

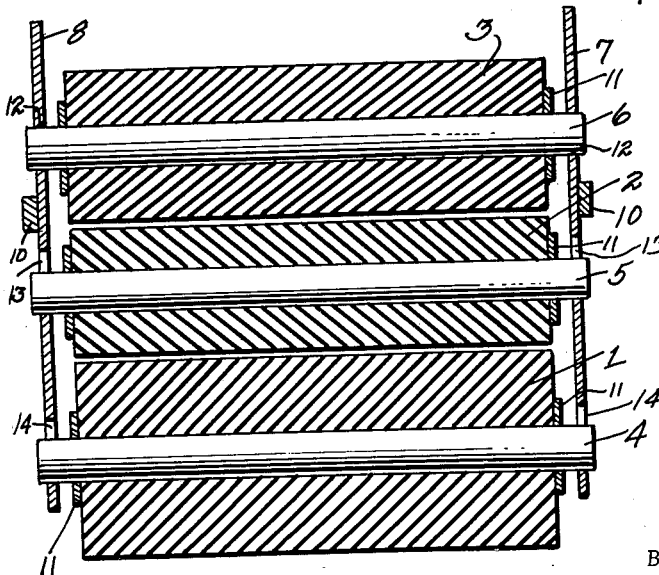
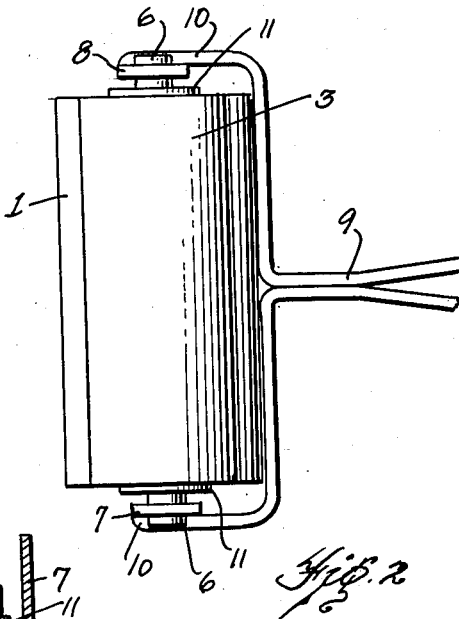
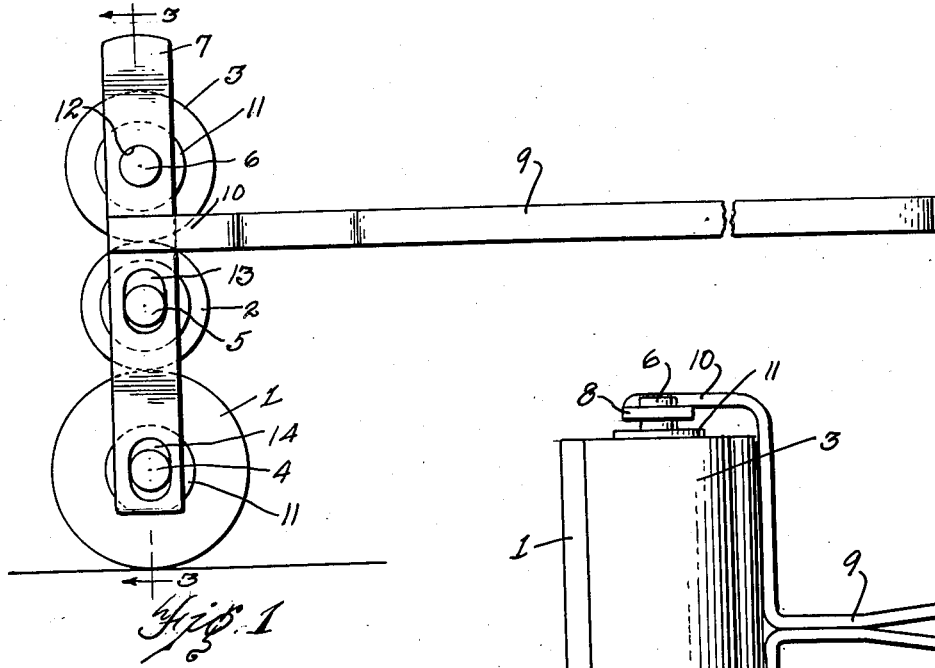
Nov. 13, 1934.

