O. F. HILGENDORF & W. C. PALMER.

PRINTING PRESS.

APPLICATION FILED JAN. 28, 1914. RENEWED APR. 12, 1917.

1,246,268.

Patented Nov. 13, 1917.

3 SHEETS—SHEET 1.

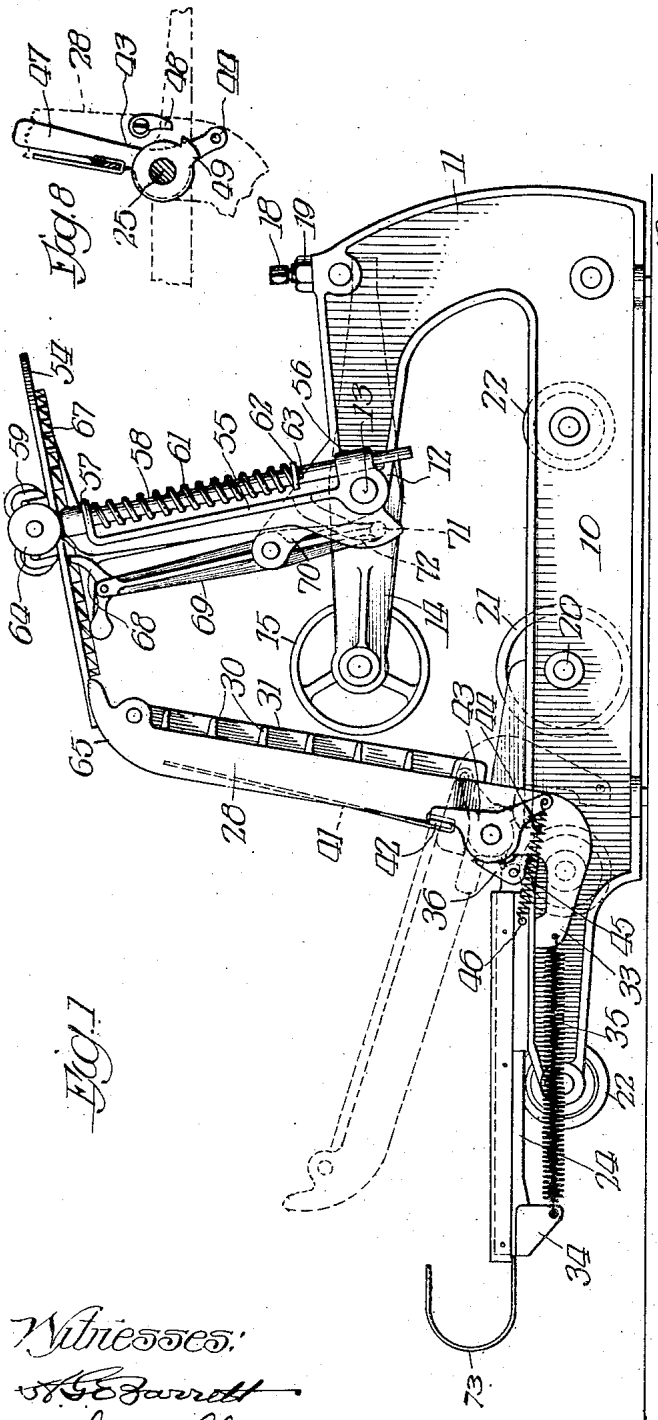

FIG. 1

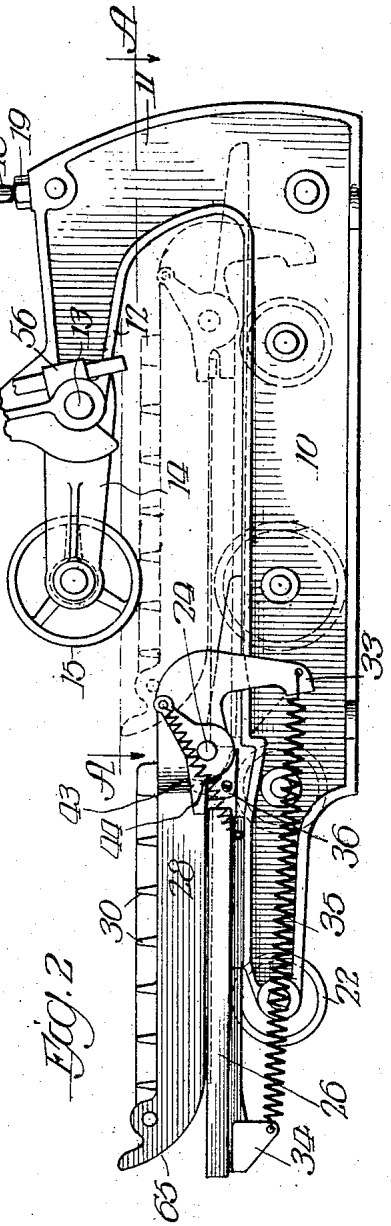

FIG. 2

Witnesses:
H. G. Barrett
Mildred Elsner

Inventors:
Otto F. Hilgendorf
William C. Palmer
By John Howard McElroy
their Atty.

O. F. HILGENDORF & W. C. PALMER.

PRINTING PRESS.

APPLICATION FILED JAN. 28, 1914. RENEWED APR. 12, 1917.

1,246,268. Patented Nov. 13, 1917.

