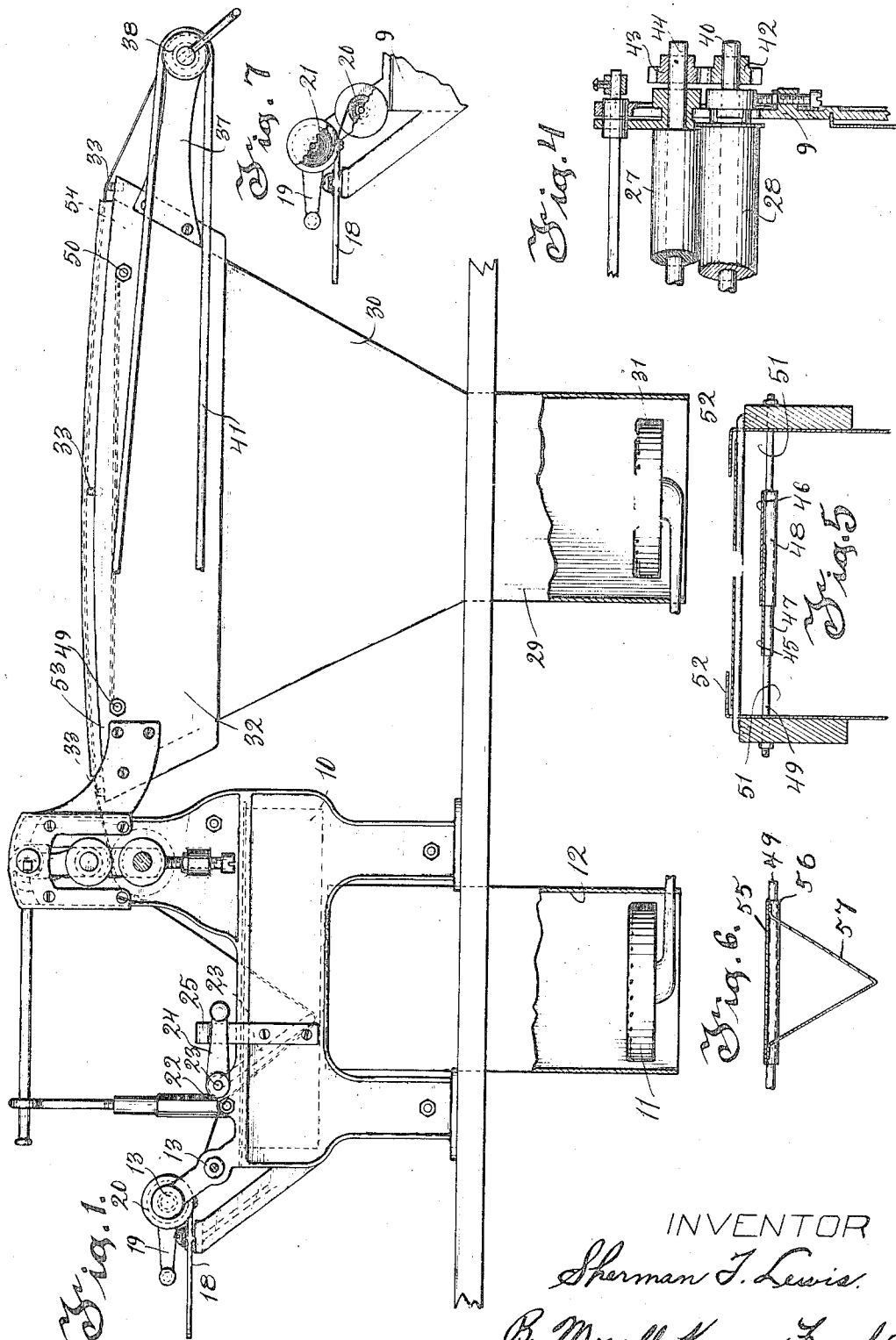


S. T. LEWIS.
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APPLICATION FILED AUG. 13, 1915.

1,179,946.

Patented Apr. 18, 1916.

