3 Sheets--Sheet 1.

G. W. WOODSIDE.

Chromatic Printing-Presses.

No. 134,579. Patented Jan. 7, 1873.

FIG. 1 (Plan)

FIG. 2

FIG. 3

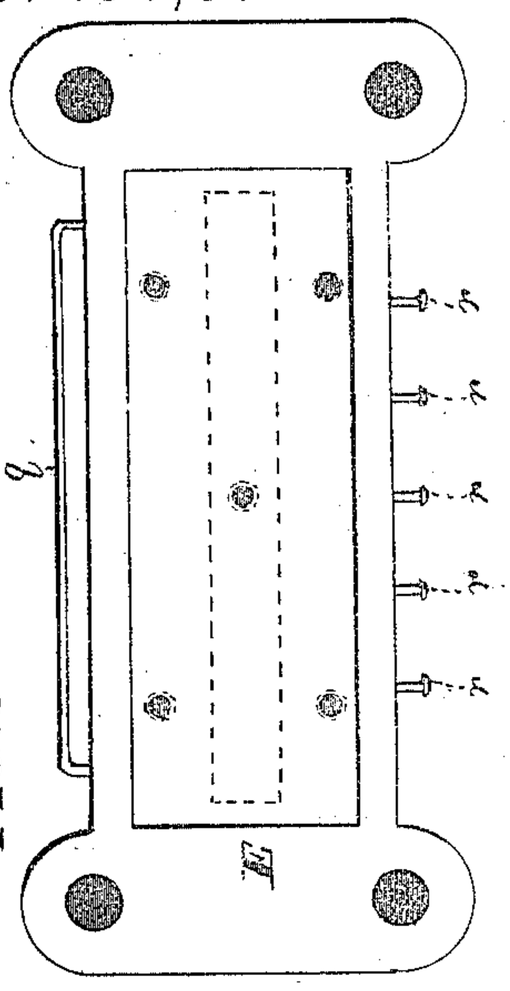


FIG. 4

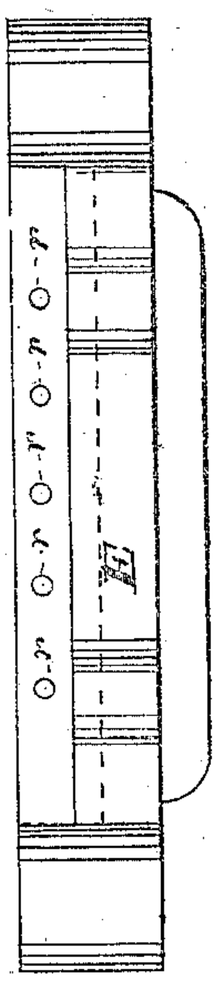


FIG. 5

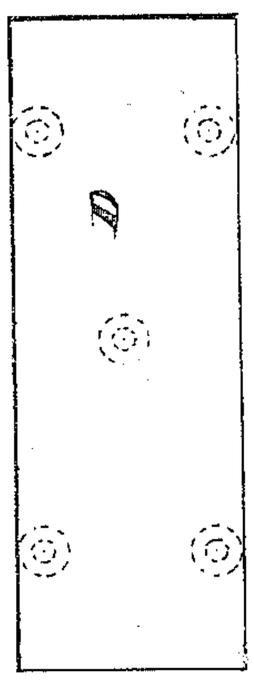
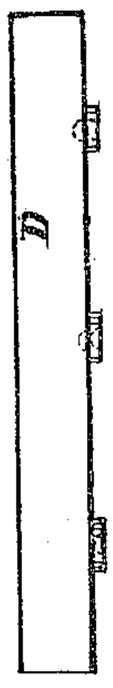


