

R. BAIRD.
SELVAGE PRINTING MACHINE.
APPLICATION FILED AUG. 6, 1910.

1,002,624.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

Fig. 2

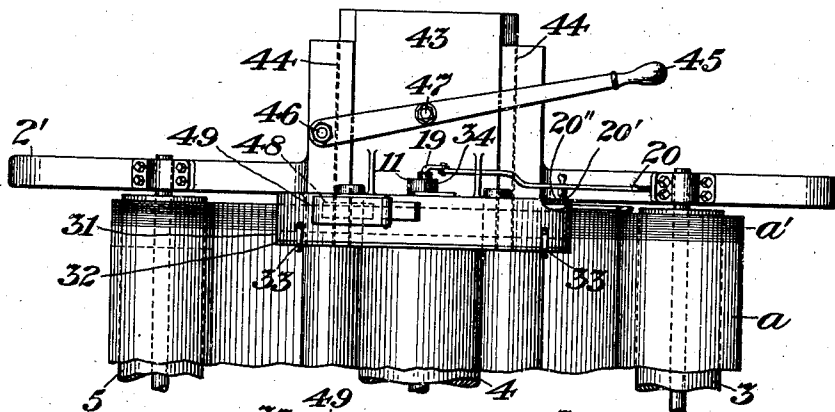
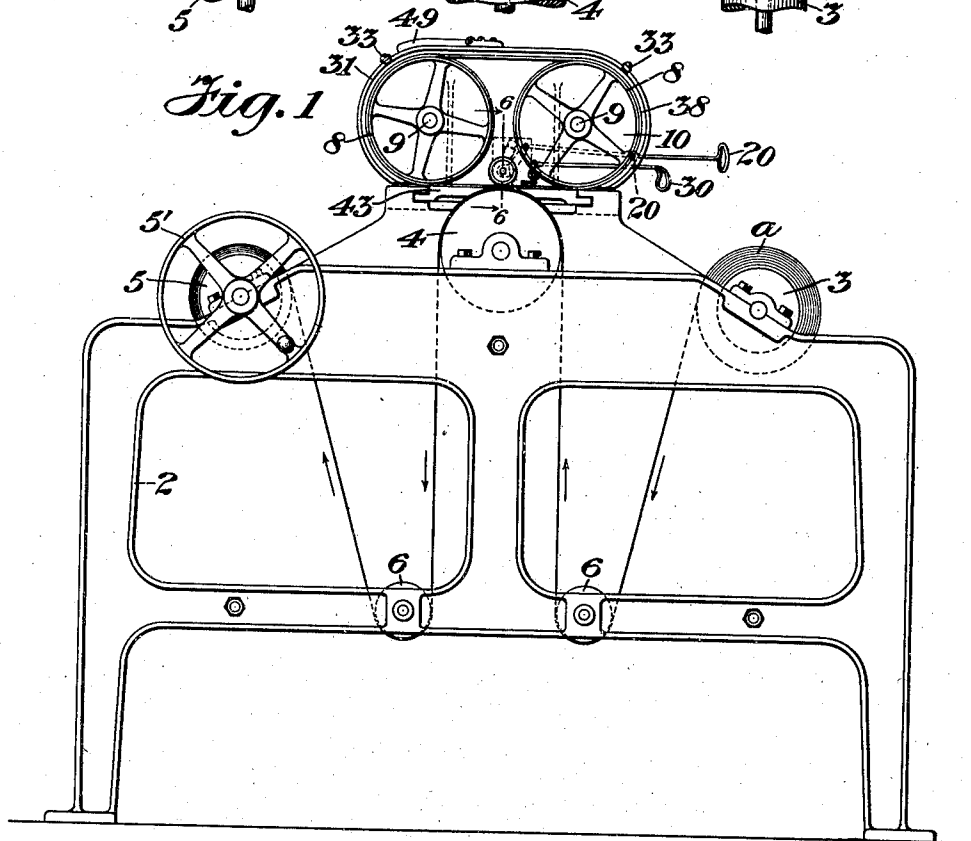


Fig. 1



WITNESSES:

