

May 21, 1935.

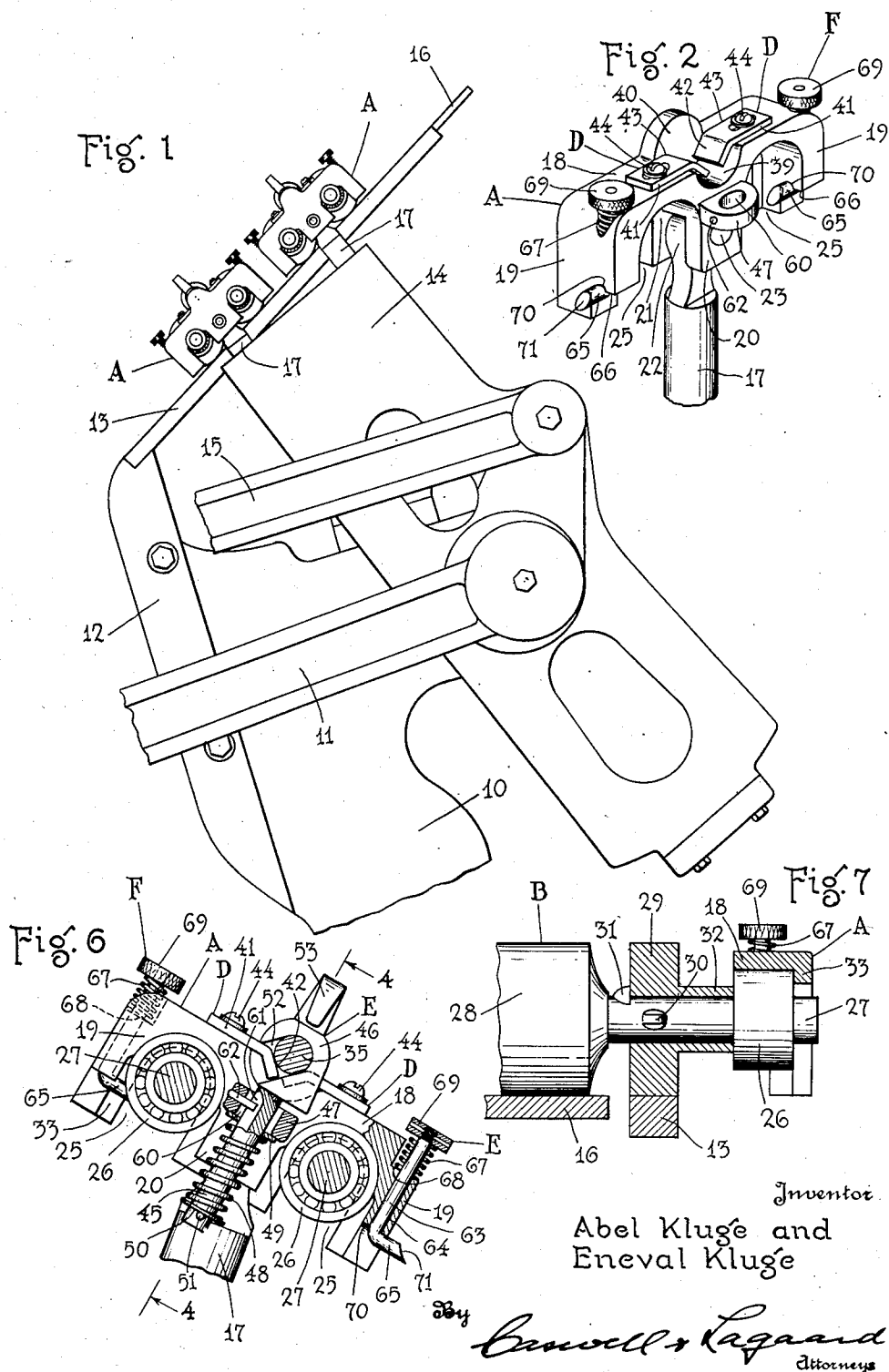
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2,002,032

