

(No Model.)

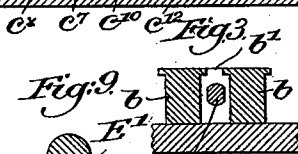
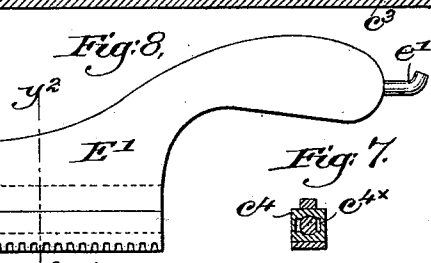
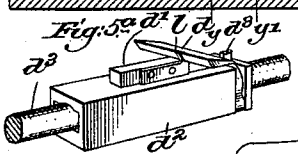
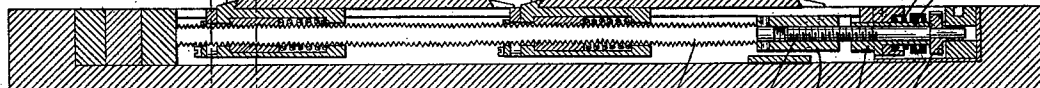
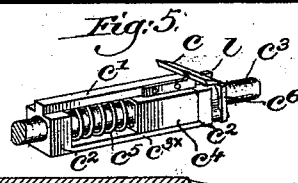
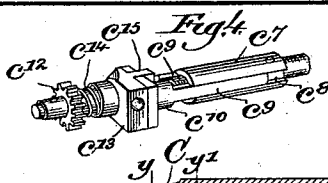
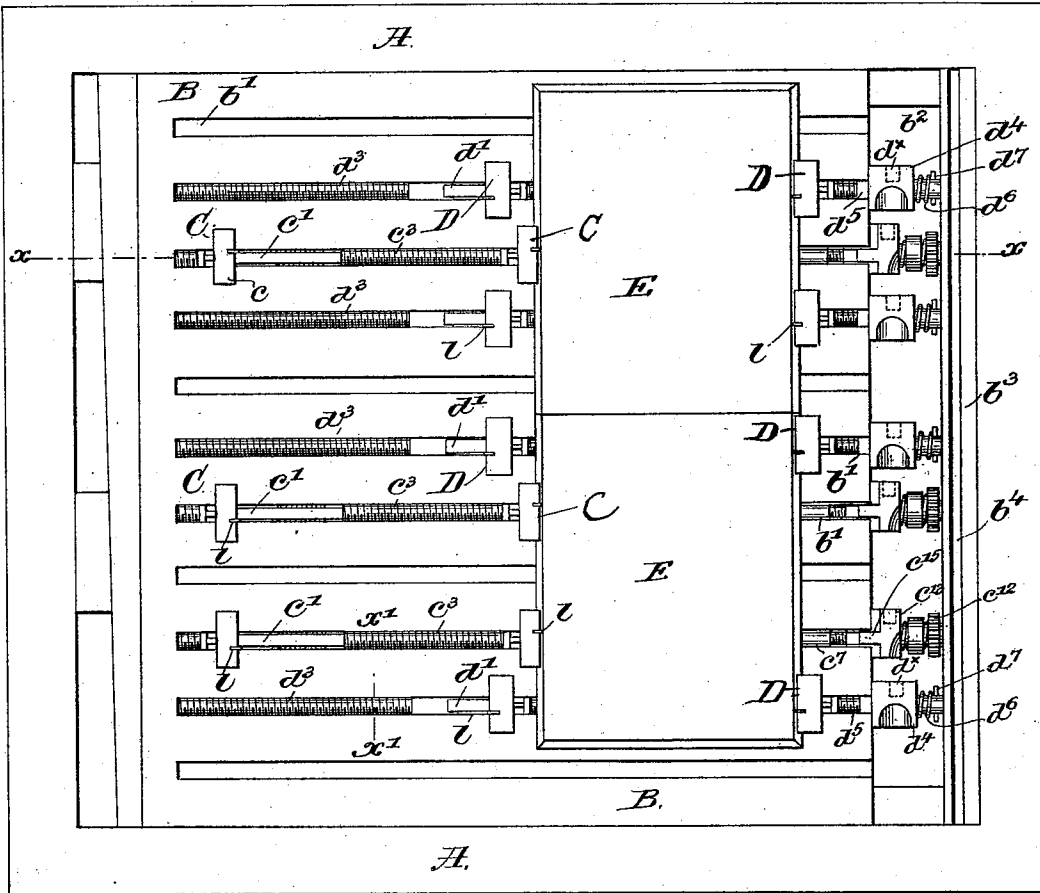
J. J. FLOYD.