J. E. HAGSTROM

1,980,402

INK ROLLER

Filed April 13, 1932



INVENTOR.  
JOSEPH E. HAGSTROM

BY

*Charles E. ...*

ATTORNEY.

# UNITED STATES PATENT OFFICE

1,980,402

## INK ROLLER

Joseph E. Hagstrom, Adrian, Mich., assignor to  
Line-O-Scribe Incorporated, Adrian, Mich., a  
corporation of Michigan

Application April 13, 1932, Serial No. 604,981

2 Claims. (Cl. 91—62.5)

This invention relates to ink rollers for applying ink to the type faces of a hand operated printing machine.

The ordinary ink roller used for this purpose consists as a rule of a single roll but numerous objections have been found to a roller of this type. In the first place the amount of ink carried by the single roll is hardly sufficient to properly ink the type faces necessitating the rolling of the roller over the ink platen two or more times and it has been further found that any foreign material in the ink was picked up by the roller and deposited on the type faces thereby providing an imperfect impression on the card or the like being printed. It has also been found that a roller of this type did not promptly grind and distribute the ink so that a uniform amount of ink was not deposited on the type faces thereby also causing an imperfect impression on the card.

It is therefore an object of this invention to provide an ink roller which comprises a plurality of rolls whereby the volume of ink picked up by the rolls from the platen is materially increased thereby permitting the type faces to be properly inked with but a single application of the ink roller to the ink platen.

Another object of the invention resides in the provision of a device of this character which comprises a plurality of rolls whereby the ink is ground between the contacting surfaces of the rollers a number of times before being redeposited on the type faces.

Another object of the invention resides in the provision of a device of this character comprising a plurality of rolls of different diameters so arranged that any foreign material in the ink will be carried from the lower roller to the top roller and deposited thereon and will not be redeposited on the lower roller which contacts the face type thereby permitting the spreading of a deposit of ink, free from foreign material, over the type faces.

Another object of the invention resides in the provision of a device of this character which comprises a plurality of rollers so supported as to permit movement longitudinally of the rolls whereby the surface contact between the rolls is continuously changing.

Another object of the invention resides in the provision of an ink roller comprising three rolls, the upper roll adapted to rotate on a fixed axis and being slightly larger in diameter than the intermediate roll and the lower and intermediate rolls rotatable about a vertically movable axis,

the lower roll being larger in diameter than the upper roll.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawing in which—

Fig. 1 is a side elevational view of my improved roller.

Fig. 2 is a top plan view thereof.

Fig. 3 is a section taken on line 3—3 of Fig. 1.

Referring to the drawing, the lower roll 1, the intermediate roll 2 and the upper roll 3 are preferably made of semi-resilient material such as rubber and the rod 4 is inserted through the center of the roll 1, the same having sufficient resiliency to closely grip the rod. The rod 5 extends through the roll 2 and the rod 6 extends through the roll 3. It will be seen that the roll 1 is larger than either of the other two rolls and that the roll 2 is smaller in diameter than either the rolls 1 or 3. The side frames 7 and 8 support the rods 4, 5 and 6 and are maintained in a spaced relationship by the handle 9 having each of its ends 10 welded to each of the side frames 7 and 8. The washers 11 encircle the rods and are positioned between the ends of the rolls and the adjacent side frame. The side frames 7 and 8 are each formed with an aperture 12 of a size to permit free turning movement of the rod 6 therein. The ends of the rod 5 are each rotatably mounted in elongated apertures 13 formed in each side frame 7 and 8 and the rod 4 is rotatably mounted in the elongated slots 14 formed in the side frames 7 and 8.

