

(No Model.)

4 Sheets—Sheet 1.

A. CAMPBELL.

MACHINE FOR PUNCHING CHECKS.

No. 413,434.

Patented Oct. 22, 1889.

Fig. 1.

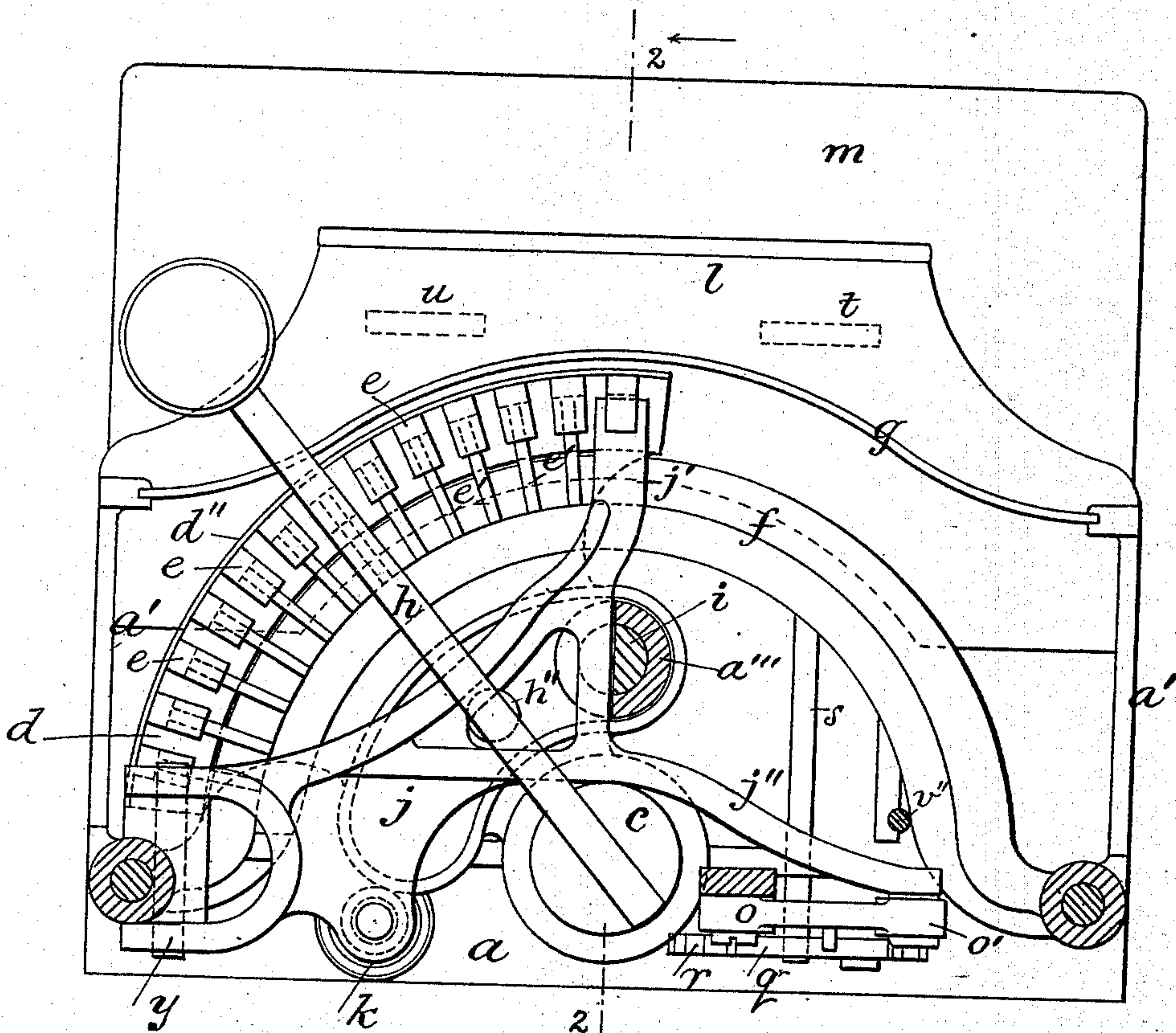


Fig. 6.

