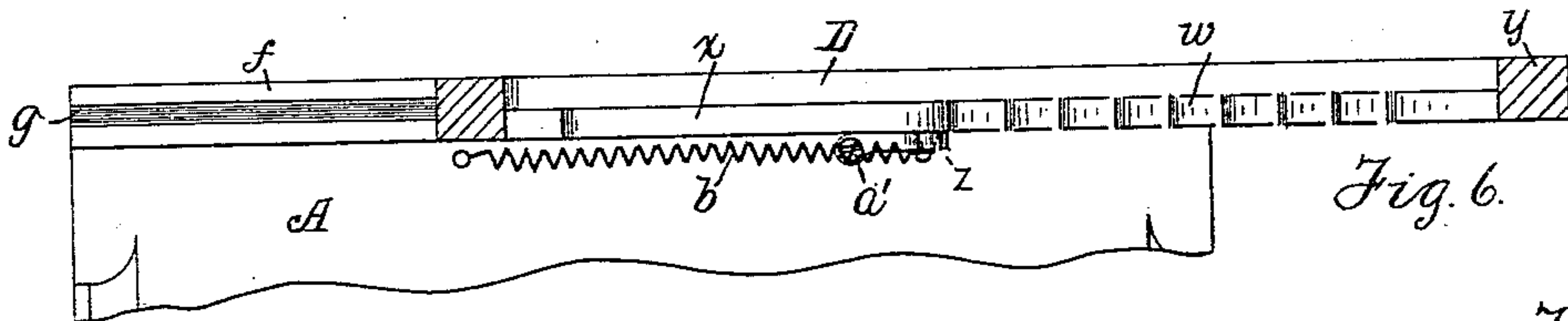
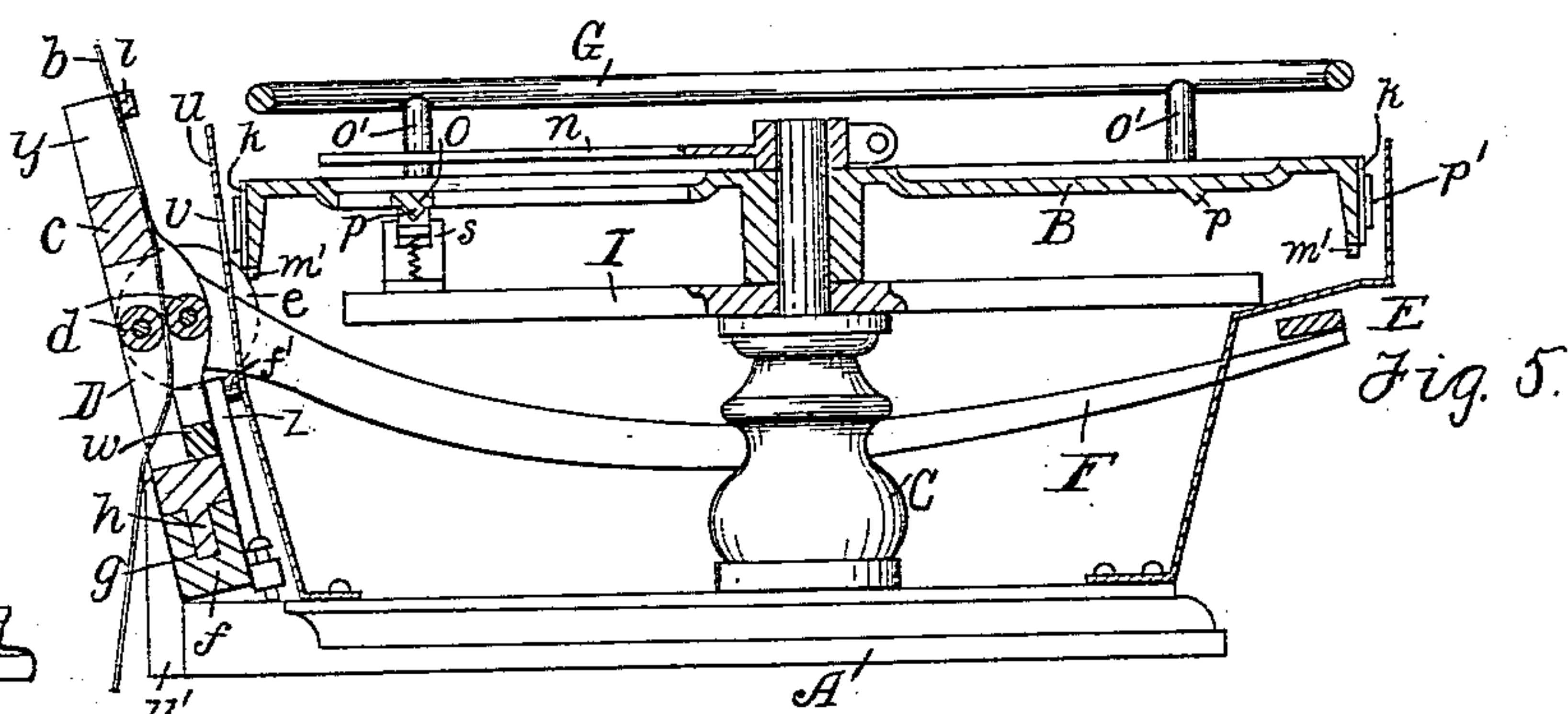
