

No. 666,305.

Patented Jan. 22, 1901.

L. R. DAMON.

PERFORATOR FOR PRINTING MACHINES.

(Application filed Dec. 15, 1897.)

(No Model.)

Fig. 1.

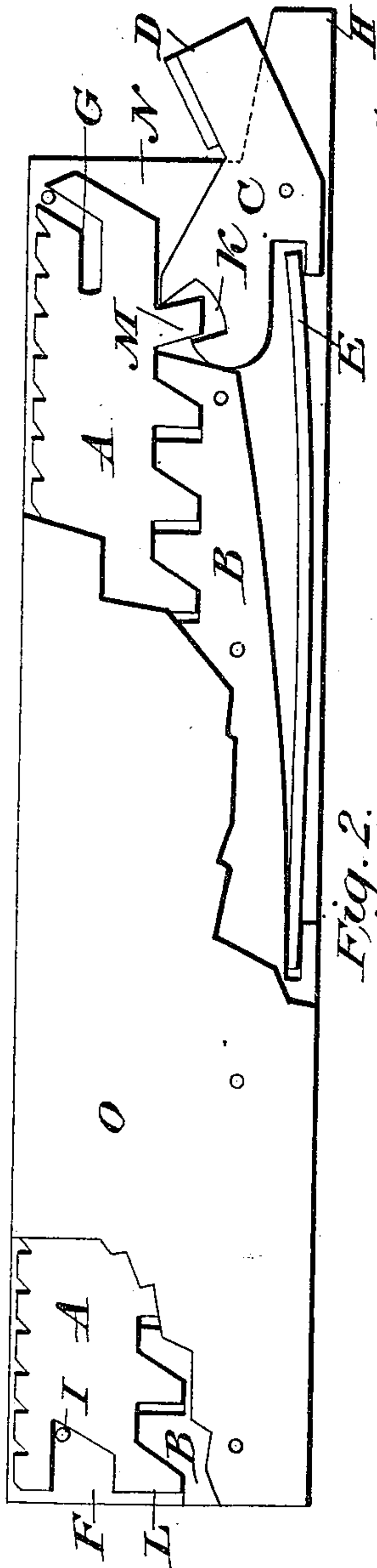


Fig. 2.

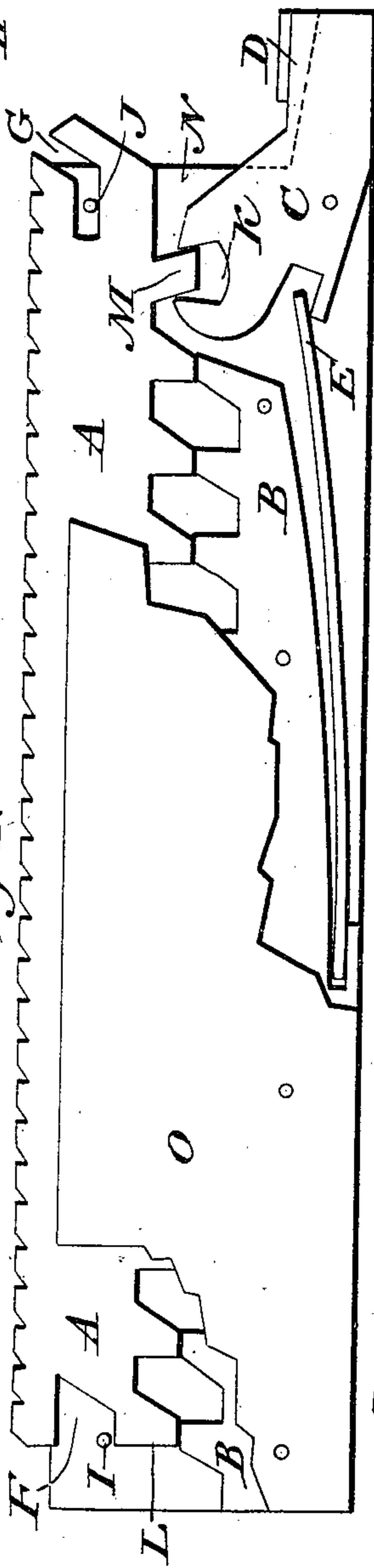


Fig. 3.

