

Nov. 10, 1931.

H. A. W. WOOD

1,831,219

PLATE LOCKING DEVICE

Filed Jan. 26, 1927

4 Sheets-Sheet 1

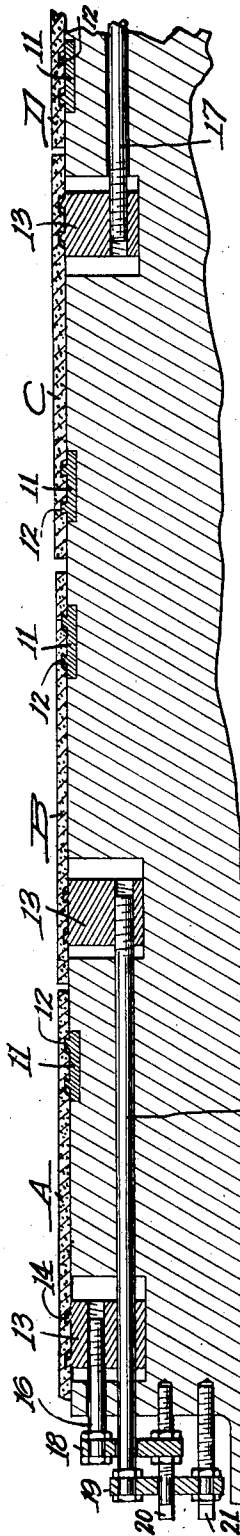


Fig. 1

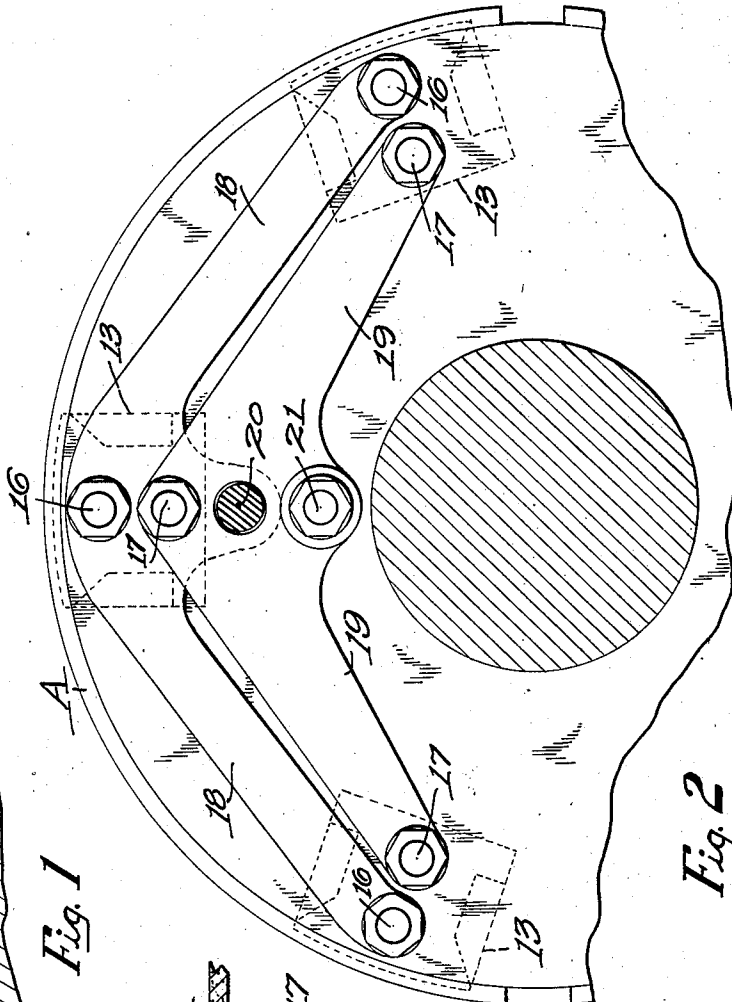


Fig. 2

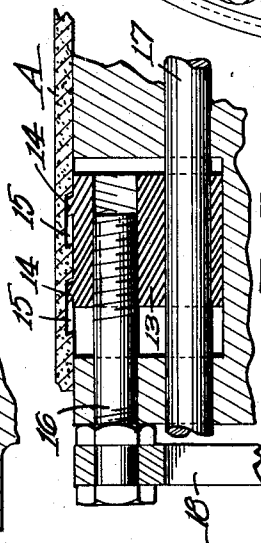


Fig. 3

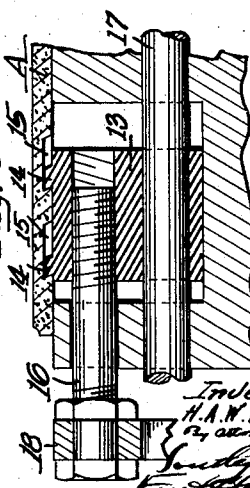


Fig. 4

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4 Sheets-Sheet 2

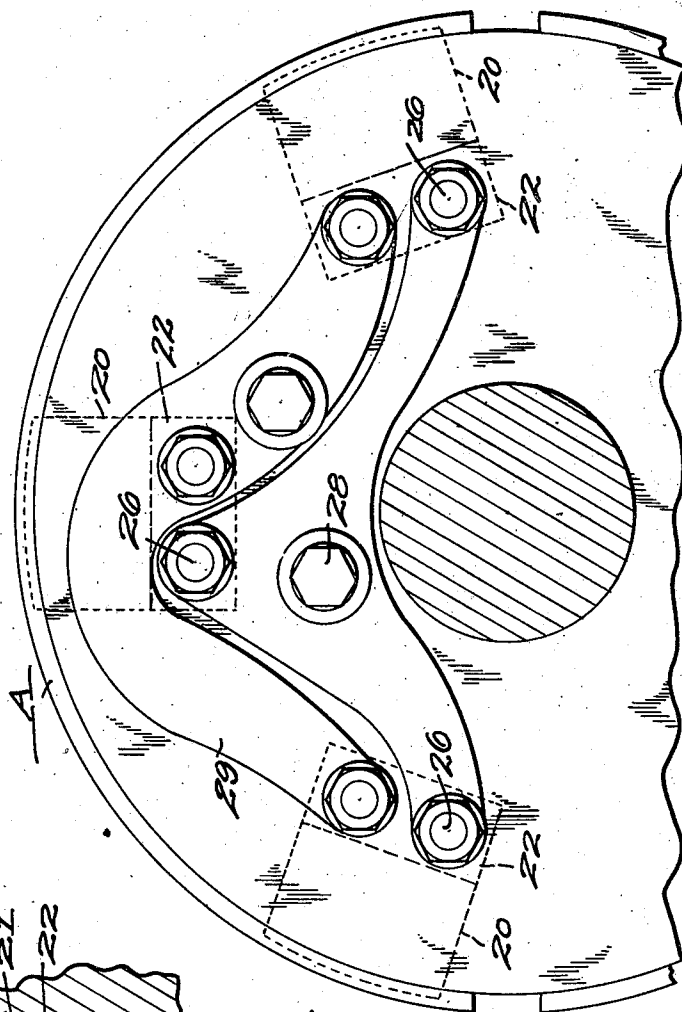


Fig. 5

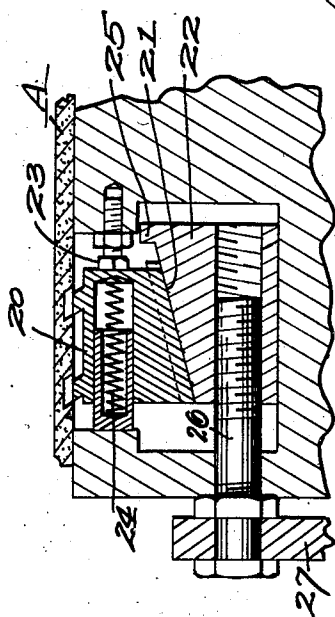


Fig. 6

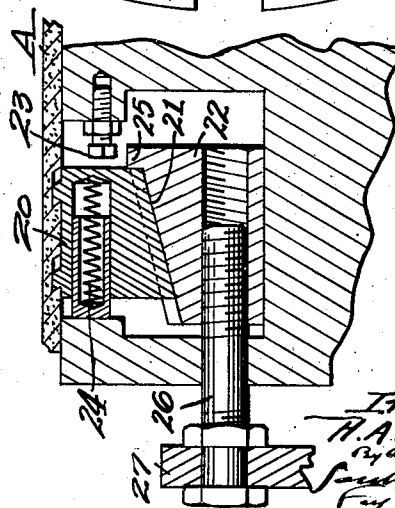


Fig. 7

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1,831,219

PLATE LOCKING DEVICE

Filed Jan. 26, 1927

4 Sheets-Sheet 3

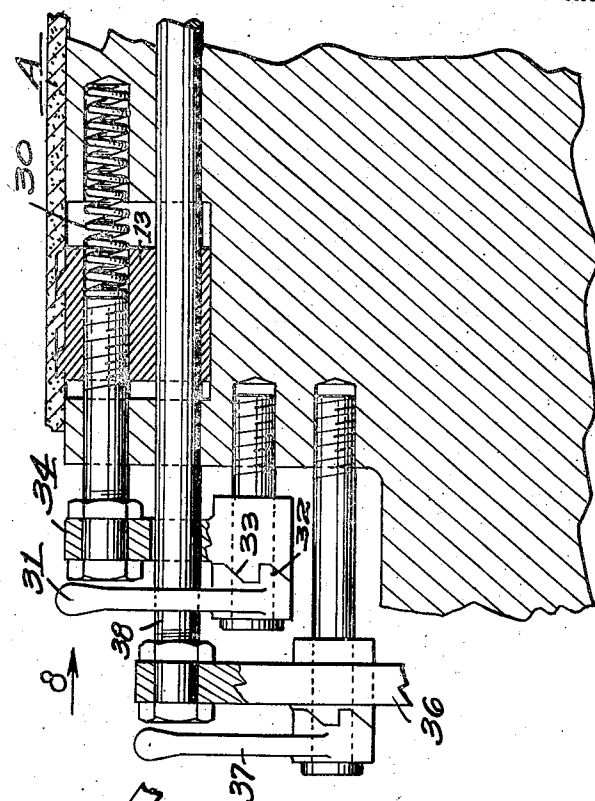


Fig. 9

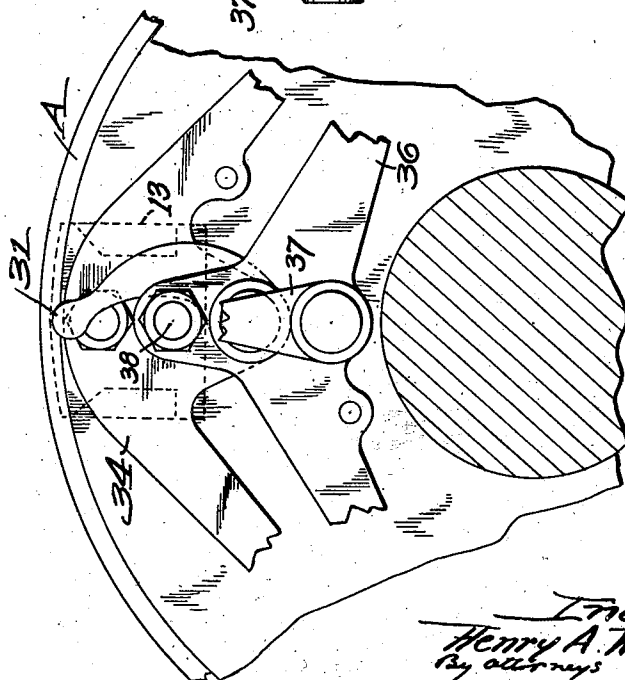


Fig. 8

