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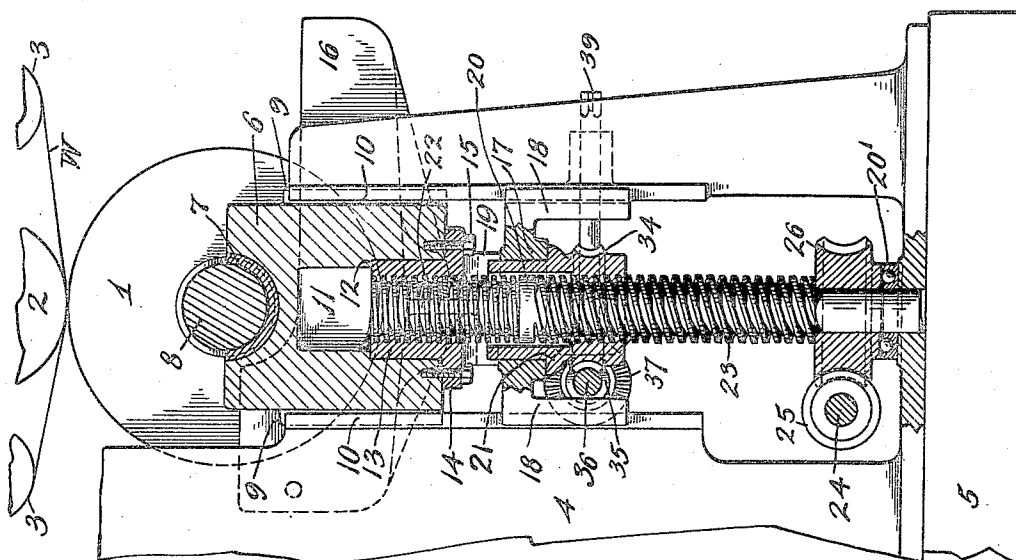
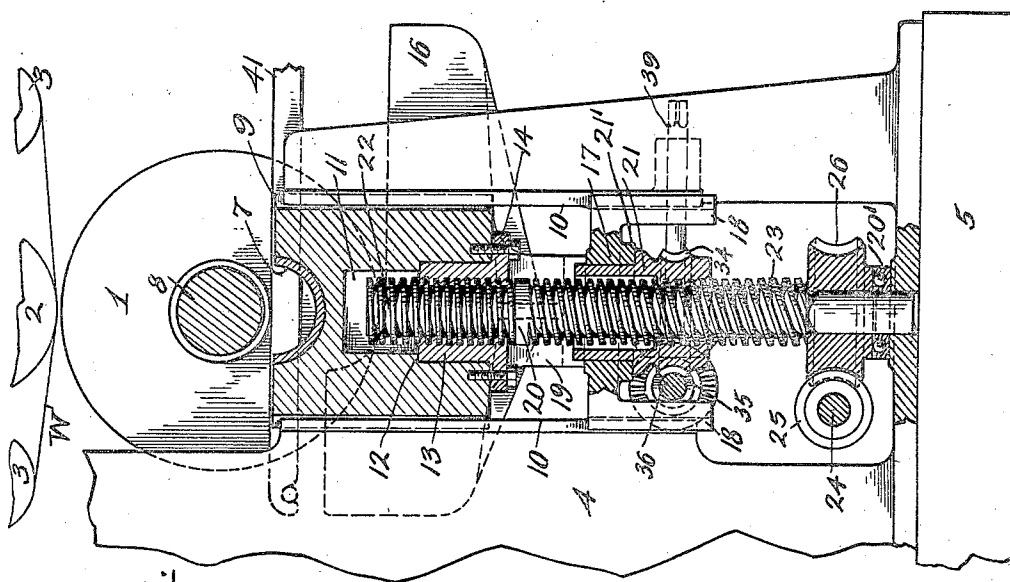
1,451,726