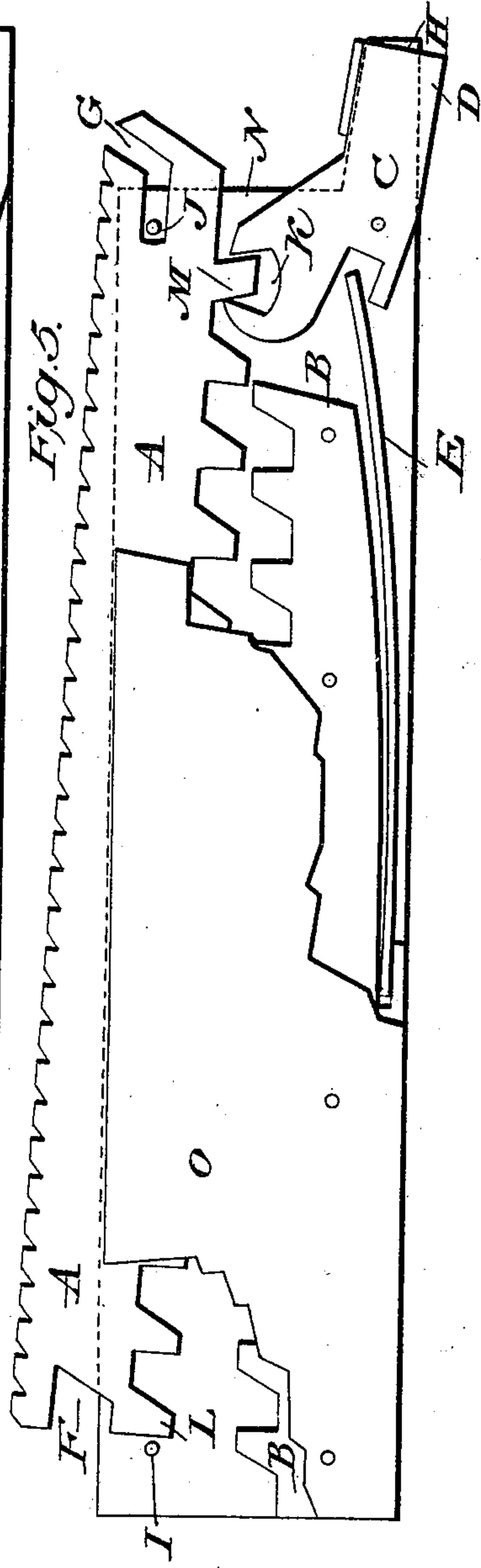


Fig. 4.

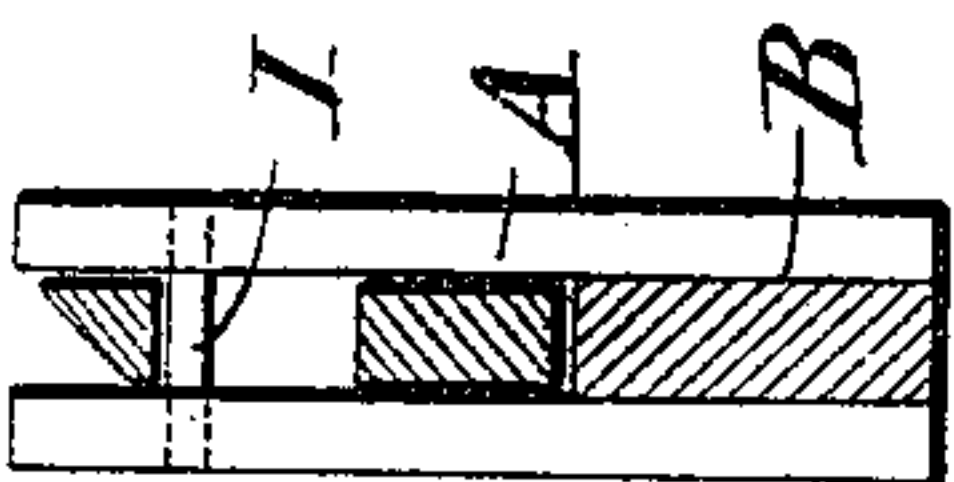
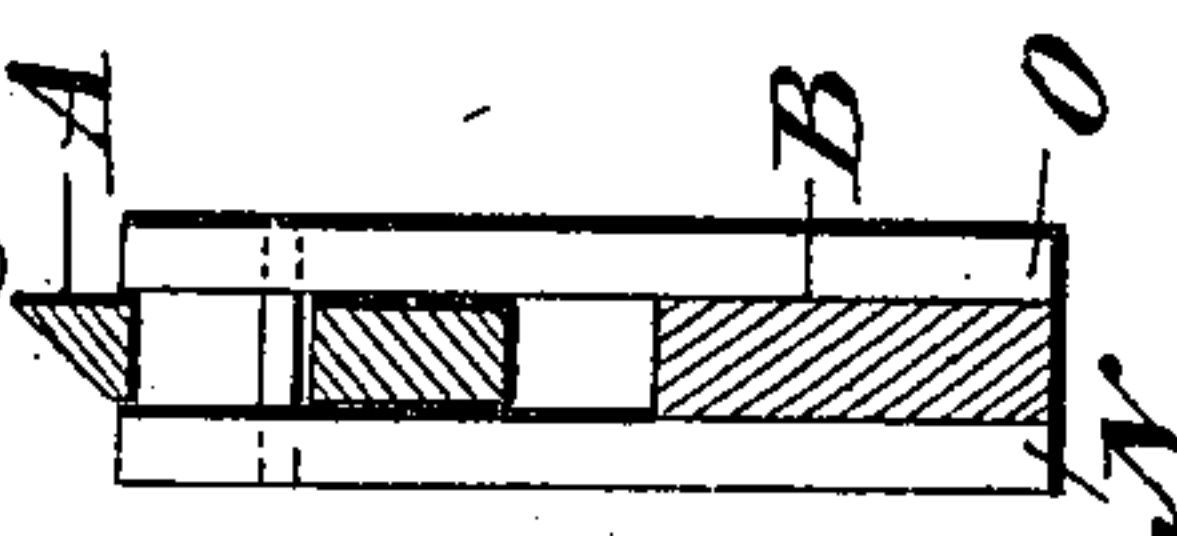


