

No. 683,966.

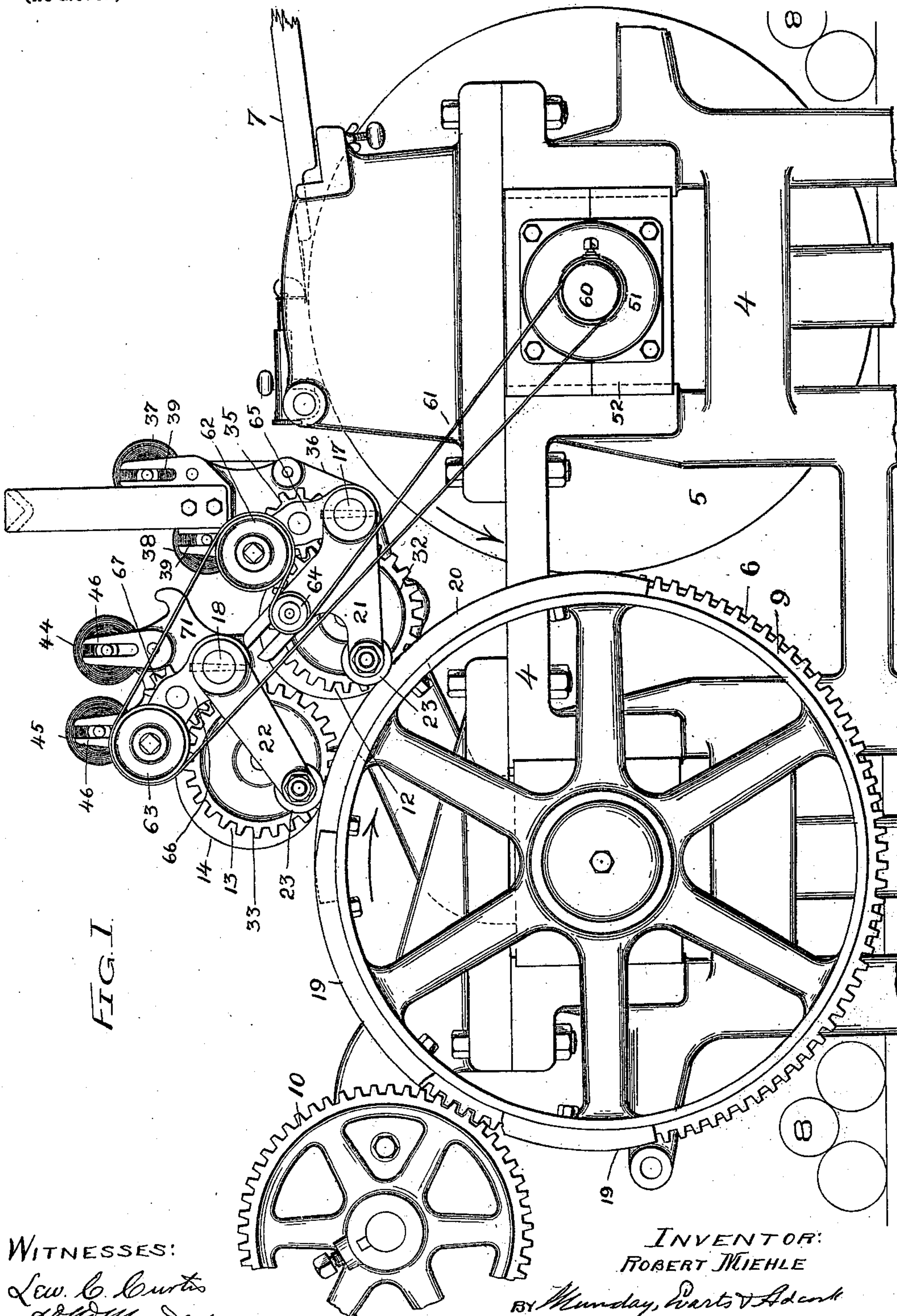
Patented Oct. 8, 1901.

R. MIEHLE.
OFFSET MECHANISM.

(Application filed Jan. 11, 1900.)

3 Sheets—Sheet 1.

(No Model.)



