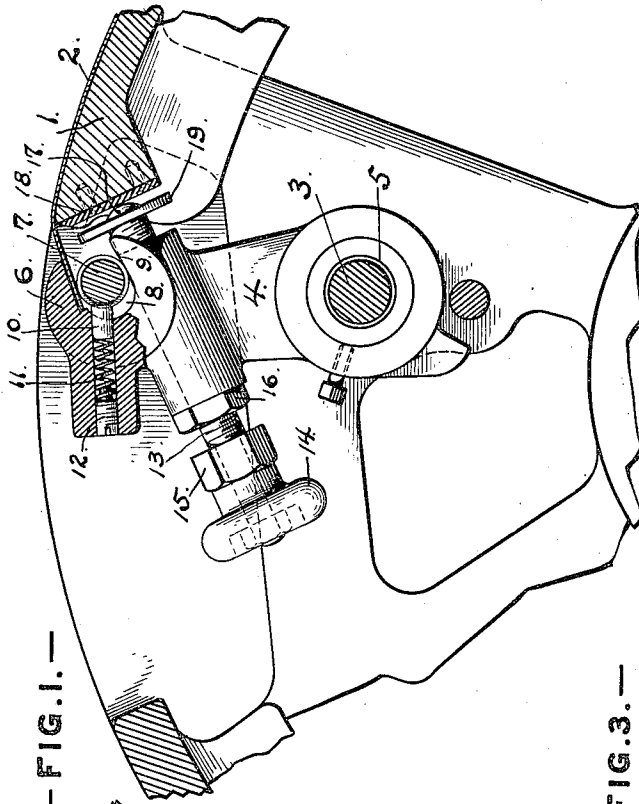
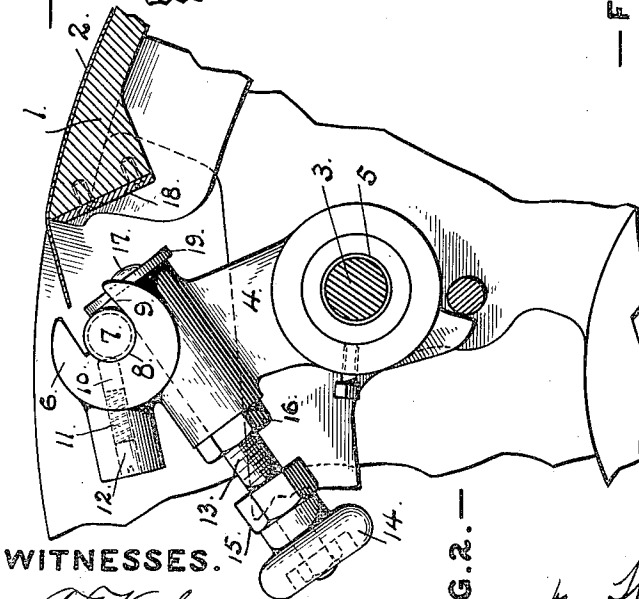


1,159,941.

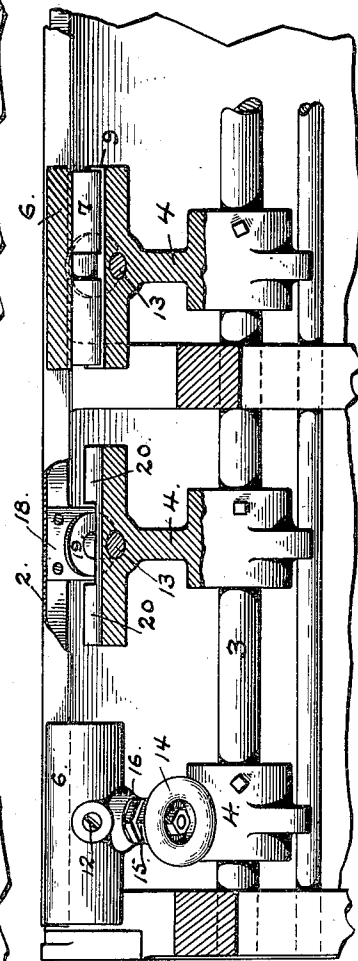
Patented Nov. 9, 1915.
 2 SHEETS—SHEET 1.



—FIG. 1.—



—FIG. 2.—



—FIG. 3.—

WITNESSES.

