

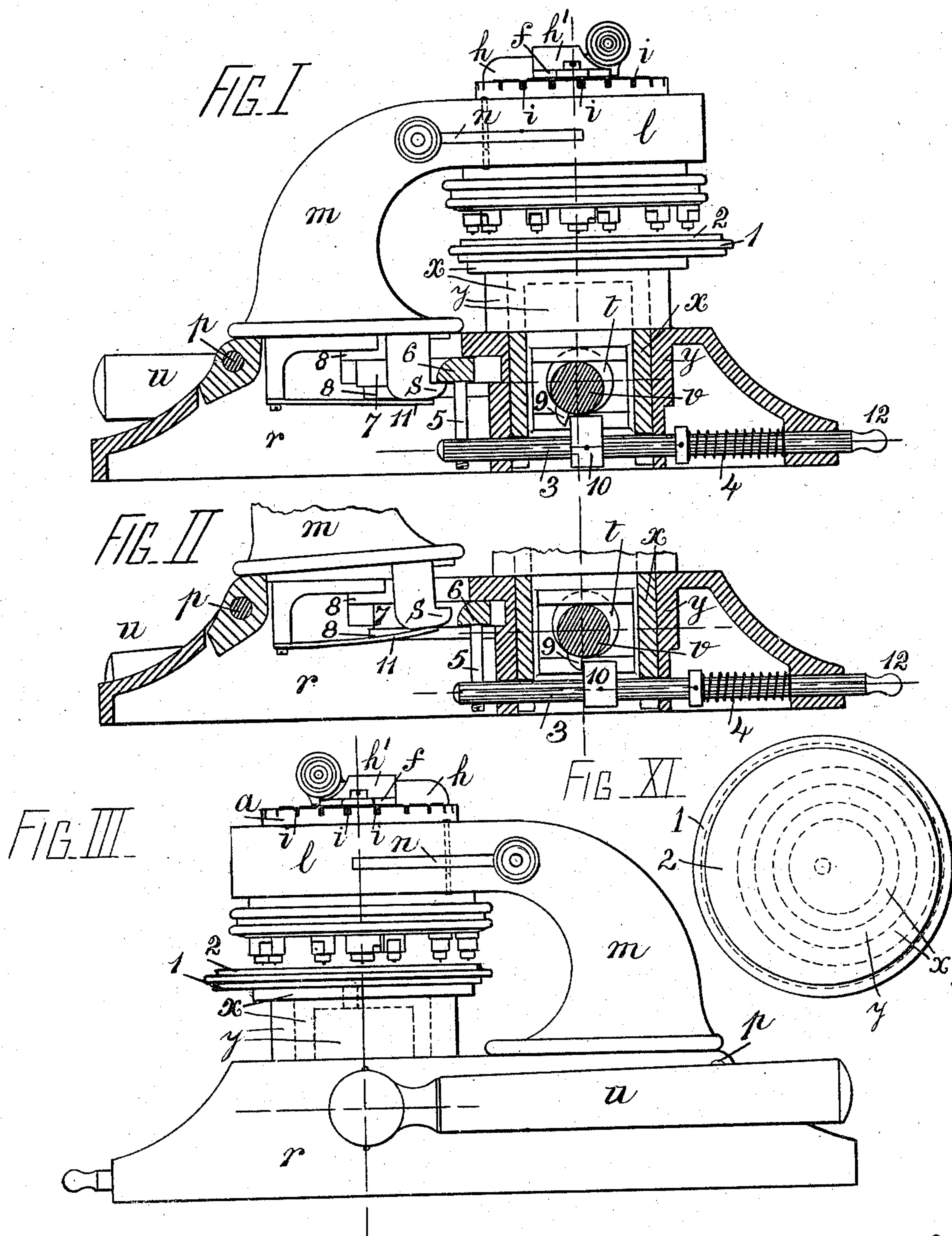
(No Model.)

2 Sheets—Sheet 1.

C. HEATH.
MACHINE FOR PERFORATING DOCUMENTS.

No. 571,365.

Patented Nov. 17, 1896.



Witnesses:
J. Stephen Gusta
By C. Bowen.

Inventor:
Charlotte Heath
By Whitman & Wilkinson,
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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FIG. IV

