

No. 667,923

Patented Feb. 12, 1901.

A. REID.
PRINTING PRESS.

Application filed Oct. 25, 1900.

(No Model.)

2 Sheets—Sheet 1.

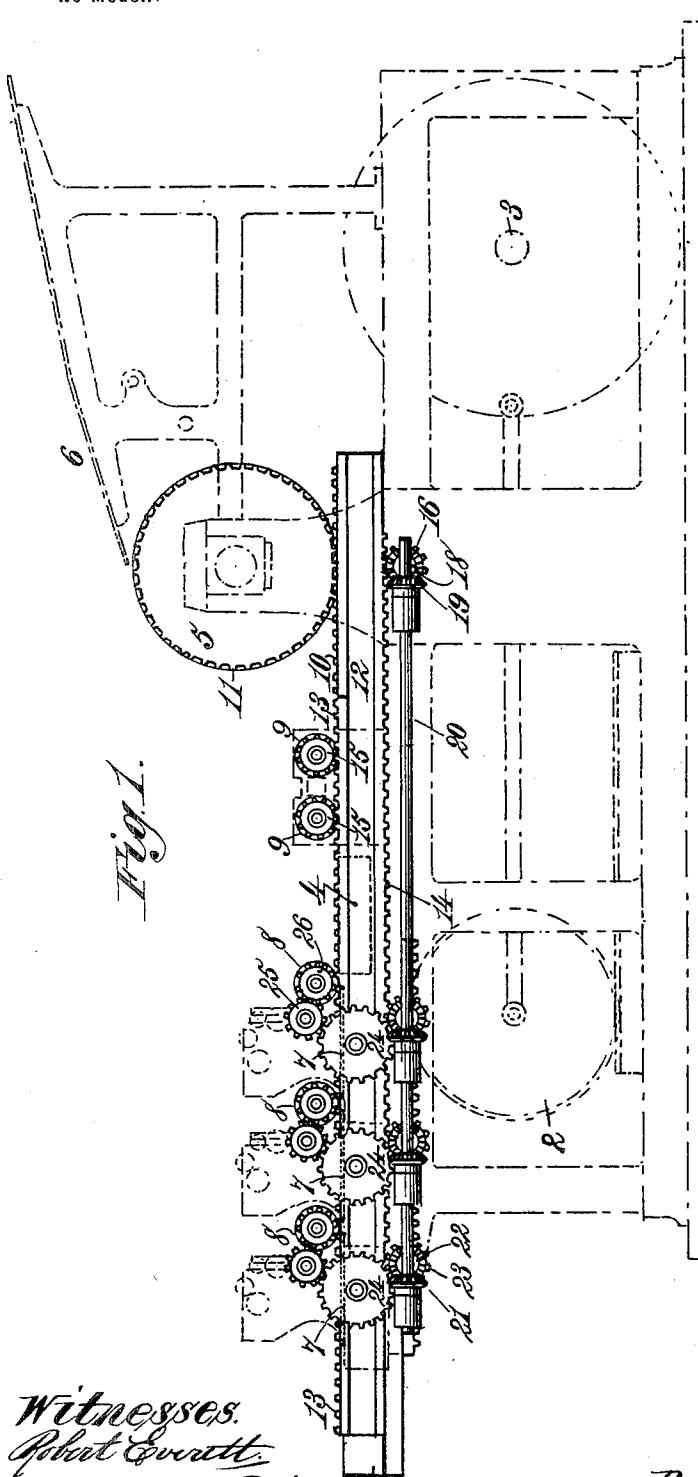


Fig. 1.

Witnesses.
Robert Everett.
Albert Hopkins.

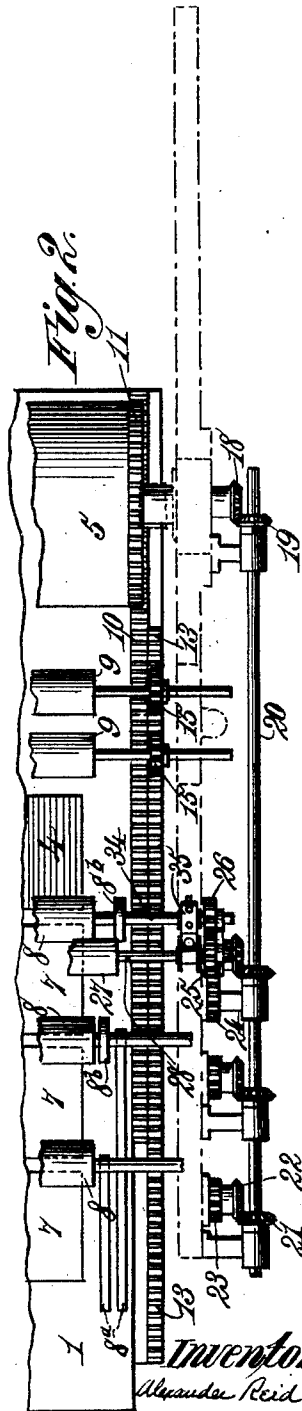


Fig. 2.