J. A. Kehoe
J. C. Brown.

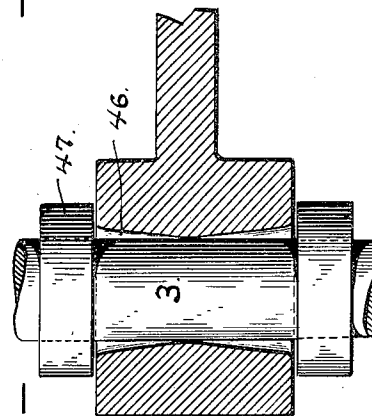
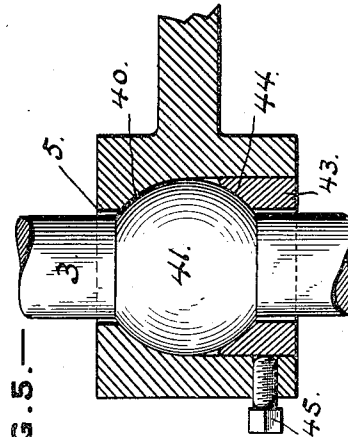
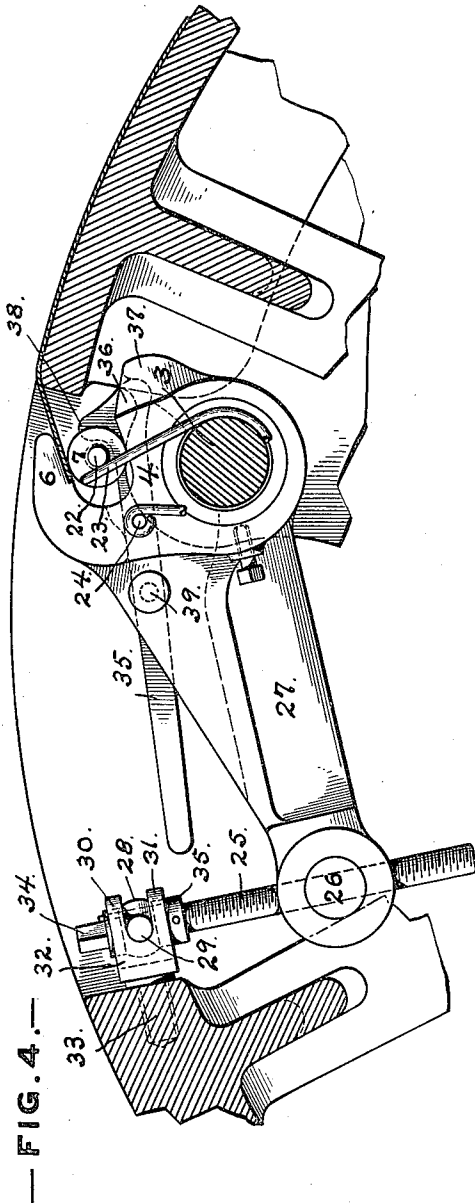
INVENTOR.

William Hohner
Philip P. Sawyer, Rice & Kennedy

ATT'YS.

1,159,941.

Patented Nov. 9, 1915.
 2 SHEETS—SHEET 2.



WITNESSES.

D. F. Kehoe
S. E. Brown

INVENTOR.

William Hohner
 by *Philip S. Sawyer, Rice & Kennedy*

ATT'YS.

UNITED STATES PATENT OFFICE.

WILLIAM HOHNER, OF UNIONCOURSE, NEW YORK, ASSIGNOR TO R. HOE & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PLATE-CLAMP.

1,159,941.

Specification of Letters Patent.

Patented Nov. 9, 1915.

Application filed December 18, 1911. Serial No. 666,451.

To all whom it may concern:

Be it known that I, WILLIAM HOHNER, a subject of the Emperor of Germany, residing at Unioncourse, county of Queens, and State of New York, have invented certain new and useful Improvements in Plate-Clamps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in plate clamps, and more especially to that class of plate clamps which are employed to force or strain a flexible printing plate over its supporting bed or surface.

The invention has for one of its objects to produce an improved plate clamp of such a character that the strains set up on the clamp will cause an increase of the gripping action of the clamp members, with a result that the greater the force employed to strain the plate to its bed or seat the stronger will be the gripping action of the clamp members.

A further object of the invention is to produce an improved plate clamp of such a character that the clamp may have a twisting or swiveling action with respect to the support on which it is mounted, so that the plate may be adjusted without releasing the clamp, or, when a series of clamps are employed, to enable certain of the clamps to shift their position slightly with respect to each other during the operation of seating the plate without making it necessary to release the clamps.

