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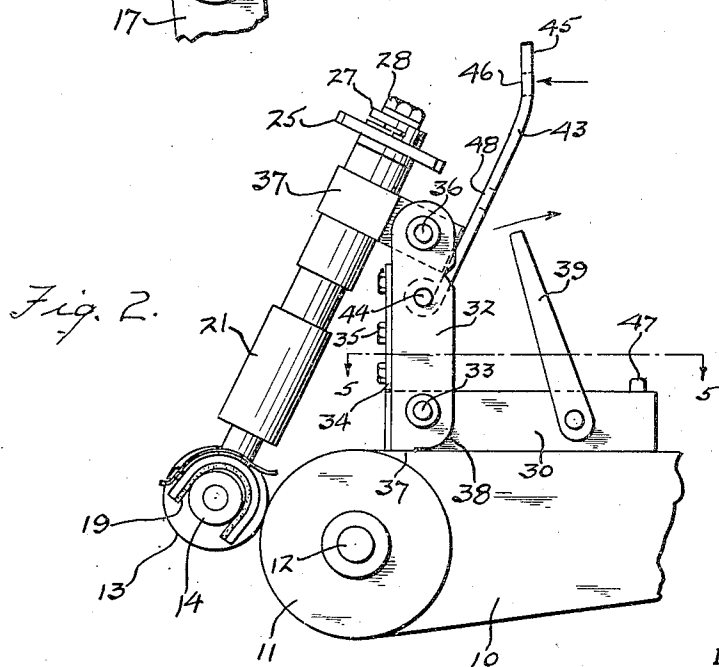
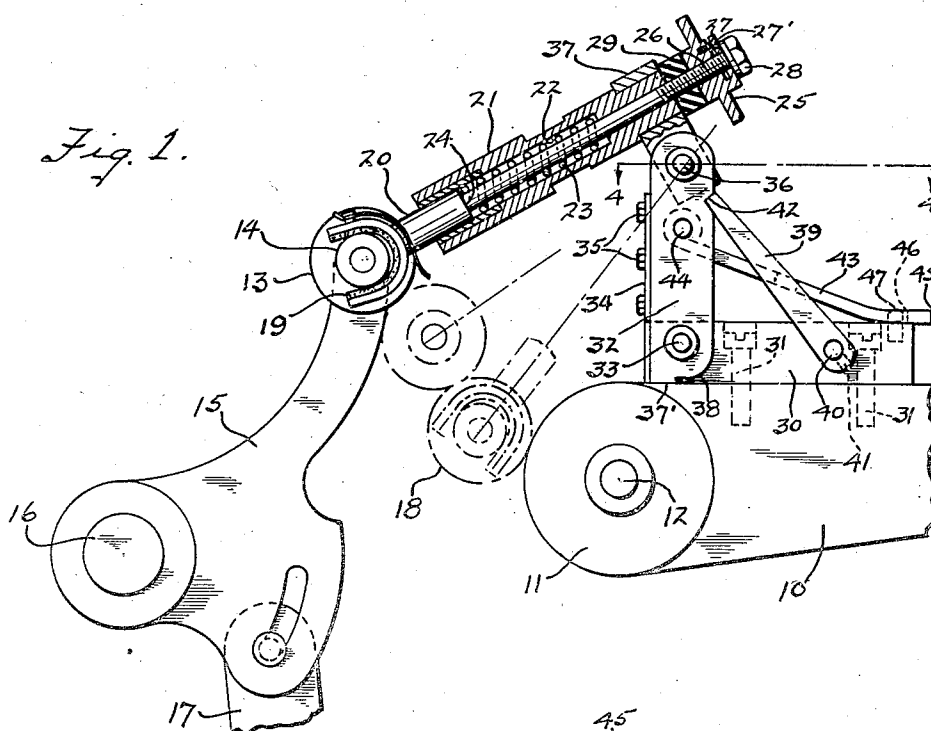
G. H. SCHULTZ

2,459,189

DUCTOR ROLLER CONTROL FOR PRINTING PRESSES

Filed March 25, 1946

2 Sheets-Sheet 1



INVENTOR.
GEORGE H. SCHULTZ

BY *Robert Harding Jr.*
ATTORNEYS.

