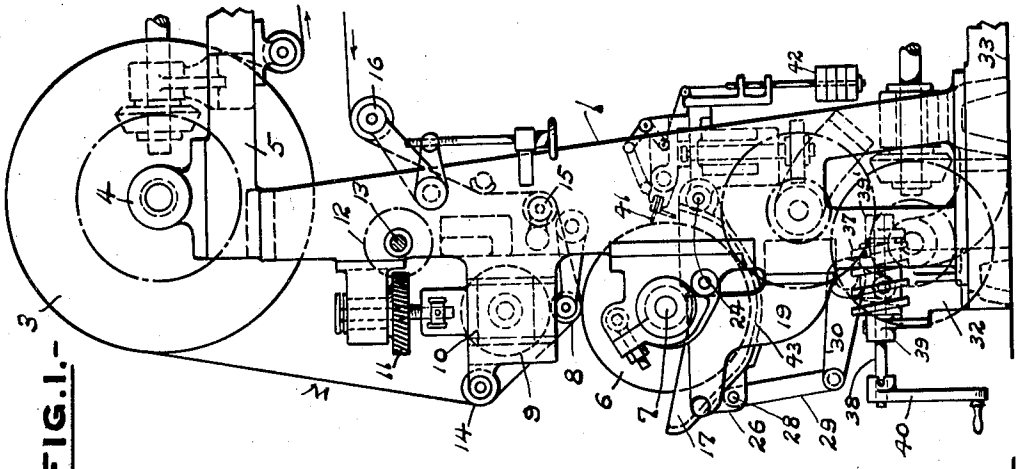
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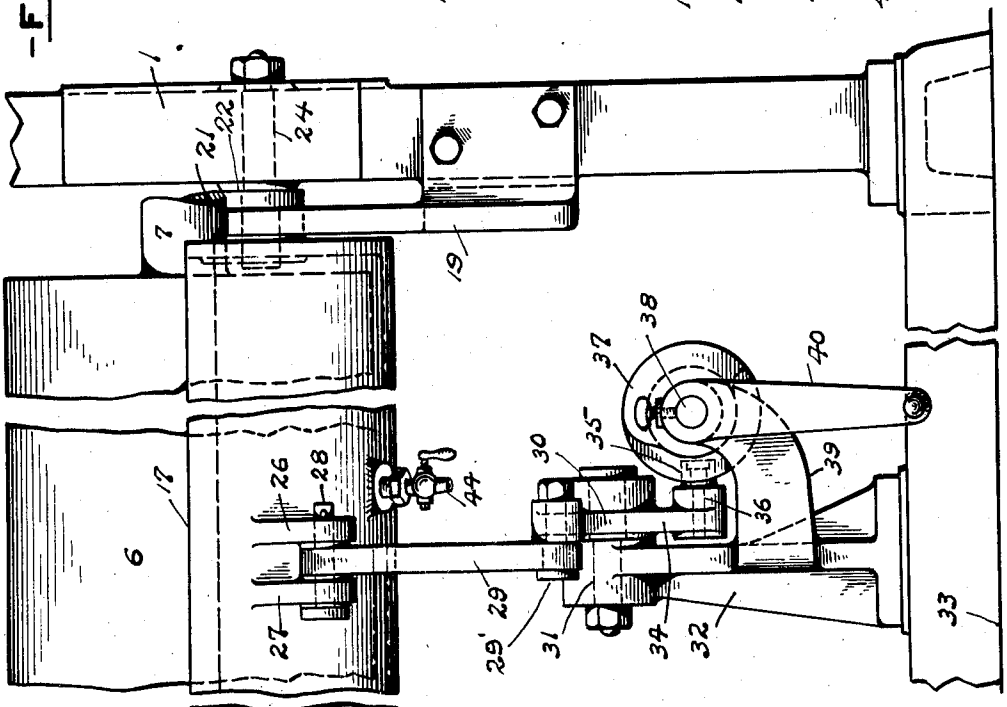
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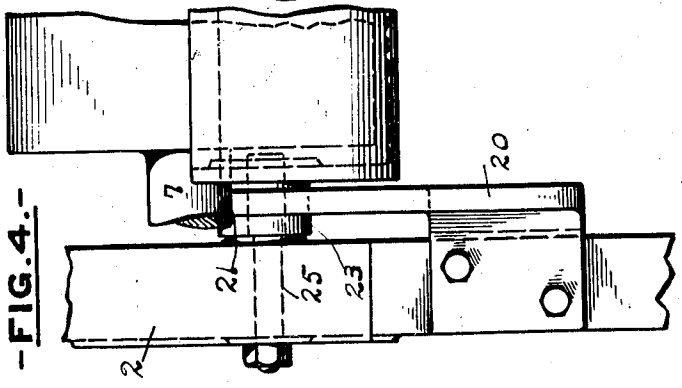
INKING MECHANISM FOR INTAGLIO PRINTING MACHINES