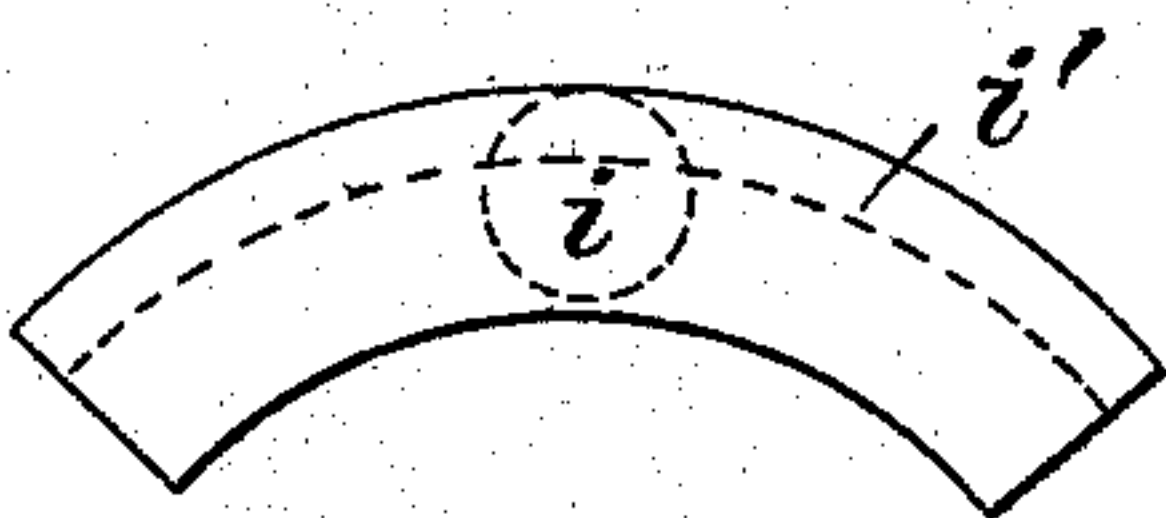
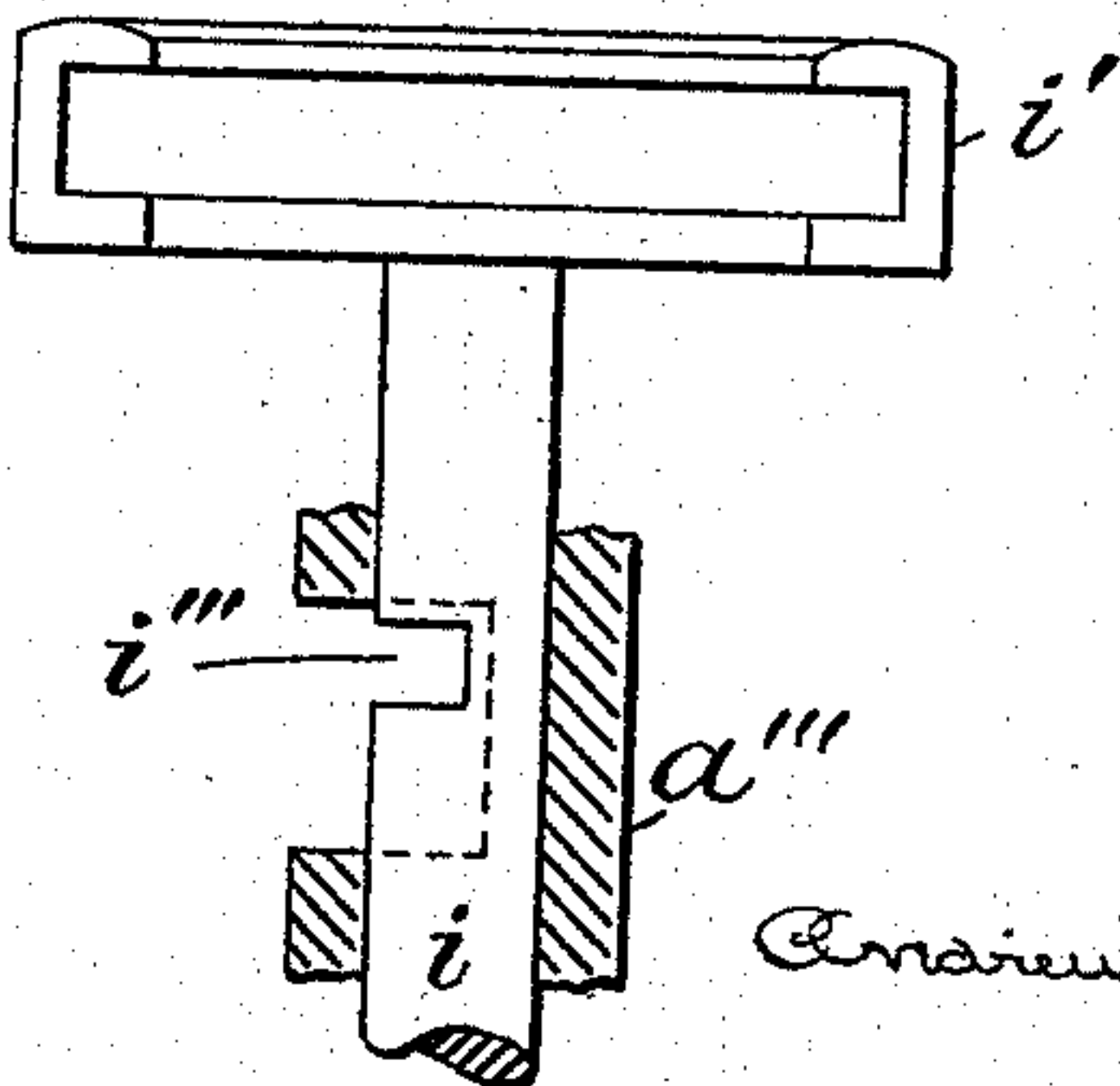


Fig. 6a.



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Fig. 2.