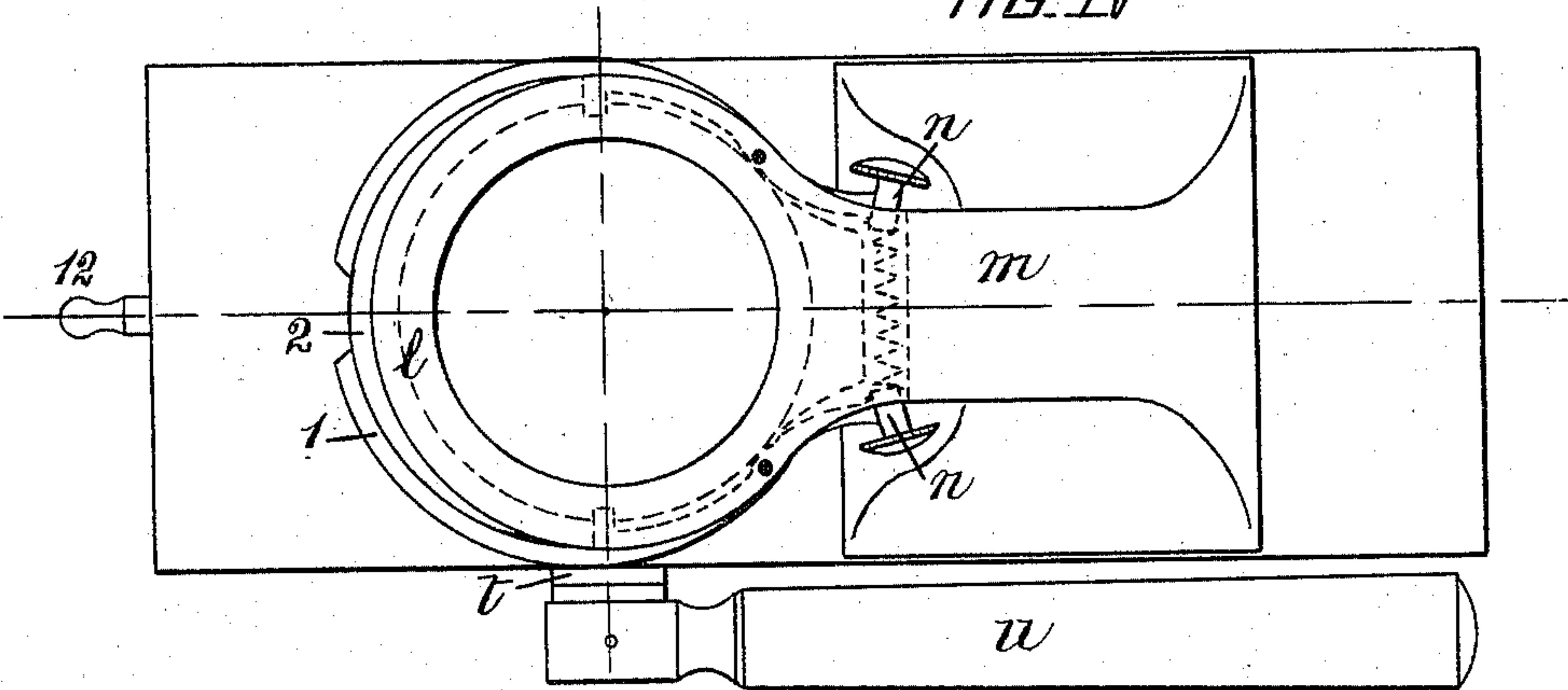


FIG. V