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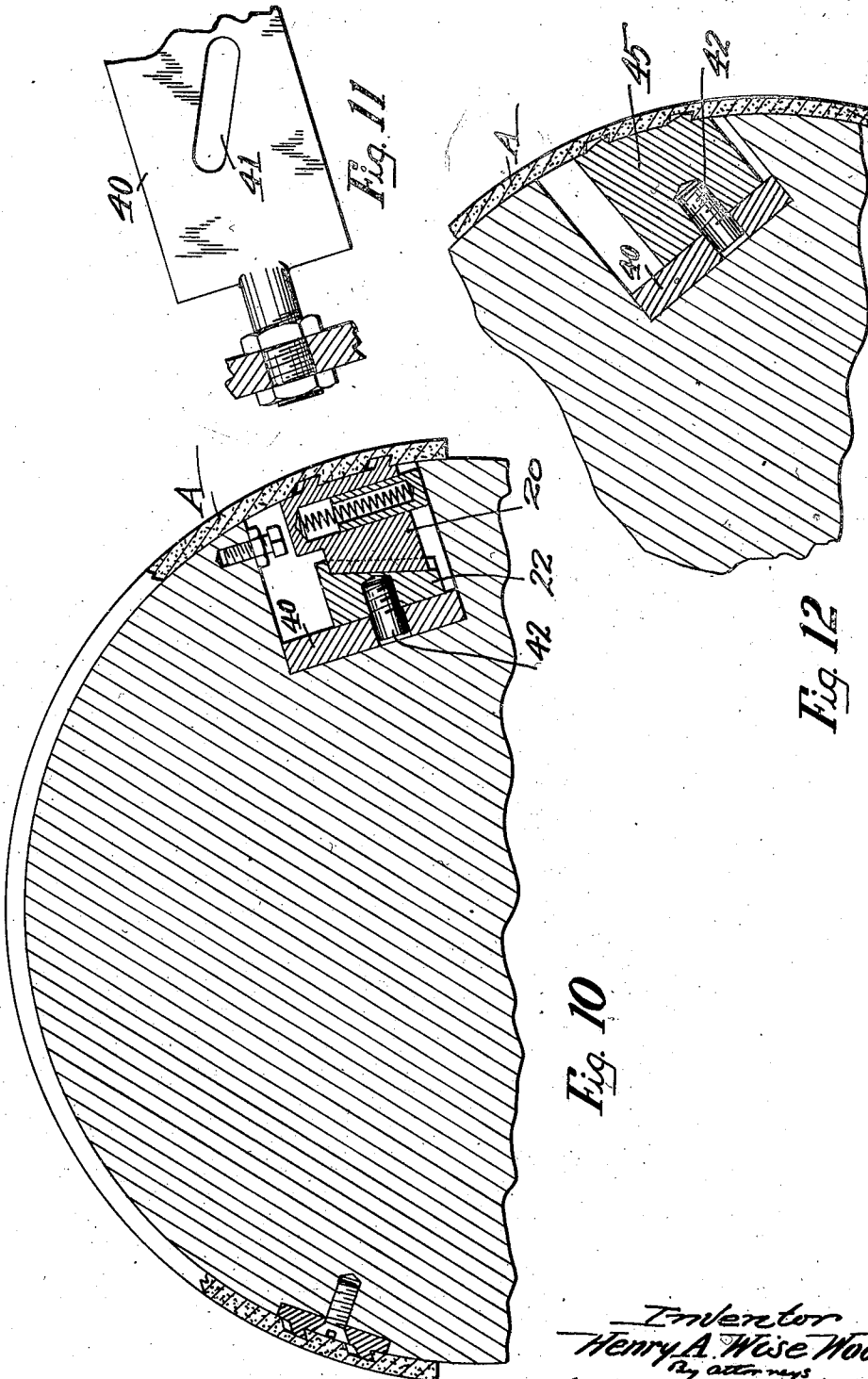
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1,831,219

PLATE LOCKING DEVICE

Filed Jan. 26, 1927

4 Sheets-Sheet 4



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PLATE LOCKING DEVICE

Application filed January 26, 1927. Serial No. 163,685.

This invention relates to a device for locking printing plates on the plate cylinder of a printing press.

The principal objects of the invention are to provide an improved lock-up or clamping mechanism which will not, under any conditions, buckle the plate when tightened up and to provide a construction suitable for clamping the plates longitudinally and accessible from the end of the cylinder. This invention also permits of an unusually narrow margin on the plates as there are no clips beyond the margins to cause the plate to be spread apart.