

April 7, 1925.

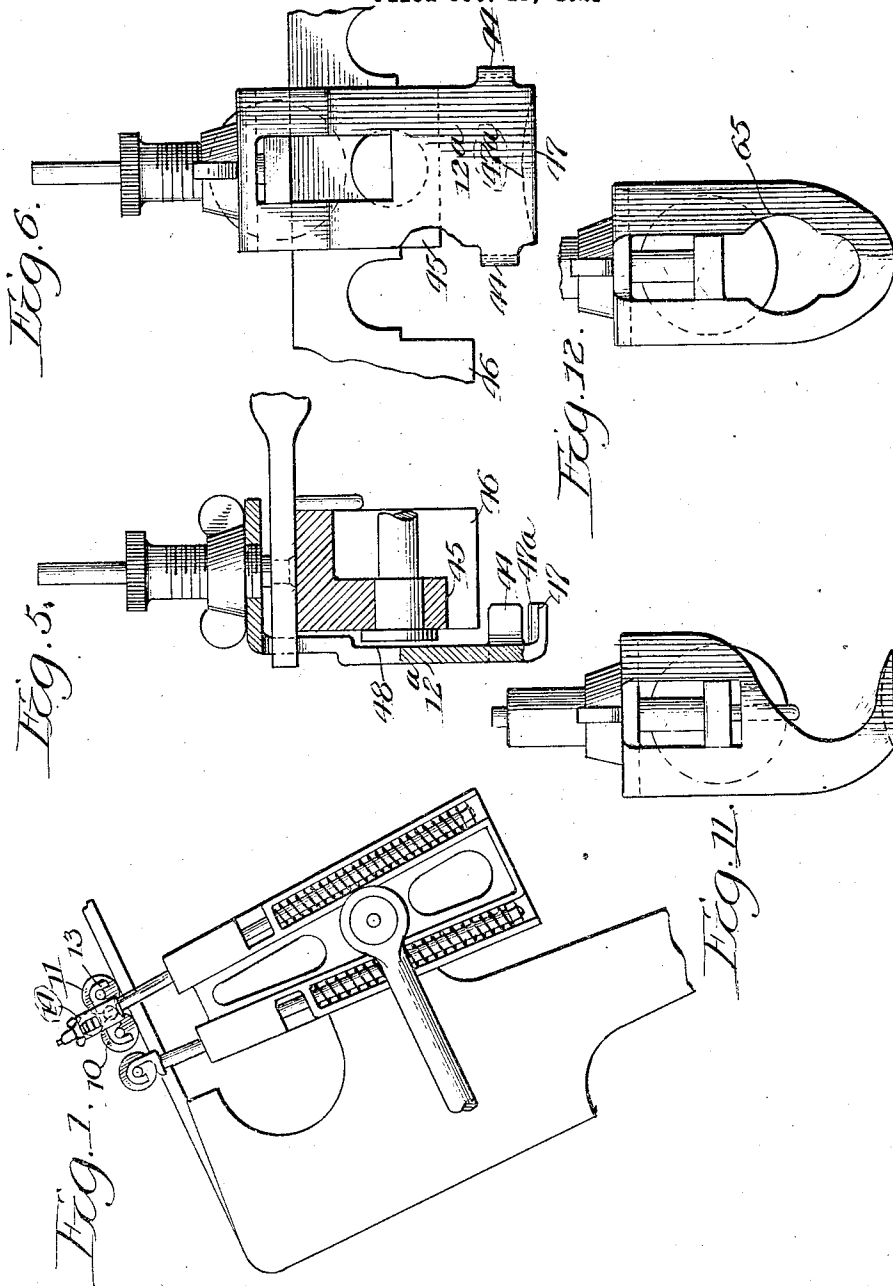
1,533,063

A. J. DAANE

VIBRATOR FOR PRINTING PRESSES

Filed Oct. 13, 1921

4 Sheets-Sheet 1



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by C. M. Merrill
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April 7, 1925.

1,533,063

A. J. DAANE

VIBRATOR FOR PRINTING PRESSES

Filed Oct. 13, 1921

4 Sheets-Sheet 2

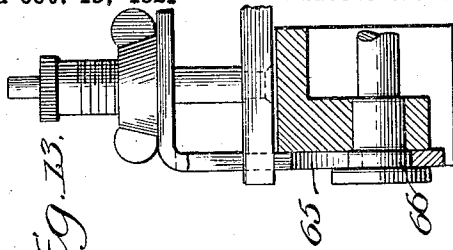
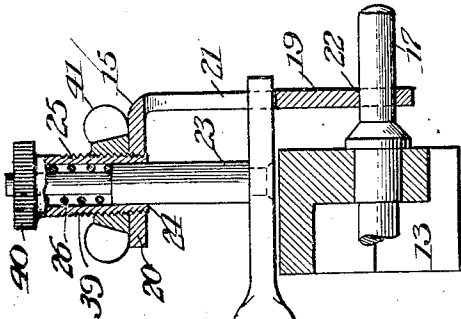


Fig. 13.