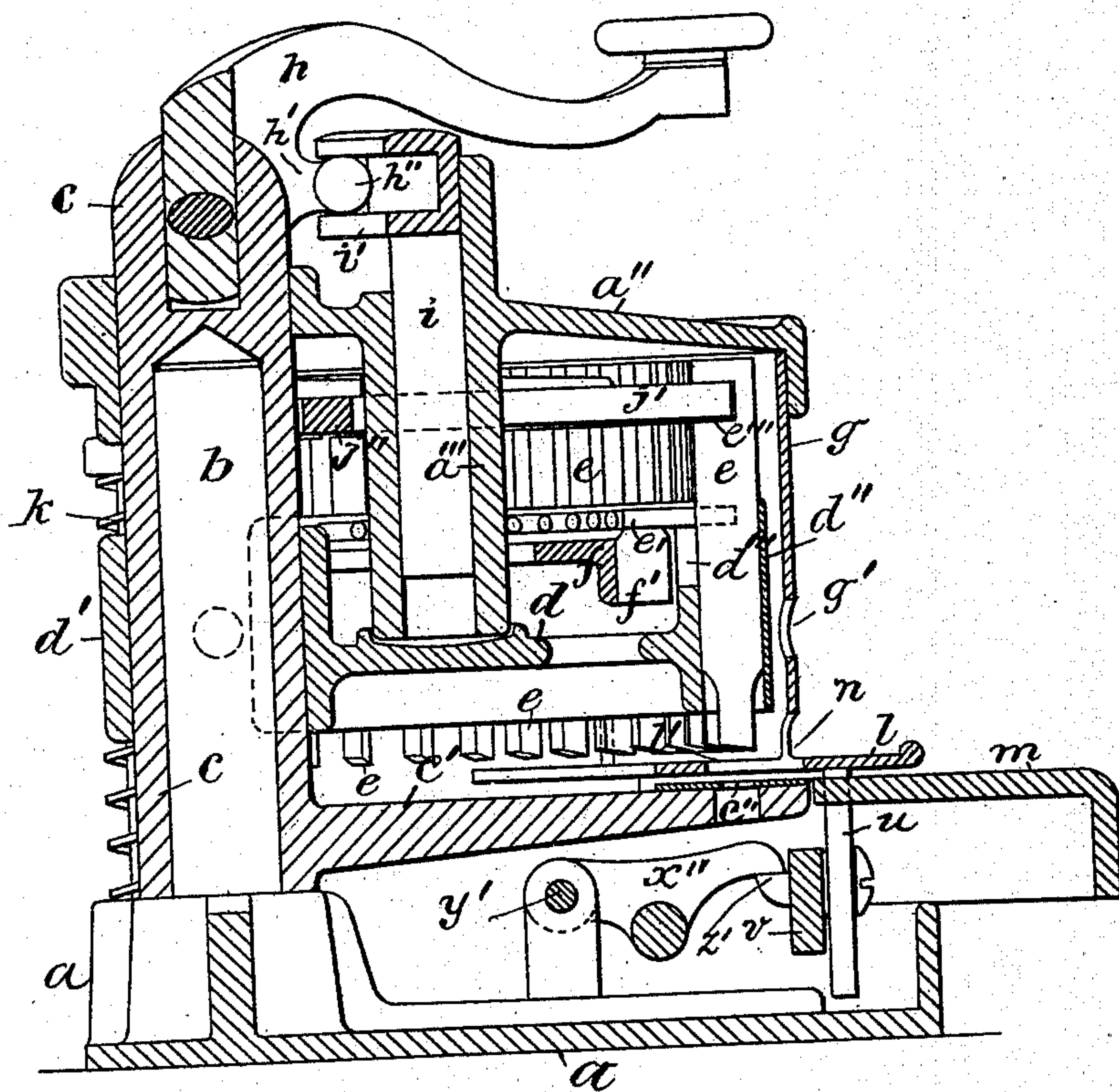


Fig. 7.

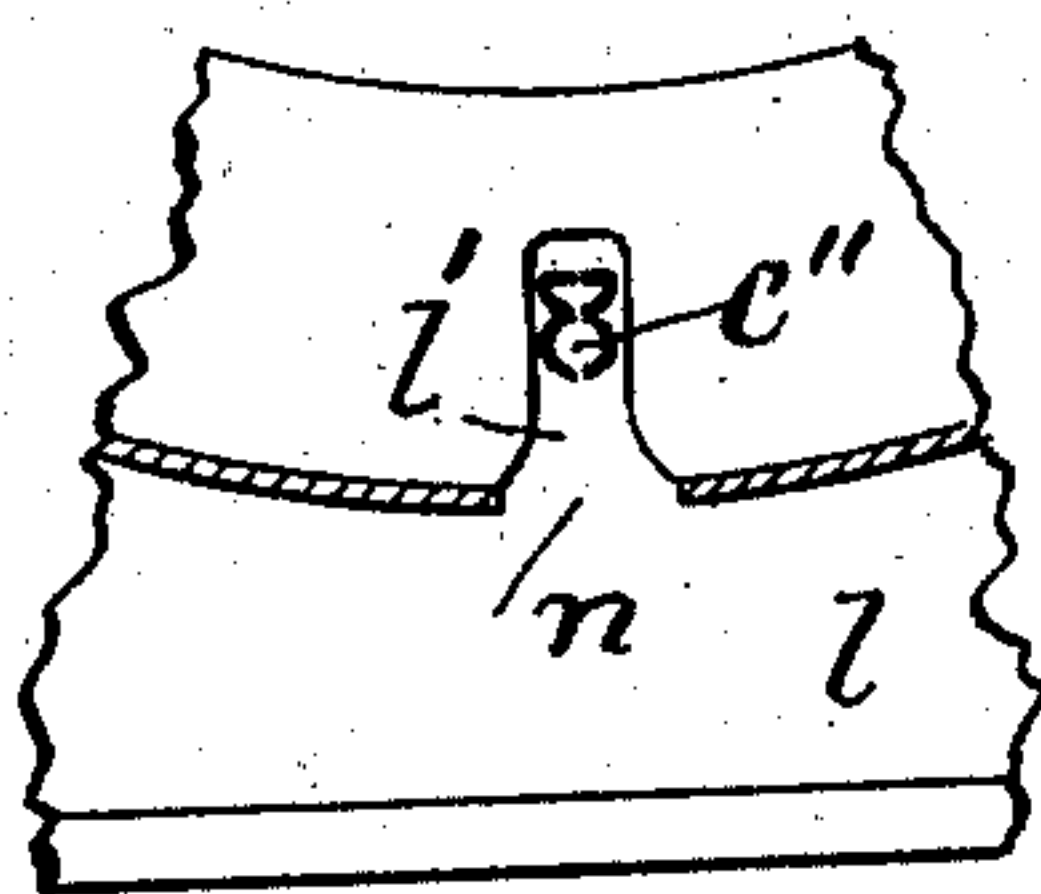
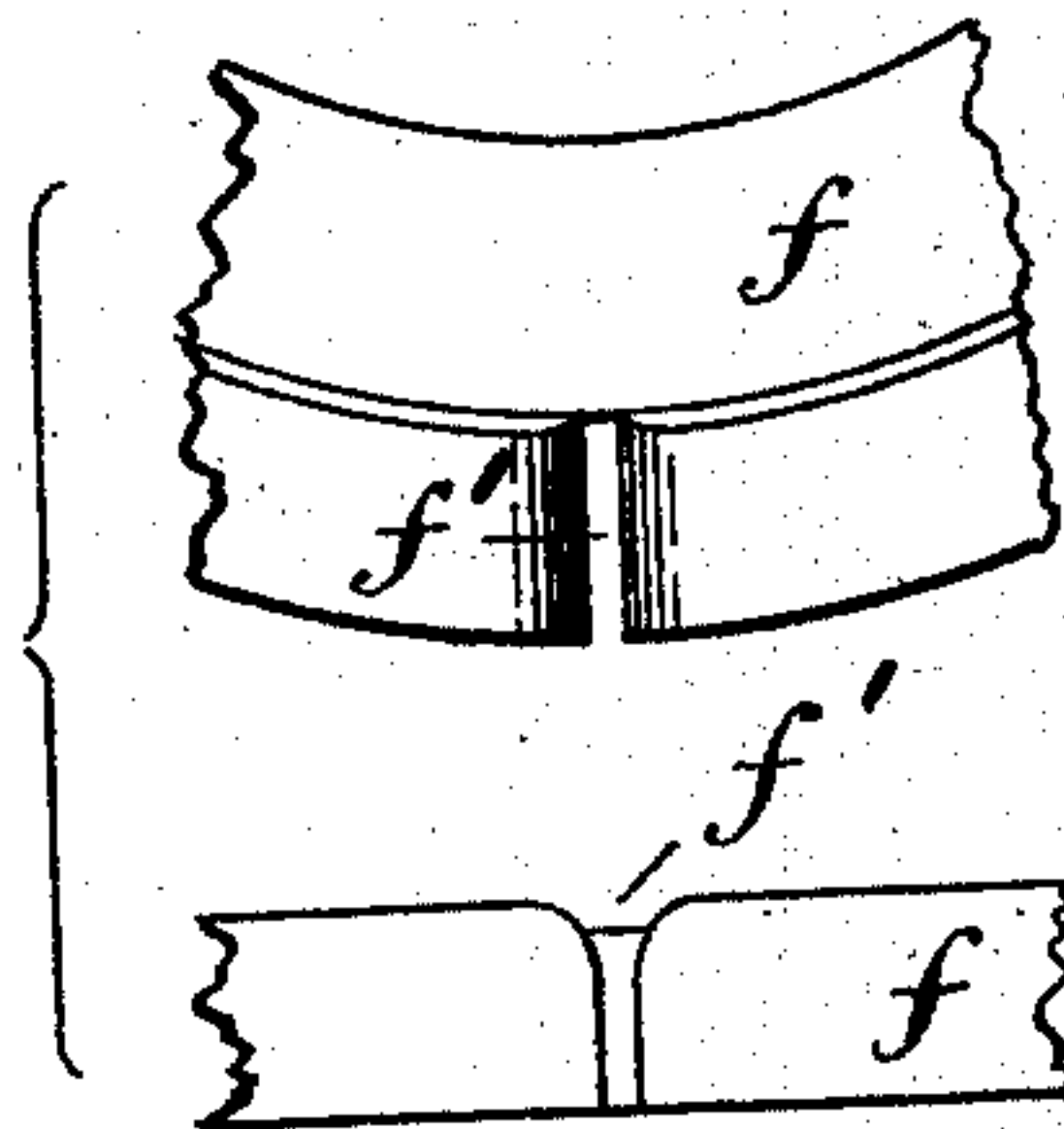