Chas. J. Claggett
H. M. Cassidy

INVENTOR

Robert Baird

BY

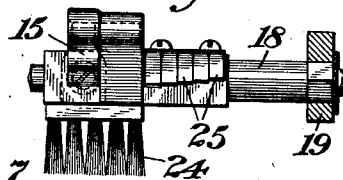
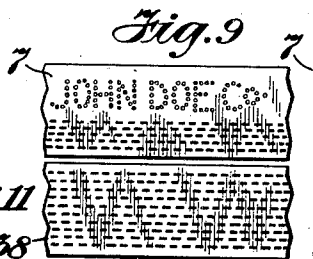
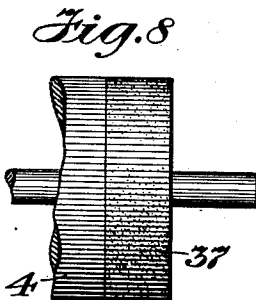
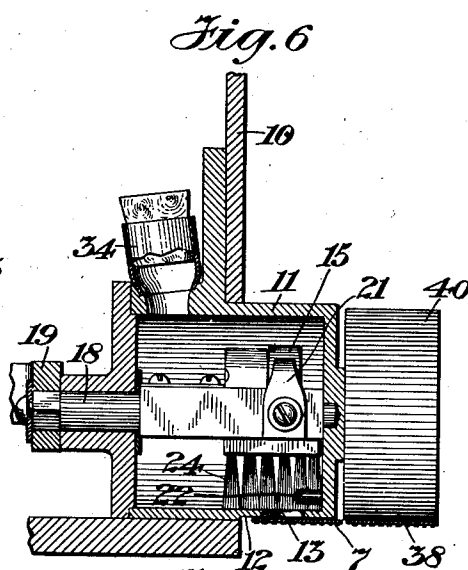
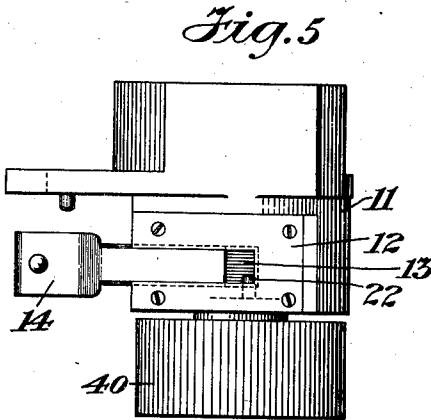
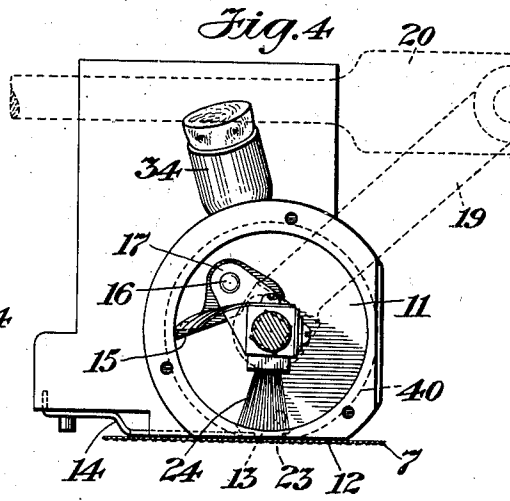
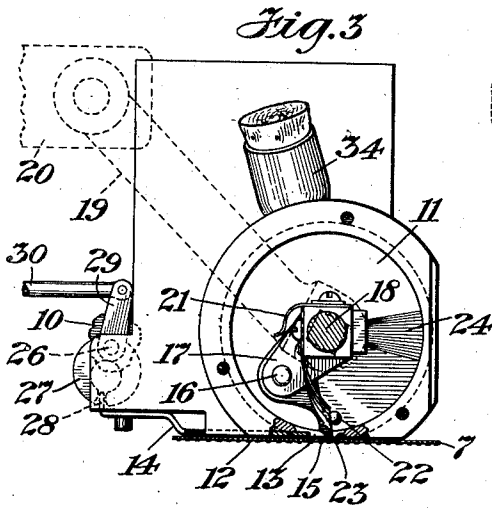
Chas. A. Dane
his ATTORNEY

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2 SHEETS—SHEET 2.



