W. SPALCKHAVER.

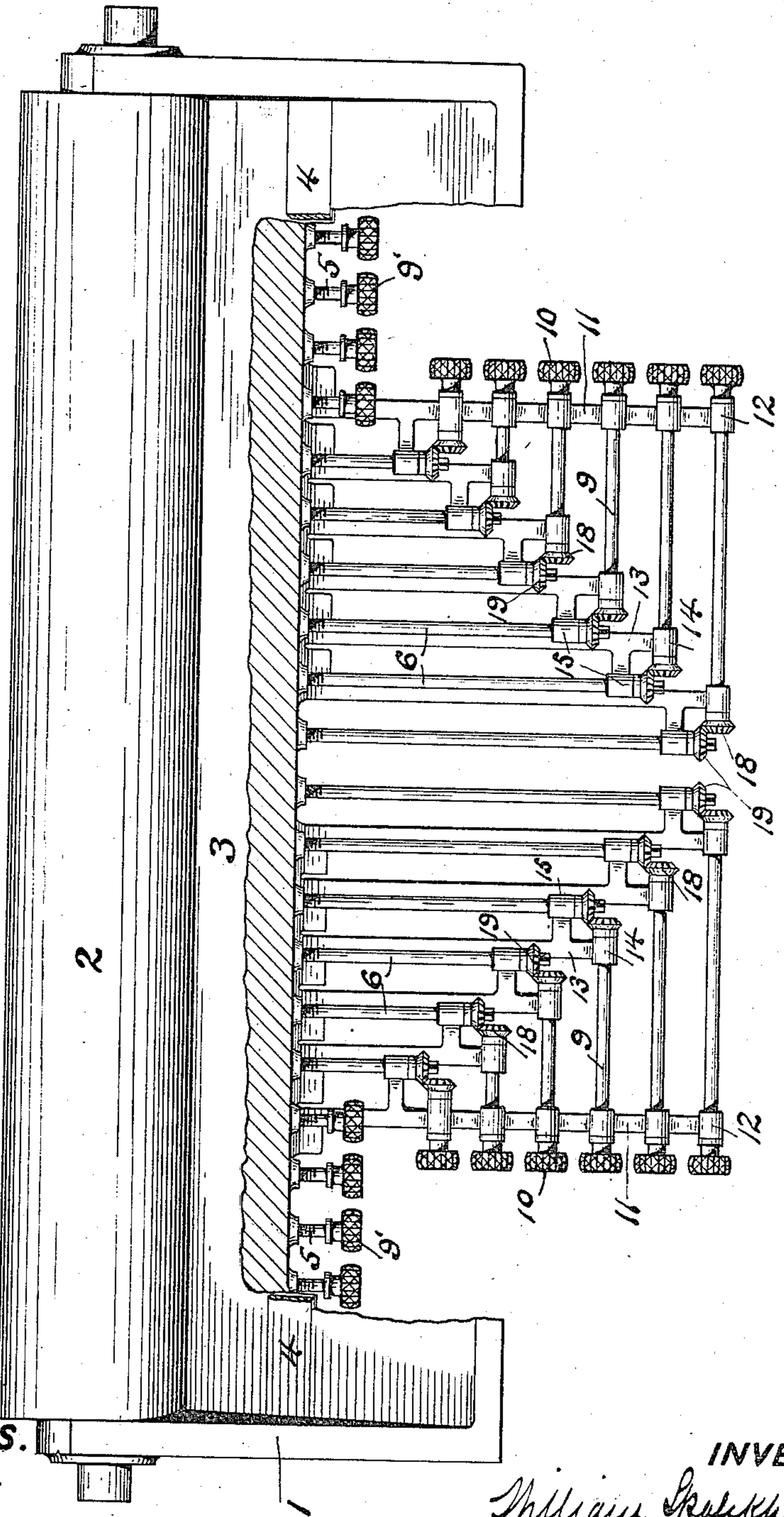
INKING MECHANISM FOR PRINTING MACHINES.