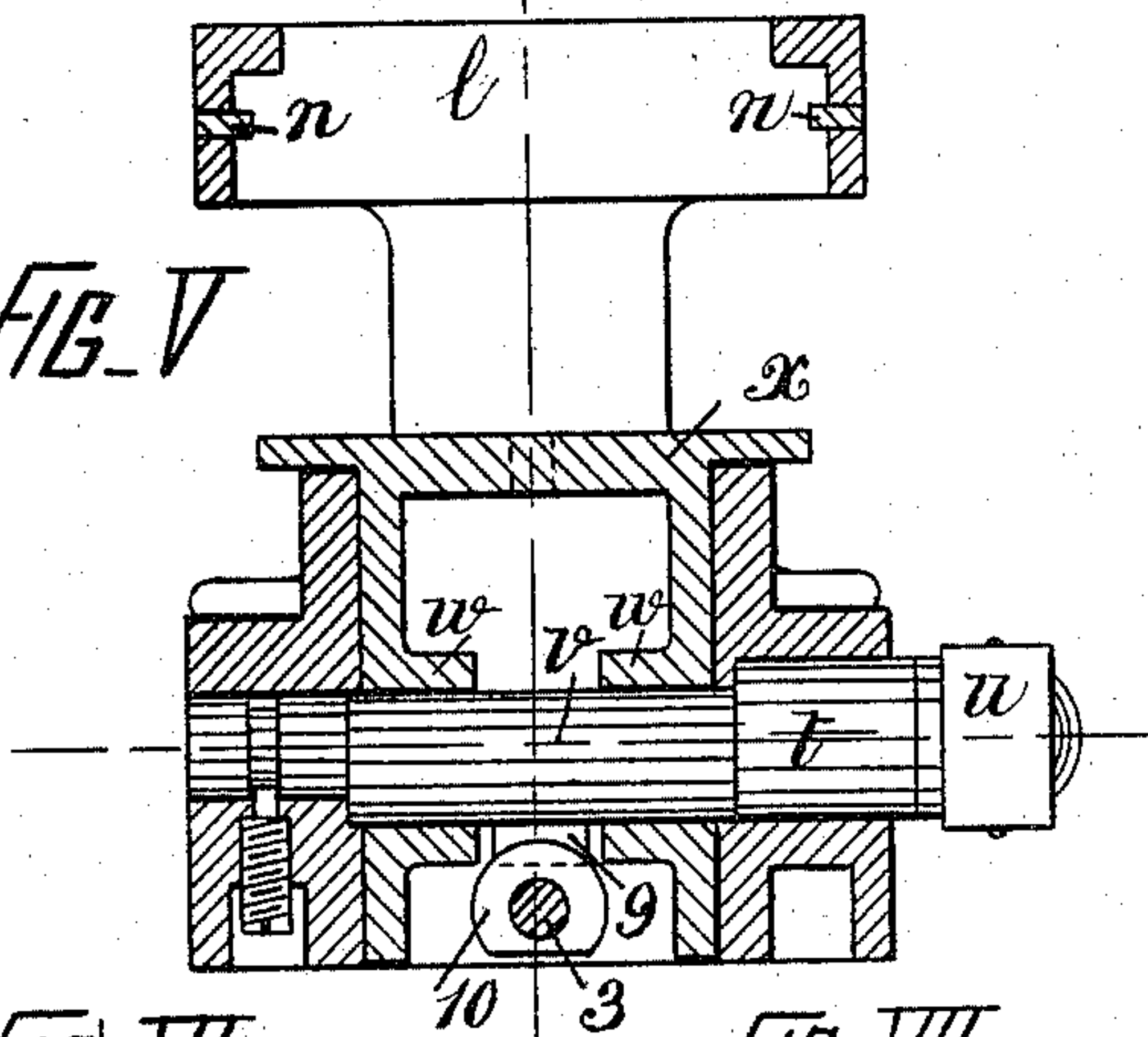


FIG. VIII

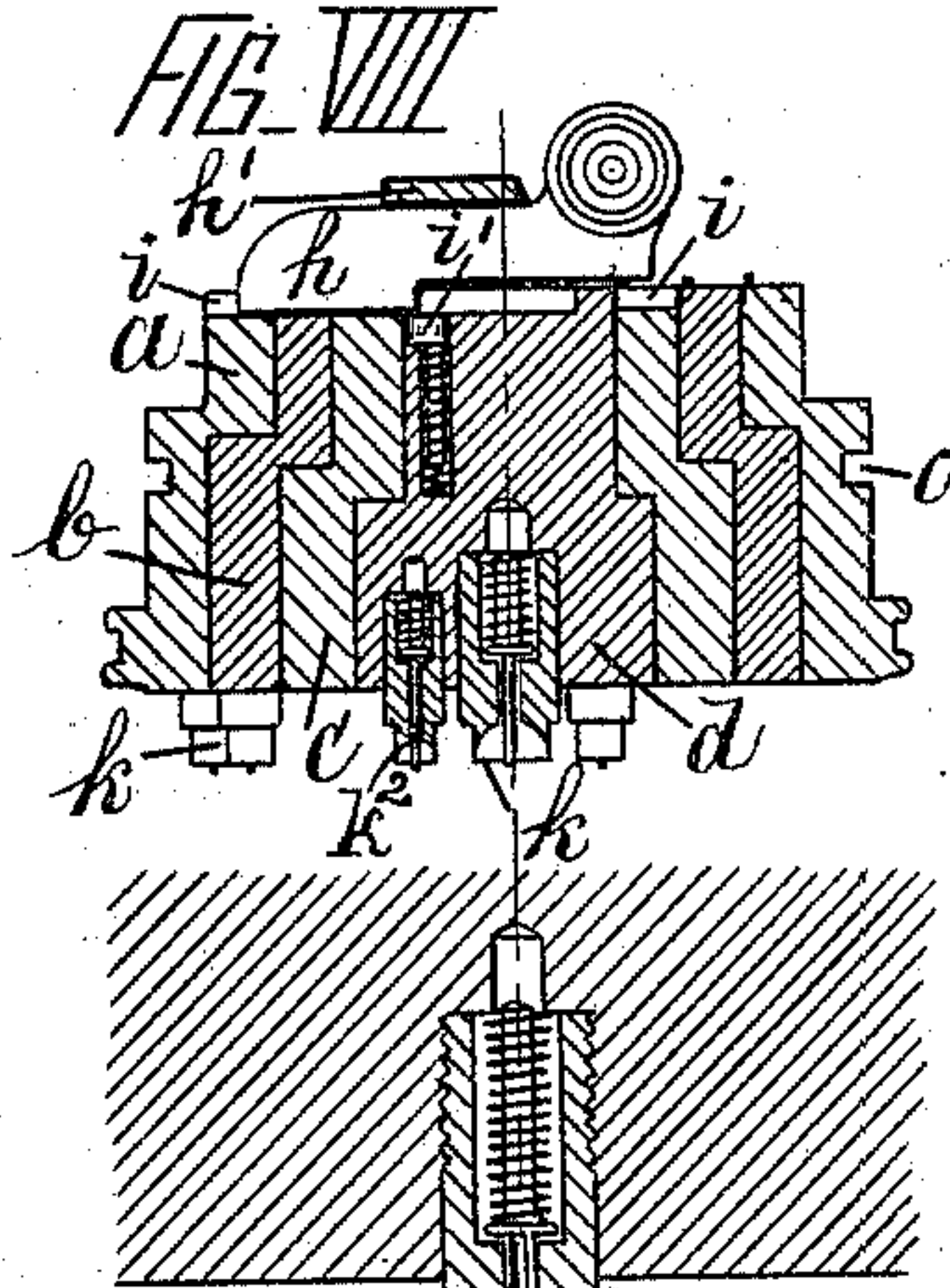
