

June 15, 1926.

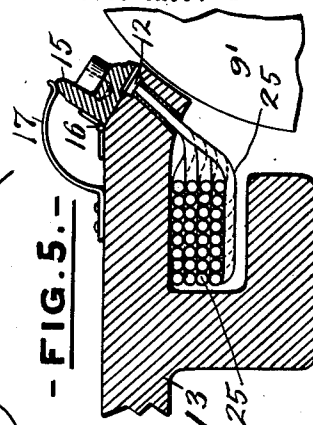
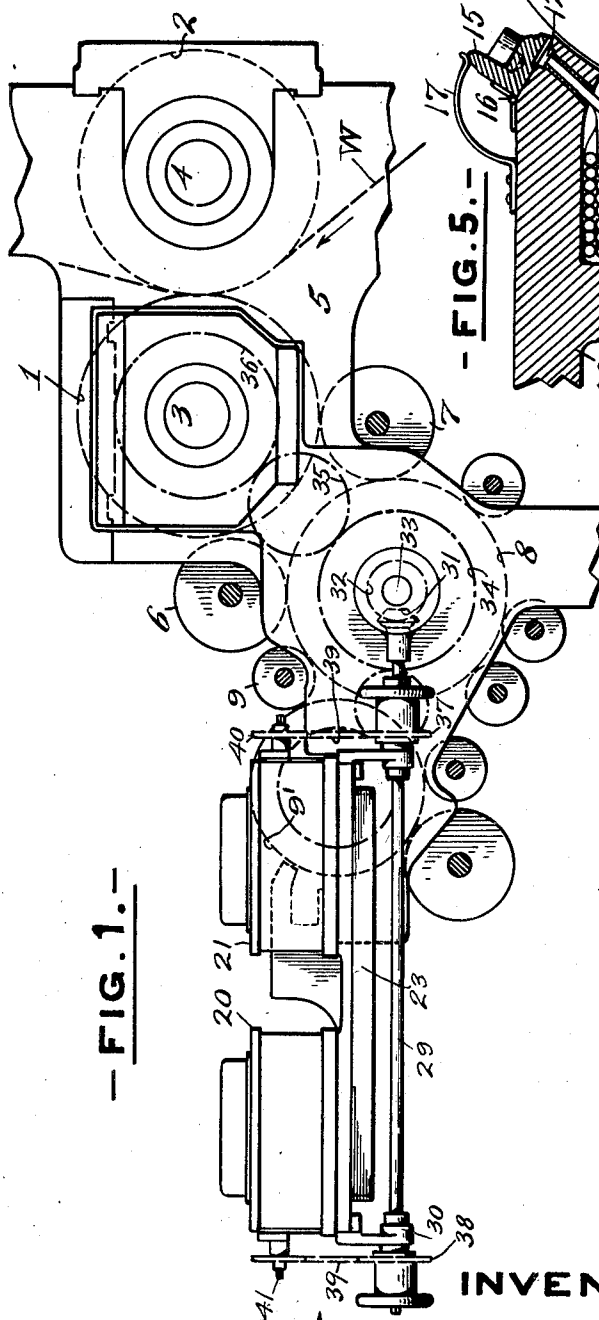
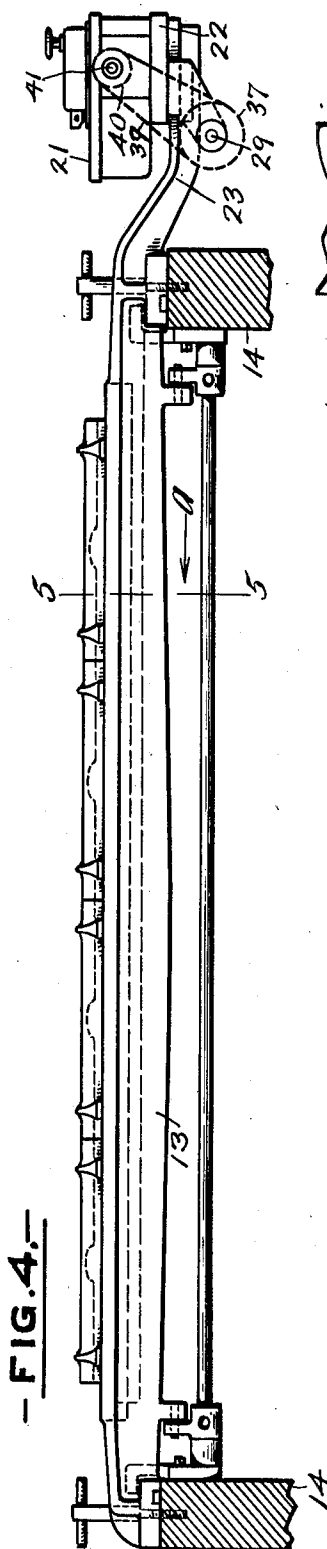
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INKING MECHANISM

