W. B. STORY.

INKING DEVICE FOR PRINTING PRESSES.

APPLICATION FILED OCT. 1, 1912.

1,105,861. Patented Aug. 4, 1914.

Fig. 1

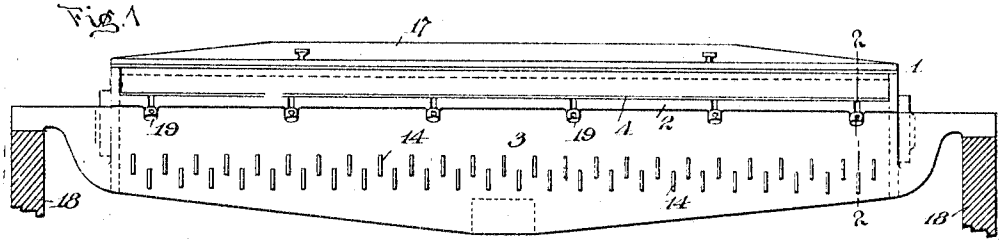


Fig. 2

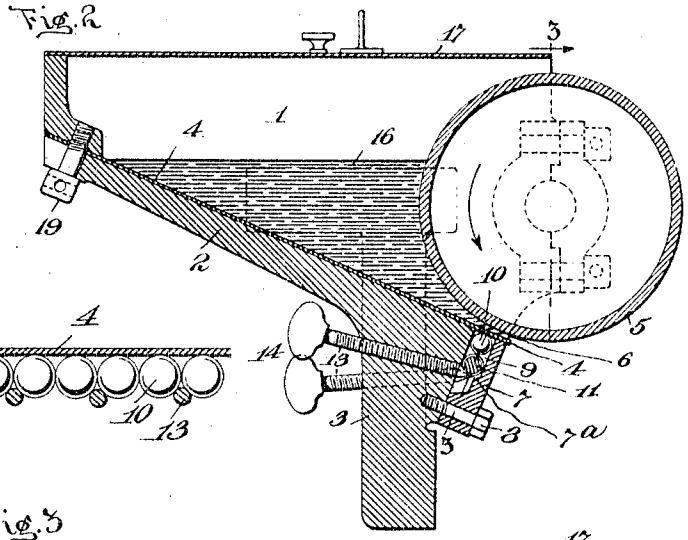


Fig. 5

Fig. 3

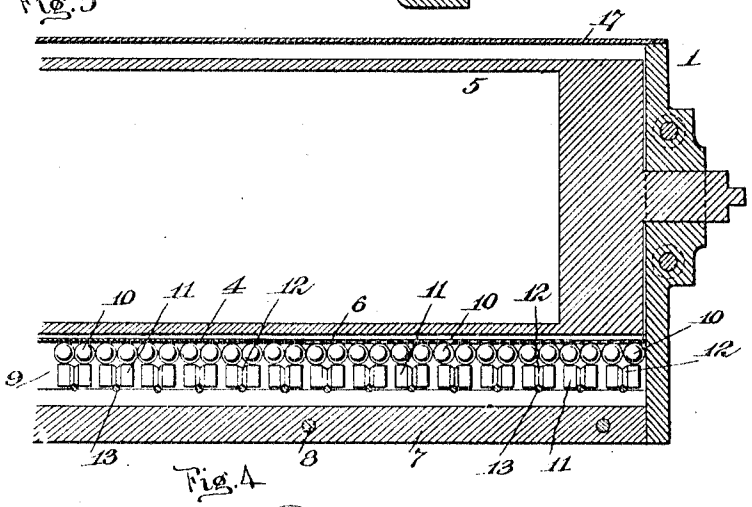
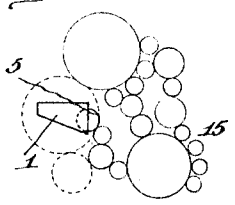


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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INKING DEVICE FOR PRINTING-PRESSES.

1,105,861. Specification of Letters Patent. Patented Aug. 4, 1914.

Application filed October 1, 1912. Serial No. 723,318.

To all whom it may concern:

Be it known that I, WARD B. STORY, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Inking Devices for Printing-Presses, of which the following is a specification.

This invention relates to devices for applying ink to rollers of printing presses and similar devices.

The object is to provide an accurate feed of the ink film on the roller, making it possible to adjust the thickness of the ink without interrupting the operation of the device.

A further object is to simplify the mechanism and improve the adjustability thereof.