Fig. 2.

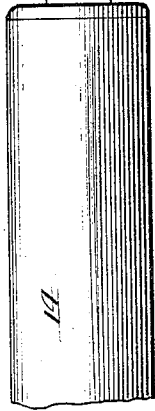


Fig. 4.

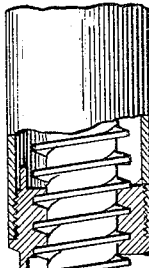
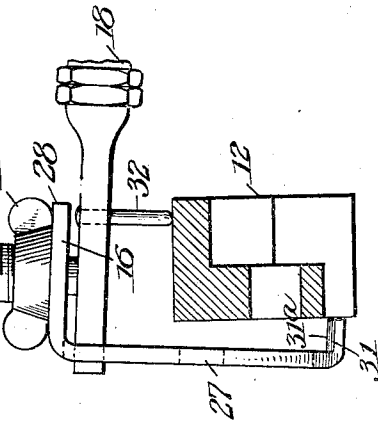
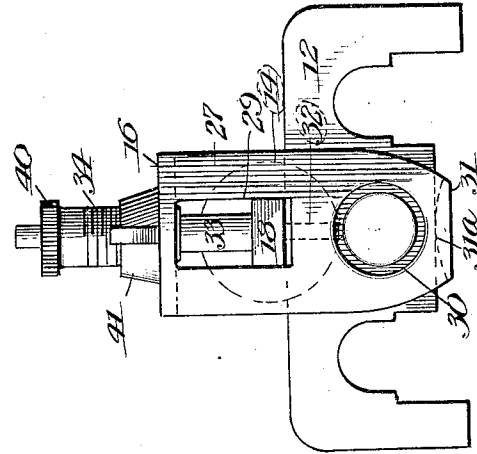
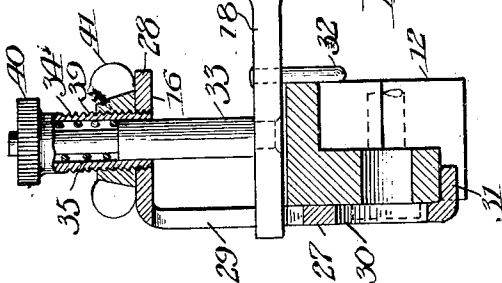


Fig. 3.



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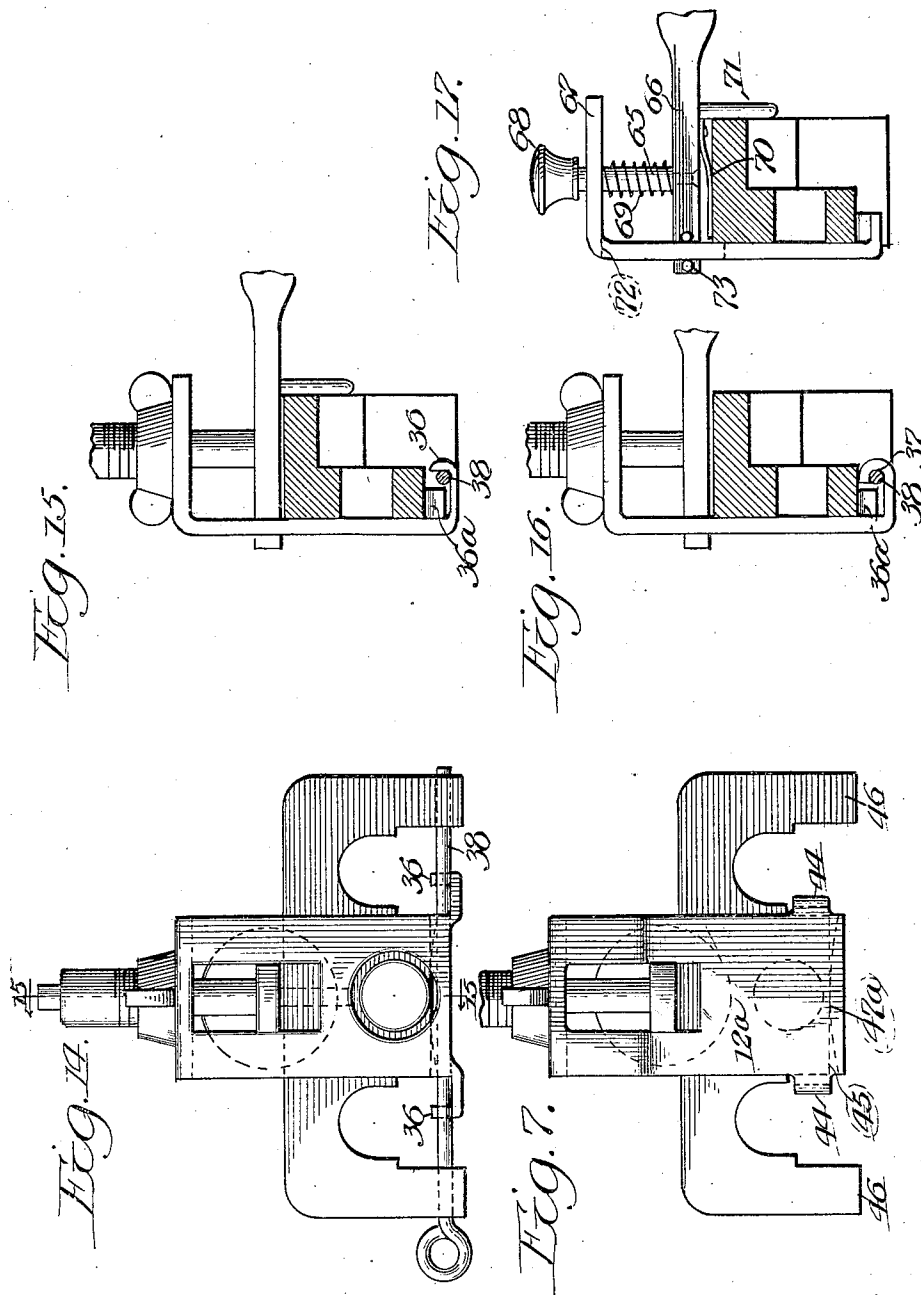
1,533,063

