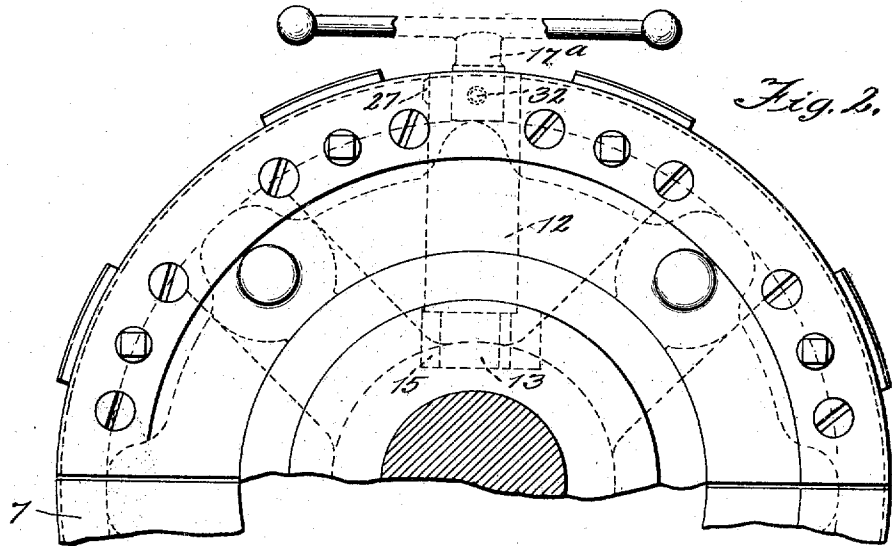
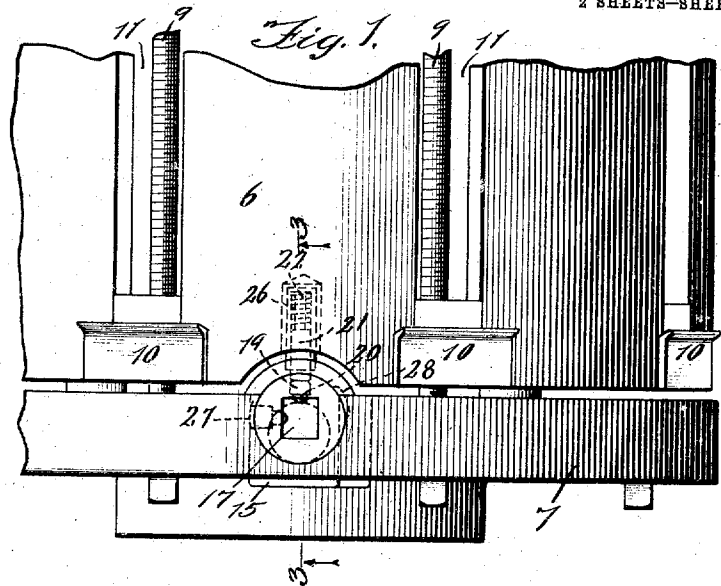


W. EVENSEN.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED MAY 9, 1910.

988,559.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.



Witnesses:
John H. DeBusk
 Will H. DeBusk

Inventor:
William Evensen
 By Bond, Adams, Picard & Jackson
 Attorneys

W. EVENSEN.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED MAY 9, 1910.

988,559.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 2.

