No. 709,566. Patented Sept. 23, 1902.

E. A. TRUSSELL.

PERFORATING MACHINE.

(Application filed Nov. 21, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. I.

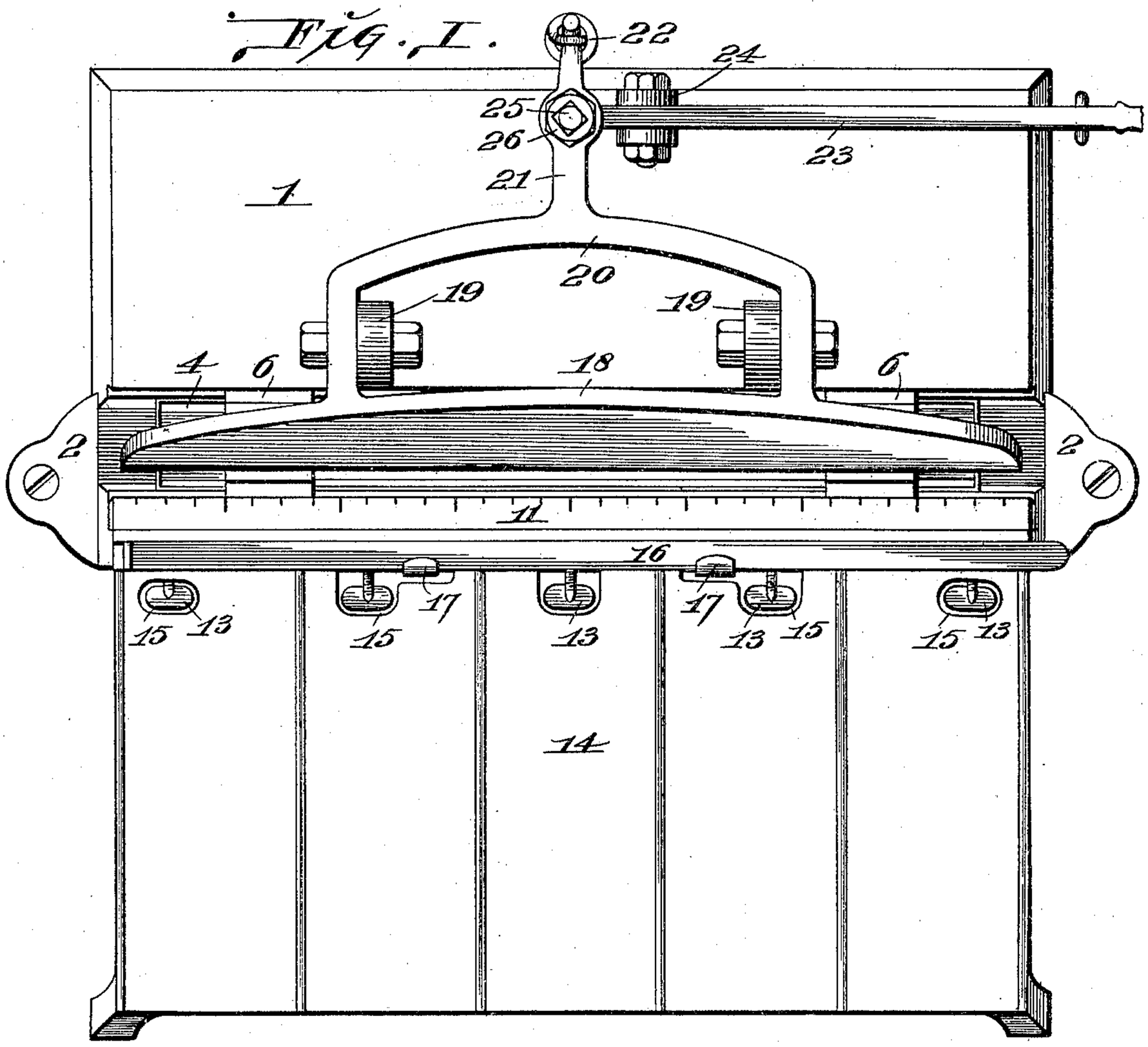
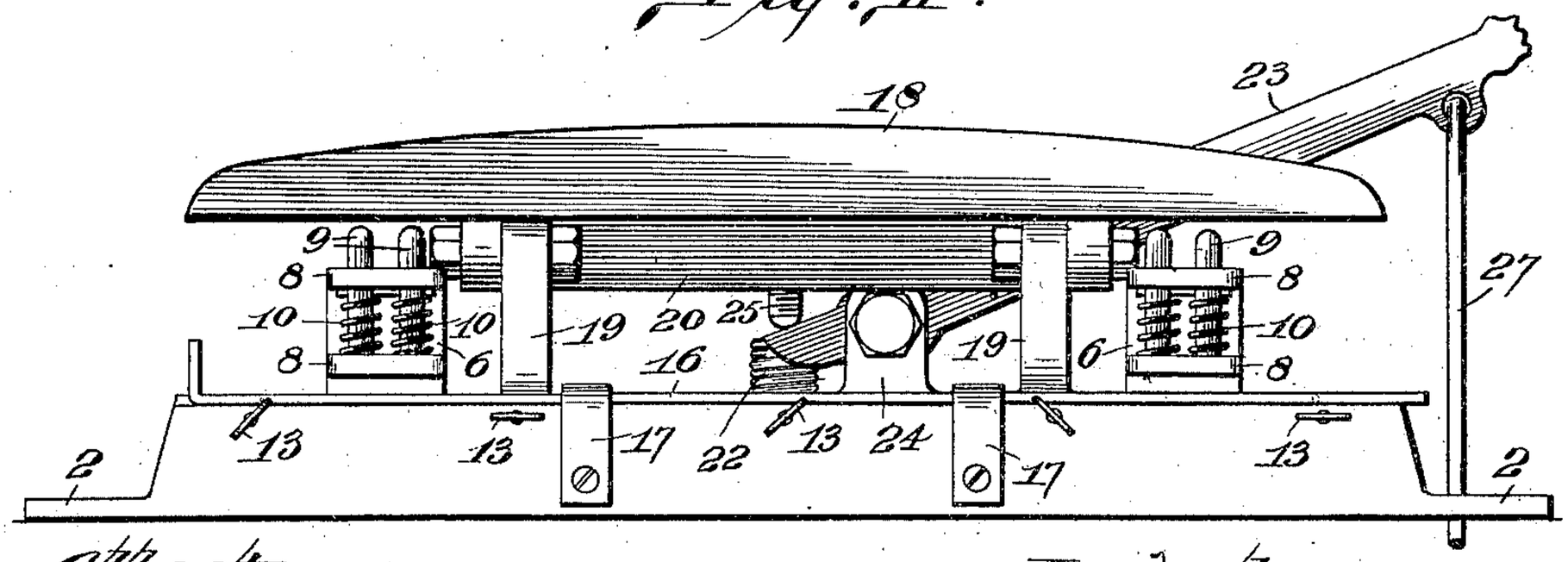


