

Oct. 19, 1948.

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2,451,634

INK FOUNTAIN FOR PRINTING PRESSES

Filed Sept. 21, 1946

3 Sheets-Sheet 1

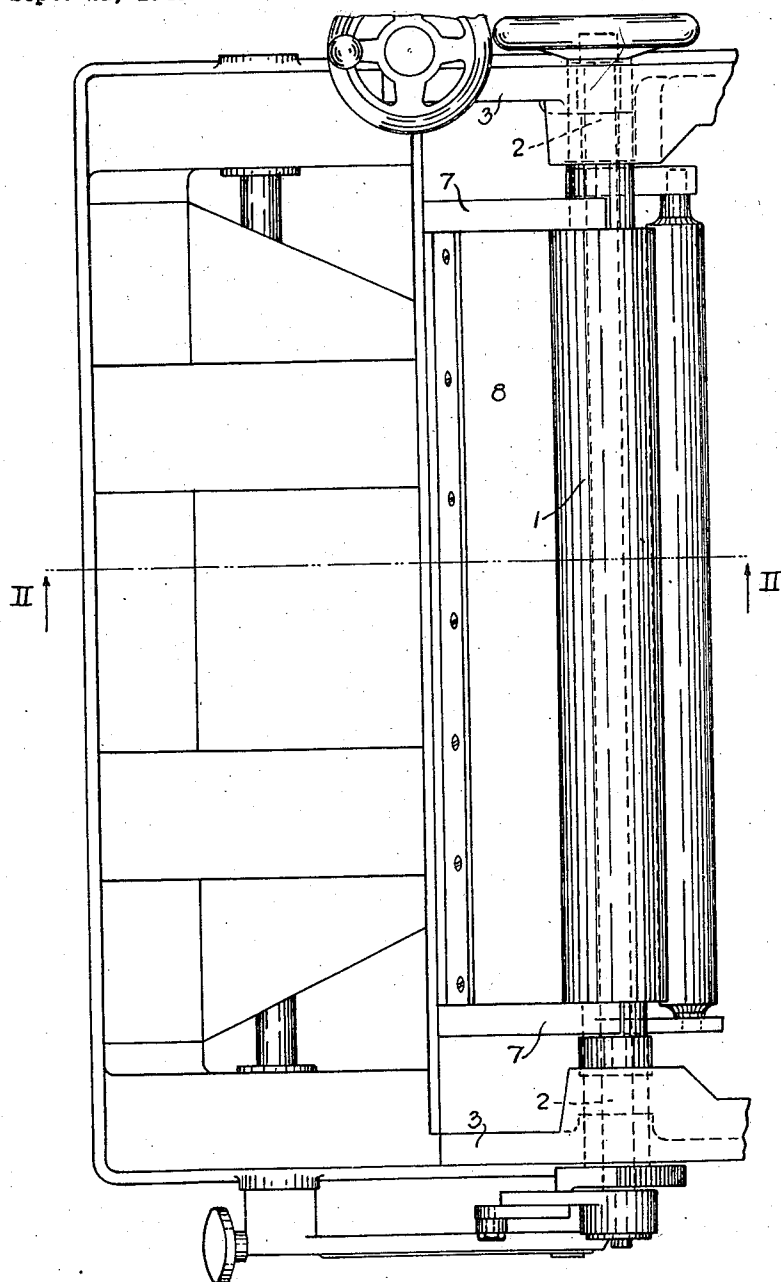


FIG. 1.

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3 Sheets-Sheet 2

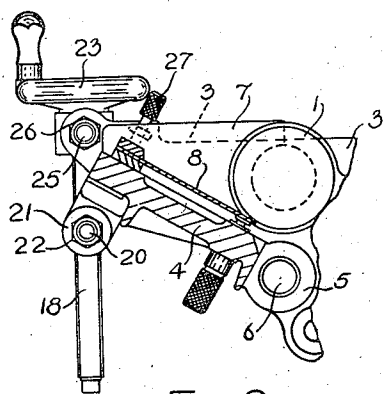


FIG. 2.

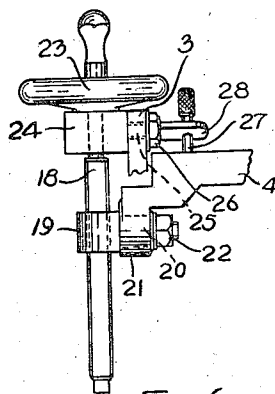


FIG. 6.