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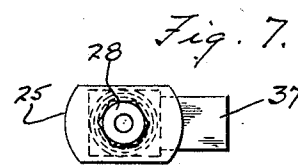
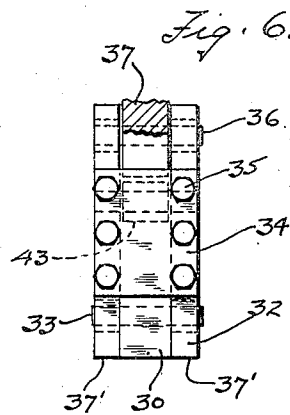
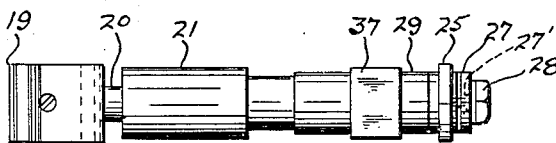
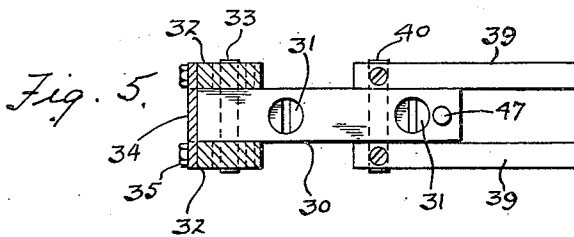
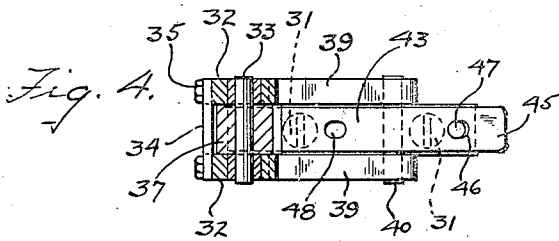
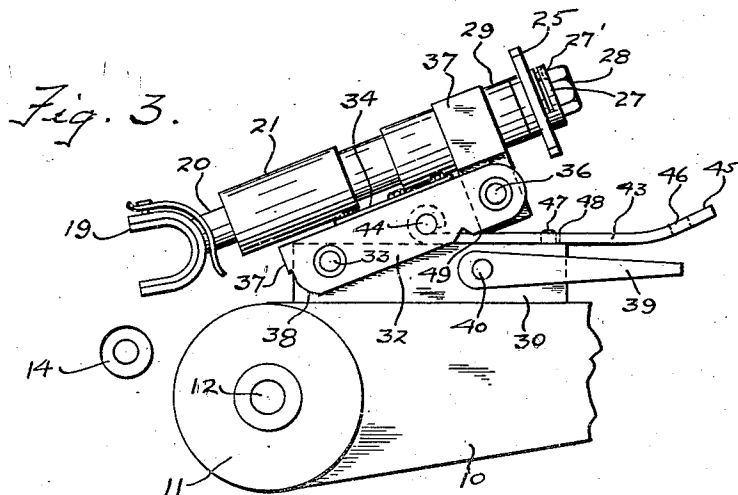
G. H. SCHULTZ

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DUCTOR ROLLER CONTROL FOR PRINTING PRESSES

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2 Sheets-Sheet 2



INVENTOR.
GEORGE H. SCHULTZ

BY *Robert Harding*
ATTORNEYS

UNITED STATES PATENT OFFICE

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DUCTOR ROLLER CONTROL FOR PRINTING PRESSES

George H. Schultz, Elmsford, N. Y.

Application March 25, 1946, Serial No. 656,915

7 Claims. (Cl. 101—348)

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This invention relates to printing presses and particularly to the control of the ink distributing mechanism therefor. The invention is an improvement over the device disclosed in my copending application, Serial Number 598,962, filed June 12, 1945, and entitled "Ductor roller control for printing presses."

In Miehle and other cylinder type printing presses a reciprocating ink distributing table is engaged by an ink applying ductor roller which is caused to rotate as the table reciprocates under it and to swing downwardly at the end of each reciprocation of the table and touch an ink fountain roller to obtain a supply of ink. The ductor roller rotates in contact with the fountain roller for a fraction of its rotation each time it touches the fountain roller, a certain amount of ink being picked during this contact.