Filed Sept. 16, 1925

2 Sheets-Sheet 1



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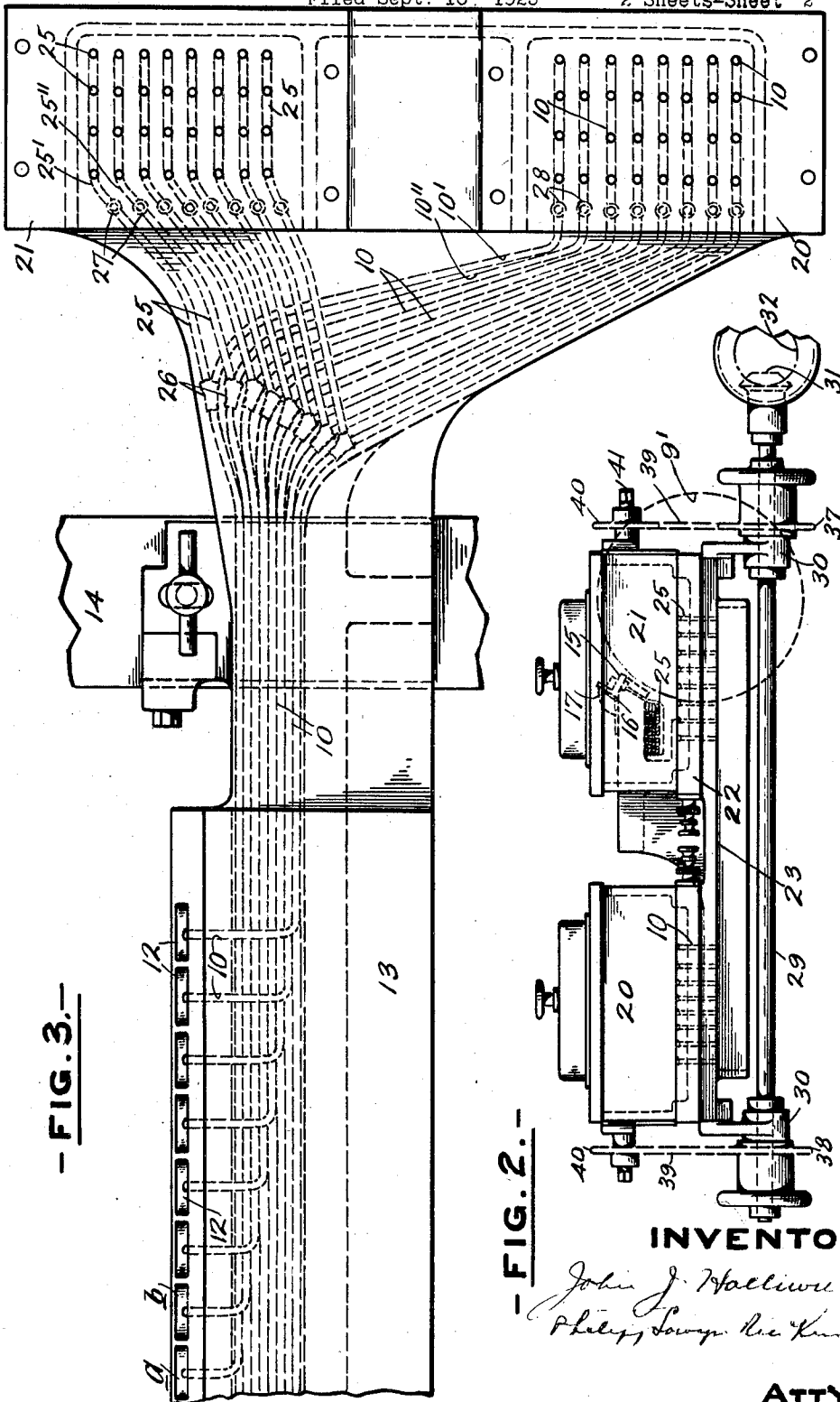
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INKING MECHANISM

Filed Sept. 16, 1925

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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INKING MECHANISM.