STEREOTYPE HOLDING DEVICE FOR PRINTING PRESSES.

No. 540,909.

Patented June 11, 1895.

Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN J. FLOYD, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
ELISHA HARDING, OF SAME PLACE.

STEREOTYPE-HOLDING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 540,909, dated June 11, 1895.

Application filed January 26, 1895. Serial No. 536,327. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. FLOYD, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Stereotype-Holding Devices for Printing-Presses, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a novel device for use in connection with printing presses to hold one or more stereotypes or electrotypes in proper printing position upon the bed of the press, whether the latter be stationary or movable.

My invention is particularly adapted for clamping a plurality of stereotype plates in a single frame or bed, as distinguished from devices heretofore employed, wherein as many different frames are required as there are plates to be used.

In the preferred embodiment of my invention, therefore, I employ two or more sets of clamps, each set co-operating to hold a single plate, and preferably the clamps for two or more plates being operated simultaneously during the clamping operation. In the preferred construction, one set of clamps, while adjustable as to position, remains in fixed adjusted position during the clamping operation, the clamping movements being performed entirely by the other set of clamps. These clamps are preferably arranged in slots or recesses in the frame, which slots act as guides for the clamps in their movements.

The above, together with other features of my invention, including the means for operating the clamps and the yielding devices to compensate for unevenness in the adjustment, &c., will be hereinafter fully described and set forth in the claims.

Figure 1, in top or plan view, represents a portion of a printing-press bed with my novel holding device arranged thereon, two stereotype-plates being shown in position in the holding device. Fig. 2 is a longitudinal section on the dotted line $x x$, Fig. 1; Fig. 3, a cross-sectional detail on the dotted line $x' x'$; Figs. 4, 5, and 5^a, perspective details to be referred to; Fig. 6, a sectional detail on an enlarged scale, taken on the dotted line $y y$,

Fig. 2; Fig. 7, a cross-sectional detail on the dotted line $y' y'$; Fig. 8, a side view of the operating-rack and its handle; and Fig. 9, a cross-section of the same, taken on the dotted line $y^2 y^2$.

In the particular embodiment of my invention selected and for illustration shown in the drawings, A is a rectangular ledge or wall arranged upon and, it may be, a part of the bed,—whether movable or fixed,—of a usual printing press, it being the usual ledge or wall, within which the type and stereotype blocks are usually blocked or clamped.

B is a frame made up of a series of T-shaped bars b , separated, as shown in Figs. 1 and 3, to leave slots b' between the edges of the heads of the said bars, these slots b' at one end of the frame opening into an end opening b^2 , extending across the ends of all the slots, as shown in Fig. 1.

C and D are the clamps which hold the stereotype plates E in position upon the frame.

The clamp C, shown separately in Fig. 5, consists of a clamping head c , mounted upon one end of a guide-bar c' , fitting and adapted to slide in one of the slots b' in the frame, the said guide-bar c' at its opposite ends having two depending end pieces c^2 , which are connected at their bottoms by an under plate c^3 . See Fig. 5. The end pieces c^2 are shown as shaped to fit and slide in the guide-ways formed by the enlarged portions of the recesses beneath the overhanging heads of the T shaped bars b , as best shown in Fig. 3. The threaded carrier rod c^3 , between the end pieces c^2 of the clamps, passes through the interiorly threaded block c^4 held against one of the end pieces by a spring c^5 . See Figs. 2 and 5.