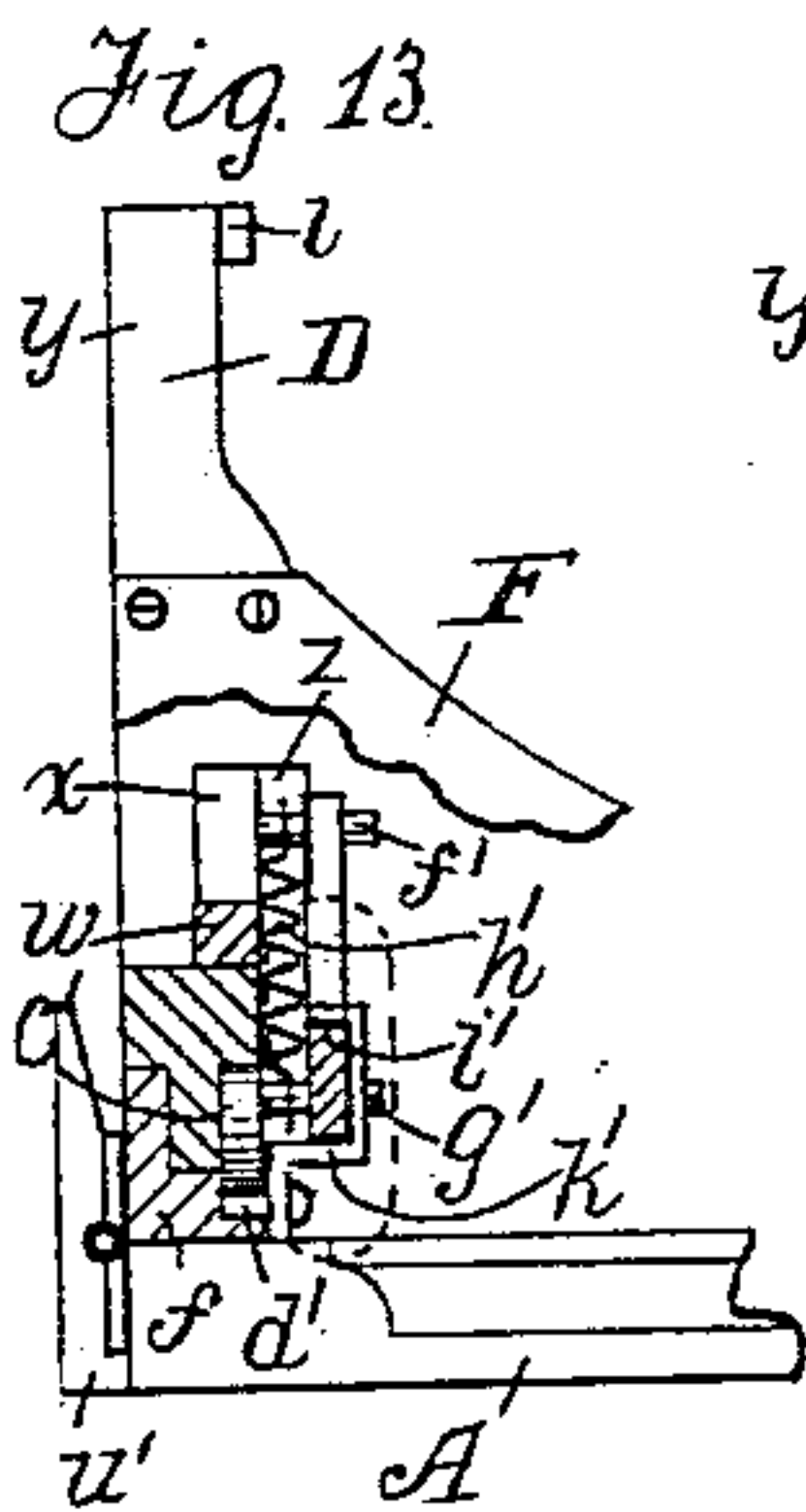