FIG. 6



WITNESSES

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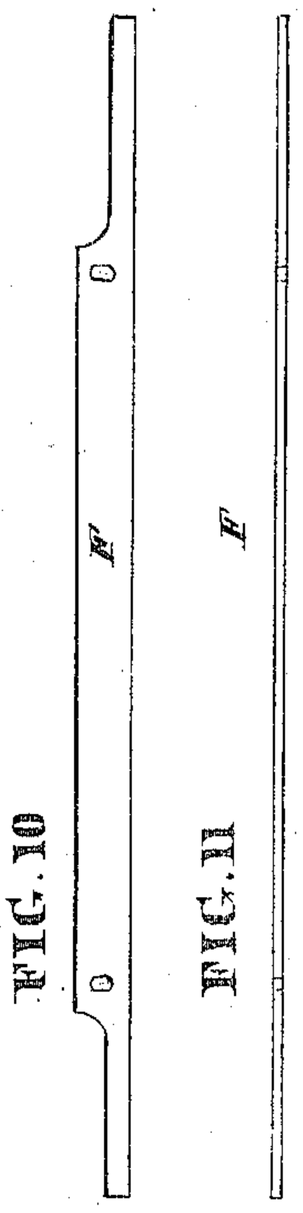
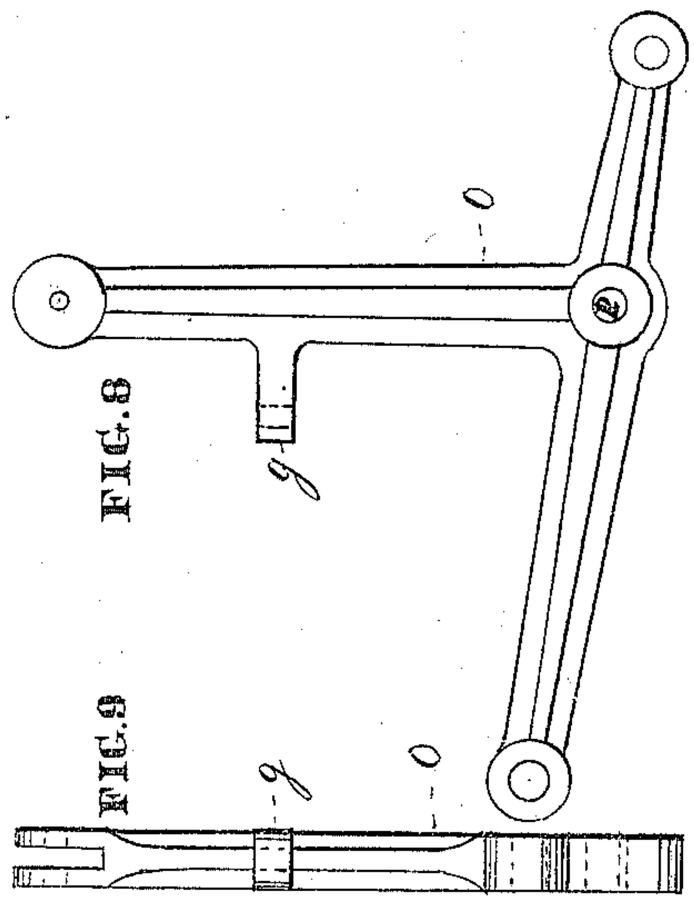
3 Sheets--Sheet 2.

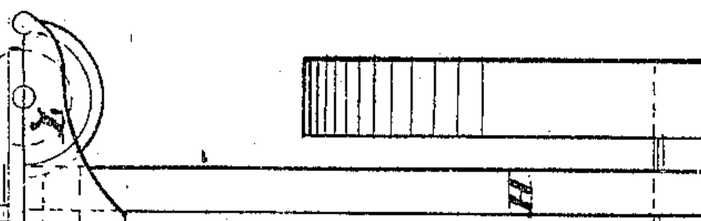
G. W. WOODSIDE.

Chromatic Printing-Presses.

No. 134,579. Patented Jan. 7, 1873.







WITNESSES

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3 Sheets--Sheet 3

G. W. WOODSIDE.

Chromatic Printing-Presses.

No. 134,579. Patented Jan. 7, 1873.