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VIBRATOR FOR PRINTING PRESSES

Filed Oct. 13, 1921

4 Sheets-Sheet 3



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1,533,063

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Filed Oct. 13, 1921

4 Sheets-Sheet 4

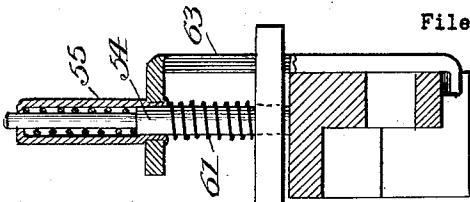


Fig. 8.

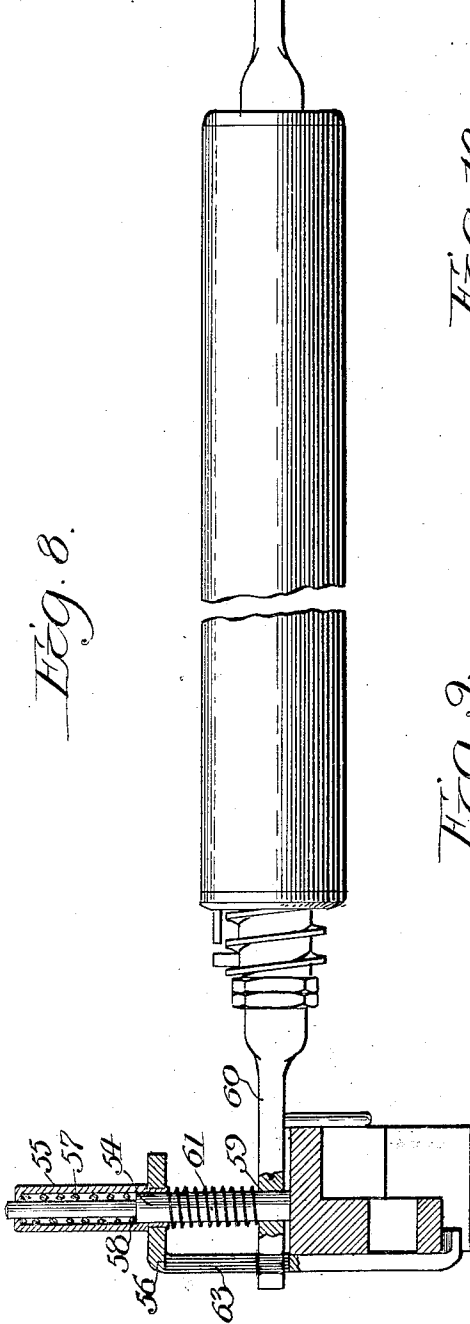


Fig. 9.