Referring to Fig. 7, the carrier rod c^3 is flattened at its opposite sides, and the opening in the block c^4 , through which it passes, is rectangular in shape, it being threaded at top and bottom only, so that when the carrier rod is turned into a vertical position, as in full lines Fig. 7, the threads at its upper and under sides will engage the threads at the top and bottom of the rectangular opening c^4 in the said block c^4 , and will lock the block to the carrier rod, but when the carrier rod is rotated through ninety degrees upon its side, as

in Fig. 6, its threads will be disengaged from the threads at the top and bottom of the slot in the block, thereby permitting the block and its connected clamp to be slid freely along the threaded carrier rod for adjustment, as will be hereinafter described.

When the threaded carrier rod is turned upon its side, as in Fig. 6, to disengage it from the block, and it is desired to turn it again into its upright position to engage the block, there would ordinarily be danger of the threads upon the rod and in the block not engaging each other properly. To insure proper threaded engagement when the rod is rotated into its upright position, I have provided one of the end pieces c^2 of the clamp with a pivoted engaging device c^6 , which normally stands in its outermost disengaging position. Shown in dotted lines, Fig. 6. When the clamp has been slid along the rod into approximate adjusted position, the engaging device is thrown into its full line position Fig. 6, causing its threads to engage the threads at the sides of the downturned carrier-rod. The threads upon the engaging device being properly registered with the threads in the block c^4 , the rod may now be safely turned into its upright position, for the threads upon the engaging device will hold the carrier rod in such longitudinal position as will insure proper engagement of its threads with the threads of the block. As many of these clamps C and D may be mounted upon a single carrier rod as desired, I having herein shown two upon each rod. See Figs. 1 and 2.

Referring, now, to Fig. 2, the carrier rod c^3 at one of its ends, herein shown at the right, is fixedly attached to and against rotation by a cylindrical block c^7 located within the enlarged portion of the recess b^2 , between adjacent bars of the frame, and grooved at its sides, as indicated at c^8 Fig. 4, to receive the two arms c^9 , projecting forwardly from a block c^{10} standing in position against the ends of the bars b . This block c^{10} has a rearwardly extended sleeve c^{11} , within which is located a threaded clamping rod c^x , in threaded engagement with the cylindrical block c^7 , and loosely rotatable in the sleeve of the block c^{10} , it having fast upon it at the end of the sleeve c^{11} a pinion c^{12} , by which it may be rotated. Loosely mounted upon the sleeve c^{11} is a locking block c^{13} adapted to slide on the said sleeve, and held normally in its position at the left Fig. 2 by a spring c^{14} , interposed between it and the pinion c^{12} , the said locking block having a fin c^{15} , passing through a slot in the block c^{10} and entering the end of the narrowed or neck portion of the slot b' between the two adjacent bars b . This fin entering the slot b' restrains the locking block c^{13} , the block c^{10} and the cylindrical block c^7 and its attached carrier rod against rotation.

It will be evident that rotation of the pinion c^{12} will rotate the actuator rod c^x , and move the cylindrical block c^7 and its attached carrier rod with its clamps in one or the other

direction, according to the direction of rotation of the actuator rod.

The clamps C face to the right, Fig. 1, while the clamps D face to the left, the latter clamps, one of which is shown in Fig. 5^a, consisting of the clamping heads d , fast upon one end of the short guide-rib d' on the upper side of a block d^2 , adapted to slide in the guide-way formed between adjacent bars, the rib d' moving between the narrow portion of the groove between adjacent head portions of the bars. These clamps D are likewise mounted upon threaded carrier rods d^3 , similar in shape to the carrier rods c^3 , and having flattened sides, as with the rods c^3 , the said carrier rods being extended to the right, Fig. 1, and splined to the block d^4 , standing against the ends of the bars, and having a reduced portion d^5 , entering the groove between the bars to restrain the said block normally against rotation, a spring d^6 interposed between the back of the said block and a pin d^7 extended through the carrier rod, holding the said block normally against the ends of the bars, as shown.

The blocks d^2 on which the clamping heads are mounted, are provided with engaging devices d^8 similar in construction and operation to the engaging devices c^6 of the clamps C.

The ends of the carrier rods d^3 and those of the actuator rods c^x preferably enter and are journaled in suitable holes in the end piece b^3 of the frame, as best shown in Fig. 1, the said end piece b^3 being provided, as shown, with a longitudinal groove b^4 , to receive one of two like racks e , e , on the manual operating device E'. See Fig. 9.

