

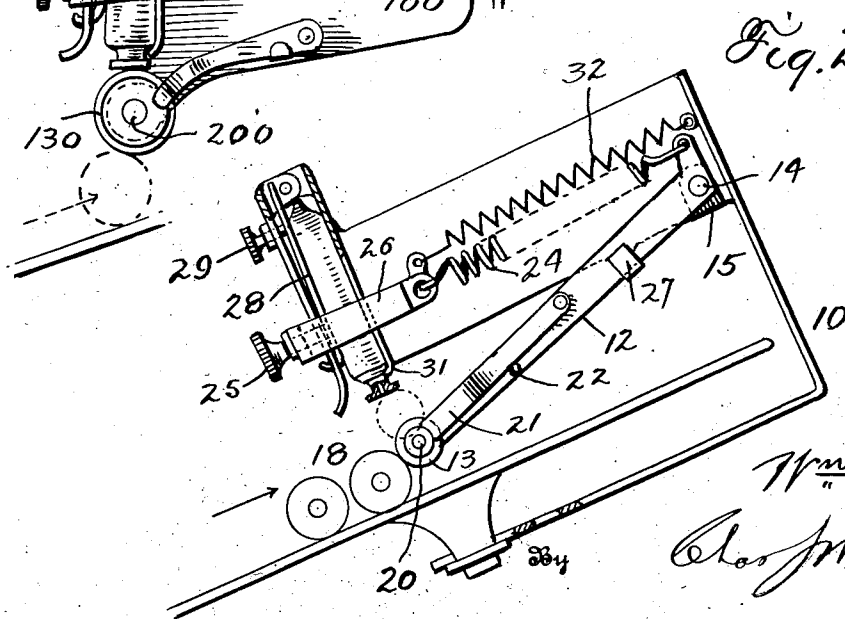
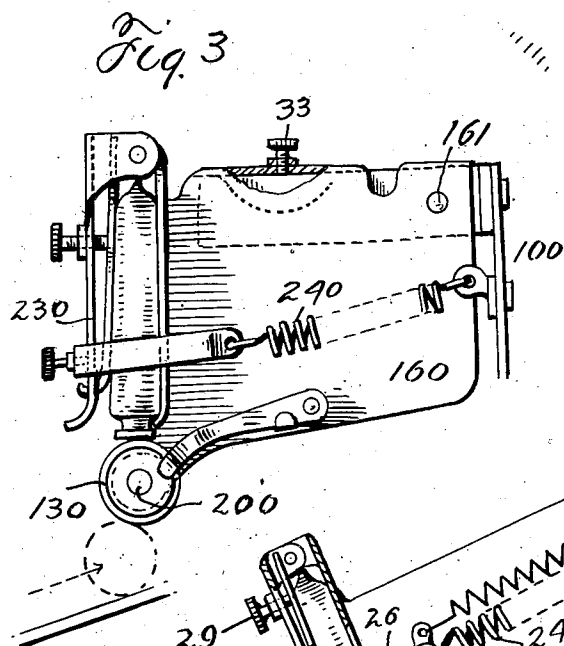
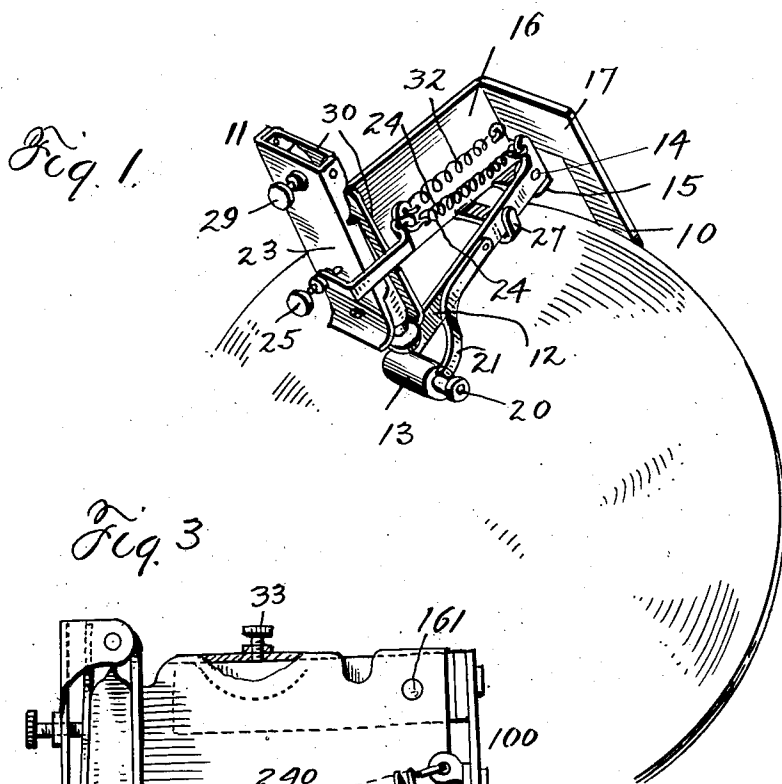
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INK FEEDER FOR PRINTING PRESSES, ETC

