

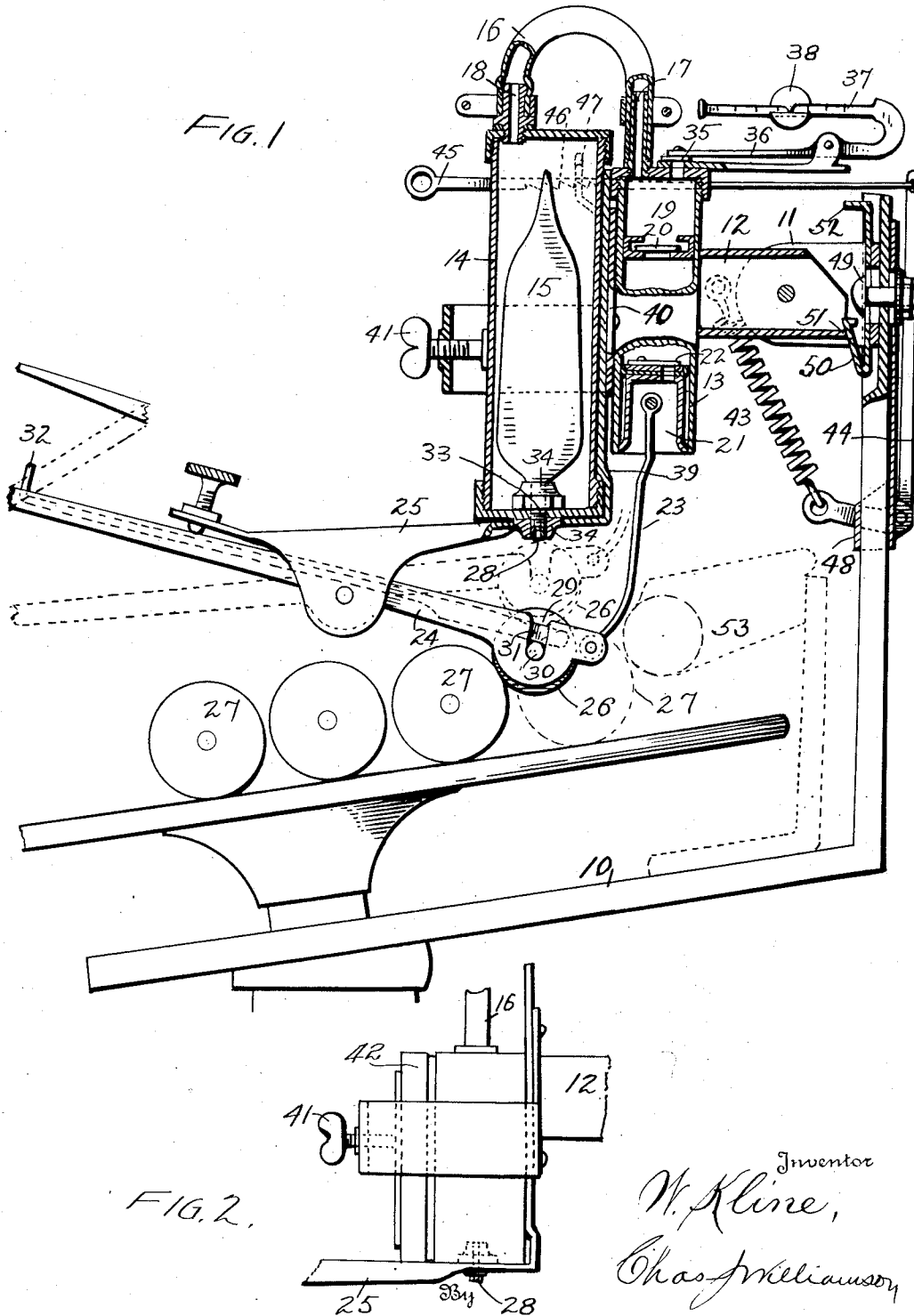
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INK FEEDER FOR PRINTING PRESSES, ETC

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INK FEEDER FOR PRINTING PRESSES,
ETC.

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8 Claims. (Cl. 101—347)

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:

Figure 1 is a side elevation with parts in section of an embodiment of my invention shown applied to a printing press having a rotatable ink disc and inking rollers;

Fig. 2 is a detail view showing a way for delivering ink from a metal can or box.

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 which may be obtained from some moving member of the press, I subject the tube to air pressure which causes ink 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.

Briefly described, the embodiment of my invention shown in the drawing comprises an ink tube holder or receptacle into which air under pressure is forced so that the air pressure thus applied to the exterior of the collapsible tube walls causes by a squeezing thereof, the discharge from the tube outlet of the desired quantity of ink, an air pump or air compressor being provided to produce the desired air pressure within the tube holder or receptacle which pump is automatically actuated by connection with a vibrating or to and fro moving arm having a roller into contact with which the composition rollers come as they are moved upward over the ink disc and thereby impart movement to the piston of the air pump in one direction, and at the same time, the roller carried by the arm is placed in position to receive the exuding ink for transfer to the composition rollers. On the form-inking movement of the composition rollers, said roller-carrying arm is moved away from the discharge end of the ink tube and in the direction to move the piston of the air pump in the opposite direction.