In the preferred construction, there will be a large number of the longitudinal grooves or slots b' between adjacent bars b .

The frame is preferably made of sufficient size to hold several stereotype plates, the carrier bars and their clamps being properly disposed throughout the frame, to provide at least two or more opposing clamps for each plate. In the present instance of my invention, each plate is provided with three clamps, two acting in one direction and the third in an opposite direction on a line between the first two.

The operation of the device is as follows, assuming all the stereotype plates to be removed: The alignment of the printed matter being known, the clamps D are first fixed in adjusted position in the following manner, viz: The workman holding the operating device in his hand, inserts the end of the hook e' at the end of the handle of the device in the hole d^x , shown in dotted lines Fig. 1, in the side of the block d^4 , and slides the latter to the right on its carrier rod, compressing the spring d^6 until its fin d^5 is withdrawn from the slot b' between adjacent bars of the frame, and without removing the hook e' from the hole in the block, by means of the operating device, turns the block and the carrier rod splined thereto through ninety degrees to bring the flat sides

of the carrier rod into horizontal planes adjacent the threaded sides of the openings in the blocks d^2 , thereby permitting the said blocks to be slid along into desired aligned position, as shown in Fig. 1. The engaging devices d^3 are now thrown against the threaded sides of the carrier rods, the latter still in their horizontal positions, and the block d^4 returned by the operating device to its former position, engaging the threads of the carrier rod with the threads at the top and bottom of the clamp blocks d^2 , the said block d^4 springing again into its locking position at the left, as soon as its locking fin registers with the slot b' , referred to. The clamps D are now in their proper positions, and it is desired to clamp the stereotype plates against them to bring the said plates into proper printing position. The operator now places the plates E in position upon the frame and against the clamping heads d of the clamps D. He now, by means of the hook e' on the operating device E' , moves the blocks c^{13} of the carrier rods of the clamps C to the right Fig. 1, until their locking fins c^{15} have been disengaged from the slots b' in which they were held, and after such disengagement, the said blocks c^{13} are turned through an angle of ninety degrees, their locking fins c^{15} being still in the slots of the blocks c^{10} , causing the latter to be likewise turned, and through their arms c^9 , turn the cylindrical block c^7 and its threaded flat sided carrier rod also through ninety degrees, to disengage the said rod from its blocks c^4 , to which the clamps C are attached. The clamps C may now be slid freely along their carrier rods against the edges of the stereotype plates opposite those in contact with the clamps D, thereby moving the said clamps C into approximate locking position. The engaging devices c^6 are now thrown against the threaded edges of the downturned carrier rods, and the latter by means of the operating handle, turned again into their upright positions into locking threaded engagement with the blocks c^4 of the clamps, thereby again locking the clamps C upon the carrier rods. The operator now grasps the handle of the operating device and by holding the same with one of the racks in and to be guided by the guiding groove b^4 , moves the said rack from the bottom toward the top of the device Fig. 1, to cause its other rack to engage in succession the several pinions c^{12} , and rotate the same and their threaded actuator rods c^x , within the cylindrical block c^7 , such rotation of the actuator rods within the said blocks acting to draw the said blocks and their attached carrier rods and clamps C to the right Fig. 1, against the edges of the stereotype plates, to firmly clamp the same in position between the said clamps C and D. These clamps C may be drawn against the stereotype plates to clamp the latter in position as tightly as desired, and, inasmuch as the clamping is done by drawing the carrier rods c^3 to the right Figs. 1 and 2, and as the carrier

rods are in threaded engagement with the blocks c^4 between which and their clamps are interposed the springs c^5 , it will be evident that when the stereotype plates are fully clamped in position, further clamping movement of the carrier rods will act simply to compress the said interposed springs. These springs are also desirable as providing for any inaccuracy of the approximate adjustment of the clamps before the pinions are rotated, for, should one of the clamps C be moved into close contact with the edge of the stereotype plate in the preliminary approximate adjustment, and another one be separated therefrom a slight distance, the pinions would have to be rotated sufficiently to bring that clamp which is farthest separated from the plate, into clamping engagement therewith. Hence the spring of the clamp which was first moved into actual contact with the stereotype plate would necessarily be compressed sufficiently to permit the other clamp referred to, to be drawn against its plate.