Fig. 7.

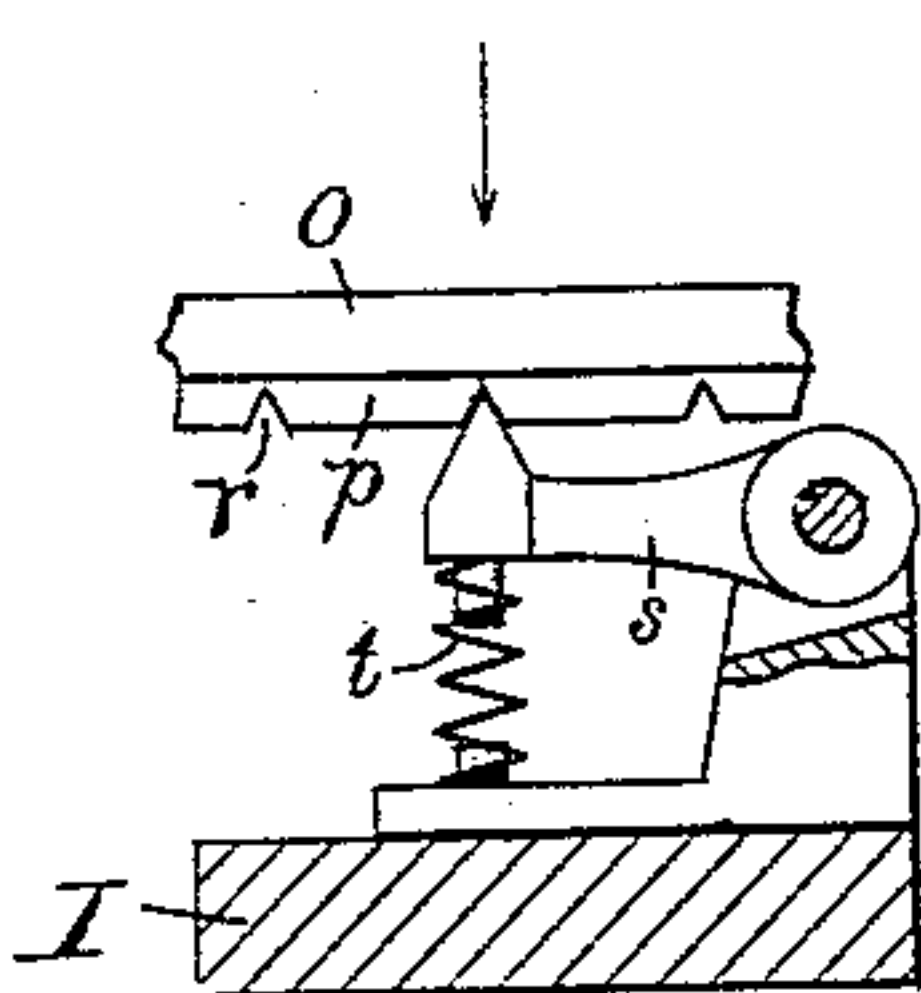
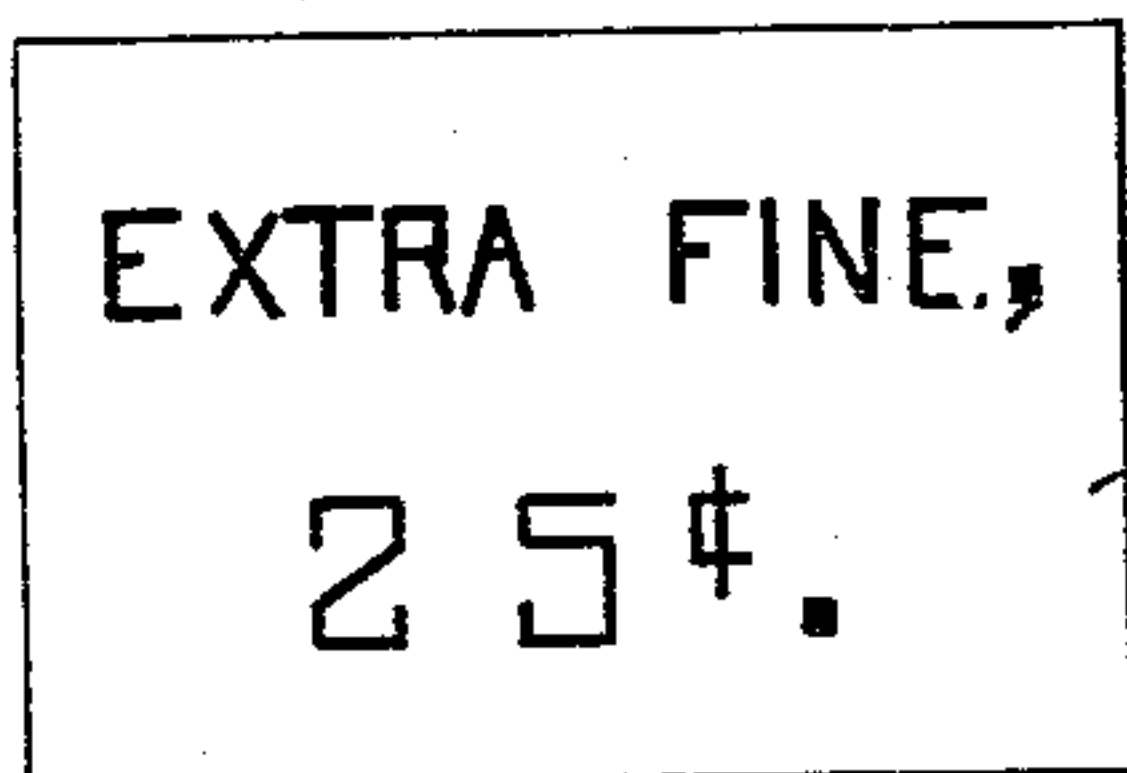