With these and other objects not specifically referred to in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the accompanying drawings, Figure 1 represents a part of a rotary printing cylinder with a plate clamp mounted therein constructed in accordance with the invention, the clamp being shown in operative position. Fig. 2 is a view similar to Fig. 1 but with the parts of the clamp in the position they occupy when the clamp is not gripping the plate. Fig. 3 is a plan view showing the general arrangement of the plurality of plate clamps such as will usually be employed for holding a plate. Fig. 4 is a view illustrating a modified form

of the construction. Fig. 5 is a sectional view illustrating one form of construction which may be employed for obtaining a swiveling action of a plate clamp. Fig. 6 is a modified form of construction which may be employed for obtaining the swiveling action.

In the drawings, which illustrate one embodiment of the invention, 1 indicates a portion of a cylinder bed, and 2 a flexible plate which is supported by the bed. It will be understood that in seating flexible plates, such as indicated in Fig. 2, on a bed, clamps are employed by which the edges of the plate are seized, the clamps being then given a movement to strain the plate over the bed.

Referring to the construction illustrated in Fig. 1, 3 illustrates a support such as a cross bar on which is pivotally mounted a clamp body 4 having a bore 5 through which the support 3 passes. The clamp body carries a jaw 6 which, in the best constructions, will be formed integrally with the clamp body. In the best constructions, furthermore, a movable jaw will be employed which will be caused to be moved by the strain on the plate, the movement being of such a character as to cause the movable jaw to approach the other jaw as the strain on the plate increases. In the particular construction illustrated, the movable jaw consists of a roll 7 mounted in a socket 8 in the clamp body, the socket being formed to provide an upwardly inclined surface 9. It will be understood that when the surface of the roll 7 and that of the upper jaw have been caused to grip the edge of the plate a strain on the plate will cause the roll to advance up the incline slightly, thus increasing the gripping action.

In the best constructions embodying the invention means will be provided for effecting what may be termed a preliminary gripping movement of the movable jaw. While this may be accomplished in various ways, in the construction shown in Figs. 1 and 2, the upper part of the clamp body is provided with a socket in which is mounted a plunger 10 bearing against the surface of the roll and impelled forward by a spring 11 located in the socket, the tension of the spring being adjustable by a screw 12. When a plate is to be inserted, the movable jaw is forced back against the tension of the spring until the plate is inserted between it

and the jaw 6. The jaw is then released and the spring causes it to advance and grip the plate, after which the clamp body is moved as a whole to set up a strain on the plate.

5 The movement of the clamp body referred to may be effected in various ways. In the construction shown, the clamp body is, as before described, pivotally mounted, and such construction is regarded as preferable.
 10 When a pivotally mounted clamp body is employed, means should be provided for forcing it away from the bed on which the plate is to be positioned. In the construction shown in Figs. 1 and 2, an actuator
 15 comprising a screw 13 is employed: tapped through an opening in the clamp body. The screw may be provided with a hand wheel, as 14, for turning it, and may also be provided with a faceted head, as 15, to which
 20 a wrench may be applied, if necessary. The usual lock-nut, as 16, may also be employed. In the construction shown in Figs. 1 and 2, the inner end of a screw 17 bears against an abutment plate 18 screwed, or secured
 25 in any other suitable manner, to the bed which supports the plate.

In the best constructions embodying the invention a release mechanism may be employed, for positively releasing the clamp,
 30 when it is desired to remove the plate, or for any other reason. While the release mechanism may be variously constructed, in the construction shown in Figs. 1 and 2, the actuator screw 13 carries a collar 19; the
 35 clamp body being cut away to form two projections 20 between which is located a recess, this recess being of sufficient size and of sufficient depth, so that when the actuator screw is retracted the collar will contact
 40 with the surface of the roll jaw and force it positively back to release the plate.

In the construction illustrated in Fig. 4, the pivoted clamp body 4, the support 3, the jaw 6, and the roll-jaw 7 are constructed
 45 as before described. Instead, however, of using a plunger and a socket for effecting what has been termed the preliminary movement of the roll jaw the roll is provided with short projections 22 one at each end
 50 of the jaw against which bear bent springs 23 secured to the clamp body at 24 and passing around the support 3. The pivotal movement of the clamp body is effected by means of a screw actuator 25 tapped through
 55 a rocking pin 26 supported in an extension 27 from the clamp body. The screw is provided with a collar block 28 having circular projections 29 on each end, these projections resting between the forks 30, 31 of a bracket
 60 block 32 secured by a screw 33, or in any other suitable manner, to a stationary part, such, for instance, as one edge of the gap in the cylinder with which such clamps are usually employed. The screw is provided
 65 with a head 34 to which a wrench may be