3 SHEETS—SHEET 2.

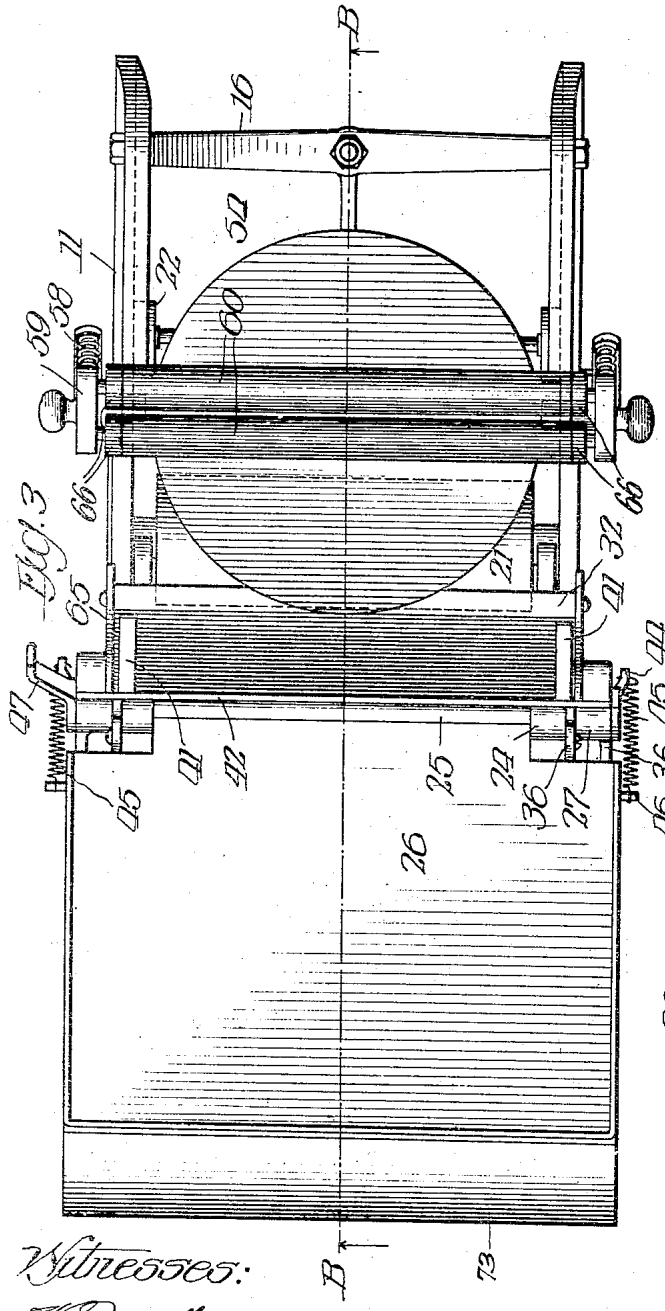

Fig. 3

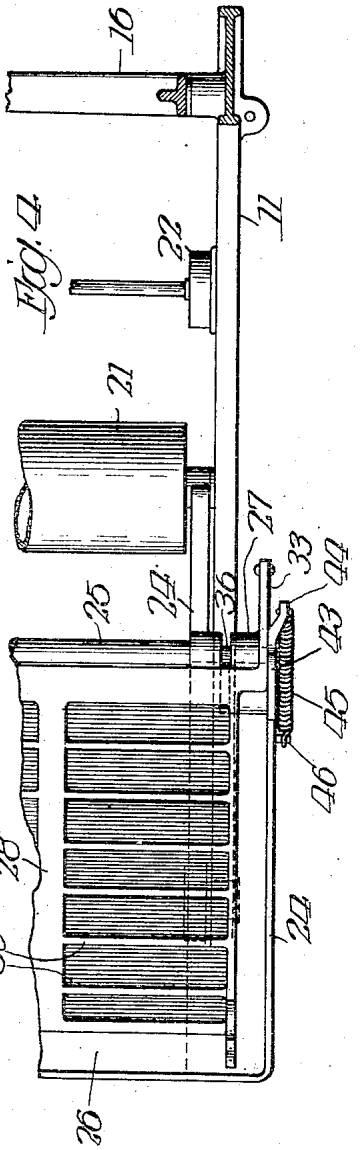

Fig. 4

Witnesses:

Mildred Elsner.

Inventors:

Otto F. Hilgendorf and

William C. Palmer

By John Howard McElfatrick

O. F. HILGENDORF & W. C. PALMER.

PRINTING PRESS.

APPLICATION FILED JAN. 28, 1914. RENEWED APR. 12, 1917.

1,246,268. Patented Nov. 13, 1917.

