June 20, 1939. C. S. CRAFTS 2,163,374

PRINTING PRESS

Original Filed Sept. 15, 1933 3 Sheets-Sheet 1

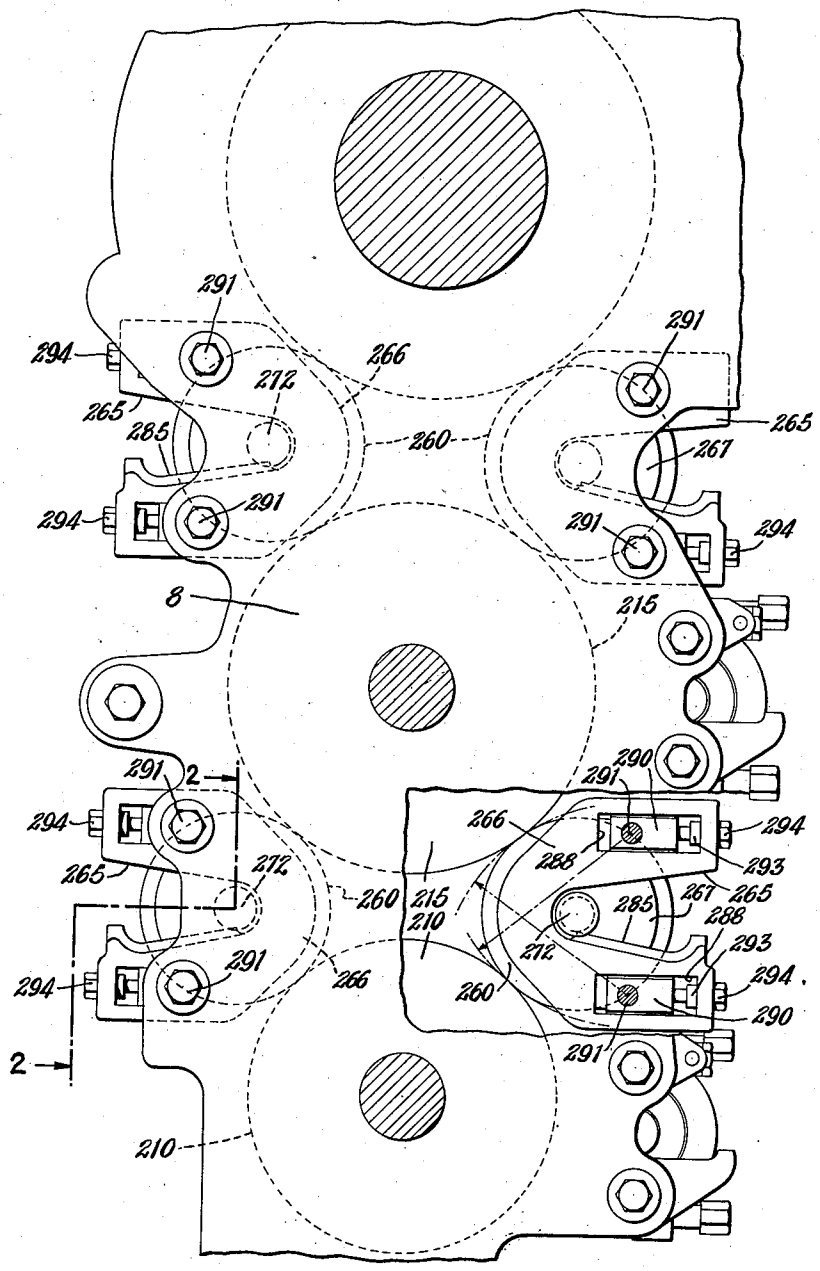


Fig. 1.

