

May 8, 1934.

W. K. ECKHARD

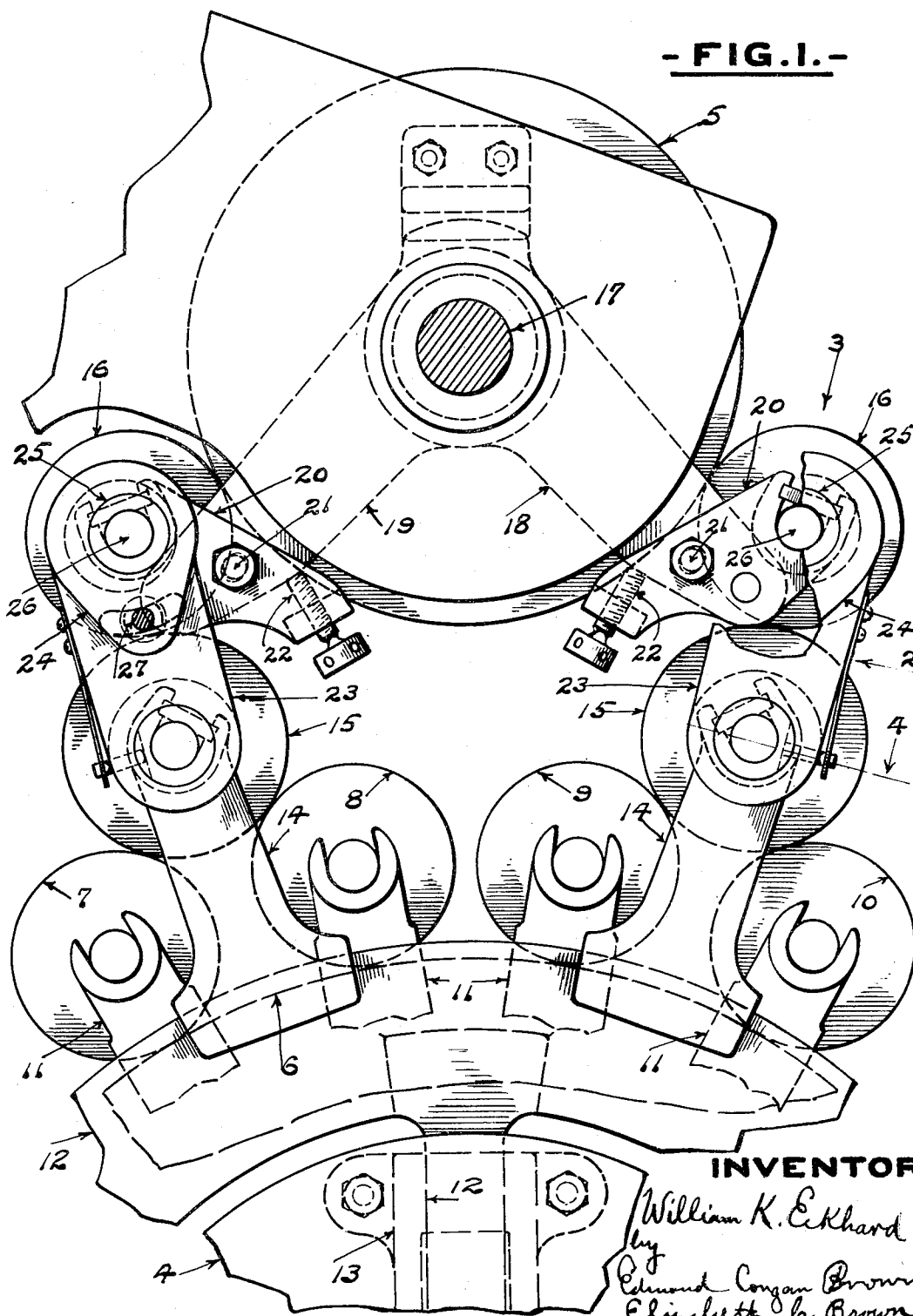
1,957,447

PRINTING MACHINE

Filed June 4, 1931

2 Sheets-Sheet 1

- FIG. 1.-



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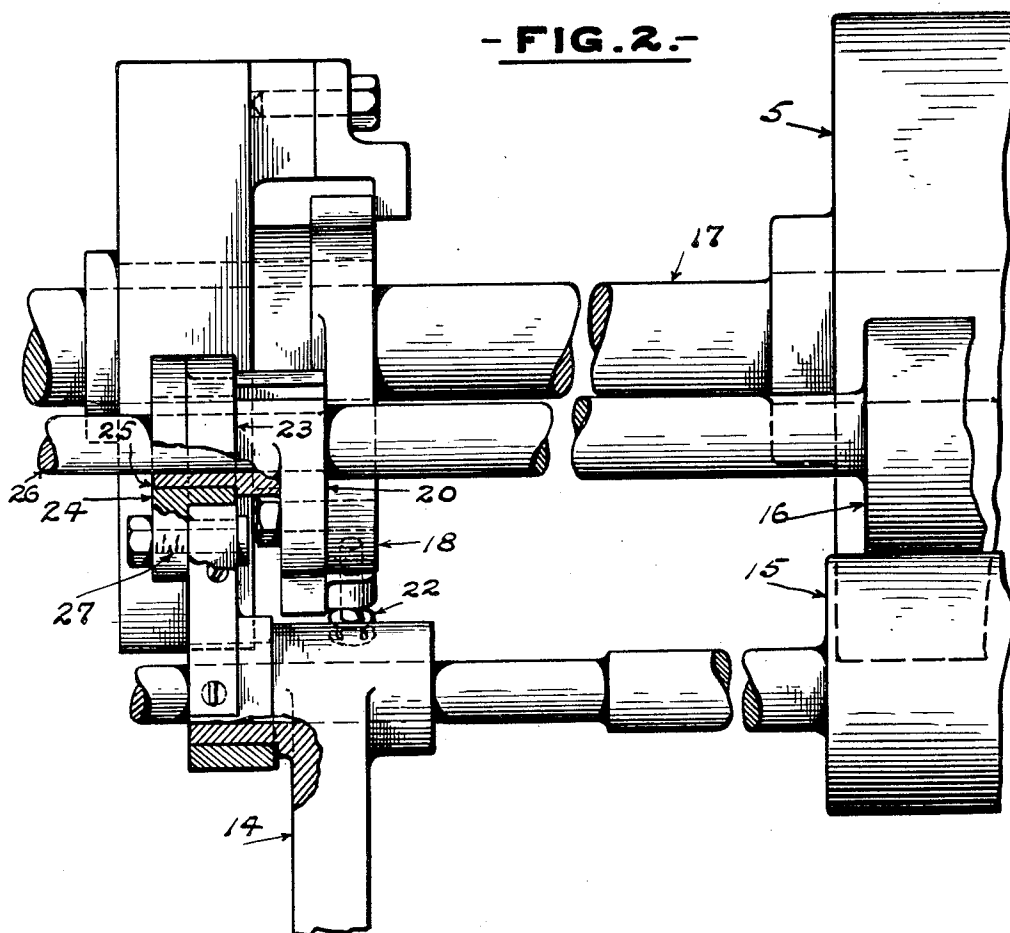
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PRINTING MACHINE

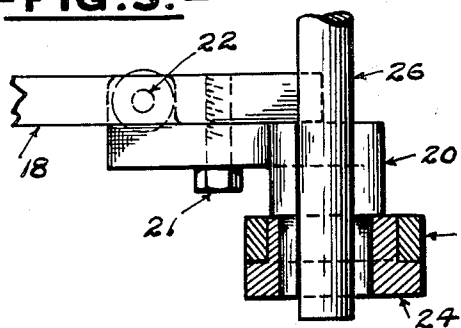
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- FIG. 2. -



- FIG. 3. -



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UNITED STATES PATENT OFFICE

1,957,447

PRINTING MACHINE

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receiver

Application June 4, 1931, Serial No. 542,040

8 Claims. (Cl. 101—352)

My invention relates to printing machines, and particularly to lithographic printing machines in which the cylinders are tripped, that is to say, in which the printing cylinders may be separated by moving one relative to the other and at the same time the inking mechanism may be moved out of engagement with the form cylinder.

One of the principal objects of the invention is to provide simple and efficient means of supporting the ink rollers (which are located between the ink distributing cylinder and the form cylinder and which function to convey ink from the former to the latter) in such a manner as to maintain the various parts in relative position when the rollers are removed from the form cylinder. Further objects and advantages of the invention will be in part set forth in the following specification and in part will be obvious therefrom without being specifically pointed out, the same being realized and attained by means of the instrumentalities and structural characteristics and relative arrangements and combinations which will be hereinafter more fully described or which will be pointed out in the claims hereof.

With the above and other objects of the invention in view, the invention consists in the novel construction, arrangement and combination of various devices, elements and parts, as set forth in the claims hereof, one embodiment of the same being illustrated in the accompanying drawings and described in this specification.