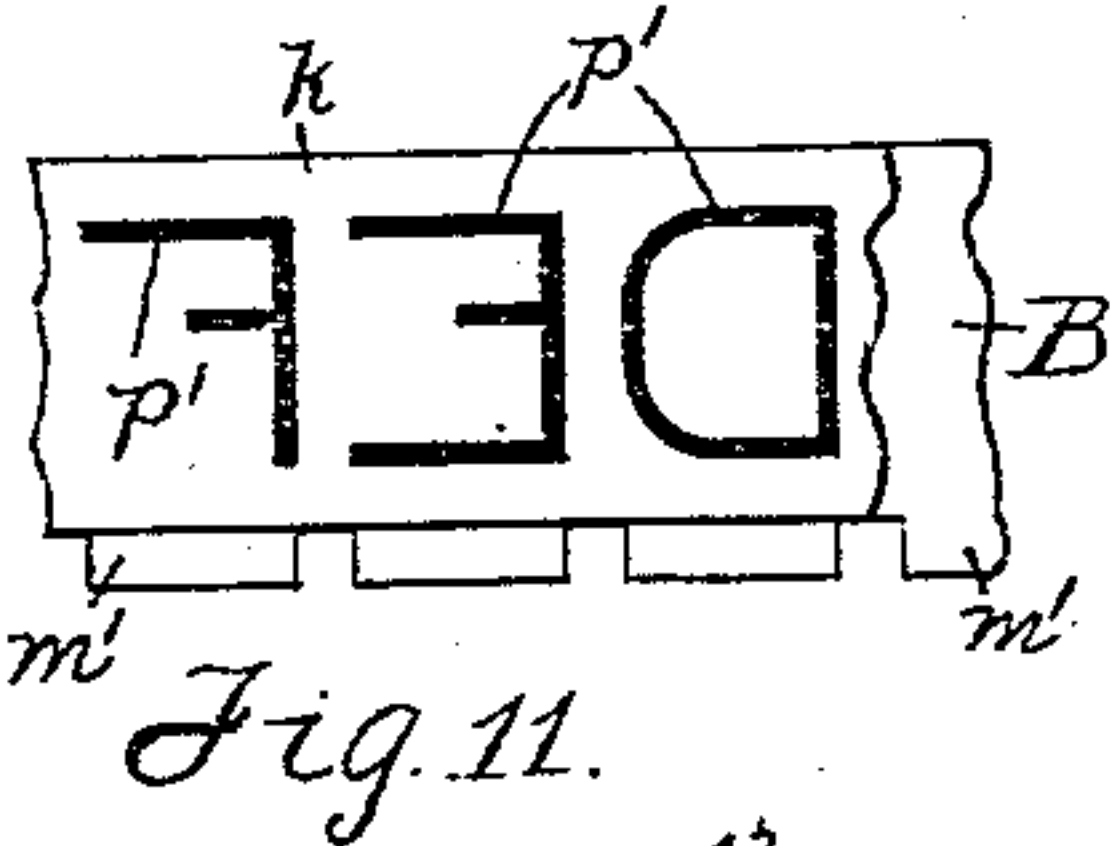
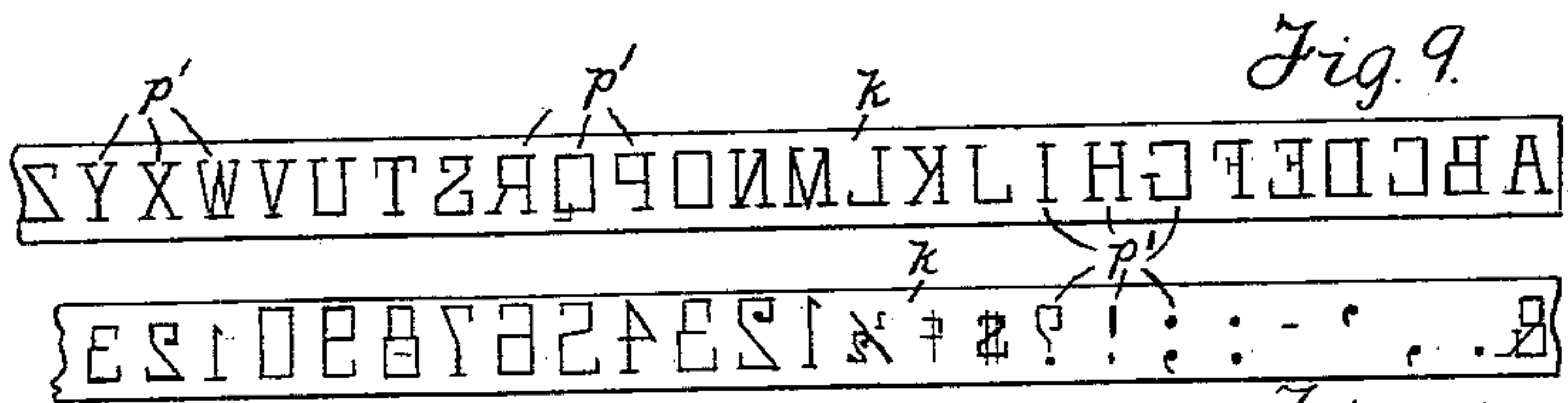