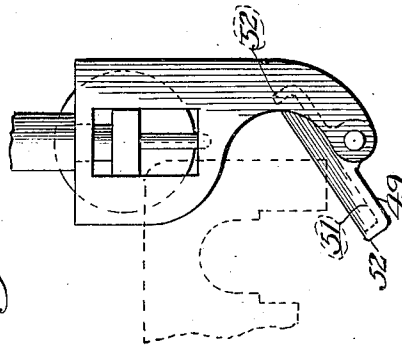
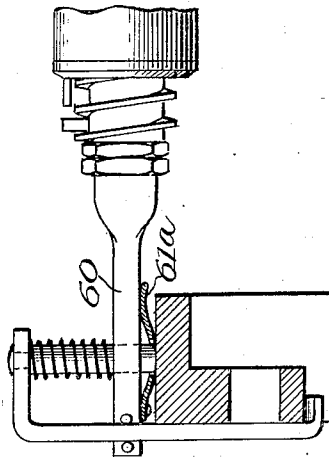


Fig. 10.



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UNITED STATES PATENT OFFICE.

ARTHUR J. DAANE, OF CHICAGO, ILLINOIS.

VIBRATOR FOR PRINTING PRESSES.

Application filed October 13, 1921. Serial No. 507,487.

To all whom it may concern:

Be it known that I, ARTHUR J. DAANE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Vibrators for Printing Presses, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to improvements in ink distributing rollers or what is generally known in the printing art as a vibrator which cooperates with the inking rollers of the press to distribute the ink upon them, so that all portions of the type will be properly inked.

The particular structure forming the basis of the application relates to a means whereby this distributing roller or vibrator may be readily attached relatively to the press without necessitating any change whatsoever in the construction of the press, the construction also permitting the distributing roller to be readily detached from the press to allow it to be cleansed when this is found necessary.

It is an object to provide a construction capable of performing the above function which is adapted to permit of its association and disconnection with respect to the press without the aid of any tools to accomplish its connection and removal; yet will be securely held with respect to the press without fear of its becoming accidentally disconnected.

In addition it is an object of the invention to provide a construction which will adapt itself to and cooperate with various surfaces over which the inking rollers pass during their travel relatively to the type and source of ink supply, and which will at all times maintain a close contact between the inking rolls and distributing roller or vibrator.

In addition it is an object to provide an adjustment whereby the proper tension will at all times be maintained between the various parts which cooperate with each other to accomplish the desired end. The

structure employed is particularly adapted to be associated with the inking roll saddle in which the ends of the inking roll shafts are journaled, and which in some printing press structures are carried by a swinging frame which travels across the plane of the type and ink platen. The structure whereby the association and disconnection of the distributing roller and the inking rollers is accomplished is such that it is capable of association with the body of the saddle by being passed over the upper face of this portion and into contact with the body thereof, or may be associated therewith by passing said structure over the end of the saddle into a position which allows the distributing roller to be arranged between a pair of inking rollers. As before stated, the structure is provided with a means for maintaining the distributing roller against the inking rollers. This structure also provides a means for holding the means whereby the distributing rollers are secured to the saddle in contact with the saddle and thereby prevents their accidental separation. A variable tension device is associated with this structure, so that the inking roller may be adjusted to suit various contingencies which may be present or may arise.

I wish it understood that the various structures herein described may be combined with each other or not, depending upon various structures or the desires of the user.

To accomplish the prime object of the invention, which is the association and disconnection of the distributing roll with the inking rollers and saddle or similar part, without the aid of any tools or the necessity of changes being made in the press by adding parts thereto for this purpose, includes the use of an extensible element arranged at one or both ends of the distributing roll which is extensible to allow certain parts of its construction to be positioned with relation to the saddle for engagement therewith, and which upon its contraction engages the saddle and cooperates to hold the end of the shaft in position relatively to the saddle.

In one embodiment of the invention the structure is capable of being extended trans-

versely of the axis of the roller to effect a connection and disconnection of the distributing roller, and may also employ a resilient structure to compensate for the various surfaces which the inking rollers traverse. One of the members whereby the distributing roller is held with relation to the inking rollers is designed to cooperate with a pin or projection which is part of the saddle of the press and is provided to afford a handle or finger piece to manually move the swinging frame which carries the inking rollers. The invention will be explained in detail in conjunction with the accompanying drawings, which show various embodiments of the invention and combinations, it being obvious that other arrangements may be resorted to without departing from the spirit of the appended claims forming a part hereof.

In the drawings Figure 1 is a side elevation of a portion of a printing press showing one embodiment of the invention applied thereto.

Figure 2 is an elevation of an ink distributing roller partially in section showing one structure of which the invention is susceptible and applied to the saddles of the inking roll frame of a printing press.

Figure 3 is a view of one end of the ink distributing rollers showing the relative position the parts will assume when being attached to the saddles of the printing press.

Figure 4 is an end elevation of the structure shown at one end of Figure 2.

Figures 5, 6, and 7 are respectively sections and elevations of a modified construction, which may be resorted to, and is adapted for application to the press by being passed over the end of the saddle.