Application filed September 16, 1925. Serial No. 56,575.

This invention relates to improvements in inking mechanism for printing machines, and is designed particularly for use with the type of inking mechanism shown in United States Patents 1,214,856, dated February 6, 1917, and 1,311,198, dated July 29, 1919. In the type of inking mechanism shown in these patents the ink is supplied through a series of separate conduits, one conduit being provided for each column or other desired section of the forms to be inked, and the ink is delivered under pressure to the conduits in regulated quantity by a plurality of pressure devices, as pumps, one pump being provided for each conduit.

In producing certain products, particularly products having printed illustrations, it is frequently necessary to print certain pages or parts of a page in ink of a different quality or color from that by which the other pages of the product are printed, or it becomes necessary to supply a heavier ink to such pages.

It is the especial object of the present invention to produce an inking mechanism of the type above briefly referred to, in which provision is made for supplying different grades or colors of ink through the distributing conduits, so that a page or part of the page requiring it may receive a heavier or lighter ink than that from which the rest of the page is printed.

A further object of the invention is to produce such a construction which is readily accessible for adjusting and repairing, and in which the change from one grade or color of ink to another may be readily and quickly effected by the pressman.

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

These drawings show one construction for effecting the objects of the invention, and in these drawings,—

Figure 1 is an end view, partly broken away, showing one printing couple and the improved inking mechanism and its preferred position with respect to the couple;

Figure 2 is an enlarged detail view of

the ink pump arrangement for supplying the two grades or colors of ink;

Figure 3 is an enlarged plan view of one end of the inking mechanism showing the pumps and conduits for one page of a form;

Figure 4 is a side view, partly in section, of the ink rail or delivery, the view being taken in the direction of the arrow 4 of Fig. 1, and

Figure 5 is a detail sectional view of the ink pump rail or delivery, the view being taken on line 5—5 of Fig. 4 looking in the direction of arrow *a* of that figure.

Referring now to these drawings, one printing couple is diagrammatically shown consisting of a form cylinder 1 and an impression cylinder 2 printing on a web *W*, these cylinders being mounted on shafts 3, 4 suitably supported in side framing 5. While the particular machine selected to illustrate the invention is a rotary machine in which both members of the printing couple are cylinders, it will be understood that the invention as to certain of its features will be useful in other types of printing machines and machines in which both the printing elements of the couple are not cylinders.

The form cylinder 1 is inked from a pair of distributing rolls 6, 7 which take ink from the distributing drum or cylinder 8 to which ink is supplied by a roll 9 from a fountain or ink roll 9'.

In the construction shown, the form cylinder 1 is capacitated to carry four plates widthwise of the cylinder, and each plate is eight columns wide. These forms are inked from an inking mechanism in which the ink is supplied under pressure by suitable pumps through a plurality of conduits, these conduits being provided in the desired number so that each column or other desired section of the form is provided with its own inking mechanism. These conduits are indicated by the numeral 10, there being in the particular construction shown thirty-two of these conduits corresponding to the thirty-two columns of a four page wide paper. Each of these conduits delivers to a nozzle 12 from which the ink passes to the fountain roll 9'. These conduits are supported in a long frame, which may be called an ink rail, this frame being indicated by the numeral 13. This rail is supported in suitable

side frames 14. To enable the nozzles and the ends of the conduits to be easily accessible for the purpose of cleaning, etc., the delivery side of the rail is formed with a cap plate 15 hinged to the rail at 16, this rail being held in operative position by a spring 17.