It will be noted by referring to Fig. 3 that when the roll 1 is out of contact with the surface, such as the ink platen or the type face, that the roller 2 will be out of contact with the rollers 1 and 3 but when the roller 1 is brought into contact with the ink platen or the type face that the rolls 1, 2 and 3 will be brought into contact permitted by the vertical movement of the rod 5 in the slot 13 and the rod 4 in the slot 14. It will also be noted that inasmuch as the end of the rolls are spaced from the adjacent side frame that movement longitudinally of the axis of the rod will be permitted the rolls. This transverse movement of the rolls is caused by the fact that the rolls are not made exactly cylindrical and when the roll 1 is rolled back and forth over an ink platen the rolls will move relative to each other longitudinally of the axis of rotation thereof so that the periphery of one roll is constantly changing respectively to the periphery of the contacting roll so that the

ink picked up by the lower roll is more evenly distributed over the surfaces of the other rolls. In using the device the roll 1 is rolled back and forth over a platen on which ink has been deposited and the ink will be picked up by the roll 1 and a portion of the same then deposited on the roller 2 and a portion of the same will be deposited on the roller 3, and due to the transverse movement of the rolls the ink will be evenly spread over the surface thereof and likewise the ink will be thoroughly ground between the rolls.

When sufficient ink has been deposited on the rolls the roll 1 is brought into contact with the type face and moved back and forth thereover until the type face is properly inked. It will be noted that a far greater amount of ink will be taken from the platen and deposited on the rolls than would be the case where a single roll is used thereby obviating the necessity of continuously replenishing the ink on the rolls. It has been found that in using a single roller that the tendency of the operator is to lift the roller just before the same comes to the edge of the type face to prevent the roller from dropping down over the edge of the type and this has caused a card to be printed in which the edges of the letters are not clearly defined. With my improved roller, however, it can be seen that the roll 1 will drop down slightly even if the handle 9 is lifted and will keep in contact with the type face to ink the same to the extreme edge thereof. It has been found in using a roller of this type that any foreign matter or dirt in the ink when picked up by the larger roller is scraped onto the intermediate roll and thence deposited to the upper roll and there appears to be no tendency for the dirt to be again re-deposited on the intermediate roll.

From the foregoing description it becomes evident that I have provided an ink roller comprising a plurality of rolls whereby the maximum volume of ink is carried by the rolls to permit a relatively large surface to be inked without replenishing the ink on the rolls, and further that the ink will be thoroughly ground and will be evenly distributed over the surface of the rolls and likewise any dirt accumulating on the lower

roll will be deposited on the upper roll and will not again be re-deposited on the lower roll during the inking operation.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. An ink roller comprising three substantially vertically aligned rolls, a shaft for each roll, a pair of side frames one positioned adjacent and in spaced relation to one end of the rolls, and the other positioned adjacent and in spaced relation to the opposite ends for permitting movement of the rolls in a direction parallel to the axis of rotation thereof to cause the ink to be evenly distributed over the surface of the rolls, the side frames each apertured to receive the ends of the shafts for rotatably supporting the rolls, the two lower apertures in each side frame vertically elongated for permitting a limited vertical movement to the lower and intermediate rolls, the arrangement of the apertures for the three rolls being such that when the lower roll is out of contact with a surface to be inked, the rolls are spaced apart by gravity and are brought to surface contact upon application of the lower roll to the said surface.

2. A hand operated ink roller comprising a pair of parallel frame portions, a handle member having a U shaped part to the free end of each of which a frame element is secured, a series of at least three rollers each having a shaft with the opposite ends thereof supported in the oppositely disposed frame elements, the upper roll of the series having a shaft in pivotally fixed relation in the frames and the shafts of the remaining rollers therebelow being supported in individual slots provided in the frame members, the slots being so arranged that, when the device is lifted by hand with the lower roller out of contact with a surface to be inked, the several rollers are out of contact one with another and the placing of the device with the lower roller in contact with a surface causes the rollers to be positioned in surface contact.

JOSEPH E. HAGSTROM.

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