Figure 8 is an elevation of the ink distributing roller having still another embodiment of the invention applied thereto.

Figure 9, is an elevation of an end of the ink distributing roller having another embodiment of the invention applied thereto.

Figure 10, is an elevation of a construction which may be resorted to, and for attaching the distributing roller to the saddle of the press by being passed over the end thereof.

Figure 11, is an end elevation of an attaching device which may be employed in conjunction with the structure shown in Figures 5 and 6.

Figures 12 and 13, are respectively an end elevation and section of still another form which may be resorted to.

Figure 14, is an end elevation of a structure which is adapted for connection with a pin employed for holding the saddle with relation to the swinging frame of the printing press.

Figure 15 is a section taken on line 15—15 of Figure 14.

Figure 16 is a section similar to Figure

15, showing the modified arrangement which may be resorted to.

Figure 17 is a sectional view of an attaching mechanism similar to that disclosed in Figures 8 and 9.

The invention will be explained in conjunction with a printing press having an oscillating frame which carries inking rollers which traverse the type and the platen of the press. A press of this character is usually provided with what is termed a saddle which engages the opposite ends of the inking roller shafts and is carried by the oscillating frame. These saddles are as before stated, arranged at the opposite ends of inking rollers 10 and 11, and are respectively designated 12 and 13. The devices for removably attaching the distributing roller 14 to these saddles 12 and 13 are respectively designated 15 and 16. One of these devices is designed to cooperate or be attached to a pin 17, which is part of the usual saddle structure and provided to permit the inking rollers and frame to be moved manually when this is desired or found necessary.

The structure illustrated in Figure 2 is designed so that one of the members, such as 15, may be arranged in cooperative relation to the pin 17 and the other as 16, in relation to the saddle 12 and be removed therefrom. These devices 15 and 16 are each secured to the opposite ends of the shaft 18 upon which the distributing roller is mounted for reciprocation. These devices are somewhat different in construction with respect to each other in this embodiment of the invention. However, it will be evident from the following description that they may be substantially identical with each other. Both of these structures, however, permit the shaft 18 and the roller 14 which it carries to be moved relatively to the saddles and relatively to certain other parts entering into the construction of the devices 15 and 16. The device 15 is formed to produce the vertical portion 19 and the horizontal portion 20. This vertical portion is provided with a slotted aperture 21 and another aperture 22, the latter being provided to cooperate with the pin 17 and the former to receive one end of the shaft 18 which is movable in the slot 21 to allow the shaft to reciprocate in the slot. A vertically arranged spring pressed plunger 23 is secured to this end of the shaft adjacent the vertical portion 19 and extends upwardly through an aperture 24 in the horizontal portion 20 and into a housing 25 which is carried by the horizontal portion 20. A spring 26 is provided and arranged in the housing and reacts between a shoulder on the pin and the end of the housing. This structure maintains the shaft 18 and the roller 14 in position against the inking

rollers, yet permits the distributing roller to move with relation to the bracket. The opposite end of the shaft 18 is also provided with a bracket similar in construction to the bracket 15, differing however in certain essentials because of the functions it has to perform which are somewhat different from those of the bracket 15. This bracket 16 is constructed to provide the vertical portion 27 and the horizontal portion 28, the slotted aperture 29, the aperture 30 and the inwardly projecting lug or ledge 31, the latter being designed to engage the under surface of the saddle 12, to assist in holding the distributing roll with relation to the saddle.

This end of the shaft 18 extends through the slot and has a pin 32 provided to also engage the saddle. A spring pressed plunger 33 is secured to this end of the shaft and extends therefrom through the horizontal portion 28 and into the housing 34, which houses the spring 35. This spring and its associated elements are provided to perform the same function as similar parts in the structure of the device 15, and in addition allows this end of the shaft to be moved with relation to the bracket to permit the bracket to be attached to the saddle 12. To apply this structure to a press the bracket 15 by means of the aperture 22 is passed over the end of the pin 17, extending from the saddle 13. The bracket 16 and the adjacent end of the shaft 18 are moved relatively to each other so that this end of the shaft is arranged adjacent the uppermost end of the slot 29, or in other words, these portions are compressed. The entire shaft 18 and roller 14 and the bracket 15 are then moved towards the saddle 12, this position the ledge 31 so that it will clear the outer surface of the saddle and allows it to be pressed transversely of the length of the saddle until the ledge is arranged below the under face of this saddle 12. The pin 32 at this time rests upon or is arranged adjacent the upper face of the saddle and by a slight movement of the shaft towards the saddle 12, which is permitted by virtue of the connection of the pin and bracket 15, allows the pin 32 to be arranged adjacent the inner side of the saddle 12 and then moved towards the saddle, arranging it at one side thereof. The vertical part of the bracket 16 is at this time arranged at the opposite side of the saddle and the ledge or extension 31 is then caused to engage the under side thereof. Upon the expansion of the parts the saddle 12 will be bounded on four sides, respectively, by the pin 32, vertical wall 27, ledge 31 and the end of the shaft 18, which securely hold the parts in proper relation, yet permits the shaft 18 to be moved with relation to the saddle without fear of disconnection, because of the length of the pin 32. To disconnect the device from the press the