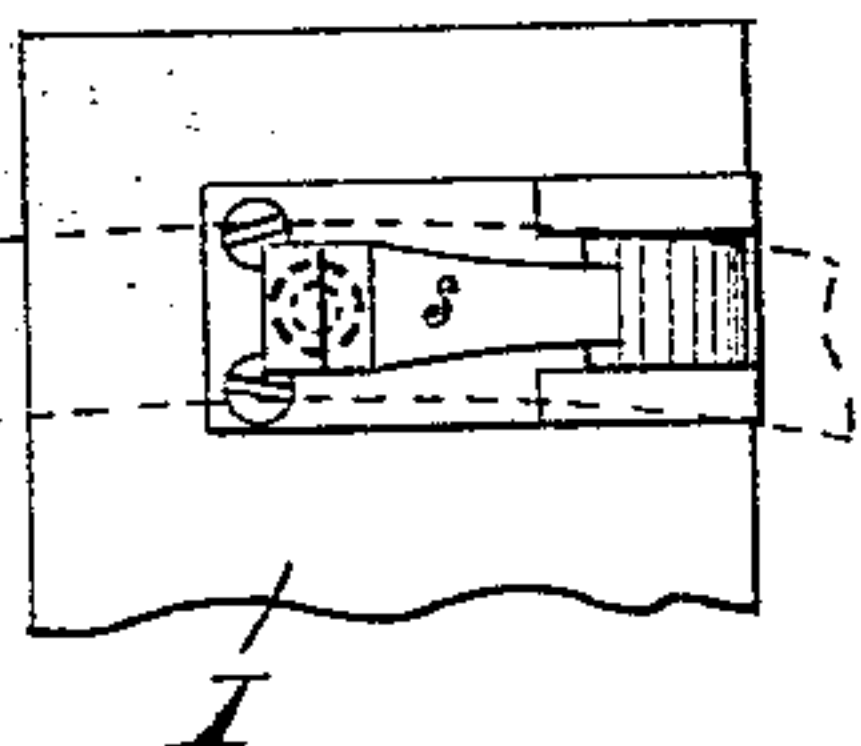
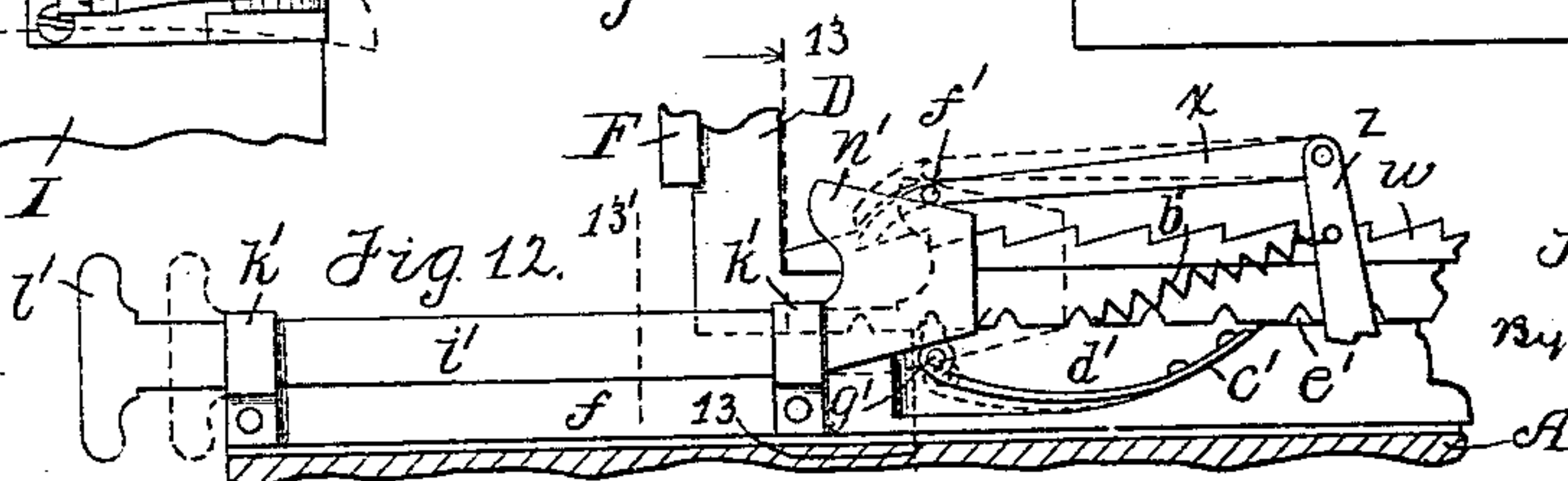