WITNESSES:
Chas. Clagett
H. M. Casady

INVENTOR
Robert Baird
BY *Chas. F. Davis*
his ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT BAIRD, OF WEST ORANGE, NEW JERSEY.

SELVAGE-PRINTING MACHINE.

1,002,624.

Specification of Letters Patent.

Patented Sept. 5, 1911.

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To all whom it may concern:

Be it known that I, ROBERT BAIRD, a subject of the King of Great Britain, and resident of West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Selvage-Printing Machines, of which the following is a specification.

As well known, the selvage edge of fabrics frequently has imprinted thereon the name or other distinguishing trade-mark of the manufacturer, which is usually done by means of an ordinary printing machine employing impression type or plates. The ink employed with this class of printing machines, however, is the ordinary liquid printer's ink, and while this ink makes a fairly clear and distinct impression on those classes of fabrics which are firmly woven and formed with a comparatively smooth surface, it does not make such a clear impression on other classes of fabrics, such as those formed with a loose weave or with any considerable nap. It has therefore been one of the main objects of my invention to provide an improved selvage printing machine adapted to employ a heavy pigment or bronze ink that will make a clear and distinct impression on all classes of fabrics, and in carrying this particular object of my invention into effect I make use of a stencil member having stencil openings therein, representing the desired name or mark, or both, to be printed on the fabric selvage; the printing operation being effected by supplying ink of the desired character through the stencil openings onto the surface of the fabric selvage.

As it is necessary to the proper operation of a printing machine employing a stencil member and co-acting inking means, that the stencil member should be kept as free as possible from any undue accumulation of ink thereon, which would tend to clog up the stencil openings, which are necessarily very small in a machine of this character, and so interfere with the printing operation, I have constructed my present machine in a manner to avoid such an undue accumulation of ink on the stencil member. Such construction, which constitutes an important feature of my invention, consists in locating the ink-outlet containing wall of the ink reservoir in direct contact with the ink-receiving side of the stencil member and providing the same with a shut-off at such point.

In this manner the ink supply may be shut off whenever desired without any surplus being supplied to or left on the stencil member.

Another feature of my invention is the provision of means for assuring the same speed of movement of the fabric to be printed and the stencil member while in contact with each other during the printing operation, so as to avoid relative movement between the same and the consequent liability of a blurred and indistinct imprint being effected. This means consists in making the stencil member in the form of an endless sheet and supporting the same with the working run thereof in close contact with the fabric whereby it will be moved with and by the same; said fabric being positively fed through the machine by suitable feeding means. As a means to effect a positive engagement of the stencil member with the fabric when being fed by the latter it is preferably formed with a roughened or burred surface.

The fabric or web is usually in the form of a roll from which it is unwound as it is fed through the printing machine, and as there is more or less irregularity both in the width and in the winding of the fabric, it will be understood that the selvage edge thereof will feed through the machine in an irregular or crooked line instead of in a straight line. It therefore becomes necessary that some provision be made to accommodate this irregularity in the path of movement of the selvage through the machine in order to assure the proper coöperation of the printing means therewith. This provision, in accordance with my invention and as an important feature thereof, consists in adjustably supporting the stencil member in a manner to permit of its being readily shifted or adjusted to follow any irregularity in the path of movement of the selvage in its passage through the machine; suitable manually-operated controlling means preferably being provided in combination with the adjustable stencil member to provide for its ready and convenient adjustment.

These several features of my invention and others not hereinbefore mentioned but which will be hereinafter described, are embodied in the machine illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a selvage printing machine embodying my invention.