WITNESSES:

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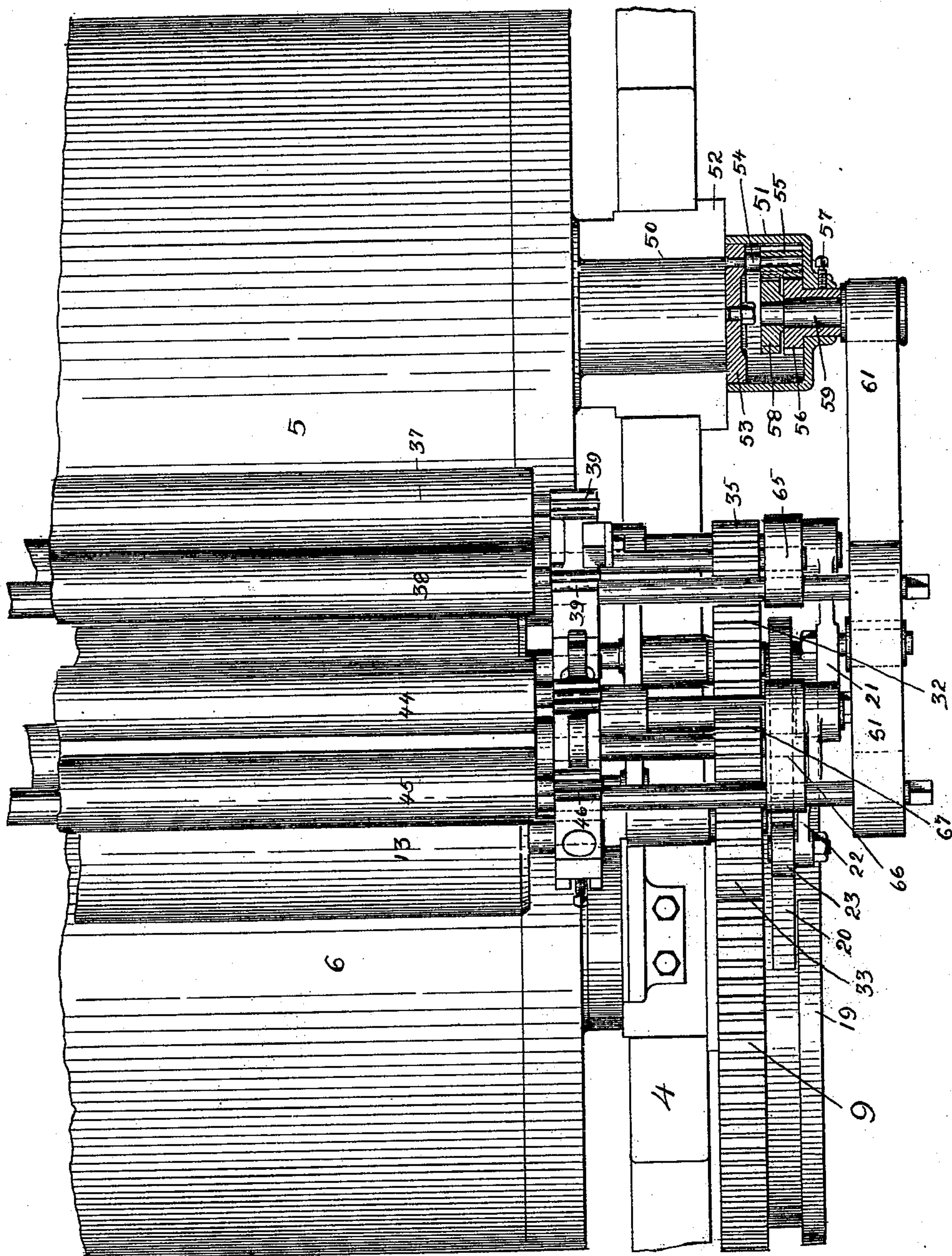
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FIG. 2.

