June 15, 1937. H. M. BARBER 2,083,542

INKING MECHANISM FOR ROTARY PRINTING PRESSES

Filed June 20, 1935 3 Sheets-Sheet 1

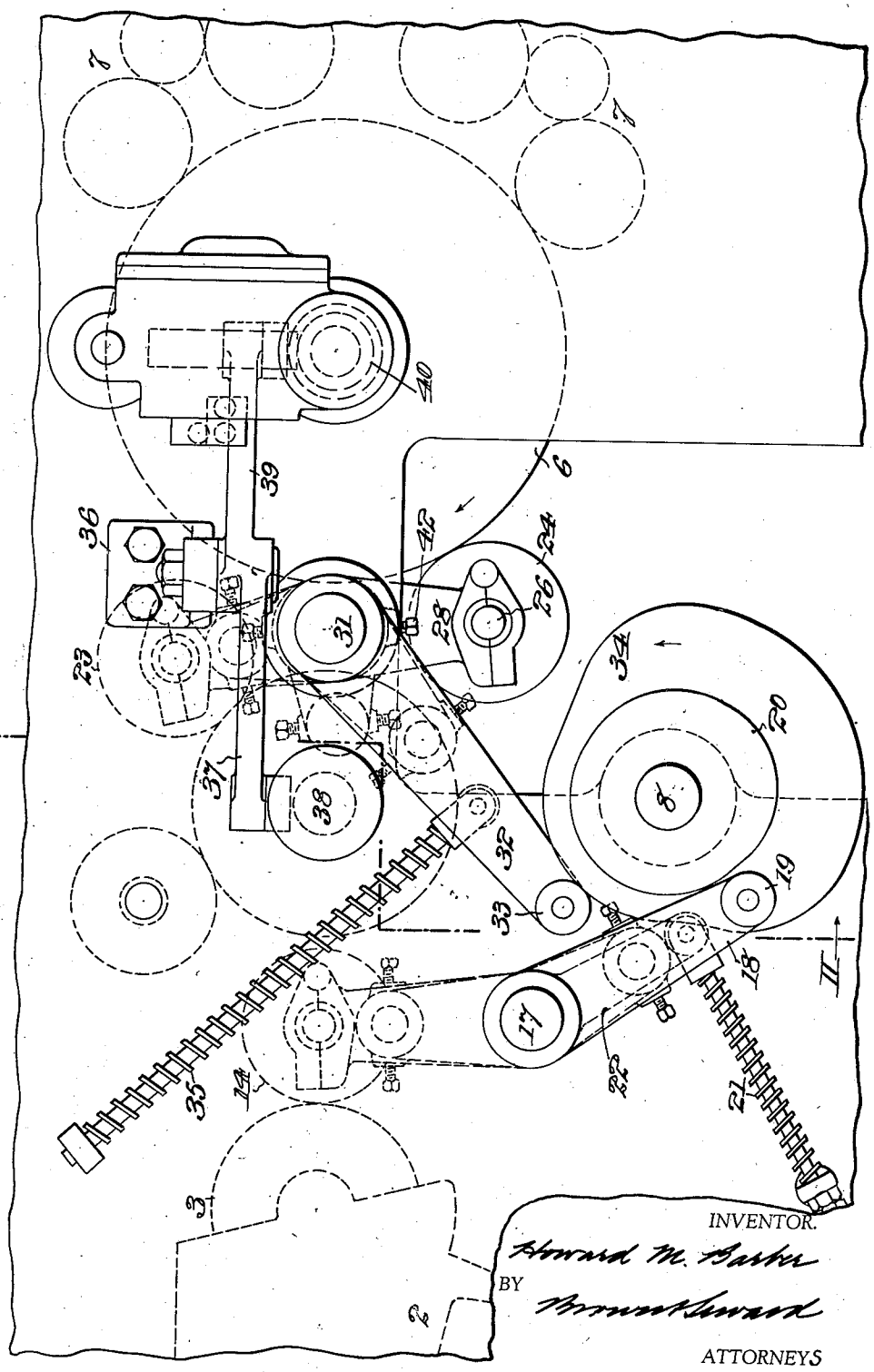

Fig. 1.