Fig. 2 is a top plan of the machine with one side broken away through its longitudinal center, the side shown being that supporting the printing mechanism. Fig. 3 is an enlarged detail of the ink-reservoir and certain associated parts, the ink-reservoir being shown in end elevation with its end wall removed and its lower outlet-containing wall partly broken away, and showing the ink-outlet open and the ink presser within the reservoir projecting through said outlet into operative engagement with the stencil. Fig. 4 is a similar view showing the ink presser moved to inoperative position. Fig. 5 is a bottom view of the ink-reservoir and certain associated parts. Fig. 6 is a vertical section through the ink-reservoir and certain associated parts, the section, enlarged, being taken on line 6—6 of Fig. 1. Fig. 7 is a view of the ink presser and associated parts contained within the ink-reservoir, looking from the side opposite that shown in Fig. 6. Fig. 8 is an enlarged detail of one end of a bed-roll over which the fabric and stencil pass. Figs. 9 and 10 are plan and edge views respectively, of the stencil, and Figs. 11 and 12 are plan and edge views respectively, of an auxiliary feed belt for coöperation with the stencil.

Similar reference characters designate like parts in the several figures of the drawings.

The main supporting frame upon which the several coöperating parts of the machine are mounted may be of any suitable construction, that shown comprising two side frames 2, 2', connected together by suitable tie-rods. These side frames 2, 2', are provided with journal bearings in which are journaled the opposite ends of a series of shafts carrying the rollers by which the fabric is supported and guided in its passage through the machine. One of these rollers, indicated at 3, is located at the front or feeding end of the machine and is adapted to have placed thereon the roll of fabric *a* to be printed. From this roller 3 the fabric passes to a bed-roller 4 for coöperation with the printing mechanism, and from thence to a winding-up roller 5 which operates as a means to draw or feed the fabric through the machine. During such passage of the fabric through the machine it preferably will be engaged at opposite sides of the bed-roll 4 by two tension rollers 6, 6, which are located in a plane below that of the other rollers and operate to cause the fabric to pass over the bed-roll 4 under proper tension.

The feeding or winding-up roller 5 will preferably be operated by power, although it may be operated by hand and in the present case is shown as being provided with a hand-wheel 5' for such purpose.

The printing mechanism, being adapted to print only one selvage edge of the fabric passing through the machine, is located at

one side of the latter and is here shown as mounted on the side frame 2'. This printing mechanism, as before stated, comprises a stencil member 7, in the form of an endless sheet, which is mounted on two pulley wheels 8, 8, journaled on stud shafts 9, 9, projecting from one side of a vertical frame or standard 10; the stencil being supported by the said wheels with its lower horizontal run in position for contact with the selvage *a'* of the fabric as it passes over the bed-roll 4.

The inking means for co-acting with the stencil member 7 to supply ink thereto comprises an ink-reservoir 11 detachably connected to the standard 10 with its lower wall 12 containing the ink-outlet 13 in direct contact with the upper or ink-receiving side of the lower run of the stencil member; the delivery of ink through said outlet onto the stencil being controlled by a shut-off in the form of a slide 14 mounted in ways in the outlet containing wall 12 as shown. By thus having the ink-outlet containing wall in direct contact with the stencil, the ink, when permitted to feed or discharge through the outlet onto the stencil, will be confined within the walls of the outlet and thereby prevented from unduly spreading and accumulating upon the ink-receiving side of the stencil; such control of the ink being permitted by reason of its semi-liquid condition.

By reason of the semi-liquid condition of the ink, which does not permit it to readily pass or flow through the pattern openings of the stencil, it is desirable that some means should be provided for pressing or forcing the ink through said openings. For such reason I have provided a presser 15 in the form of a pivoted dog supported within the ink-reservoir with its lower end adapted, when in operative position, to project at an incline through the ink-outlet 13 into contact with the ink-receiving side of the stencil and operate to press the ink through the openings of the stencil during the feeding movement of the latter. This presser 15 is pivoted intermediate its ends at 16 to an arm 17 of a shaft 18 which is journaled in opposite walls of the ink reservoir (see Fig. 6) and provided at one end thereof with a crank arm 19 having connection with a handled operating rod 20 which extends at its operating end to a convenient position to be grasped by the operator at the front or feeding end of the machine as shown. By means of this operating rod, the shaft 18 may be rocked in one direction to move the presser to operative position in pressing engagement with the stencil as shown in Fig. 3, or in the opposite direction to move the presser to inoperative position within the ink reservoir as shown in Fig. 4. A spring 21 bearing