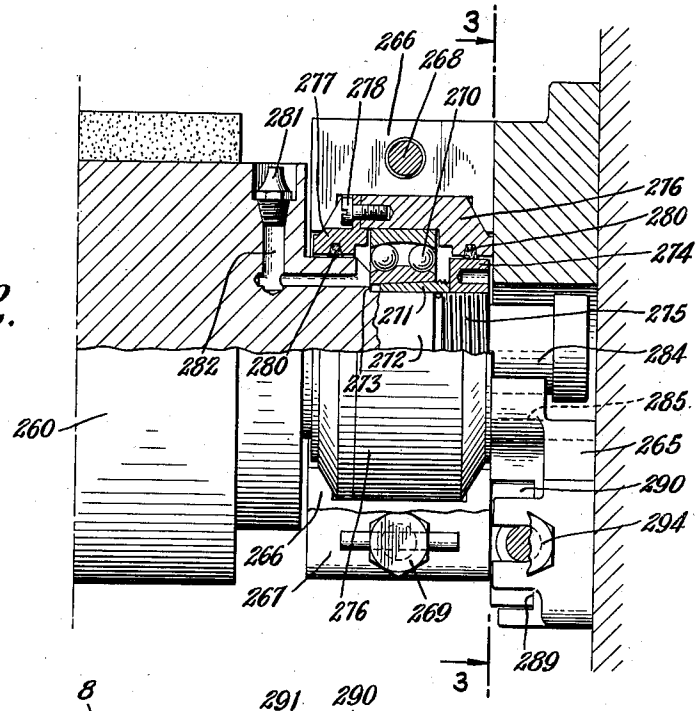
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Fig. 2.



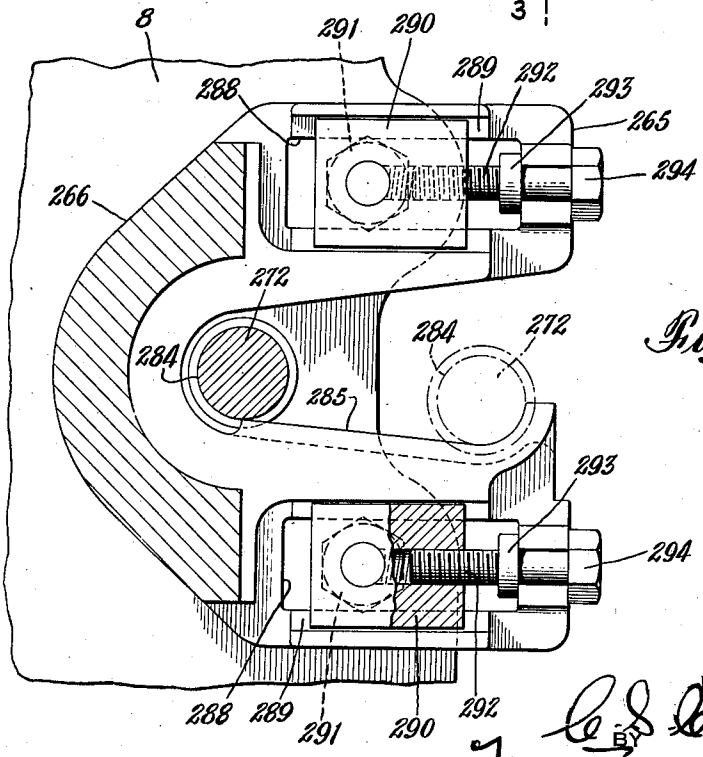


Fig. 3.

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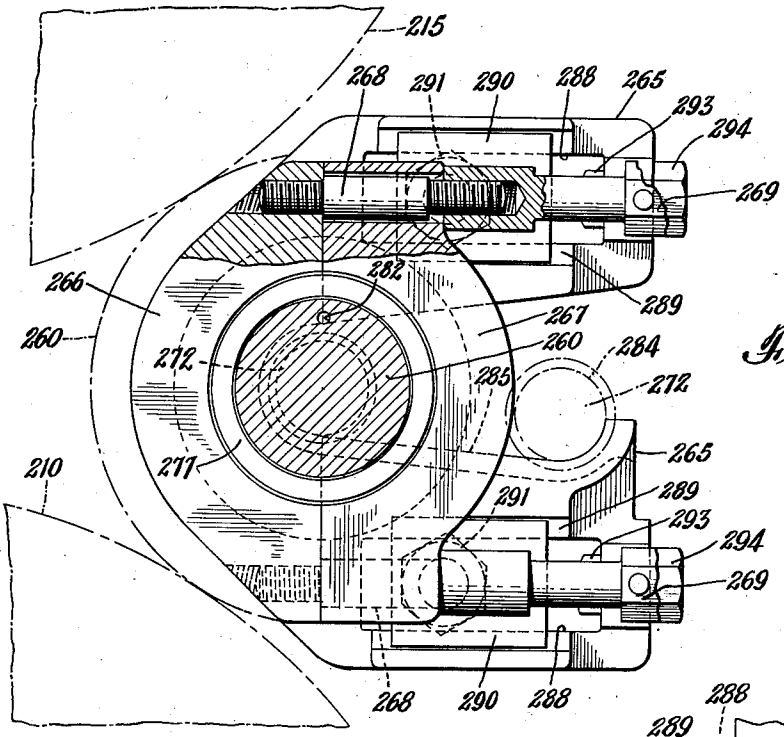