applied, and with a collar 35 which bears against the under surface of the under fork 31. When the screw is turned, the clamp body will be rocked, the rocking blocks 26 and 28 permitting this movement. In this construction, furthermore, the release of the
 70 roll jaw is effected by means of a lever 35 having a rounded projection 36 at its forward end, this lever fitting in a socket formed in a forward projection 37 of the
 75 clamp body. The operating end 38 of the lever is arranged so that when the lever is depressed it will bear against the center of the roll jaw and force it back. A locking pin 39 is provided under which the lever is
 80 positioned when the roll jaw is in its backward position, thus preventing the spring 23 from forcing the jaw forward.

After the plate has been seated, it is found sometimes, and particularly in multicolor
 85 work, that it is necessary to slightly swing the plate in order to bring it into the precise position of register desired. With the forms of clamps heretofore in use, it has been usual to effect this swinging by slacking off all
 90 the clamps except one on one end and tightening the clamps on the other end. This method of adjustment is, however, likely to buckle a plate slightly and deform the design. In clamps embodying the invention
 95 in its best form, provision is made whereby any one, and preferably each of the clamps employed, may have a slight swiveling action with respect to the support. This enables the edge of the clamps to follow the
 100 swinging movement given the plate as it is adjusted, and, therefore, enables the adjustment to be readily made and without buckling. The means by which this swiveling action is accomplished may be considerably varied. In what is regarded as the best
 105 form of the construction, the bore of the body is provided (see Fig. 5) with a concave socket 40, and the support 3 is provided with a convex projection 41, the two forming
 110 a ball and socket joint. In order to permit the clamp body to be placed in position, the hub of the body has the bore 5 of larger diameter at one end than the other and a bush, as 43, is inserted after the body has
 115 been placed on the support. The inner end of this bushing should be concave, as indicated at 44, so that it forms a part of the socket. The bushing, when this method of construction is employed, should be held
 120 in position in some manner, as, for instance, by a set-screw, indicated at 45. It will be understood that the bore 5 is somewhat larger than the support which it surrounds, so as to permit the swiveling action referred to. Fig. 6 illustrates a different construction by which this swiveling action may be obtained. In this construction, the bore 5, instead of being cylindrical, is generally cone-shaped, as indicated at 46, the cone 130

shaped bores meeting at about the center of the hub of the body. With this construction spacing collars, as 47, are employed to prevent sidewise shift of the clamp bodies on the supports.

Changes and variations may be made in the construction by which the invention claimed is carried into effect. The invention claimed is not, therefore, to be confined to the particular constructions herein shown and described.

What is claimed is:—

1. The combination with a support, of a plurality of plate clamps mounted thereon, and means for permitting a swiveling action of a clamp with respect to the support and independent of the other clamps.

2. The combination with a support, of a plurality of plate clamps mounted thereon, and means whereby a swiveling action of each clamp may be permitted independently of the other clamps.

3. The combination with a support, of a plurality of plate clamps mounted thereon, each of said clamps including a clamp body and each of said bodies having a longitudinal bore through which the support passes, and a rocking bearing connection between each body and the support, said connection being located between the ends of the bore, whereby a swiveling action of each body is permitted.

4. The combination with a support, of a plurality of plate clamps mounted thereon, each clamp including a clamp body and a ball and socket connection between the clamp body and the support.

5. In a plate clamp, the combination with

a support, of a clamp body mounted thereon, an inclined surface on the clamp body, a jaw movable along the surface, a companion jaw, an abutment, an actuator operating to force the jaw away from the abutment, the strain on the plate thus set up causing the movable jaw to approach the companion jaw, and a releasing device operated by the reverse movement of the actuator.

6. In a plate clamp, the combination with a support, of a clamp body pivotally mounted thereon, an inclined surface on the clamp body, a roller jaw movable along the surface, a companion jaw, an abutment, an actuator for forcing the clamp body away from the abutment to set up a strain on the plate, and thereby causing the movable jaw to move up the incline, and a release mechanism operated by a reverse movement of the actuator.

7. In a plate clamp, the combination, with a body having a jaw, a support carried by said body and inclining upward toward the free end of said jaw, of a cylindrical jaw having a smooth periphery arranged to make a rolling contact with the inclined support, and means for moving the body so as to cause the cylindrical jaw to move up the incline and thereby increase its gripping action on the plate.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM HOHNER.

Witnesses:

RICHARD KELLY,
GEO. R. CREIGHTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."