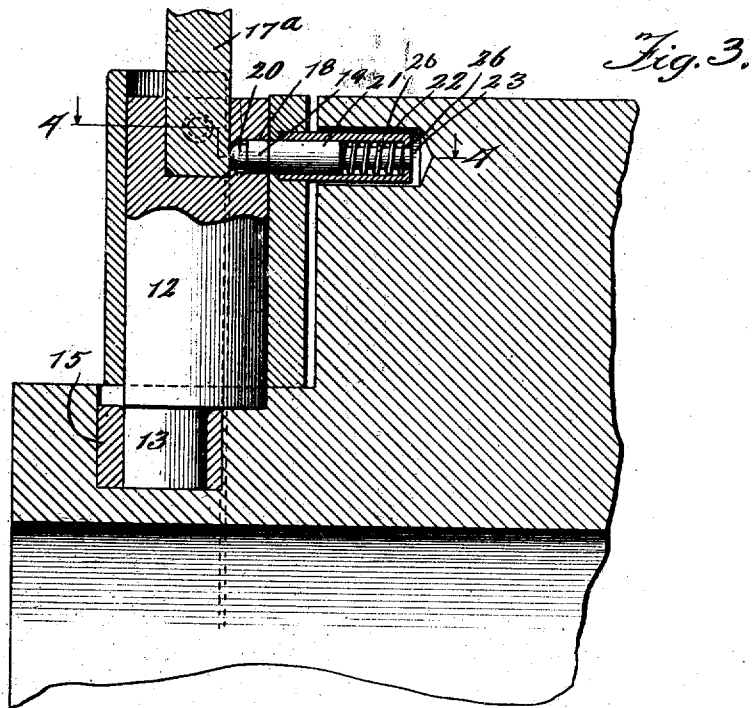


Fig. 4.

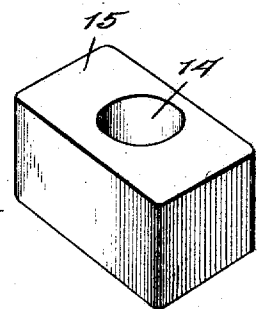
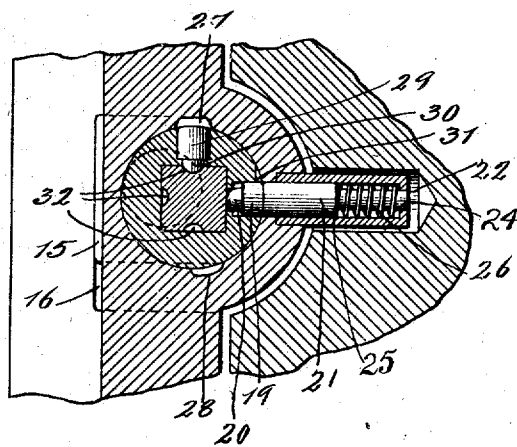


Fig. 5.

Witnesses:
Wm. H. DeBunk
Wm. H. DeBunk

Inventor:
William Evensen
By Bond, Adams, Putnam & Jackson
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM EVENSEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PLATE-CLAMPING MECHANISM FOR PRINTING-PRESSES.

988,559.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed May 9, 1910. Serial No. 560,246.

To all whom it may concern:

Be it known that I, WILLIAM EVENSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Plate-Clamping Mechanism for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to plate-clamping mechanism for printing presses and particularly to that type of plate-clamping mechanism in which the plate-clamps are capable of separate adjustment, in order to permit the employment of plates of different widths, and are connected with a movable member in such a way that by the movement of the movable member they are simultaneously clamped upon the edge of the plate.

More particularly still, my invention relates to improvements in plate-clamping mechanism of the kind shown and described in Letters Patent to me, No. 905,162, of December 1, 1908.

The object of my invention is to provide new and improved locking mechanism by which the plate-clamping mechanism may be automatically locked in its plate-clamping position, and also in its open position, and which is adapted to be unlocked only by the insertion of the tool by which the movable member is moved to clamp the plate-clamps against the plate or move them away therefrom.

As a further improvement, my invention looks to the providing of such automatic locking mechanism of such a character as to permit the insertion or removal of the tool by which the clamping movement is effected, only when said plate-clamps are in their completely locked or in their fully unlocked position. By the provision of such mechanism I am enabled to construct plate-clamping mechanism which is always sure to be firmly locked against the plates before the press can be started and thereby prevent accidents arising from the plates not being completely and firmly locked, and also rendering the locking and unlocking certain, efficient and secure.

In the accompanying drawings:—Figure 1 represents a portion of one end of a plate-cylinder with my improved mechanism attached; Fig. 2 is an end view of a part

of a plate-cylinder showing the operating tool in position; Fig. 3 is an enlarged detail, being a vertical section through line 3—3 of Fig. 1; Fig. 4 is an enlarged detail, being a section on 4—4 of Fig. 3; and Fig. 5 is an enlarged detail, being a view of the sliding bearing block in which the lower end of the eccentric-cylinder is mounted.

With the exception of the locking devices hereinafter described the plate-clamping mechanism is the same as that shown and described in the Letters Patent to me, above named, and a comparatively short description thereof, it is believed, is all that will be necessary in so far as the general features are concerned.