For convenient attachment and support of the mechanism from the press, an angle arm or bracket 10, is provided that has a horizontal member that extends below the ink disc and is there bolted to a part of the press frame and a vertical member reaching upward at the rear edge of the ink disc. Secured to the upper portion of said vertical member as by means of a screw and bolt is a forked bracket 11, to which is attached a forwardly extending horizontal arm 12, to which the vertical air pump cylinder 13 is attached, and forward of the latter is attached the vertical cylinder 14, which constitutes the receptacle or holder for the ink-containing tube 15 and the air chamber in which air is forced by a pipe connection between the top of the air pump cylinder and the top of said air chamber 14. The air connection between the air pump and the ink tube container may consist of a piece of flexible tubing 16, which at one end is clamped to a nipple 17, at the top of the air pump cylinder and at the other end is clamped to a nipple 18, at the top of the cylinder 14. The upper part of the air pump includes a compressed air chamber 19, the bottom of which has an upwardly opening valve 20, which communicates with the top of the pump cylinder above the piston 21, that reciprocates in the lower portion of the air pump cylinder, which piston has an upwardly opening valve 22, that opens on the

down stroke of the piston and closes on the up stroke.

The air pump piston is connected by a rod 23, to one end of a vertically swinging arm 24, which is pivoted between its ends to a bracket arm 25, that projects forwardly from the bottom of the ink tube holding cylinder 14. The pivoted arm 24, at the end to which the piston rod 23, is connected, rotatably supports a roller 26, which is vibratory vertically between a lowered position in the path of the usual disc-inking composition rollers 27, and a raised position where it touches or nearly touches, the ink outlet 28, in the bottom of the ink tube holder 14, and in its vibratory movement reciprocates the air pump piston 21. The roller 26, thus constitutes a transfer roller for taking ink from the tube and delivering it to that one of the composition rollers 27, which touches it on the rearward movement of such roller. The upward swing of the transfer roller 26, is caused by the pressure thereagainst of the composition roller 27 that contacts therewith and the descending movement of the roller 26 may be produced by gravity, supplemented by a spring if desired, when the actuating composition roller 27 moves away from the roller 26.

The roller 26 is mounted for ready detachability from its carrying arm 24, for cleaning or replacement. To this end, the arm which is slit or divided to straddle the roller 26, has at each side an upwardly opening slot 29, into which the roller pintle 30 is dropped and there held by a slide bar 31, slidably mounted on the arm 24, so that at one end, it may be projected above the pintle to confine the roller in the slots or withdrawn therefrom. Said slide bar has an upwardly extended finger 32, for convenient manipulation thereof.

At the lower end of the ink containing tube 15 is a hollow stem 33, which passes through a hole in the bottom of the cylinder 14, and whose open lower end constitutes or provides the ink outlet 27, and said stem is externally threaded so that upon opposite sides of the bottom of the cylinder 14, it may receive clamping nuts 34, to make an air-tight joint, suitable packing being used if necessary. And, of course, the top and bottom of the cylinder 14 are secured air-tight to the cylinder.

To assure the desired pressure in the chamber 14 and upon the exterior of the collapsible ink tube, an adjustable control device for the compression chamber 19, is provided that consists of a valve 35, for an opening in the top of said chamber which is carried by a pivoted arm 36, with a horizontal extension 37, marked with a scale, on which is a slidable weight 38, that determines the resistance of the valve 35, to opening by pressure thereon from the pressure chamber 19. Pressure in excess of that desired upon the collapsible ink containing tube will cause the opening of the valve 35, and the reduction or limitation of the air pressure, within the chamber 14.

The air chamber or cylinder 14 rests at its bottom upon the top of the bracket arm 25 and against a vertical extension 39 of such arm 25, which extension is rigidly attached by rivets or otherwise to a vertical plate 40, at the front end of the arm 12, adjacent the air pump. Said air chamber or cylinder 14 is preferably removable for which purpose a clamp device exemplified by the screw 41, is provided which holds said cylinder 14 in position against the

bracket arm extension 39, and it is made removable in order that should it be desired to supply ink from a box or can instead of the collapsible-walled inking tube 15, such a box or can may be substituted for the cylinder 14, and the end of the air tube 16, that is connected with the cylinder 14, may be connected with an inlet opening provided in the upper part or top of such box or can so that air will enter the latter and exert expelling pressure upon the contained ink. Such substitution is illustrated in Fig. 2, which illustrates a cylindrical can 42, secured to the support 25, by the clamp 41, with its curved side resting upon the arm 25, and its flat bottom held against the extension 39. At what is the upper side of its circumference, one end of the air tube 15 from the air pump is attached and at what is the bottom is attached an ink outlet 28, similar to that shown in Fig. 1.