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BEARING AND FOUNTAIN ADJUSTMENT FOR INTAGLIO MACHINES

Filed Aug. 27, 1920

2 Sheets-Sheet 1



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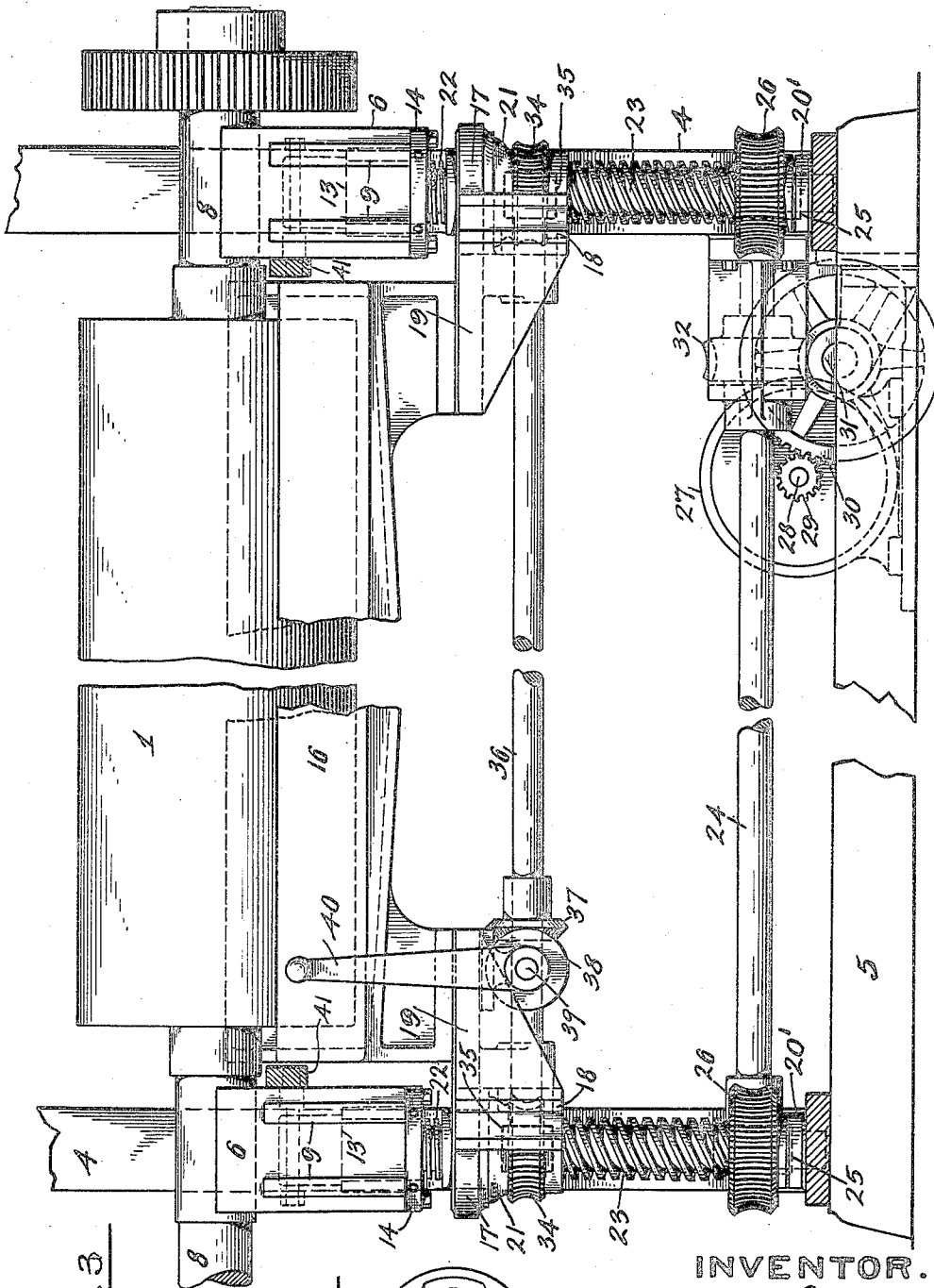


FIG. 3

FIG. 4.

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BEARING AND FOUNTAIN ADJUSTMENT FOR INTAGLIO MACHINES.

Application filed August 27, 1920. Serial No. 406,385.

To all whom it may concern:

Be it known that I, ADOLPH M. ZUCKERMAN, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Bearings and Fountain Adjustments for Intaglio Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in machines for intaglio or rotogravure printing.