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-FIG.1.-





-FIG.4.-

INVENTOR

Adolph M. Zuckerman

By Philipp Sawyer

Rice Kenney

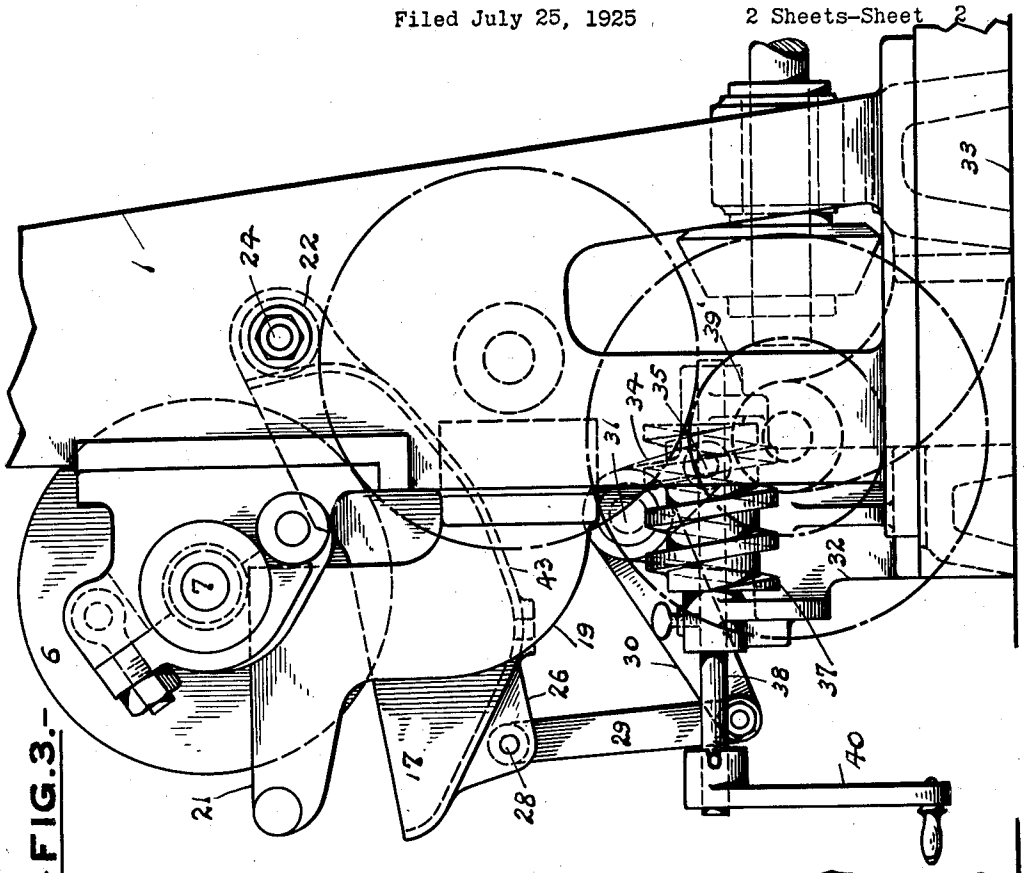
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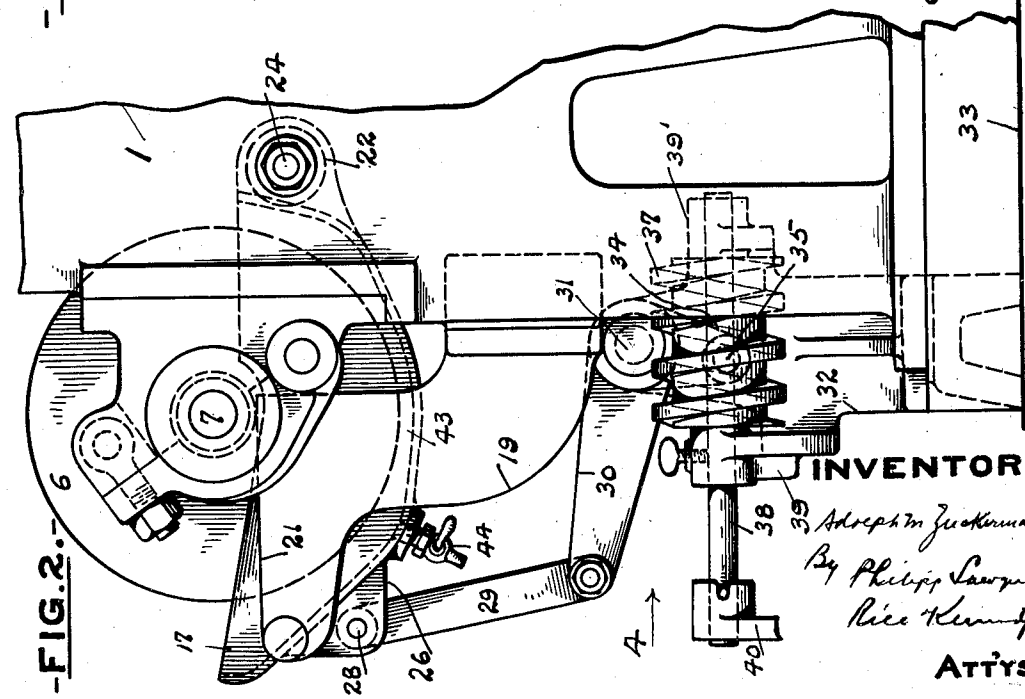
A. M. ZUCKERMAN