Referring to the drawings,—6 indicates a plate-cylinder upon each end of which are mounted two movable members 7 like those shown in Figs. 11 and 13 of the Letters Patent above named. These members are so mounted upon the plate-cylinder as to have a limited movement back and forth longitudinally thereof. 9 indicate screws which are mounted in any well known approved manner, preferably in the manner shown and described in my above named Letters Patent, in the movable members 7. 10 indicate plate-clamps which are mounted in slots 11 in the cylinder 6 so as to slide to and fro therein, and their lower portions are provided with screw-threaded openings through which the screws 9 pass, whereby, by the turning of the screws 9 in one direction or the other, the clamps 10 may be independently adjusted on the cylinder. All these parts are well known and are fully shown and described in my said Letters Patent and form no part of my present invention. It is enough to say that by the rotating of the screws the plate-clamps may be readily and independently adjusted on the cylinder, in order to provide for different widths of plate, in the well known manner.

12 indicates a cylindrical block which is mounted so as to turn in a corresponding opening in the movable member 7, and is located centrally of the circumferential length thereof. The cylindrical block 12 is provided at its lower end with an eccentric trunnion 13 which is rotatably mounted in a suitable opening 14 in a block 15. The block 15 is located in a suitable recess 16 in the body of the cylinder. The recess 16 is made of the same width as the block 15,

but is longer, circumferentially of the cylinder, than the block 15 by a sufficient amount to permit the block 15 to have a limited sliding motion therein, the limit of the motion being that of the throw of the eccentric trunnion 13, as hereinafter described. The cylindrical block 12 is provided with a square opening 17 at its top end to permit the insertion therein of an operating tool or wrench 17* by means of which the cylindrical block 12 is turned. All these parts are like the corresponding parts shown and described in my said Letters Patent, their operation is briefly described as follows:—By means of the operating tool 17* the cylindrical block 12 may be turned in its bearing, and this turning in one direction or the other slides the block 15 in one direction or the other in the recess, and by the operation of the eccentric trunnion operates to move the movable members longitudinally of the cylinder so as to simultaneously move the plate-clamps against the edge of the plate and lock the same firmly on the cylinder, or, moving in the opposite direction, to unlock the clamps from the plate.

The automatic locking devices to which my invention specifically relates are as follows:—Near the bottom of the opening 17 the cylindrical block 12 is provided with an opening 18 from the periphery of the cylindrical block to the square opening or socket 17. 19 indicates a pin which is slidingly mounted in the opening 17 and is provided at its inner end with a rounded head 20. This pin is of a length just sufficient to extend from the outer surface of the cylindrical block 12 to the surface of the socket 17. 21 indicates a pin which is seated in a tubular support 22 so as to slide longitudinally of itself therein. The tubular support 22 is secured in the movable member 7 opposite the inner side of the socket 17 and so as to register with the opening 18. The inner end of the tubular support 22 extends into a suitable opening 23, in the type cylinder 6, so as to slide back and forth therein longitudinally of the cylinder when the movable members 27 are moved to and fro. The pin 21 is provided with a stem 24 so as to form a peripheral shoulder 25 on pin 21. 26 indicates a spiral spring which is seated around the stem 24 in the tubular support 23, bearing at its inner end against the bottom of the tubular support and at its other end against the shoulder 25. The spring operates to normally force the pin 21 outward when free to move. 27—28 indicate depressions in the sides of the cylindrical opening in which the cylindrical block 12 moves, above opening 18 and above the pin 21. 29 indicates a pin having a rounded head 30 which is slidingly mounted in a suitable opening in the cylindrical block 12, near the top thereof, in register with depressions

27—28, and so as to have a limited motion longitudinally of itself. 31 indicates a depression or notch on the periphery of the cylindrical block 12 at such a point as to be brought into register with the pin 21 when the cylindrical block is turned, and into which, when it is so brought into register with the pin, the pin 21 is projected by the spring 26 as is shown in dotted lines in Fig. 1. This depression or notch 21, as is best shown in Fig. 4, is preferably formed by cutting into the block 12 from its periphery in the direction of a chord to the arc ending at its bottom in a shoulder, against which the pin 21, when projected into the same, abuts. When the pin is thus projected into the depression 31 it is obvious that the rotation of the cylindrical block in one direction is prevented by the slide block 15 being in contact with one end of the recess 16, and rotation in the other direction is prevented by the pin 21. The shank of the operating tool, squared to fit the square socket 17, is provided upon each of its sides with a depression 32, which, when the tool is placed in position, is adapted to register with the rounded head 30 of the pin 29. When the block 12 is so rotated that the pin 29 comes into register with either of the openings 27—28, the shank of the tool can be inserted into the socket 17, the lower end of the tool being beveled off so as to push the pin 29 back into one or the other of the openings 27—28 as the shank of the tool is inserted. As soon as the tool is inserted to its full depth the depressions 32 are brought into register with the rounded end of the pin 29 which is thus free to move back so that its outer end may be flush with the periphery of the cylindrical block. The openings 27—28 are rounded and the end of the pin 29 is curved to correspond with the periphery of the cylindrical block 12 so that when the cylindrical block 12 is turned the pin 29 will be pushed back by the engagement of its rounded head with the opening. The depressions 32 are of sufficient depth to permit the outer end of the pin 29, when pushed back, to be flush with the surface of block 12 and permit its rotation. The depressions 32 are rounded to conform to the rounded head 30 of pin 29 so that the pulling out of the tool will push back the pin 29.