Fig. 8.



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Atty.



# UNITED STATES PATENT OFFICE.

FRANK W. MAXSON, OF ROCHESTER, NEW YORK.

## MACHINE FOR PRINTING SIGN-CARDS.

SPECIFICATION forming part of Letters Patent No. 555,106, dated February 25, 1896.

Application filed September 10, 1894. Serial No. 522,644. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK W. MAXSON, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Machines for Printing Sign-Cards, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

Merchants, grocerymen, and other persons pursuing their trades frequently need to use placards or cardboard signs of small or moderate sizes attached to their wares for the purpose of temporarily announcing to the public the prices or qualities of goods, numbers, wants, and other notices, and also for other purposes.

The object of my invention is to produce a machine for conveniently and rapidly printing such sign-cards, all parts of the machine being planned to produce the required results.

This machine comprises a wheel having the letters of the alphabet, numbers, and other marks and characters necessary for doing such work formed or arranged upon its periphery, together with means for holding and controlling the card to be printed, ink-rollers, and other devices, all hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a general plan of the device with some minor parts omitted; Fig. 2, a front elevation seen as indicated by arrow 2 in Fig. 1, parts being broken away. Fig. 3 is a vertical section of the base-board and some other parts on the dotted lines 3 3 in Figs. 1 and 4, parts being broken away and other parts shown in two positions by full and dotted lines. Fig. 4 is a side elevation seen as indicated by arrow 4 in Fig. 1, a part of the type-belt being broken away and parts shown in two positions by full and dotted lines. Fig. 5 is a similar elevation, some of the parts being centrally vertically sectioned upon the dotted line 5 5 in Fig. 1. Fig. 6 is a horizontal section on the dotted line 6 6 in Fig. 2, showing more fully the pawl and ratchet-bar. Fig. 7 is a side elevation of the detent for the wheel, the bar for supporting the inking-rollers being transversely sectioned on the dotted line 7 in Fig. 1. Fig. 8 is a plan of the detent seen as indicated by arrow in Fig. 7. Figs. 9 and 10

show portions of the type-belt for the wheel. Fig. 11 further shows the form of the rim of the wheel with a part of the type-belt in place thereon. Fig. 12 shows the releaser for the slide, parts being shown in two positions by full and dotted lines. Fig. 13 further shows the releaser and associated parts, parts being broken away and omitted and other parts transversely sectioned, as on the dotted line 13 13 in Fig. 12, the releaser being sectioned on the dotted line 13', Fig. 12. Fig. 14 shows a sample sign-card.

Referring to the parts shown, A is the base-board of the device, holding a horizontal iron printing-wheel B by means of a rigid standard C. D is a substantially vertical rocker held at the rear edge of the base-board by simple hinges *a*, Fig. 4, and adapted to sway or tilt through a short distance, as indicated by the positions shown by full and dotted lines. E is a horizontal hand-bar at the front of the machine connected with the rocker by arms F, by means of which the operator may tilt the rocker at will.

The rocker comprises a base-piece *f* hinged directly to the base-board, and a shiftable slide *g* held by the base-piece. The latter is formed with a longitudinal channel *g*, Figs. 1 and 4, in which a tongue *h* of the shiftable slide rests, by means of which the latter is permitted to slide longitudinally forward or backward to carry the card *b*, Figs. 2, 5 and 14, to be printed along opposite the periphery of the wheel for the purpose of having a line of matter printed upon it. When the rocker is brought to a vertical position, by pressing the hand-bar the card is brought against the face of the printing-wheel to receive an impression.

The shiftable slide is formed with a stout horizontal impression-bar *c*, Figs. 3 and 5, opposite the face of the wheel, against which the impressions are made. Two horizontal rubber rollers *d d*, having their surfaces in contact, are provided in the slide for controlling the elevation of the card *b*, said card being pinched between the rollers, as shown. These rollers are controlled by a hand-wheel *e*, Figs. 1 and 5, to raise or lower the card at pleasure. A slender horizontal bar *i* at the upper side of the slide assists to hold the card steadily in place and against the impression-bar.



The printing-wheel is turned by the operator one way or the other upon its bearing on the standard by means of a circular hand-rail G, Figs. 1 and 4, to bring the required letter or character in position to give an impression. The hand-rail is secured rigidly to the wheel by means of short standards  $o'$ , Figs. 5 and 6.

The letters and characters  $p'$ , which are upon the periphery of the wheel, are usually made of india-rubber formed in relief upon the side of a single continuous rubber type-belt  $k$ , Figs. 1, 5, 9 and 10. This belt is of uniform width corresponding with the width of the face of the wheel, which face is cylindrical, and is secured to the latter by means of an adhesive substance or otherwise, as may be convenient. This type-belt is usually formed with a complete alphabet of capital letters together with figures from 0 to 9 inclusive, in two sizes, and the signs for dollars and cents and the punctuation-marks used in ordinary printing.

H are rollers for supplying ink to the type or letters. They are held in position to roll upon the faces of the letters by pivotal supports  $l$  held by a rigid horizontal cross-bar I, Figs. 1 and 4, beneath the wheel upon the standard C. Slender springs  $m$ , connected with the supports  $l$  and the cross-bar, tend to hold these inking-rollers gently against the faces of the type.