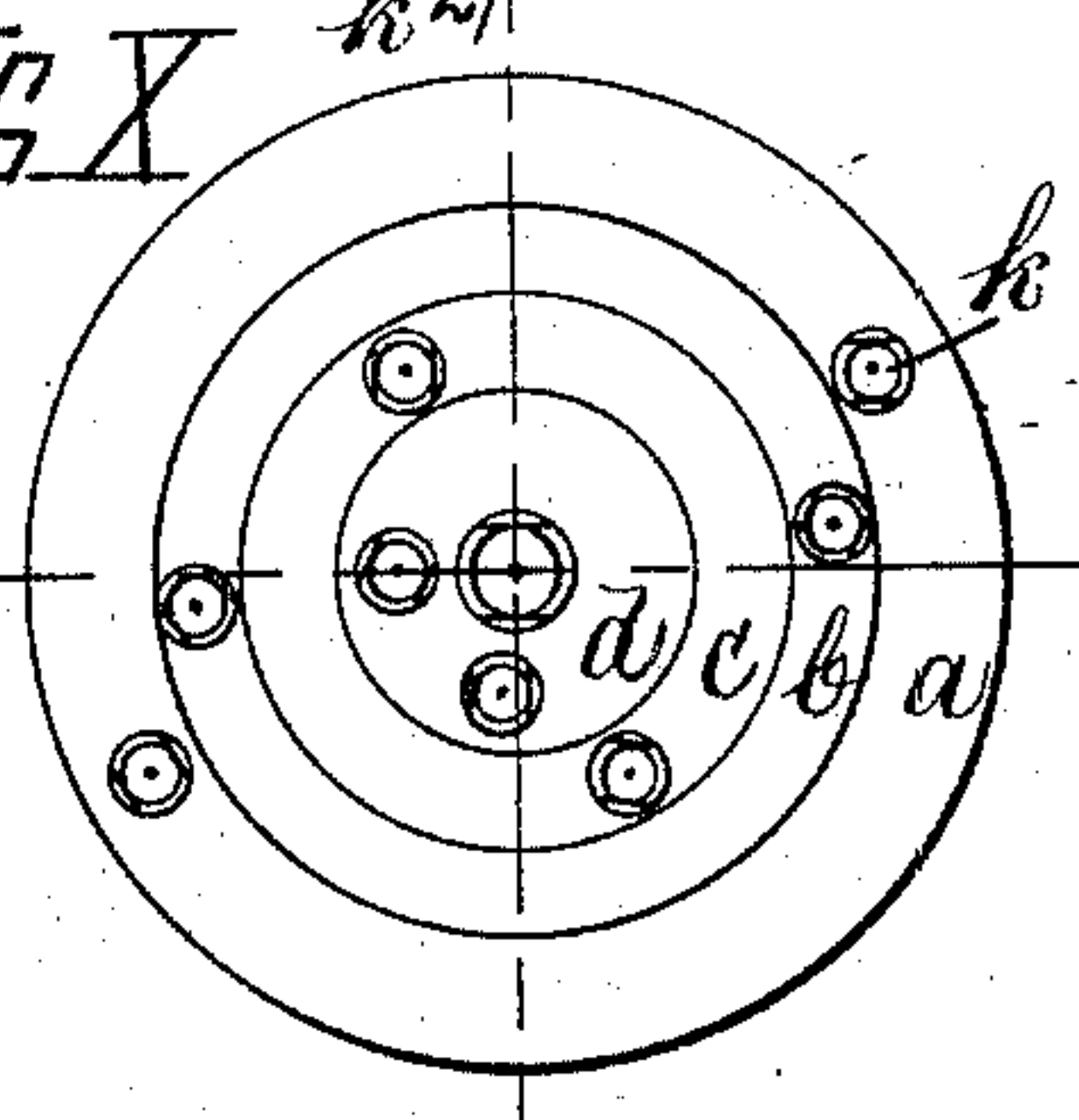