Inventor.
Alexander Reid.
By Percy B. Hills
Att'y

No. 667,923.

Patented Feb. 12, 1901.

A. REID.
PRINTING PRESS.

(Application filed Oct. 25, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

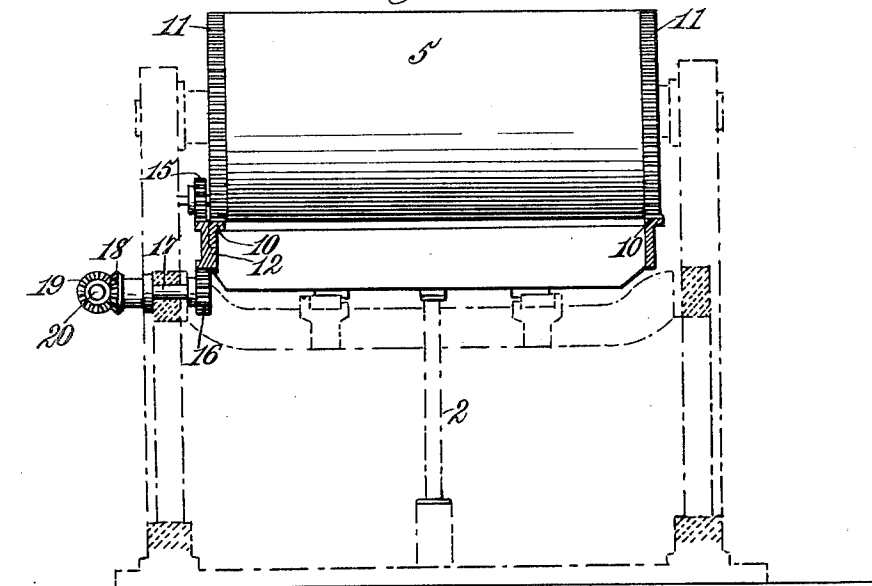


Fig. 4.

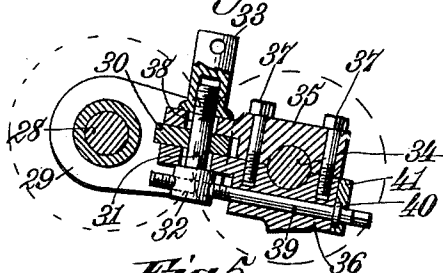
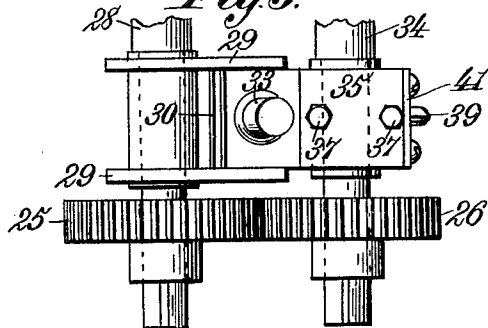


Fig. 5.



Witnesses.

Robert G. Smith.

Albert Hopkins

Inventor.

Alexander Reid

By

Percy B. Hills

Att'y.

UNITED STATES PATENT OFFICE.

ALEXANDER REID, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE
AMERICAN BANK NOTE COMPANY, OF NEW YORK, N. Y.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 667,923, dated February 12, 1901.

Application filed October 25, 1900. Serial No. 34,336. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER REID, a citizen of the United States, residing at Jersey City, in the county of Hudson, State of New Jersey, have invented new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention relates to certain improvements in printing-presses, and more particularly to that type known as "bed-and-cylinder multicolor-presses," and has for its primary object to provide novel means for imparting a reverse rotary movement to the inking-rolls and transfer-rollers direct from the reciprocating bed, so that the various parts will travel or rotate in unison and in absolutely accurate register.

A further object of my invention is to provide novel means for independently adjusting each of the color inking-rolls to or from the supply-roll of its inking-train.

