3 Sheets—Sheet 1.

J. W. SEE.

Machine for Perforating Paper.

No. 223,176. Patented Dec. 30, 1879.

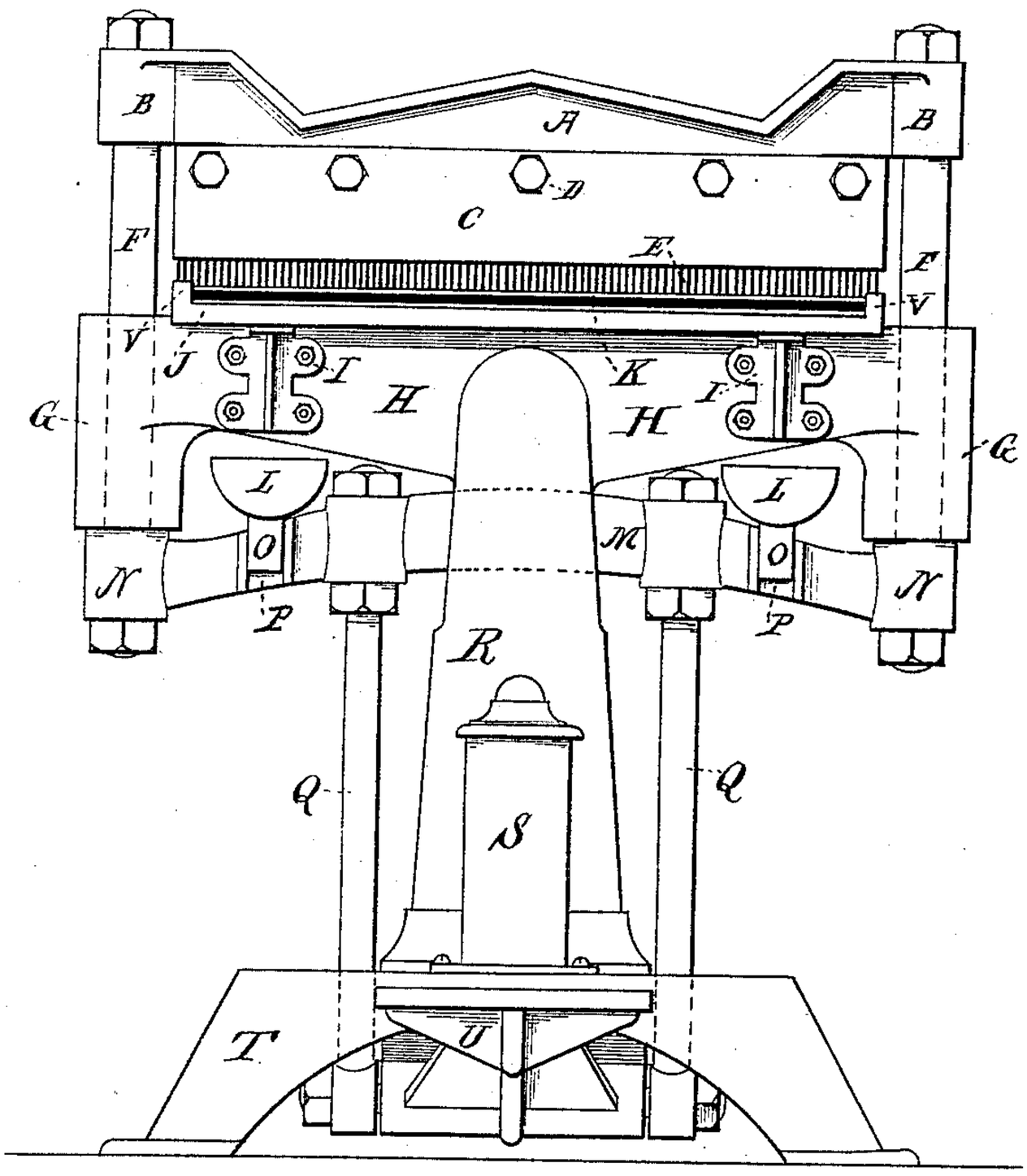

FIG 1.