3 SHEETS—SHEET 3.

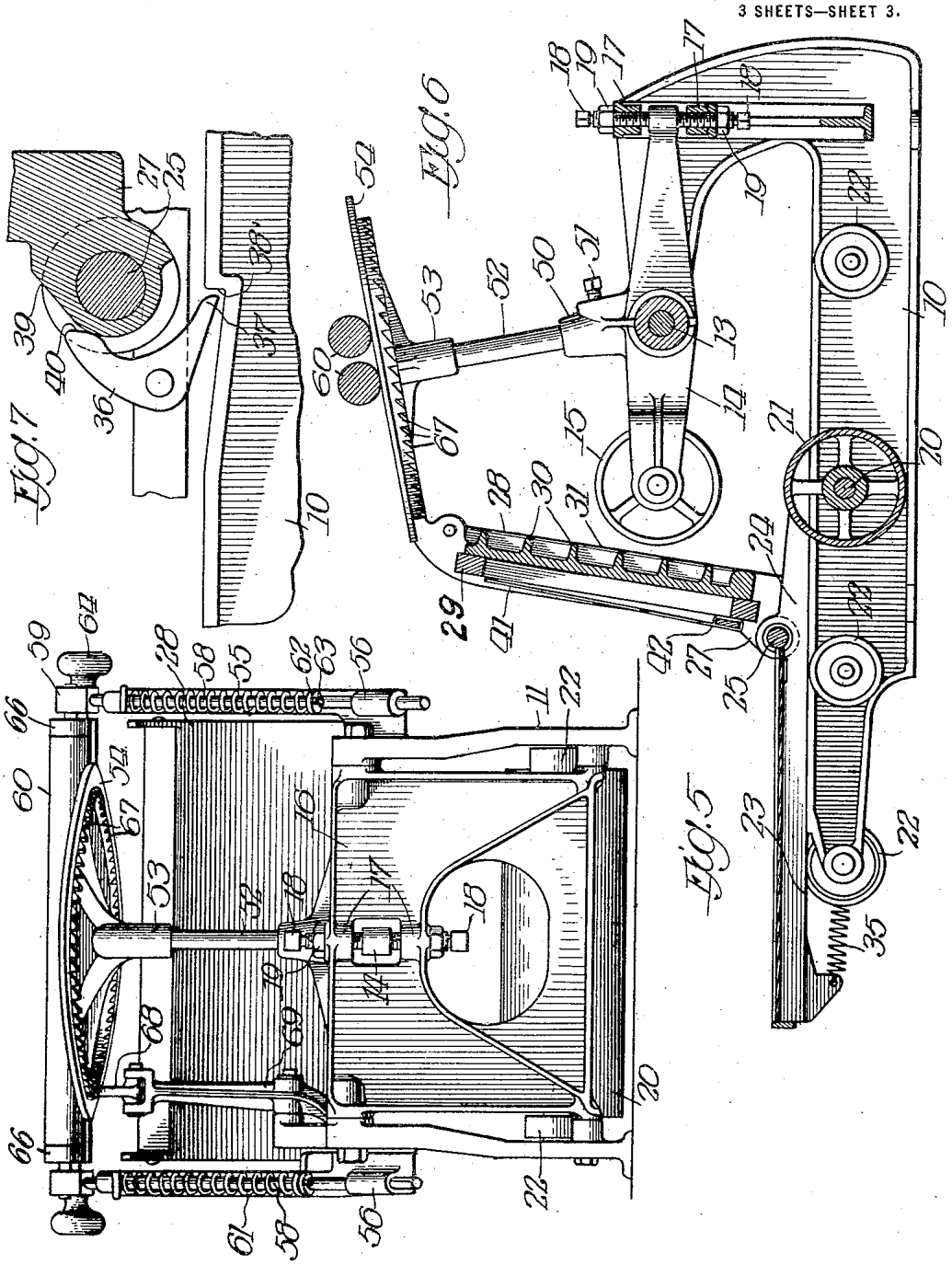

FIG. 7

FIG. 6

FIG. 5

Witnesses
A. G. Garrett
Mildred Elsner

Inventors.
Otto F. Hilgendorf
William C. Palmer,
By John Howard McElroy
their Atty

UNITED STATES PATENT OFFICE.

OTTO F. HILGENDORF AND WILLIAM C. PALMER, OF CHICAGO, ILLINOIS, ASSIGNORS TO KELOE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PRINTING-PRESS.

1,246,268. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed January 28, 1914, Serial No. 814,876. Renewed April 12, 1917. Serial No. 161,677.

To all whom it may concern:

Be it known that we, OTTO F. HILGENDORF and WILLIAM C. PALMER, citizens of the United States, and residents of Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Printing-Presses, of which the following is a full, clear, and exact specification.

Our invention is concerned with hand printing-presses, and is designed to produce a simple structure of the class described, which can be expeditiously and easily operated, and which will be capable of printing letterheads, or even complete circular letters, etc., with all necessary clearness of the impression.

To this end, our invention consists of a carriage mounted to move horizontally between an upper pressure roller coöperating with the back of the type-bed frame and a lower contact roller coöperating with a thin sheet-metal platen to force the latter upward to force the paper thereon against the type to secure the desired impression. When the carriage is withdrawn from between the rollers after taking an impression, the pivoted type-bed is swung up with its free end adjacent an inking plate, so that inking rollers movable thereover can be run down over the type between impressions and while the printed sheet is being removed and a blank one substituted.

To illustrate our invention, we annex hereto three sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which,—

Figure 1 is a side elevation of the press, with the type-bed shown in its elevated position in full lines, and in process of being lowered in dotted lines;

Fig. 2 is a similar view, with the upper part broken away, but showing the type-bed just thrown down in its full-line position, and shoved beneath the pressure roller in its dotted-line position;

Fig. 3 is a top plan view of the machine, with the parts in the position shown in Fig. 1;

Fig. 4 is a similar view, in section on the line A—A of Fig. 2;

Fig. 5 is a rear elevation of the press;

Fig. 6 is a section on the line B—B of Fig. 3;

Fig. 7 is a detail, partly in section, on an enlarged scale; and

Fig. 8 is a detail of a portion of the left-hand side of the machine, being opposite to the one shown in Fig. 1.