In Fig. 1 the parts are shown in such a position that the movable member 7 is at the inward limit of its motion on cylinder 6 which brings the clamps 10 into locking position against the plate. When in this position the sliding pin 19 is in register with spring seated pin 21, and, the operating tool being out, the pin 19 is free to move inward permitting the pin 21 to be pushed outward by the spring into the depression 31 locking the parts firmly in position against rotation.

The pulling out of the handle has also projected the pin 29 into depression 27. It being desired to unlock the clamps from the plate, the shank of the tool is inserted into the socket 17. This pushes back the pin 19 which pushes back pin 21 against spring 26 to a position flush with the interior surface of the opening, in which cylindrical block 12 rotates, and leaves it free to turn. At the same time the complete insertion of the tool brings one of its depressions 32 into register with the rounded end 30 of pin 29 leaving it free to slip back. The tool is then turned in a contra-clockwise direction, the pin 29 moving back out of opening 27 by this operation, as above explained. This rotates the cylindrical block 12 in a contra-clockwise direction causing the movable member 7 to be moved outward on the cylinder, carrying with it, simultaneously, clamps 10 away from the edge of the plate and unlocking the same. It will be obvious that as soon as the pin 29 has passed the opening 27 it is prevented from being projected outward and consequently the operating tool cannot be removed until the rotation has continued far enough to bring the pin 29 into opposite depression 28. This opening 28 is so placed that the registration of the pin 29 therewith occurs when the movable member 7 has reached the extreme outward limit of its motion and the block 15 is brought into contact with the opposite end of the recess 16. In this position the pin 29 is free to move outwardly into recess 28 and the tool may be removed. When the parts are in this last described unlocked position it is obvious that the tool can be inserted, the pin 29 being free to be pushed back into depression 28. It being desired to lock the plate the tool is thereupon rotated in a clockwise direction, the rotation forcing the pin 29 back into the depression on the tool shank. As soon as the pin, moving in this direction, passes out of register with the depression 28 it is obvious that the tool cannot be removed until the pin 29 is again brought into register with opening 27. This rotation moves the movable member 7 and the plate-clamps inward into the locking position, above described, at which position only can the tool be removed. The removal of the tool leaves the pin 19 again free to move, permitting spring 26 to thrust forward pin 21, into depression 31, locking the cylindrical block 12 against backward rotation and thus locking the plate-clamps in their locked position upon the plates.

That which I claim as my invention, and desire to secure by Letters Patent, is:—

1. In combination, a plate-support, a movable member adapted to receive an operating tool, plate-clamps connected with said movable member and adapted by its movement to be simultaneously moved into and

out of locked position on a plate, and locking devices adapted to automatically lock said movable member in plate-locking position and to be disengaged therefrom only by the insertion of the operating tool. 70

2. In combination, a plate-support, a movable member, adapted to receive an operating tool, plate-clamps connected with said movable member and adapted by its movement to be simultaneously moved into and out of locked position on a plate, and locking devices adapted to automatically lock said movable member in plate-locking position and to be disengaged therefrom only by the insertion of the operating tool, said locking devices being adapted to permit the insertion of the operating tool when said movable member is in plate-locking or unlocked position. 75

3. In combination, a plate-support, a movable member adapted to receive an operating tool, plate-clamps connected with said movable member and adapted by its movement to be simultaneously moved into and out of locked position on a plate, and locking devices adapted to automatically lock said movable member in plate-locking position and to be disengaged therefrom only by the insertion of the operating tool, said locking devices being also adapted to permit the insertion or removal of the operating tool only when said movable member is in plate-locking or unlocked position. 80