WITNESSES:
Jno R. Woods.
L. P. Clawson

James W. See INVENTOR

3 Sheets—Sheet 2.

J. W. SEE.

Machine for Perforating Paper.

No. 223,176. Patented Dec. 30, 1879.

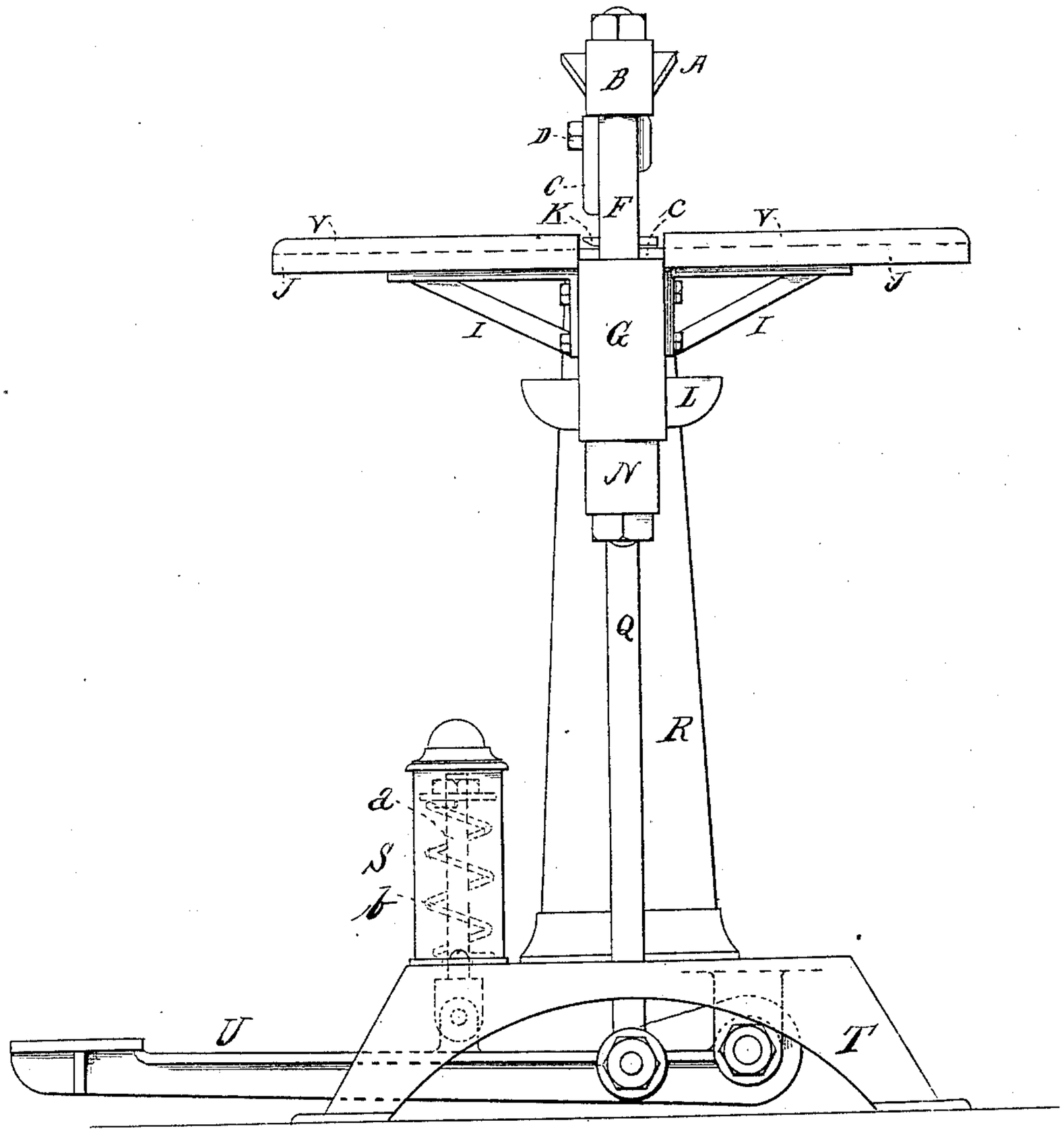

FIG 2.

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3 Sheets—Sheet 3.