APPLICATION FILED MAR. 15, 1909.

965,244.

Patented July 26, 1910.

2 SHEETS—SHEET 1.



—FIG. 1.—

WITNESSES.

A. J. White

John J. Kearns

INVENTOR.

William Spalckhaver

by Philipp, Sawyer, Rice & Kennedy

ATT'YS.

W. SPALCKHAVER.

INKING MECHANISM FOR PRINTING MACHINES.

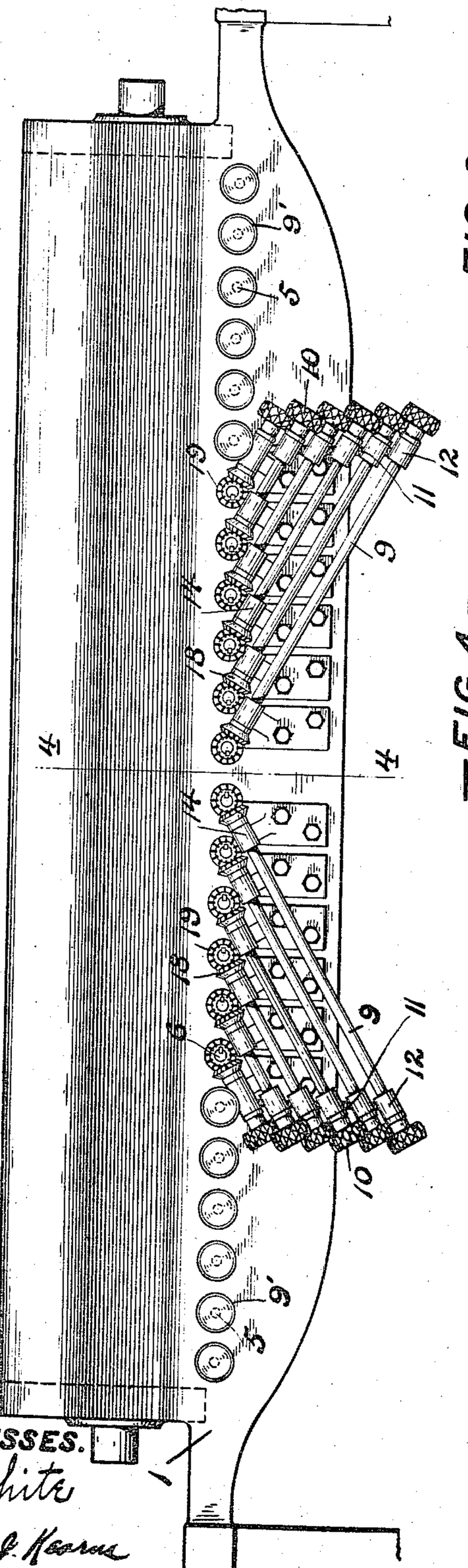
APPLICATION FILED MAR. 15, 1909.

965,244.