In the present instance and preferably, the clamps C and D are provided at their clamping faces with locking projections or knife points l , which in the clamping operation are impressed into the usually thinned edges of the stereotype plates to positively hold them against displacement.

This invention is not limited to the particular construction herein shown and described, for it is evident the same may be varied without departing from the spirit and scope of the invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A holding device of the class described containing the following instrumentalities, viz:—a frame, a plurality of clamps arranged in substantially parallel series, two or more clamps all facing in the same direction in each series, the clamps in different series facing in opposite directions, means to cause simultaneous relative movement of the clamps of the respective series facing in opposite directions, to thereby clamp between them two or more stereotype plates, and springs to permit relative yielding movement of the clamps upon the respective rods to compensate for variations in positions of the plates engaged by said clamps, substantially as described.

2. A holding device of the class described, containing the following instrumentalities, viz:—a frame, a plurality of substantially parallel rods arranged therein and provided respectively with two or more clamps facing in the same direction, the clamps on different rods facing in opposite directions, springs interposed between some of the clamps and their respective rods, and means, acting through one or more of said rods, to draw their clamps to one side for clamping purposes, substantially as described.

3. A holding device of the class described,

containing the following instrumentalities, viz:—a frame, a carrier rod, two or more clamps adjustably mounted thereupon, and means to move the said rod longitudinally to cause a unison movement of the said clamps, substantially as described.

4. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a carrier rod upon which one of said clamps is mounted, means whereby the position of said clamp upon the said carrier rod may be changed, and means to longitudinally move said carrier rod and thereby its clamp, for clamping purposes substantially as described.

5. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a threaded carrier rod upon which one of said clamps is mounted, the said rod having one or more flattened faces, means to rotate the said carrier rod with relation to said clamp to disengage the said clamp and rod, and means to longitudinally move the said carrier rod and its attached clamp, substantially as described.

6. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a carrier rod upon which one of said clamps is mounted, said carrier rod having one or more flattened sides, rotation of the said carrier rod with relation to its clamp disengaging the latter therefrom, an engaging device to direct the rod again into threaded engagement with the said clamp, and means to move the said carrier rod and its attached clamp, substantially as described.

7. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a threaded rod for moving one of the said clamps, and its support in the said frame, and a spring to permit rotation of the threaded rod after the clamp has been moved against the stereotype plate, substantially as described.

8. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a carrier rod upon which one of said clamps is mounted, means to adjust the position of the said clamp upon the said rod, and a threaded actuator rod connected with and adapted by its ro-

tation to cause longitudinal movement of the said carrier rod, substantially as described.

9. A holding device of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a carrier rod upon which one of said clamps is adjustably mounted, a threaded actuator rod connected with and adapted on rotation to cause longitudinal movement of said carrier rod and its clamp, and a pinion on and furnishing means by which to rotate said actuator rod, substantially as described.

10. The herein described holding device for stereotype plates and the like, the same consisting of a frame containing a plurality of longitudinal recesses, a plurality of clamps longitudinally adjustable in the respective recesses, the clamps in different recesses facing in opposite directions, and means within the said recesses for imparting a simultaneous movement of the clamps in one recess relatively to the clamps in an adjacent recess facing in an opposite direction, substantially as described.

11. A holding frame of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps, a carrier rod upon which one of the same is mounted and rotatable for disengagement from the clamp carried thereby, an actuator rod for moving the said carrier rod and its clamp, a block connected with and to rotate the said carrier rod, a lock to restrain said block from rotation, and a manual operating device to release the said lock and effect rotation of the block and carrier rod, substantially as described.

12. A holding frame of the class described, containing the following instrumentalities, viz:—a frame, two opposing clamps or sets of clamps, each provided with a locking projection, and means to move one clamp or set of clamps toward the other clamp or clamps to hold a plate between them, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN J. FLOYD.

Witnesses:

FREDERICK L. EMERY,
ELISHA HARDING.