The framework of the machine comprises a rectangular base portion 10, having projecting upward from the rear portion thereof arms 11, which have inwardly directed ends 12 carrying a bearing rod 13, on which is mounted a pressure-roller-supporting lever 14, having the pressure-roller 15 journaled in the forked front end thereof. The rear end of this lever 14 projects between the lugs 17 and 17 formed in the connecting piece 16 of the frame. A pair of upwardly and downwardly extending screws 18 are threaded through these lugs and secured in any desired position of adjustment by lock nuts 19 threaded thereon. By adjusting the positions of these screws 18, the ends of which contact with the rear end of the lever 14, the precise position of the roller 15 can be adjusted to regulate the amount of pressure brought upon the platen when the platen and type-bed are passed beneath the roller 15.

The horizontal portion 10 of the framework has journaled therein on a bearing shaft 20, directly beneath the pressure roller 15, a contact roller 21, which is preferably in the form of a comparatively elongated cylinder so as to contact with a considerable width of the platen to be hereinafter described. Journaled on the sides of the frame, three on each side, are six anti-friction rollers 22, upon which rest the rails 23 constituting the sides of the rectangular frame of the carriage 24. Extending across the carriage 24, toward the rear end thereof, is a bearing shaft or rod 25, upon which is pivoted the thin sheet-metal platen 26, which fits somewhat snugly in the frame 24, as is best seen in Fig. 3. Pivoted on the ends of the shaft 25 are the bearings 27 of the type-bed frame 28. The rectangular chase frame 29 (see Fig. 6) is secured on the flat bottom of the type-bed plate 28, and the type will of course be secured in position on this plate in the customary manner. The entire type-bed plate, including the bearings 27, is preferably a single casting, suitably reinforced by transverse ribs 30 to give it strength, and a single longitudinal rib 31 is suitably located and

planed off smooth to furnish a bearing surface to contact with the pressure roller 15. Secured in the upper end of the type-bed frame 28 is a handle 32, preferably in the form of a wooden cylinder, by which the type-bed frame may be swung down from the vertical position shown in Figs. 1 and 6 to the horizontal position shown in Fig. 2. When thrown down in the horizontal position, the type are brought into engagement with the blank sheet in place on the platen, and the carriage is shoved to the rear on the anti-friction rollers 22, as shown in dotted lines in Fig. 2. During its movement to the rear, the under side of the sheet-metal platen 26 is forced into engagement with the contact roller 21 and a clean-cut impression is made, and it will be obvious that by regulating the position of the roller 15 by the set screws 18, any desired degree of pressure can be obtained.

It is desirable to counterbalance the weight of the type-bed, and for this purpose we form on both sides thereof an arm 33 extending substantially at right angles to the body of the frame, and secure between the end of this arm 33 and a lug 34 projecting downward from each of the forward corners of the frame 24, a strong, helically-coiled contractile spring 35. These springs normally hold the type-bed in the vertical position shown in Fig. 1, and when it is swung down to take an impression the springs are put under tension, which tension tends to raise the type frame as soon as it has been drawn back to its forward position after an impression has been taken.

To prevent any attempt to shove the type-bed and platen carriage beneath the rollers before the type-bed has been thrown down to the impression-taking position, we employ the locking mechanism best shown in Fig. 7, where it will be seen that a dog 36 is pivoted to the frame 24 in position so that its end 37 engages the vertical shoulder 38 of a recess formed in the frame 10. Formed on the arm 27 of the type-bed frame is a cam surface 39 suitably located to engage the upper end 40 of the dog 36 and to lock said dog to disengage the end 37 from the shoulder 38 when the type-bed has been swung down to the impression-taking position.

