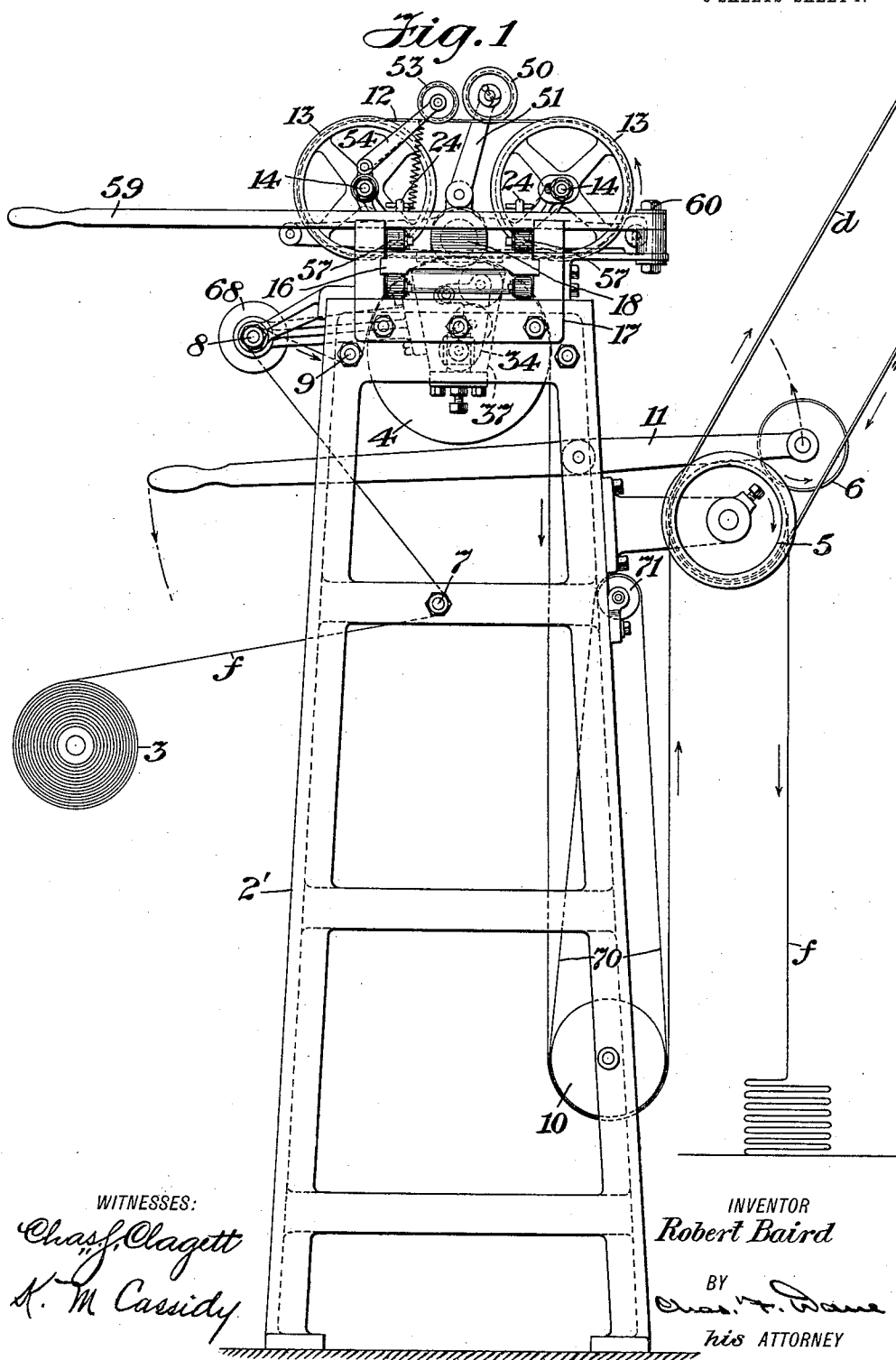


1,055,597.

R. BAIRD.
SELVAGE PRINTING MACHINE.
APPLICATION FILED JUNE 9, 1911.

Patented Mar. 11, 1913.