2 SHEETS—SHEET 1.



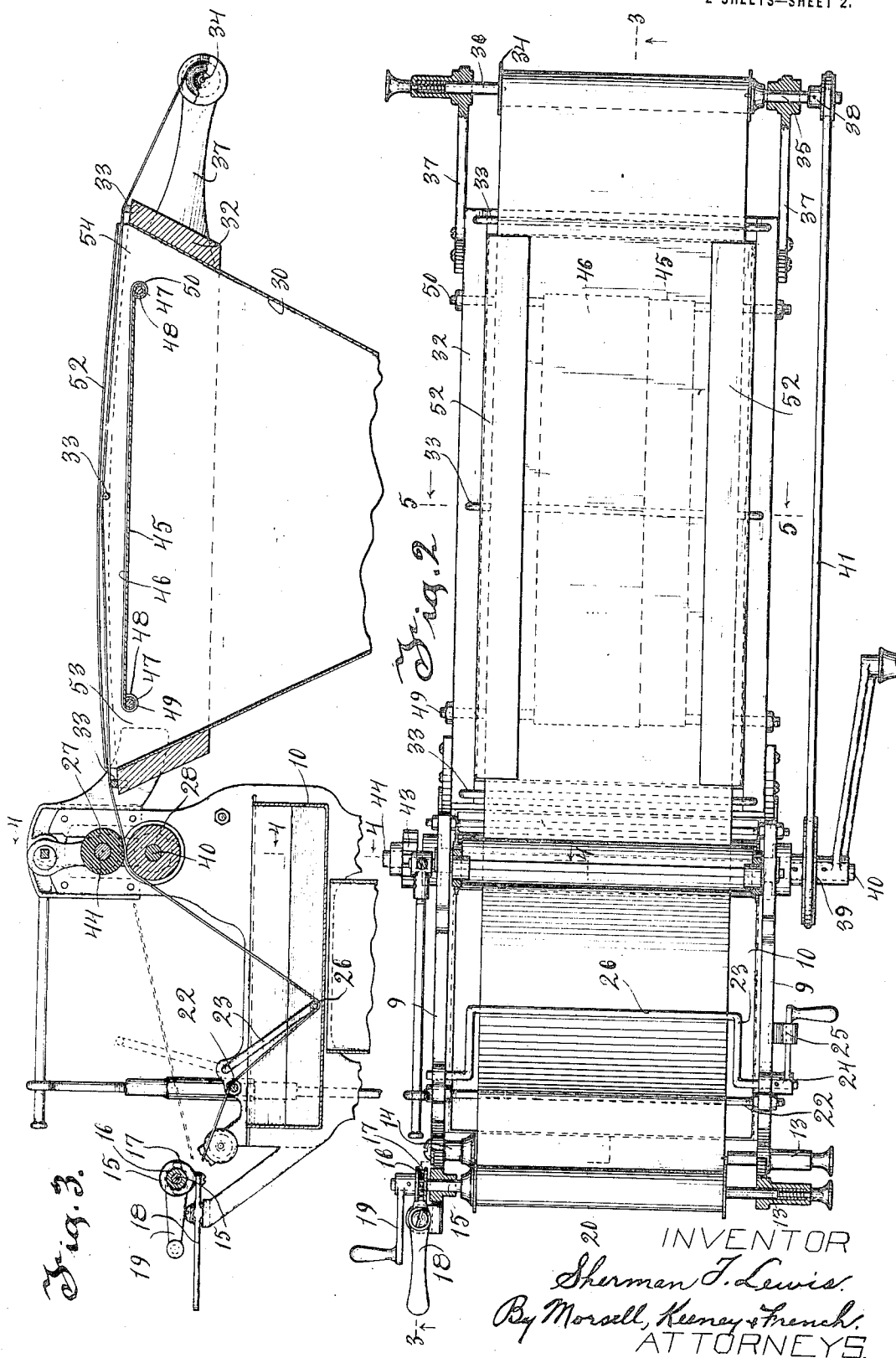
INVENTOR
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By Morrell, Keeney & French.
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UNITED STATES PATENT OFFICE.