Fig. II.



Attest:—
M. P. Smith.
E. S. Knight

Inventor:—
E. A. Trussell;
By Wright Bro's
Atty's.

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Fig. III.

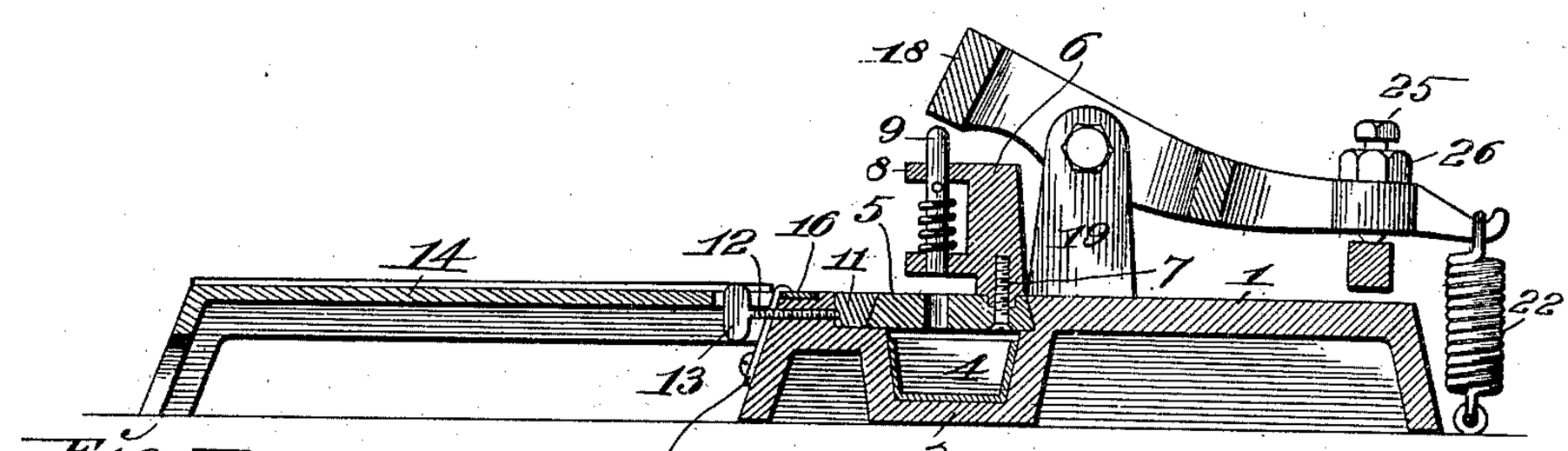


Fig. IV.

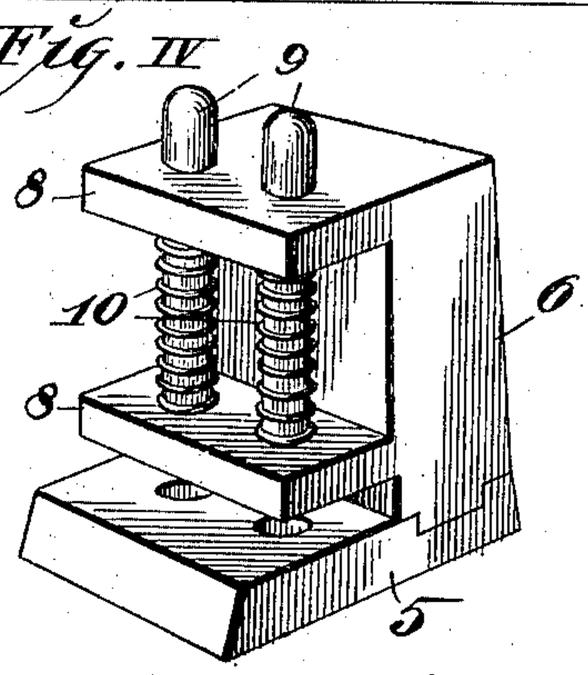


Fig. IX.