In this class of machines the printing is generally effected by a cylinder the surface of which is engraved with the matter to be printed and it is necessary to move this cylinder bodily from the machine after the printing to change the form or enable another form cylinder to be placed in position. In this class of machines, furthermore, the form cylinder is in the best constructions supported in the machine so as to run directly in a fountain which supplies the ink necessary for the printing, so that the ink will not dry on the engraved surface of the cylinder. To enable the cylinder to be removed from and placed in position in the machine the bearings and fountain have to be removed away from the cylinder and the distance which is necessary for the fountain to be moved is greater than the distance that it is necessary to move the bearings. Consequently to free the cylinder of both the bearing and the fountain it was necessary for the operator to effect two adjusting movements.

It is the object of the present invention to provide a construction by which the cylinder bearings and the fountain may be moved to and from the cylinder the exact distance necessary to permit the cylinder to be removed from the machine, this movement of the fountain and bearing being simultaneous, the fountain being moved the required greater distance so that but one adjusting operation is required to free the cylinder, and to adjust the bearings and fountain when a cylinder is placed in the machine.

A further object of the invention is to provide a simple and compact structure and one which can be either operated by power from the machine or by hand if necessary. With these and other objects not specifically

referred to in view, the invention consists in certain novel parts and combinations which will be particularly described with reference to the accompanying drawings and pointed out in the annexed claims.

In the drawings:

Figure 1 is a sectional side elevation partly broken away showing one side of the machine with the form cylinder and adjacent parts in printing position.

Figure 2 is a similar view showing the parts in the position in which the cylinder has been freed from the fountain and bearing and is ready for removal from the machine.

Figure 3 is a broken end elevation of the machine, and

Figure 4 is a detail plan view of the lower side of one of the nuts or bushings on which the bearings are carried.

Referring now to the drawings, the invention has been illustrated in connection with a machine employing one printing couple, but it will be understood that it may and is intended to be used with multicouple machines, the form cylinders of which may all be supported and adjusted in a similar manner. In the machine shown there is a form cylinder 1, an impression roll 2, and a pair of tension rolls 3, over which the web W is led as is usual during printing.

The cylinder 1 is supported in side frames 4 of the machine rising from a suitable base as 5, so that it may be freed from the fountain and bearings and readily removed from the machine, and the fountain and bearings may be given a simultaneous movement to and from the cylinder, the fountain being moved the necessary greater distance than the bearings.

While the specific mechanism employed for effecting this may be varied, in the particular construction illustrated there is provided at each end of the cylinder a bearing block 6 having the usual concave recess 7 in which rests the end of the cylinder shaft 8. These blocks have extensions 9 which slide in guides 10 formed in the machine frame and the blocks are provided interiorly with a recess 11 having a shoulder 12. Extending into this recess and abutting against the shoulder is an interiorly threaded nut or bush 13 having a flange 14 by which it is secured to the bottom of the block by bolts 15 or in any other suitable manner, this con-

struction being duplicated at each side of the machine.

The form cylinder 1 runs in an ink fountain 16, which is supported to have a movement toward and away from the cylinder and simultaneously with the bearings. The specific means for supporting this fountain may be somewhat varied, but at each side of the machine there is provided a sleeve 17 provided with side extensions 18 which slide in continuations of the guides 10 in the side frames of the machine, before referred to. These sleeves also have forwardly projecting extensions or arms 19 which support the fountain. These sleeves encircle bushings 21 having lower interiorly threaded portions and plain upper portions and an exterior abutment or ledge 21' on which the sleeve rests and by which it is lifted and dropped. The fountain and bearings have, as before stated, a simultaneous movement toward and from the cylinder and this movement in the present instance is a raising and lowering movement, the fountain moving a greater distance than the bearings. While means for effecting such movement may be varied, as shown, this varied movement of the fountain and bearing is effected by providing a pair of screw rods 20, these screw rods extending into the nut or bushings 13 and the bushings 21, before referred to, and acting on the operation of the screws, to raise and lower the nut and bushings and consequently the bearings and fountain supports carried thereby. These screw rods at their lower ends take bearing in recesses in the frame of the machine, thrust collars 20' being provided to take up the end thrust.