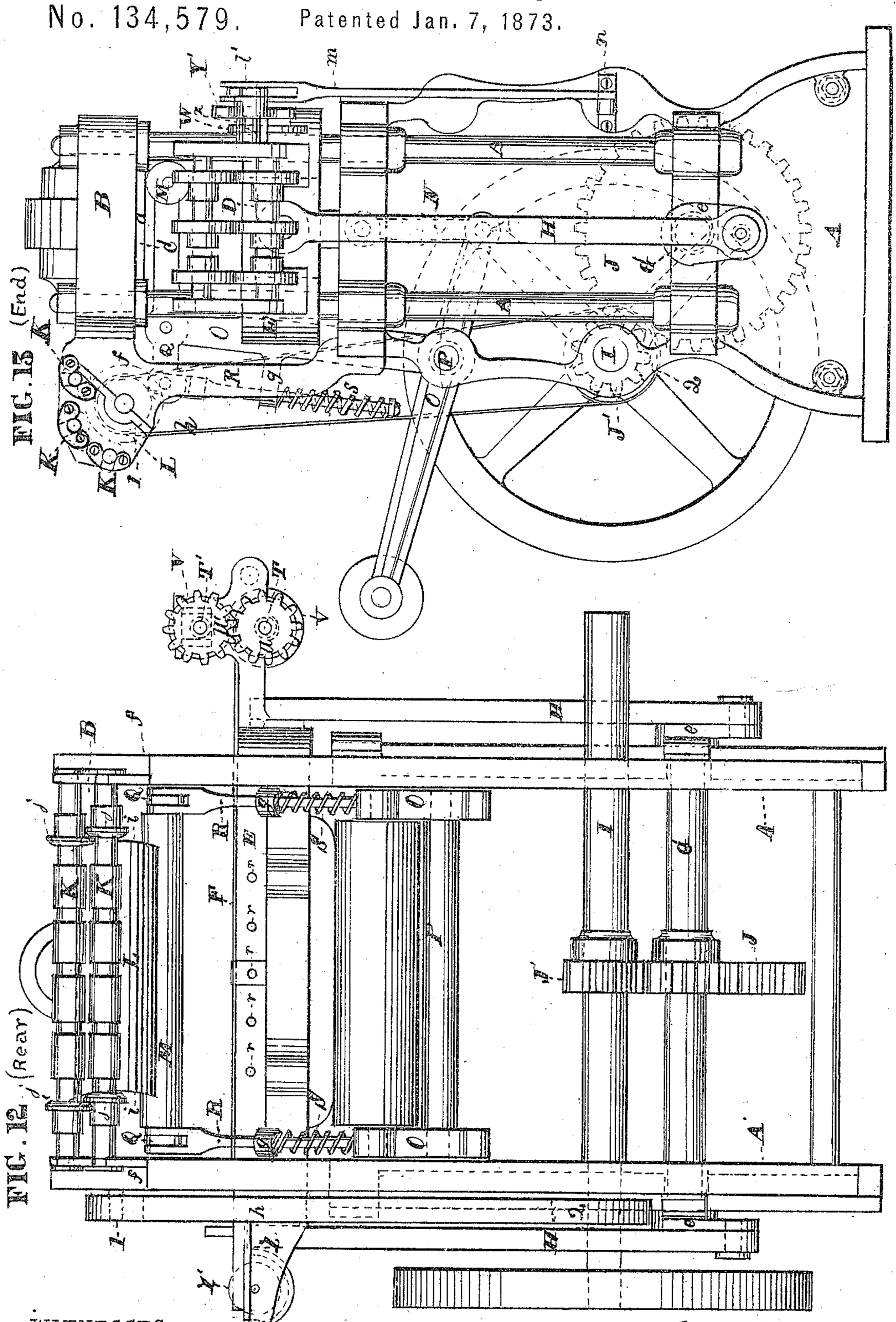

FIG. 15 (End.)

FIG. 12 (Rear)

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UNITED STATES PATENT OFFICE.