upon the inner or rear end of the presser 15 will operate under proper conditions to automatically rock the presser to its operative position of engagement with the stencil when brought to a position opposite the ink-outlet of the reservoir, subsequent to the opening of the shut-off. It may be, however, that the heavy ink will in some cases act to prevent the prompt and complete movement of the presser to such position when brought opposite the ink-outlet, and for such reason I provide an additional means for positively assuring the movement of the presser to operative position at such time. This means comprises a fixed pin 22 on the wall of the reservoir arranged in such position that when the presser is being moved to operative position by the turning of the shaft 18, it will be engaged by said pin and directed thereby to its said operative position in engagement with the stencil, as shown in Fig. 3, in which position it is adapted to be positively held during the subsequent printing operation by suitable locking means, such for instance, as a pin 20' carried by the operating rod 20 and adapted to be inserted into a suitably positioned opening 20'' in a fixed part, such as the standard 10, as shown in Fig. 2. That wall of the ink-outlet toward which the stencil feeds, indicated at 23, operates on the stencil as a scraper, because of which the ink has a tendency to accumulate or harden thereon. As a means to avoid this, I have provided a brush 24 for acting against the walls of the ink reservoir at its outlet-opening to prevent undue accumulation of ink at such point. This brush is preferably attached to the shaft 18 to be operated thereby, and is so arranged thereon relatively to the presser that it will be in a position away from the ink-outlet when the presser is in operative position as shown in Fig. 3, and will be moved across said outlet when the presser is moved to its inoperative position, as shown in Fig. 4. Any additional movement of the brush, accomplished by rocking its supporting shaft 18, may, of course, be given if found to be necessary.

The brush 24, in addition to performing its cleaning function as described, also operates to stir up and agitate the ink within the reservoir, and as a further means for performing this latter function, a plurality of arms 25 are also attached to the shaft 18 to be movable therewith when operated by the rod 20 or otherwise.

The shut-off for the outlet of the ink-reservoir may be operated to control the opening and closing of said outlet in any desired manner, but I prefer to provide a means for operating the same which may be conveniently controlled by the operator at the front or feeding end of the machine,

where the presser and its associated parts are also controlled, as just described. This means, as herein shown, comprises a rock-shaft 26 journaled in the standard 10 and having a forked crank-arm 27 engaging the up-turned rear end 28 of the shut-off slide 14, and a crank arm 29 connecting with a handled operating rod 30 which extends at its free or operating end to a convenient position to be grasped by the operator at the feeding end of the machine as shown. Longitudinal movement of the rod 30 will operate to rock the arm 27 and move the engaged shut-off back and forth to control the ink-outlet as desired.

The printing mechanism, comprising the stencil member and co-acting inking means as described, should preferably be contained within a closed chamber in order to protect the same from dust, etc., and the ink from evaporation, and to provide this chamber I have provided the standard 10 with a laterally projecting flange or wall 31 of proper form and width to bring within its edges the printing mechanism, and have attached to the front edge of this flange 31 a covering plate 32; the latter being removably attached to the flange 31 by suitable fastening means, such as latch devices 33, 33, in order to permit convenient access to the inclosed printing mechanism.

The ink-reservoir may be of any desired form or construction and be provided with any suitable means for filling the same. As shown in the present case, and more clearly in Fig. 6, it is arranged with one end thereof projecting through a corresponding opening in the standard 10 to a point outside the printing mechanism chamber just described, where it is provided with an ink filling opening 34. This construction and arrangement of the ink reservoir permits of its being conveniently filled whenever necessary without requiring access to said chamber for such purpose.