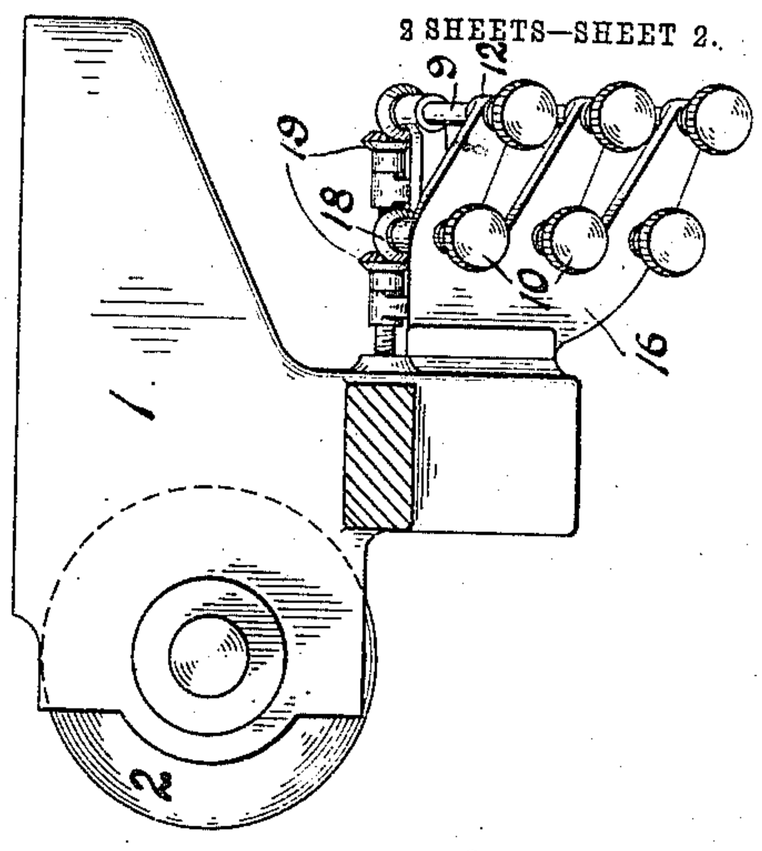
Patented July 26, 1910.

2 SHEETS—SHEET 2.

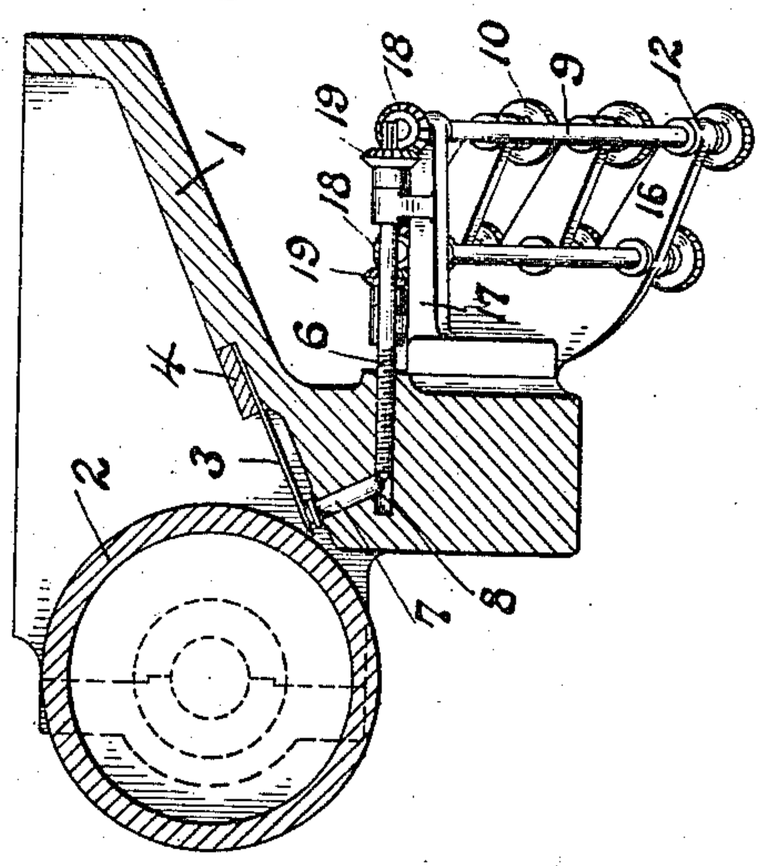
—FIG. 2.—



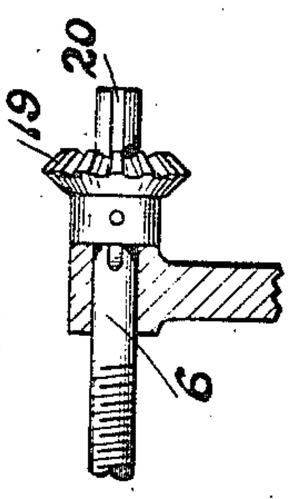
—FIG. 3.—



—FIG. 4.—



—FIG. 5.—



INVENTOR.