5 SHEETS—SHEET 1.

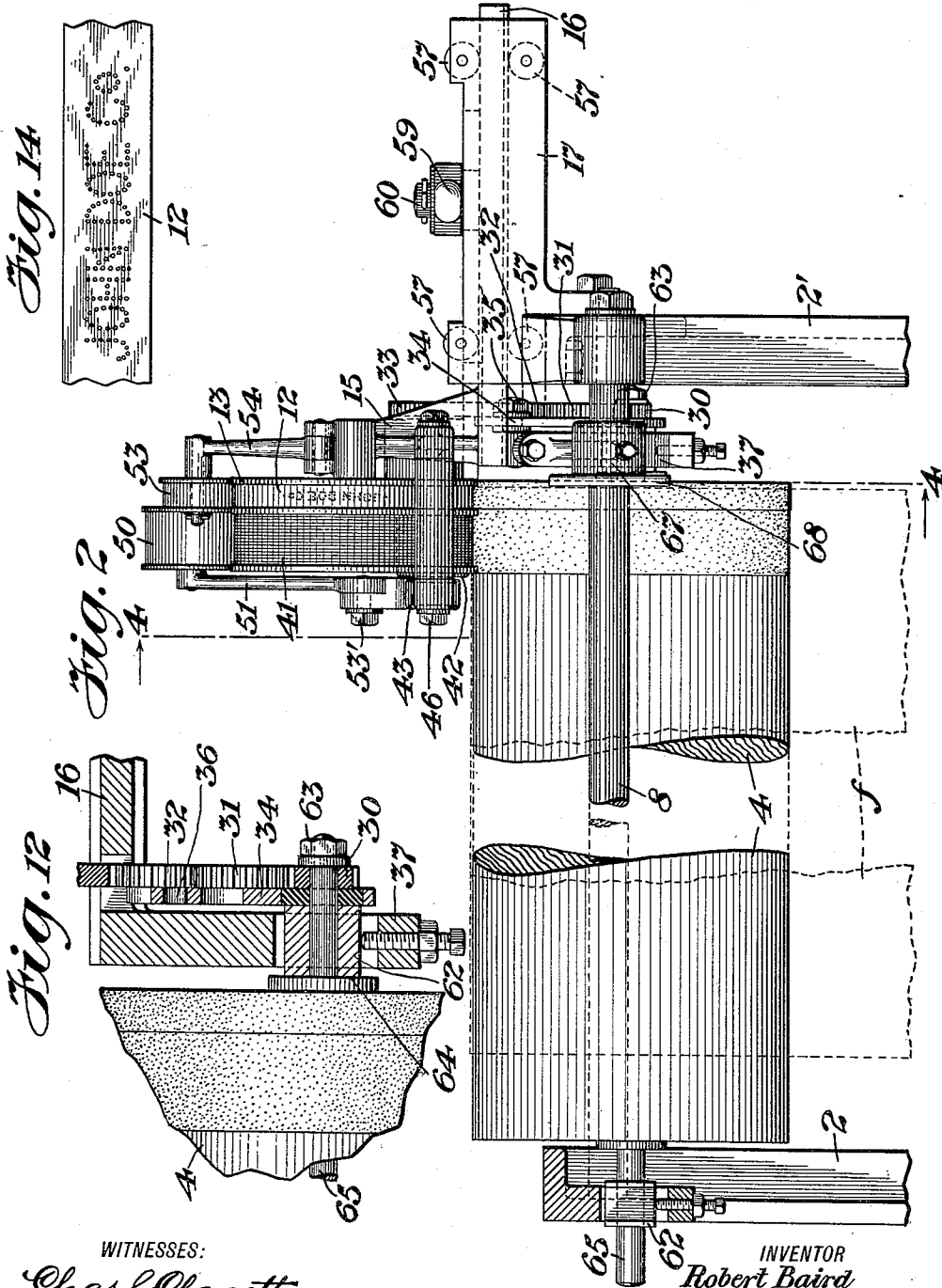


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5 SHEETS—SHEET 2.



WITNESSES:
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1,055,597.

Patented Mar. 11, 1913.

5 SHEETS—SHEET 3.

Fig. 13

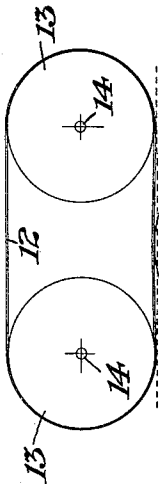


Fig. 11

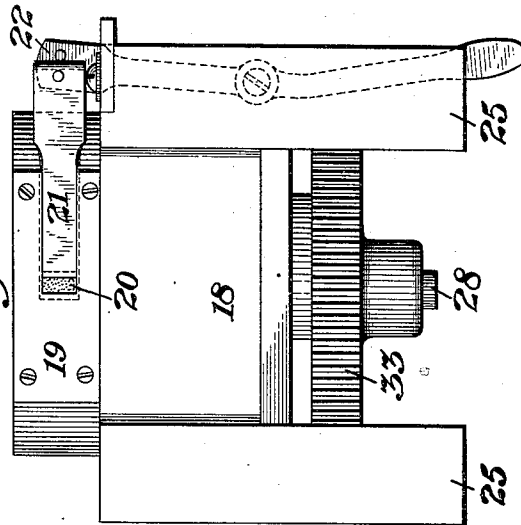
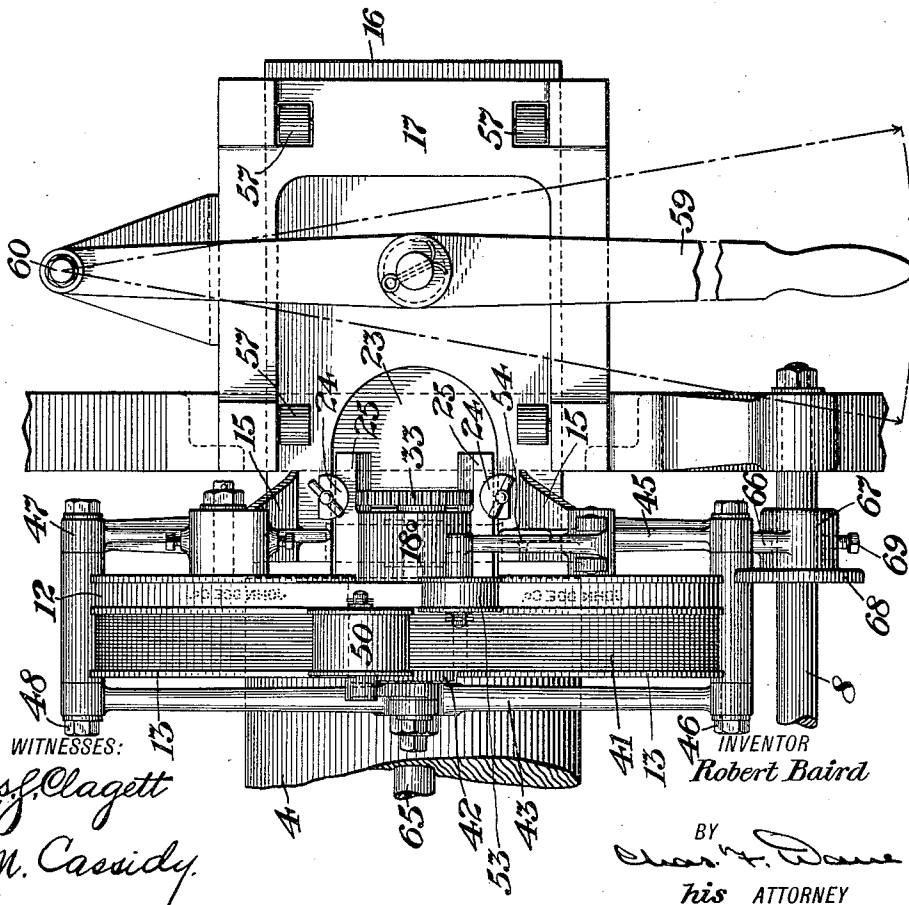


