(No Model.)

W. P. KASTENHUBER, P. H. WUAGNEUX & R. I. STATES

PERFORATOR FOR PRINTING PRESSES.

No. 485,547. Patented Nov. 1, 1892.

Fig. 1.

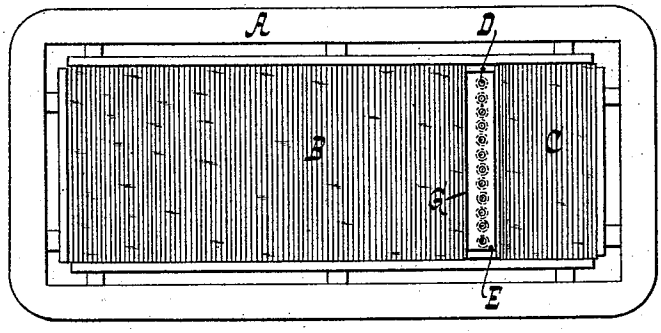


Fig. 2.

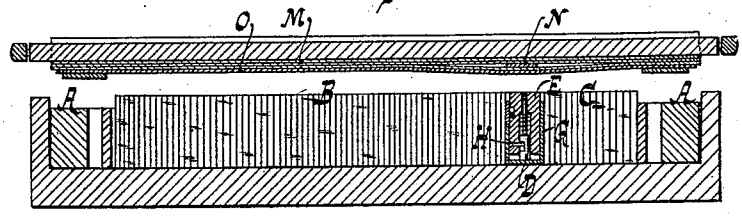


Fig. 3.

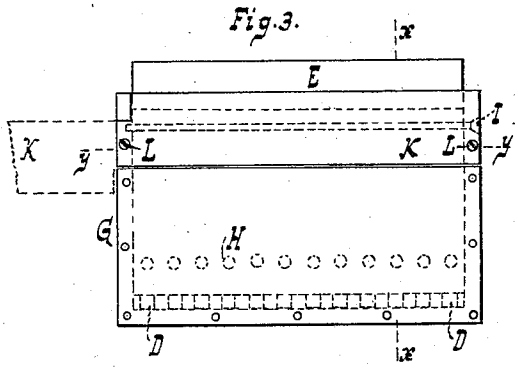


Fig. 8.

Fig. 4.

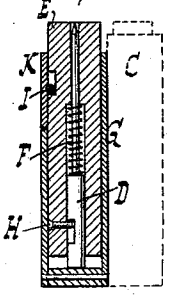


Fig. 5.

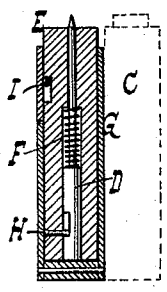


Fig. 6.

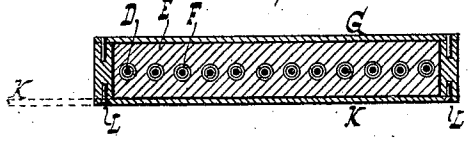
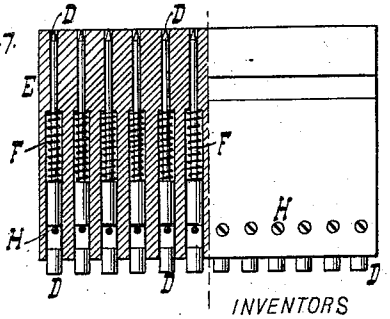


Fig. 7.



WITNESSES:

William H. Miller

Edward Wolff.

INVENTORS

William P. Kastenhuber

Philip H. Wuagneux

Robert I. States

by Van Santvoord & Hauff

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM P. KASTENHUBER, PHILIP H. WUAGNEUX, AND ROBERT I. STATES, OF JERSEY CITY, NEW JERSEY.

PERFORATOR FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 485,547, dated November 1, 1892.

Application filed December 17, 1891. Serial No. 415,416. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM P. KASTENHUBER, PHILIP H. WUAGNEUX, and ROBERT I. STATES, citizens of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Perforators for Printing-Presses, of which the following is a specification.

This invention relates to an improvement in perforators for printing-presses; and the invention consists in the details of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a plan view of the perforator in a chase. Fig. 2 is a sectional view of the tympan-sheet and perforator. Fig. 3 is a side elevation of the perforator. Fig. 4 is a section along *x x*, Fig. 3. Fig. 5 is a view similar to Fig. 3, showing the guard pressed back or down. Fig. 6 is a section along *y y*, Fig. 3. Fig. 7 is a side elevation, partly in section, of a guard. Fig. 8 shows a modification.