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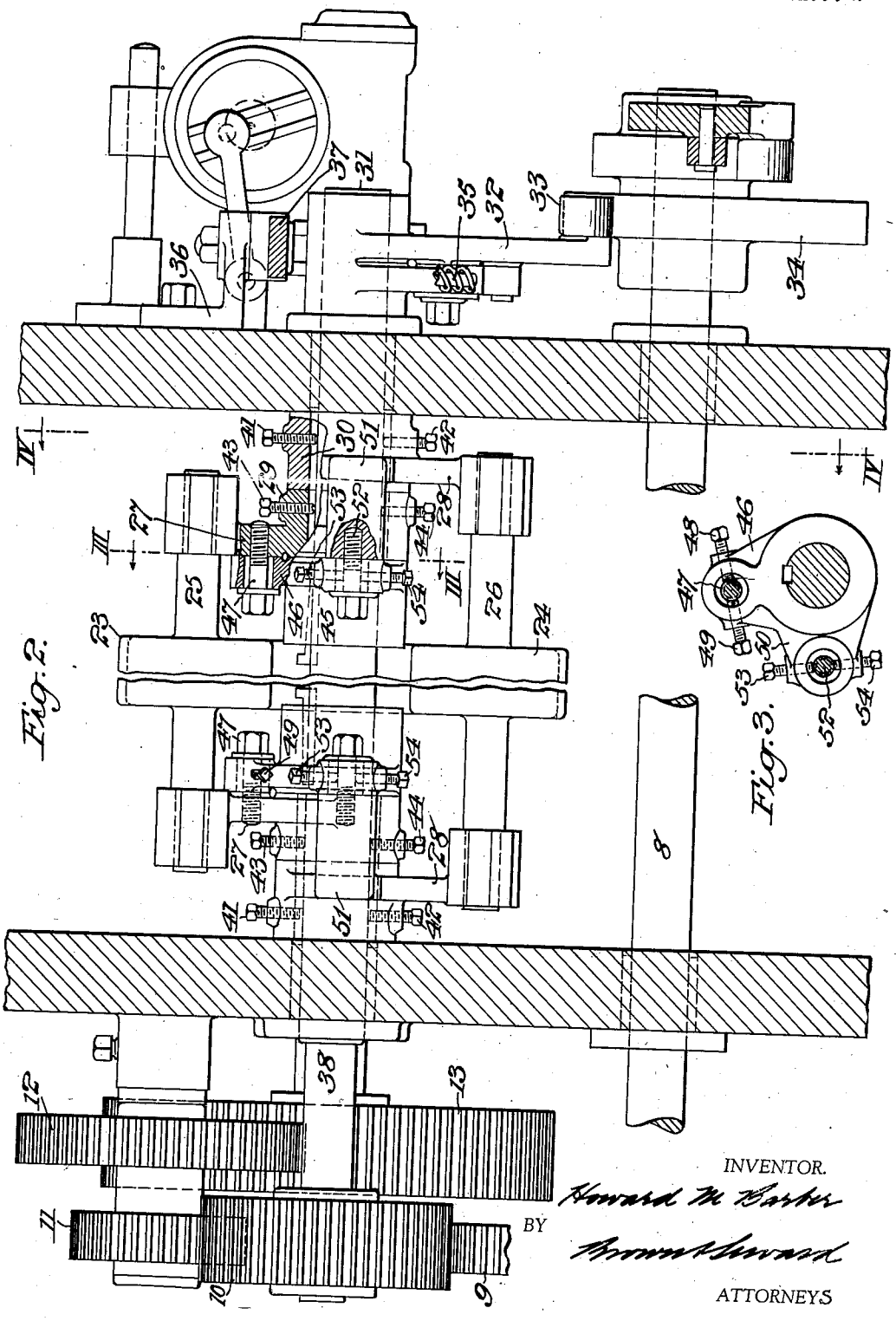

Fig. 2.