SHERMAN T. LEWIS, OF MILWAUKEE, WISCONSIN.

PROCESS FOR INKING AND REINKING TYPE-RIBBONS.

1,179,946.

Specification of Letters Patent.

Patented Apr. 18, 1916.

Application filed August 13, 1915. Serial No. 45,362.

To all whom it may concern:

Be it known that I, SHERMAN T. LEWIS, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful improvements in Processes for Inking and Reinking Type-Ribbons, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The invention relates to a method or process for inking and reinking printing ribbons.

The invention relates, as recited, to processes for inking and more particularly reinking wide type ribbons, and consists in the several features hereinafter set forth and claimed improvements in such processes, having particularly in view a method or process for reinking multigraph type ribbons which are used in connection with type forms of different widths so that a substantially uniformly reinked ribbon will be produced.

The method of reinking may be successfully carried out by the use of apparatus shown in the accompanying drawings in which:

Figure 1 is an elevation view of the apparatus for carrying out the process, parts being broken away and parts being shown in section; Fig. 2 is a plan view thereof, parts being broken away and parts being shown in section; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a section taken on the line 4—4 of Fig. 2; Fig. 5 is a section taken on the line 5—5 of Fig. 2; Fig. 6 is a detail view of a modified form of construction from that shown in Fig. 5; and Fig. 7 is a detail view of the winding mechanism at the front of the machine, parts being broken away.

Before describing the machine by which the process may be carried into effect, the process itself will be described.

Multigraph type ribbons particularly those of some width are used in multigraph machines in connection with type forms of different widths and that portion of the ribbon between its edges becomes worn and used while the marginal edge portion of the ribbon may not be used at all and the width of the unused marginal portion of the ribbon will depend upon the width of the type form or forms used with it. In the reinking of ribbons of this character it is neces-

sary that they be reinked uniformly so that they may again be used with different width type forms and the problem has been to form a uniform product with the unused or slightly used marginal edge portion in the same condition as the reinked used portion of the strip. To accomplish this I have devised a method for reinking ribbons which produces a substantially uniform product.

The used type ribbon is run through a bath of heated inking solution, then pressed so as to remove superfluous ink and then led over a drying apparatus so that the edges or marginal slightly used or unused portions of the strip will be subjected to a constant drying heat and so that the intermediate portion of the ribbon will only be subjected to heat for a limited period. Thus with the use of a heated ink and a heating of the marginal edges of the ribbon for a longer period than that used for the intermediate portion I am enabled to secure a uniformly reinked ribbon.

In the making of new ribbons, the problem of drying the marginal edges is not present and the new ribbon is run through a bath of heated ink, then pressed between rollers and then led over a drying apparatus to apply the same amount of heat to the whole ribbon.

The machine for carrying the method above described into effect consists of an ink receptacle 10, means for heating the ink within said receptacle, means for receiving the ribbons, means for guiding the ribbon through the ink bath, means for pressing the ribbon after it has been inked comprising press rollers, means for drying the inked ribbon, and means for feeding the ribbon through the ink, presser rolls and over the drier.

The ink receptacle 10 is mounted in a frame 9 and a burner 11, mounted adjacent the bottom of a flue 12 extending upwardly to a position beneath the receptacle 10, serves to heat the inking solution within said receptacle.

Type ribbons come on either one or two rolls and means are provided for receiving the roll or rolls so that the ribbon may be conducted through the machine. This means consists of slidable spring pressed roller engaging headed pins 13 journaled in one side of the frame 9 and headed pins 14 and 15 journaled in the other side of said frame. The headed pin 15 is slidably mounted in