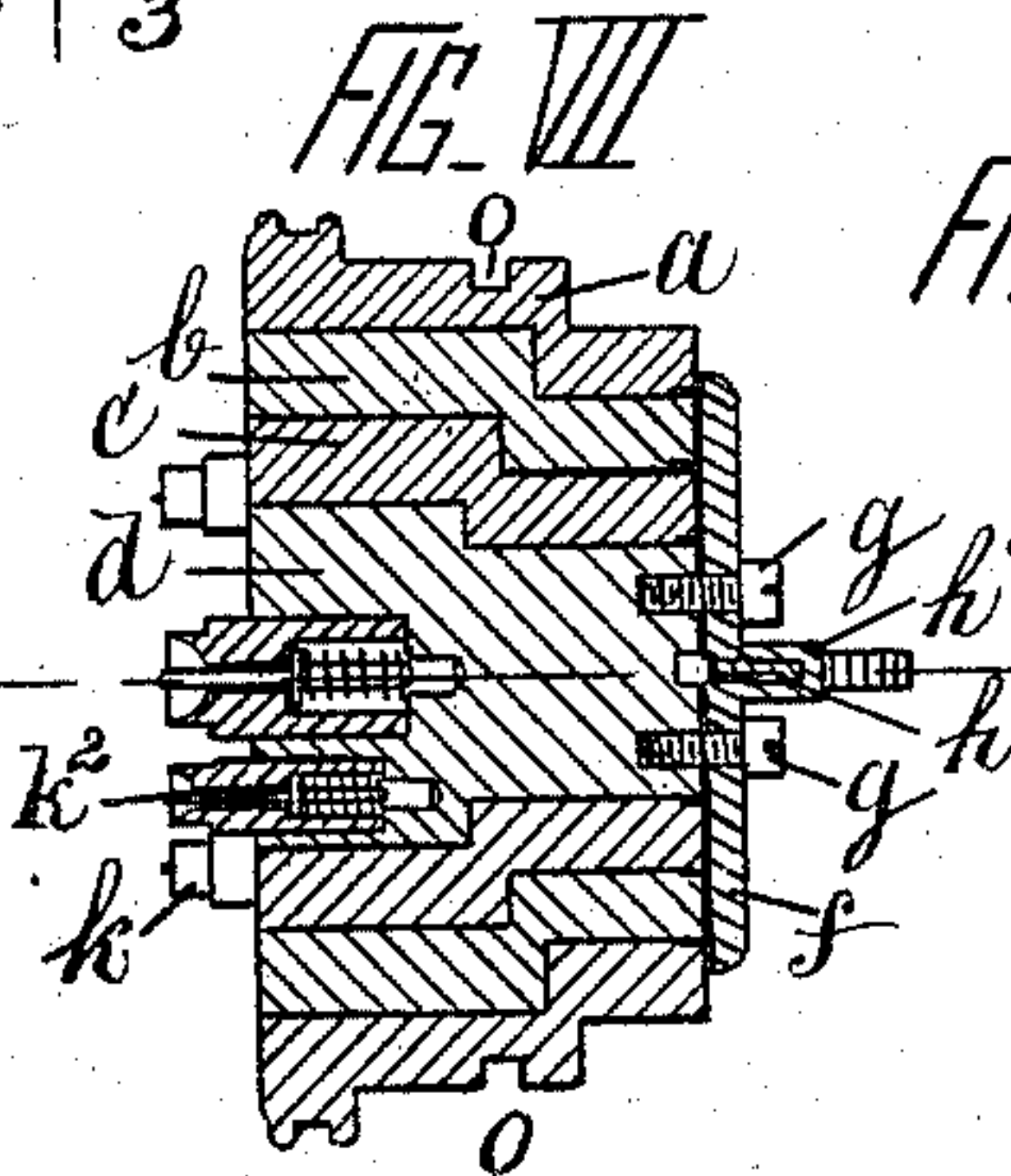
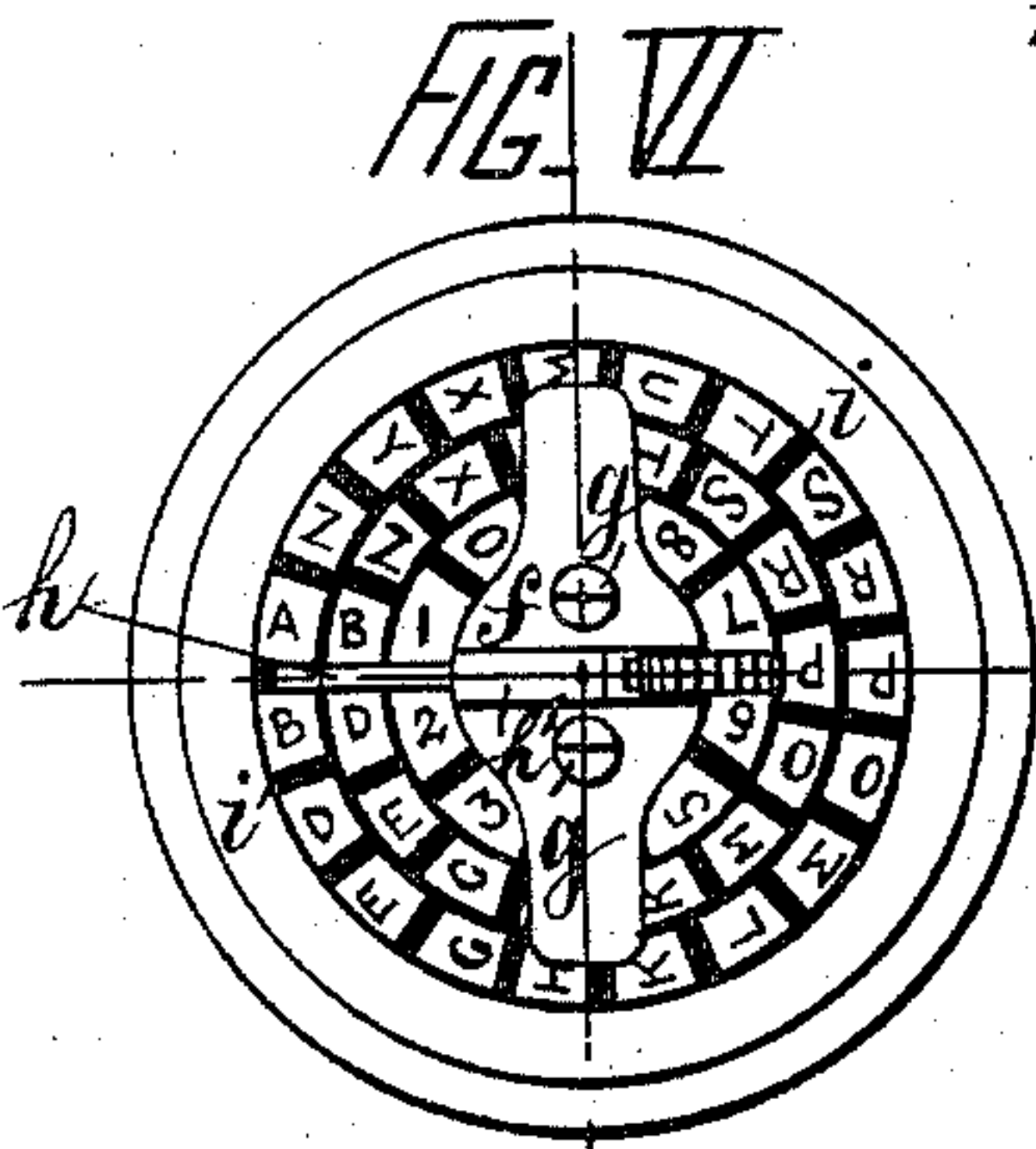