GEORGE W. WOODSIDE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO SAMUEL L. KING, OF SAME PLACE.

IMPROVEMENT IN CHROMATIC-PRINTING PRESSES.

Specification forming part of Letters Patent No. **134,579**, dated January 7, 1873.

To all whom it may concern:

Be it known that I, GEORGE W. WOODSIDE, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Chromatic-Printing Presses for printing druggists' and other labels, of which the following is a specification:

My invention consists mainly of the following particulars: A vertically-reciprocating bed-plate, operated by means of cranks and connecting-rods, is provided with an adjustable platen or impression-plate, which is combined with the type-form connected with a top plate of the machine. The said bed-plate is provided at one end with feed-rollers, which have an intermittent motion imparted to them by a ratchet movement, and at the other end a gum-trough and distributing-roller for gumming or pasting the under side of the labels. The type-inking roller receives its movement by means of a lever-connection at its ends with the bed-plate, whose up-and-down movements cause it to pass under the inking-cylinder and back under the form for spreading the ink thereon. The inking-cylinder takes the different-colored inks from a series of distributing-rollers whose peripheries have divided sections for the different colors. These distributing-rollers have a vibrating motion in line with their axes, imparted by means of cams formed on the ends of the inking-cylinder, with which annular guides on the rollers are connected.

The construction and operation of the machine are hereinafter fully described.

Figure 1 is a plan view of the improved press. Fig. 2 is a side view of the cylinder L. Figs. 3 and 4 are plan and edge views of the bed-plate E. Figs. 5 and 6 are like views of the platen D. Fig. 7, Sheet No. 2, is a front elevation of the press. Figs. 8 and 9 are side and edge views of one of the levers O. Figs. 10 and 11 are like views of one of the guide-strips F. Fig. 12, Sheet No. 3, is a rear elevation of the press. Fig. 13 is an end elevation.

Like letters in all the figures indicate the same parts.

A A represent the housings of the standing frame. B is the top plate, to the under side of which the form C is connected by means of the permanent rabbeted strips *a a*, as seen in Fig. 7. D is the platen or impression-plate in the movable bed-plate E, upon which the paper to be printed is laid and carried forward during the printing operation, there being guide-strips F F, adjustable by means of the cross-slots *b* and confining-screws *c*, in adaptation to different widths of paper. The bed-plate is provided with vertical screws *d* for regulating the height of the platen, as seen in Fig. 7. The platen and bed-plate are represented in detail in Figs. 3 to 6, inclusive. The bed-plate is connected with the horizontal shaft G by means of the crank-arms *e e* of the latter and connecting-rods H H. The shaft G is revolved for elevating and depressing the bed-plate E by means of the driving-shaft I, with which it is geared by means of the wheel J and pinion J′. The bed-plate, in its up-and-down movement, slides on the vertical rods A′ A′ A′ A′, there being vertical holes in it which correspond to the diameter of the rods. The rods are connected at their lower ends to the housings A A, and at their upper ends to the top plate B.

At the rear side of the press there are distributing-rollers K K K and inking-cylinder L, whose journals turn in the vertical supports *f f*, that have a permanent connection with the housings A A and top plate B. M is the inking-roller, which has a forward-and-backward motion given to it to bring it alternately into connection with the inking-cylinder and the type-form by the up-and-down movements of the bed-plate E, by means of the connecting-rods N N, the levers O O on the rock-shaft P, and the horizontal levers Q Q. The inking-cylinder is held up against the form C as it passes under the same, by means of the rods R R and springs S S, connected with the rear ends of the levers Q Q and the arms *g g* of the levers O O, as seen in Figs. 12 and 13.

Springs have been used heretofore for keeping the roller against the form without the use of rods. I employ the rods in combination with the springs for the purpose of preventing the falling of the roller, in the event of the springs breaking, until the pressman has noticed their breaking and supplied their places with new springs.