its bearing and is provided with a groove 16 which receives the forked end 17 of a lever 18 pivotally mounted on the frame and by adjusting this lever to different positions the length of the pin 15 may be varied to accommodate for rollers of different lengths. A crank 19 is carried by the pin 15 and when the ribbon comes on two rolls one of the rolls 20 is placed between the pins 13 and 14 and the other roll 21 between the pins 13 and 15 as shown in Figs. 2 and 7 and the operator by turning the crank 19 may run all the ribbon onto the upper roll after which the ribbon is led by the guide means through the inking solution. This guide means consists of a rod 22 secured to both sides of the machine adjacent the ribbon rolls and over the ink bath and a U-shaped guide member 23 whose ends are pivotally mounted in the frame of the machine, one of said ends being provided with a crank 24 which is adapted to releasably engage a spring stop 25 in its path of movement. The stop serves to keep the guide in its lowermost position with its transverse portion 26 in the ink as shown in Fig. 3 and when it is desired to lift it up the stop 25 is pressed inwardly so that the crank 24 will pass by it after which it may be raised to the position shown in dotted lines in Fig. 3. The material or ribbon from the upper roll is led over the guide rod 22 and beneath the transverse portion 26 of the member which in lower position causes the travel of the ribbon through the ink and thence it passes to means for pressing the ribbon to remove superfluous ink. This pressing means, comprises a pair of presser rollers 27 and 28 suitably journaled in bearings in the frame of the machine. The lower roller 28 is of hard material and the upper roller 27 of yielding material preferably rubber, and means are provided for varying the tension of the rolls consisting of means for moving the roller 28 toward or away from the roller 27 but for the purpose of this application detailed description of this means is deemed unnecessary. The ribbon passes between the rolls 27 and 28 where it is pressed and from thence it is conducted over the drier.

The drier consists of a flue 29 having an enlarged upper portion 30, a burner 31 disposed within the flue adjacent the bottom thereof, means for conducting the ribbon over the flue and burner, and means for deflecting the heat from the burner against the marginal edges of the ribbon and away from the intermediate portion of said ribbon.

The means for conducting the ribbon over the drier consists of a frame 32 secured to the top of the flue 29, guide rods 33 passing through said top and frame, a feed roller 34 detachably mounted on pins 35 and 36 journaled in brackets 37 secured to the frame

and means for driving said roller. The means for driving the roller 34 consists of a pulley 38 mounted on the pin 35, a pulley 39 mounted on the shaft 40 of the roller 28, a flexible belt 41 connecting said pulleys 38 and 39 and means for driving said shaft 40 consisting of a gear 42 which is adapted to mesh with a gear on the shaft of a motor (not shown). The gear 42 also meshes with a gear 43 on the shaft 44 for the roller 27 so that the motor drives the presser rollers 27 and 28 and the roller 34 and these rollers constitute the means for feeding the ribbons through the ink, presser rolls and over the drier.

The means for deflecting the heat against the marginal edge of the ribbons comprises telescoping deflector plates 45 and 46 having tubular ends 47 and 48 slidably mounted on rods 49 and 50 passing through said flue 29 and frame 32 said plates being adapted to be moved toward or away from each other to vary the width of space between their side edges and the sides of the flue whereby the heat conducting space 51 adjacent the marginal edge of the ribbon may be varied. This means also consists of deflecting flanges 52 integral with the sides of the flue and extending inwardly therefrom and directly above the rods 33 and the ribbon passing thereover. The plates 45 and 46 do not extend the full length of the sides of the flue 29 but to a position adjacent the ends thereof so that heat-conducting spaces 53 and 54 are formed at either end thereof which extend across the flue. The heated air from the burner 31 passes upwardly through the spaces 51, 53 and 54 and through the ribbon to dry the same. The spaces 53 and 54 permit the heat to pass through the whole width of the ribbon for a limited period in passing over the drier while the spaces 51 permit the heat to constantly pass through the marginal edges of the ribbon while passing over the drier. In Fig. 6, I have shown a modified form of means for deflecting the heat against the marginal edge of the ribbon and away from the intermediate portion thereof which consists of a longitudinally extending plate 55 having tubular ends 56 mounted on the rods 49 and 50 and a V-shaped longitudinally extending deflector plate 57 secured at its upper ends to the plate 55.