These and further objects will more fully appear from the following specification and accompanying drawings, considered together or separately.

In the drawings, Figure 1 is a rear elevation of an ink reservoir and the supports therefor, showing one embodiment of the invention applied thereto. Fig. 2 is a section on the line 2—2 of Fig. 1, on an enlarged scale. Fig. 3 is a section on the line 3—3 of Fig. 2; and Fig. 4 is a diagrammatic view of the reservoir and inking rollers, and Fig. 5 is a view of a modification.

In all of the views, like parts are designated by the same reference characters.

In the embodiment chosen for illustration, the ink reservoir 1 has an inclined bottom 2. This inclined bottom 2 is combined with the base 3. This base is preferably a casting, made of sufficient size and strength to adequately support the reservoir. In addition to the base, the bottom is composed of a flexible plate 4. This plate is shown as attached in position by means of bolts 19. One side of the reservoir is closed by a roller 5. Ordinarily, the roller does not come into immediate contact with the flexible plate, but a space 6 is left between the plate and the roller. The roller rotating in the direction indicated by the arrow in Fig. 2, becomes coated with ink and draws the same out through the space 6, in a film, the thickness of which is controlled by the position of the edge of the plate in relation to the roller.

The devices for controlling the position of the plate are as follows:—A plate 7 is attached to the base 3 by suitable means, such as by the bolts 8. Behind the plate 7 is a recess 9. In this recess 9 is a row of balls 10. Any kind of balls may be used, but I prefer to use hardened steel balls. These balls are closely arranged side by side, and in contact with each other. They bear against the lower side of the flexible plate 4. The balls rest upon cylindrical blocks 11. In the embodiment chosen for illustration, each block engages with two balls. Each block is provided with a groove 12, preferably located at about the middle of the block between the balls, as shown. A conical pointed screw-threaded bolt 13 engages with the groove 12. There are, of course, as many bolts as there are blocks, and twice as many balls as blocks. These bolts pass through the base 3, and each is provided with an operating head 14. These bolts support the balls. In the embodiment chosen for illustration, and shown in Figs. 1 to 3, inclusive, the bolts support the balls through the intermediary of the blocks. In another form of the invention, to be described hereinafter, the bolts support the balls by direct engagement. The bolts therefore constitute manually actuated adjusting devices for the balls. In order to group the bolts as closely as possible and at the same time to allow room to turn the heads thereof, their positions are preferably staggered, as shown in Figs. 1 and 2. It is apparent that by longitudinally moving each bolt, by rotating the same, that the tip of the bolt engaging with the groove 12 will raise or lower the block 11, and will move the balls which engage with such block. The movement of the balls will flex the plate 4 and move it toward the roller, and thus vary the width of the space 6 and the consequent thickness of the ink film. It is apparent that the balls support the plate at close intervals, and as two balls are actuated by one bolt, it is apparent that only one-half as many bolts are necessary as there are points of contact with the plate. This permits a very fine adjustment and at the same time gives adequate and close support for the free end of the flexible plate. Heretofore, the flexible plate has been directly engaged by bolts; hence, in order to have as close spacing of the latter, their heads have to be made inconveniently small. According to my invention, I not only have large heads on the bolts, but only

one-half as many holes have to be drilled through the base 3 as there are points of contact with the plate 4.

The roller 5 engages with the inking rollers 15, as shown in Fig. 4. The ink 16, is placed in the reservoir and the latter is inclosed by a cover 17. As shown in Fig. 1, the reservoir is supported upon the side-bars 18.

According to my invention, the plate 4 is directly moved by the engagement of the balls 10, hence I will denominate them in the following claims as the "moving devices." These balls are engaged by the blocks 11, which I therefore term the "intermediate devices." These blocks, in turn, are moved by means of the bolts 13 which are manually manipulated, a hence I will refer to them as the "actuating devices."

I have illustrated my invention in connection with a structure in which the plate 4 is moved by the direct action of a series of closely assembled balls. It is to be understood that, in lieu of balls, moving devices of different shape may be employed. In the embodiment chosen for illustration, I have shown the blocks 11 as cylindrical, but it is to be understood that the intermediate devices may be of different shape than those shown. So also the actuating devices may be different.

The plate 7 is provided with a ledge 7^a, extending the full length of the recess 9. This ledge will act as a support for the rollers 11, when the bolts 13 are withdrawn and the rollers will be retained in the proper position to receive the points of the bolts when they are returned to their places.

