J. WHITE.

INKING ROLLER DRIVING MECHANISM.

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1,341,692. Patented June 1, 1920.

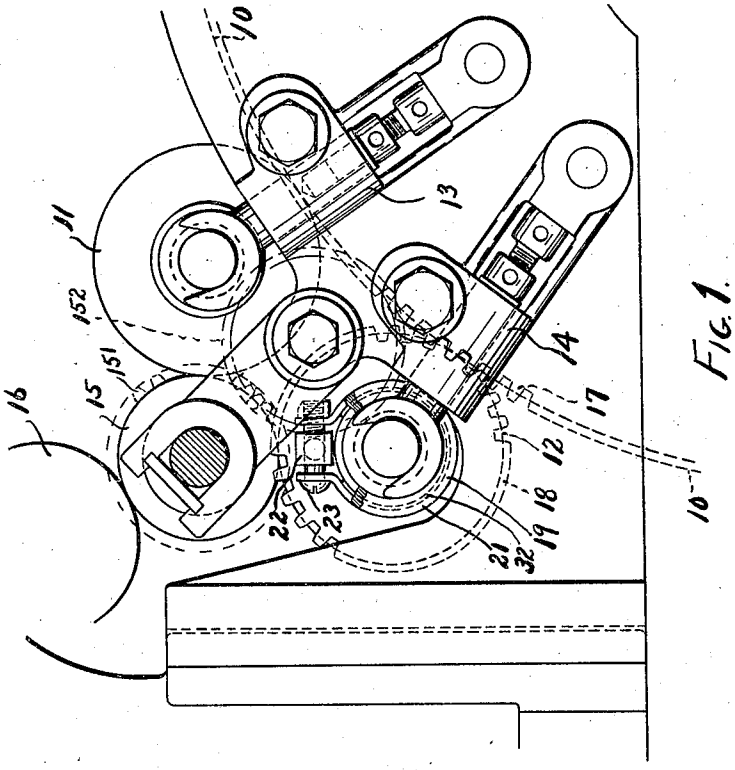


FIG. 1.

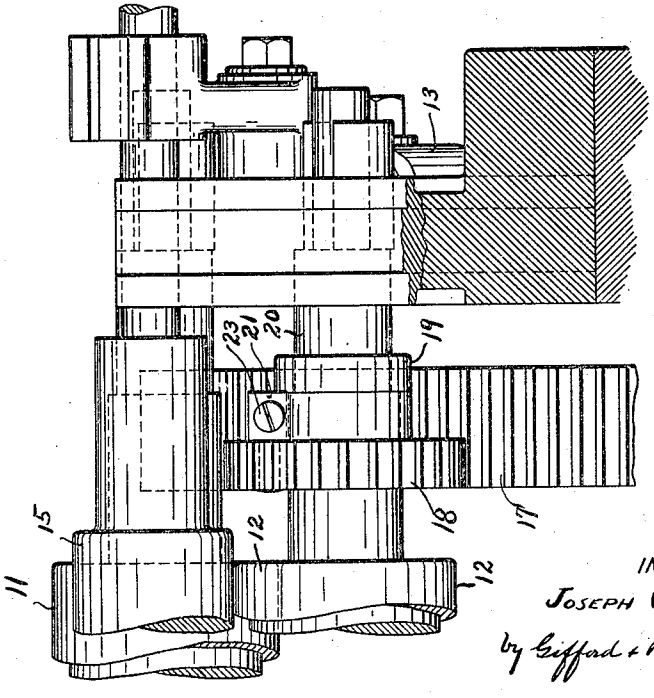


FIG. 2.

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INKING-ROLLER-DRIVING MECHANISM.

1,341,692. Specification of Letters Patent. Patented June 1, 1920.

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To all whom it may concern:

Be it known that I, JOSEPH WHITE, a citizen of the United States, residing at Piscataway township, State of New Jersey, post-office address Boundbrook, New Jersey, have invented certain new and useful Improvements in Inking-Roller-Driving Mechanisms; and I do declare the following to be a full, true, and exact description of said invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to inking mechanisms for printing presses and particularly to a driving device for some of the rollers by which the surface speed of such rollers when in contact with the printing surface will be precisely the same so that all possibility of "gear streaks" is eliminated. With this and other objects in view, my invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and pointed out in the appended claims.

In the drawings, Figure 1 represents a side elevation of a portion of an inking arrangement embodying an illustrative form of my invention.

Fig. 2 is a side elevation of Fig. 1 showing the arrangement of one end only of the inking arrangement.

The corresponding parts are referred to both in the specification and in the drawings by similar reference characters.

For purposes of illustration, I have adopted an arrangement of rollers common in many forms of presses, particularly those of the planographic type, in which 10 is a portion of a form cylinder carrying the usual planographic printing plate, and 11 and 12 are the usual form rollers supported in sockets 13, 14 so as to contact with the printing surface. These rollers are non-metallic and may be either leather or composition, according to the kind of printing to be accomplished.