Fig. 8.



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Fig. 3.

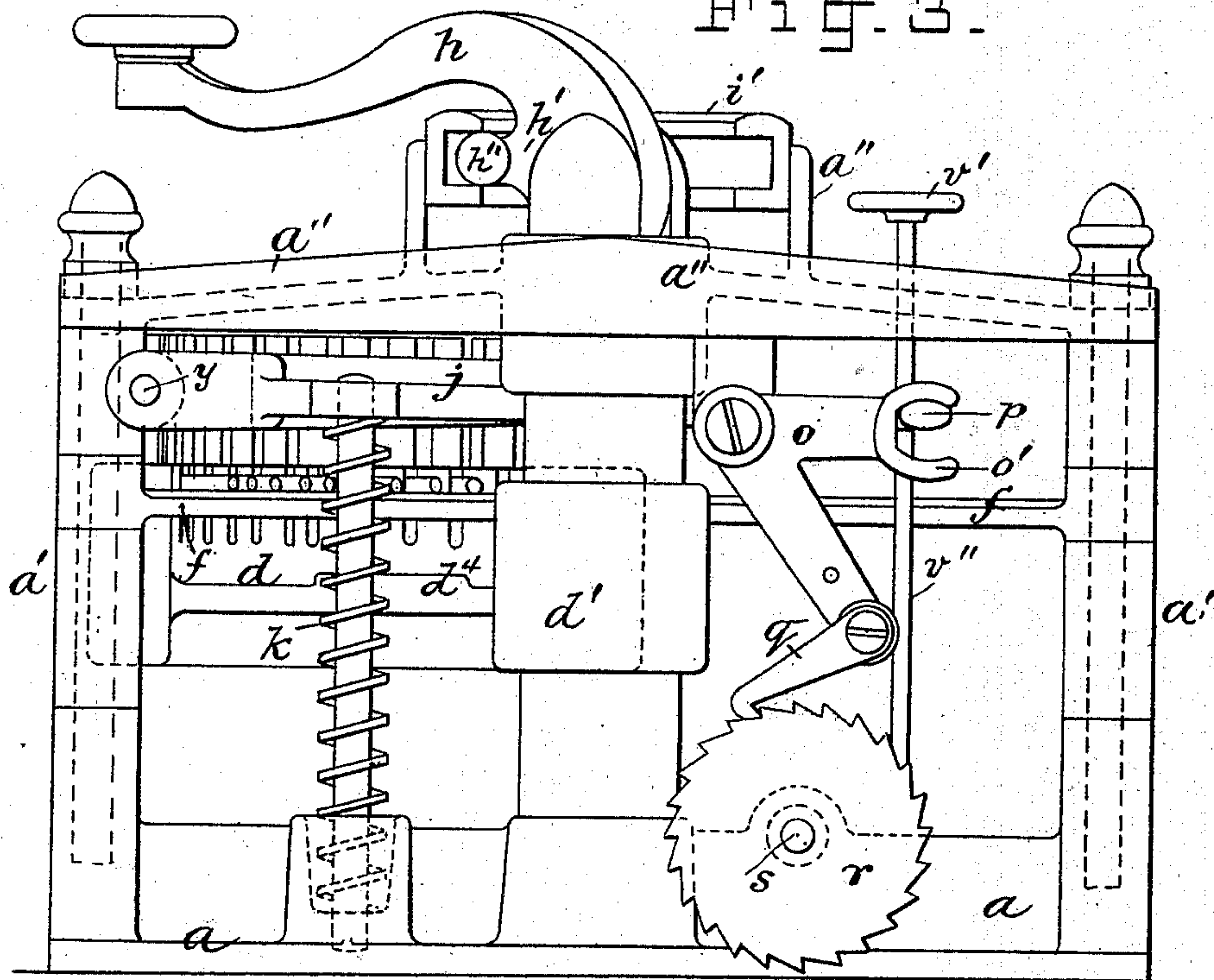