In the accompanying drawings,

Fig. 1 is a diagrammatical side view of a portion of a printing machine, showing the ink distributing cylinder, the form cylinder, and the ink rollers intermediate the same, mounted according to my invention;

Fig. 2 is a fragmentary view in the direction of the arrow 2 in Fig. 1; and

Fig. 3 is a fragmentary view in the direction of arrow 3 of Fig. 1.

In carrying my invention into effect in the embodiment of the same which has been selected for illustration in the accompanying drawings and for description in this specification, I provide a supporting frame, portions of which are shown in the drawings and designated 4. In this frame are journaled an ink distributing cylinder 5 and a form cylinder 6. The inking mechanism is located intermediate the ink distributing cylinder and the form cylinder, and comprises, according to the usual practice, a series of form rollers 7, 8, 9 and 10, which are journaled in the upper ends of short upwardly extending arms 11 mounted

on a frame 12, which slides in a guide 13 on the frame 4.

Also extending upwardly from the frame 12 are longer arms 14 in which are journaled the ink distributing rollers 15—15.

The two ink feed rollers which complete the series of the inking mechanism are shown at 16—16, and the mechanism by which they are supported and held in operative relation to the other rollers is as follows:

The shaft 17, which is the main supporting shaft of the ink distributing cylinder 5, bears also two swinging arms journaled thereon, one of which, 18, extends downwardly and to the right in Fig. 1, and the other, 19, extends downwardly and to the left. These arms 18 and 19 swing independently of each other, and each bears at its outer end a bracket 20, pivoted thereon at 21 and adjustable with relation thereto by the set-screw 22.

The rollers 16 are journaled in these brackets 20, and their position with regard to the ink distributing cylinder 5 may be adjusted by the set-screw 22 above mentioned, which serves to take up any wear.

In order to properly space the rollers 16 with relation to the rollers 15, I provide links 23, supported co-axially with these rollers, and which serve to always maintain the same at the proper distance with respect to each other, whether the frame 12, with its various upwardly extending arms, is raised or lowered.

While the link 23, as above stated, serves to maintain in a general way the proper distance between the rollers 15 and 16, nevertheless a slight adjustment of this space is sometimes necessary in order to take up loss from wear, and I effect this by means of a movable member 24, which carries an eccentric bushing 25, in which the shaft 26 of the roller 16 is journaled. It will be obvious that by swinging the member 24 and bushing 25, and then securing the same by means of the lock-screw 27, a very accurate adjustment of the roller 16 may be effected with regard to the roller 15.

The operation of my invention will be obvious from what has been above said with regard to its construction.

The advantages of my invention will be obvious from what has been above said. It has heretofore been the practice to support the roller 16 on arms that were pivoted somewhere between the same and the axis of the cylinder 5, the weight of the roller 16 being borne only by the roller 15, upon which it rested. Accordingly, when the

inking mechanism was raised away from the form cylinder, the inking rollers were raised with it in the same manner as shown in the present invention, but the objection to this arrangement was that it was impossible to hold the axis of the roller 15 and the axis of the roller 16 in any definite relation and even a slight inequality in the radial dimensions of the rollers, due to the wear to which they were exposed, would cause a serious jumping action upon the rapid rotation of the mechanism when the machine is moving. In the present invention, however, the link 23 provides a suitable support for the roller 16, always spacing it properly with relation to the roller 15, and the eccentric sleeve bushing in the member 24 providing a simple and efficient means of making any slight adjustment which might become necessary for any cause. Other advantages of the invention will be obvious from what has been above said with regard to the construction and operation of the machine.

I do not limit myself to the particular details of construction set forth in the foregoing specification and illustrated in the accompanying drawings, as the same refer to and set forth only one embodiment of the invention, and it is obvious that the same may be modified, within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In a printing machine, the following elements in combination: a supporting frame, a form cylinder journaled therein, an ink distributing cylinder also journaled therein, a frame slidably mounted in the main supporting frame of the machine, a form roller carried by said sliding frame and adapted to contact with said form cylinder when said sliding frame is in its lowered position and to be separated therefrom when said sliding frame is in its raised position, an ink distributing roller also carried by said sliding frame and adapted to contact with said form roller, an arm swingingly mounted co-axially with said ink distributing cylinder, an ink feed roller carried by said swinging arm and adapted to contact with said ink distributing cylinder and said ink distributing roller, and a link connecting said ink feed roller and said ink distributing roller and adapted to maintain the same in a predetermined relation with respect to each other as the said sliding frame is operated to throw said form roller into or out of contact with said form cylinder.