William Spalckhaver

by Philipp, Sawyer & Rice & Kennedy

ATT'YS.

UNITED STATES PATENT OFFICE.

WILLIAM SPALCKHAVER, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO R. HOE AND CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INKING MECHANISM FOR PRINTING-MACHINES.

965,244. Specification of Letters Patent. Patented July 26, 1910.

Application filed March 15, 1909. Serial No. 483,343.

To all whom it may concern:

Be it known that I, WILLIAM SPALCKHAVER, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Inking Mechanism for Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in regulating mechanism for ink fountains.

Ink fountains, as ordinarily used in printing machines, include a receptacle in which the ink is contained, the fountain being provided with a roll which rotates in the ink in the fountain, the ink being delivered from this roll to distributing rolls by a ductor. With these fountain rolls, there is used a scraper or doctor blade, the function of which is to regulate the thickness of the coating of ink on the fountain roll. One edge of the doctor blade which is thin and flexible, as ordinarily constructed, is secured to a support, the operating edge of the blade being sprung into proper relation with the fountain roll. The parts of a form frequently require different amounts of ink and to effect this the construction should be such that different parts of the blade may be given different adjustments with respect to the roll, so that different parts of the roll may carry different amounts of ink.

The adjustment of the scraper or doctor blades of ink fountains is ordinarily obtained by providing a series of screws which pass through threaded openings in the walls of the fountain, these screws being provided with knurled heads or hand wheels on their outer ends. At their inner ends, these screws, when the fountain is of the overshot type, usually bear directly on the blades. When, however, the fountain is of the undershot type, small plungers may be employed, each plunger bearing at one end against the blade and having its other end in contact with the beveled end of the screw. These constructions have the advantage that the pressman is enabled to regulate the position of the edge of the doctor blade by the "feel" of the screw. He can, for instance, readily detect when a part of the blade is forced into contact with the roll by one of the screws and regulates his adjustment accordingly. Of course, inspection of the printed sheets will tell him whether or not he is getting too much or too little ink, but a trained pressman depends largely upon the feel of the screws for his adjustments. It frequently happens, however, that the fountain has to be located so that access to all the screws cannot be readily had, as, for instance, when a running web leads over the fountain.

In order that the pressman may be able to adjust the different parts of the blade conveniently, where the heads of the screws are so located that they cannot be readily reached, it has been proposed to do away with the hand wheels on the ends of the screws and to substitute therefor spiral gears, these spiral gears being operated by worms on the ends of rods, the heads of which are located at one side of the fountain, these heads having squared ends on which a wrench may be placed. It is of course necessary that the worm rods referred to, in order that they may operate the spiral gears, be prevented from longitudinal movement, and in the construction referred to, the ends of the rods pass through perforations in a plate, each rod being provided on each side of the plate with a thrust collar which is pinned to the rod. This construction has the serious disadvantage that the pressman is not able to gage his adjustment by the "feel" of the operating screw or rod, the re-action of the screw being necessarily absorbed by the thrust collars. With the arrangement referred to, the pressman might turn a worm so far as to throw the edge of the blade against the fountain roll with sufficient force to score the roll and yet be unaware of the fact until the inspection of the printed sheet showed him that he was getting no ink on that part of his fountain roll. By this time the fountain roll might be seriously damaged and, further, even if this did not occur, each of the rolls between the fountain and the form would have a zone which contained little or no ink, so that the pressman would not only be compelled to reset the blade, but to run without printing until this zone on each roll was properly inked, which might require several trials and resettings.

The object of this invention is to produce an improved mechanism for regulating the amount of ink to be delivered by the fountain roll of ink fountains, said mechanism

including actuating devices which are readily accessible to the pressman and the construction being of such a character that the pressman can regulate his adjustment by the feel of the mechanism.