The operation of the machine is as follows: The ribbon is led from its roller over the guide 22 under guide 26 in the heated ink bath and through the presser rolls, thence over the drier and wound up on the roll adjacent the rear end of the drier. The motor driving the presser rolls also drives the belt 41 and consequently the roller 34 so that the material is fed through the apparatus at the desired rate. During its travel over the space 53 of the drier the heat from the burner passes through the whole width

of ribbon passing thereover which of course exposes the whole width of material to action of heat for a limited period. Then when the ribbon passes over the deflector plates 45 and 46 the heat from the burner passing through the spaces 51 is directed against the marginal portions of the strip or that part which has only been slightly used and the spaces 51 extending the length of the drier and communicating with the spaces 53 and 54 adjacent the ends of the drier there results a constant application of heat to the unused or slightly used portion of the ribbon and an intermittent application of heat to the intermediate or used portion of the ribbon, the period of application of heat to said used portion being less than that for the unused portions.

The invention thus exemplifies a method first for inking type ribbons which consists in passing the ribbon through a heated ink bath, a presser device and over a drier and second a method for reinking type ribbons which consists in passing the ribbon through a heated ink bath, a presser device and then a drier where the marginal portion of the ribbons are constantly subjected to heat and where the used portions of the ribbon are subjected to heat from the drier for a limited period whereby a uniformly reinked ribbon will be produced.

The invention is not to be restricted to the details of construction of the apparatus for carrying out the process but may be varied so as to be within the scope of the appended claims.

What I claim as my invention is:

1. That improvement in the inking of type ribbons which consists in passing the ribbons through a bath of heated ink, thence through a press and thence subjecting said ribbons to heat to dry them.

2. That improvement in the reinking of type ribbons which consists in passing the ribbons through an ink bath, thence through a press and then drying the ribbons by subjecting the marginal portions of the ribbons to constant heat for a predetermined period and subjecting the used portions of the ribbons to heat for a period less than that to which the marginal portions are subjected.

3. That improvement in the reinking of type ribbons which consists in passing the ribbons through a heated ink bath, thence through a press and then drying the ribbons by subjecting the marginal portions of the ribbons to constant heat for a predetermined period and subjecting the used portions of the ribbons to heat for a period less

than that to which the marginal portions are subjected.

4. That improvement in the reinking of type ribbons which consists in passing the ribbons through an ink bath, thence through a press and thence over a drier, the whole of the ribbon being subjected to heat during a portion of its passage over the drier, and the slightly used or unused portions of the ribbon being subjected to heat during its passage over the drier.

5. That improvement in the reinking of type ribbons which consists in passing the ribbons through an ink bath, thence through a press and thence over a drier, subjecting the marginal edges of the ribbons to the constant application of heat from the drier, and the intermediate portion of said ribbons to the heat from the drier for a limited period.

6. That improvement in the reinking of type ribbons which consists in applying heated ink to the ribbon, then passing the ribbon through a press and thence over a drier, the whole of the ribbon being subjected to the heat from the drier during a portion of its travel thereover and the marginal portion of the ribbon being subjected to the heat from the drier during the whole of its travel thereover.

7. That improvement in the reinking of type ribbons which consists in passing the ribbon through a bath of heated ink, thence through a press to remove superfluous ink, and thence over a drier, the whole of the ribbon being subjected to the heat from the drier during a portion of its travel thereover and the marginal portion of the ribbon being subjected to the heat from the drier during the whole of its travel thereover.

8. The method of reinking used type ribbons consisting in subjecting the ribbons to a bath of heated ink, thence to a means for removing superfluous ink and then subjecting the ribbons to a heating means arranged to vary the application of heat with reference to the previously used and unused portions of the ribbons.

9. The method of reinking type ribbons which consists in reinking the ribbon, subjecting the marginal portions of the reinked ribbon to constant heat for a predetermined period and subjecting the used portions of the ribbon to heat for a period less than that to which the marginal portions are subjected.

In testimony whereof, I affix my signature.

SHERMAN T. LEWIS.