FIG. IX

FIG. X



Witnesses:
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Percy C. Bowen.

GIVEN UNDER:
Charlotte Heath,
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UNITED STATES PATENT OFFICE.

CHARLOTTE HEATH, OF LONDON, ENGLAND.

MACHINE FOR PERFORATING DOCUMENTS.

SPECIFICATION forming part of Letters Patent No. 571,365, dated November 17, 1896.

Application filed March 9, 1896. Serial No. 582,409. (No model.) Patented in England December 5, 1891, No. 21,251.

To all whom it may concern:

Be it known that I, CHARLOTTE HEATH, a subject of the Queen of Great Britain, residing at London, England, have invented a new and useful Machine for Perforating or Marking Documents, (for which I have obtained a patent in Great Britain, numbered 21,251, bearing date December 5, 1891,) of which the following is a specification.

My invention relates to improvements in apparatus for perforating or marking documents for the detection of forgery; and the objects of my improvements are, first, to make marks or perforations in any determined positions relatively to each other, so that on the receipt of a document so marked or perforated the comparison of the relative positions of the said marks or perforations thereon or therein will enable the receiver to ascertain whether the document is genuine or not; second, to combine the marking or perforating devices so that their positions relatively to each other can be altered as desired, and, third, to combine the said perforating or marking devices with apparatus by which they can be readily used to perforate or mark documents. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section, of a combined press and perforating device. Fig. 2 is a similar view, partly broken off, of the same, showing the arm of the press carrying the perforating device partly raised. Fig. 3 is an elevation showing the opposite side of the apparatus. Fig. 4 is a plan of the press with the perforating device removed. Fig. 5 is a transverse vertical section showing the rising and falling plunger and the devices for actuating it. Fig. 6 is a plan of the perforating device. Fig. 7 is a transverse vertical section through the same. Fig. 8 is a similar transverse section at right angles to Fig. 7. Fig. 9 is a vertical section, on a larger scale, through a perforating-punch. Fig. 10 is a view from below of the perforating device, and Fig. 11 is a plan view in detail of the vertical plunger and the eccentric-disk mounted thereon.

Similar letters and figures refer to similar parts throughout the several views.

a, *b*, and *c* are concentric rings fitted to-

gether and upon a central part *d* so that they can be rotated. They are kept together by the step-like formation shown in Figs. 7 and 8 and by a cross-bar *f*, secured to the central piece by the screws *g g*. On the faces of these rings I cut at intervals shallow notches or grooves radiating from the center so as to divide the faces of the rings into any desired number of divisions, each of which is marked with a letter or figure, as shown in Fig. 6. I also provide catches or retainers, by which, when the rings are adjusted, they are retained in position. This is effected by means of the sliding catch-plate *h*, which fits in a guide *h'* on the cross-bar *f*. The projecting lower edge of the catch-plate *h* fits in radial grooves *i* on the upper surface of the several rings *a b c d*. When the plate *h* is drawn back, all the rings can revolve independently and can be adjusted in any desired relative position. The catch-plate *h* is then pushed forward, its lower edge engaging with the grooves in all the rings, which are therefore retained in their position.

A friction-pin *i'*, Fig. 8, in the central piece *d* is pressed up by a spring, and by its friction prevents the catch-plate *h* from accidentally moving back.

In the lower faces of the rings *a b c d* I fix the punches *k* for perforating or designs for printing the documents, the relative positions of these perforations or designs being governed by the relative positions of the letters or figures on the rings to each other. The punches preferably have each a spring push-piece *k²* (shown on a larger scale in Fig. 9) for dislodging the piece of the document cut out by the punch.