A sheet-metal apron-guard K, Figs. 1 and 4, secured to the base-board and extending up in front of the wheel and the forward inking-rollers, prevents the type and said inking-rollers from coming in contact with the clothing of the operator, who stands at L in front of the machine.

The upper surface of the wheel in view of the operator is provided with another series of letters and characters,  $s'$ , as shown in Fig. 1, usually cast upon the wheel, which correspond with the series of letters and characters on the periphery of the wheel. Like letters and characters in the two series are adjacent to each other and in the same vertical plane passing through the axis of the wheel, on account of which the operator may always know where a required peripheral letter is and so be able to bring it into position to be printed. A pointer  $n$ , Figs. 1 and 4, secured to the upper end of the standard C, serves to point to the letter or character on the side of the wheel corresponding to the one that may at any time be in position to be printed upon the card—that is to say, if the letter “O,” for example, be required in any case, the wheel will be turned to bring the letter “O” on the upper side of the wheel to the point of the pointer, when the type for the corresponding letter on the periphery of the wheel will be in position to give an impression upon the card.

The wheel is formed with a ring  $o$ , Fig. 1, upon the under surface of which is formed a downwardly-projecting circular V-shaped ridge  $p$ , Figs. 5 and 7, crossed by notches  $r$ .

A pivotal detent  $s$  is held in position upon the bar I to act upward against the ridge  $p$  and enter the notches therein as the wheel is turned. The detent is actuated by a simple spring  $t$ , which keeps it normally in engagement with the ridge. The detent is so placed that it enters a notch only when a peripheral character of the wheel is in exact position to give an impression, and it serves to hold the wheel steady while an impression is made. When the wheel is turned in either direction by the operator the detent is pressed downward on account of the inclination of the sides of the notches, and does not materially impede the turning of the wheel.

$u$  is a thin sheet-metal impression-guard interposed between the wheel and the rocker, secured to the base-piece  $f$ . It is formed with an opening  $v$ , Fig. 3, through which the type projects to give an impression upon the card. This guard serves to cover the type on each side of the one giving the impression and prevents the card being smeared by said adjacent type. The impression-guard is held in such a manner that it normally stands clear of both the wheel and the impression-bar, as shown in Figs. 4 and 5.

The slide  $y$  of the rocker is adapted to move longitudinally in the base-piece  $f$  for the purpose of printing a horizontal line upon the card. The slide is moved automatically to print letters in succession by means of a toothed ratchet-bar  $w$ , Figs. 2, 3 and 6, rigid in the slide, and a pawl  $x$ . The pawl is worked by a bent lever  $z$  pivoted upon the base-piece  $f$ . The upper long arm of the lever is connected with the pawl, and the lower short arm bears upon the base-board A through the medium of an adjusting-screw  $a'$ . Now when the rocker is brought forward, as indicated by the dotted position in Fig. 4, by depressing the hand-bar, the lever and the pawl will be thrown to the positions indicated by dotted lines in Fig. 3 on account of the bearing of the lever upon the base-board. This causes the pawl to catch a new tooth in the ratchet-bar  $w$ . A spring  $b'$ , connecting the lever and the base-board, tends to hold the former normally to the position shown in full lines in Fig. 3, the spring being sufficiently strong to move the slide by means of the lever and the pawl. This spring also serves to tilt the rocker to its normal position, (shown in full lines in Fig. 4,) this being effected also on account of the bearing of the lever upon the base-board.

The length of the teeth of the ratchet-bar determines the spacing of the printed letters on the card.

A detent  $c'$ , Figs. 3 and 13, is provided for the slide  $y$ , occupying a cavity  $d'$  in the base-piece  $f$ . The lower edge of the slide is formed with a series of notches  $e'$  spaced to correspond with the teeth of the ratchet-bar  $w$ , into which notches the detent  $c'$  plays as the slide is moved along by the pawl  $x$ . The pawl is provided with a horizontal projecting pin  $f'$ , and



the detent with a similar projecting pin  $g'$ , which pins are connected by a spiral spring  $h'$ . The spring serves to hold the pawl and the detent normally in contact with the ratchet-bar and the slide  $y$ , respectively.

It will be observed that the connecting-spring  $h'$  does not hinder the movements of the pawl in shifting from tooth to tooth nor the detent in shifting from notch to notch, each of said parts—that is to say, the pawl and the detent—being allowed to work independently although connected, the yielding nature of the spring permitting these independent actions. When the slide is moved by the pawl at any time, the detent moves downward out of the notch in the slide on account of the inclined side of the notch; but the detent is held by the spring  $h'$  sufficiently firmly in the notch to hold the slide steadily to place while an impression is being delivered upon the card, as above described. The actions of the pawl and the detent are alternative—that is to say, while the detent steadily occupies a notch the pawl moves to the right to engage a new tooth of the ratchet-bar, and as the pawl pushes the slide to the left the detent glides out of the notch and enters the next one when presented, which is at the moment the pawl ceases moving the slide.