We preferably employ a pair of fingers 41 to hold the sheet to be printed on the platen 26, and these fingers are preferably joined to a bar 42 which is connected to arms 43, which are likewise journaled on the bearing rod or shaft 25 adjacent the arms 27. The arms 43 have extensions 44 normally projecting downward, as seen in Fig. 1, and connected to these extensions 44 are helically-coiled contractile springs 45, which have their other ends connected at 46 to the platen-frame 24. The position of these springs is such that they tend to hold the fingers either up, as shown in Fig. 1, or down, as shown in Fig. 2. At the left-hand side of the machine, we secure on the left-hand arm 43 a handle 47, by which the fingers may be swung down to hold the paper to be printed in position before the type-bed is swung down to take the impression. It is desirable to be able to lift the type-bed up far enough to see whether a good impression has been taken before the fingers 41 are thrown up to release the paper to be printed, so that the paper will remain in place and the type-bed can be thrown down to take another impression if the first one is not good, and for this purpose we mount on the left-hand side of the type-bed frame 28 a dog 48, which is in position to coöperate with a shoulder 49 on the arm 43 on that side of the frame. It will be noted that there is considerable lost motion between the dog 48 and the shoulder 49, so that when the type-bed is raised, the shoulder 49 is not engaged by the dog 48 until the type-bed has been raised far enough so that the operator can see the impression. When the dog 48 finally does contact with the shoulder 49, it quickly moves the arms 43 past the center, so that the springs 45 will cause the fingers to fly up and engage the type-bed as it nears its vertical position.

To ink the type, we secure in the vertical bearing 50, mounted on the shaft 13 by a set screw 51, a substantially vertical shaft 52, on the upper end of which is journaled, by a bearing 53, the circular inking plate 54. The shaft 13 has journaled on its outer ends arms 55, which have bearings 56 at their lower ends and bearings 57 at their upper ends, through which bearings extend rods 58, which have secured at the upper ends thereof heads 59, in which are journaled two inking rollers 60 of the customary type, by which the ink is taken from the inking plate 54. A helically-coiled expanding spring 61 surrounds each of the rods 58, and is secured between the bearings 57 and washers 62 held in place on the rods 58 by pins 63. With this construction, it will be obvious that the tension of the springs 61 will hold the rollers 60 in engagement with the upper surface of the inking plate 54, while permitting them to roll freely over said plate. The heads 59 are each provided with handles 64 extending outwardly therefrom, by which the rollers are manipulated. When the type-bed is swung up to its vertical position, as shown in Figs. 1 and 6, the curved portions 65 formed on the free ends thereof are in position to receive guide rollers 66 adjacent the ends of the inking rollers 60, to guide the inking rollers on to the type-bed, as it will be understood that the inking rollers 60, after being

swung across the inking plate 54 to receive a fresh supply of ink, are swung on down over the type-bed to ink the type frame to take an impression.

To automatically rotate the inking plate 54 step by step, we provide on the under side of said plate a circular row of ratchet teeth 67, which are adapted to be engaged by a dog 68 pivoted on the upper end of a lever 69 fulcrumed on an arm 70 extending from the adjacent arm 11 of the main frame. The lower end of the lever 69 is provided with a pin 71 which extends into a cam slot 72 formed in the lower end of the adjacent arm 55, so that as the inking rollers are swung down over the type-bed, the lever 69 is reciprocated sufficiently for the dog 68 to advance the inking plate the distance of one tooth.

One of the uses for which our press was especially designed is printing the general titles on a series of tracings, so as to obviate the necessity of drawing the text common to all the titles by hand, and as these titles are printed in the corners of large tracings, we preferably provide a roll holder 73 (seen in side elevation in Fig. 1 and in top plan view in Fig. 3) preferably constructed of sheet metal and U-shape in section, and having the lower side thereof extending horizontally from the outer end of the platen so that the open portion is toward the platen, so that the main portion of a large tracing rolled up can be placed in said holder, while a sufficient portion thereof is unrolled over the platen to enable the general text of the title to be printed in the desired corner.

The operation of our improved device will now be readily apparent, and it will be seen that we have produced a simple construction by which impressions can be rapidly taken by a simple hand manipulation heretofore described.