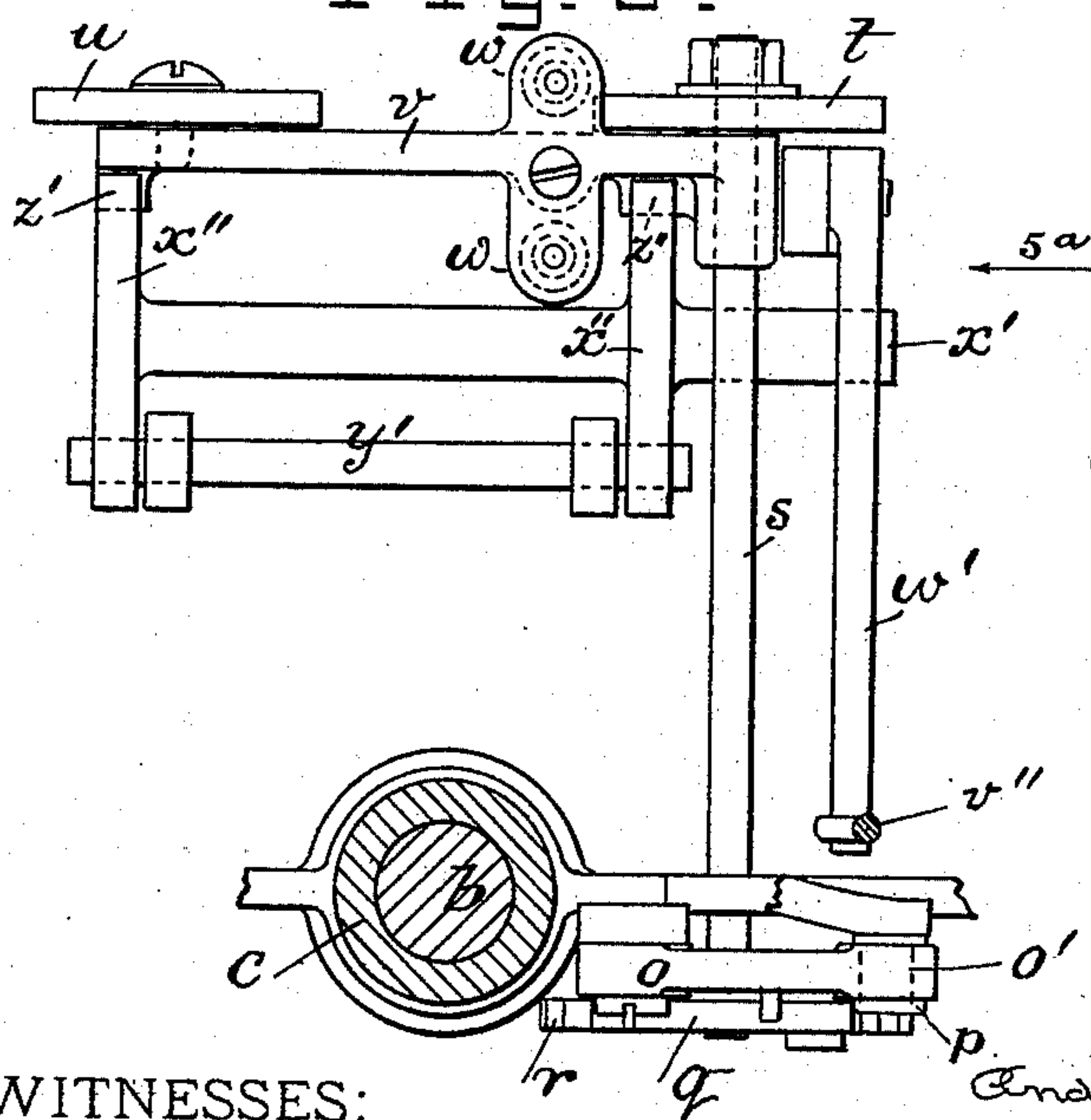
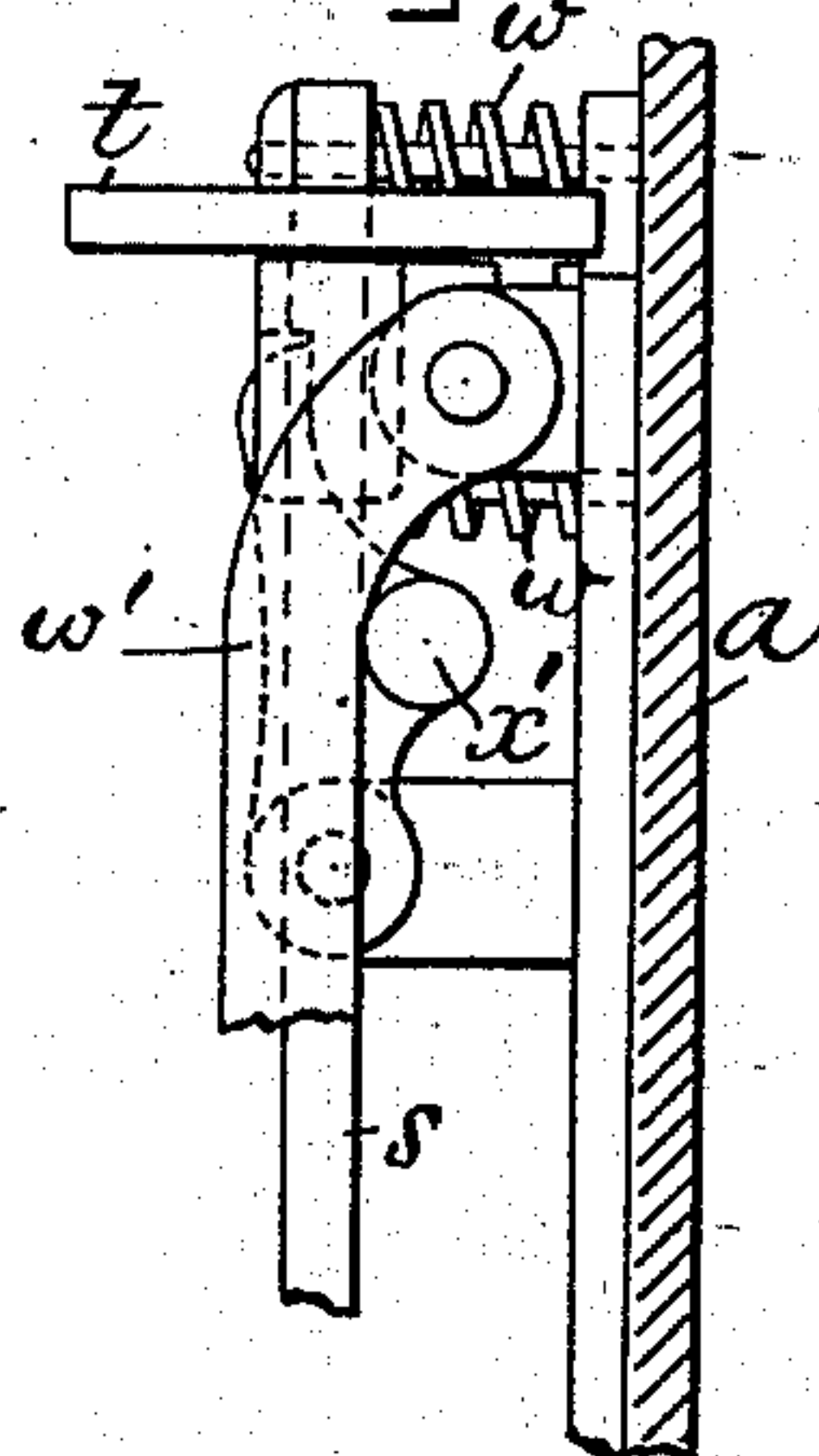


Fig. 5.