2. In a printing machine, the following elements in combination: a supporting frame, a form cylinder journaled therein, an ink distributing cylinder also journaled therein, a frame slidably mounted in the main supporting frame of the machine, a form roller carried by said sliding frame and adapted to contact with said form cylinder when said sliding frame is in its lowered position and to be separated therefrom when said sliding frame is in its raised position, an ink distributing roller also carried by said sliding frame and adapted to contact with said form roller, an arm swingingly mounted co-axially with said ink distributing cylinder, a bracket pivotally mounted near the outer end of said swinging arm, an ink feed roller carried by said bracket and adapted to contact with said ink distributing cylinder and said ink distributing roller, and a link connecting said ink feed roller and said ink distributing roller and adapted to maintain the same in a predetermined

relation with respect to each other as the said sliding frame is operated to throw said form roller into or out of contact with said form cylinder.

3. In a printing machine, the following elements in combination: a supporting frame, a form cylinder journaled therein, an ink distributing cylinder also journaled therein, a frame slidably mounted in the main supporting frame of the machine, a form roller carried by said sliding frame and adapted to contact with said form cylinder when said sliding frame is in its lowered position and to be separated therefrom when said sliding frame is in its raised position, an ink distributing roller also carried by said sliding frame and adapted to contact with said form roller, an arm swingingly mounted co-axially with said ink distributing cylinder, a bracket pivotally mounted near the outer end of said swinging arm, an ink feed roller carried by said bracket and adapted to contact with said ink distributing cylinder and said ink distributing roller, means for adjusting and fixing the relation of said bracket to said swinging arm, and a link connecting said ink feed roller and said ink distributing roller and adapted to maintain the same in a predetermined relation with respect to each other as the said sliding frame is operated to throw said form roller into or out of contact with said form cylinder.

4. In a lithographic printing machine, a form roller rotatably supported in movable bearings, an ink distributing cylinder rotatably supported in fixed bearings, a first ink roller normally in operating engagement with the ink distributing cylinder, a second ink roller normally in operating engagement with the first ink roller and with the form roller, and supports for the ink rollers, said supports being adapted to rotatably carry the ink rollers and including means adapted to maintain the normal engagements of said rollers and prevent increased pressure of one of said rollers upon another when the form roller is moved toward or away from the form cylinder.

5. In a lithographic printing machine, a form roller rotatably supported in movable bearings, an ink distributing cylinder rotatably supported in fixed bearings, a first ink roller normally in operating engagement with the ink distributing cylinder, a second ink roller normally in operating engagement with the first ink roller and with the form roller, and bearings for one of the ink rollers, pivotally supported links adapted to carry the said bearings and comprising means whereby the normal engagements of said rollers are maintained and increased pressure of one of said rollers upon another is prevented when the form roller is moved toward or away from the form cylinder.

6. In a lithographic printing machine, a form roller rotatably supported in movable bearings, an ink distributing cylinder rotatably supported in fixed bearings, a first ink roller normally in operating engagement with the ink distributing cylinder, a second ink roller normally in operating engagement with the first ink roller and with the form roller, adjustable bearings for one of the ink rollers adapted to shift its axis relative to the ink distributing cylinder, bearings for the other ink roller, and supports for the bearings of the ink rollers adapted to maintain the normal engagements of said rollers and prevent increased pressure of one of said rollers upon another when the form roller is moved relative to the form cylinder.

7. In a lithographic printing machine, a form

roller rotatably supported in movable bearings, an ink distributing cylinder rotatably supported in fixed bearings, a first ink roller normally in operating engagement with the ink distributing cylinder, a second ink roller normally in operating engagement with the first ink roller and with the form roller, adjustable bearings for the first ink roller adapted to shift its axis relative to the second ink roller, bearings for the second ink roller, and supports for the bearings of the ink rollers adapted to maintain the normal engagements of said rollers and prevent increased pressure of one of said rollers upon another when the form roller is moved relative to the form cylinder.

8. In a lithographic printing machine, a form

roller rotatably supported in movable bearings, an ink distributing cylinder rotatably supported in fixed bearings, a first ink roller normally in operating engagement with the ink distributing cylinder, a second ink roller normally in operating engagement with the first ink roller and with the form roller, adjustable bearings for the first ink roller adapted to shift its axis relative to the ink distributing cylinder and to the second ink roller, bearings for the ink roller, and supports for the bearings of the ink rollers adapted to maintain the normal engagements of said rollers and prevent increased pressure of one of said rollers upon another when the form roller is moved relative to the form cylinder.

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