shaft and the horizontal portion 28 and its associated parts are moved relatively to each other, or in other words again compressed, bringing the end of the pin 32 above the upper surface of the saddle. This permits the entire shaft to be moved outwardly with respect to the saddle until the ledge 31 is free of the under side thereof. When the parts are arranged in this manner this end is lifted away or free from the saddle and the entire shaft is then moved lengthwise of the pin 17 towards the end thereof. The movement of the shaft towards the end of the pin causes the bracket 15 to be disconnected from the pin, allowing the device to be moved from the press.

The bracket 16 may be provided with a hooked shaped end 36 or an apertured end 37, and the curved face 36^a which engages the intermediate portion of the saddle, as shown in Figures 14, 15, and 16, and a removable pin 38 may be employed to permit the hook to engage it or allow the pin to be passed through the aperture. These devices heretofore mentioned may, if so desired, be provided with an adjustable tension device whereby the tension may be varied to suit various conditions which may arise. To provide a structure such as this the housings 25 and 34 will be supplied with the screw threads 39 and the knurled head 40 which when manipulated varies the tension of the spring contained in these housings. A set nut 41 is also provided for locking these portions in their adjusted position.

In another form of the invention both ends of the vibrator shaft will be provided with a construction whereby the brackets and the shaft and roller may be applied to the press by passing the brackets over the end of the saddles instead of as previously mentioned. This form is illustrated in Figures 5, 6, and 7. In these structures the brackets 12^a are provided with ears or lugs 44 which extend from the body of the bracket, or are arranged below the lower face of the saddle and then passed over the end of the saddle into juxtaposition to a portion arranged at about the center of length of the saddle. The bracket being moved into engagement with this portion of the saddle, with the lugs or extension 44 arranged upon opposite sides of this centrally disposed portion 45 of the saddle. These lugs 44 are arranged relatively to the bracket 12^a so that they will pass below the ends 46 of the saddle when the bracket is depressed, thereby allowing the extension 47 and lugs 44 of this structure to be passed over the end of the saddle and into alignment with the portion 45 of the saddle which is embraced by the lugs 44 and engaged by the extension 47 upon the release and expansion or upward movement of the bracket. This extension 47 is provided with a curved face 47^a.

The head of a pin which holds the saddle to one end of the swinging arm of the press in some instances projects beyond the outer face of the saddle. Therefore provision is made in this bracket 12^a for permitting it to be passed beyond or across this pin into position, without interference with the head or the end of the inking roller shaft. To accomplish this the bracket is bent or otherwise formed to provide a recess 48 which will allow the bracket to be passed over the end of the pin and the end of the shafts of the inking rollers even though they project beyond the saddle. To remove this last named structure from the saddle, the shaft and bracket will be moved relatively to each other as previously explained, until the lugs 44 are brought beyond the lowermost face of the portion 45 and ends 46 of the saddle, it being evident that when these portions are thus arranged the bracket may be removed from the saddle by moving it endwise relatively to the saddle.

In the structure shown in Figure 10, the bracket is provided with a portion which is hingedly or pivotally secured to the end thereof, and therefore may be tilted or arranged so that it will pass over the end of the saddle.

This hinged or pivoted portion is designated by the numeral 49 it being pivoted at 50 to the bracket and may be also provided with the inwardly extending projection 51, the ends of which project upwardly forming the upward extensions 52 which engage the centrally arranged portion of the saddle at its lowermost and side faces. To apply this structure, one end of the member 49 is tilted downwardly relatively to the end of the saddle and passed beyond said end, then tilted upwardly allowing the opposite end to pass, this allows the pivoted member to be arranged or positioned so that it may engage the intermediate portion of the saddle.

In the structure shown in Figure 8, the bracket and ink distributor roller shaft are movable with respect to each other and each is provided with a separate spring one performing the function of releasably holding the bracket with respect to the saddle, and the other yieldably holds the ink distributor roller against the inking roller of the press.

In this structure the spring pressed element 54 has an end arranged in the housing 55 which is carried by the bracket 56. A coiled spring 57 is arranged in the housing and reacts between one end of the housing and the shoulder 58 of the spring pressed element. The opposite end of the element 54 is passed through the aperture 59 provided in the end of the vibrator shaft 60 and is permitted to rest upon the saddle of the press.