INKING MECHANISM FOR PRINTING PRESSES

Filed March 22, 1933

2 Sheets-Sheet 1



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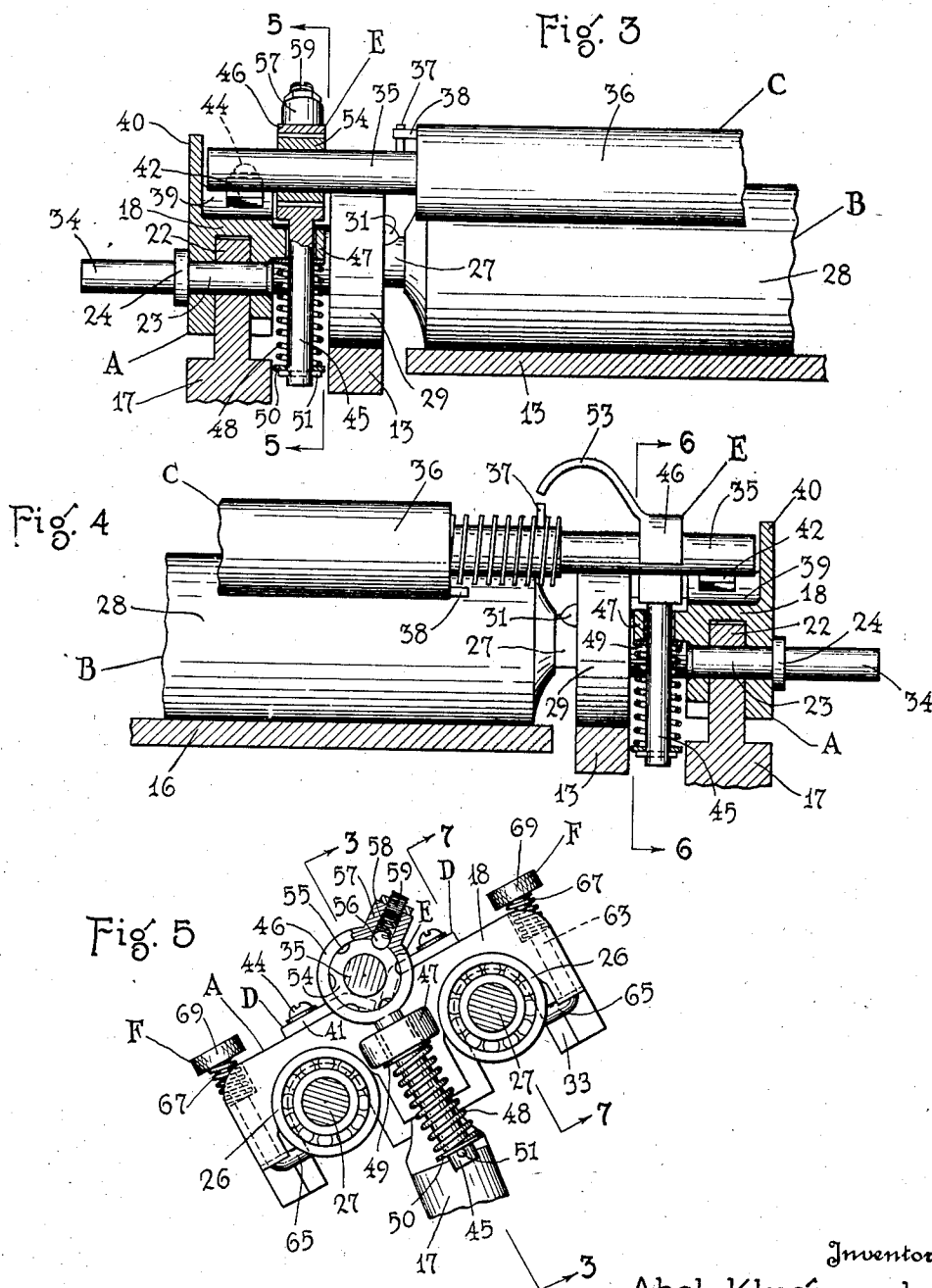
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Inventor
Abel Kluge and
Eneval Kluge

Lawrence & Lagana
Attorneys

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INKING MECHANISM FOR PRINTING PRESSES

Abel Kluge and Eneval Kluge, St. Paul, Minn.,
assignors to Brandtjen and Kluge, Inc., St.
Paul, Minn., a corporation of Minnesota

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Our invention relates to improvements in inking mechanisms for printing presses and pertains especially to saddle construction and to the mounting therein of inking and vibrator rollers.

Inking mechanism of the general character dealt with herein is well known in the art, it being common in platen job presses of the Gordon type to employ roller saddles for carrying composition inking rollers and an associated vibrator roller back and forth over the ink plate and the printing form of a press.