Fig. 4.

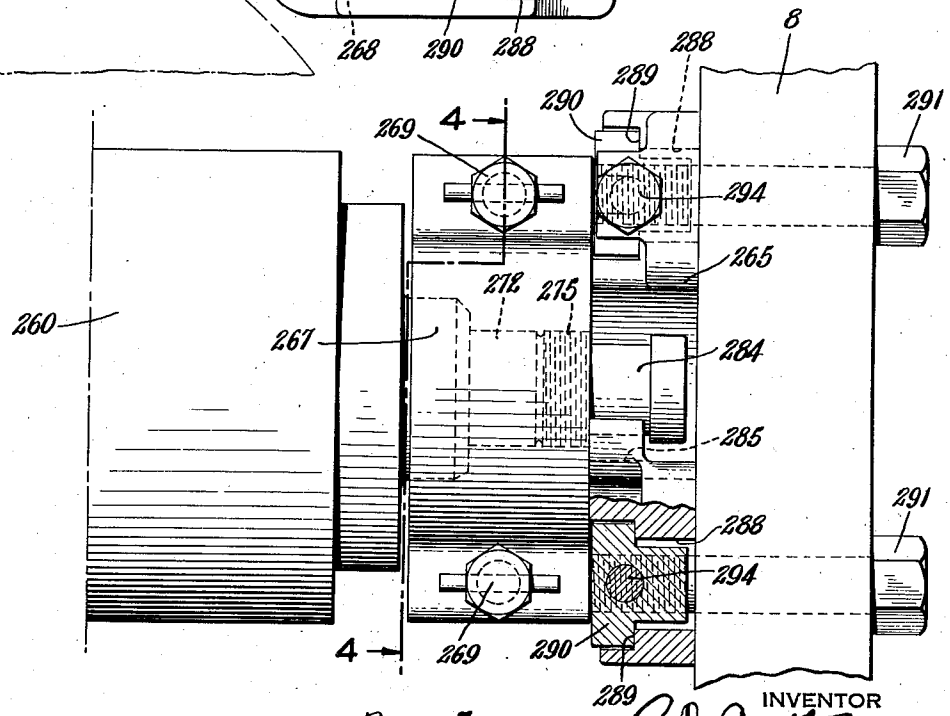


Fig. 5.

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UNITED STATES PATENT OFFICE

2,163,374

PRINTING PRESS

Curtis S. Crafts, Oak Park, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois

Original application September 15, 1933, Serial No. 689,512. Divided and this application September 21, 1936, Serial No. 101,831

5 Claims. (Cl. 101—349)

The present invention relates to printing press inking mechanism and more particularly to a novel and improved inking roller and mounting therefor particularly adapted for use with fast rotary printing 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, construction, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

Figure 1 is a fragmentary front elevation of a printing press embodying the present invention;

Figure 2 is a detailed sectional view of the mounting for the inking rollers embodying the present invention taken on the line 2—2 of Fig. 1;

Figure 3 is a section taken on line 3—3 of Figure 2;

Figure 4 is a sectional view taken on line 4—4 of Figure 5; and

Figure 5 is a side elevation of the parts shown in Figures 2 to 4 with certain parts broken away.

The present invention has for its object the provision of a novel and improved mounting for the inking rollers of a fast rotary printing press. A further object is the provision of an improved inking mechanism in which distributing rollers are substantially independently movable toward and away from their distributing and transfer drums. Still another object is the provision of a novel and improved inking roller structure.