Fig. 3



WITNESSES:
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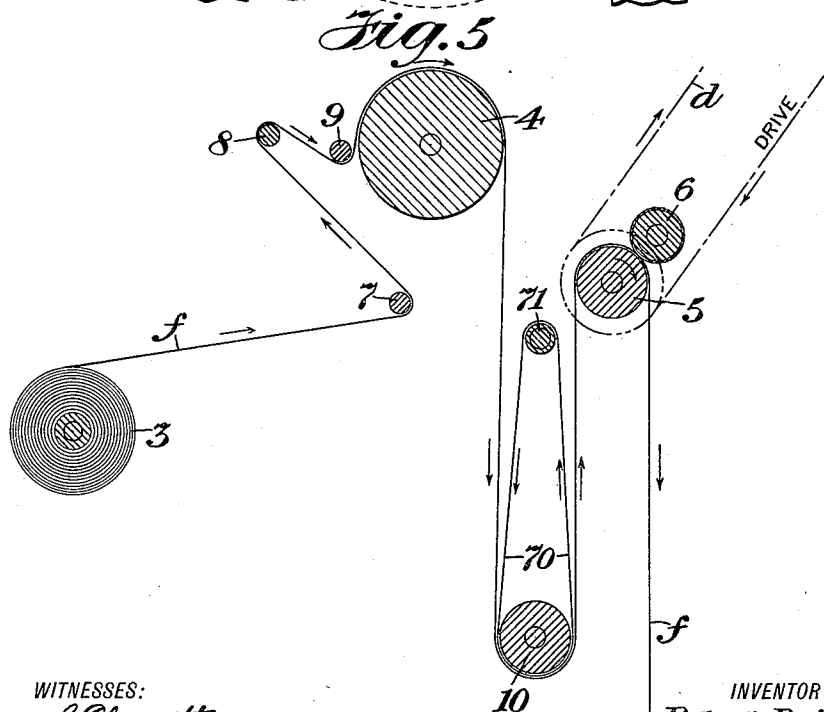
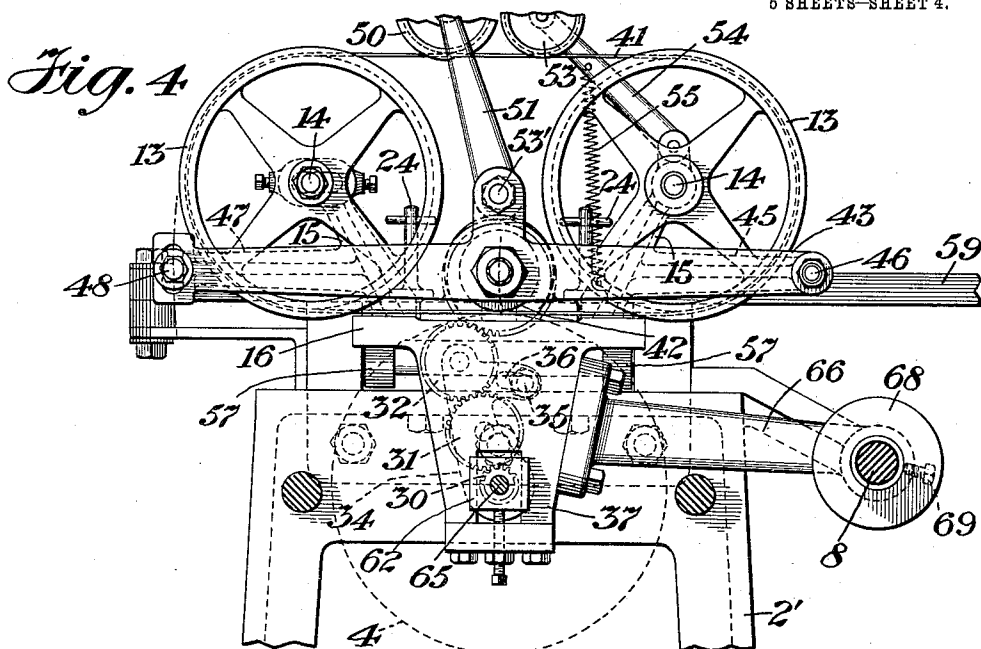
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6 SHEETS—SHEET 4.



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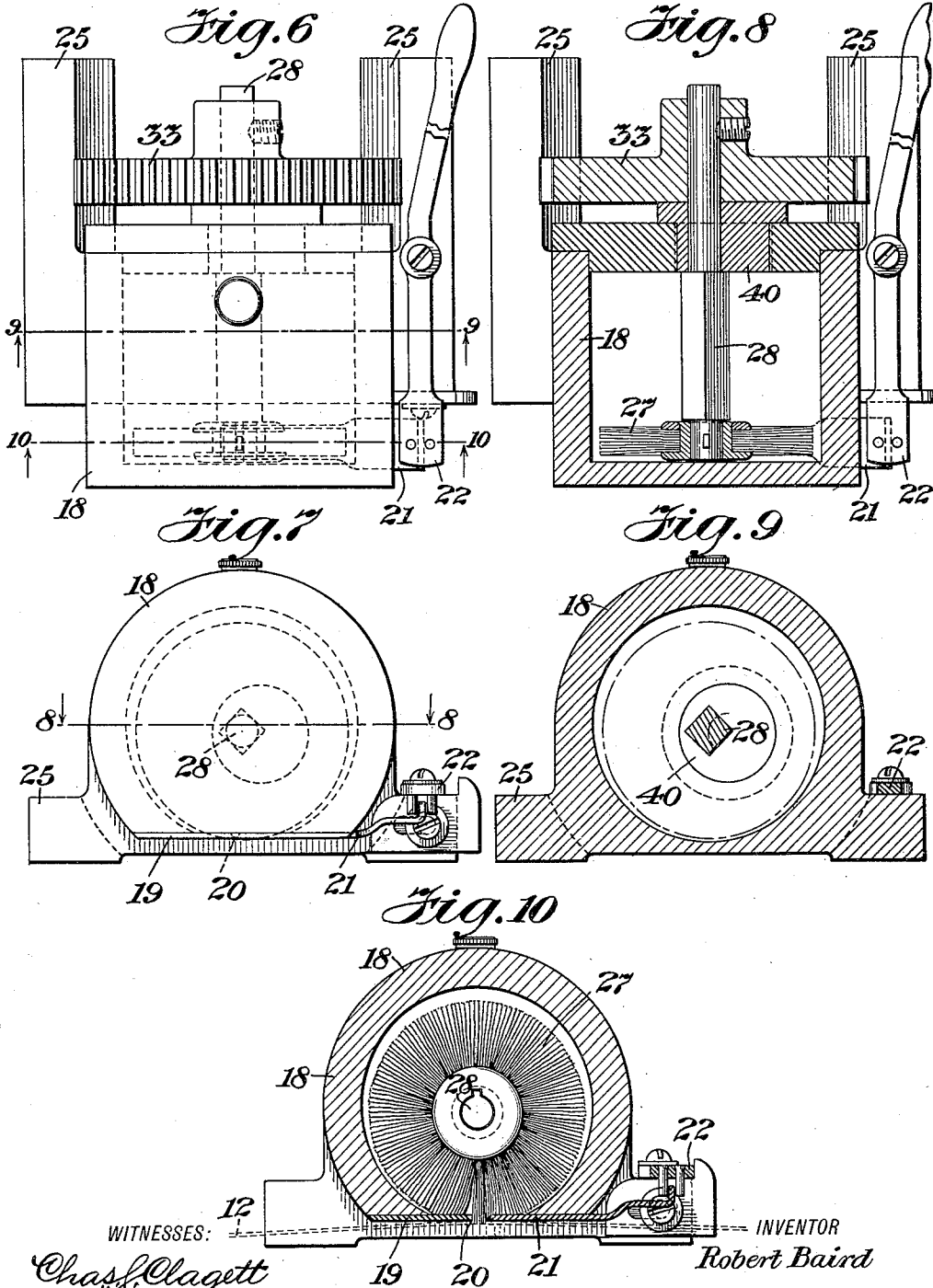
FLOOR