My invention may be carried out in an apparatus wherein the "intermediate devices" are omitted and only the "moving devices" and "actuating devices" are used. Such a device is shown in Fig. 5, wherein the bolts 13 are shown as each engaging directly with a pair of balls 10, which, in turn, support the edge of the flexible plate 4.

In accordance with the provisions of the patent statutes, I have described the principle of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that the invention can be carried out in other ways.

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

1. An inking device for printing presses, having a resorvoir, a roller, a flexible plate associated with the reservoir and in juxtaposition to the roller, a series of moving devices in contact with the plate and with each other, a series of manually actuated adjusting devices, and intermediate devices between the moving devices and adjusting devices, the adjusting devices being fewer in number than the moving devices.

2. An inking device for printing presses, having a reservoir, a roller, a flexible plate associated with the reservoir and in juxtaposition to the roller, a series of moving devices, making independent contact with the plate and with each other, said moving devices being in pairs, a series of intermediate devices in contact with the moving devices, there being one intermediate device for each two moving devices, and a series of adjusting devices in contact with the intermediate devices, there being one such adjusting device for each intermediate device.

3. An inking device for printing presses, having a reservoir, a roller, a flexible plate associated with the reservoir and in juxtaposition to the roller, a series of balls engaging with the plate and each other, a series of blocks engaging with the balls, each block engaging with a plurality of balls, and an adjusting device engaging with each block for moving the latter and thereby varying the extent of aperture between the plate and roller.

4. An inking device for printing presses, having a reservoir, a roller, a flexible plate associated with the reservoir and in juxtaposition to the roller, a series of balls engaging with the plate, a series of cylindrical blocks, there being a block for each two balls, each block having a circumferential groove, and a series of adjusting bolts, there being one bolt in engagement with the groove of each block, for moving the latter and thereby varying the extent of aperture between the plate and roller.

5. An inking device for printing presses, having a reservoir, a roller, a flexible plate in juxtaposition to the roller, a series of moving devices in contact with the plate and with each other, and a series of manually-actuated adjusting devices, the adjusting devices being fewer in number than the moving devices.

6. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and in juxtaposition to the roller, a series of moving devices in contact with the plate, and a series of manually-actuated adjusting devices, each adjusting device supporting a plurality of moving devices.

7. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and in juxtaposition to the surface of the roller, a series of moving devices having a rolling contact with the plate, and a series of manually-operated adjusting devices, each adjusting device supporting a plurality of moving devices.

8. An inking device for printing presses, having a reservoir, roller, a flexible plate

forming part of the reservoir and in juxtaposition to the roller, a series of balls in contact with the plate, and a series of pointed bolts, the point of each bolt supporting two balls.

9. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming a part of the reservoir and in juxtaposition to the surface of the roller, a series of balls in contact with the plate, and a series of pointed bolts, the point of each bolt supporting two balls, the bolts being staggered in relation to each other.

10. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and having one edge in juxtaposition to the roller, a continuous trough beneath the edge of the plate, a series of rolling devices disposed within the trough and means for engaging the rolling devices with the plate.

11. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and having one edge in juxtaposition to the roller, a trough beneath the edge of the plate, a series of rolling devices disposed within the trough and in engagement with each other and means for engaging the rolling devices with the plate.

12. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and having one edge in juxtaposition to the roller, a continuous trough beneath the edge of the plate, a series of rolling devices disposed within the trough and means for engaging each pair of the rolling devices with the plate.

13. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming part of the reservoir and having one edge in juxtaposition to the roller, a trough beneath the edge of the plate, a series of rolling devices disposed within the trough and in engagement with each other and means for engaging each pair of the rolling devices with the plate.

14. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming a part of the reservoir and having one edge in juxtaposition to the roller, a trough beneath the edge of the plate, a series of balls within the trough, a roller engaging each pair of balls, a ledge for supporting the rollers and balls in proximity to the plate and means engaging each roller to force a pair of balls against the plate.

15. An inking device for printing presses, having a reservoir, a roller, a flexible plate forming a part of the reservoir and having one edge in juxtaposition to the roller, a trough beneath the edge of the plate, a series of balls within the trough, said balls being in engagement with the plate and with each other, a roller engaging each pair of balls, a ledge for supporting the rollers and balls in proximity to the plate and means engaging each roller to force a pair of balls against the plate.

This specification signed and witnessed this 25th day of Sept., 1912.

WARD B. STORY.

Witnesses:
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