J. W. SEE.

Machine for Perforating Paper.

No. 223,176. Patented Dec. 30, 1879.

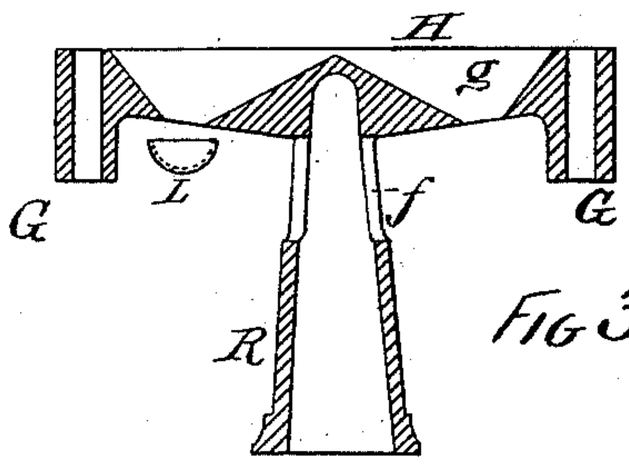

FIG 3

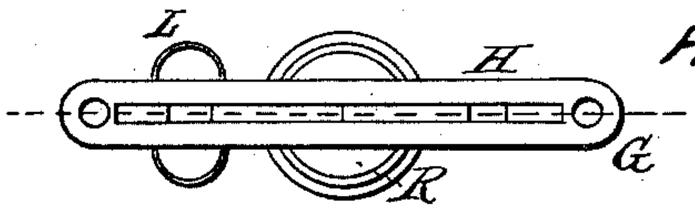

FIG 4

FIG 6

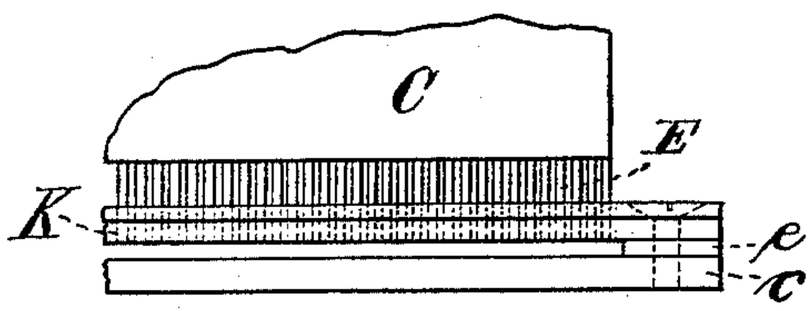

FIG 7

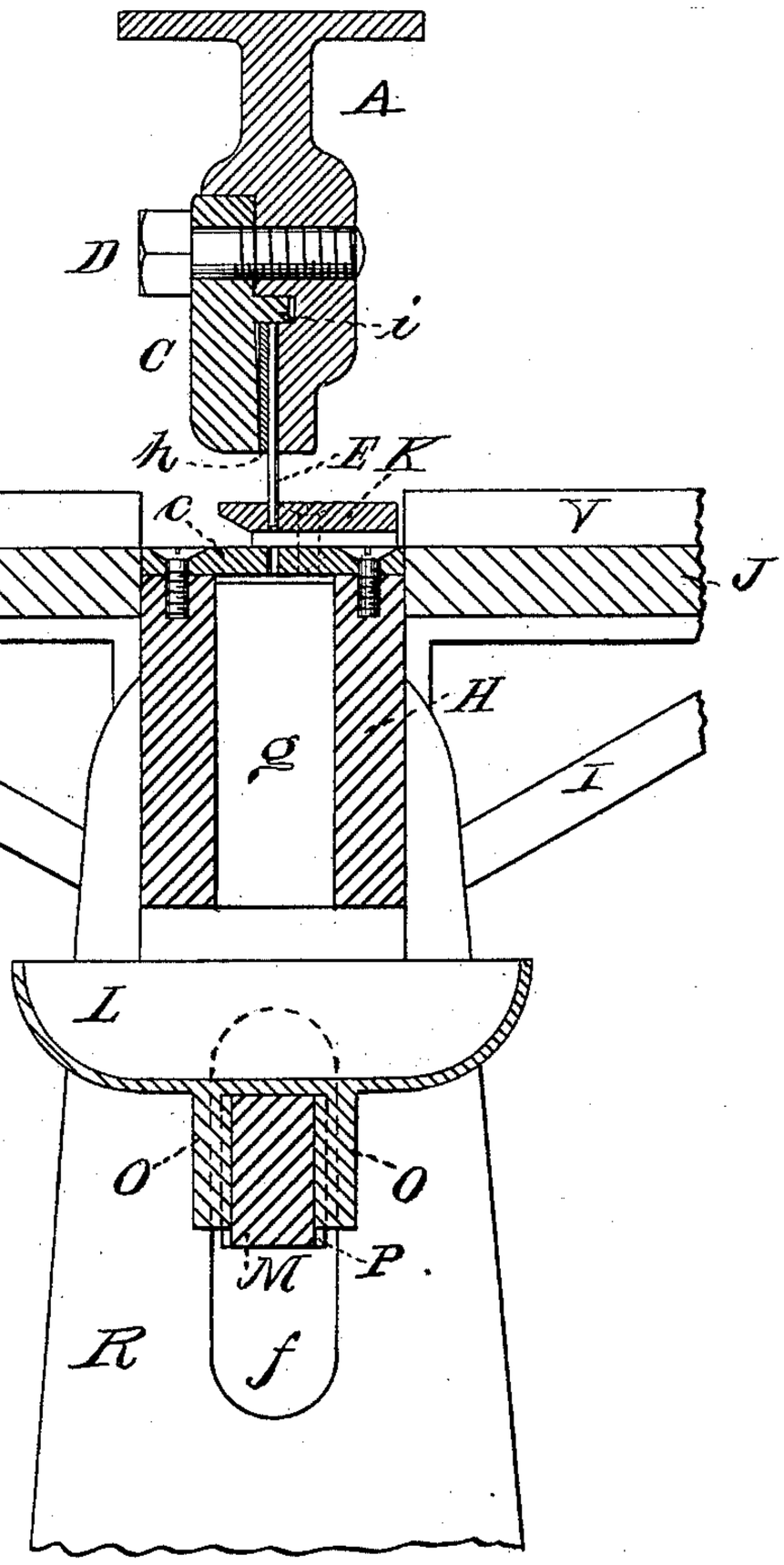

FIG 5

WITNESSES:
Jno R. Woods.
L. P. Clawson

James N. See, INVENTOR

UNITED STATES PATENT OFFICE.

JAMES W. SEE, OF HAMILTON, OHIO.

IMPROVEMENT IN MACHINES FOR PERFORATING PAPER.

Specification forming part of Letters Patent No. **223,176,** dated December 30, 1879; application filed September 20, 1879.

To all whom it may concern:

Be it known that I, JAMES W. SEE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a specification.

This invention relates to machines for printers' and stationers' use for forming rows of perforations in printed forms, &c., so that one part of such forms may be easily separated from other parts.

The machine is operated by foot-treadle, and examples of the work it is intended to do may be found in sheets of postage-stamps, in coupon-bonds, in coupon-tickets, stub-checks, &c.

My invention consists of body-casting in T-shaped form, containing guides for the cross-head, seats for table-brackets, and a seat for the die; of an arrangement of cored passages within the body-casting, in combination with litter-cups attached to the machine, so that the punchings will all drain into the litter-cups; of a table having double side ledges for squaring the sheets of paper; of an arrangement of a covered spring upon the base for retracting the treadle; of a yoke-bar passing through a mortise in the body-piece, and serving as a means of uniting the cross-head rods to the treadle-rods; of litter-cups fitted upon the yoke-bar in such a position that a depression of the bar is necessary to unlock them so they may be removed; of a series of punches combined with a clamp and a rigid truing-surface for bringing the punches into a straight line; of a series of punches bedded in solder upon a flexible backing-strip; and of a punch-clamp having a tongue to act as a thrusting-ledge for the tops of the punches.