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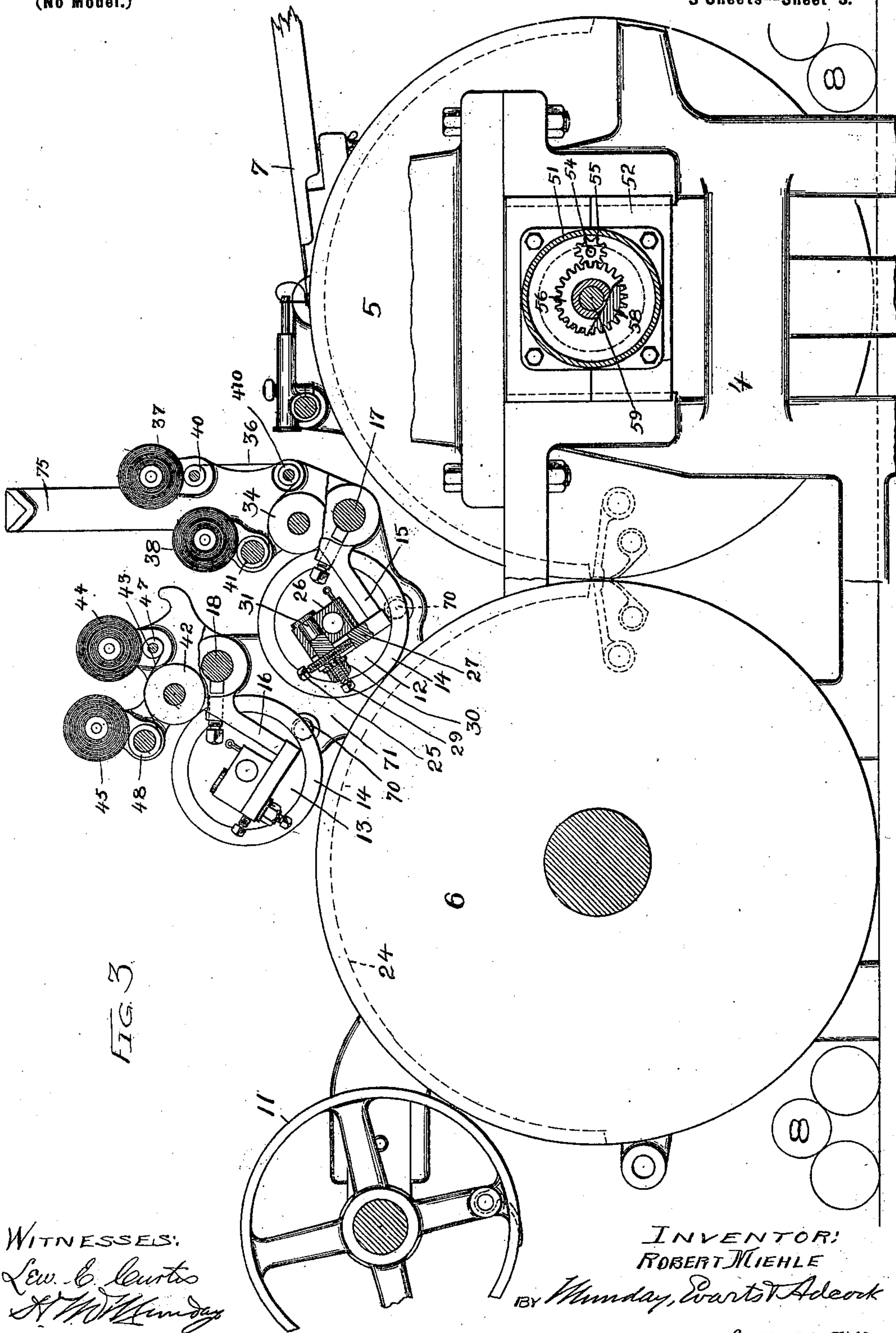
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UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

OFFSET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 683,966, dated October 8, 1901.

Application filed January 11, 1900. Serial No. 1,055. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Offset Mechanism, of which the following is a specification.

My invention relates to apparatus for preventing offset in printing machines or presses.

10 In this improved mechanism I preferably employ two rollers covered with printer's composition or like material for taking up the ink left on the impression-cylinder by the freshly-printed side of the sheet, and
15 these rollers are each adapted by one revolution to clean a portion of the inked surface and are alternately moved into operative position, so that one takes the ink from one portion of the cylinder-surface and the other
20 roller from the other portion thereof. By this feature of construction I avoid bringing any portion of the composition surfaces twice against the cylinder during any one operation, so that such surfaces cannot redeposit
25 on the cylinder any of the ink previously taken therefrom, and I do this by the employment of quite small rollers, each having a circumference equaling a fraction over one-half only of that of the inked impression-surface. By the use of small composition
30 rollers having this relative proportion to the inked impression-surface I am also enabled to give the rollers several complete revolutions between their contact with the impression-cylinder, in each of which revolutions
35 the composition is brought against a cleaning instrumentality, and is thus kept more perfectly free of the ink than would otherwise be possible.