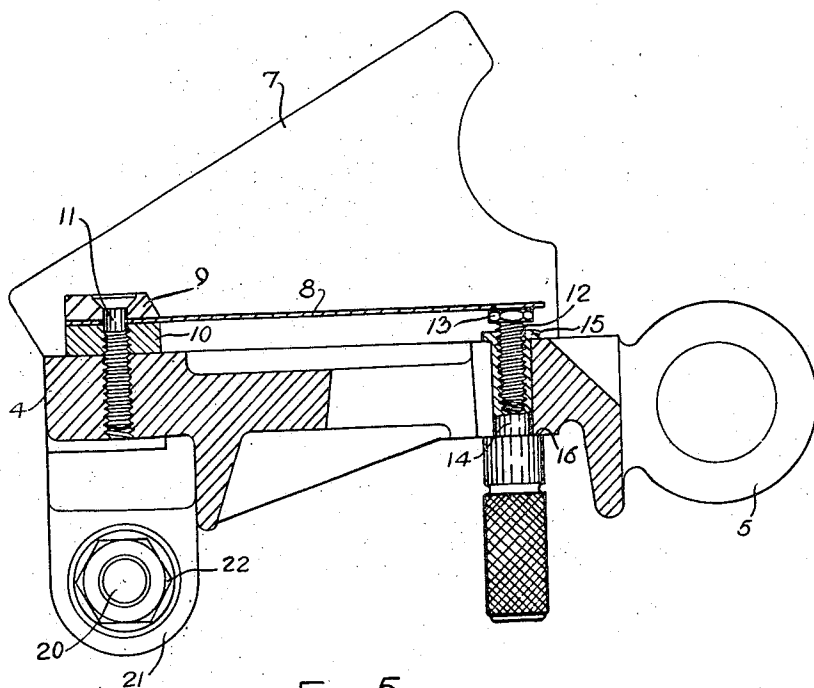


FIG. 5.

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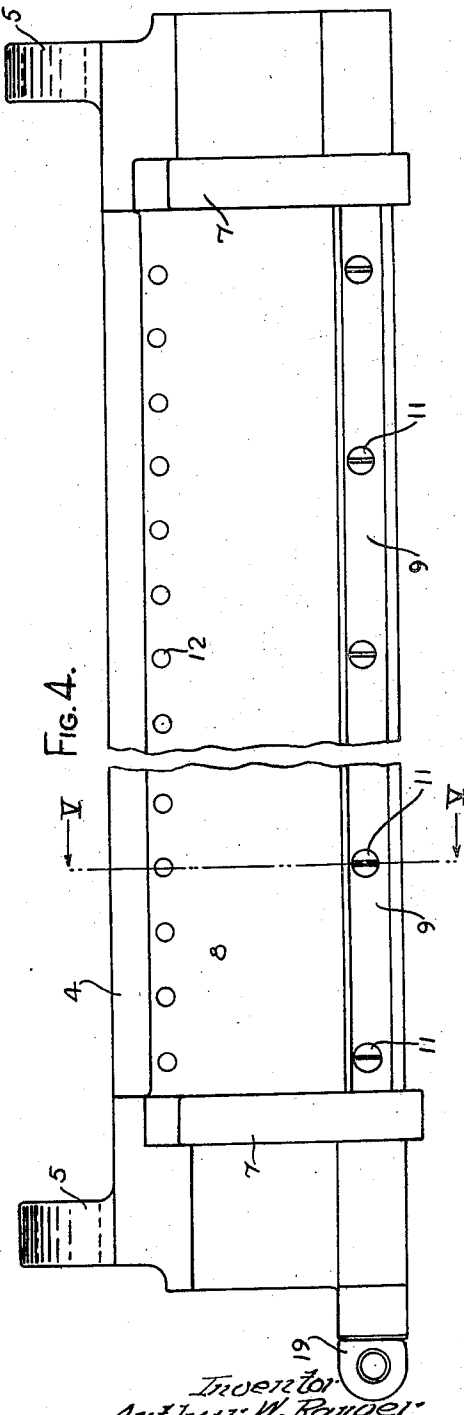
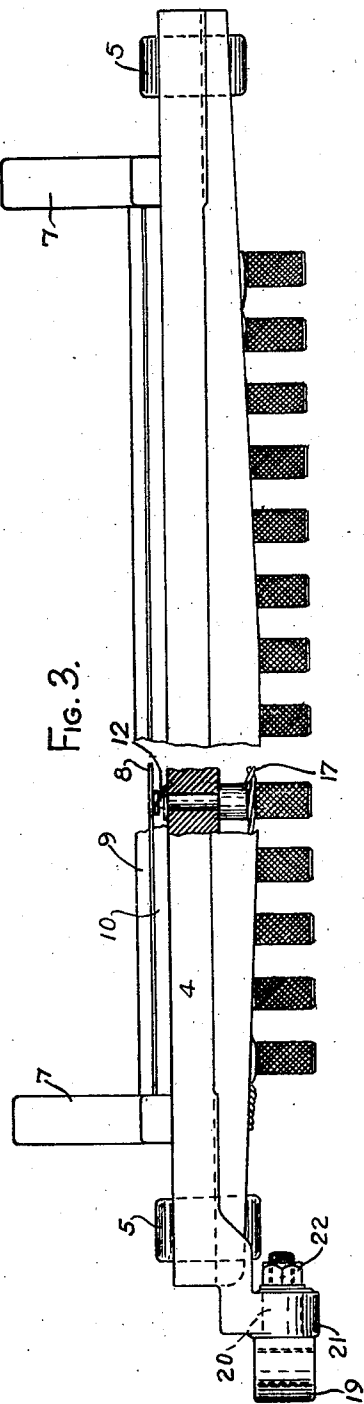
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INK FOUNTAIN FOR PRINTING PRESSES