Since the ink distributing table is moving at a considerable speed when it moves free of the ductor roller, it leaves the latter spinning, and since each cycle of operation of the press has the same effect on the ductor roller as the preceding cycle, unless something is done to control the movement of the ductor roller, the tendency is for the same surface area thereon to contact the ink fountain roller for each cycle of operation. Furthermore, if the ductor roller is rotating with respect to the ink fountain roller when the contact is made, there will be a tendency for the ink to pile up on the ductor roller in front of the point of contact. Thus, a particular portion only of the ductor roller receives ink at each contact with the fountain roller.

The same point on the surface of the ductor roller will also tend to contact the ink distributing table at the same point for each cycle, and thus a particular strip of surface across the table will receive ink from that particular portion of the ductor roller having the supply of ink. This produces an uneven distribution of ink on the table and consequently an uneven distribution of ink on the type with the obvious undesirable results.

In the application above referred to a brake shoe is disclosed which is arranged to contact the shaft of the ductor roller during a portion of its movement between the ink table and the fountain roller and to apply a pressure thereto under control of a compression spring, whereby its rotation is arrested so that it will touch the fountain roller at a slightly different point (say one third of a complete rotation from its previous point of contact) for each cycle of operation. This distributes the ink evenly on the ink

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table and eliminates the undesirable effects described above. The time during which the brake shoe is acting on the ductor roller shaft is adjustable and hence the amount of rotation of the ductor roller as it moves between the ink table and the fountain roller is adjustable.

The device carrying the brake shoe is shown in the said application as an attachment for the printing press, and the brake shoe is shown as operatively associated with the shaft of the ductor roller at all times. Because of this fact the brake shoe may become damaged when the ductor roller shaft is removed unless precautions are taken. The present invention contemplates a mounting for the brake shoe whereby it can be swung clear of the ductor roller shaft into a collapsed or folded out-of-the-way position or held in operative position with respect to the ductor roller shaft. The present invention provides for releasably securing the brake shoe assembly in either position.

It is therefore the principal object of the invention to provide a ductor roller controlling attachment for a printing press which may be locked in position in operative association with the ductor roller shaft and which may be quickly and easily folded or collapsed into an out-of-the-way position, free from association with the ductor roller shaft, without upsetting the brake shoe adjustment.

Another object of the invention is to provide a ductor roller controlling attachment for a printing press which is adapted to be locked in operative association with the ductor roller shaft by two locking means, one of which is easily released and is adapted to cooperate with the other to affect the release thereof.

Another object of the invention is to provide a ductor roller controlling attachment for a printing press in which a plurality of locking means is provided for locking the device in operative association with the ductor roller and one of said locking means cooperates to lock said device in a collapsed, out-of-the-way position when it is moved into such position.

Other objects of the invention will be apparent as the description of the invention proceeds.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a side elevational view partly in section of an attachment embodying the invention, showing it in operative position;

Figure 2 is a side elevational view of the same attachment showing it in another position and

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in the act of being released from its operative position;

Figure 3 is a side elevational view of the same attachment showing it in its collapsed or folded, out-of-the-way position;

Figure 4 is a sectional plan view of the attachment in the position shown in Figure 1 and taken on the line 4—4 of that figure;

Figure 5 is a sectional plan view of the attachment taken on the line 5—5 of Figure 2 but showing the bracing means thrown back into the folded position;

Figure 6 is a front view of the attachment in the position of Figure 1 with the brake shoe support broken away;

Figure 7 is an end view of the brake shoe support; and

Figure 8 is a plan view of the brake shoe and support.

Referring now more specifically to Figure 1, only those portions of a Miehle type printing press have been shown which are deemed necessary for an explanation of the invention. A portion of the frame 10 is shown supporting an ink roller 11 rotatably mounted on a shaft 12 and adapted to be supplied with ink from a reservoir supported within the frame to the right of the ink roller, as viewed in Figure 1. The ductor roller 13 is rotatably mounted on a shaft 14 which is supported between two brackets 15 only one of which is shown. The brackets 15 are pivotally mounted on a shaft 16 and are caused to oscillate about that shaft as an axis by means of a link 17 controlled by a suitable portion of the operating mechanism (not shown). With the oscillation of the brackets 15, the ductor roller 13 is caused to swing back and forth between the position shown in full lines and that shown in dot-and-dash lines at 18, in which latter position the ductor roller is "kissing" the ink roller to receive ink from it. It will be understood that in its uppermost position the ductor roller will contact an ink table (not shown), when the latter moves under the roller.