40 My invention also contemplates the use of a transfer roller or rollers turning in contact with the composition roller or rollers, so that the latter will deposit their charges of ink upon the former in combination with cleaning webs of absorbent cloth drawn tightly
45 over the transfer-rolls and acting to wipe the ink therefrom, the webs being provided with operating mechanism for slowly moving them so they may continually present fresh
50 portions of themselves to the transfer-rollers.

The main object of the invention is to provide the composition roller or rollers with more efficient means for finally disposing of the offset ink than have heretofore been used.

The nature of the invention is fully set forth 55 in the description given below and is also illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a plan, of that portion of a two-cylinder press 60 to which my invention is applied, the latter view partly in section; and Fig. 3 is a section portions of which are in different planes.

In said drawings, 4 4 represent portions of the side frame of the press in which the impression or tympan cylinders 5 and 6 are journaled. Of these the cylinder 5 causes the first impression and cylinder 6 the second impression, and consequently the offset mechanism which I shall describe is applied 70 to the latter.

7 is the table for feeding the sheets to cylinder 5, and 8 8 indicate portions of the inking mechanism for inking the forms.

The cylinders 5 and 6 are geared together 75 in the usual manner; but the gears are not shown, as they are located at the farther ends of the cylinders. Cylinder 6 is provided upon the end shown in Fig. 1 with a gear 9, meshing with the gear 10, operating the delivery- 80 cylinder 11.

In proximity to cylinder 6 are two rollers 12 and 13, both faced with printers' composition or like material, as seen at 14. These composition rollers are journaled in swinging arms, those of roller 12 being shown at 15 and supported upon rocking shaft 17, upon which they are rigidly secured, and the roller 13 being journaled in similar arms 16, mounted upon a rocking shaft 18. Said shafts are 90 supported in some stationary part of the press—as, for instance, in uprights 71, projecting from the sides of the main frame. As will be noticed, the rollers 12 and 13 are each adapted to swing down by gravity, so as to 95 bring their own surfaces to bear upon cylinder 6; but they are controlled in this regard by suitable means, preferably consisting of the cam-surfaces 19 and 20, formed upon a rim cast upon or attached to the side of gear 100

9, and arms 21 and 22, projecting from and rigid with the shafts 17 and 18, respectively. Said arms are provided with rollers 23, which ride upon the cams, and the latter, which extend only part way around the rim, act to allow one of the composition rollers to bear upon cylinder 6, while the forward portion of the offset portion of the cylinder is passing, and then to lift that roller out of action and at the same time allow the other roller to come into bearing, so that the latter roller may remove the ink from the remaining portion of the offset-surfaces of the cylinder. In Figs. 1 and 3 I show roller 12 in action and roller 13 out of action. The offset-receiving portion of cylinder 6 is indicated by the broken line 24, and by my construction each of the composition rollers removes the ink from one-half of it. The rollers 12 and 13 are rotated by friction with the transfer-rolls, hereinafter mentioned, and with cylinder 6. The bearings of rollers 12 and 13 are all made adjustable, so that when the press is not in use the rollers may be moved sufficiently to prevent contact between the composition and the cylinder 6, and thus avoid the formation of depressions in the composition. The construction of these bearings is clearly shown in the case of roller 12 in Fig. 3, the screw 25 being the adjusting-screw, 26 the bearing, 27 the slotted base or support for the bearing attached to arm 15, 29 a screw for locking the adjusting-screw, and 30 a nut for the retaining-stud 31. All the bearings are of this construction, and consequently the composition rollers are easily raised sufficiently for the purpose stated.

A transfer-roll 34 bears constantly against composition roll 12 and is driven by a pinion 35, meshing with pinion 32, which in turn meshes with gear 9. It is a plain-surfaced roll, preferably of metal, and the composition roll deposits its ink thereon, and as the composition roll makes several revolutions during a single revolution of the impression-cylinder it will be seen that several opportunities are thus afforded the composition roll to deposit the ink upon this roll 34 before the impression-cylinder charges it with another supply. From the transfer-roll the ink may be removed by any suitable means; but I prefer to employ a web 36 of absorbent cloth or the like, of which 37 is the supply-reel and 38 the take-up reel. The reels 37 and 38 are both journaled in vertical slots, as seen at 39, and rest by gravity on other rollers, the reel 37 on roller 40 and the reel 38 on roller 41, the latter being driven at a very slow speed, as hereinafter described, in order that the web may be continually moving and presenting a fresh wiping-surface to the transfer-roll. The web moves from between the supply-reel and its supporting-roller 40 under a guide-roller 410 at one side of the transfer-roll, thence over the transfer-roll, then under and around roller 41, and onto the take-up reel.