The present application is a division of my prior application Serial Number 689,512, filed September 15, 1933.

Referring now to the drawings, the inking drums proper are shown chain-dotted as at 210 and 215 (Fig. 4) both of said drums being mounted for rotation and being driven from the main drive for the cylinders of the printing couple.

Ink is supplied to the lower rotating drum 210 in the usual way by means of a fountain roller (not shown). The ink supplied to the drum 210 is then transferred to the printing couple by means now to be described consisting of a series of ink forwarding and distributing rollers and drums which spread the ink in a uniform film and then apply it to the plate cylinder of the couple.

As previously stated, this invention contemplates the transfer and distribution of the ink to the plate cylinder. An ink transfer roller is shown at 260 and this roller is adapted to normally contact simultaneously with the drums 210 and 215. Means are provided for rotatably supporting the transfer rollers 260, one of which is arranged on either side of the drums 210 and 215 in a position to simultaneously contact with the said drums.

Means are provided for minutely moving the roller 260 shown in the drawings with respect to either or both of the cylinders with which it normally contacts. As embodied these means comprise a small frame or hanger 265 having a general U-shape, on one side of which is formed a socket for receiving ball-bearings at the end of the transfer roller 260, this socket being preferably made in separable halves 266 and 267, one of which is formed integrally with frame 265, while the other half is secured to the first half by means of studs 268 and extension wing nuts 269, studs 268 being threaded into the sides of socket member 266 and passing through a slightly larger aperture in the sides of socket member 267. Socket members 266 and 267 when held together by the studs 268 form a cylindrical socket having bevelled side walls into which may be closely fitted the ball-bearing assembly on the end of the roller shaft. This ball-bearing assembly comprises a self-aligning ball-bearing 270, the inner race of which has a slightly tapered bore and is fitted onto a slotted cone 271 which, in turn, is tightly fitted to the reduced end portion 272 of the roller shaft by the inner bearing race. The inner end of this race is moved against a shoulder 273 on the roller shaft by threaded collar 274 which is screwed on the threaded outermost portion 275 of the roller shaft.

The outer race of ball-bearing 270 is seated within a cylindrical carrier 276 having a bevelled outer wall and is retained therein by a collar 277 attached to the carrier 276 by screws 278. Suitable lubricant retaining rings 280 are provided in members 276 and 277 to retain lubricant within the bearing, which lubricant may be introduced through the nipple 281 and the passageway 282.

At its extreme end the roller shaft is provided with a relatively wide groove or annulus 284 which may be received within the lowest portion of the U of the hanger 265, providing a surface

on the roller shaft by which engagement can be made with the lower guiding surface **285** of the U-frame or hanger whereby the roller may be pushed or rolled into operative position at the deepest section of the U as clearly shown in Figure 3 where the dotted section of the shaft **272** is shown first in the extreme right non-operating position and the full lined section of the shaft **272** is shown at the extreme left position when in operative position after having been rolled up the guiding incline **285**.

In order to vary the pressure between the roller **260** and either the drum **210** or the drum **215**, or both, for the purpose of causing an even transfer and distribution of ink on the roller **215** when the ink is transferred by the roller **260** from the drum **210** to the drum **215**, there are provided within the legs of the hanger **265** openings **288** having guideways **289** along their sides. A rectangular block **290** is provided for each guideway to slide relatively thereto and each of the blocks **290** are secured to the side frame of the printing press (Fig. 1) by bolts **291** in such a way as to permit pivoting of the frame thereabout to an extent limited only by the extent of relative movement of blocks **290**. The guide blocks **290** are threaded to receive the threaded ends of screws **292**, each screw **292** being rotatably mounted in an aperture at the outer end of the leg of the U-frame with which it is cooperating and is held against axial movement with respect to its leg by means of a shoulder **293** fast on the shank of screw **292** and the cooperating head **294** upon the screw. By turning the head **294** of a screw **292** the socket **266** can be relatively moved on the block **290** or, in other words, the particular leg of the U-frame is moved relative to the fixed side frame of the unit. Consequently, if only one of the screws **292** is acted upon, only one side of the hanger will move and the whole assembly will pivot about the other bolt **291** secured to the side frame of the unit, thereby giving a complete forward or backward movement to one end only of the roller **260** depending on the movement given to screw **292**. Thus, for instance, if in Figure 4 the upper nut **294** is turned, the whole of the U-frame will pivot about the lower screw **291** and the roller **260** will approach the lower roller **210** and give a closer contact therewith without materially changing the setting with respect to roller **215**; the amount of variation of this pressure between the roller **260** and the drum **210** being minutely adjustable, as will be obvious.