These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a bed-and-cylinder printing-press, showing my improved construction applied thereto, the main portions of the press being shown in dotted outline. Fig. 2 is a top plan view of one side of said press. Fig. 3 is a view of the same, partly in end elevation and partly in vertical section. Fig. 4 is an enlarged detail sectional view of the adjusting means for one of the color inking-rolls, and Fig. 5 a similar top plan view of the same.

Similar numerals of reference denote corresponding parts in the several views.

In the type of machine disclosed in Figs. 1, 2, and 3 of the said drawings the bed 1 is suitably reciprocated by the well-known railroad-gear 2, driven from the power-shaft 3 in any suitable manner, and has mounted thereon a lithographic or typographic printing-surface 4, cooperating with an impression-cylinder 5, to impart the impression to the paper fed from feed-board 6. Also mounted on said bed 1 are in the present instance three color transfer-surfaces 7, each receiving its supply of color from one of the inking-rolls 8, said

rolls being each successively lifted by means of suitable cam-surfaces 8^a on the bed 1 contacting with suitable lifting rollers 8^b thereon to move out of contact with any but its own transfer-surface 7, it being understood that it will not be necessary to lift the last inking-roll 8 to the left, as only its own transfer-surface 7 will pass thereunder during the reciprocation of the bed 1. It will also be understood that the surfaces of said color inking-rolls 8 are to be cut away in predetermined spots, so as to ink only certain predetermined portions of said transfer-surfaces 7, or that said transfer-surfaces 7 may be cut away to constitute the design-surfaces, the inking-rolls 8 in this event being smooth-surfaced. The inks on said surfaces 7 are then successively imparted to the transfer-rollers 9 during the reciprocation of the bed 1 to the right, and from thence are transferred to the design printing-surface 4 during the reciprocation of bed 1 to the left to render the latter ready to impart its impression to the paper, as will be readily understood. All of the above features, however, being old in the art and not forming any part of my present invention, further detailed description of the same is deemed unnecessary. The novel means for imparting the desired reverse rotary movement to the said inking-rolls and transfer-rollers will now be described as follows: In order to rotate the impression-cylinder 5 of this type of press, it has been customary to provide the bed 1 with a suitable rack 10 on each side, adapted to gear with suitable gear-wheels 11, mounted on the ends of said cylinder. Now I preferably cut away the lower portion or web of said gear 10 on one side—say the left side—and bolt thereto a longitudinal bar 12, having a rack 13 on its upper side and another rack 14 on its under side. The said rack 13 is adapted to mesh with gear-wheels 15 on the transfer-rollers 9, and thus reversely rotate the same in unison with the reciprocation of the bed 1, while rack 14 meshes with a pinion 16, mounted on a stub-shaft 17, having its bearing in and passing through the frame of the press and carrying at its outer end a right-angled pinion 18, meshing with a similar pinion 19 on a shaft

20, running longitudinally of the press, as shown. Also keyed to this shaft 20 are a series of angle-pinions 21, corresponding in number to the number of color transfer-rolls 8, each of said pinions 21 meshing with a similar pinion 22, that in turn imparts reverse rotary movement to its color inking-roll 8 through the intermediate train of gearing 23, 24, 25, and 26, it being observed that said motion is also imparted directly to each inking-train through the fact that each gear 25 is mounted on the end of one of the rolls 27 of said trains. It will be understood that, if desired, an intermittent motion in one direction only may be imparted to the impression-cylinder 5 from its rack 10; but as the same is old and well known and forms no part of the present invention detailed illustration of the same is not deemed necessary. From the above description the operation of this portion of my invention will be understood to be as follows: The bed 1 being reciprocated by means of the railroad-gear 2 imparts its motion, preferably intermittent, in one direction only to the impression-roller 5 through the usual racks 10 and gear-wheels 11. Now through upper rack 13 and gear-wheels 15 a rotary motion first in one direction and then in the other is imparted to the transfer-rollers 9, while through the under rack 14, pinion 16, shaft 17, and right-angled pinions 18 and 19 a similar rotation first in one direction and then in the other is imparted to shaft 20, which in turn imparts this reverse rotation to inking-trains through the intermediate gearing heretofore described.

By means of the above-described mechanism the accurate rotation of the inking-rolls 8 and transfer-rollers 9 in a direction corresponding to the direction of movement of the bed 1 is obtained, as well as their accurate register with respect to each other and to the printing-surface 4—a result absolutely necessary in multicolor-printing.