R. BAIRD.
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APPLICATION FILED JUNE 9, 1911.

1,055,597.

Patented Mar. 11, 1913.

5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

ROBERT BAIRD, OF MONTCLAIR, NEW JERSEY.

SELVAGE-PRINTING MACHINE.

1,055,597.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed June 9, 1911. Serial No. 632,154.

To all whom it may concern:

Be it known that I, ROBERT BAIRD, a subject of the King of Great Britain, and resident of Montclair, 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.

This invention relates to printing machines, and particularly to a printing machine of the type disclosed in Letters Patent No. 1,002,624, issued to me Sept. 5, 1911, which is adapted to print on the selvage or edge of fabrics the name or other distinguishing trade-mark of the manufacturer, and to do which with a clear and distinct impression on all classes of goods, such as those formed with a loose weave or with any considerable nap, the machine is adapted to employ a heavy pigment or bronze ink which is applied to the fabric selvage by means of a stencil member having stencil openings therein representing the desired name or mark, or both, through which openings the ink is applied onto the surface of the fabric selvage. This stencil member in my said prior machine is supported with its working run in position for contact with the fabric to be printed, and, in order to assure the same speed of movement of both the stencil and fabric during the printing operation whereby relative movement between the same such as might result in a blurred or indistinct impression will be avoided, the stencil member is adapted to be moved by and with the fabric which is drawn or fed through the machine by a suitable feeding means.

As 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 or edge thereof will feed through the machine in an irregular or crooked line instead of in a straight line. To accommodate this irregularity in the path of movement of the selvage through the machine and provide for the proper coöperation therewith of the printing mechanism, the stencil member and co-acting inking means of my said prior machine are supported in a manner to permit

of their being freely shifted in a direction transversely to the direction of feed of the fabric so as to follow any irregularity in the path of movement of the selvage.

My present invention has for its principal object to improve the mechanical construction and organization of certain of the parts constituting the machine of my aforesaid patent, with the end in view of increasing the general efficiency and commercial practicability of the machine.

The improvements embodied in the present machine over the old machine as disclosed in my aforesaid patent, relate mainly, first, to the provision of means for rendering the bed-roll of the printing mechanism shiftable with the coöperating stencil member when it is shifted or adjusted laterally to follow any irregularity in the path of movement of the fabric selvage through the machine, whereby the position of the stencil member and the fabric selvage relatively to each other at such time may be more positively assured; second, to the provision of a single member within the ink reservoir, preferably in the form of a brush, so adapted as to perform the several functions of stirring the ink within the reservoir, preventing undue accumulation of ink on the walls of the reservoir adjacent the outlet thereof, feeding the ink through the outlet of the reservoir onto the stencil, and pressing the ink through the openings of the stencil onto the selvage, which were performed in the old machine by several members; third, to the provision of means for adjusting the stencil drive-belt relatively to the coöperating bed-roll independently of the stencil in order to permit of the pressure of said stencil against the wall of the ink-reservoir being relieved whereby wear of the same may be lessened and its time of use increased accordingly; and fourth, to the provision of means for removing, preferably by absorption, any surplus ink from the fabric following the printing operation and prior to the fabric being rolled, whereby liability of the imprint being blurred or rendered indistinct by contact with other portions of the fabric upon the rolling of the latter will be avoided.

These and other features of my invention will be hereinafter described in detail and

claimed and are illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of a printing machine embodying my invention. Fig. 2 is an enlarged front side elevation of the upper part of the machine, partly broken away and in section, taken from the left of the machine as viewed in Fig. 1. Fig. 3 is a top plan of the right-hand end of the machine as viewed in Fig. 2, which end I term the "operator's end", as it is the end where the printing mechanism is located and where the operator stands to control the machine and the feeding of the fabric therethrough. Fig. 4 is a section on line 4—4 of Fig. 2 looking in the direction indicated by the arrows, with the bed-roll indicated in dotted outline. Fig. 5 is in the nature of a diagrammatic view, illustrating the passage of the fabric through the machine and the several members for directing and controlling its passage. Fig. 6 is a top plan view of the ink reservoir and certain associated parts. Fig. 7 is an end elevation of the same. Fig. 8 is a horizontal cross-section taken on the line 8—8 of Fig. 7, showing the brush within the reservoir, its supporting and operating shaft, and the adjustable eccentric bearing in the end wall of the reservoir for said shaft. Fig. 9 is a vertical cross-section taken on the line 9—9 of Fig. 6, showing the eccentric bearing for the brush shaft in elevation. Fig. 10 is a vertical cross-section taken on the line 10—10 of Fig. 6, showing the ink-outlet of the reservoir open and the brush projecting therethrough onto the stencil, which latter is shown by dotted lines. Fig. 11 is a bottom plan of the ink-reservoir with the ink-outlet open. Fig. 12 is an enlarged sectional detail showing the connection between one end of the bed roller and the shiftable frame which directly carries the printing mechanism. Fig. 13 is a detail view illustrating the support of the stencil member. Fig. 14 is an enlarged section of the stencil member.

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

The main supporting frame upon which the several cooperating 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. Mounted upon this frame are suitable means for guiding and feeding the fabric through the machine, the fabric, indicated at *f*, being led from a suitably supported supply-roll 3 at the front side of the machine to a bed-roller 4 where it is acted upon by the printing means, and from thence to a pair of feed rolls 5 and 6 which operate to draw or feed the fabric through the machine. During such passage through the machine the fabric preferably will be passed about a number of tension-rods 7, 8

and 9, in advance of its reaching the bed-roller 4, and be passed beneath a roll 10 after leaving said bed-roller, which said rods and roll are so arranged relatively to said bed-roller as to cause the fabric to pass over the latter and through the machine under proper tension.