The attachment for controlling the ductor roller comprises a brake shoe 19, curved into a U-shaped cross section to fit around the shaft 14 and supported on a rod 20 mounted for longitudinal movement in a tubular support member 21. An enlarged bore 22 of the member 21 houses a coil spring 23, and this spring is compressed between the inner end of the enlarged bore 21 and a shoulder 24 on the rod 20. The rod and attached brake shoe may be forced into the support only by compressing the spring 23, while the rod is prevented from moving to the left out of the support by means of a nut 25, screwed on to the threaded end 26 of the rod 20. The nut 25 preferably has friction engagement with the threaded end 26 of the rod 20 and to this end may be provided with a split portion 27, which may be adjusted by a screw 27' although any other type of friction grip may be employed. Another nut 28 may be screwed onto a smaller diameter end portion of the rod 20 to prevent the nut 25 from being turned off the rod altogether. Between the nut 25 and the end of the support 21 I preferably provide a thick fibre washer 29 to absorb the shock as the spring drives the rod outwardly during each cycle of operation of the device.

The brake shoe and the support therefor, just described above, is substantially the same as disclosed in my copending application, above referred to. The support is pivotally mounted so

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that a toggle action is produced when the ductor roller oscillates, thus swinging the brake shoe support about its pivot and causing the brake shoe to engage the shaft of the ductor roller adjacent the midpoint of its travel. By means of the adjustment of the nut 25 the time during which the brake shoe bears against the shaft of the ductor roller in each cycle may be adjusted, and it will be seen that the pressure of the brake shoe against the shaft will be determined by the compression spring 23. This application is concerned with the manner of pivotally mounting the brake shoe support which provides for the collapsing feature already referred to.

In order to mount the brake shoe support according to the present invention, a base member 30 which may comprise a solid rectangular block of steel may be fastened to the frame 10 in any desired manner, as by two stud bolts 31. A pair of uprights 32 are pivotally mounted on one end of the base member 30 by means of a shaft 33 which extends transversely through a suitable hole in the end of the base member, parallel to the ductor roller shaft 14. Both uprights 32 are, preferably, arranged to move together as a unit as the shaft rotates in the base member. To this end a plate 34 is attached to both uprights by means of screws 35. The shaft 33 is spaced from the end of the base member 30 so that when the uprights are at right angles to the base member 30, as shown in Figure 1, the sides of the uprights adjacent that end of the base member will be spaced from the end sufficiently to allow the edge of the plate 34 to bear against the upper surface of the base member. In this manner the plate 34 acts as a stop to prevent the uprights from being rotated any farther in the direction of the ductor roller than the right-angular position, shown in Figure 1, although the uprights are free to rotate to the right, as viewed in that figure.

A shaft 36 at the other end of the uprights and extending through both is used for pivotally mounting the brake shoe support 21. To this end a block 37 is mounted between the uprights, with the shaft 36 passing through a hole in the block, the block being fixed to the shaft in any desired manner. The other end of the block is provided with a hole into which a reduced portion of the end of the support 21 is tightly fitted, so as to be substantially integral with the block. The shaft 36 thus forms a pivot for the brake shoe support spaced from the center line of the support.

The uprights 32 are additionally prevented from pivoting to the left, as viewed in Figure 1, farther than the position shown in the figure by the ends 37' of the uprights which are adapted to engage the frame at the left of the pivot when in the position shown. The right lower corner 38 of each upright, however, is curved, so as to clear the frame when the uprights are rotated in the other direction.

A pair of brace members 39 are mounted, one on each side of the base member 30, on a shaft 40 which extends through a hole in the base member, and these brace members are secured to the shaft in any desired manner, as by set screws 41 so that they will rotate in unison as the shaft rotates. The substantially flat ends of the brace members 39 are adapted to engage notches 42 provided in edges of the uprights 32, and when engaging these notches, as shown in Figure 1, the uprights and the associated structure are prevented from rotating to the right and the brake shoe is thus held

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in operating position with respect to the ductor roller shaft.