Fi 9.5a



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(No Model.)

4 Sheets—Sheet 4.

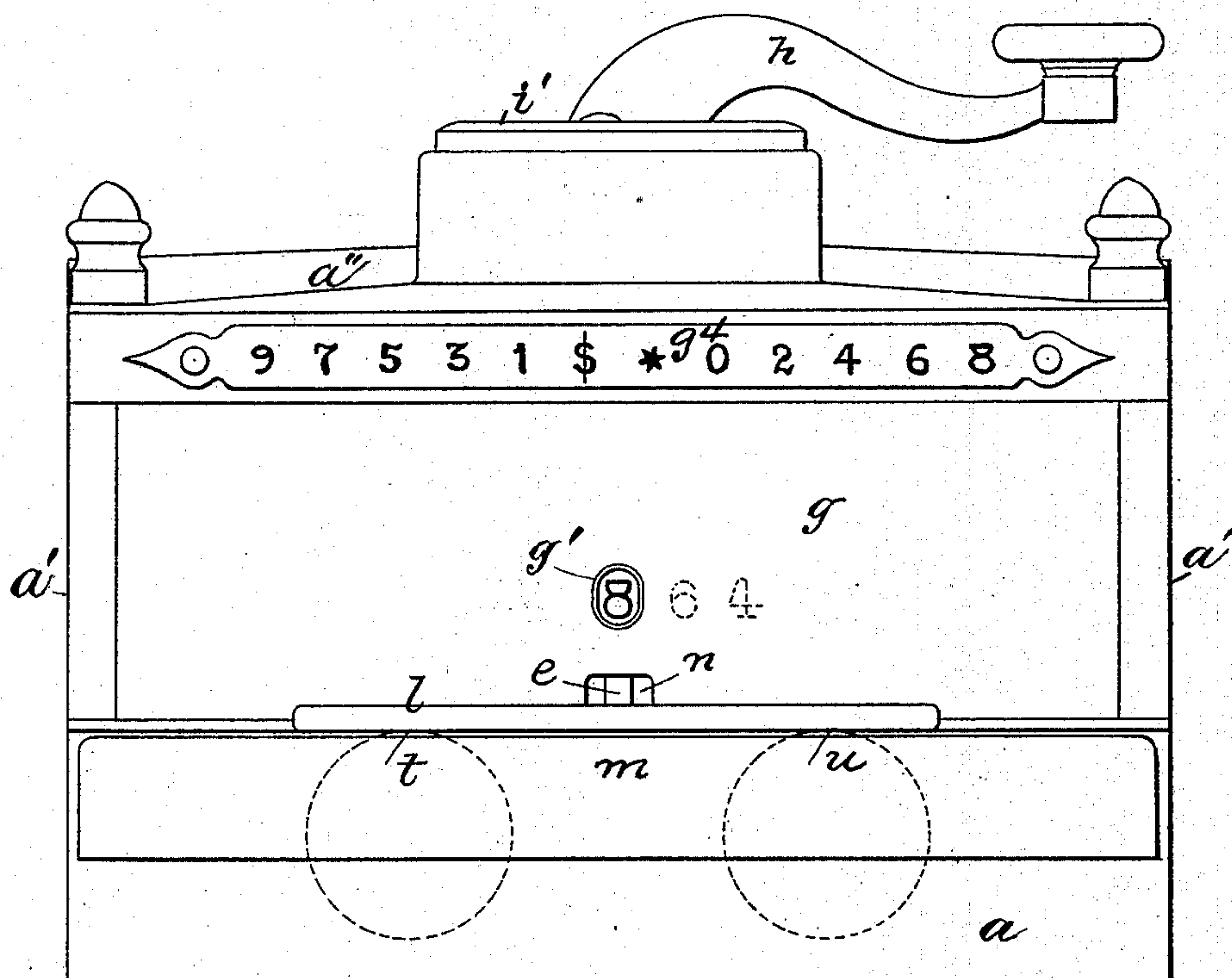
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Fig. 4.



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# UNITED STATES PATENT OFFICE.

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D. ELGER, OF SAME PLACE.

## MACHINE FOR PUNCHING CHECKS.

SPECIFICATION forming part of Letters Patent No. 413,434, dated October 22, 1889.

Application filed November 2, 1888. Serial No. 289,786. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW CAMPBELL, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented certain Improvements in Machines for Punching Checks, &c., of which the following is a specification.

My invention relates to improvements in that class of machines employed for punching numerals and other characters in bank-checks, notes, and like instruments, wherein a single lever is employed to select and act upon the cutters or punches, said selecting-lever acting through a single intermediate lever or part on the said punches; and the object of my invention is to improve the construction of the machine, whereby its manufacture will be cheapened and its working improved. It will be understood by those skilled in the art to which this invention appertains that these machines require great accuracy in their construction, in order that the punch or male die may always be presented so as to accurately register with the female die or matrix, otherwise the paper of the check will not be cut clean and smooth. In order that the constantly-moving parts may not wear unduly, and thus become loose, it is also requisite that they shall be fitted and mounted in the best and most accurate manner. To accomplish these results in an economical manner and to produce a light and simple machine is the main object of my invention.

In the drawings, which serve to illustrate my invention, Figure 1 is a plan of a machine for punching checks and the like embodying my invention. In this view I have omitted the top plate or cover of the machine in order to expose the internal mechanism. Fig. 2 is a vertical section taken substantially in the plane indicated by line 2 2 in Fig. 1. Fig. 3 is a rear elevation of the machine. Fig. 4 is a front elevation of the machine. Fig. 5 is a plan view of the feed mechanism of the machine, and Fig. 5<sup>a</sup> is an end view of same as seen from the direction indicated by arrow 5<sup>a</sup> in Fig. 5. Fig. 6 is a plan, and Fig. 6<sup>a</sup> a rear side view, of the intermediate slide-bar detached. Fig. 6<sup>a</sup> shows the sleeve-bearing of the bar in section. Figs. 7 and 8

are detail views of parts of the machine, that will be described hereinafter.