The coiled spring 61 is arranged upon

the element 54 and reacts between the shaft and the horizontal portion 62 of the bracket 56. The end of the vibrator shaft is projected through the slot 63 in the bracket in a manner similar to that described in the previously explained structures, and this allows the shaft to move relatively to the bracket and the saddle.

This structure may be applied to the saddle by passing it over the end of the saddle or across the upper face of the saddle as herein before described, and when applied performs the additional advantage of providing the proper pressure to the ink distributing and inking rollers of the press, the pressure required to perform this function being less than that necessary to hold the bracket with relation to the press.

In another exemplification of the invention shown in Figure 9, a flat spring 61^a is arranged and secured below the vibrator shaft. The object of this structure is similar to that illustrated in Figure 8, the flat spring 61^a acting to counteract the actuation of the coiled spring which bears against the shaft 60.

In the embodiment of the invention shown in Figures 12 and 13 the bracket corresponds with that shown in the structure illustrated in Figure 1, in all respects, differing however, in the substitution of a key hole shaped aperture 65 provided in the vertical wall of the bracket instead of the inwardly projecting ledge. The keyhole shaped aperture being designed for cooperation with the pin 66.

To apply this structure the bracket is passed over the saddle in a manner similar to that described in connection with the structure shown in Figure 1, the enlarged portion of the aperture being passed over the head of the pin, the latter being provided to hold the saddle with relation to the press. Upon the expansion of the elements, the reduced portion of the aperture will be brought into contact with the reduced portion of the pin, the head of the said pin preventing separation of the bracket and saddle.

In the arrangement shown in Figure 17, the plunger 65 is secured to the vibrator or inking roller shaft 66 and extends through the horizontal portion 67 of this bracket, it being provided with a knob 68 whereby the shaft may be lifted away from the saddle of the inking rollers. The coiled spring 69 reacts between the horizontal portions of the bracket and the shaft and maintains the shaft and the bracket in their proper positions during the operation of the device. This structure also employs an auxiliary spring 70 which relieves the pressure of the ink distributing roller from the inking rollers of the press. In this structure a pin 71 is employed and is provided

to perform the same function as similar pins shown in other structures. The shaft is held in the slot 72 by means of two laterally extending pins 73—73 which engage the material at one side of the slot and hold the shaft with relation to the bracket, yet permits it to reciprocate relatively thereto.

From the foregoing description of the structure it is evident that a means is provided whereby the ink distributing roller may be applied to the saddle of a printing press by either an endwise or crosswise movement of the roller relatively to the saddle and also that this may be accomplished without changing the structure of the press which eliminates many inconveniences which the user would otherwise be confronted with.

It is also evident that by providing the inwardly projecting portions similar to 31 with a curved face such as 31^a which contacts with the intermediate portion of the saddle, that, the bracket is permitted to rock relatively to the saddle under certain conditions, as for instance when the inking rollers pass over the track upon which they operate during the operation of the press. It is manifest that the structure is simple and relatively cheap to manufacture as many of the parts may be stamped into form which materially reduces the cost of manufacture.

Having thus described the invention, what I claim and desire to cover by Letters Patent is:

1. An ink distributing roller having means for attaching said roller to a printing press, said means including a member which extends inwardly substantially parallel to the axis of the roller for engaging the under face of that portion which is disposed between the inking rollers of a member to which the inking rollers are secured.

2. An ink distributing roller having means for attaching said roller to a printing press, said means including means for embracing the body of a member to which the inking rollers are secured between said inking rollers, said second mentioned means permitting said attaching means to rock with relation to the member to which the inking rollers are attached.

3. An ink distributing roller having means for attaching said roller to a printing press, said means including means for engaging the body of a member to which the inking rollers are secured by being passed over the end of said member transversely to the axis of said rollers.

4. An ink distributing roller having means for attaching said roller to a printing press, said means including extensible means having means extending inwardly toward the end of the roller of the press

and said first mentioned means being extensible and contractable to permit association and disassociation of the distributing roller relatively to the press.

5. An ink distributing roller having means for engaging an inking roller carriage by which a plurality of inking rollers are carried, said means including an element which is extensible and contractable for releasably engaging a face of said carriage between the inking rollers carried thereby, said means being extensible to permit its association with said carriage and being automatically contractable to engage said carriage to thereby secure said distributing roller to said carriage.

6. An ink distributing roller having means for removably attaching said roller to a printing press, said means including extensible means having means for engaging the under surface of a member to which the inking rollers are secured by being passed transversely across said member and into engagement with said surface and being released.