While we have shown and described our invention as embodied in the form which we at present consider best adapted to carry out its purposes, it will be understood that it is capable of modifications, and that we do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What we claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a thin elastic platen supported at only one of its four sides extending horizontally on said carriage, a contact roller journaled in the framework over which the platen passes as the carriage is reciprocated, a type-bed on the carriage movable to and from the platen, and a pressure member carried by the framework cooperating with the type-bed as the carriage is reciprocated.

2. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a thin elastic platen supported at only one of its four sides extending horizontally on said carriage, a contact roller journaled in the framework over which the platen passes as the carriage is reciprocated, a type-bed on the carriage movable to and from the platen, and a pressure roller journaled in the framework cooperating with the type-bed as the carriage is reciprocated.

3. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a platen extending horizontally on said carriage, a type-bed on the carriage movable to and from the platen, means for forcing the platen and type-bed together as the carriage reciprocates, and a lock to prevent movement of the carriage until the type-bed is moved into contact with the platen.

4. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a platen extending horizontally on said carriage, a type-bed on the carriage movable to and from the platen, means for forcing the platen and type-bed together as the carriage reciprocates, a recess in the framework, a dog pivoted on the carriage, and a cam on the type-bed coöperating with the dog to lift it from the recess when the type-bed is brought into engagement with the platen.

5. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a platen extending horizontally on said carriage, a type-bed on the carriage movable to and from the platen, means for forcing the platen and type-bed together as the carriage reciprocates, fingers to hold the paper on the platen moved into engagement therewith as the type-bed is moved toward the platen, and means for automatically raising the fingers after the type-bed has been raised far enough to see the impression, but not before.

6. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a platen extending horizontally on said carriage, a type-bed on the carriage movable to and from the platen, means for forcing the platen and type-bed together as the carriage reciprocates, fingers to hold the paper on the platen moved into engagement therewith as the type-bed is moved toward the platen, a pivoted frame carrying said fingers, an arm on the finger-frame, a spring attached to said arm and moved past its center to hold the fingers either raised or lowered, and connections between the type bed and finger frame for

carrying the finger-frame down with the type bed and raising it after an interval on its return movement.

7. In a printing press, the combination with a framework, of a carriage movable transversely thereon, a platen extending horizontally on said carriage, a type-bed on the carriage movable to and from the platen, means for forcing the platen and type-bed together as the carriage reciprocates, fingers to hold the paper on the platen moved into engagement therewith as the type-bed is moved toward the platen, a pivoted frame carrying said fingers, an arm on the finger-frame, a spring attached to said arm and moved past its center to hold the fingers either raised or lowered, and connections between the type bed and finger frame for carrying the finger-frame down with the type bed and raising it after an interval on its return movement, said connections including a dog carried by the type-bed, and a lug on the spring frame coöperating therewith.

8. In a printing press, the combination with a track framework, of a horizontal carriage movable to and fro on the track from its feeding to its printing position, a platen thereon, a type-bed pivoted on the carriage so as to be swung down upon the platen or to a vertical position away from it, an inking plate, an inking-roller frame having rollers journaled therein and adapted to be swung over the inking plate and the type-bed when the latter is raised, and means for forcing the type-bed and platen together when the former is lowered and the carriage is moved from its feeding position to its printing position.

9. In a printing press, the combination with a track framework, of a horizontal carriage movable to and fro on the track from its feeding to its printing position, a platen thereon, a type-bed pivoted on the carriage so as to be swung down upon the platen or to a vertical position away from it, an inking plate, an inking-roller frame having rollers journaled therein and adapted to be swung down over the platen and type-bed when the latter is raised, guide-pieces on the type-bed to direct the rollers onto it as they leave the inking plate, and means for forcing the type-bed and platen together when the former is lowered and the carriage is moved from its feeding position to its printing position.

In witness whereof, we have hereunto set our hands and affixed our seals, this 16th day of January, A. D. 1914.

OTTO F. HILGENDORF. [L. S.]
WILLIAM C. PALMER. [L. S.]

Witnesses:
JOHN HOWARD MCELROY,
MILDRED ELSNER.