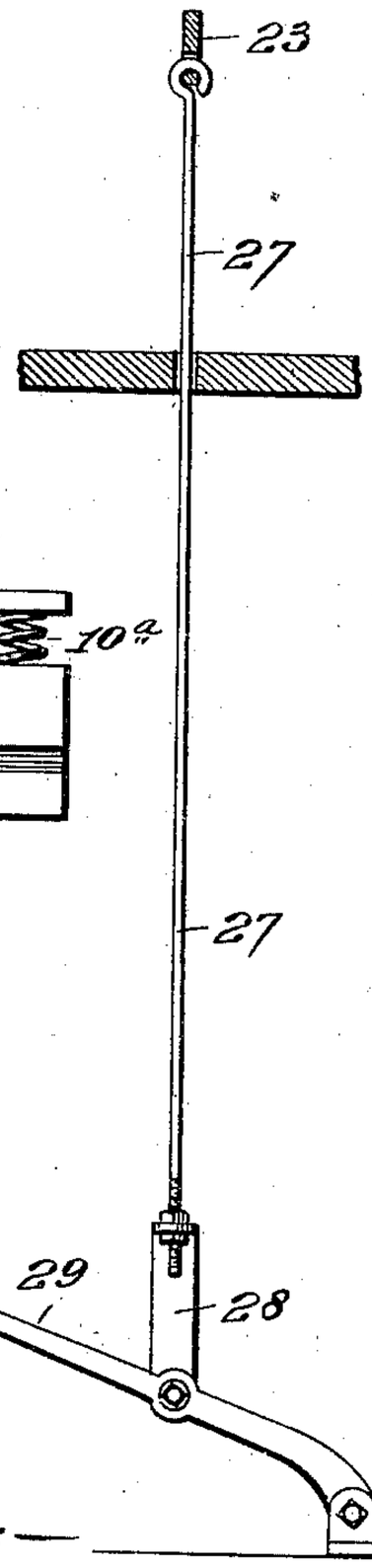


Fig. VI.

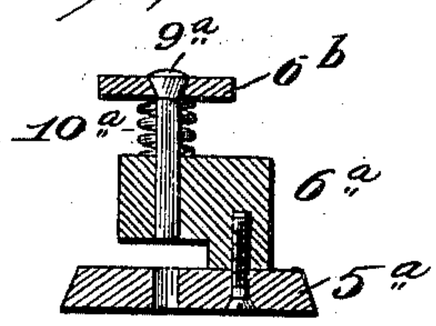


Fig. V.

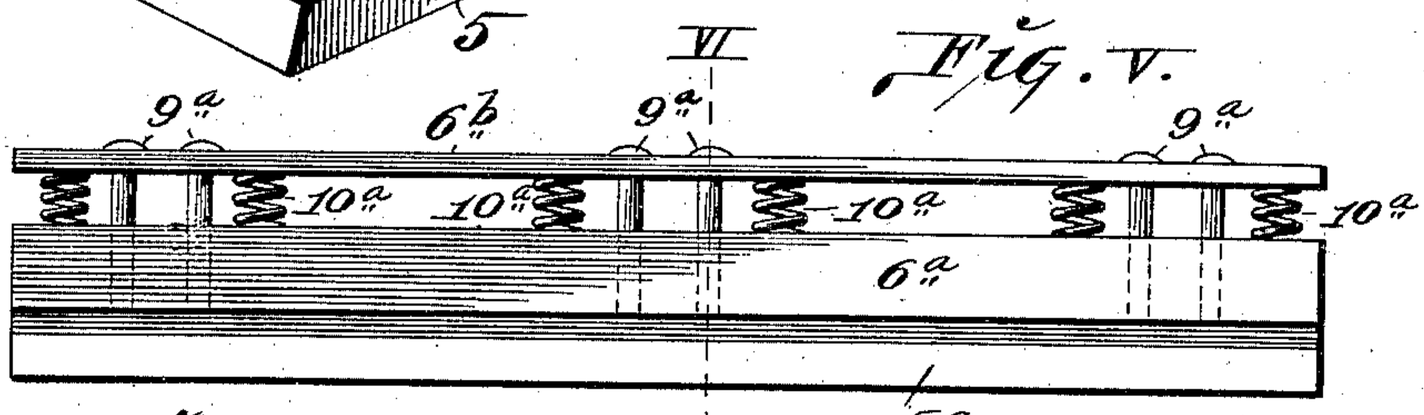


Fig. VII.