In Figs. 4 and 5 I have illustrated in detail novel mechanism for accurately adjusting each inking-roll 8 to or from the supply-roll 27 of its inking-train, it being understood that the connection between the shafts of said rolls must be a pivotal one in order to permit said roll 8 to be lifted slightly to clear all of the transfer-surfaces 7 except the one it is to ink. Pivotally mounted on the shaft 28 of the roll 27 are two arms 29, connected by a cross-piece 30, through a central aperture in which is adapted to pass a bolt 31, having a head 32 on one end and suitably screw-threaded at its other end to receive a nut 33. The bearing for the shaft 34 of the inking-roll 8 consists of two parts 35 and 36, suitably retained together by bolts 37 and having their inner ends extended to straddle the cross-piece 30, said ends being also apertured at 38 for the passage of the bolt 31, said apertures being large enough to permit a longitudinal movement of said parts 35 and 36 on the cross-piece 30. Passing longitudinally through the

lower bearing 36 of the shaft 8 is a bolt 39, retained against longitudinal movement therein by a collar 40 and inclosing plate 41, suitably bolted to the bearing 36 and having its inner projecting end screw-threaded to engage a screw-threaded aperture in the head 32 of bolt 31, the outer projecting end of said bolt 39 being suitably squared for manipulation, as shown. In operation the parts are assembled and may be retained against possible movement with respect to each other by tightly screwing down the nut 33. When, however, it is desired to adjust the roll 8 with respect to roll 27, the nut 33 is loosened slightly, when by manipulating the screw-bolt 39 a very accurate adjustment of the roll 8 with respect to roll 27 within the limits of the enlarged apertures 38 may be obtained, it being also observed that this mechanism in no way interferes with the pivotal connection between the two rolls. While I have shown and described this feature as applied to the inking-train of a color printing-press, I do not wish to be understood as limiting its application to such specific use, as it may with equal facility be applied to any mechanism where an accurate limited adjustment of two shafts is a desideratum.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-press, the combination with an impression-surface, a reciprocating bed carrying a printing-surface and a plurality of color transfer-surfaces, transfer-rollers, color inking-rolls, and a rack on said bed for imparting motion to said impression-surface, of a longitudinal bar also carried by said bed and having an upper rack for imparting motion to the transfer-rollers and an under rack for imparting similar motion to the color-rolls and their inking-trains, substantially as set forth.

2. In a printing-press, the combination with an impression-surface, a reciprocating bed carrying a printing-surface and a plurality of color transfer-surfaces, transfer-rollers, color inking-rolls, and a rack on said bed for imparting motion to said impression-surface, of a longitudinal bar also carried by said bed, an upper rack thereon for imparting motion to the transfer-rollers, an under rack thereon, a shaft parallel with said bar, gearing intermediate said under rack and a shaft for imparting motion from the former to the latter, and gearing intermediate said shaft and the color-rolls and trains for imparting motion from said shaft to said rolls and trains, substantially as set forth.

3. In a printing-press, the combination with an inking-roll, and its supply-roll, of a bolt connecting the bearing of the one with a projection on the shaft of the other and permitting a limited movement of the one toward or from the other, and a second bolt rotatable in said bearing and having a screw-thread connection with the head of the connecting-

bolt for accurately adjusting the relative position of the two parts, substantially as set forth.

4. In a printing-press, the combination with
5 an inking-roll, and its supply-roll, of a projection pivotally mounted on the supply-roll shaft, a bearing for the inking-roll shaft straddling said supply-roll projection, a bolt connecting the two through apertures permitting
10 a limited movement, and a second bolt rotatable in said bearing and having a screw-thread connection with the head of the connecting-bolt for accurately adjusting the relative position of the two parts, substantially
15 as set forth.

5. In a printing-press, the combination with an inking-roll, and its supply-roll, of a projection pivotally mounted on the supply-roll

shaft, a split bearing for the inking-roll shaft projected to straddle said supply-roll projection, a bolt connecting the two through apertures permitting a limited movement, a nut
20 for said bolt for clamping the parts together, and a second bolt rotatable in said bearing but prevented from longitudinal movement
25 therein and having a screw-thread connection with the head of the connecting-bolt for accurately adjusting the relative position of the two parts, substantially as set forth.

In testimony whereof I have hereunto set
30 my hand in the presence of two subscribing witnesses.

ALEXANDER REID.

Witnesses:

L. B. GREGORY,
D. E. WOODHULL.