The inking-cylinder is revolved by means of the belt *h*, which connects with the pulley 1, on one end of its shaft, and the pulley 2 on the driving-shaft I, seen clearly in Figs. 12 and 13. The cylinder is provided with cams *i*, Fig. 2, on its ends, which act against the annular guides *j* on the distributing-rollers, whereby a vibratory motion is given to the latter in line with their axes for the more perfect distribution of the ink.

The inking-rollers may be divided in sections corresponding to the sections of the distributing-rollers, if desired.

The sheets on which the labels are printed are unwound at one end of the machine as the printing operation progresses. They pass between the horizontal guide-strips F F above described.

There are shafts T T′ geared together by means of the wheels U U′, which are provided with feed-rollers V. The rollers are adjustable on their shafts for the purpose of being so arranged, when desired, as to feed a plurality of strips of paper at one operation, to receive differently from each other the colors from the inking-roller. An intermittent motion is given to the rollers so as to keep the paper stationary when the impression is being given, and move it forward during the intervals by the up-and-down movement of the bed-plate E, there being on one end of the lower feed-wheel shaft T a disk, W, provided with a spring-detent, *k*, which engages with the ratchet-wheel X and prevents its turning on the shaft in the downward movement of the bed-plate. There is a pinion, Y, fast to the ratchet-wheel, and, in connection with the pinion, a toothed segment, Y′, which turns partially on the permanent arm *l* that projects from the bed-plate. There is an arm, *l′*, connected with the segment which has a joint-connection with the vertical rod *m*, whose lower end is jointed to the bracket *n* attached to the frame, so that as the bed-plate is descending the inner end of said arm is turned upward, giving a partial turn to the segment, which, by turning the pinion Y, gives motion to the feed-rollers to feed the paper forward in the downward movement of the bed-plate. The spring-detent *k* does not operate in the upward movement of the bed-plate, and the pinion Y, consequently, turns loose on the shaft T, and thus prevents the movement of the rollers during the impression. The arm *l* is provided with a series of pin-holes, *o*, for the adjustment of the vertical rod *m* to vary the length of feed of the paper, as may be required.

It will be seen that the paper is fed through the machine at right angles to the line of motion of the inking-rollers, whereby there is much less complication than would be by feeding in the line of the motion of the rollers, as in this case only one roller is required for spreading the ink on the form, while in the other arrangement one roller is required for each color.

The advantage does not extend only to decreasing the expense of building the machine, but also makes a great saving of ink by not having it to cover a great number of rollers, it being necessary to wash the rollers at intervals in order to insure the execution of good work.

The length of feed of the paper is equal to each color on the form, so that an impression of all the colors is given in the passage over the bed-plate. There are tapes *p* connected at one end with the horizontal rod *q* at one edge of the bed-plate E, and at their other ends to pins *r* at the other edge, to prevent the paper *s* being drawn up from the platen as the latter descends. Pins *r* may be used instead of the rod *q*. There is a gum-trough in connection with the right-hand end of the bed-plate, in which is situated a roller, Z′, which gums or pastes the under side of the paper as it passes over it, the roller being turned by the forward movement of the paper.

The paper is unwound from a roller as it passes through the press, and is conveyed away from the latter, as it is printed and gummed, by any suitable device.

I do not claim the combination of the platen and inking-roller and the operating mechanism as set forth in the patent of T. H. Dodge, dated November 18, 1851; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the rods N N, levers O O, and connecting rock-shaft P, lever Q, and springs S with the vertically-moving bed-plate E and inking-roller M, substantially in the manner and for the purpose set forth.

2. The cams *i* on the ends of the cylinder L, in combination with the annular guides *j* of the distributing-rollers K K K, for giving a vibratory motion to the rollers in the line of their axes, substantially as described.

3. The combination of the feed-rollers V with the shafts T and T′ adjustable thereon, and with the ratchet-feed, for the purpose of feeding a plurality of strips at the same time, substantially as described.

4. The combination of the paste-trough Z and cylinder Z′ with the bed-plate E, as and for the purpose set forth.

GEORGE W. WOODSIDE.

Witnesses:

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STEPHEN USTICK.