When the slide has moved to its extreme position toward the left, as indicated by dotted lines in Fig. 3, or to the position in which the extreme right-hand letter of a line has been printed upon the card in any given case, it needs to be returned toward the right to begin a new line. To return the slide toward the right the pawl  $x$  and the detent  $c'$  have to be both thrown out of engagement with the parts of the slide with which they act. This is accomplished by means of a releaser  $i'$ , Figs. 4, 12 and 13. This releaser is a horizontal bar held to move longitudinally in bearings  $k'$  rigid with the base-piece  $f'$  and is formed at its inner end with an expanded tapering head  $n'$ , the inclined edges of which bear against the pins  $f'$  and  $g'$  of the pawl and the detent respectively. This releaser is formed with a handle or knob  $l'$  at the left-hand end in convenient reach of the person operating the machine. Now by pushing the releaser toward the right against the pins to the position indicated by dotted lines it will simultaneously lift the pawl and depress the detent, as indicated by the dotted-line positions of the two parts, thus releasing the slide and allowing it to be shifted longitudinally by the hand of the operator at pleasure. A withdrawal of the releaser toward the left to its normal position allows the pawl and the detent to be both again brought into action from the action of the spring  $h'$ .

As constructed, the detent itself is a spring; but this is not necessary, for if it be but a flexible bar or strip of metal the spring  $h'$  will cause it to properly perform its function. The periphery of the printing-wheel is pro-

vided with a ridge or mark  $r'$ , Figs. 1, 2 and 4, parallel with its axis to aid in accurately placing the rubber type-belt upon it. The end of the belt next the letter "A" is made square across or at right angles with the parallel sides, (see Fig. 9,) and in putting the belt upon the wheel this square end is placed truly against the mark  $r'$ , as appears in Fig. 4. The wheel is further formed with downward peripheral projections  $m'$ , Figs. 2, 4, 5 and 11, which also aid in accurately placing the belt upon the wheel. The belt being elastic there would be a tendency, in carrying it around the periphery of the wheel, to stretch it and so cause some of its letters or characters to be drawn to one side of the corresponding permanent letters and characters upon the upper side of the wheel—that is to say, at one side of the radial planes passing through said permanent letters or characters. The projections  $m'$  are made to register with the permanent letters and characters and so form guides for the letters on the belt, a letter or character of the belt coming directly over a projection, as appears in Figs. 4 and 11.

The belt being secured upon the wheel, as stated, forms a rubber tire, as it were, for the wheel.

A stop  $u'$ , Figs. 4 and 5, rigid with the rear edge of the base-board, serves to prevent the rocker from moving too far back on account of the action of the spring  $b'$ .

What I claim as my invention is—

1. In a machine for printing sign-cards, the combination, with a base, of a standard, a horizontal type-wheel journaled on the upper end of the standard and provided with characters on the periphery, a fixed pointer for indicating when any desired character is in position for printing, a rocker-frame pivotally secured to the base and adapted to move into engagement with the periphery of the type-wheel, a circular hand-rail above the top of the type-wheel and secured thereto, whereby the wheel may be rotated upon its axis in either direction by grasping the hand-rail at any point, and means for operating the rocker-frame, substantially as set forth.

2. In a machine for printing sign-cards, the combination, with a base, of a standard, a type-wheel pivotally secured to the standard and provided with peripheral characters, a rocker-frame pivotally secured to the base at one side of the wheel, and an apron in front of the wheel at the opposite side, a circular hand-rail above the top of the wheel and secured thereto, whereby the wheel may be rotated upon its axis in either direction without interfering with the rocker-frame or the apron, and means for operating the frame, substantially as set forth.

3. The substantially cylindrical rotary printing-wheel of a printing-machine, the periphery of which is provided with a ridge in combination with a tire or belt of flexible material as india-rubber, formed with letters and



characters secured to the periphery of the wheel the ends of which abut against the ridge, as and for the purpose specified.

4. The rotatory printing-wheel of a printing-machine, in combination with a tilting holder for the work, coacting with the wheel, said holder being provided with a ratchet-bar and having its under edge provided with a series of notches, spaced to correspond with the teeth of the ratchet-bar, a pawl for the ratchet-bar and a detent for the notches, each of which is provided with a pin, a spring connecting the pins upon one side, and a tapering head for inserting between the pins upon the other side and adapted to release the pawl and detent from the teeth of the bar and from the notches.

5. The printing-wheel of a card-printing

machine, in combination with a tilting holder for the work coacting with the wheel said holder consisting of a base-piece and a slide adapted to move longitudinally thereon, a detent for the slide held by the base-piece, a pawl to move the slide, a spring-actuated lever held by the base-piece to actuate the pawl, a controlling-spring connecting the pawl and the detent, and means for throwing the pawl and the detent out of action, substantially as described.

In witness whereof I have hereunto set my hand this 8th day of September, 1894, in the presence of two subscribing witnesses.

FRANK W. MAXSON.

Witnesses:

ENOS B. WHITMORE,

M. L. WINSTON.