INKING MECHANISM FOR INTAGLIO PRINTING MACHINES

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-FIG.3.-



-FIG.2.-

INVENTOR

Adolph M. Zuckerman

By Philipp Sawyer

Rice & Kennedy

ATTYS.

Patented Dec. 18, 1928. 1,695,793

UNITED STATES PATENT OFFICE.

ADOLPH M. ZUCKERMAN, OF NEW YORK, N. Y., ASSIGNOR TO R. HOE & CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INKING MECHANISM FOR INTAGLIO-PRINTING MACHINES.

Application filed July 25, 1925. Serial No. 46,021.

This invention relates to certain improvements in inking mechanism for intaglio and the like printing machines.

In intaglio and the like printing machines the form member of the printing couple is a cylinder carrying a copper plate on which the design to be printed is etched or engraved. In the inking mechanism for these machines it is desirable that the printing cylinders run directly in the ink, the cylinders taking ink from a fountain, the amount of ink on the cylinder being regulated by a doctor blade. It is also desirable that a fairly constant ink level be maintained in the fountain without having to refill the fountain at frequent intervals.

Furthermore, it is desirable, in this class of printing machines, that the fountain be so arranged that the printing cylinders may be readily and quickly taken out of the machine, which has to be done at very frequent intervals Where, as in most constructions, the cylinders are removed in a horizontal plane, it is necessary that the fountain be lowered, and this has usually been done by a screw rod construction which takes a considerable time to manipulate.