Among the numerous difficulties encountered in the inking of a press form, are the troublesome problems which arise owing to the peculiar character of composition inking rollers which are commonly used for the purpose of distributing ink on the ink plate and transferring it from said plate to the form of the press. These composition rollers contract and expand under varying atmospheric conditions. Customarily, two such composition rollers are mounted in companion saddles together with a metallic vibrator roller so arranged as to contact with both composition rollers and to be turned and also axially shifted by reason of its engagement with said composition rollers. Properly, the vibrator roller should lightly bear against each of its companion composition rollers in a manner commonly referred to in the trade as a "kiss contact". And the pressure of the vibrator should, of course, be the same against each of the composition rollers.

Our invention has for its principal object to provide a saddle construction affording simple means for quickly and easily adjusting the vibrator roller to secure and maintain the same in proper contact with its companion composition rollers.

Another object of the invention is to provide an improved and quickly and easily releasable saddle mounting for composition rollers.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the accompanying drawings, Fig. 1 is a fragmentary elevational view of a printing press to which our improved saddle construction is applied; Fig. 2 is a perspective view in detail of one of the inking roller saddles showing the same as seen from the inner and upper side thereof; Fig. 3 is a sectional view taken transversely of one of the saddles intermediately thereof, as on

the line 3—3 of Fig. 5, a composition roller and a vibrator roller being shown in connection therewith together with certain parts of a printing press; Fig. 4 is a view similar to Fig. 3, the same being taken transversely of the companion saddle and as on the line 4—4 of Fig. 6; Fig. 5 is a vertical sectional view taken as on the line 5—5 of Fig. 3; Fig. 6 is a similar view taken as on the line 6—6 of Fig. 4, and Fig. 7 is a sectional view in detail, the same being taken as on the line 7—7 of Fig. 5.

Having reference to the annexed drawings in which similar reference characters are employed to designate similar parts throughout the several views, it will be seen that the illustrated press parts include a bed 10, side arms 11 for oscillating the bed, the bearers 12, bearer extensions 13 and ink roller frames 14 at the sides of said bed, side links 15 for oscillating the ink roller frames 14, an ink plate or disk 16 and spring retracted rods 17, carried by the ink roller frames, with which the saddles A embodied in our present invention are associated.

The inking rollers of a platen press, as is well known, extend across the bed of the press and, during each cycle, travel downwardly over the ink plate and printing form and back again, the composition rollers of each set contacting with the plate and form and the vibrator roller contacting with the composition rollers. To each of the ink roller rods of each of the oscillatory side frames is attached a saddle, paired saddles of corresponding rods accommodating opposite ends of a set of rollers.

Referring now to the particular saddle construction illustrated as an embodiment of our present invention, it will be understood that the saddles A of each pair are substantially identical and that a description of one will apply, largely, in respect to the other.

As clearly shown in Fig. 2, our saddle construction embodies, essentially, an elongated block comprising a body portion 18 and depending front and back ears 19 and a similar intermediate ear 20. Said latter ear is slotted from beneath as at 21, in the direction of the length of the block to receive the head 22 of its respective roller frame rod 17, the ear 20 and head 22 being pivotally connected by means of a pin 23 passing through the same. This pin 23 has a shoulder 24 abutting against the outer face of the ear 20, the inner end of said pin being upset to secure it in place. The spaces between the ears 19 and 20 provide a pair of bearing sockets 25 which open at the bottom and the inner side

of the saddle block A and receive ball bearings 26 for composition rollers B of the set to be held therein, the upper surfaces of said sockets being semi-circular to fit closely about the outer races of their respective ball bearings 26. Our saddle construction is designed to accommodate composition rollers of simple form illustrated and comprising a shaft 27 and a cylindrical body 28 of composition material. Truck rolls 29 which travel on the bearers 12 and bearer extensions 13 of the press are feathered to the ends of the roller shafts 27 through keys 30 (Fig. 7) struck up from the shaft itself and are held against endwise movement in the direction of the roller body 28 by abutments 31 also struck up from the shaft. The ends of outwardly extending hubs 32 on these truck rolls 29 abut against the ball bearings 26, the axially bored inner races of which receive the extremities of the said roller shafts 27. In turn, the ball bearings 26 abut against retaining flanges 33 left at the outer margins of the bearing sockets 25 in the saddle block.