With these and other objects in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described and specifically pointed out.

Referring to the drawings—Figure 1 is a plan view, partly in section, illustrating an ink fountain provided with the improved regulating mechanism. Fig. 2 is a rear elevation of a modified form of the construction shown in Fig. 1. Fig. 3 is an end view of the construction shown in Fig. 2. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a detail view.

Referring to the drawings, 1 indicates an ink fountain of the usual type, this fountain being provided with an undershot delivery roll 2 operated by any suitable mechanism, not shown. This roll, in the practical use of the construction, will operate in connection with a suitable ink delivery mechanism, such, for instance, as a ductor, also not shown, as illustration of such mechanism would not conduce to an understanding of the invention. Coöperating with the roll 2 is a scraper or doctor blade 3, the function of this blade being to regulate the thickness of the coating of ink on the delivery roll, and, consequently, the amount of ink delivered thereby. This blade may be secured in position in any suitable manner. In the construction illustrated, the blade is located in a shouldered recess formed in the bottom of the fountain and secured in place by a bar 4.

In constructions embodying the invention, devices will be employed which operate upon different parts of the blade to spring or force it into proper position with respect to the roll, so as to regulate the amount of ink carried out of the fountain by the roll. It will be understood, of course, that in constructions of this class the coating of ink on the roll is frequently required to vary in thickness, for the reason that some parts of the form require more ink than other parts, so that the position of different parts of the edge of the doctor blade with respect to the roll may be varied, this requiring a plurality of adjusting devices.

While the devices employed for adjusting the blade will include positioning devices the particular construction of which may be varied, as illustrated, these devices include screws which may be arranged in groups. In the particular construction illustrated, furthermore, there are two groups of outer screws, marked 5, and two groups of inner screws, marked 6, though it is to be understood that the invention is not confined to this particular arrangement or grouping, though this arrangement is advantageous where the machine is to print on wide material, such as double wide web. While these screws might be so arranged that their inner end will bear directly against the blade, in the particular construction illustrated, there is provided a set of plungers 7 mounted in openings in the bottom of the fountain, the lower ends of these plungers extending into openings 8 in which the screws 5 and 6 are tapped and into the path of the beveled ends of the screws, as clearly shown in Fig. 4. As the screws are turned, therefore, the plungers will be raised or lowered, according as the screws are turned in one direction or the other, and the edge of the blade will, therefore, be moved correspondingly toward and away from the roll. While the outer screws can be readily reached by the pressmen for the purpose of adjustment, the construction of printing machines in which such fountains are employed, is frequently such that the inner screws are not readily accessible. Constructions embodying the invention will, therefore, include actuating rods for the inner screws, these rods being marked 9. The outer ends of these rods are brought within convenient reach of the pressmen. This may be effected in various ways, two arrangements being illustrated. In the construction shown in Fig. 1, the rods 9 are arranged in two groups which may be said to lie in the same horizontal plane with the screws, the outer ends of one group of rods being arranged to extend toward one end of the fountain and the outer ends of the other group of rods extending toward the other end of the fountain. In the construction shown in Fig. 2, the rods are divided into two groups, as shown in Fig. 1, the outer ends of one group of rods being carried outward toward one end of the fountain and the outer ends of the other group of rods being carried toward the other end of the fountain, but, as shown, the rods are inclined downward from the screws. The outer ends of the screws 5 and the outer ends of the rods are so arranged that the rods and screws may be gripped and the rods and screws turned by the fingers. In the particular construction illustrated, the screws 5 are shown as provided with knurled heads 9′ and the outer ends of the rods with knurled heads 10.