Fig. 5.



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UNITED STATES PATENT OFFICE.

LYMAN R. DAMON, OF DEXTER, MAINE, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE DAMON PERFORATOR COMPANY, OF OLD TOWN, MAINE.

PERFORATOR FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 666,305, dated January 22, 1901.

Application filed December 15, 1897. Serial No. 661,961. (No model.)

To all whom it may concern:

Be it known that I, LYMAN R. DAMON, a citizen of the United States, residing at Dexter, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Machines for Perforating, Creasing, Cutting, and Embossing as Used in Printing-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In the accompanying drawings, Figure 1 represents a side view of my device as it would appear with a portion of frame on nearest side removed, the working parts being in normal position. Fig. 2 shows the same with working parts in position for taking an impression. Fig. 3 is an end elevation showing position of sides or frame with reference to base-plate and top plate when in normal position. Fig. 4 shows same with top plate in position for an impression. Fig. 5 shows a side view of the machine with the working parts in position to release the cutting-blade from the frame.

Similar letters refer to similar parts in the several views.

My device provides a perforating, creasing, cutting, or embossing face (as may be needed) so arranged as to drop below type-level when the form takes ink and to rise to type-height upon a solid foundation when the form takes an impression. Thus it does not take ink itself nor cut the rollers, although it performs its work effectively at the same moment the rest of the sheet is printed. I accomplish this result by constructing the perforating, creasing, or cutting blade or the embossing-die, as the case may be, in two parts—an upper and a lower—as shown in A and B, Fig. 1 of drawings, said lower part being firmly riveted between the side plates N and O and with them forming the case or frame in which the blade A moves. The lower surface of the top piece A and the upper surface of the base-piece B are notched or toothed, so as to fit together, the teeth or projections of one being received

into the somewhat-larger depressions of the other. The outer face of these projections upon either piece (A or B) are made parallel with the base-line of B; but the depressions are cut obliquely to said base-line, their sides forming inclined planes which correspond one to the other in the two pieces, as shown in said Fig. 1. The outer face of the projections referred to in either piece is made of sufficient length to afford a strong bearing for the pieces A and B when placed together, so that said faces come one upon the other, and these horizontal supports or bearing pieces are distributed at short and equal distances apart throughout the whole length of the base-plate B and the bottom of the blade A to give a solid support to the blade A in taking an impression. In operation the piece B, being a part of said frame, necessarily remains in a fixed position, while A is movable. A in its normal position upon B is shown in Fig. 1, the projecting parts of the adjacent surfaces of the two pieces being interlocked. In this position the face-line of A is below type-level. If the piece A is carried to the right from this normal position, the projections upon either piece are drawn out from the depressions by the inclined planes until their ends rest one upon the other. In this position the working face of the piece A is type-high.

To control the movement of the piece A and to protect it when locked in a form, side plates N and O, Fig. 3, are riveted or otherwise attached to the piece B, the same being high enough to form a frame for A and long enough to afford a support for the pivoted lever C, Fig. 1, and also to prevent tilting of the machine when said lever is depressed. (See H, Fig. 1.) To prevent the escape of the piece A from its position upon B while in operation and also to guide its movement in interlocking with B when returning to its normal position after being thrown up for an impression, the slots F and G, Fig. 1, are cut in said piece A, which receive and slide upon the pins or rivets I and J, made fast in said side plates N and O and extending between them.