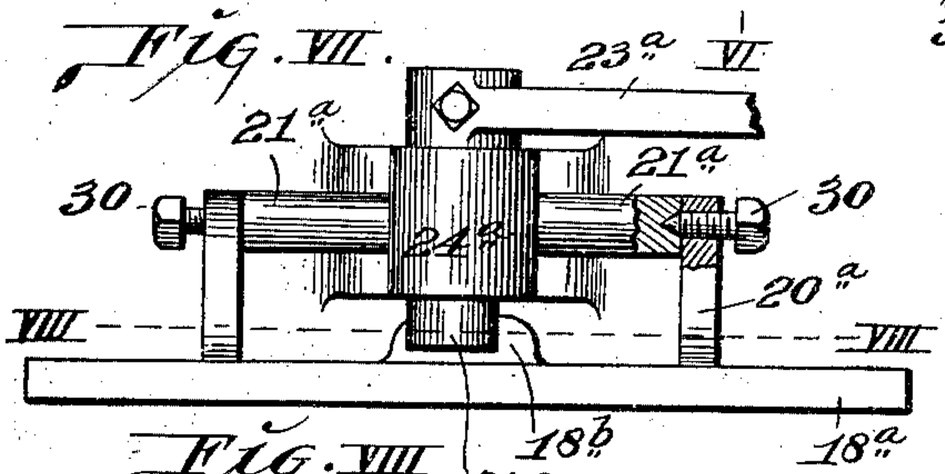
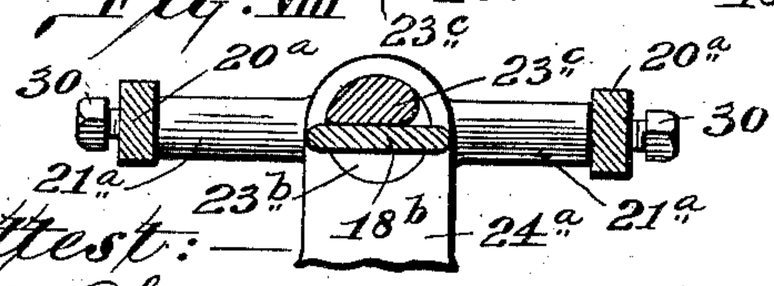


Fig. VIII



Attest:—
W. P. Smith
E. L. Knight

Inventor:—
E. A. Trussell;
By Wright Bro. atty's

UNITED STATES PATENT OFFICE.

EMORY A. TRUSSELL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SIEBER & TRUSSELL MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 709,566, dated September 23, 1902.

Application filed November 21, 1901. Serial No 83,103. (No model.)

To all whom it may concern:

Be it known that I, EMORY A. TRUSSELL, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a machine for use in perforating sheets of paper such as are used in temporary binders, paper-files, &c.; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of my machine. Fig. II is a front elevation with the table removed. Fig. III is a vertical sectional view of the machine. Fig. IV is a detail perspective view of one of the punch-holders and the punches therein. Fig. V is a side view showing a gang form of punch-holder in which the punches are arranged in gang. Fig. VI is a cross-sectional view taken on line VI VI, Fig. V. Fig. VII is a top view illustrating a modification of the pressure-head-actuating means. Fig. VIII is a vertical sectional view taken on line VIII VIII, Fig. VII. Fig. IX is a detail view of a foot-power-operating appliance for the machine.

1 designates the base of the machine, which is adapted to be mounted on a suitable bench and secured thereto by screws that pass through ears 2, projecting from the sides of the base. The base 1 is provided with a well 3, that contains a pan 4, and above said well the base is grooved to receive the dies 5 of the punch-holders 6, the said dies and the bodies of the punch-holders being composed of separate pieces in order that the dies may be hardened without necessity of hardening the punch-holder bodies. The dies are connected to the punch-holder bodies by screws 7. (See Fig. III.) Each punch-holder is provided with a pair of tongues 8, in which the punches 9 are loosely seated and supported by coil-springs 10, that surround them between said tongues. The punch-holders are positioned in the base 1 so that the dies 5 will occupy a groove in said base, and when adjusted to the desired position longitudinally of said groove, according to the distance it is desired to produce perforations in sheets of paper fed to the machine, they are clamped in such position by pressure applied to a clamp-bar 11 through means of binding-screws 12, having heads 13, and seated in the base for inward movement to bear against said clamp-bar. In Figs. I and II, I have shown two punch-holders spaced apart, this being the number usually employed in common practice. The clamp-bar 11 is preferably provided with a scale by which the setting of the punch-holders is facilitated.

14 designates a table removably associated with the base of the machine and provided with a series of openings 15, adapted to receive the heads 13 of the binding-screws 12, as shown in Figs. I and III, by which screws the table is held from movement owing to the entrance of the screws-heads into said openings.

16 is a gage slidingly mounted on the base 1 and held thereto by clips 17, by the longitudinal adjustment of which the positioning of the sheets of paper to be perforated may be accurately accomplished and the sheets uniformly introduced into the punch-holders for the perforating thereof.