15 is a metallic inking roller contacting with the rollers 11 and 12 and supported in the side frame of the machine which also supports the sockets 13 and 14. 16 represents a portion of the next roller of the inking train, it being understood that the ink to be supplied to the form rollers 11 and 12 will be received from the usual ink fountain and passed successively from one roller to another until the form rollers are reached.

The construction so far described is the ordinary one, the center of the roller 15 being fixed and the sockets 13 and 14 being arranged so that the rollers 11 and 12 may be moved into contact with the printing surface 10 and the roller 15 as the rollers 11 and 12 decrease in size through wear.

As in the ordinary constructions, roller 15 is driven through gearing at the side of the press opposite that shown in Fig. 1, this gearing consisting of a gear 151 fastened to roller 15 and an intermediate gear 152 meshing with a gear on the cylinder 10. In such usual constructions, rollers 11 and 12 are driven only by frictional contact of their body portions with the printing surface and roller 15.

In some cases, I have found that driving these rollers by frictional contact with their body portions only produces what are known as "gear streaks"; that is, the ink is not laid uniformly on the printing surface, but is piled up in streaks. I have found that, in some cases at least, these gear streaks result from the method by which the form rollers are driven and my present device is directed to driving such rollers so that there will be no lost motion between them and the printing surface to produce streaks of ink.

I accomplish this result by providing a gearing to drive the form roller directly from the form cylinder, but with slipping connections between the drive and the form roller so that the roller is subjected by the drive to a slight torque which is insufficient alone to drive it. By this means, the inertia of the roller is practically overcome so that the frictional contact of the body portion with the printing surface and distributer roller has relatively little work to do in turning the form roller constantly at the same surface speed as that of the printing surface.

In the illustrative embodiment of my invention, 17 is a gear connected to the printing cylinder and 18 is a pinion meshing with gear 17. The pinion 18 is mounted so as to rotate freely on a hub 19 which latter may form a part of shank 20 of the roller 12 or may be a loose collar connected to the shank in any suitable way, as by a set screw.

Surrounding the hub 19 and lying in a groove therein is a friction band having a metal band 21 and a leather band, if desired, 32. On the side of the pinion 18 is a puppet 22 through which extends a bolt 23 engaging the ends of the band 21. By means of this bolt the ends of the band 21 may be tightened to adjust the friction between the band and the hub 19.

It will be seen that as the pinion 18 is rotated by the gear 17 power will be transmitted to the shank 20 through the friction band which may be adjusted so as to be insufficient in itself to rotate the roller 12, but yet sufficient to relieve the contact with the printing plate of work so that such contact will always keep the roller 12 turning at exactly the same surface speed as the printing plate on cylinder 10.

In the form illustrated, roller 15 is also positively driven, but it will be understood that such driving may or may not be supplied. Similarly, only one of the two form rollers is shown as provided with my frictional driving arrangement, but it will be understood that both may be so supplied, if desired. Such an arrangement is particularly desirable where the form roller must be held up against gravity so as to contact with the distributer roller, as in the case with the roller 12 as illustrated.

It will be understood that since form rollers 11 and 12 are non-metallic, they decrease in size through wear and consequently it is not possible to provide a fixed gear drive for such rollers. It will be understood that my arrangement permits such a drive on rollers of this character however, and the gear 17 and pinion 18 are so cut that the roller 12 may be adjusted to its smallest desirable diameter before the teeth of the gears 17, 18 bottom.

I have illustrated and described my invention as applied to a printing press in which the printing surface is mounted on cylinders, but it will be readily understood that it is equally applicable to the flat-bed type of press, in which case the gear 17 might become a rack.

It will also be understood that my invention may be applied to any fluid applying roller in which it is desired that the surface of the fluid applying roller shall move precisely at the same speed continuously as the surface to which the fluid is being applied and that consequently the specific arrangement of rollers shown in the drawings is merely illustrative.

What I claim and desire to secure by Letters Patent of the United States is:

1. A moving printing surface, a form roller in contact therewith, a positively driven roller contacting with said form roller, gearing to drive said positively driven roller at a surface speed equal to that of the printing surface and a supplemental friction drive for said form roller.

2. A moving surface, a metallic distributer spaced from said surface, a non-metallic inking roller in contact with said distributer and said surface, a driving gear moving with said surface, a driven gear mounted on the end of said inking roller and independent thereof and frictional connections between said driven gear and said roller.

3. A moving surface, a metallic distributer spaced from said surface, a non-metallic inking roller in contact with said distributer and said surface, a driving gear moving with said surface, a driven gear mounted on the end of said inking roller and independent thereof and adjustable frictional connections between said driven gear and said roller.

4. A moving printing surface, a form roller in contact therewith, a positively driven roller contacting with said form roller, gearing to drive said positively driven roller at a surface speed equal to that of the printing surface, and a supplemental friction drive for said form roller including a pair of friction members, comprising a friction band and a friction hub, one of said members being connected to said gear and the other of said members being connected to said roller and means to vary the frictional contact between said band and said hub.

JOSEPH WHITE.