These screw rods are identical in construction, and each has at its upper end a threaded section 22 which works in one of the bushes or nuts 13, and a lower threaded section 23 which works in the threaded portion of the bushings 21. The pitch of the threads 23 is coarser than that of the threads 22 so that as the screw is rotated a greater amount of movement will be given the bushing 21 than is given the nuts 13, consequently the sleeves 17 and the fountain carried thereby will be moved a greater distance than the bearing, but simultaneously therewith. The pitch of these threads, of course, may be varied to suit the requirements of any particular machine and the relative distance which the bearings and the fountain have to travel, the pitch selected being such as to move the bearing and the fountain the desired distance.

The screws may be rotated in any suitable or desired manner. In the best construction means will be provided whereby they can be operated from a moving part of the machine, the movement being effected by a motor and the amount of movement being controlled by an electric switch. As

illustrated there is provided a shaft 24 provided at each end with a worm 25 which meshes with worm wheels 26, one of these wheels 26 being provided on the lower end of each of the screw rods 20, before referred to. This shaft 24 is operated from a motor 27 having a shaft 28 on the end of which is a spur pinion 29 which meshes with the spur gear 30 on a shaft 31 suitably mounted in the frame of the machine. This shaft 31 carries a worm which meshes with a worm wheel 32 on a shaft 24 and the motor is controlled by means of a limit switch (not illustrated) by which the exact amounts of turning movement desired may be given the screw rods and the bearing and fountain adjusted exactly, which is important in returning the parts to position after a cylinder has been changed or for varying the impression, or for other reasons.

If desired, instead of the motor drive, or if desired with it, the machine may be provided with a device for effecting the raising and lowering of the bearings and fountain by hand. While the particular mechanism employed for this purpose may of course be widely varied, in the construction shown the bushings 21 before referred to, are provided with teeth 34 which mesh with worms 35 on a shaft 36 extending across the machine. This shaft carries a miter 37 which meshes with a miter 38 on a short shaft 39 suitably supported in the machine, this shaft having an operating handle 40 by which it may be turned and through the gear connections described the screw rods operated.

To enable the cylinder to be readily removed from the machine bars 41 may be provided inside the bearings on which the cylinder shaft may rest and on which it may be rolled out after it has been freed of the bearings and fountain as described.

While the invention has been shown and described in its preferred form, it will be understood that various changes and variations may be made in the specific embodiment illustrated, and that such changes and variations are within the scope of the appended claims.

What I claim is:

1. In an intaglio printing machine the combination of a printing cylinder, movable bearings therefor, an ink fountain movable towards and from the cylinder, a pair of screw rods, supporting the bearings and fountain and threads of different pitch on the rods for causing simultaneous movement of the bearings and fountain different distances to and from the cylinder when the rods are rotated.

2. In an intaglio printing machine the combination of a printing cylinder, movable bearings therefor, an ink fountain movable towards and from the cylinder, a pair of

screw rods supporting the bearings and fountain, threads of different pitch on the rods for causing simultaneous movement of the bearings and fountain different distances to and from the cylinder, a power shaft, and connections from the shaft for driving both the screw rods.

3. In an intaglio printing machine the combination of a printing cylinder, movable bearings therefor, a pair of screw threaded rods, threads on the rods through which the bearings are moved, bushings, supports from the bushings for supporting the fountain, threads on the rods having a greater pitch than the first threads for moving the fountain, and connections for rotating the rods.

4. In an intaglio printing machine the combination of a printing cylinder, movable bearings therefor, a pair of screw-threaded rods, upper bushings extending into the bearings, upper threads on the

rods taking into the bushings, lower bushings, a sleeve supported on the lower bushings and supporting the fountain, threads in the lower bushing and lower threads on the rods of greater pitch than the upper threads and taking into the lower bushings, and connections for rotating the rods.

5. In an intaglio printing machine the combination of a printing cylinder, movable bearings therefor, an ink fountain moveable a different distance than the bearings and in which the cylinder runs, a power shaft, connections from the shaft for moving the fountain a greater distance than but simultaneously with the bearings, a second shaft and manual connections from it for moving the fountain a greater distance but simultaneously with the bearings.

In testimony whereof, I have hereunto set my hand.

ADOLPH M. ZUCKERMAN.