18 designates a pressure-head by which the punches 9 are depressed to the dies 5 in the act of perforating. This pressure-head is pivotally mounted in the rear of the punch-holders 6 on posts 19, that receive the pivot-pins or bolts which pass through the lever 20 of the pressure-head. The lever 20 has a rearwardly-extending lever-arm 21, that receives the attachment of a lifting-spring 22, which acts to raise the pressure-head after the depression thereof.

23 designates an operating-lever pivoted to a post 24, mounted on the base 1 and having its inner end or heel arranged beneath the arm 21 of the pressure-head lever. In the lever-arm 21 is an adjustment-screw 25, provided with a jam-nut 26 and extending through said arm to the lower side thereof, where it rests upon the heel of the operating-lever 23. This adjustment-screw provides an adjustable bearing between the pressure-head le-

ver and the operating-lever, so that the pressure-head may be constantly maintained in close proximity to the punches 9 when in elevated position and with an accuracy of adjustment thereto that renders slight movement of the pressure-head necessary to throw the punches downwardly. The operating-lever 23 may be manipulated by hand, or it may be actuated by foot-power, and for the application of foot-power I have shown a pull-rod 27, connected to the lever and extending downwardly to a point near the floor, where it is adjustably connected by a link 28 to the foot-lever 29.

In practical use of the perforating-machine the punch-holders and dies are slipped into place in the groove contained by the base 1 and adjusted into the desired position according to the scale on the clamp-bar 11. The clamp-bar is then moved to the dies 5 by turning the binding-screws 12 inwardly against the clamp-bar for the purpose of retaining the dies and punch-holders in position. The removable table 14 is then placed in front of the base 1, and after the gage 16 has been adjusted to suit the requirement of the sheets to be perforated the machine is in readiness for use.

In Figs. V and VI, I have shown a form of the punch-holders wherein the punches are mounted in gang in a single holder 6^a, surmounting a single die 5^a. In this form of construction a top punch-receiving plate 6^b is utilized and supported by springs 10^a. The punches 9^a are removably seated in the top plate and punch-holder, so that any of them may be removed or introduced into other holes in the top plate and punch-holder to provide for the perforating of holes at varied intervals.

In Figs. VII and VIII, I have shown a modification of the pressure-head-operating mechanism, wherein the operating-lever 23^a is provided with a stem 23^b, that is mounted in a post 24^a. On the stem 23^b is a cam 23^c, that is adapted to bear against a lug 18^b, projecting rearwardly from the pressure-head 18^a. The pressure-head is pivotally connected to the post 24^a by lever-arms 20^a, that are joined to arms 21^a, projecting laterally from said post and adapted to receive pivot-screws 30, passing through the lever-arms into said arms 21^a.

I claim as my invention—

1. In a perforating-machine, the combination of a base, removable punch-holders seated in said base, punches in said holders, a pivotally-supported pressure-head surmounting said punch-holders and adapted to operate said punches, a lever by which said pressure-head is carried, a spring arranged to hold said pressure-head in elevated position, an operating-lever, and an adjustment bearing-screw mounted in said pressure-head lever and adapted to receive said operating-lever, substantially as described.

2. In a perforating-machine, the combination of a grooved base, removable punch-holders seated in the groove in said base, punches in said holders, a pressure-head, means for operating said pressure-head, a clamp-bar arranged to hold said punch-holders, binding-screws mounted in said base and adapted to bear against said clamp-bar to hold it to said punch-holders, and a table removably held to said base by the heads of said set-screws, substantially as described.

3. In a perforating-machine, the combination of a grooved base, removable punch-holders seated in the groove in said base, punches in said holders, a pressure-head, means for operating said pressure-head, a clamp-bar arranged to hold said punch-holders, binding-screws mounted in said base and adapted to bear against said clamp-bar to hold it to said punch-holders, and a gage slidingly mounted on said base, substantially as described.

EMORY A. TRUSSELL.

In presence of—
E. S. KNIGHT,
M. P. SMITH.