The feed-roll 5 as here shown is adapted to be driven from a suitable source of power (not shown) by a drive belt *d*, and its cooperating presser roll 6 is carried by a pivoted lever 11 whereby it may be raised from its position of cooperation with the roll 5 whenever it is desired to stop feeding of the fabric. This particular form of feeding device however, while especially desirable for the purpose, may be substituted by any other suitable one if so desired.

The printing mechanism, being specially adapted in the present case to print only one selvage or edge of the fabric passing through the machine, is located at one side of the latter and is here shown as being mounted on the side frame 2'. This printing mechanism includes a stencil member 12, in the form of an endless band, which is mounted on two pulley wheels 13, 13, with its lower horizontal run in position for contact with the selvage or edge of the fabric as it passes over the bed-roller 4. The said stencil supporting pulley wheels 13, 13, are shown in the present case as being journaled on stud shafts 14, 14, carried at the upper ends of bracket arms 15, 15, which are attached at their lower ends to a bed-plate 16 having a horizontally slidable connection (for a purpose to be hereinafter described) with a horizontally-arranged bracket support 17 secured to the upper end of the frame 2'.

The inking means for co-acting with the stencil member to supply ink thereto comprises an ink-reservoir 18 connected to the bed-plate 16 with that end of its lower wall 19 containing the ink-outlet 20 projecting beyond said bed-plate and extending into direct contact with the upper or ink-receiving side of the lower working 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 21 mounted in a suitable way in the outlet containing wall, which slide may be operated to either open or close the outlet by means of a pivoted operating lever 22 connected therewith, as clearly shown in Figs. 6 to 10 inclusive. By having the ink-outlet containing wall of the ink-reservoir in direct contact with the stencil, the ink, when permitted to feed or discharge by gravity through the outlet onto the stencil, will be confined by 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.

The ink-reservoir may be connected to the movably-supported plate 16 for movement therewith in any suitable manner, the same as here shown being detachably connected thereto within a counter-sunk seat 23 by suitable clamping devices 24, 24, carried by the bed-plate and engaging lateral base flanges 25, 25, of the reservoir, as most clearly shown in Figs. 3 and 4.

By reason of the semi-liquid condition of the ink employed, which does not permit of its flowing freely through the pattern openings of the stencil member, it is necessary that some means should be provided for forcing or pressing the ink through said openings. In the machine of my aforesaid patent, a presser was provided for this purpose in the form of a pivoted dog supported within the ink-reservoir with its lower end adapted, when in use, to project at an incline through the ink-outlet into operative ink-pressing engagement with the stencil. In the present case, however, I provide a circular brush 27 which is supported within the ink-reservoir on a shaft 28 with its lower peripheral edge in close contact with the lower wall of the reservoir adjacent the ink-outlet thereof whereby the ends of its bristles will project through said outlet, when the shut-off slide is opened, into pressing engagement with the stencil, as shown in Fig. 10. This brush is adapted to be rotated by suitable means during the operation of the machine, and when so rotated, it will operate to positively feed the ink from the reservoir through the outlet thereof and onto the stencil, where the pressing action of the brush will operate to force the ink through the stencil openings onto the fabric. In order to make this pressing action of the brush most effective, it has been found in practice that the brush should be rotated to move in the same direction as that of the cooperating run of the stencil member but at a less rate of speed than the latter in order to act with a wiping action thereon. The brush is therefore operated accordingly and may be so operated by any suitable means. The means employed in the present case comprise a train of gears 30, 31, 32, and 33, leading from the bed-roller 4, which in this case serves as a driver, to the brush-carrying shaft 28 journaled in an end wall of the ink-reservoir, as most clearly shown in Figs. 1, 2 and 4. As a means to permit of adjustment of the bed roller relative to the ink-reservoir, and also of the brush 27 relative to said bed roller, for purposes to be hereinafter referred to, the intermediate gears 31 and 32 are mounted on an adjustable support in the form of a plate 34 which is pivotally mounted on the bed roller journal and secured in adjusted position by means of a headed clamping screw 35 engaging the same through an elongated opening 36 therein, the

said clamping screw being connected with a depending hanger bracket 37 rigidly attached to the under side of the slidably supported bed-plate 16, with which hanger bracket the bed-roller 4 is also connected at one end.

That wall of the ink-outlet toward which the stencil feeds, operates on the stencil as a scraper because of which the ink would ordinarily have a tendency to accumulate and harden on said wall. Possibility of this is avoided in the present case however by reason of the action of the rotating brush 27, which continuously moves over said wall and prevents undue accumulation of the ink thereon; in fact, the continued rotary action of the brush during operation of the machine serves to keep the ink within the reservoir thoroughly stirred and mixed and prevents undue accumulation or hardening of the same at any point therein.

As a means to take up wear of the brush caused by contact with the lower wall of the ink reservoir, and maintain its proper adjustment relative to said wall and also to the stencil member with which it coöperates, the brush carrying shaft 28 is journaled in an eccentric bearing member 40 adjustably mounted in an end wall of the ink-reservoir, as clearly shown in Figs. 6 to 9 inclusive, whereby, upon turning said eccentric member in the proper direction the brush may be raised or lowered as desired; the said eccentric being adapted to be maintained in adjusted position by an engaging set screw (not shown) mounted in the wall of the ink reservoir. Such adjustment of the brush and its shaft is permitted by the adjustment of its driving gears 31 and 32 hereinbefore referred to.

The stencil member, as hereinbefore stated, is supported with its lower working run in position for engagement with the fabric and is adapted to be fed by the latter for movement in unison therewith, whereby clear and distinct printing will be effected. Such movement of the stencil may be, and to a certain extent is, effected by the engagement of the moving fabric therewith, but in order to more positively assure the feeding of the stencil in complete unison with the fabric, I mount a drive belt 41 on the pulley wheels 13, 13, with its lower run held in close contact with the moving fabric by means of a presser wheel 42, whereby it will be operated by said moving fabric to impart driving movement to the pulley wheels and supported stencil member.