In the accompanying drawings, Figure 1 is a front elevation of my machine; Fig. 2, a side elevation of the same; Fig. 3, a vertical longitudinal section of the body-casting; Fig. 4, a plan of the body-casting; Fig. 5, a vertical section of the upper parts of the machine; Fig. 6, a plan, enlarged, of a section of punches; and Fig. 7, an elevation of one end of the die, stripper, and row of punches.

As shown in Fig. 1, the machine is formed with T-shaped body-piece R bolted to a base, T. The side-extensions of the body-piece are bored vertically, and form the guides G for the cross-head rods F. The cross-head A carries a series of punches, E, which effect the perforating by punching into a die fastened to the top of the body-piece. The two cross-head rods F are connected at the bottom by a yoke-bar, M, which passes through a mortise in the body-casting. Rods Q connect the yoke-bar M with the foot-treadle U, which is fulcrumed to the base of the machine.

The die before referred to is fastened to the top of the body-piece, and a cored passage, *g*, as shown in Figs. 3 and 4, in the body-piece causes all the punchings to fall through contracted openings into the litter-cups L. These litter-cups are provided with a pair of lugs, which straddle the yoke-bar M. The litter-cups rise and fall with the yoke-bar, but are arranged so close to the projecting arms of the body-piece that they can only be removed from the yoke-bar when the yoke-bar is in its extreme downward position.

As shown in Fig. 2, the treadle is fulcrumed to the base and imparts motion to the cross-head through the medium of the treadle-rods Q. Upon the front of the base is bolted a cylinder, S, having a removable cover. Within this cylinder is a compression-spring, *b*, which is connected to the treadle by means of a screw-bolt, *a*. This spring tends to lift the treadle into its normal position, and the nut upon the spring-bolt serves to adjust the elasticity of the spring.

To the flat faces of the upper part of the body-piece H are bolted the table-brackets I, which support the two tables J, whose top is level with the top of the die *c*, as shown in Fig. 5. These tables have upon both sides a raised ledge, V, set square with the row of punches, and these ledges serve to guide the sheets of paper while being punched.

The upper part of Fig. 5 shows the cross-head, &c., in section. The row of punches E is clamped between the inner true surface of the cross-head and the clamp C. A tongue, *i*, upon the face of the clamp C, serves to level the top of the punches and to receive the thrust.

The punches E are attached to a light strip of metal, *h*, by being bedded in solder, and the

strip is cut in sections, so that as much of the row of punches as desired may be removed when stub-work is being done.

Fig. 6 shows a plan of a section of the punches greatly enlarged.

The inner face of the clamp C is beveled, so as to pinch the punches at the bottom only of the clamping. This permits the punches to rock a little, and thus accommodate themselves to the die and stripper.

The stripper K is attached rigidly to the die by screws and blocks at each end, sufficient space being left between them to admit several sheets of thick paper for perforating.

The punches slide through holes in the stripper, and are thus guided to the die.

I claim as my invention—

1. In a perforating-machine, the combination, with the cross head A, guide-rods F, and yoke-bar M, of the body-piece R, having side arms, H H, and guides G at the extremities of the arms, substantially as set forth.

2. In a perforating-machine, the body-piece H, having the passage G under the die, combined with the litter-cups L, substantially as set forth.

3. In a perforating-machine, the combination, with the cross-head A and guide-rods F, of the yoke-bar M and mortised body-piece R, substantially as set forth.

4. In a perforating-machine, the yoke-bar M, combined with the litter-cups L, having straddle-lugs upon their bottoms for embracing the yoke-bar, substantially as set forth.

5. In a perforating-machine, the combination, with the cross-head A and punches E, of the loose clamp C, drawn to its work by bolts between its upper edge and the upper end of the punches, substantially as set forth.

6. In a perforating-machine, the combination, with the punches E, of the backing-strip *h*, the punches being in solder upon the strip, substantially as specified.

7. In a perforating-machine, the combination, with the punches E and cross-head A, of the bolted clamp C, having the thrust tongue *i*, substantially as set forth.

8. In a perforating-machine, the combination, with the punches E and cross-head A, of the clamp C, holding the punches by its lower edge only, substantially as set forth.

JAMES W. SEE.

Witnesses:
JNO. R. WOODS,
L. P. CLAWSON.