My machine will be made wholly of metal by preference, although I do not limit myself in this respect. In the drawings only the machine proper is represented. This will usually be inclosed in a box or cabinet adapted to be closed to exclude dust and to protect the machine from injury.

*a* represents the base of the machine, on which is formed or to which is firmly secured an upright cylindrical post *b*, about which as a pivotal axis the principal movable parts of the machine turn or swing concentrically. *c* is a sleeve bored out to fit accurately on said post *b* and mounted on the same; and *c'* is the die-platform, formed integrally, by preference, with said sleeve *c*. This platform will have a segmental or parti-circular form, its outer edge or periphery being curved concentrically with the axis of the post *b*. On this platform are mounted and fixed the several female dies or matrices *c''*, which may be of the usual kind.

Fixed to the sleeve *c* and carried thereby is the punch-carrier *d*. This carrier is segmental or parti-circular like the die-platform *c'*, and it is arranged directly over or above the latter.

*e e* are the punches or male dies, which are mounted each in a groove formed by milling or otherwise, in the curved periphery or face of the carrier *d*. Ordinarily twelve punches will be required, and the carrier will be in substantially the form of a quadrant. Each punch *e* is arranged exactly over its female die, and is adapted to be depressed, so that its cutting end will enter said die, as in other machines of this class. In order to facilitate the milling out of the grooves for the punches, the carrier *d* is, by preference, cast separately from the sleeve *c* and provided with a boss *d'*, which is bored to fit over said sleeve. When the punches shall have been accurately fitted to their respective dies, this boss *d'* will be securely fastened to the sleeve *c*, and will become substantially integral therewith.

Over the curved face of the carrier *d* is secured a plate *d''*, which closes the grooves in the carrier and houses the punches therein.



Fixed in the machine-frame above the carrier  $d$  is a segmental punch-supporter  $f$ , which I call a "shelf." This shelf is substantially semicircular in form when seen in plan. Its periphery or outer face is concentric with the axis of the post  $b$ , and the curved inner face of the carrier  $d$  stands close to the outer face of said shelf. Each punch  $e$  has a supporting pin or stud  $e'$  projecting from its inner face, and when the punches are elevated and out of action these pins rest on and play over the upper surface of said shelf, which thus upholds said punches. At the punching or cutting point, which in this machine is in the center of its front, there is a vertically-arranged guide-slot  $f'$  in the front edge of the shelf  $f$ , down through which the pin  $e'$  on the punch may play where the proper punch is brought to this point in the operation of the machine. In the detail view, Fig. 8, a part of the shelf  $f$  is represented in plan and in front elevation in order to show the form of the guide-slot  $f'$  therein. The upper end of said slot is flared a little, as shown, so that if the operator fails to bring the pin  $e'$  exactly over the slot the flared or beveled entrance to the latter will serve to automatically guide the punch to its true position. In the inner wall of the carrier  $d$  are formed slots  $d'''$  (seen in Fig. 2) to receive the pins  $e'$  on the punches and to permit the latter to be depressed to the proper extent only.

$g$  is the curved front plate of the machine, which is fixed to and forms a part of the machine-frame  $a'$ . Behind and close to this plate  $g$  plays the plate  $d''$  on the face of the carrier  $d$ , and in order that the operator may be able to bring the proper punch to the cutting or punching point I mark on the plate  $d''$  the numerals or characters to be punched by the machine, said numerals or characters being arranged in a horizontal row and each opposite to the particular punch that has that character cut or formed on its cutting end. These I call "designating-characters." In the front plate  $g$ , I form an aperture  $g'$  opposite said row of numerals or characters on plate  $d''$  and at the center of the front of the machine, as seen in Fig. 4, through which the numeral or character to be punched may be seen.

I will now describe the mechanism whereby the punch is selected, depressed, and elevated, premising that, as in other machines of this class, only one selecting and depressing lever is employed.

$h$  is the selecting and depressing lever, which is hinged at one end in the upper part of the sleeve  $c$ , and provided with a handle or button at its free end for convenience of manipulation. By swinging this lever from side to side the punches and dies connected with it are moved laterally and the proper punch selected and brought to the cutting-point. The lever  $h$  has a short branch or part  $h'$ , on the end of which is formed a knob  $h''$ . The top plate or cover  $a''$  of the machine has formed

on it a pendent sleeve-like bearing  $a'''$ , arranged in front of the post  $b$ , and in this bearing is mounted a slide-bar  $i$ , which has a crown-piece  $i'$ . In the rear face of this crown-piece is a keeper-groove, in which plays the knob  $h''$  on the branch of lever  $h$ . The knob  $h''$  always remains in engagement with said groove no matter what may be the position of the selecting-lever  $h$ , and when the latter lever is depressed or elevated the slide-bar  $i$  moves with it—up or down, as the case may be.

In order to communicate the movements of the lever  $h$  to the particular punch  $e$  that is to be used, an intermediate lever or part  $j$  is employed. This lever is hinged to the machine-frame at  $y$ , or at some other convenient point, and its free end  $j'$  is arranged to engage a notch  $i'''$  (seen in Fig. 6<sup>a</sup>) in the bar  $i$ , and to also engage a notch  $e'''$  in the inner or rear face of the punch  $e$ , that happens to stand at the cutting or punching point. Each of the punches  $e$  has a notch  $e'''$ , and whenever a punch is brought to the punching-point the notch therein will be caused to engage the end  $j'$  of the lever  $j$ . Under the lever  $j$  is a strong spring  $k$ , which serves to retract the punch, and with it the lever  $h$  and slide-bar  $i$ .

The operation of the mechanism described is simple: The operator seizes the button on the free end of the selecting-lever  $h$  and swings said lever to the right or left until the numeral or character he wishes to punch appears at the aperture  $g'$ . He then depresses said lever, when the branch lever  $h'$ , acting through the slide-bar  $i$ , depresses lever  $j$ . This lever acts on the punch at the punching point and depresses it. When the pressure is relieved, the spring  $k$  retracts all the parts.

The end  $j'$  of the lever or movable part  $j$  where it engages the notch in the punch  $e$  is broad enough to bridge over the guide-slot  $f'$ , whereby, when the punch-carrier is moved from side to side, each punch in succession is carried over said slot  $f'$ , riding on the end of lever  $j$  when it passes the cutting-point. The intermediate part  $j$  connects the slide-bar  $i$  with the punches, and so long as it is capable of movement up and down it may be mounted in any convenient manner.