A great number of different combinations in the relative positions of the punches can be made by moving the rings around, (when they are released by withdrawing the catch-plate *h*,) they being secured in their adjusted position by causing the said catch-plate to engage with the notch or groove in each ring which is brought beneath it. The notches or grooves should of course be so arranged that the several notches or grooves of each ring only form one radial line.

In using the apparatus, any relative position of the rings being adjusted the catch-plate secures the rings in that position, and

the punches will have taken up positions relatively to each other, which are always the same for the same positions of the rings, as indicated by the letters, figures, or other indications marked on the divisions of the rings, as shown in Fig. 6, and if the person who is to receive the document which has been perforated by the punches when so adjusted be advised of the combinations of letters, figures, or markings adopted in perforating, and he be provided with a similarly-perforated paper, or if he be provided with a similar apparatus he by adjusting that apparatus to the code-letters advised by post or telegraph can perforate a piece of paper, and by comparing the perforations of this piece of paper with the perforations on the document received ascertain whether it is the genuine document or not. The most convenient way of doing this is to place the paper which he has perforated over the document on a transparent surface, and to facilitate this a central punch in the apparatus punches a central hole which can be placed over a pin on the transparent surface, so that the paper and the document can be adjusted conveniently by a movement of rotation.

There may be any convenient number of rings and punches or the like in the apparatus, the greater the number of rings and punches or the like used the greater will be the variety of combinations which can be made.

Although I have described the punches as being carried by rings it will be evident that they may be carried by straight or partly-circular bars, but the rings are, I consider, the most convenient form. It will be evident also that any suitable catches may be employed; for instance, spring-catches engaging with holes in the divisions of the rings.

I have shown punches for making perforations, but it will be understood that any other marking device can be used in place thereof.

In order to conveniently use the improved device described, it is introduced from below into a ring *l* at the end of the arm *m* of a press in which it is used (see Figs. 1, 2, 3, 4, and 5) and is retained in position by spring-catches *n n*, pivoted in the ring *l*, and the projecting ends of which enter a groove *o* around the outer ring *a* of the punching device.

The arm *m* is pivoted at *p* to the hollow base *r* of the press, and its lower side is provided with a catch *s*, by which it can be firmly held down, as shown at Fig. 1, while when the catch is released it can be turned up on its center *p*, as shown at Fig. 2. Turning in bearings in the sides of the base *r* of the press is fitted a spindle *t*, having a handle *u* at one end. The central part of this spindle at *v* is eccentric to the remainder and fits and turns in elongated holes in the sides *w* of a hollow plunger *x*, which rises and falls in a cylindrical guide *y* upon the base *r*, so that by turning the handle *u* the plunger *x* can be made to rise and fall through a short distance.

The upper face of the plunger *x* consists of a flat disk, upon which is fitted by a central pin a disk 1, recessed upon its upper surface to receive a disk 2 of lead or other suitable substance, against which the edges of the punches work. The hole in the top of the plunger *x* which receives the pin under the disk 1 is somewhat eccentric to the center of the plunger, so that if a central punch is used it does not always strike the same place upon the lead.

Below the eccentric spindle *t* is fitted a spindle 3, moving longitudinally in guides in the base *r* and in the cylindrical guide *y*, in which the plunger *x* works. The spindle 3 is kept normally pressed inward by a spring 4, and carries at its inner end an arm 5, attached to a detent 6, by which the catch *s* upon the arm *m* is held down. The detent 6 is provided with lateral extensions 7, which work in guides 8 on the sides of the base *r*.

Into the eccentric part of the spindle *t* is screwed or otherwise fixed a projecting tooth or cam 9, which when the handle *u* is pressed sufficiently far down comes in contact with the collar 10 upon the spindle 3 and forces the latter back against the pressure of the spring 4, releasing the catch *s* and allowing the arm *m* with the punching devices to be raised. A flat spring 11, Figs. 1 and 2, tends to raise the arm when the catch is released, as shown in Fig. 2.

The spindle 3 is provided with a knob or handle 12 at its outer end, by which it can be drawn back to release the catch *s*, if desired, without turning the spindle *t*.

The operation of my device is as follows: The apparatus being in the position shown in Figs. 1 and 3 and the punches or markers being set to the desired arrangement, the paper or document to be marked is inserted edge-wise above the disk 2 and beneath the punches or markers. The hand-lever *u* is then thrown over to the left in Fig. 3 in a half circle, which movement will turn the eccentric *v* so as to raise the plunger *y*, carrying the disk 2 to the highest position, and the paper will be perforated or marked by the punches or markers. The hand-lever *u* is then thrown over to its original position and pressed down, causing the tooth 9 to engage the collar 10 on the spindle 3, and thus throwing the spindle outward, which, carrying with it the detent 6, releases the catch *s* and allows the pivoted arm *m* to swing upward and the perforated or otherwise-marked paper to be removed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for perforating or marking documents, the combination of the lettered or figured rotatable rings *a, b, c*, center *d*, perforating or marking instruments *k*, cross-bar *f*, radial grooves *i*, sliding catch-plate *h* and guide *h'*, substantially as described.

2. In a machine for marking or perforating documents, the combination of the lettered or figured rotatable rings *a, b, c*, center *d*, per-

forating or marking instruments *k*, cross-bar *f*, radial grooves *i*, sliding catch-plate *h*, guide *h'* and friction-pin *i'*, substantially as described.