It is desirable to have the brace members 39 in tight engagement with the uprights 32 when the press is operating, so as to prevent the brace members from being vibrated out of their position in the notches 42, and to this end the brace members are slightly longer than will permit them to slip easily into the notches. In order to seat the ends properly in the notches, the uprights and associated brake shoe supporting assembly are sprung slightly beyond the normal position by means to be described hereinafter in order to let the brace members fall into the notches.

To provide means for springing the uprights, as mentioned above, so that the brace members may be seated properly in the notches and released when desired, I provide a flat metal handle member 43 which may be preferably a little narrower in width than the distance between the uprights 32. This member is pivoted to the uprights by means of a shaft 44 which extends through the uprights and may conveniently be bent into an eye which surrounds the shaft. This combined handle and brace member 43 may have an end portion 45 which is bent to lie flat on the base member 30 when the device is in the operating position, as shown in Figure 1, in which position a hole 46 in the end portion 45 fits over a pin 47 which extends upwardly from the base member. With the handle member 43 in this position, even without the brace members 39, the uprights 32 are held in their operating position.

When it is desired to fold or collapse the device in order to remove the ductor roller shaft, or for other reasons, the handle and brace member 43 is raised by grasping the end portion 45 which overhangs the base member 30. The edge of the hole 46 easily clears the pin 47 by virtue of the arc through which the handle member moves. The handle member is then raised to the position shown in Figure 2 when a portion of it will engage the block 37, associated with the support member 21. Pressure with the palm of the hand against the handle member as a lever will spring the parts slightly, if necessary compressing the spring 23, so as to permit the brace members 39 to be swung out of the notches 42 in the direction of the arrow in Figure 2 until they lie down against the frame by the sides of the base member 30, as they are shown in Figure 3.

The uprights 32 are now free to be swung to the right, as viewed in Figures 1, 2, and 3, until they assume the position of Figure 3, and the brake shoe support may be swung down against the plate 34, as shown. The handle-brace member 43 will now lie flat on the top of the base member 30, and in this position the pin 47 will pass through another hole 48, provided for that purpose in the member 43. With the handle member in this position and the support 21 folded down against the plate, the corner 49 of the block 37 acts to prevent the handle member from being raised without considerable force being applied to it and thus is an effective lock. When the support 21 is pivoted in a clockwise direction from the position shown in Figure 3 and the corner 49 of the block thus raised from the handle, the latter may be easily raised from the pin 47 to raise the whole assembly again, and by slightly springing it, as already explained, the brace members 39 may be swung into engagement with the notches. If let go, the handle 43 will then fall into engagement with the pin 47 to act as an additional brace and

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safety catch to hold the device in operative position.

It will be seen from the above that I have provided a supporting arrangement for a ductor roller controlling device by means of which the device may be secured in operating position or may be folded down out of the way when it is desired to remove the ductor roller shaft or for other reasons. The device may be substantially locked in operating position without danger of being shaken loose by the vibration of the machine, and, similarly, it may be substantially locked in the folded or collapsed position. Once the operating position of the brake shoe with respect to the ductor roller shaft is adjusted by the adjustment of the nut 25 to give the desired control to the ductor roller shaft, the device may be collapsed and returned again to the operating position, at will, without disturbing this adjustment. All of the desirable features explained in connection with the above-mentioned application are retained, including the ability to adjust the device while the press is in operation.

What I claim is:

1. An attachment for a printing press having a frame and a ductor roller, arranged to swing about an axis parallel to the shaft of said roller, comprising a brake shoe adapted to engage the shaft of said ductor roller, a base for said attachment adapted to be secured to said frame, upright means pivotally mounted on said base, support means for said brake shoe pivotally mounted on said upright means, said base arranged to be mounted on said frame in such a position that the pivot of said brake shoe support means lies on a line perpendicular to said axis and within the arc of movement of said ductor roller, means associated with said support means to cause said brake shoe to contact said ductor roller shaft for a portion only of its swing, and releasable means holding said upright means in fixed operating position with respect to said base and permitting the swinging thereof about the pivot on said base when said means is released to move said brake shoe clear of said ductor roller shaft.