The stencil member being in the form of an extremely thin metallic band is liable to undue wear and breakage by reason of its frictional engagement with the under side of the ink-reservoir if held too closely thereagainst by the coöperating bed-roller 4 and interposed fabric, and for such reason I

have mounted the drive-belt presser-wheel 42 on a vertically adjustable support 43 whereby a closer working relation may be maintained between the bed-roller and said presser-wheel, between which the drive-belt passes, than is maintained between said bed-roller and the under wall of the ink-reservoir, between which the stencil passes. In this way a desired working engagement may be effected between the drive-belt and the moving fabric without causing undue-pressure of the stencil member against the under side of the ink-reservoir. The adjustable support for the presser-wheel 42 may be formed and mounted in any desired way, the same in the present case comprising an arm having the presser-wheel connected thereto about midway between its ends and being pivoted at one end to an extension 45 of one of the bracket arms 15 at 46, and at its opposite end having a vertically adjustable connection with an extension 47 of the second bracket arm 15 by means of an adjusting screw 48 engaging one part through an elongated slot in the other part, as shown in Figs. 3 and 4.

In order to further relieve the stencil member from undue frictional engagement with the lower wall of the ink-reservoir, the stencil supporting wheels 13, 13, are supported with their lower sides in a plane slightly below that of the lower or outlet-containing wall of the ink-reservoir whereby the lower run of the stencil will be deflected away from said wall at either side of its point of contact therewith as caused by the bed-roller 4, as shown in Fig. 10; the said lower run of the stencil being deflected upward between its ends for contact with the lower wall of the ink-reservoir by the bed-roller 4 as indicated in Fig. 13, wherein the dotted line indicates the straight line from which the stencil is deflected. In this way wear on the movable stencil member caused by its contact with the lower stationary wall of the ink-reservoir is reduced to a minimum.

As a means to properly regulate the tension of the stencil band and its drive-belt, adjustable tension wheels are provided for engaging said parts; the wheel for engaging the drive belt, indicated at 50, being carried by an arm 51, which is pivoted at its lower end to the presser-wheel support 43 and secured in adjusted position by a clamping device or screw 53', and the wheel for engaging the stencil band, indicated at 53, being carried by an arm 54 which is pivoted to one of the bracket arms 15 and yieldingly held in operative position by a suitable spring, such as indicated at 55 (see Fig. 4).

The bed-plate 16 with the connected bracket arms 15, 15, at the upper side thereof and the connected bracket-hanger 37 at the under side thereof constitutes what I term a "secondary frame," which has a slid-

able connection with the main frame for movement in a direction lengthwise of the bed-roller 4 and transversely to the direction of feed of the fabric through the machine; movement of said frame being facilitated by the provision of anti-friction rolls 57 on the support 17 for engaging with the bed-plate 16 at the upper and under sides thereof as shown. Supported by this secondary frame for movement therewith is the printing mechanism composed of the stencil member, stencil inking means and the bed-roller, with other associated parts as hereinbefore described, whereby said 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 59 pivoted at one end to the main frame at 60 and connected at a point between its ends to the bed-plate 16 serving as a convenient means to enable the operator to shift or adjust the position of the printing mechanism as required.

In my aforesaid patent, the bed-roller was not described as being laterally shiftable with the other elements of the printing mechanism. It is obviously desirable, however, that it should be in view of its hereinbefore described coöperation with the stencil and drive belt, such lateral movement of the bed-roller and stencil with respect to the web itself taking place gradually as the web advances rapidly between the same and therefore being effected without causing any blurring of the imprint. Said bed-roller in the present case is mounted in vertically adjustable journal boxes 62, 62, in order that it may be adjusted to support the lower run of the stencil member in proper operative relation to the lower wall of the ink-reservoir; one of said journal boxes being connected with the bracket-hanger 37 and the other with the end frame 2, as shown in Fig. 2. The connection of the bed-roller with the bracket-hanger 37 is of course such as to cause it to move endwise with said hanger upon any lateral shifting of the secondary frame, it being so connected in the present case by means of a nut 63 threaded on the outer end of the roller journal and operating to hold a shoulder 64 at the opposite end of said journal up against the journal box, in the manner clearly shown in Figs. 2 and 12. The journal 65 at the opposite end of the roller is made sufficiently long for endwise sliding movement in its journal-box to permit of any desired endwise movement of the roller, also as clearly shown in Fig. 2.

Attached to the bracket hanger 37 of the secondary frame is a forwardly projecting arm 66 having at its forward or outer end a sleeve 67 in which is adjustably fitted the hub of a so-called "indicator" 68 secured in position by a set-screw 69. This indica-

tor, which is here shown in the form of a collar surrounding the tension rod 8, is located in advance of the printing mechanism in line with the outer edge of the stencil (see Figs. 2 and 3) and serves as a means to indicate to the operator the irregularity in the line of the selvage in advance of the latter reaching the stencil whereby the operator may more readily and accurately determine the direction in which the printing mechanism should be shifted to follow the line of the selvage.

In some classes of fabrics the selvage is more loosely woven than the body of the fabric. In such case, when the fabric is passed between a bed-roller of uniform diameter and a cooperating drive-belt and stencil member, the selvage, by reason of its increased length, will have a tendency to plait or fold when passing between the roller and stencil and so prevent clear and uniform printing. I have found in practice however that by making that portion of the bed-roller which cooperates with the stencil member of slightly greater diameter than that portion which cooperates with the drive-belt, as shown in Fig. 2, it will compensate for the described difference between the body of the fabric and the selvage thereof and assure passage of the selvage between the roller and stencil in a smooth and unwrinkled condition. As here shown, such portion of the bed-roller is provided with a yielding surface, preferably formed of rubber as in my aforesaid patent.

After the fabric has been printed, it is desirable that any superfluous ink should be removed therefrom prior to the folding or rolling of the fabric in order to prevent blurring of the imprint. This is accomplished in the present case by passing the fabric selvage over a suitable ink-absorbing device, here shown in the form of an endless linen belt 70 passing about the roll 10 and a second roll 71 for engagement with the selvage at a point between the printing mechanism and the feeding device, as clearly shown in Figs. 1 and 5.

While I have described my improved printing machine as adapted to print the edge or selvage of fabrics, it will be obvious that the same may be adapted for printing fabrics or similar goods at any point between the edges thereof.

What I claim is:—

1. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a bed mem-

ber over which the web passes in its feeding movement.

2. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a rotary bed member over which the web passes in its feeding movement.

3. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a bed member and a cooperative printing member between which the web passes in its feeding movement.

4. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a bed member and a cooperating printing member between which the web passes in its feeding movement and both of said members having a movement in the direction of feed of the web.

5. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a bed member and a cooperative printing member between which the web is engaged and passed in its feeding movement and both of said members having a movement in the direction of feed of the web.

6. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed

of the web during feeding movement of the latter, said mechanism including a bed member and a coöperative endless stencil member between which the web passes in its feeding movement.

7. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, said mechanism including a rotary bed member and a coöperative endless stencil member between which the web passes in its feeding movement and both of said members having a movement in the direction of feed of the web and both being moved by the latter.

8. In a machine of the class specified and in combination, a main frame provided with a bearing, web feeding means, a web printing mechanism including a bed member and a coöperative printing member between which the web passes in its feeding movement, and a secondary frame supporting said mechanism and being movably mounted in said bearing so that the supported printing mechanism can be freely reciprocated in a direction transverse to the direction of feed of the web during feeding movement of the latter.

9. In a machine of the class specified and in combination, a main frame provided with a bearing, web tension devices and a web feeding means both mounted thereon, a web printing mechanism including a rotary bed member and a coöperative endless stencil member between which the web passes in its feeding movement, a secondary frame supporting said printing mechanism and being slidably mounted in said bearing so that the supported printing mechanism can be freely reciprocated in a direction transverse to the direction of feed of the web during feeding movement of the latter, and operating means for so shifting said secondary frame.

10. In a machine of the class specified and in combination, a main frame, web feeding means, a web printing mechanism, a secondary frame supporting said printing mechanism and being slidably mounted on the main frame for shifting the supported printing mechanism in a direction transversely to the direction of feed of the web during feeding movement of the latter, and a bed member constituting a part of the printing mechanism slidably supported at one end by the main frame for movement in a longitudinal direction and at its opposite end being connected with the secondary frame to be supported and moved thereby for the purpose set forth.

11. In a machine of the class specified and in combination, a main frame, web feeding means, a web printing mechanism, a secondary frame supporting said printing mechanism and being slidably mounted on the main frame for shifting the supported printing mechanism in a direction transversely to the direction of feed of the web during feeding movement of the latter, and a rotary bed member constituting a part of the printing mechanism slidably supported at one end by the main frame for movement in a longitudinal direction and at its opposite end being connected with the secondary frame to be supported and moved thereby for the purpose set forth.

12. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, and an indicator located in position forward of the printing mechanism and being connected to and reciprocable with the latter.

13. In a machine of the class specified and in combination, a frame provided with a bearing, web feeding means, a web printing mechanism provided with a supporting member, said supporting member being slidably mounted in said bearing to render the printing mechanism freely reciprocable in a direction transverse to the direction of feed of the web during feeding movement of the latter, and an indicator located in position forward of the printing mechanism and being adjustably connected to and reciprocable with the latter.

14. In a machine of the class specified and in combination, a main frame having a stationary tension and guide-rod, web feeding means, a web printing mechanism, a secondary frame supporting said printing mechanism and being slidably mounted on the main frame for shifting the supported printing mechanism in a direction transversely to the direction of feed of the web during feeding movement of the latter, and an indicator located in position adjacent to said tension rod and forward of the printing mechanism and being connected to and shiftable with said secondary frame.

15. In a machine of the class specified and in combination, a stencil member, a printing mechanism embodying an ink reservoir having a gravity feed ink outlet to feed ink to said stencil member, combined ink stirring and feeding means in said reservoir, said means adapted to project through the outlet, and means to impart rotary movement to said ink stirring and feeding means.

16. In a machine of the class specified and in combination, a stencil member, a printing mechanism embodying an ink reservoir having a gravity feed ink outlet in the bottom portion thereof to feed ink to said stencil member, and a combined rotary ink stirring and feeding brush located within said reservoir in contact with its wall adjacent the outlet thereof.
17. In a machine of the class specified and in combination, a stencil member, a printing mechanism embodying an ink reservoir having a gravity feed ink outlet in the lower portion thereof to feed ink to said stencil member, a circular brush supported within the ink reservoir with a part of its peripheral edge projecting through the ink outlet, and means imparting rotary movement to said brush.
18. In a machine of the class specified and in combination, a stencil member, a printing mechanism embodying an ink reservoir having a gravity feed ink outlet in the lower portion thereof to feed ink to said stencil member, a brush supported within the ink reservoir in contact with that wall thereof containing the ink outlet and with a part thereof projecting through said outlet, and means imparting movement to said brush.
19. In a machine of the class specified and in combination, a stencil member, a printing mechanism embodying an ink reservoir having a gravity feed ink outlet in the lower portion thereof to feed ink to said stencil member, a brush eccentrically supported within the ink reservoir so that a portion of said brush will be in contact with that wall of the reservoir which contains the ink outlet, and means to impart movement to said brush.
20. In a machine of the class specified and in combination, a stencil member, a printing mechanism including an ink reservoir having a gravity feed ink outlet to feed ink to said stencil member, a brush eccentrically mounted within the ink reservoir in contact with that wall thereof containing the ink outlet, means imparting movement to said brush, and means to change the eccentricity of the brush with reference to the ink reservoir.
21. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, an ink presser supported within the ink-reservoir and adapted to project through the ink-outlet into contact with the stencil member, and means imparting movement to said presser during feeding movement of the stencil.
22. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, an ink presser supported within the ink-reservoir and adapted to project through the ink-outlet into contact with the stencil member, and means imparting movement to said presser during feeding movement of the stencil and at a different rate of speed than that of the latter, for the purpose set forth.
23. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, an ink presser supported within the ink-reservoir and adapted to project through the ink-outlet into contact with the stencil member, and means imparting movement to said presser during feeding movement of the stencil and at a less rate of speed than that of the latter, for the purpose set forth.
24. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a brush supported within the ink-reservoir with a part thereof projecting through the ink-outlet into contact with the stencil member, and means imparting movement to said brush during feeding movement of the stencil and at a different rate of speed than that of the latter, for the purpose set forth.
25. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a brush supported within the ink-reservoir with a part thereof projecting through the ink-outlet into contact with the stencil member, and means imparting movement to said brush during feeding movement of the stencil and at a less rate of speed than that of the latter, for the purpose set forth.
26. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a circular brush supported within the ink-reservoir with a part of its peripheral edge projecting through the ink-outlet into contact with the stencil member, and means imparting rotary movement to said brush during feeding movement of the stencil.
27. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a circular brush supported within the ink-reservoir with a part of its peripheral edge projecting through the ink-outlet into contact with the stencil member, and means imparting rotary movement to said brush during feeding movements of the stencil and at a less rate of speed than that of the latter.

28. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a circular brush supported within the ink-reservoir with a part of its peripheral edge projecting through the ink-outlet into contact with the stencil member, and means imparting rotary movement to said brush in the same direction of movement as that of the stencil.

29. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a circular brush supported within the ink-reservoir with a part of its peripheral edge projecting through the ink-outlet into contact with the stencil member, and means imparting rotary movement to said brush in the same direction of movement as that of the stencil and at a less rate of speed than that of the latter.

30. In a machine of the class specified and in combination, a movable stencil member, feeding means therefor, an ink-reservoir having an ink-outlet opposite said stencil member, a brush supported within the ink-reservoir in contact with that wall thereof containing the ink-outlet and with a part thereof projecting through said outlet into contact with the stencil, and means imparting movement to said brush during feeding movement of the stencil.

31. In a machine of the class specified and in combination, a movable stencil member, a bed roller coöperative therewith, an ink-reservoir having an ink-outlet opposite said stencil member, a brush supported within the ink-reservoir in contact with that wall thereof containing the ink-outlet and with a part thereof projecting through said outlet into contact with the stencil, and means imparting movement from said bed-roller to said brush.

32. In a machine of the class specified and in combination, a stencil member, a printing mechanism including an ink-reservoir having a gravity-feed ink-outlet opposite said stencil member, a brush located within the ink-reservoir, in contact with that wall thereof containing the ink-outlet to force the ink through said outlet to said stencil member, means imparting movement to said brush during operation of the machine, and means for adjusting the position of the brush relatively to that wall of the ink-reservoir with which it contacts.

33. In a machine of the class specified and in combination, a printing mechanism including a stencil member and an ink-reservoir having an ink-outlet opposite said stencil member, means located and operative within said ink-reservoir to force the ink to and through its outlet and onto the stencil

member, and means for so operating said means within the ink-reservoir during operation of the machine.

34. In a machine of the class specified and in combination, a printing mechanism including a stencil member and an ink-reservoir having an ink-outlet opposite said stencil member, a brush located and operative within said ink-reservoir to force the ink to and through its outlet and onto the stencil member, and means for so operating said brush within the ink-reservoir during operation of the machine.

35. In a machine of the class specified and in combination, an endless stencil member, feeding means therefor, an ink-reservoir having a flat wall at its under side provided with an ink-outlet, end supports for said stencil supporting the same with one run thereof below the plane of the ink-outlet containing wall of the ink-reservoir, and means engaging said stencil run between its end supports and deflecting the same upward and into contact with the ink-reservoir wall at its outlet, for the purpose set forth.

36. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, and means for adjusting the pressure of the drive belt on the web independently of that of the stencil member.

37. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor, both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, a presser engaging said drive belt independently of the stencil for maintaining engagement of the same with the web whereby it will be driven by the latter, and means for adjusting said presser to regulate the pressure engagement of the drive belt with the web.

38. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor, both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, a presser wheel engaging said drive belt independently of the stencil for maintaining engagement of the same with the web whereby it will be driven by the latter, and an adjustable support for said presser wheel.

39. In a machine of the class specified and in combination, web feeding means, an endless stencil member for engaging the web, pulley wheels supporting said stencil member, inking means co-acting with said stencil member, a feed or drive belt mounted on said pulley wheels for movement in a path at one side of the inking means and adapted to engage with the web to be fed there-

by, and means for adjusting the pressure of the drive belt on the web independently of that of the stencil member.

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

41. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and both being operated by the feeding movement of the web, and means for adjusting the drive belt relatively to the bed member independent of the stencil member.

42. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and the drive belt being operated by the feeding movement of the web, and means for adjusting the drive belt relatively to the bed member independent of the stencil member.

43. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and the drive belt being operated by the feeding movement of the web, a presser engaging said drive belt independently of the stencil for maintaining engagement of the same with the web, and means for adjusting said presser to regulate the pressure engagement of the drive belt with the web.

44. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and the drive belt being operated by the feeding movement of the web, an ink-reservoir having an ink-outlet containing wall in direct contact with the stencil member, and means for adjusting

the drive belt relatively to the bed member independent of the stencil member.

45. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and the drive belt being operated by the feeding movement of the web, an ink-reservoir having an ink-outlet containing wall in direct contact with the stencil member, a presser engaging said drive belt independently of the stencil for maintaining engagement of the same with the web, and means for adjusting said presser to regulate the pressure engagement of the drive belt with the web.

46. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, and means for adjusting the pressure of the drive belt on the web independently of that of the stencil member, and independently adjustable members for engaging with and regulating the tension of the stencil member and drive belt.

47. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, and independently adjustable members for engaging with and regulating the tension of the stencil member and drive belt.

48. In a machine of the class specified and in combination, web feeding means, an endless stencil member and a drive belt therefor both adapted to engage with the web, pulley wheels supporting both said stencil member and drive belt, a presser wheel engaging said drive belt independently of the stencil for maintaining engagement of the same with the web whereby it will be driven by the latter, an adjustable support for said presser wheel, and a drive-belt tension-adjusting member carried by said support.

49. In a machine of the class specified and in combination, web feeding means, a bed member, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed member for engaging an interposed web moved therebetween by the web feeding means and both being operated by the feeding movement of the web, said bed member having surfaces in different planes for cooperation with the stencil member and drive belt respectively, for the purpose set forth.

50. In a machine of the class specified and in combination, web feeding means, a bed

roll, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed roll for engaging an interposed web moved therebetween by the web feeding means and both being operated by the feeding movement of the web, said bed roll being of different diameters at its points of cooperation with the stencil member and drive belt, for the purpose set forth.

10 51. In a machine of the class specified and in combination, web feeding means, a bed roll, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed roll for engaging an interposed web moved therebetween by the web feeding means and both being operated by the feeding movement of the web, said bed roll being of different diameters and of yielding material at its points of cooperation with the stencil member and drive belt, for the purpose set forth.

52. In a machine of the class specified and in combination, web feeding means, a bed roll, an endless stencil member and a drive belt therefor both adapted to cooperate with said bed roll for engaging an interposed web moved therebetween by the web feeding means and both being operated by the feeding movement of the web, said bed roll being of different diameters at its points of cooperation with the stencil member and drive belt, with its portion of greatest diameter opposite the stencil member.

Signed at New York, in the county of New York, and State of New York, this 5th day of June, A. D. 1911.

ROBERT BAIRD.

Witnesses:

CHAS. F. DANE,
K. M. CASSIDY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."