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C. S. CRAFTS

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PRINTING

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Fig 1.

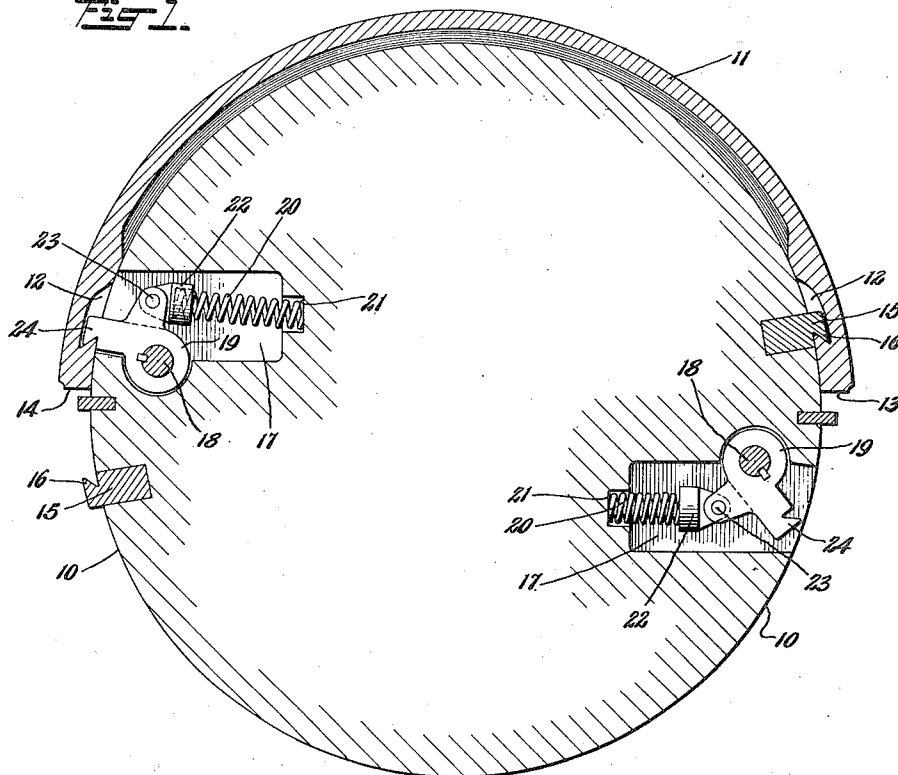
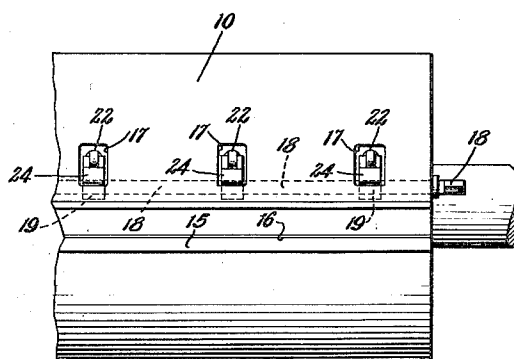


Fig 2.

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PRINTING

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10 Claims. (Cl. 101—378)

The present invention relates to printing presses and more particularly to a novel and improved means for securing and retaining stereotype printing plates on the plate cylinders of high speed rotary newspaper presses.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

Of the drawing:

Figure 1 is a vertical section of an illustrative embodiment of the present invention; and

Figure 2 is a fragmentary side elevation of the printing cylinder shown in Figure 1.

The present invention has for its object the provision of a novel and improved plate securing means adapted to secure stereotype printing plates on the printing cylinders of a high speed rotary newspaper press. A further object of the invention is the provision of such plate securing means permitting the cylinders to be run at extremely high speeds without buckling of the plate. Another object is the provision of a plate securing means constantly subjecting the stereotype plate to a stretching action during the operation of the press.

Referring now in detail to the illustrative embodiment of the invention, a printing cylinder 10 is provided which may be a plurality of pages long, as is customary in newspaper printing, and is adapted to receive and have secured to it a plurality of semi-cylindrical stereotype printing plates 11, which may be arranged relatively to each other in the conventional manner.

Plates 11 are preferably formed near their leading and trailing edges with a plurality of narrow, shallow, undercut recesses 12 which are preferably axially aligned, and may be positioned a predetermined distance from the leading or trailing edge 13, 14 of the plate.

Means are provided for securing the plate to the cylinder near its leading edge, and for driving the plates, and comprise a plurality of clips 15 which are axially aligned and more or less evenly spaced along the width of the plate, and are

fixed in the cylinder, projecting slightly from the surface thereof. Clips 15 are formed with a forwardly projecting portion 16 adapted to engage with the forward edge of undercut recess 12.

Means are also provided for securing the trailing edge of the plate to the cylinder and for tensioning the plate during the printing operation and taking up any stretch, and for this purpose the cylinder 10 is provided with a plurality of axially aligned, relatively deep recesses 17, through which pass a shaft 18 journaled in the cylinder body between the recesses 17. Shaft 18 is rotatable and to it are keyed a plurality of movable clips 19 adapted to be oscillated by movement of the shaft 18 and projectable rearwardly beyond the surface of the cylinder into engagement with the undercut wall of recesses 12.

For resiliently urging the movable clips 19 rearwardly with respect to the rotation of the cylinder, the clips 19 are provided with individual spring means each comprising a compression spring 20 having one end seated in a small recess 21 at the bottom of recess 17 and having its other end seated in a cup 22 pivotally connected with a lug 23 projecting from the forward side of clip 19. Springs 20 are preferably quite strong and urge the outer hook-like ends 24 of clips 19 rearwardly with sufficient force to overcome the centrifugal force acting to move the trailing edge of the plate away from the cylinder.