2. An attachment for a printing press having a frame and a ductor roller, arranged to swing about an axis parallel to the shaft of said roller, comprising a brake shoe adapted to engage the shaft of said ductor roller, a base for said attachment adapted to be secured to said frame, upright means pivotally mounted on said base, support means for said brake shoe pivotally mounted on said upright means, said base arranged to be mounted on said frame in such a position that the pivot of said brake shoe support means lies on a line perpendicular to said axis and within the arc of movement of said ductor roller, means associated with said support means to cause said brake shoe to contact said ductor roller shaft for a portion only of its swing, and releasable bracing means extending from a portion of said upright means to a portion of said base, pivotally attached to one and adapted to engage the other, to secure said upright means in operating position and to permit the swinging thereof about the pivot on said base when said means is released to move said brake shoe clear of said ductor roller shaft.

3. An attachment for a printing press having a frame and a ductor roller, arranged to swing about an axis parallel to the shaft of said roller, comprising a brake shoe adapted to engage the shaft of said ductor roller, a base for said attachment adapted to be secured to said frame, upright means pivotally mounted on said base, sup-

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port means for said brake shoe pivotally mounted on said upright means, said base arranged to be mounted on said frame in such a position that the pivot of said brake shoe support means lies on a line perpendicular to said axis and within the arc of movement of said ductor roller, means associated with said support means to cause said brake shoe to contact said ductor roller shaft for a portion only of its swing, releasable means to secure said upright means in operating position and to permit the swinging thereof about the pivot on said base when said means is released to move said brake shoe clear of said ductor roller shaft, said last-mentioned means comprises bracing means pivotally attached to said base and engageable with said upright means when said upright means is sprung in the direction of said ductor roller, and additional bracing means pivotally secured to said upright means and engageable with said base.

4. An attachment for a printing press, as defined in claim 3, in which the bracing means pivotally secured to the upright means is extended to form a hand engaging member and a stop is provided on said upright means limiting the swing of said bracing means, whereby said member may be used to spring said upright means in the direction of said ductor roller and thereby to release the first bracing means and permit the swinging of said upright means and associated parts away from said ductor roller.

5. An attachment for a printing press, as defined in claim 3, in which the bracing means pivoted to said upright means is provided with a first hole adapted to engage a pin on the base for bracing said upright means in operating position and a second hole adapted to engage said pin when said upright means is swung to its limit of movement towards said base, and in which means is provided to lock said bracing member with said second hole in engagement with said pin by the support for said brake shoe when said support is swung against said upright means.

6. An attachment for a printing press having a frame and a ductor roller arranged to swing about an axis parallel to the shaft of said roller comprising a brake shoe adapted to engage the shaft of said ductor roller, a base for said attachment adapted to be secured to said frame, a pair of uprights pivoted to said base at one end thereof about an axis parallel to said shaft of said ductor

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roller, means connecting said uprights to cause them to move in unison and to provide a stop which contacts said base when said uprights are in their operating position perpendicular with respect to said base, support means for said brake shoe, pivotally mounted between the outer ends of said uprights, means to provide limited longitudinal movement of said brake shoe with respect to said support, resilient means to urge said brake shoe towards the outer limit of the movement with respect to said support, a shaft rotatably mounted at the other end of said base parallel to the pivotal axis of said uprights, a pair of brace members secured to said shaft in spaced relation and adapted to engage notches in said uprights when said brace members are swung towards said uprights and said uprights are sprung slightly beyond their perpendicular stopped position, a second brace member pivoted between said uprights at a point between the point where said support is pivoted and the point where said supports are pivoted to said base, said second brace member being curved to lie on the top of said base when said uprights are in their operating position, a pin extending outwardly from the top of said base and adapted to pass into an opening in the portion of said second brace member lying against said base, whereby said brace member is held against movement with respect to said base and said uprights are additionally held in operating position by said member.

7. An attachment for a printing press, as defined in claim 6, in which the second brace member is provided with a second hole into which the pin on the base may pass when the uprights are swung towards the base and the associated support and brake shoe are withdrawn from the ductor roller shaft, and in which a portion of the support adjacent said uprights acts to lock said second brace member when said support is swung towards said uprights.

GEORGE H. SCHULTZ.

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