Fig. 3.

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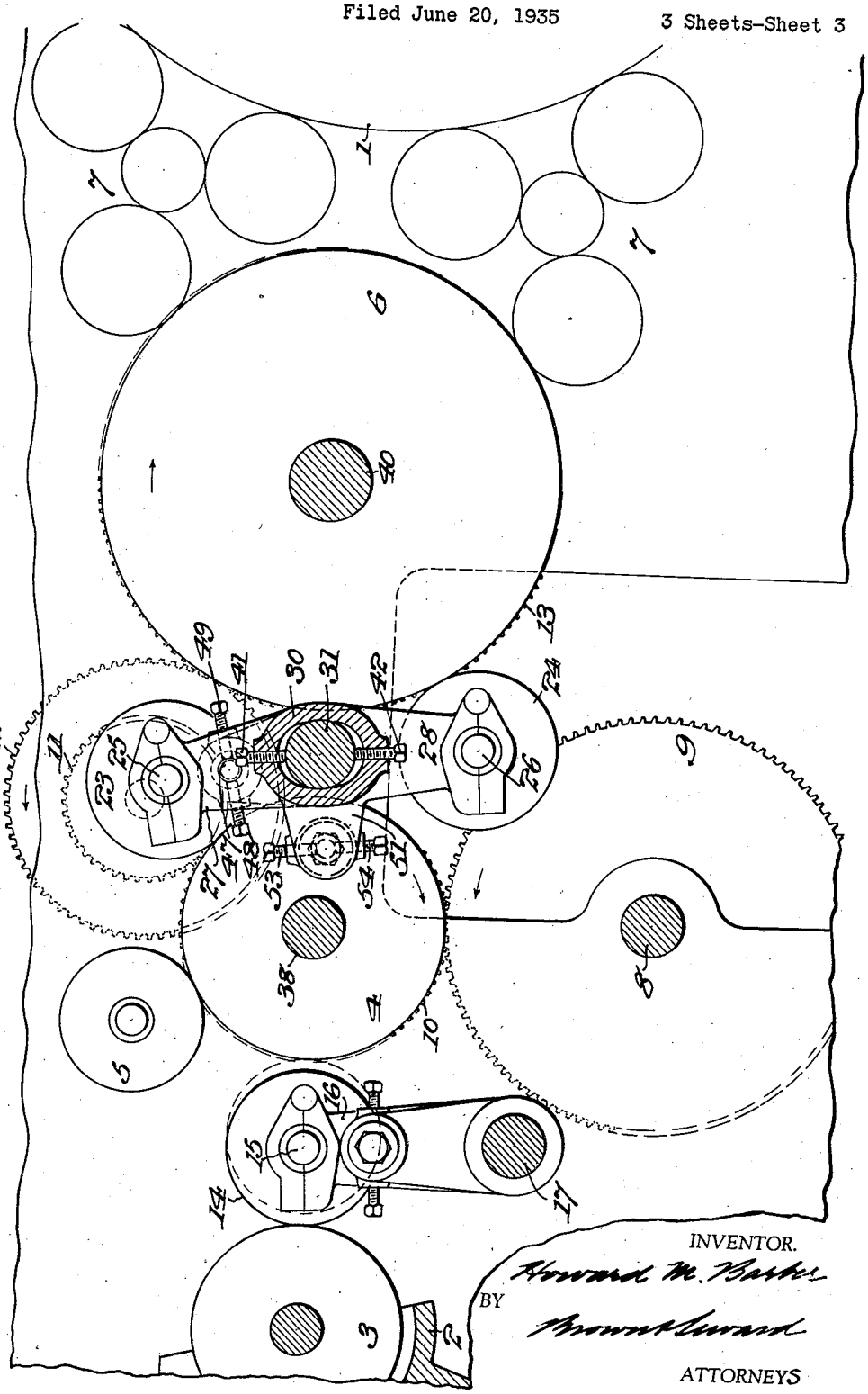

Fig. 4.