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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INK FOUNTAIN FOR PRINTING PRESSES

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Application September 21, 1946, Serial No. 698,568
In Great Britain September 22, 1945

1 Claim. (Cl. 101—364)

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This invention relates to mechanism for controlling the ink supply on printing and similar presses, and has for its principal objects the more accurate and positive control of the amount of ink released from the duct or reservoir, and the provision of means for rapidly opening up the duct for cleaning purposes and for closing it thereafter without affecting the previous adjustment of the controlling elements.

The usual form of reservoir or duct consists of a metal roller mounted on the press in suitable fixed bearings, and provided with means for automatic rotation in one direction only. A flexible steel blade is mounted adjacent to this roller, at an angle of about 30 degrees, with its lower surface resting on a number of screws or other adjusting devices in such a manner that the edge of the blade may be moved into varying degrees of proximity to the lower portion of the roller. This blade and roller together form a trough, the ends of which are closed by suitable blocks, and this trough receives the bulk ink supply. Rotation of the roller past the blade edge conveys a film of ink from the duct, the thickness of this film being determined by adjusting the screws. The screws act positively only when pressing the blade towards the roller, as they are not connected to the blade, and when retracted allow it to spring away from the roller only so far as the adjacent screws permit. This method of controlling the blade is very uncertain in its results and causes much loss of time by the operator in setting the duct correctly, as he has no means of positively retracting the blade at any point needing a larger supply of ink.

Further, when the duct has to be cleaned out, it is necessary to remove the blade from its seating. Immediately this is done, the "spring" of the blade, when released from the unequal pressures of the adjusting screws, so affects the setting that even when replaced with the utmost care, much re-adjustment is needed before the correct supply is renewed.

In order to overcome these difficulties, an ink duct according to the invention is provided with means for setting the blade which are adapted to act upon the blade positively both during the advance and retraction of the blade.

The means for setting the blade are preferably carried by a cross-member or trough which is so mounted and provided with means for moving it relatively to the duct roller, for instance to open and to close the trough, that such movement can be effected without interference with the setting of the blade.

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Registering stops, preferably adjustable, are provided to ensure that the trough, when returned, is in its correct position.

The above arrangements thus enable cleaning to be effected without disturbance of the original setting of the blade, and as the blade remains held independently of its own elasticity or spring, the need for re-setting is eliminated.

In the accompanying drawings:

Figure 1 is a plan of one form of inking apparatus according to the invention applied to a flat bed printing press.

Figure 2 is a sectional side elevation on II—II, Figure 1.

Figure 3 is a rear elevation, partly in section, and

Figure 4 is a plan showing the cross-member or trough and some parts connected with it, detached.

Figure 5 is a side sectional elevation on V—V, Figure 4, this figure being on a larger scale to show the details more clearly.

Figure 6 is a front view illustrating the screw for opening and closing the duct, and one form of adjustable stop.

In the form of inking apparatus illustrated in the drawings, the duct roller 1 is carried in the usual bearings 2 on the main frame 3 of the press, and is rotated in one direction by known pawl and ratchet mechanism.