In the drawings the letter A indicates a chase having two sets or pages of type locked therein. If the type set B is intended, for example, to print the body of a check and the type set C the stub, it is of advantage to have the stub and body partly separated by a series of perforations to enable the check to be readily torn or separated from its stub. To effect such perforations, we provide a perforator consisting of a series of independent perforating-instruments or needles D. The perforating-instruments are provided with an elastically-supported guard or sheath E, which ordinarily envelops the points or perforating parts of the instrument D, as seen in Fig. 4, so that when the ink-roller is run across the form such ink-roller does not come into contact with the perforating-instrument. Injury to the ink-roller is thus avoided. When the printing operation takes place, the pressure exerted is such that the paper which is being printed is forced against the type and against the guard E with sufficient force to press back the guard and expose the perforating-instruments, so that the latter pierce the paper at the required points.

The guard E is elastically supported by the springs F. Said springs are supported on suitable shoulders or projections on the perforating-instruments or needles, and said springs in turn support the guard. The needles and guard are connected by pin-and-slot connections, the pins being indicated by H, and this connection prevents the needles and guard from separating, while allowing the guard certain play independently of the needles. The pins H are shown secured to the guard and extending into slots in the needles; but of course said pins might be secured to the needles, and the slots in that case would be formed in the guard. The guard slides in a guide G. This guide is shown in the form of a suitable box or trough, which can be locked into the chase along with the type. The guard is shown as being a common guard for the series of needles. The guard has a certain play in the guide G; but the guard is prevented from coming out of the guide by a pin-and-slot connection, the pin or shoulder being indicated by I. This pin or shoulder I can be formed by a screw secured in proper position to the guide, or such shoulder I may be cast or otherwise formed on the guide; or, if desired, the guide may be slotted and the pin I made to extend from the guard E. By making the portion K of the guide which carries the pin or shoulder I removable said portion K, with the pin I, need only to be removed to enable the guard E to be taken out as desired. Screws or fastenings L are shown as holding the removable portion K in place. In Fig. 8 the shoulder I is shown cast or formed integral with the portion K.

By having needles or perforating-instruments fixed in position, as shown, and making the guard movable the needles will not be able to yield, so that they will pierce the paper when required and will be reliable in their action.

In Figs. 4 and 5 the guard is shown in its highest and lowest position, the type being indicated in said figures by the letter C.

The top or point of the perforator or needle D and the top face of guard E when the latter is in its highest position are on a level with the top surface of the type.

In operation the tympan-sheet is perforat d by the needles D; but as the perfora-

tions are isolated from one another, so that the tympan-sheet is not cut or slitted, the perforations do no practical harm to the tympan-sheet. To increase the pressure along the points of the perforators or needles F, a piece of card-board or like material may be secured or pasted to the tympan-sheet at the place where the perforating-points strike.

In Fig. 2 is shown a card-board strip secured to the tympan-sheet to increase the pressure along the points or prickers. The tympan-sheet is indicated in the drawings by M, Fig. 2, and the card-board strip by N. The tympan-sheet may consist of several thicknesses of paper and the card-board strip either placed on top of the thicknesses or between the thicknesses. In the drawings it is shown between the thicknesses. The sheet of paper O to be printed on is shown between the tympan-sheet and the top of the form.

To prevent the top of the guard smutting the printed sheet in consequence of the guard being inked when on a level with the top faces of the type, the top face of the guard is either engraved or embossed to produce an ornamental impression when its inked face strikes the sheet, or the face of the guard might be made of material which does not take ink; but we prefer the former method.

As the needles are independent of one another, any one needle can be readily removed when injured or dulled without disturbing the other, and as the needles are formed solid or from suitable wire or rods of metal they can be readily sharpened whenever necessary. As each needle has a spring for elastically supporting the guard, the breakage or weakening of one spring will not interfere with the operation of the device.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a perforator for printing-presses, the combination, with a series of independent or isolated solid fixed perforating-instruments or needles, of a guard common to said needles and elastically supported on each of them and a fixed guide for the guard, substantially as described.

2. In a perforator for printing-presses, the combination, with a series of independent or isolated solid fixed perforating-instruments or needles, of an elastically-supported guard surrounding the perforating-instruments, and a guide for the guard, said perforating-instruments and guard being connected by a pin-and-slot connection, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

WILLIAM P. KASTENHUBER.
PHILIP H. WUAGNEUX.
ROBERT I. STATES.

Witnesses:
WM. C. HAUFF,
E. F. KASTENHUBER.