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Patented June 15, 1937 2,083,542

UNITED STATES PATENT OFFICE

2,083,542

INKING MECHANISM FOR ROTARY PRINTING PRESSES

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Application June 20, 1935, Serial No. 27,481

4 Claims. (Cl. 101—350)

Heretofore, in inking mechanisms where one ductor roller operated between the fountain cylinder and a low speed ink cylinder, and a second ductor roller operated between the low and high speed ink cylinders, it was necessary to flood the second ductor roller in the attempt to obtain a sufficient deposit of ink on the high speed ink cylinder. The reason for this was that the ink transferring capacity of the second ductor roller was insufficient due to the fact that it was alternately contacting with the low and the high speed ink cylinders. This second ductor roller therefore was unable to deposit a continuous and sufficient supply of ink to the high speed ink cylinder to be transferred by the groups of form rollers to the form cylinder of the printing press.

The object of this invention is to ensure an ample supply of ink to the high speed ink cylinder by providing a pair of ductor rollers mounted on a common rocking support and operating between the low and high speed ink cylinders. By this arrangement when either one of the pair of ductor rollers is contacting with the low speed ink cylinder to receive ink therefrom, the other ductor roller of the pair is contacting with the high speed ink cylinder to transfer its ink thereto, thus enabling the press to run at high speeds with an ample ink supply for the form cylinder.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a detail side elevation of so much of a rotary printing press as will give a clear understanding of the present invention, the ductor roller operating between the fountain cylinder and the low speed ink cylinder being shown in contact with the fountain cylinder, the upper one of the pair of ductor rollers operating between the low and high speed ink cylinders being shown in contact with the low speed ink cylinder, and the other one of the pair being shown in contact with the high speed ink cylinder;

Fig. 2 represents a detail cross section taken in the planes of the line II—II of Fig. 1;

Fig. 3 represents a detail section taken in the plane of the line III—III of Fig. 2, and

Fig. 4 represents a detail vertical longitudinal section taken in the plane of the line IV—IV of Fig. 2.

The form cylinder of the rotary printing press is denoted by 1. The ink fountain is denoted by 2 and its fountain cylinder 3 may be rotated in the usual manner and at the desired speed by any well known or approved means, not shown herein.

The low speed ink cylinder is denoted by 4 and its contacting smaller working-up cylinder by 5. The high speed ink cylinder is denoted by 6 and the usual groups of form inking rolls are denoted by 7.

The ink cylinders 4 and 6 may be driven at the desired surface speeds from the cam shaft 8 through the train of gears 9, 10, 11, 12 and 13. In the present instance the high speed ink cylinder 6 is driven at the surface speed of the form cylinder 1 and the ink cylinder 4 is driven at a much lower speed.

The usual ductor roller 14 operates between the ink fountain cylinder 3 and the low speed ink cylinder 4, the shaft 15 of which ductor roller is mounted at each end in an arm 16 uprising from a rock shaft 17. This rock shaft 17 has a depending arm 18 which carries a stud or roller 19 located in position to be engaged by a cam 20 on the cam shaft 8 to swing the ductor roller 14 from its contact with the fountain cylinder 3 into contact with the ink cylinder 4. An expansion spring 21 extends between the frame and an arm 22 depending from the rock shaft 17 for swinging the ductor roller 14 from its position in contact with the ink cylinder 4 to its position in contact with the fountain cylinder 3.

The ink on the low speed ink cylinder 4 is transferred to the high speed ink cylinder 6 by providing a pair of ductor rollers 23, 24 which have their shafts 25, 26 mounted at each end in arms 27, 28 respectively, uprising and depending from hubs 29, 30 on a rock shaft 31. This rock shaft 31 has another depending arm 32 which carries a stud or roller 33 held in contact with the face of a cam 34 on the rotary cam shaft 8 by an expansion spring 35 extending between the frame and the depending arm 32. This cam is shaped to swing the upper and lower ductor rollers 23 and 24 alternately into contact with the low speed ink cylinder 4 and alternately into contact with the high speed ink cylinder 6 so that when one of the ductor rollers is in contact with one ink cylinder the other ductor roller will be in contact with the other ink cylinder.