Preferably the ink outlet whether from the collapsible tube or the metal can or box may be closed when the device is not in use to prevent ink from drying up in the outlet and also to prevent ink oozing or leaking out when the container is laid away during non-use. A plug of wood or metal may be used or a removable screw cap may be provided.

The arm 12 which supports the air pump and ink tube holder or cylinder 14, has a horizontal pivot 40, for its connection with the forks of the bracket 11, and such arm is normally in a horizontal position, and is there yieldingly held by a coil spring 43, attached at one end to the bracket 10 and at the other end to said arm 12, so that it may be swung upward to lift the air pump and all other parts connected with the arm 12, so as to give access to the inking disc for cleaning. The spring 43 is preferably so arranged that it will hold the arm 12 and the parts supported thereby in the raised position.

The lower end of the spring 43 is attached to one arm of a bell crank lever 44, which is pivotally attached to the vertical member of the main supporting bracket 10, and to the upper arm of said bell crank lever is pivotally connected one end of an operating rod 45, whose other end is a handle conveniently located for manipulation so that by rocking the bell crank lever 44, the tension of the spring 43 may be adjusted or the spring wholly released. The rod 45 may have on its under side, ratchet teeth 46, to coact with a stationary latch finger 47, attached to or forming a part of the bracket extension 39. The bell crank lever is shown pivoted to the bottom of a slide 48, vertically movable on the vertical member of the main bracket 10, for adjustment purposes and which is held at the desired point of adjustment by the screw and bolt device 49, by which the bracket arm 11 is secured to the bracket 10, as before explained. It will be understood that the tension of the spring 43 must be such as to oppose any upward swinging tendency of the air pump and parts carried by the arm 12, from the upward push of the piston of the air pump.

Nice adjustment is necessary or may be desirable of the ink outlet 28, with reference to the transfer roller and the reliable holding of the outlet at the desired adjustment is important. For this purpose may be employed the vertically adjustable wedge device 50, shown in Fig. 1, arranged so that its inclined face may be engaged by the end edge 51, of the pivoted arm 12, the arm 12 being preferably hollow or tubular for lightness and strength and the bottom

wall thereof thus providing said edge 51. The adjustable wedge 50, is held by the screw and bolt connection 49, to its vertically adjusted position upon the vertical arm of the main bracket

5 10. A projecting lip 52 forming a handle is provided at the upper end of the shank of the wedge device 50, for convenient manipulation.

I show in dotted lines in Fig. 1 a form of inking fountain 53, with which some presses are provided, and it will be seen that my inking device is so applied to the press as in no way to interfere with such inking fountain 53, so that as may be found desirable, one inking device or the other may be used. A feature of my inking device is that it may be an attachment to a press to supplement the inking fountain with which the press is supplied originally.

What I claim is:

1. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, and means to subject ink in the holder to air pressure to expel ink from said discharge outlet including an air pressure producing device with a movable air pressure producing member and an operative connection between said member and a moving member of the press.

2. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, and means to subject ink in the holder to air pressure to expel ink from said discharge outlet including an air pressure producing device with a movable air pressure producing member and an operative connection between said member and a moving member of the press, said press inking means including a member movable to and from said outlet.

3. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, means to subject ink in the holder to air pressure to expel ink from said discharge outlet, and an air chamber containing said ink holder to which air under pressure is supplied.

4. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, means to subject ink in the holder to air pressure to expel ink from said discharge outlet, comprising an air pump and an air chamber receiving air from the pump, and pump

operating means automatically actuated by a moving member of the press.

5. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, means to subject ink in the holder to air pressure to expel ink from said discharge outlet, comprising an air pump, a compressed air chamber receiving air directly from said pump, and a second air chamber that receives air from said compressed air chamber and is adapted to contain ink subject to expelling pressure of air in said second chamber.

6. Ink supplying means for a flat bed type printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, means to subject ink in the holder to air pressure to expel ink from said discharge outlet including an air tube leading to and detachably connected with said ink holder, a support to which said ink holder is detachably connected for removal and substitution of another ink holder, and means for adjusting the ink holder relative to the press inking means.

7. Ink supplying means for a printing press having inking means comprising an ink holder with a discharge outlet to the press-inking means, means to supply air pressure to expel ink from said discharge outlet, comprising an air pump, a compressed air chamber receiving air directly from said pump, a second air chamber that receives air from said compressed air chamber and is adapted to contain the ink holder subject to expelling pressure of air in said second chamber, and means to regulate the air pressure to which the ink is subjected.

8. Ink supplying means for attachment to a flat bed type printing press having inking means, said supplying means comprising an ink holding means with a discharge outlet to the press-inking means, means to supply air pressure to expel ink from said discharge outlet, comprising an air pump, a compressed air chamber receiving air from said pump, said ink holding means receiving air pressure from said compressed air chamber and adapted to contain ink subject to expelling pressure of air from said air chamber, and means to regulate the air pressure to which the ink is subjected, and means for operating said pump by a moving member of the press.

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