5 3. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device composed of a circular center block and circular concentric rings fitting over said block and adjustable thereon, means for securing said rings in the desired position relative to each other and to said center block and perforating or marking instruments carried by said block and said rings; of a hollow base, an arm pivoted in said base and carrying said perforating or marking device, means for locking said pivoted arm; a plunger mounted in said base, and movable vertically therein; an eccentric and a lever connected thereto for operating said plunger, and a soft disk mounted upon said plunger and adapted to be thrown upward against said perforating or marking instruments, substantially as described.

4. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device composed of a circular center block and a plurality of circular concentric rings fitting over said block and adjustable thereon; means for securing said rings in the desired position relative to each other and to said center block, and perforating or marking instruments carried by said block and said rings; of a hollow base; a curved arm pivoted in said base and carrying said perforating or marking device; means for locking said pivoted arm; a vertical plunger mounted in said base beneath said perforating or marking device; a soft disk mounted upon said plunger; an eccentric and a lever connected thereto for operating said plunger, and means for releasing said pivoted arm adapted to be operated by said lever and eccentric, substantially as described.

5. In a machine for marking or perforating documents, the combination with an adjustable perforating or marking device composed of a central circular block and a plurality of circular concentric rings fitting over said central block; means for securing said rings together and to said central block in the desired position relative to each other, and perforating or marking instruments carried by said block and said rings; of a hollow base; a curved arm pivoted in said base and carrying said perforating or marking devices; a catch on said pivoted arm; a spindle mounted in said base; a detent mounted upon said spindle and adapted to engage said catch; a spring normally pushing said spindle forward and holding said detent in engagement with said catch; a collar on said spindle; a spring mounted in said frame and adapted to throw said catch out of engagement with said detent when said spindle is withdrawn; a vertical plunger mounted in said base; an eccentric working in said plunger mounted in said

base; a lip on said eccentric adapted to engage the collar on said spindle, and a rocking lever for turning said eccentric, substantially as described.

6. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device, of a hollow base, an arm pivoted in said base and carrying said perforating or marking device, means for locking said pivoted arm; a plunger mounted in said base, and movable therein; an eccentric and a lever connected thereto for operating said plunger, and a soft disk mounted upon said plunger and adapted to be thrown upward against said perforating or marking instruments, substantially as described.

7. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device, of a hollow base; a curved arm pivoted in said base and carrying said perforating or marking device; means for locking said pivoted arm; a vertical plunger mounted in said base beneath said perforating or marking device; a soft disk mounted upon said plunger; an eccentric and a lever connected thereto for operating said plunger, and means for releasing said pivoted arm adapted to be operated by said lever and eccentric, substantially as described.

8. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device, of a hollow base; a curved arm pivoted in said base and carrying said marking or perforating device; a catch on said pivoted arm; a spindle mounted in said base; a detent mounted upon said spindle and adapted to engage said catch; a spring normally pressing said spindle forward and holding said detent in engagement with said catch; a collar on said spindle; a spring mounted in said frame and adapted to throw said catch out of engagement with said detent when said spindle is withdrawn; a vertical plunger mounted in said base; an eccentric working in said plunger; a lip on said eccentric adapted to engage the collar on said spindle, and a rocking lever for turning said eccentric, substantially as described.

9. In a machine for perforating or marking documents, the combination with an adjustable perforating or marking device composed of the lettered or figured rotatable rings *a*, *b*, *c*, center *d*, perforating or marking instruments *k*, cross-bar *f*, radial grooves *i*, sliding catch-plate *h*, and guide *h'*; of a hollow base, a curved arm pivoted in said base and carrying said marking or perforating devices, a catch on said pivoted arm, a spindle mounted in said base, a detent mounted upon said spindle and adapted to engage said catch, a spring normally pressing said spindle forward and holding said detent in engagement with said catch, a collar on said spindle, a spring mounted in said frame and adapted to throw said catch out of engagement with said de-

tent when said spindle is withdrawn, a vertical plunger mounted in said base, an eccentric working in said plunger, a lip on said eccentric adapted to engage the collar on said spindle, and a rocking lever for turning said eccentric, substantially as described.

10. In a machine for marking or perforating documents, the combination with an adjustable perforating or marking device composed of the lettered or figured rotatable rings *a*, *b*, *c*, center *d*, perforating or marking instruments *k*, cross-bar *f*, radial grooves *i*, sliding catch-plate *h*, guide *h'*, and friction-pin *i'*; of a hollow base, a curved arm pivoted in said base, and carrying said marking or perforating devices, a catch on said pivoted arm, a spindle mounted in said base, a detent mounted upon said spindle and adapted to engage

said catch, a spring normally pressing said spindle forward and holding said detent in engagement with said catch, a collar on said spindle, a spring mounted in said frame and adapted to throw said catch out of engagement with said detent when said spindle is withdrawn, a vertical plunger mounted in said base, an eccentric working in said plunger, a lip on said eccentric adapted to engage a collar on said spindle, and a rocking lever for turning said eccentric, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

CHARLOTTE HEATH.

Witnesses:

ALEX. RIDGWAY,
W. E. SYKES.