The piece A is worked by means of the pivoted lever C, Fig. 1, the slot K in which re-

ceives the sprock M of said piece A, extending downward from same obliquely in a direction opposite to the inclined planes of the other projections on its lower face. The opposite end of said lever C, when the piece A is in its normal position, is considerably raised above the level of the base-line of piece B, as shown by D, Fig. 1. Said lever C is operated by being struck upon the end D by some projection attached for the purpose to the tympan of press. The end D being thus pressed downward upon the bed of press the slot K is thrown to the right, drawing with it by means of the sprock M the piece A, which is thus brought up so that the projections on its lower side rest squarely upon the tops of the projections on the upper side of the piece B. To throw the lever back or to raise the end D when the pressure of tympan is removed therefrom, the spring E is attached to the lever C. To secure economy of space without weakening the machine under heavy pressure, said spring is placed in a recess beneath the base-plate in the end nearest to said lever, as shown in Figs. 1 and 2 of drawings. It operates to throw up the end D, forcing the slot K to the left hand, as shown in diagram, carrying back the sprock M and the piece A. As A moves to the left hand, as shown in Fig. 1, the inclined sides of slots F and G strike the pins or rivets I and J, forcing A downward, so that its projections interlock with those of piece B.

The lever C and the top piece A, Fig. 1, are so arranged that when not in a press the end D may be depressed lower than the base-line of H. This draws the piece A forward sufficiently far to bring the tongue L at the bottom of the slot F out from under the pin or rivet I. In this position that end of the piece A may be tilted up free of the rivet, and thus A may be easily taken out of the machine. In this manner pieces similarly constructed but with top surfaces adapted to different kinds of work may be substituted one for the other in the same machine.

I am aware that prior to my invention machines have been made for use in printing-forms having printing-surfaces arranged to be raised to type-height on contact with tympan and lowered when the impression was removed by means of a wedge pressing against end of part to be raised, by means of pins passing through oblique slots in the part to be raised, by means of pivoted levers pressing against but not connected with the part to be raised, or by means of a sliding piece moving under the part to be raised and actuating same upon the principle of a wedge, the same forming an intermediate part between the pivoted lever and the part to be raised, and for any such construction I claim no rights as inventor.

What I do claim as my invention is—

65 1. In a machine for the purpose set forth, the combination of a case, a longitudinally

and obliquely moving blade or die located in said case having a close series of horizontal bearings along the whole of its lower edge separated by narrow oblique slots inclined toward the lever end of said case, a bottom part or base riveted in said case under said blade, having along its upper edge a close series of horizontal bearings separated by narrow oblique slots inclined away from the lever end of said case, the slots of said lower part or base adapted to receive and interlock with the bearings of said blade, and those of said blade to receive and interlock with the bearings on said base, a spring lying under said riveted base next to the lever end of said case, and a pivoted lever located within the sides of said case having upon its outer side a depressible arm, upon the bottom of its inner side a sprock engaging said spring and operating to raise the outer arm of said lever, upon its upper inner side a slot engaging with a sprock upon said blade or die and thereby actuating the same forward or backward; all as described and set forth.

2. In a machine for the purpose set forth, the combination of a case or frame with rivets passing through same, a longitudinally and obliquely moving blade adjustable within said frame having an open slot at each end extending from its outer edge inward adjustable upon said rivets within said frame and adapted to control said blade therein in its backward and downward movement, a pivoted lever incased in said frame at one end, engaging with said blade or die removably by means of a sprock and slot and adapted to actuate the same and having an outer arm depressible below the base-line of said frame when desired as a means of drawing said blade or die automatically forward far enough to release its slots from said rivets and allow said blade to be readily removed from said frame, all as described and set forth.

3. In a perforating, cutting, creasing or embossing attachment for printing-presses, the combination of a blade-case containing a cross-pin guide near each end, with a blade or die having a slot extending from its outer edge inward near each end each adapted to receive one of said cross-pins when the blade is placed in the case and hold the same therein and thereby control its backward and downward movement, the same arranged in such manner that said blade or die may be automatically removed from said case by drawing it forward free of said cross-pins and tilting the blade upward, all as described and set forth.

4. In a perforating, embossing or creasing device for printers' use, the combination of a blade-case, a toothed base-plate solidly affixed therein, an automatically-detachable toothed blade adapted to slide upon said toothed base-plate and be supported thereby, and a pivoted lever contained in said case adapted to

actuate said blade or die and automatically release same from said case; all substantially as described and set forth.

5 5. In a perforating or embossing device for use in printing-presses, the combination of an open slotted blade, a sprock extending therefrom, a pivoted lever carrying a slot to receive said sprock detachably and adapted to actuate said blade and to automatically re-
10 lease said blade from said case when desired, all as described and set forth.

6. In a perforating, cutting, creasing or embossing machine for use on printing-

presses, a spring-returned lever adapted to actuate the working blade or die, in combi- 15
nation with a spring seated in a recess under the base-plate or supporting-bar, adapted to actuate said lever in its return movement; all as described and set forth.

In testimony whereof I affix my signature 20
in presence of two witnesses.

LYMAN R. DAMON.

Witnesses:

FANNIE B. DAMON,
THOS. H. B. PIERCE.