It is the particular object of the present invention to provide an improved fountain arrangement for printing machines of the type above referred to in which the fountain is arranged so that can be readily and quickly adjusted to vary the position of the bottom of the fountain with respect to the intaglio cylinder, so that the cylinder may be kept running in an ink supply of the required depth without having to constantly refill the fountain.

A further object of the invention is to provide a fountain construction in which the parts are so mounted that the fountain may be quickly and readily moved out of the way of the cylinder, so that the cylinder may be quickly taken out and replaced in the machine.

With these and other objects not specifically referred to, the invention consists in certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawings and the novel features pointed out in the claims hereunto annexed.

Referring now to these drawings—

Figure 1 is an end elevation, partly broken away, of so much of an intaglio printing machine as is necessary for an understanding of the invention;

Figure 2 is an end elevation, on an enlarged scale, of the inking mechanism shown in Figure 1, the fountain being shown in one running position;

Figure 3 is a view similar to Figure 2 showing the fountain in its adjusted position with the cylinder ready for removal; and

Figure 4 is a side view, partly broken away, of the construction shown in Figure 2, the view being taken in the direction of arrow 4 of that figure.

Referring now to these drawings, the invention has been illustrated as employed with one printing couple of an intaglio machine. It is to be understood that it is useful in other relations and will be used throughout the intaglio press wherever it is necessary or desired.

Referring now specifically to the drawings, the various parts of the mechanism are supported in side frames 1, 2, of any usual or desired construction. The particular machine illustrated is designed to print on a web W which is guided over a drum roll 3 suitably supported in a bracket 4 on a top frame 5 supported from the side frames before referred to.

In the particular press illustrated, the intaglio cylinder, which is marked 6, is located beneath the impression means and is removable in a horizontal plane from the machine when its copper form is to be changed. As shown, this cylinder is supported on a shaft 7 suitably mounted in the side frames before referred to. Cooperating with this cylinder is an impression roll or cylinder 8 and the impression contact between this cylinder 8 and the printing cylinder 6 may be varied through an adjusting roll 9 carried in sliding bearings 10 which may be adjusted, in the usual manner, through a worm 11 and a worm wheel 12 on a shaft 13. The usual tension rolls 14, 15 and 16 are provided for keeping the correct tension on the web.

In accordance with the invention, an impression inking mechanism is provided for inking the copper cylinder which includes an ink fountain 17 in which the printing cylinder 6 runs. This ink fountain is so mounted and arranged that it can be quickly adjusted with respect to the cylinder so

that the cylinder may run in an ink supply at a fairly constant level until the ink is nearly exhausted from the fountain. Furthermore, this fountain can be quickly moved away from the cylinder so as to permit the removal of the cylinder from the machine which, as before stated, occurs very frequently, so that considerable time is saved both in making the ink adjustment and in moving the fountain out of the way of the cylinder.

While the specific construction and arrangement of the parts may vary to some extent, in the best construction the fountain will have a rocking movement, the fountain being pivoted so that it may be quickly swung so as to affect the desired adjustment. In the best constructions, furthermore, the fountain will be held locked in whatever position it is adjusted to and this locking will be done automatically.

In the particular construction shown, there are secured to the side frames 1, 2, a pair of brackets 19, 20, between which the fountain swings. The upper edge 21 of these brackets forms a track on which the journals of the cylinder may run when the cylinder is to be removed from the machine. The fountain 17 has, in the particular construction shown, a swinging movement between these brackets and is, as shown, provided at its inner end with a pair of lugs 22, 23, which are directly opposite each other and which support a pair of studs 24, 25, supported in the side frames 1, 2, before referred to. At its opposite or outer end the fountain is provided with another pair of lugs 26, 27, these lugs being arranged centrally of the fountain and forming a support for a stud 28 to which is connected one end of a link 29. The other end of this link is secured by a stud 29′ to one arm 30 of a bell crank lever which is pivoted on a stud 31 mounted on a standard 32 rising from a base frame 33 or other suitable support. The other arm 34 of the bell crank carries a roll 35 rotatably supported on a stud 36 mounted in the arm.