The stencil member 7, as before stated, is preferably fed by the engagement of the moving fabric therewith, instead of by independent feeding means, so as to move in complete unison with said fabric and thereby assure clear and distinct printing being effected. To positively assure such movement of the stencil member with the fabric, the stencil is preferably provided with a roughened or burred surface at one side thereof, as at 35, formed by perforating the same, which assures a positive engagement between the stencil and fabric as they pass between the bed-roll 4 and the coöperating wall of the ink-reservoir, and in order to assure a close contact of the fabric selvage with the stencil and at the same time allow for any inequalities in the thickness or otherwise of the goods, the said bed-roll 4 is formed with a yielding surface 37, preferably of

rubber, at that end thereof which engages the selvage. As a further means to assure the feeding of the fabric and the stencil in complete unison, I have provided a belt 38 having a roughened or burred surface as shown and otherwise a duplicate of the stencil 7 except as to the stencil openings, which belt is mounted on the wheels 8, 8, adjacent to the stencil 7 and held with its lower run in operative engagement with the fabric by means of a presser wheel 40 mounted on a journal at one end of the ink-reservoir (see Fig. 6), whereby it will operate as an auxiliary feed belt in causing the stencil to feed in unison with the fabric.

The printing mechanism, comprising the stencil member and co-acting inking means, is mounted through the medium of its supporting frame or standard 10 upon a secondary frame or bed-plate 43 which is slidably mounted in ways 44, 44, on the frame 2' for movement in a direction transversely to the direction of feed of the fabric through the machine, whereby the printing mechanism may be bodily shifted or adjusted to follow any irregularity in the path of movement of the fabric selvage through the machine; a lever 45 pivoted at one end to the main frame at 46 and pivoted at a point between its ends to the sliding-bed at 47 serving as a convenient means to enable the operator to adjust the position of the printing mechanism as required.

The opening 48 in the top wall of the printing mechanism chamber, closed by a hinged cover 49, serves as a convenient means to permit the operator to readily examine the stencil whenever desired for the purpose of ascertaining its condition, that is, whether it is sufficiently clean and free from ink to assure proper printing.

What I claim is:

1. In a machine of the class specified and in combination, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web and also being shiftable in a direction transversely to the direction of feed of the web during feeding movement of the latter, operating means for so shifting the stencil member, and inking means co-acting with said stencil member.

2. In a machine of the class specified and in combination, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web and also being bodily shiftable in a direction transversely to the direction of feed of the web during feeding movement of the latter, operating means for so shifting the stencil member, and inking means co-acting with said stencil member.

3. In a machine of the class specified and in combination, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web, inking means co-acting with said stencil member; said stencil member and inking means being both shiftable in a direction transversely to the direction of feed of the web during feeding movement of the latter, and operating means for so shifting the stencil member and inking means.

4. In a machine of the class specified and in combination, a main supporting frame, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web, a secondary frame supporting said stencil member and being slidably mounted on the main frame for shifting the supported stencil member in a direction transversely to the direction of feed of the web during feeding movement of the latter, operating means for so shifting the secondary frame and supported stencil member, and inking means co-acting with said stencil member.

5. In a machine of the class specified and in combination, a main supporting frame, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web, a secondary frame supporting said stencil member and being slidably mounted on the main frame for shifting the supported stencil member in a direction transversely to the direction of feed of the web during feeding movement of the latter, operating means for so shifting said secondary frame, and inking means co-acting with said stencil member.

6. In a machine of the class specified and in combination, a main supporting frame, web feeding means, an endless stencil member movable in continuous contact with the web during operation of the machine and being moved by the feeding movement of the web, a secondary frame supporting said stencil member and being slidably mounted on the main frame for shifting the supported stencil member in a direction transversely to the direction of feed of the web during feeding movement of the latter, an operating lever for so shifting said secondary frame, and inking means co-acting with said stencil member.

7. In a machine of the class specified and in combination, web feeding means, an endless stencil member engaging the web, pulley wheels supporting said stencil, inking means co-acting with said stencil, and a feed belt mounted on said pulley wheels for move-

ment in a path at one side of the inking means and engaging with said web to be fed thereby, for the purpose set forth.

8. In a machine of the class specified and in combination, web feeding means, an endless stencil member engaging the web, pulley wheels supporting said stencil, inking means co-acting with said stencil, a feed belt mounted on said pulley wheels for movement in a path at one side of the inking means and engaging with said web to be fed thereby, and a presser engaging said belt independently of the stencil for maintaining engagement of the same with the web.