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INK FEEDER FOR PRINTING PRESSES, ETC.

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10 Claims. (Cl. 101—366)

Good printing requires proper supply of ink for transfer by the ink rollers to the type. In order to secure high class uniform impressions or imprints, there must be a dependable uniform supply of ink to the type. This means that as far as possible the human equation in the supply of ink to the inking devices be eliminated. Again manual supply, especially when it is done as skillfully as is possible to secure the best result, adds to printing cost because of the time consumed, and loss, as when the hands must be washed or cleansed from soiling by handling of ink which unavoidably occurs. The object of my invention is to provide automatic means for the supply of ink as for example in the case of platen presses having inking devices that include a rotating ink-receiving disc and composition rollers that travel to and fro over the disc and to and from the platen, which will eliminate or reduce to the minimum manual work in supplying ink to the rollers and disc and which will assure a constantly uniform supply of ink to the type so that the impressions or imprints as far as ink is concerned will be uniform.

My invention consists in whatever is described by or is included within the terms or scope of the appended claims.

In the drawing:

Fig. 1 is a perspective view of one embodiment of my invention shown applied to a printing press having a rotatable ink disc and inking rollers;

Fig. 2 is a vertical section of the ink-supplying device;

Fig. 3 is a side elevation of another embodiment of my invention.

Printer's ink is supplied in compressible tubes, that is to say, tubes with thin, readily collapsed walls so that by external pressure thereon the tube may be collapsed by squeezing and the ink caused to exude from an outlet in one end normally closed by a removable cap. The handling of one of these tubes is more or less messy and is otherwise open to objection. However, the supply of ink in these collapsible tubes gives certain advantages and its supply in that form is desirable. By my invention I can make use of these collapsible ink-containing tubes without any manual handling as far as the expulsion of ink therefrom is concerned, and automatically by power or force obtained from some moving member of the press, I subject the ink within the tube to pressure which causes it in a certain regulated quantity or amount to pass out of an opening in the tube end for supply to the composition rollers and the ink disc. The outlet is pref-

erably provided as a small hole in the screw cap or closure for the tube. Such a hole can easily be provided by puncturing the end wall of the cap which comes with the tube, or a cap so punctured may be substituted for the one accompanying the tube.

The embodiment of my invention shown in the drawing having been conceived and worked out in connection with the utilization of the collapsible tube type of ink holder, I will use that embodiment of my invention in explanation of my invention and as a basis for my claims.

Briefly described, the embodiment of my invention shown in the drawings comprises a squeezing or collapsing device in the form of two jaws pivoted one to the other between which a tube of ink is placed and a to and fro moving arm which by contact with a roller mounted thereon with the composition rollers as they move upward over the ink disc acts to move the tube-engaging jaws together to subject the tube to squeezing pressure and the roller (receiving ink when it moves sufficiently close to the tube outlet) delivers the ink to the composition rollers and on the form-inking movement of the composition rollers, said roller-carrying arm is moved in the opposite direction or away from the discharge end of the tube by spring action.

For the convenient attachment and support of the mechanism from the press, an arm or bracket, 10, is employed having a horizontal member that extends beneath the ink disc and is there bolted to a convenient part of the press frame and a vertical member reaching upward at the rear edge of the ink disc at a suitable height for the proper positioning of the tube squeezing jaws 11, and the pivoted roller-carrying arm, 12, above the top of the ink disc.

The location of the device may be that of the ink fountain sometimes used and preferably to the left side (the operator's position) so that ink will be delivered towards one end of the composition rollers, with the result that due to the rotation of the ink disc fresh ink will be delivered to the ink disc by the composition rollers first on one side and then on the other. And preferably the location of the roller-carrying arm is such that the roller 13, is touched or engaged by the approaching composition lower roller during its highest or farthest reach on the disc. This assures that each composition roller will get a share of the ink taken by the delivery roller, 13, from the ink holding tube or reservoir. Of course, I do not restrict myself to this or any particular relative position of ink supply means to the ink disc

or composition rollers, even though for the reasons stated there are certain advantages in such location.