For releasing all of the clips 19 at one time, when it is desired to change the plates on the cylinder, one end of the shaft 18 projects from the end of the cylinder 10 and is squared to receive an operating wrench, or may be otherwise actuated, to compress the springs 20 and thereby release the rear end of the plate 11, after which the rear end of the plate and then the forward end may be lifted away from the cylinder.

In the operation of the conventional type of plate clamping means, the pressure of the impression cylinder against the plate while printing causes a slight buckle or wrinkle to be formed in the plate which is rolled out rearwardly of the plate as the cylinders rotate. This rapidly repeated wrinkling or buckling of the plate gradually causes the leading end of the plate to be worked free of the cylinder, destroying the fit of the plate on its cylinder, and eventually causing the plates to break or crack. This action is particularly noticeable at extremely high speeds of operation, and cracking of the plates not only impairs the quality of the printing, but is also

a source of serious injury to the mechanism and operators.

Furthermore, the plates have been maintained under compression axially of the cylinder, with
5 no means for holding the central part of the plate to the cylinder against centrifugal force, consequently the central part of the plate bulged beyond the side edges thereof.

In accordance with the present invention, there
10 is no tendency for the plate to buckle or wrinkle, inasmuch as the plate is constantly subjected to a stretching action circumferentially of the cylinder which maintains the plate always under tension.

Preferably, the recesses 12 in the plate do not
15 extend all the way across, but are relatively narrow and positioned to engage with the several plate securing clips. Furthermore, the recesses at each end of the plate are uniformly spaced from the end so that the plate is symmetrical and may be reversed on the cylinder, as required by the imposition desired.

The invention in its broader aspects is not
20 limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

30 What I claim is:—

1. A printing cylinder for rotary newspaper
presses including in combination a cylindrical
body adapted to support a rigid printing plate,
35 fixed plate securing means engageable with the under side of the plate near its forward end, movable plate securing means spaced apart axially of the cylinder and projecting through the surface of the cylinder so as to be engageable with the under side of the plate near its rear
40 end and means for resiliently urging said plate securing means relatively away from each other.

2. A printing cylinder for rotary newspaper
presses including in combination a cylindrical
body adapted to support a curved stereotype
45 printing plate having recesses near its leading and trailing edges, clips mounted on said cylinder engageable with said recesses, means for resiliently urging said clips relatively away from each other and means at one end of the cylinder
50 for relatively moving said clips towards each other.

3. A printing cylinder for rotary newspaper
presses including in combination a cylindrical
body adapted to support a curved stereotype
55 printing plate having recesses near its leading and trailing edges, clips mounted on said cylinder projecting through individual apertures in the cylinder surface and engageable with said recesses, and means for continuously urging said
60 clips relatively away from each other during the operation of the press.

4. A printing cylinder for a high speed rotary
press including in combination a cylindrical body
adapted to support a curved stereotype printing
65 plate having recesses along its leading and trailing edges, fixed clips engageable with the recesses along one edge, axially spaced movable

clips projecting through apertures in the cylinder surface and engageable with the recesses along the other edge, a common shaft journaled in said cylinder and on which the movable clips are mounted and means for resiliently urging
5 the movable clips away from the fixed clips.

5. A printing cylinder for a high speed rotary
press including in combination a cylindrical body
adapted to support a rigid, curved stereotype
printing plate having access along its leading
10 and trailing edges, fixed clips engageable with the recesses along the leading edge, movable clips engageable with the recesses along its trailing edge, a common shaft journaled in its cylinder and on which the movable clips are mounted
15 and means for resiliently urging the movable clips rearwardly with respect to the rotation of the cylinder.

6. In combination, a stereotype plate cylinder,
means for securing a stereotype plate to the cylinder along its leading end, and a plurality of
20 spaced apart devices engaging the trailing end of the plate and individually exerting resilient pressure at said separated points to tension the plate about the cylinder from the leading end
25 to the trailing end.

7. In combination, a stereotype plate cylinder,
means for securing a stereotype plate to the cylinder along its leading end, and a plurality of
30 spaced apart devices engaging the trailing end of the plate and spring means operating on the individual devices to exert resilient pressure at said separated points to tension the plate about the cylinder from the leading end to the trailing
35 end.

8. In combination, a stereotype plate cylinder,
means for securing a stereotype plate to the cylinder along its leading end, and means for exerting live resilient pressure to tension the plate about the cylinder from the leading end to the
40 trailing end, including a shaft journaled in the cylinder, plate engaging means mounted on the shaft and means for exerting continuous resilient pressure on the plate engaging means.

9. In combination, a stereotype plate cylinder,
45 means for securing a stereotype plate to the cylinder along its leading end, and means for exerting live resilient pressure to tension the plate about the cylinder from the leading end to the trailing end, including a shaft journaled in the
50 cylinder, a plurality of plate-engaging devices mounted on the shaft, and a plurality of resilient devices for exerting continuous resilient pressure on the individual plate-engaging devices.

10. The method of maintaining a stereotype
55 printing plate on a plate cylinder in good printing condition at high operating speeds including securing the stereotype plate to the cylinder along its leading end, and resiliently stretching
60 the plate around the cylinder from the leading end to the trailing end and also from the printing line to the trailing end during printing to eliminate wrinkling of the plate as it is subjected to pressure during printing.
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