The rods and screws may be supported in any suitable manner. In the construction shown in Fig. 1, the outer ends of the rods are supported in brackets 11 provided with bearings 12 through which the rods pass, the inner ends of the rods being supported by brackets 13 having bearings 14 through which the inner ends of the rods pass, these brackets being also provided with bearings 15 which support the outer ends of the

screws 6. In the construction shown in the remaining figures, the outer ends of the rods are supported in brackets 16 and the inner ends of the rods and screws by brackets 17, these brackets 16 and 17 differing somewhat in shape from the brackets 11 and 13 on account of the different arrangement of the rods.

Operating connections will be provided between the screws and the rods so that the turning of the rods may effect the turning of the screws, and these connections will be of such a character that the thrust of the screws will be transmitted through the rods to the fingers of the operator. In the particular construction illustrated, each of the rods 9 is provided with a gear 18, these gears meshing with gears 19 slidingly mounted on the screws 6, the connection between the screws and the gears being effected through splines, as 20, or in any other suitable manner, which permits the screws to slide through the gears. It will be understood that with the construction described, the operator can readily adjust all parts of the doctor blade of his fountain and can do this by means which are readily accessible. Furthermore, he can readily control the adjustment by the feel of the mechanism. If, for instance, he is turning one of the rods 9, he will at once become aware when he has forced the part of the doctor blade operated through the corresponding screw against the delivery roll, since the thrust of the plunger and screw is transmitted by the gears back through the rod to his fingers, and after the blade has been brought against the ductor roll, he can readily determine by experiment how far away to set the blade.

Changes and variations may be made in the constructions by which the invention is carried into effect. The invention is not, therefore, to be confined to the particular constructions herein shown and described.

What is claimed is:—

1. The combination with an ink fountain, of a delivery roll therein, a flexible regulating blade coöperating therewith, a plurality of positioning devices operating upon different parts of the blade, and a plurality of actuating rods extending from such positioning devices, the outer ends of the rods being so located as to be accessible to the pressman and constructed to be gripped by the fingers, whereby the rods may be turned, the operating connections between the rods and the positioning devices, said connections being of such a character that the thrust of said devices is transmitted through the rods to the fingers.

2. The combination with an ink fountain, of a delivery roll therein, a flexible regulating blade coöperating therewith, operating devices including a plurality of screws for positioning the blade, a plurality of actuating rods extending from the screws, the outer ends of the rods being so located as to be accessible to the pressman and being constructed to be gripped by the fingers, whereby the rods may be turned, and operating connections between the inner ends of the rods and the screws, said connections being of such a character that the thrust of the screws is transmitted through the rods to the fingers.

3. The combination with an ink fountain, of a delivery roll therein, a flexible regulating blade coöperating therewith, positioning devices for the blade including a group of inner operating screws and a group of outer operating screws, the heads of the outer screws being constructed to be grasped by the fingers, actuating rods for the inner screws, the outer ends of the rods being located so as to be accessible to the pressman and being constructed to be grasped by the fingers, whereby the rods may be turned, and connections between the rods and the screws of such a character that the thrust of the screws is transmitted to the rods and fingers.

4. The combination with an ink fountain, of a delivery roll therein, a flexible regulating blade coöperating with the roll, a plurality of screws for positioning the blade, a plurality of actuating rods, the outer ends of which are accessible to the pressman and arranged to be grasped by the fingers, gears operatively connected to the screws and through which the screws slide, and coöperating gears mounted on the inner ends of the actuating rods.

5. The combination with an ink fountain, of a delivery roll therein, a flexible regulating blade coöperating with the roll, means for adjusting the position of the blade, said means including a group of outer positioning screws and a group of inner positioning screws, the heads of the outer screws being arranged to be gripped by the fingers, gears connected to the inner screws, the screws being arranged to slide through the gears, a plurality of actuating rods for the inner group of screws, the outer ends of which are accessible to the pressman and arranged to be gripped by the fingers, and gears on said rods meshing with the screw operating gears.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM SPALCKHAVER.

Witnesses:
F. W. H. Crane,
Geo. V. Williamson.