By moving both of the two screws **294** the whole of the hanger will be moved inwardly and pressure betwen the roller **260** and both of the drums **210** and **215** will be varied. Consequently, there is provided an accurate setting of the roller with respect to either the roller **260** and the upper drum **215**, or the roller **260** and the lower drum **210**, or both, and therefore any possible minute variation can be made in order to obtain the correct pressure therebetween. As previously stated, there will be a further transfer roller **260** provided on the other side of the ink couple **210**, **215** and this may be supported in a U-frame or hanger in exactly the same way.

As clearly shown in Figure 1, the axis of roller **260**, the axes of pivot bolts **291** and the axes of the drums **210** and **215** lie in intersecting planes, the axis of the bolt **291** and the most distant drum lying in a single plane which also passes through or closely adjacent to the axis of the roller shaft **260**. Thus, the roller may be moved a relatively great distance with respect to the drum **210** or **215** without appreciable movement with respect to the other drum thereby permitting true independent adjustment of the roller **260** with respect to either or both of the drums.

The ink transferred from drum **210** to drum **215** by the above described means is usually passed to the plate cylinder arranged thereabove through the medium of form inking rollers which also serve to transfer and distribute the ink from the drum **215** to the plate cylinder and obviously these form rollers can also be supported on a similar U-shaped hanger to that used for the transfer rollers **260**.

While the specific embodiment of the invention has been hereinbefore described with reference to a transfer roller such as **260** cooperating with the two main inking drums, one of which actually takes up the ink from the fountain roller or other supply and passes it to the other for in turn supplying it to the printing couple, it is obvious that in its broader aspects the invention may be applied to any inking arrangement where it is desired to obtain an accurate adjustment in a small amount between a roller and two cooperating rollers in contact normally therewith.

The invention in its broader aspects is not 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.

What I claim is:

1. In an inking mechanism for printing presses, the combination of a pair of ink drums, a roller to contact with both drums, and a bracket pivoted at two points and in which the roller is rotatably mounted, the roller having its axis located substantially at the intersection of the planes connecting the pivot points with the drum axes.

2. In an inking mechanism for printing presses, the combination of a pair of ink drums, a roller to contact with both drums, a bracket pivoted at two points and in which the roller is rotatably mounted, and means for independently pivotally moving the bracket about either of its pivots, the roller having its axis located substantially at the intersection of the planes connecting the pivot points with the drum axes.

3. In an inking mechanism for printing presses, the combination of a pair of ink drums, a roller to contact with both drums, a bracket pivoted at two points and in which the roller is rotatably mounted, and means for independently pivotally moving the bracket about either of its pivots and for rigidly holding the bracket in any of its positions, the roller having its axis located substantially at the intersection of the planes connecting the pivot points with the drum axes.

4. In a printing press, the combination of a rotatable ink drum, an inking roller having shaft ends and positioned to bear against the drum, enclosed and dirt-protected, self-alining bearing assemblies on the shaft ends for rotatably mounting the roller and its shaft, means for introducing lubricant into said bearings, and socket members in which the assemblies are releasably secured, said socket members being individually movable towards the drum for adjustment of either or both ends of the roller.

5. In a printing press, the combination of a plurality of rotatable ink drums, an inking roller having shaft ends and positioned to bear against

the drums, enclosed and dirt-protected, self-alining bearing assemblies on the shaft ends for rotatably mounting the roller and its shaft, means for introducing lubricant into said bearings, and socket members in which the assemblies are releasably secured, said socket members being individually and selectively movable towards the drums for adjustment of either or both ends of the roller.

CURTIS S. CRAFTS.