In the case of composition roll 13 there is a similar transfer-roll at 42 and also a similar web at 43, provided with a supply-reel 44 and take-up reel 45, and the reels are journaled in vertical slots 46, and the reels rest by gravity on rollers 47 and 48, and the latter is driven as hereinafter fully explained. The course of web 43 is from reel 44 over and under roller 47, thence over the transfer-roll, under and around the roller 48, and onto the take-up reel.

The slow motion referred to of the wiping-webs may be imparted by any suitable means; but I prefer to employ the mechanism shown and which is constructed as follows: Opposite the end of the journal 50 of impression-cylinder 5 is a casing 51, stationarily secured to the bearing-block 52 of said journal. Inside of this casing and rigidly attached to the end of the journal, so as to rotate therewith, is a plate or disk 53, in which is secured the stub-shaft 54 of a planet-pinion 55, made long but of small diameter. This pinion meshes with a stationary pinion 56, the hub of which extends outwardly through the axial opening in the casing and is held against rotation by the set-screw 57. Pinion 55 also meshes with a moving pinion 58, located at the side of pinion 56 and mounted upon a shaft 59, journaled in the stationary pinion and projecting outwardly beyond the latter, where it carries a pulley 60. Pinion 58 differs from the stationary pinion 56, having a smaller number of teeth, preferably one tooth less, so that the planet-pinion, whose rotation is controlled by the stationary pinion, imparts a very slow rotation to pinion 58. A belt 61 carries power from pulley 60 to pulleys 62 and 63, attached to the driving-rollers 41 and 48, and in order to give the belt the proper bite on pulley 62 it is also passed around an idler 64, located as shown at Fig. 1 and journaled in the arm 21.

The transfer-roll 34 and its companion web-roll 41 are both supported on arms 65, fast to rock-shaft 17, while the transfer-roll 42 and its companion web-roll 48 are supported from rock-shaft 18 by arms 66. Transfer-roll 42 is actuated by the meshing of its pinion 67 with the pinion 33, receiving power from gear 9. Pinions 32 and 33 are suitably supported either in stationary bearings or in bearings moving with the bearings of the transfer-rolls, as preferred. Their movement in the latter case need not be sufficient to destroy their mesh with gear 9.

I prefer to employ stops 70, projecting from the uprights 71, to limit the downward swing of the arms in which the composition rolls are journaled, and these stops are preferably rotatable eccentric rings on pivots or studs, permitting them to be adjusted by turning the rings.

The vertical slots in which the journals of the wiping-web reels are held are formed in the uprights 71 or in appropriate pieces attached thereto. A temporary support for the

reels is formed at the top of posts 75, which is a matter of convenience when putting in and taking out the reels.

I claim—

5 1. In offset mechanism, the combination with the impression-surface, of two alternately-acting composition rolls, each taking up the offset from a separate and distinct portion of the impression-surface, substantially
10 as specified.

2. In offset mechanism, the combination with the impression-surface, of two alternately-acting composition rolls, each taking up the offset from a separate and distinct portion of the impression-surface, and means for
15 bringing said rolls alternately into contact with the impression-surface so that they will act on different portions thereof, substantially as specified.

20 3. The combination with the impression-surface, of a pair of gravitating composition rollers supported on rock-shafts and bearing alternately on the impression-surface, and taking the offset from separate portions thereof, and means for lifting said rollers alternately
25 out of operative position, substantially as specified.

4. The combination with an impression-surface of a composition roller taking the offset
30 from said surface, and movable bodily into and out of contact with the same, and means for moving it out of such contact when it has completed a single revolution in contact therewith, substantially as specified.

35 5. The combination with an impression-surface of a composition roller taking the offset from said surface and movable bodily into and out of contact with the same, means for moving it out of such contact when it has completed a single revolution in contact and
40 cleaning mechanism acting on said roller during the interims between contacts, substantially as specified.