This roll cooperates with an actuator by operating which the fountain may be raised or lowered from the position shown in Figure 2 to the position shown in Figure 3 and any intermediate position. While this actuator may be of various forms, in the best construction the actuator will be such that it will hold the fountain locked against movement in any position to which it may be adjusted. In the particular construction shown, this actuator is in the form of a worm 37 fast on a shaft 38 suitably supported in brackets 39, 39′ on the standard 32, before referred to. This shaft 38 is provided with a handle 40 by which it can be rotated. It will be observed that the thread of the worm 37 is square and the angle of this thread is cut in such a manner that it acts to securely hold the roll 35 against movement until such time as the worm may be rotated.

With this construction it will be seen that by the rotation of the shaft the fountain may be quickly adjusted to any desired inking position or may be moved entirely out of the way of the cylinder so that the cylinder may be moved horizontally along the tracks 32.

With this construction any adjustments for the removal of the cylinder may be affected very quickly and thus a considerable saving of time is effected.

The supply of ink on the cylinder is regulated in any suitable manner by a doctor blade 41 shown in dotted lines in Figure 1, the degree of wiping action of this blade being regulated by a weight construction indicated at 42.

It will be observed that the fountain has a curved bottom provided at its outer end, or that end which tips downwardly, with a deep portion indicated by the numeral 43, the outer wall of the fountain sloping sharply upward from the low point. With this construction the fountain may be tipped with a normal supply of ink therein and yet the ink will not spill out even when the fountain is adjusted to its low position. If desired, the fountain may be provided with a draw-off tap 44 through which ink may be drawn out of the fountain when desired.

While the invention has been shown and described in what is believed to be its best form, it will be understood that various changes may be made in the construction and arrangement of parts without departing from the invention as defined in the appended claims.

What is claimed is:

1. In an intaglio printing machine, the combination of a printing couple including an engraved form cylinder and cooperating impression means, an ink fountain in which the form cylinder runs, a pivot for the ink fountain about which the fountain may be rocked, a worm, means for rotating the worm, a roll engaging the worm, and operating connections between the roll and the fountain for rocking the fountain about its pivot.

2. In an inking mechanism for intaglio machines, the combination of an engraved form cylinder, cooperating impression means, an ink fountain in which the form cylinder runs and supported to move independently of the cylinder, and means for effecting a positive swinging movement of the fountain relatively to the cylinder for adjusting the position of the fountain with respect to the cylinder and for automatically locking the fountain in any adjusted position.

3. In an inking mechanism for intaglio machines, the combination of an engraved

form cylinder, cooperating impression means, a fountain in which the cylinder runs and supported to move independently of the cylinder, a pivot for the fountain at one end thereof about which the fountain may be rocked, a rotary actuator, and link connections between the fountain and the actuator whereby the fountain may be rocked on its pivot to and from the cylinder.

4. In an inking mechanism for intaglio machines, the combination of an engraved form cylinder, cooperating impression means, an ink fountain in which the form cylinder runs, a pivot for the ink fountain about which the fountain may be rocked, a worm, means for rotating the worm, a roll engaging the worm, and link connections between the roll and the fountain for rocking the fountain about its pivot.

5. In an inking mechanism for intaglio machines, the combination of an engraved form cylinder, cooperating impression means, an ink fountain in which the cylinder runs, a pivot therefor, an actuator worm having a square thread, means for rotating the worm, a roll engaging the thread, and link connections between the roll and the fountain whereby the fountain may be adjusted toward and from the cylinder and automatically locked in adjusted position.

6. In an ink fountain for intaglio machines, the combination of an engraved form cylinder, cooperating impression means, an ink fountain, a pivot point at one end thereof about which the fountain may be rocked said ink fountain having a curved bottom and sharply inclined side walls, an actuator worm, means for rotating the worm, a roll, and link connections between the roll and the end of the fountain opposite the pivoted point for rocking the fountain about its pivot point.

In testimony whereof, I have hereunto set my hand.

ADOLPH M. ZUCKERMAN.