The pins 23, employed in pivotally connecting the saddle blocks A with the rods 17 of the roller frames 14, are extended at their outer ends to provide finger holds 34 (Figs. 3 and 4) by means of which a pressman may conveniently lift the blocks A against the action of the springs (not shown) which retract the rods 17, such lifting of the saddle blocks being required in freeing the same from the roller bearings 26 to permit the removal of the composition rollers B and in providing for the application of said roller bearings to the saddles in applying said rollers B thereto.

The illustrated form of vibrator roller, designated in its entirety by the reference character C, consists of parts, no claim to the particular construction of which is made in this application. Suffice it to say, therefore, that the said vibrator roller C embodies an externally threaded shaft 35 fitted with an internally threaded metallic body 36 of cylindrical form, the shaft 35 having stop pins 37 near the opposite ends thereof with which stop lugs 38 on the opposite ends of the cylindrical body 36 engage to limit the axial movement of said body 36 and thereby prevent the same from overrunning its operative range on the shaft 35.

The application of the vibrator rollers C to their respective saddle blocks A and to the composition rollers B associated therewith is accomplished through means which now will be described. In the flat upper surface, intermediately of the body 13, of each saddle block A is a transverse recess 39 which is open at the inner side of the block, but closed at the outer side thereof by an upstanding end thrust lug 40 formed integrally with said body 13. A pair of complementing bearing members D slidably mounted on the upper surface of the body 13 are independently movable longitudinally of the saddle. Each bearing member D consists of a metallic strip with the tip thereof bent at an obtuse angle, the shank 41 of the strip resting flatwise on the body 13 and the bent tip occupying a position within the recess 39 in said body 13 and providing an angular or inclined seat portion 42 for the vibrator shaft 35. For securing the complementing bearing members D in selected positions on the saddle block A, the shanks 41 of said members are formed with slots 43 (Fig. 2) extending longitudinally thereof, headed set screws 44, extending through said slots 43, being threaded in the saddle body 13. The inclined or

angularly disposed seat portions 42 of complementing bearing members D cooperate to provide a V-rest for one end of the vibrator shaft 35 on one saddle and on the companion saddle block similar bearing members D cooperate to provide a similar rest for the other end of said vibrator shaft. By similarly adjusting the complementing bearing members D of companion saddles, the vibrator roller C supported by said members, may be accurately disposed with respect to both of the composition rollers B of the set carried by said saddles. If the composition rollers B have become contracted, the vibrator roller C may be lowered into proper contact therewith by spreading apart the complementing bearing members D. If in any given set of rollers, one composition roller is of different diametrical dimension than the other, the complementing bearing members D are shifted with respect to each other and to the saddle in order that the vibrator roller may be brought into proper contact with both of the composition rollers. Should the composition rollers expand under changing atmospheric conditions, the vibrator roller may be elevated to relieve the excessive pressure thereof against said composition rollers by bringing the complementing bearing members D together as the condition may require. Thus, the bearing members D may be readily adjusted to accord with any combination of composition rollers regardless of their respective diameters and by such adjustment the vibrator roller may be engaged with both of the composition rollers with that nicety required in securing the proper contact between a vibrator roller and composition rollers.

Each saddle block A is supplied with a holder E for securing its respective end of the vibrator shaft 35 in the V-rest formed by the angular seat portions 42 of the complementing bearing members D. This holder is in the form of an eye-pin, the same consisting of a shank 45 and eye 46, the shank being slidably guided in a lug 47 issuing from the inner face of the saddle block A and apertured loosely to receive said shank. Coiled about the shank 43 is an expansion spring 48, the same being interposed between washers 49 and 50 on said shank 45, the former backed against the lug 47 and the latter against a pin 51 passing through the extremity of the shank. The eye 46 receives an end of the vibrator shaft 35 and the spring 48, acting upon the shank 45 yieldingly holds said shaft against the seat portions 42 of the bearing members D. The holders E of companion saddles are, in some respects, dissimilar in construction, the eye 46 of one having an opening 52 (Fig. 6) at the lower forward side thereof to form a hook which may be conveniently caught over the vibrator shaft 35 or disengaged therefrom, as is desirable, in removing or applying the vibrator roller C. Integrally formed with said open eye 46 is a hooked finger piece 53 by means of which the holder E may be shifted against the force of the spring 48 to permit of the hooking of the open eye 46 over the vibrator shaft 35 or the unhooking of said eye from said shaft. The eye 46 of the holder E of the companion saddle (Fig. 5) is of relatively large internal diameter to receive a bushing 54 (Fig. 5) pressed on the vibrator shaft 35. The periphery of this bushing is formed with indentations 55 with which a latching ball 56 engages. A boss 57 issuing from the ring 46 has a bore in which said ball 56 is received, a retaining spring 58 for said ball being interposed between it and