The ink cylinders 4 and 6 may be vibrated by a two armed rock lever pivoted to the frame bracket 36, one arm 37 of which lever vibrates a shaft 38 of the ink cylinder 4 and the other arm 39, the shaft 40 of the ink cylinder 6. This rock lever may be operated in the usual manner by any well known or approved means, not shown specifically herein.

The pair of ductor rollers 23, 24 may be radially and rotatively adjusted to properly contact with their ink cylinders 4 and 6, as follows:

The hub 30 of the depending arm 28 which carries the shaft 26 of the ductor roller 24 is provided with a bore, oblong in cross section; oppositely disposed adjusting screws 41, 42 being provided, the inner ends of which screws engage the opposite sides of the rock shaft 31.

The hub 29 of the uprising arm 27 which carries the shaft 25 of the upper ductor roller 23 is provided with a bore, oblong in cross section, oppositely disposed adjusting screws 43, 44 being provided for engaging the opposite sides of the shaft 31.

The hub 45 of a two armed lever is keyed or otherwise secured to the rock shaft 31, the uprising arm 46 of which lever is secured to the uprising arm 27 of the upper ductor roller 23, by a screw bolt 47 which passes through an enlarged bore in the said uprising arm 46. Set screws 48, 49 engage the opposite sides of the bolt 47, which set screws serve to lock the ductor roller 23 in its rotatively adjusted position.

The hub 45 of the two armed lever is also provided with a lateral arm 50 which is secured to a lateral arm 51 projecting from the hub 30, by a screw bolt 52 which passes through an enlarged bore in said lateral arm 50. Set screws 53, 54 engage the opposite sides of the bolt 52, which set screws serve to lock the ductor roller 24 in its rotatively adjusted position.

In operation: The ductor roller 14 is caused to take the ink from the fountain cylinder 3 and transfer the ink to the low speed ink cylinder 4 in the usual manner. The fresh supply of ink on the cylinder 4 is worked up by the cylinder 5 while the pair of ductor rollers 23, 24 are in their intermediate positions, out of contact with both the cylinder 4 and cylinder 6. One of the pair of ductor rollers is moved into contact with the low speed ink cylinder 4 to take ink therefrom while the other ductor roller is moved into contact with the high speed ink cylinder 6 to transfer its ink thereto, and vice versa. This arrangement ensures an ample supply of ink to the high speed ink cylinder 6 and thereby through the groups of form inking rollers 7 to the form cylinder 1.

From the above description it will be seen that there is provided means whereby the proper supply of ink may be provided for the form cylinder even though running at high speeds.

It will also be seen that means have been provided for accurately adjusting the relative positions of the pair of ductor rollers both radially and rotatively to obtain the required proper contact between these ductor rollers and both of the ink cylinders.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but what I claim is:

1. In an inking mechanism for printing presses, a vibratory low speed ink cylinder, a vibratory high speed ink cylinder, a pair of ductor rollers operating between them, and means for adjusting the relative positions of the two ductor rollers.

2. In an inking mechanism for printing presses, a vibratory low speed ink cylinder, a vibratory high speed ink cylinder, a pair of ductor rollers operating between them, and means for rotatively adjusting the relative positions of the two ductor rollers.

3. In an inking mechanism for printing presses, a vibratory low speed ink cylinder, a vibratory high speed ink cylinder, a pair of ductor rollers operating between them, and means for radially adjusting the relative positions of the two ductor rollers.

4. In an inking mechanism for printing presses, a vibratory low speed ink cylinder, a vibratory high speed ink cylinder, a pair of ductor rollers operating between them, and means for both radially and rotatively adjusting the relative positions of the two ductor rollers.

HOWARD M. BARBER.