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a longitudinal cross section of a part of a printing cylinder taken on a radial plane showing the use of this invention for locking four plates arranged longitudinally on the cylinder;

Fig. 2 is an end view of the cylinder on enlarged scale showing the locking means for each plate in three places around the semi-circumference;

Fig. 3 is a sectional view taken radially through the locking means and showing the plate unclamped;

Fig. 4 is a similar view showing the plate locked at that point;

Fig. 5 is a view similar to Fig. 2 showing a modification;

Figs. 6 and 7 are similar to Figs. 3 and 4 showing the same modifications;

Fig. 8 is an end view showing another form of the invention;

Fig. 9 is a radial sectional view of the same;

Fig. 10 is a transverse sectional view of half a plate cylinder with a locking means thereon for locking the plate circumferentially at its opposite straight edges;

Fig. 11 is a side view of the means for operating the plate clamp shown in Fig. 10; and

Fig. 12 is a view similar to Fig. 10 showing another form of the invention.

In the form shown in Figs. 1, 2, 3 and 4, the cylinder 10 is shown provided with four

plates A, B, C, and D as is customary. Each of these plates has a stationary clip 11 at its inner end. Each of these clips is provided with one or more lugs 12 slanting toward the middle of the cylinder and entering corresponding notches in the plate. These clips hold the inner ends of the plates and are fixed in the cylinder.