6. The combination with an impression-surface of a pair of alternately-acting composition
45 rollers for removing the offset from said surface, such rollers being each bodily movable into and out of contact with the impression-surface, and means for moving them out
50 of such contact when each has completed a single revolution in contact, substantially as specified.

7. The combination with an impression-surface of a pair of alternately-acting composition
55 rollers for removing the offset from the impression-surface, such rollers being bodily movable into and out of contact with the impression-surface, means for lifting said rollers out of such contact as soon as they complete
60 a single revolution in contact, and means for cleaning said rollers thoroughly during the interims between contacts, substantially as specified.

8. The combination with an impression-surface, of a pair of composition rollers supported

from rock-shafts and adapted to be brought alternately against the impression-surface and take the offset from separate portions thereof, of a pair of cams attached to the impression-surface, and connections whereby
70 the cams cause such alternate action by the rollers, substantially as specified.

9. In offset mechanism, the combination with the impression-surface of two alternately-acting composition rolls, each acting to take
75 up the offset from a separate and distinct portion of the impression-surface, and means for cleaning said composition rolls, substantially as specified.

10. In offset mechanism the combination
80 with the impression-surface, of two alternately-acting composition rolls, each acting to take up the offset from a distinct portion of the impression-surface, offset transfer-rolls in contact with the composition rolls, and
85 means for removing the offset from the transfer-rolls, substantially as specified.

11. In offset mechanism, the combination with the impression-surface, of two alternately-acting composition rolls, each acting to
90 take up the offset from a distinct portion of the impression-surface, offset transfer-rolls in contact with the composition rolls, and moving webs for wiping the offset from the transfer-rolls, substantially as specified.
95

12. In offset mechanism, the combination with the impression-surface, of two alternately-acting composition rolls, each acting to take up the offset from a distinct portion of the impression-surface, offset transfer-rolls
100 in contact with the composition rolls, webs for wiping the offset from the transfer-rolls, and means for moving said webs so that fresh portions thereof will be brought constantly into action, substantially as specified.
105

13. The combination with the impression-cylinder of offset mechanism consisting of a pair of composition rollers movable into and out of contact with the cylinder, offset transfer-rolls, one for each composition roller, and
110 traveling offset-webs, one for each of said transfer-rolls and adapted to wipe or clean the surface thereof, substantially as specified.

14. The combination with the impression-cylinder, of offset mechanism consisting of a
115 pair of alternately-acting composition rollers each of which takes the offset from a separate and distinct portion of the cylinder-surface and is provided with its own cleaning devices, substantially as specified.
120

15. The combination with the impression-cylinder, of offset mechanism consisting of a pair of alternately-acting composition rollers each of which takes the offset from a separate and distinct portion of the cylinder-surface
125 and is provided with its own transfer-roll and offset-web, substantially as specified.

16. In a printing-press, the combination of an impression-surface, a roller for removing offset ink therefrom, and a transfer-roll tak-
130

ing ink from the roller; with a wiper-web, means for holding a portion of said web in contact with the transfer-roll, and mechanism for shifting the web, substantially as described.

17. The combination of an impression surface or cylinder, a composition roll for taking offset ink therefrom, and a transfer-roll taking ink from the composition roll; with a wiper-web for said transfer-roll, means for holding a portion of said web in contact with the transfer-roll, and means for continuously moving said wiper-web past the transfer-roll during the operation of the press, substantially as described.

18. In a printing-press, the combination of an impression cylinder or surface, a composition roller for removing offset ink therefrom, and a hard-surfaced transfer-roll taking ink from the composition roll; with a wiper-web, the web-supports, means for partly bending said web around and holding a portion thereof in contact with the transfer-roller, and means for moving said web oppositely to the movement of the contacting portion of the periphery of the transfer-roll dur-

ing the operation of the press, substantially as described.

19. In a printing-press, the impression cylinder or tympan, and a composition roller for taking the offset from the cylinder or tympan, in combination with a hard, smooth transfer-roll taking the offset from the composition roll, and a continuous web for wiping the ink from the transfer-roll, said web being actuated at a different speed from the transfer-roll, substantially as described.

20. In a printing-press, the impressing cylinder or tympan, and a composition roller for taking the offset from the cylinder or tympan, in combination with a hard, smooth transfer-roll taking the offset from the composition roll, and a continuous web for wiping the ink from the transfer-roll, said web being actuated in a different direction from the peripheral movement of the contacting portion of the transfer-roll, substantially as specified.

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Witnesses:

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