The delivery roller-carrying arm, 11, is pivoted at its rear end adjacent the vertical arm of the bracket, 10, by a horizontal pivot, 14, to a lateral extension, 15, of a frame plate, 16, which is attached to and extends laterally and then forwardly from the upper end of said bracket vertical arm. The roller-carrying arm thus reaches forward over the inking disc with the delivery roller extending horizontally at its free end in the path of the upwardly moving composition rollers, 18, for engagement by the latter on the under periphery of said delivery roller with the result that said roller and its pivoted supporting arm are moved upward and the upper periphery of such roller brought into contact with or close to the outlet end of the collapsible tube or ink reservoir, 19, to take ink squeezing or exuding therefrom on its periphery. Said roller is free to revolve by the contact therewith of the composition roller or rollers so that ink taken by said delivery roller is brought into contact with the periphery of the composition rollers as they successively contact with the underside of said roller and thereby ink is delivered or distributed to the composition rollers. Said delivery roller is mounted or journaled on a horizontal round pin or gudgeon, 20, secured at one end to the roller-carrying arm and the roller is readily removable endwise from said rod and replaceable thereon to facilitate cleaning of the roller. Preferably said roller is of metal, such as brass, to facilitate handling and cleaning ink from the surface thereof. Ready removal for cleaning is desirable because at different times different colored ink may be used and, of course, when ink of one color has been used the roller should be cleaned for ink of another color. Suitable holding means is provided to hold the delivery roller in operative position which permit its ready removal. As shown a blade-like finger, 21 is provided, pivoted at one end to the roller-carrying arm and reaching at its free end to overlap an end shoulder or flange on said roller. Said arm may be swung vertically on its pivot between roller-engaging position and to clear the roller. To hold it in roller-engaging position, its lower edge engages a stop projection, 22, from the side of the roller-carrying arm.

An operative connection is made between the roller-carrying arm and the movable jaw, 23, so that as the roller arm moves upward said jaw will be moved against the side of the collapsible tube with enough force to expel the desired quantity of ink from the tube so that expulsion of ink occurs only during the ascent of the roller towards the outlet end of the tube, to have the proper supply of ink ready for the roller when it reaches its highest point of movement. Said jaw moves outward to release, or cease, ink-expelling pressure as the roller arm descends.

The connection between the arm and the movable jaw includes a contractile coil spring 24, which at one end is attached to the roller-carrying arm, 11, and at the other end is attached to the movable jaw, the spring being thus placed under increased stress or tension when the roller arm moves upward under the action of the composition rollers with the result that when the composition rollers pass from beneath the ink delivery roller, the arm and its roller are moved downward by the reaction or contraction of the

spring. Enough friction is produced between the delivery roller and the composition rollers by the action of the spring to assure the rotation of the ink delivery roller for the distribution of the ink therefrom to the composition rollers.

Preferably the tension of the spring is adjustable and for this purpose the end attached to the movable jaw includes an adjusting screw, 25, which passes through a threaded hole in a metal strap, 26, and at its inner end has a bearing contact against the outer side of the movable jaw. Said strap 26, is bent to arch laterally around the tube-engaging jaws so that a lateral extension is provided forward of the jaws for engagement of the adjusting screw and a lateral extension is provided in rear of the jaws for attachment of the forward end of the spring.

To limit the descent of the roller-carrying arm under the pull of the spring, a stop finger, 27 is attached to the frame plate 16, which reaches beneath the lower edge of the arm and straddles the arm to engage it on opposite sides to constitute a guide for the arm in its vertical movements.

For assuring an initial pressure upon the collapsible tube at its upper end or its end away from the ink outlet and for nicely adjusting the pressure thereon from time to time, the inner side of the movable jaw that contacts with the exterior of the tube is movable and is in the form of a plate 28, pivoted at or near the lower end of the jaw so that it may be moved inward under the pressure of an adjusting screw, 29, in a threaded hole near the upper end of the jaw. By occasional adjustment of said screw, the operator may nicely adjust the quantity of ink discharged from the tube or reservoir.