7. An ink distributing roller having means for removably attaching said roller to a printing press, said means including expansible and contractable member having means for releasably engaging the under face of the body of a member to which the inking rollers are secured by being passed transversely across said member and into engagement therewith, said means permitting movement of said extensible and contractable member relatively to said member to which the inking rollers are secured when associated therewith.

8. An ink distributing roller having means for removably attaching said roller to a printing press, said means including extensible means for engaging the body of a member to which the inking rollers are secured said means having means for embracing the under and side faces of that portion of said member which is disposed between the inking rollers upon the release of said extensible means.

9. An ink distributing roller having means for removably attaching said roller to a printing press, said means including extensible and automatically contractable means for releasably embracing the body of a member to which the inking rollers are secured, to hold said distributing roller with relation to the last mentioned member.

10. In a device of the class described, the combination of an ink distributing roller having means provided at its end for removably securing said roller relatively to a printing press, said means being extensible to releasably embrace the saddle in which the inking rollers of a press are mounted and resilient means for actuating the ex-

tensible means to hold said first mentioned means in associated relation with the saddle.

11. In a device of the class described, the combination of an ink distributing roller having normally contracted spring actuated means provided at its end for removably securing said roller relatively to a printing press, said means being movable relatively to said distributing rollers to releasably embrace the saddle in which the inking rollers of said press are mounted.

12. In an ink distributing roller having means for removably attaching said roller to a printing press, said means including an extensible element and a member extending from the shaft parallel to the extensible element whereby an inking roller saddle may be embraced between the extensible element, member and shaft.

13. In a device of the class described, the combination of an ink distributing roller having means provided at one of its ends for removably securing said roller relatively to the press, said means being movable relatively to the roller to affect an attachment and release of said roller relatively to the press, and including means for gripping a face of the saddle in which the inking rollers of said press are mounted and a member movable with the shaft.

14. In a device of the class described, the combination of an ink distributing roller having means provided at one of its ends for removably securing said roller relatively to the press, said means including a member which is movable relative to the roller to permit a portion thereof to be positioned below the saddle in which the inking rollers of said press are mounted to permit the portion to engage the saddle upon the release of said member.

15. In a device of the class described, the combination of an ink distributing roller having a member provided at one of its ends and arranged transversely thereto for removably securing said roller relatively to the press, said member and roller being relatively movable to affect an attachment and release of said roller relatively to the press, said member having a portion which projects from said member substantially parallel to the axis of said roller for engaging the saddle of the inking rollers of a press.

16. In a device of the class described, the combination of an ink distributing roller having a shaft, a grip member provided at one end of the shaft for removably securing said roller and shaft relatively to the press, said member and shaft being relatively movable to affect an attachment and removal of the roller relatively to the press said member having an extension arranged substantially parallel to the axis of the shaft

for engaging the press, and means for applying tension between said member and shaft for releasably maintaining said member and shaft relatively to the press.

17. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft and arranged for movement with respect to the shaft, said member having a slot provided for the reception of the end of said shaft and a spring for moving said shaft towards one end of the slot.

18. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft and arranged for movement with respect to the shaft, said member having a projection for engaging the press and having a slot provided for the reception of the end of said shaft and a spring for moving said shaft towards one end of the slot.

19. In a device of the class described, the combination of an ink distributing roller having a shaft having means for engaging the press, and a member arranged at the end of the shaft and arranged for movement with respect to the shaft, said member having a slot provided for the reception of the end of said shaft and a spring for moving said shaft towards one end of the slot.

20. In a device of the class described, the combination of an ink distributing roller having a shaft and a member carried by the end of the shaft which is movable relatively to the shaft, said member and shaft having means for engaging the press to releasably hold said distributing roller with respect to the press.

21. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft which is movable relatively to the shaft, said member and shaft having means for engaging the opposite sides of the saddle of the inking rollers of the press to releasably hold said distributing roller with respect to the press.

22. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft which is movable and yieldably held relatively to the shaft, said member and shaft having means for engaging the press to releasably hold said distributing roller with respect to the press.

23. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft which is movable relatively to the shaft, said member and shaft having means for embracing the saddle of the inking rollers of the printing press.

24. In a device of the class described, the combination of an ink distributing roller having a shaft and a member arranged at the end of the shaft which is movable relatively to the shaft, said member and shaft having means for embracing the saddle of the inking rollers of the printing press, and means whereby said ink distributing roller may move relatively to the saddle.

25. In a device of the class described, the combination of a shaft, a roller arranged to reciprocate upon the shaft, means provided upon the end of the shaft for removably

attaching said shaft to a printing press, said means including a member having a slot, provided for the reception of the end of said shaft and having an extension provided for engaging the press, a resilient member extending between the shaft and said member, and said shaft also having means for engaging the press.

In witness whereof, I hereunto subscribe my name this 10th day of October A. D., 1921.

ARTHUR J. DAANE.