Each plate is also provided with a clip 13 having lugs 14 slanting in the direction opposite to the lugs 12 and entering notches 15 in the plate near its outer edge but on its concave side. Obviously the movement of the clips 14 outwardly in a longitudinal direction will effectively clamp the plate as will be seen by comparison of Figs. 3 and 4. The clips 13 are provided with adjusting screws 16 and 17, the latter passing from a clip connected with an inner plate through the outer clip, but otherwise these clips are the same. Each adjusting screw passes to a yoke 18 or 19. This yoke in turn is adjusted by means of common adjusting screws 20 and 21. It will be noticed by reference to Fig. 2 that these yokes are shown as operating three clips in each case for locking a single plate in three places. The plates on the other end lock in the same way as will be obvious.

In operation the plates are hooked over the lugs on the stationary clips 11 on the inner edge and laid out on the cylinder. The clips 13 on the outer edge of each plate are pulled outwardly by their respective screws. This clamps the plate without compressing it and prevents buckling. This construction assures that the plates will lie flat on the surface of the cylinder. As there is no clamping means at the outer edge of the plate, the plate can be made with a narrow margin.

Referring now to Figs. 5, 6 and 7 the same principles are employed but a modification is shown in the form of individual clips. Here the outer end clip 20 is provided with a slanting surface 21 at the rear which rests on a corresponding surface on a wedge block 22 constituting a part of the clip. The clip 20 is held against an adjustable limiting screw 23 by a spring 24. The wedge block 22 is provided with a projection 25 for engaging the rear edge of the clip 20 and positively

forcing it outwardly. An adjustable screw 26 connects the block 22 with a yoke 27 which is operated in the same manner as described in connection with the first sheet of drawings.

5 When this yoke is moved outwardly by its screw 28, the wedge block 22 moves with it and forces the clip 20 upwardly and finally, by the action of the projection 25, outwardly. A second yoke 29 can be used for the other
10 set of clips operated in the same way.

On account of the upward and forward motion of the clip, it can be sunk below the surface of the cylinder and this also permits of a narrower groove being cut on the inside
15 of the plate. The springs of course move the clips back when the wedge is withdrawn to the position shown in Fig. 6.

In the form shown in Figs. 8 and 9 the clamping is performed in the same manner as
20 in Figs. 1, 2, 3, and 4 except that the clamping of the plate is accomplished by the pressure of a spring 30 instead of by a screw. This spring is placed behind each clip and acts to move the clip to lock the plate whenever the
25 spring is released to allow it to do so. The spring is compressed by a handle 31 formed with slanting teeth 32 co-acting with the edges of slanting teeth 33 on the hubs of the yokes 34. These yokes connect several clips.

30 Operation of the handle in one direction causes the yoke to compress the springs, thereby retracting the clips inwardly from the plates. When the handle is allowed to assume the position shown in the drawing
35 the clips are pushed forward by the action of the spring as shown. Here, as in the other case, another yoke 36 is shown with a handle 37 for operating the screw 38 for the clips on the inner plate.

40 The constructions above described show clips acting on the curved edges of the plates. The same principle can be employed on clips along the straight edges. The action is identical except that the several clips along the
45 cylinder are moved circumferentially by a bar 40 shown on the last sheet of the drawings. This bar has inclined slots 41 into which project pins 42, one extending from each clip of any of the above mentioned
50 kinds. This bar runs along the cylinder and when it is moved in or out, the pins 42 of the several clips are moved circumferentially to lock and unlock the plates on one straight
55 edge. On the last sheet I have shown two forms of these clips which are like the first two above described except the operating means, namely the bars 40.

Although I have illustrated and described
60 several embodiments of this invention I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.
65 Therefore I do not wish to be limited to all

the details of construction herein shown and described, but what I do claim is:—

1. In a plate clamping device, the combination with a clip for engaging the interior of a plate and a spring for forcing the clip into
70 locking position, of a screw entering the clip and sustaining the pressure of the spring, a handle and means connected with the handle for moving the screw inwardly against the spring as the handle is turned. 75

2. The combination with a printing plate cylinder and a plate thereon, of longitudinally reciprocable means for clamping the plate on the cylinder by pulling the plate
80 along the surface of the cylinder in the direction of the length of the cylinder and means located partly within the cylinder for operating the clamping means and accessible from the end of the cylinder.

3. In a plate clamping means, the combination
85 with a clip for holding the inner edge of a plate, of a cylinder on which the plate is mounted, said clip being located in the cylinder, a clip engaging the underside of the plate near its outer edge, and means for operating
90 the clip at one end of the plate to move it away from the clip at the other end to secure the plate firmly on the cylinder without any tendency to buckle the plate.

In testimony whereof I have hereunto
95 affixed my signature.

HENRY A. WISE WOOD.

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