The movable jaw is pivoted at its upper end to the upper end of the fixed or stationary jaw, 30, which is a metal plate that is attached at the side to the frame plate, 16. At its lower end, said movable jaw has an intumed lip or flange, 31, to engage the underside of the bottom of the tube above the screw cap and thus aid in preventing the accidental dropping of the tube from between the jaws. This stop is particularly useful in placing a fresh tube of ink between the jaws. In placing a fresh tube of ink between the jaws, it is desirable to disconnect the roller-arm moving spring, 24, because its strength makes it inconvenient to move the movable jaw outward by pull of the operator's fingers. Preferably, however, at such time the movable jaw is under some spring pull in order to assure enough clamping pressure of the movable jaw when the tube is inserted to hold it in place while the arm operating spring is again connected with the arm. For this reason a supplemental light coil spring 32, is attached at one end to the movable jaw and at the other end to the frame plate, 16.

The embodiment of my invention shown in the drawing is specially suited for ordinary job presses but I, of course, do not limit the application of my invention to any particular construction or type of press but consider myself entitled to its use in all presses to which it may be applicable.

To take care of variations in diameter of ink tubes, the jaws will be of such dimensions as to accommodate the larger size tubes and by adjustment or by the use of filler strips will take care of smaller tubes.

As shown in Fig. 3, the construction is substantially similar to what is shown in Figs. 1 and 2 excepting that the inking roller vibrating lever

is omitted and the collapsing pressure upon the ink-holding tube is constantly exerted by a spring, 240, acting on the movable jaw, 230; and the roller, 130 which takes ink constantly issuing from the tube is journaled on a pin or shaft 200, supported by a frame plate, 160. The plate, 160 is secured by a horizontal pivot pin, 161 to a horizontally extending member of the bracket, 100. Thus the plate 160, may be swung to lift the roller 130, for access thereto for convenient cleaning when necessary. An adjustable stop screw, 33, on the top edge of the frame plate, 160 by engaging the upper edge of the bracket member fixes the lowered position of the roller, 130.

As shown in Fig. 3, the tube clamping jaws with the tube therein are in a substantially vertical position and not in the somewhat inclined position of Fig. 2.

What I claim is:—

1. A printing press having a to and fro moving ink roller, an ink holder with an outlet for the discharge of ink for supply to the press-inking means and automatic means actuated by a moving part of the press that intermittently subjects the ink in the holder to expelling pressure, said press inking means including a roller movable between said outlet and said ink roller.

2. A printing press having a to and fro moving ink roller, an ink holder with an outlet for the discharge of ink for supply to the press-inking means and automatic means actuated by a moving part of the press that intermittently subjects the ink in the holder to expelling pressure, said press-inking means including a member movable to and from said outlet, movement to the outlet being concurrent with subjection of ink in the holder to pressure.

3. Ink-supplying means for a printing press comprising an ink holder with a collapsible wall deformable by external pressure, and automatic means adapted to exert such collapsing pressure having a wall-engaging member flatwise in contact therewith.

4. Ink-supplying means for a printing press comprising a holder with a compressible external wall deformable by external pressure, a pressure-

supplying device in contact therewith, said holder having an ink outlet, a roller movable towards and from said outlet to receive ink issuing therefrom and means simultaneously to move the roller towards the outlet and to impart pressure to said holder.

5. In a printing press having an ink disc and rollers movable over the disc, an ink holder having a collapsible external wall with an ink outlet at one end, means supporting said holder above the path of movement of said rollers, a roller movably supported in the path of movement of said rollers and engageable by the latter for movement towards the ink outlet, a movable support for said roller and means deriving movement from said support when said roller moves towards the ink outlet to subject said holder to collapsing pressure.

6. Ink supplying means comprising in combination with printing press inking means, an ink holder consisting of a collapsible wall tube with an ink outlet at one end, a clamp device within which said tube is removably placed, means for supporting said device adjacent said inking means, and means for exerting pressure on the tube contents.

7. A printing press having an ink holder with an outlet for the discharge of ink to the press-inking means, and automatic means that subjects the ink in the holder, to expelling pressure and automatically retracted from ink expelling position.

8. A printing press, as in claim 7, which has manual means to regulate the pressure on the ink, at will.

9. Ink supplying means as in claim 3 in which the automatic means includes a to and fro moving collapsible wall contacting member.

10. Ink supplying means for a printing press comprising an ink holder with a discharge outlet to the press inking means, and means to subject ink in the holder to expelling pressure that include a pressure producing device that is a part separate from and movable independently of all walls of the holder and acts flatwise on the ink.

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