Ink is delivered under pressure to these conduits by pumps, there being a pump for each conduit. These pumps may be of any desired mechanism, such as, for instance, the pump shown in the two White patents above referred to, but as a specific structure is unnecessary for an understanding of the present invention a showing of this pump has been omitted. In accordance with the invention, means are provided whereby ink of different quality or color may be delivered to any page, column or other desired section of the form or forms while the other forms are receiving ink of a different grade or color. While this may be accomplished in various ways, in the particular construction shown there are provided two sets of pressure devices, as pumps, these pumps being carried in fountain casings 20, 21. These fountains are arranged side by side in a part of the press convenient of access, on a base 22 supported from an extension 23 of the frame 13, before referred to, by which the ink rail is supported. One of these fountains, as the fountain 20, delivers to the conduits 10 and the other fountain, as fountain 21, delivers to a set of conduits marked 25. These conduits 25 are short conduits and are joined with the conduits 10 through couplings or unions 26. These conduits 25 are provided in the same number as the conduits 10.

Means are provided whereby the ink may be shut off from any conduit. This may be effected in various ways, as, for instance, by putting a valve in the conduit between the fountains and the unions 26, or by shutting off any particular pump so that it would not supply any ink. A simple construction is that shown, in which valves 27 are provided in each of the conduits 25 and valves 28 are provided in each of the conduits 10.

Where the pressure devices are pumps, these pumps are or may be driven in any suitable way. In the particular construction illustrated, there is provided a shaft 29 suitably journaled in bearings in hangers 30 depending from the support or base 23, before referred to. At one end this shaft is provided with a mitre-gear 31 which meshes with the corresponding mitre 32 on the shaft 33 of the distributor cylinder 8, before referred to. The shaft of this cylinder carries a gear 34 which meshes with an intermediate 35 which in turn is driven from a gear 36 on the form cylinder shaft 3, before referred to.

The shaft 29, at each end, is provided with

driving sprockets 37, 38 over which pass chains 39 to sprockets 40 on the pump shafts 41. The operation of this mechanism is as follows: Let it be assumed that fountain 20 is supplying light ink to the nozzles shown in Fig. 3 and that fountain 21 has a supply of heavy ink. Ink is now passing through the conduits 10 from fountain 20 to the nozzles, the valves 27 in conduits 25 being closed.

If now it be desired to supply heavy ink or ink of a different color to nozzles *a*, *b*, the valves 28 of conduits 10', 10'' are closed and the valves 27 of conduits 25', 25'' are open, it will thus be seen that heavy ink is now passing through the conduits and the unions 26 to nozzles *a*, *b*, in fountain 21, but that light ink is passing to the remaining columns. With this construction, therefore, ink may be supplied both as to quality and quantity to any desired section of a column or any page. If it be desired to change from light ink to heavy ink for all the pages, this may be readily done by simply slipping the necessary sprocket chains and stopping the action of one of the pumps.

While the invention has been shown and described in its preferred form, it will be understood that certain changes and variations may be made in the arrangement and disposition of the parts and in the means for controlling the supply of ink to the conduits, and that the ink may be supplied under pressure in various ways and that such changes are within the scope of the invention as defined by the appended claims.

What I claim is:

1. In an inking mechanism for printing machines, feeding openings through which ink is fed under pressure for different columns or sections of the matter to be printed, a member to which ink is fed from the openings, and means whereby ink of one grade or color may be fed to any desired opening while ink of another grade or color is being fed to other openings.

2. In an inking mechanism for printing machines, feeding openings through which ink is fed under pressure for different columns or sections of the matter to be printed, a member to which ink is fed from the openings, separate conduits for each opening, an ink fountain for one grade or color of ink, an ink fountain for another grade or color of ink, and connections whereby ink from either fountain may be fed through the openings.

3. In an inking mechanism for printing machines, feeding openings through which ink is fed under pressure for different columns or sections of the matter to be printed, a member to which ink is fed from the openings, separate conduits for each opening, an ink supply of one grade or color of ink, an ink supply of another grade or color of ink,

conduits from both ink supplies to the first named conduits, and valves for controlling the supply conduits, whereby ink may be fed through any opening from either ink supply. 5

4. In an inking mechanism for printing machines, feeding openings through which ink is fed under pressure for different columns or sections of the matter to be printed, a member to which ink is fed from the 10 openings; and means for simultaneously changing the grade or color of ink which is fed to a plurality of the openings.

In testimony whereof, I have hereunto set my hand.

JOHN J. HALLIWELL.