A rigid cross-member 4 has lugs 5, Figures 3 to 5, for a shaft 6, Figure 2, or fulcrum pins, carried by the frame 3, so that it is pivotally mounted beneath the duct roller 1. Two end blocks 7 are secured to the cross-member 4 and adapted to fit closely to the ends of the duct roller when the cross-member is in the closed position.

A thin flat metal blade 8 reinforced at its rear edge by bars 9 and 10, Figure 5, is firmly secured to the cross-member 4 at this position by screws 11, its front edge being in close proximity to the lower surface of the duct roller 1.

The blade 8 is provided with a number of screws 12 near its front edge. The screws are firmly locked to it by nuts 13 so that they cannot rotate. Each screw 12 engages within a screw threaded pole in a pin 14 freely mounted in a hole or slot 29 in the cross-member 4.

Each pin 14 has a retaining flange 15 and a retaining shoulder 16, the lower solid end of the pin being knurled to form a knob so that the pin can be easily rotated. A stiff spring washer may be inserted between the shoulder 16 and the adjacent surface of the cross-member 4, or, as

indicated in Figure 3, piano wire 17 may be twisted around the sleeves.

When a pin 14 is rotated in one direction, its screw forces the adjacent portion of the blade 8 towards the duct roller 1, and when rotated in the opposite direction, it retracts the adjacent portion of the blade 8. There is a positive action in both instances, that is, both when the blade is advanced and retracted, and this occurs in the proximity of each screw 12, and as there may be a considerable number of screws along the front edge of the blade, the relation of that edge to the duct roller can be varied along its length which is frequently desirable, so that the ink supply at different positions can be varied.

The opening and closing of the duct is effected by means of a screw-threaded rod 18 engaging within a screw-threaded hole in a block 19 pivotally mounted on the cross-member 4, the block 19 having a pivot pin 20 freely carried in a lug 21 and provided with a retaining nut 22. The rod 18 has a hand wheel 23 and is mounted in a hole in a block 24 pivotally mounted on the main frame 3 by a pivot pin 25 provided with a retaining nut 26, Figure 6.

By rotation of the hand wheel in one direction or the other, the cross-member 4 is raised or lowered, the degree to which it can be raised being determined or registered by an adjustable stop; in this particular example, a screw 27 in a tapped hole in a lug 28 on the frame 3.

By adjusting the screw 27, the duct can be set to be opened to various degrees or positions, three positions being usually required for light, medium and heavy inking.

If desired, an adjusting rod 18 and a stop 27 can be arranged at each end of the cross-member 4 and the rods 18 may be interconnected by a cross shaft and bevel gears so as to be operable simultaneously by a hand wheel on one side only.

It will be understood that once the blade 8 has been set or adjusted by the screws 12 to suit the particular job to be printed, the inking duct including the cross member 4 and blade 8, can be opened intact for cleaning purposes and then be closed, without any interference with the setting or adjusting of the blade, thus permitting of a great saving of time and labour.

Although the cross-member 4 is held in position by the rod 18 against the stop 27, additional means such as locking screws, catches or the like may be provided to secure it to the frame 3 of the press when in the closed position. It will be

noticed that each of the screws 12 operates positively on the blade, both when advancing and retracting, both positive operations occurring at the same point and being effected by the same screw.

The holes 29 are in the form of open ended slots in order to facilitate removal of the blade 8 together with its adjusting screws 11 and pins 14, for the purpose of re-conditioning or repair of the blade, it being understood that the screws 11 are then removed.

An ink reservoir or duct according to the invention provides for positive and rapid control of the ink supply and retains adjustment when opened for cleaning or other purposes. Opening and closing is quick, efficient and clean, and correct re-positioning of blade and blocks relatively to the roller is definitely assured.

I claim:

20 An ink duct for a printing press of the type comprising a duct roller, a trough including an inclined, pivotally supported cross-member, and end blocks, a thin metal blade for engagement with the duct roller, means for setting the blade 25 relatively to the duct roller, said blade-setting means being adapted to act upon the blade positively both during advance and retraction of the blade, a screw-threaded rod and a hand-wheel, for moving said cross-member about its pivotal 30 support to open and close the trough, a support for said rod pivotally mounted on the frame of the printing press, a nut for operative screw-threaded engagement with said rod, said nut being pivotally mounted on said cross-member, and 35 an adjustable stop on the frame of the press for limiting the closing movement of said cross-member and thereby determining the closed position of the trough.

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