an adjusting screw 59 threaded in said bore. With the vibrator shaft 35 held seated by the holders E on the bearing members 42 of companion saddle blocks A, said shaft 35 is confined against endwise play by the end thrust abutments 40 on said blocks. In detaching the holders E from the vibrator shaft 35 or in applying the same to said shaft in any position of adjustment of the bearing members E, the shanks 45 of said holders have sufficient angular play for the purpose, due to the loose fit provided between said shanks 45 and their apertured guide lugs 47, the apertures 60 in said lugs being appreciably elongated in the direction of the extent of the saddles as clearly shown in Fig. 2. For convenience in keeping the eyes 46 of the holders E normally axially disposed, the shank 45 of each holder is formed with a longitudinal key-way 61 (Fig. 6) which receives a key-pin 62 fixed in the lug 47 in which said shank is guided.

Each saddle block A is provided with keepers F for holding in its bearing sockets 25 the ball bearings 26 of the composition rollers B. The keeper F for each ball bearing is arranged on the ear 19 of the saddle adjacent to the socket 25 in which said bearing is received. A detailed understanding of the keeper construction may be had by reference to the keeper F shown at the right hand side of the view seen in Fig. 6. Here, it will be noted that the keeper includes a stem 63 journaled in a bore 64 in the ear 19 of the saddle block and that the lower extremity of said stem is turned at right angles to the stem proper to form a finger 65. The lower inner corner of the ear 19 is cut away to provide clearance in which the finger 65 may swing, the lower edge of said ear at the cut away portion thereof constituting an abutment 66 for said finger. The bore 64 which receives the stem 63 of the keeper, is enlarged at its upper end to receive an expansion spring 67. This spring, seated upon a shoulder 68 provided at the bottom of said bore enlargement, expands against a turn button 69 on the stem 63 and yieldingly holds the finger 65 latched in a groove 70 cut in the abutment 66. By manipulating the turn button 69, the pressman may swing the finger 65 into latched operative position or into a latched position in which it is inoperative, such latter position of one keeper finger being seen at the right hand side of Fig. 6 and such former position of a companion keeper finger being shown at the left hand side of said Fig. 6. Operatively disposed, the finger 65 partially underlies its respective ball bearing 26, the tip of said finger presenting a concave beveled surface 71 to conform with and engage the periphery of the outer race of the bearing. Upon turning the keeper F into its inoperative position, the finger 65 is swung clear of the ball bearing 26 into a position projecting from the end of the saddle block. In this position, the finger 65 is relatched in the groove 70 in which it was latched in operative position, said finger being thus held against accidentally turning into and obstructing the bearing socket 25.

Without radically departing from conventional construction, we have provided an inking mechanism for platen printing presses which is simple, durable and effective and in the use of which a pressman's time is conserved, his labor lightened and the quality of the work enhanced.

Changes in the specific form of our invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of our invention.

Having described our invention, what we claim as new and desire to protect by Letters Patent is:

1. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a mounting on said block for a vibrator roller, said mounting comprising a pair of bearing members individually slidably adjustable on said block, each member having an inclined seat portion complementing that of the other, said seat portions forming a V-rest for the vibrator shaft, the adjustment of said members enabling said mounting to support the vibrator roller in contact with both of the composition rollers.

2. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a mounting on said block for a vibrator roller, said mounting comprising a pair of bearing members individually slidably adjustable on said block, each member having an inclined seat portion complementing that of the other, said seat portions forming a V-rest for the vibrator shaft, the adjustment of said members enabling said mounting to support the vibrator roller in contact with both of the composition rollers, and yielding means for releasably holding the vibrator shaft seated against said complementing seat portions of said bearing members.

3. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a mounting on said block for a vibrator roller, said mounting comprising a pair of bearing members individually adjustable on said block, each member having a seat portion for the vibrator shaft, said seat portions co-operating to support the vibrator roller in position contacting with both of the composition rollers.

4. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a mounting on said block for a vibrator roller, said mounting comprising a bearing member having a seat portion for the vibrator shaft inclined with respect to the direction of movement of said member, a second member complementing said first member and cooperating with the vibrator shaft to hold the same in position on said seat portion of said first member, said members being individually adjustable on the block, thereby enabling said mounting to support the vibrator roller in contact with both of said composition rollers.

5. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a bearing member on said block for a vibrator roller, said member providing a rest for the vibrator shaft and being adjustable on the block to support the vibrator roller in any of universally disposed relations with respect to said composition rollers and thus provide the proper contact of said vibrator roller with both of said composition rollers.

6. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and means on said block for supporting a vibrator roller, said means being adjustable for universally adjusting the vibrator roller and thereby bringing it into contact with both of the composition rollers.

7. In mechanism of the character described, saddle construction including a saddle block having spaced bearings for a pair of composition inking rollers and a mounting on said block for a vibrator roller, said mounting comprising a pair of bearing members, one for each composition roller, each member having an inclined seat portion complementing that of the other, the two seat portions forming a V-rest for the vibrator shaft, said members being individually adjustable on the block in a direction in which the seat portion of each is maintained in parallelism with a given plane tangent to its respective composition roller, whereby said mounting is enabled to support the vibrator roller in contact with both of the composition rollers.

8. In mechanism of the character described, saddle construction including a saddle block having spaced bearing sockets therein opening downwardly for the reception of bearings on inking rollers, a socket-like bearing on the block opening upwardly for the reception of a shaft of an ink distributing roller, yielding means releasably supporting the inking roller bearings in their respective sockets, and similar means for releasably seating the distributing roller shaft in its socket-like bearing.

9. In mechanism of the character described, saddle construction including a saddle block formed with a bearing socket therein, an inking roller having a bearing therefor adapted to be seated in said socket and a keeper mounted on the block for releasably holding said bearing seated in said socket, said keeper comprising a stem journaled in the block, a finger issuing from said stem and adapted, upon rotation of the stem in one direction, to swing into position barring the unseating of said bearing from its socket and adapted upon rotation of said stem in a reverse direction to swing into a position clear of said bearing, and means for turning said stem.

10. In mechanism of the character described, saddle construction including a saddle block formed with a bearing socket therein, an inking roller having a bearing therefor adapted to be seated in said socket and a keeper mounted on the block for releasably holding said bearing seated in said socket, said keeper comprising a stem journaled in the block, a finger piece at the end of the stem opposite said finger for turning said stem, and an expansion spring interposed between the block and said finger piece, a portion of said block constituting an abutment

for the finger, said abutment being formed with a latching element with which said finger cooperates under the action of said spring.

11. In mechanism of the character described, saddle construction including a saddle block formed with spaced downwardly opening bearing sockets therein, inking rollers, one for each socket, each having a bearing adapted to be seated in its respective socket, keepers, one for each inking roller, each journaled in said block adjacent its respective roller and accessible for manipulation at the top of the block, each keeper having a portion to engage beneath the bearing therefor for releasably holding it seated in its socket in said block.

12. In mechanism of the character described, saddle construction including a pair of saddle blocks, each block having a pair of spaced bearings for the corresponding ends of companion composition inking rollers, and each block having a mounting thereon for one end of a vibrator roller, each mounting being movable on its respective block and cooperating with its companion mounting and with said vibrator roller for universally adjusting the latter relative to both of said composition inking rollers, whereby the proper contact between the vibrator roller and the composition inking rollers may be secured and maintained.

13. In mechanism of the character described, wherein a pair of composition inking rollers and a vibrator roller are carried back and forth together, saddle construction including a pair of saddle blocks, each saddle block having a pair of spaced bearings for the corresponding ends of the inking rollers and having means for adjustably mounting an end of the vibrator roller thereon, said means providing for the universal adjustment of the vibrator roller, whereby said roller may be brought into proper contact with both of the inking rollers.

14. In mechanism of the character described, saddle construction including a saddle block forming a mounting for spaced inking rollers, a socket-like bearing on the block providing a mounting for a vibrator roller, said bearing being adjustable to bring the vibrator roller into contact with said inking rollers, and yielding means for releasably securing the vibrator roller in its said socket-like mounting in any position of adjustment thereof.

ABEL KLUGE.
ENEVAL KLUGE.