4. In combination, a plate-cylinder, plate-clamps slidingly mounted thereon, a movable member movable longitudinally of the cylinder and adapted by its inward movement to simultaneously lock the clamps upon a plate, a moving device connected with said movable member and said cylinder and adapted to receive an operating tool and, by its turning, to move said movable member longitudinally of the cylinder, and locking mechanism carried by said cylinder and said movable member and adapted to automatically lock said movable member against movement in its plate-locking position and to be unlocked therefrom only by the insertion of the operating tool. 85

5. In combination, a plate-cylinder, plate-clamps slidingly mounted thereon, a movable member movable longitudinally of the cylinder and adapted by its inward movement to simultaneously lock the clamps upon a plate, a moving device connected with said movable member and said cylinder adapted to receive an operating tool and by its turning to move said movable member longitudinally of the cylinder, and locking mechanism adapted to automatically lock said movable member against movement in its inner and outer positions and adapted to be unlocked from each of said positions only by the insertion of an operating tool. 90

6. In combination, a plate-cylinder, plate- 130

clamps slidingly mounted thereon, a movable member movable longitudinally of the cylinder and adapted by its inward movement to simultaneously lock the clamps upon a plate, an eccentric connected with said movable member and with said cylinder, adapted to receive an operating tool and by its turning to move said movable member longitudinally of the cylinder, and locking mechanism adapted to automatically lock said movable member in its inner and outer positions and to be disengaged in both of said positions only by the insertion of an operating tool, said locking mechanism being further adapted to permit the withdrawal of said operating tool only when said movable member is in its inner or outer position.

7. In combination, a plate-cylinder, plate clamps mounted and independently adjustable thereon, a movable member, movable longitudinally of said cylinder and adapted by its movement to simultaneously move said clamps into plate-locking or unlocked position, a rotatable member rotatably mounted in said movable member and adapted to receive an operating tool whereby said rotatable member may be turned to move said movable member longitudinally of the cylinder, a spring seated pin carried by said cylinder and adapted to engage said rotatable member when said movable member is in plate-locking position and automatically lock same in said position, and means carried by said rotatable member and adapted by the insertion of the operating tool to disengage said spring seated pin from said rotatable member.

8. In combination, a plate-cylinder, plate clamps mounted and independently adjustable thereon, a movable member movable longitudinally of said cylinder and adapted by its movement to simultaneously move said clamps into plate-locking or unlocked position, a rotatable member rotatably mounted in said movable member and adapted to receive an operating tool whereby said rotatable member may be turned to move said movable member longitudinally of the cylinder, a spring-seated pin carried by said cylinder and adapted to engage said rotatable member when said movable member is in plate-locking position and automatically lock the same in said position, means carried by said rotatable member and adapted by the insertion of the operating tool to disengage said spring-seated pin from said rota-

table member, and a second pin carried by said rotatable member and adapted to engage the operating tool and permit its insertion or removal only when said rotatable member is turned to bring said movable member into either plate-locking or unlocked position.

9. In combination, a plate cylinder, a member movable longitudinally of said cylinder, independently-adjustable plate clamps slidingly mounted on said cylinder and adapted by the movement of said member on said cylinder to be simultaneously moved into and out of plate-locking position, an eccentric connected with said cylinder and with said movable member and adapted when turned to move said movable member longitudinally of said cylinder and having an opening adapted to receive an operating tool, and locking devices adapted to automatically lock said movable member in plate-locking position and also adapted to prevent the insertion or withdrawal of said operating tool except when said movable member is in complete plate-locking position or in unlocked position.

10. In combination, a plate cylinder, a member movable longitudinally of said cylinder, independently-adjustable plate clamps slidingly mounted on said cylinder and adapted by the movement of said member on said cylinder to be simultaneously moved into and out of plate-locking position, an eccentric connected with said cylinder and with said movable member and adapted when turned to move said movable member longitudinally of said cylinder and having an opening adapted to receive an operating tool, a spring-seated pin carried by said cylinder and adapted to automatically lock said eccentric against rotation when said plate locking member is in plate-locking position, locking devices carried by said eccentric and adapted to prevent the insertion of said locking tool into said opening except when said movable member is in complete plate-locking position or in unlocked position, and a movable pin carried by said eccentric and adapted to register with said spring-seated pin when the movable member is in plate-locking position and by the insertion of the operating tool to force said spring-seated pin out of locking engagement.

WILLIAM EVENSEN.

Witnesses:

MINNIE A. HUNTER,
WILLIAM H. DEBUSK.