9. In a machine of the class specified and in combination, a stencil member, inking means co-acting with said stencil member comprising an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, and means within the reservoir for co-acting with the wall thereof adjacent to the ink-outlet to prevent undue accumulation of ink at such point.

10. In a machine of the class specified and in combination, a stencil member, inking means co-acting with said stencil member comprising an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, and a movable brush within the reservoir for co-acting with the wall thereof adjacent to the ink-outlet to prevent undue accumulation of ink at such point.

11. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, and means within the reservoir for co-acting with said scraper wall of the ink-outlet to prevent undue accumulation of ink at such point.

12. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, and a movable brush within the reservoir for co-acting with said scraper wall of the ink-outlet to prevent undue accumulation of ink at such point.

13. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, and a movable brush within the reservoir for co-acting with the said scraper wall of the ink-outlet to prevent undue accumulation of ink at such point.

14. In a machine of the class specified and in combination, a movable stencil member,

an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, an ink-scraper at one of the walls of said outlet co-acting with the stencil member, and means within the reservoir for co-acting with the wall thereof adjacent to said ink scraper to prevent undue accumulation of ink at such point.

15. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, a rotary brush within the reservoir for co-acting with said ink-scraper wall of the ink-outlet to prevent undue accumulation of ink at such point, and an operating handle for said brush.

16. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, and a presser projecting through said ink-outlet into operative pressing engagement with the stencil member, for the purpose set forth.

17. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, and a presser supported within the ink reservoir and adapted to project at one end through said ink-outlet into operative pressing engagement with the stencil member, for the purpose set forth.

18. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, and a pivoted presser supported within the ink-reservoir and adapted to project at one end through said ink-outlet into operative pressing engagement with the stencil member, for the purpose set forth.

19. In a machine of the class specified and in combination, a movable stencil member, an ink reservoir having an ink-outlet in juxtaposition to said stencil member, a presser supported within the ink reservoir and movable to and from a position to project through said ink-outlet of the reservoir into operative pressing engagement with the stencil member, a rotary shaft within the ink reservoir to which said presser is connected, and operating means for said shaft and presser located at the exterior of said ink reservoir.

20. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, a movable presser supported within the ink-reservoir and adapted to project at one end through said ink-outlet into operative pressing engagement with the stencil member, and

means for positively holding the presser in operative position after being moved thereto.

21. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet in juxtaposition to said stencil member, a movable presser supported within the ink reservoir and adapted to project at one end through said ink-outlet into operative pressing engagement with the stencil member, and means, including a fixed stop for engagement with the presser, for positively holding said presser in operative position after being moved thereto.

22. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, and a presser supported within the ink-reservoir and adapted to project at one end through said ink-outlet into operative engagement with the stencil member and in position in advance of said ink-scraper.

23. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, a presser supported within the ink-reservoir and adapted to project at one end through said ink-outlet into operative engagement with the stencil member and in position in advance of said ink-scraper, and a shut-off for said ink-outlet.

24. In a machine of the class specified and in combination, a movable stencil member,

an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, a presser supported within the ink reservoir and adapted to project at one end through said ink-outlet into operative engagement with the stencil member and in position in advance of said ink-scraper, a movable brush within the reservoir for co-acting with the said scraper wall of the ink-outlet to prevent undue accumulation of ink at such point, and a shut-off for said ink-outlet.

25. In a machine of the class specified and in combination, a movable stencil member, an ink-reservoir having an ink-outlet containing wall in direct contact with said stencil member, one of the walls of which outlet forms an ink-scraper for co-acting with the stencil member, a presser supported within the ink-reservoir and adapted to project at one end through said ink-outlet into operative engagement with the stencil member and in position in advance of said ink-scraper, a movable brush within the reservoir for co-acting with the said scraper wall of the ink-outlet to prevent undue accumulation of ink at such point, a movable support within the reservoir having mounted thereon said presser and said brush, means for moving said support to operate the brush thereon, and a shut-off for the ink-outlet.

Signed at New York, in the county of New York and State of New York this 4th day of August, A. D. 1910.

ROBERT BAIRD.

Witnesses:

W. A. TOWNER, Jr.,
K. M. CASSIDY.