I am enabled by my construction to dispense with the numerous springs for retracting the punches and other movable parts such as are found in other machines of this character. The lever  $j$  raises and upholds the punch when the pressure has been removed, and all the idle punches are upheld by the shelf  $f$ , as before described.

The check or other thing to be punched is fed or moved along under the punches a measured distance during the upward movement of the selecting and depressing lever  $h$  by a suitable feed. I will describe the form of feeder illustrated herein, which is that preferred.

$l$  is a pressure-plate, which is preferably con-



constructed integrally with the front-plate *g*. This pressure-plate extends out to the front over the table *m* of the machine and is raised a little way above the latter to allow of the insertion of the check under the punches. The inner or rearward extension of the plate *l* forms the stripper *l'* for stripping the paper from the punches when the latter rise. A fragment of the plate *l*, showing, also, the stripper *l'* and a part of the front plate *g*, is represented in plan in Fig. 7. I employ no adjustable guide for the check. The straight front edge of plate *l* will serve to align the check on first inserting it in the machine, and an aperture at *n* in the front plate *g* in front of the punch that is being operated enables the operator to see the punch at work.

I will now describe the feeder for the check with especial reference to Figs. 3, 5, and 5<sup>a</sup>. *o* is an elbow-lever pivoted on the machine-frame. One arm of said lever has a fork *o'*, with which engages a lug *p* on a branch *j''* of the intermediate lever *j*. On the downwardly-projecting arm of lever *o* is hung a hook-pawl *q*, which may be a gravity-pawl, and which engages the teeth on a ratchet-wheel *r*. This wheel is fixed on the rear end of a shaft *s*, which extends from the rear to the front of the machine. On the front end of this shaft is fixed the feed-wheel *t*, which projects up through a slot in the table *m* and bears on the smooth lower face of the pressure-plate *l*. Vibration of the lever *j* imparts intermittent rotary impulses to the feed-wheel through the medium of the pawl and ratchet. The feeding of the check is effected by the upward or retracting movement of the lever *j*, and the fork *o'* in the end of the arm of elbow-lever *o* is made wide enough to permit said lever *j* to withdraw the punch from the check before the latter is fed along.

*u* is a guide-wheel, which "tracks" with the feed-wheel *t*, and, like the latter, it projects up through the table *m* and bears on the plate *l*.

*v* is a yoke, which is mounted on a strong spring or springs *w*. The shaft *s* has a somewhat loose bearing in this yoke, and the wheel *u* is mounted rotatively on the yoke. The springs *w*, acting through the yoke, thus keep the wheels *t* and *u* pressed strongly upward against the plate *l*.

In order that the wheels *t* and *u* may be conveniently depressed for the insertion of the check, I provide the following-described device.

*v'* is a button or knob, which appears above the top of the machine, and which is on the upper end of a rod *v''*, which extends down into the machine and is coupled to the end of a lever *w'*, which is pivoted at a point near the front of the machine. This lever bears on a lug *x'*, which projects from a rocking frame *x''*, pivoted at one side on a rod or bar *y'*. At its free side or edge this frame rests at two points *z'* on lugs on the yoke *v*. Down-

wardly-exerted pressure on the button or knob *v'* acts through lever *w'*, frame *x''*, and yoke *v* to equally depress the wheels *t* and *u*. The wheel *u* serves to guide the check and keep it straight as it is fed along.

The frame of the machine is made up of sections or parts, and these are held together by suitable screws. This construction will be readily understood from an inspection of the drawings.

To prevent oil that may be used on the slide-bar *i* from dripping into the machine, I provide the web of the carrier *d* with an oil-receiving tray *d'*, which plays under the end of said bar *i*, as best seen in Figs. 1 and 2.

The numerals and characters to be cut by the punches will be arranged in some convenient sequence, and in order to guide the inexperienced operator in moving the selecting-lever *h* these numerals or characters may be marked on a strip in their proper order and the strip be fixed on the front of the machine, as seen at *g'* in Fig. 4. When the lever is brought over "8," for example, on the strip, as represented in the drawings, the punch for numeral 8 will be brought to the cutting-point.

The lever *h* will be set, by preference, to stand over the center of the series of punches; but this arrangement is not essential to the operation of the machine.

The crown-piece *i'* will, by preference, be curved concentrically with the axis of post *b*, and the top plate *a''* of the machine will be constructed to extend up in front of said crown-piece so as to screen it.

Having thus described my invention, I claim—

1. The combination of a punch-carrier and selecting-lever connected together, the notched dies in the carrier, a notched slide-bar provided with a grooved crown-piece, the groove in which is engaged by a branch on the selecting-lever, and an intermediate lever or part engaging the notch in said slide-bar, and also the notch in the punch at the cutting or punching point, substantially as set forth.

2. The combination, with a punch-carrier, of the notched punches therein, each provided with a supporting-pin, a fixed punch-supporting shelf on which said pins rest, said shelf having a guide-slot for said pins arranged at the punching or cutting point, an intermediate lever or part which engages the notch in the punch that stands at the punching-point, and a retracting-spring under said intermediate part or lever, substantially as set forth.

3. The combination, with the selecting-lever, the punch-carrier, and the die-platform, all connected and adapted to move together, of the notched punches carried by said carrier and each provided with a supporting-pin, the punch-supporting shelf on which said pins rest, said shelf provided with a guide-slot at the punching-point for the passage of the pin on the punch, the notched guide-bar provided with a grooved crown-piece, an intermediate lever or part the end of which engages the



notch in said bar and also the notch in the punch at the punching-point, the retracting-spring under said lever, and the dies, a branch on the selecting-lever engaging the groove in  
5 the crown-piece of said slide-bar, and all operating substantially as set forth.

4. In a check-punch, the feeding mechanism consisting of the yoke *v* and its springs *w*, the guide-wheel *u*, mounted on said yoke,  
10 the feed-wheel *t*, its shaft *s*, which has a bearing in said yoke, the ratchet-wheel *r* on shaft *s*, the elbow-lever *o*, the pawl *q* thereon, engaging said ratchet-wheel, and the lever oper-

ating said elbow-lever, in combination with the rocking frame which bears on yoke *v*, the  
15 lever *w'*, which bears on said frame, and the depressing-button and rod, all arranged to operate substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing  
20 witnesses.

ANDREW CAMPBELL.

Witnesses:

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