J. K. Wright.

Color Printing.

No. 25075. Patented Aug. 9. 1859.

Fig. 1.

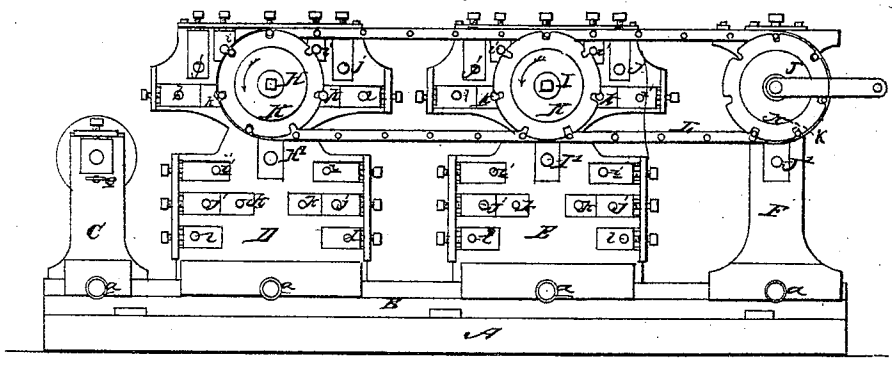


Fig. 2.

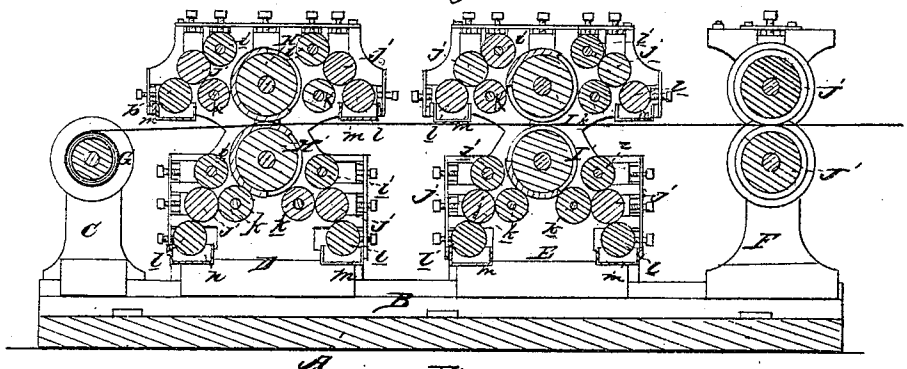


Fig. 3

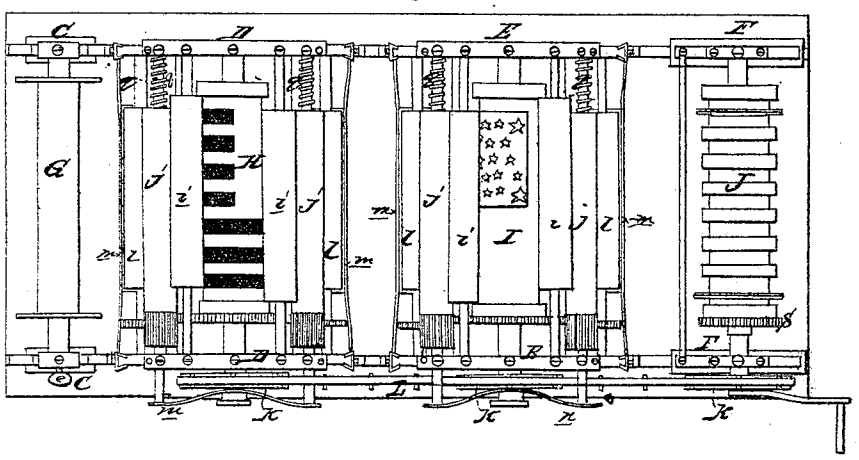


Fig. 4.



Witnesses,
Henry Howson
Horace See

Inventor.
John K. Wright

UNITED STATES PATENT OFFICE.

JOHN K. WRIGHT, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR PRINTING IN DIFFERENT COLORS.

Specification of Letters Patent No. 25,075, dated August 9, 1859.

To all whom it may concern:

Be it known that I, JOHN K. WRIGHT, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Machines for Printing in Different Colors; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to an improvement in the printing machines for which Letters Patent dated Aug. 22d, 1822, were granted to Peter Force, in which is used a system of printing rollers corresponding in number to that of the colors employed, for the purpose of printing designs of different patterns and colors on fabrics at one operation, and my improvement consists in hanging the rollers for imparting one color, to frames independent of those to which are hung the rollers for printing the other colors, and the frames being adjustable longitudinally in respect to each other substantially as set forth hereafter, whether one printing roller on each independent frame be used to print on one side only of the fabric, or two rollers be used on each frame for printing both sides of the fabric simultaneously.

The object of my improvement is to regulate with accuracy the position on the fabric of the different colors and patterns in respect to each other.

In order to enable others skilled in this class of machinery to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawing which forms a part of this specification, Figure 1, is a side view of my improved machine for printing in different colors on fabrics. Fig. 2, a sectional elevation. Fig. 3, a ground plan, and Fig. 4, a portion of the fabric as it appears when being submitted to the machine.

A, is the foundation or base plate of the machine, having two longitudinal rails B, to each of which are secured four frames C, D, E, and F, those on one rail B, being directly opposite to those on the other rail. The lower ends of the frames fit over the rails so as to be slid thereon without altering their proper lateral position, and each frame is furnished with a set screw *a*, the point of which bears against the side of the rail so that the whole of the frames can be readily secured after adjustment. In suitable boxes on the frame C, turns the journals of the flanged roller G, which contains the fabric to be printed. A screw *e*, passes through one of the frames and bears with its point against the flange of the roller so as to impart the requisite friction to the latter.

In the opposite frames D, D, turn the journals of the upper and lower printing rollers H, and H′, and on each side of both rollers are a system of rollers *i*, *j*, *k*, and *l*, the journals of which also turn in the opposite frames D, D. The surface of the roller *l*, of each set, turns in contact with a body of printing material contained in a trough *m*, which is secured to the frames, and the material is deposited by this roller *l*, onto the surface of the roller *j*, by which it is transferred to the rollers *i*, and *k*, and by the last named roller to the upper printing roller H. A lateral reciprocating motion is imparted to the roller *j*, by means of a cam *n* on the shaft of the printing roller in conjunction with a spiral spring *q*, on the same shaft, as will be best observed on reference to Fig. 3, so that the printing material may be evenly spread onto the roller *k*, before it is transferred to the printing roller.

Two printing rollers I and I′, of exactly the same diameter as the rollers H and H′, turn in the opposite frames E, E, on which are hung four sets of rollers for transferring the printing material to the printing rollers, all the rollers being arranged in a manner precisely similar to those on the frames D, D. On the frames F, turn the journals of two flanged rollers J, and J′, the surface of the upper roller being pressed closely to that of the lower roller by a set screw on the frames, and both rollers being geared together by cog wheels *s*. (Fig. 3.)

The shaft of the roller J, is the driving shaft of the machine and on this shaft is a pulley K, a similar pulley being secured to the shaft of the printing roller I, and another to that of the printing roller H. Motion is communicated simultaneously to these rollers by the chain L, which passes over the pulleys, a cog wheel on each of the upper rollers gearing into a similar wheel on each of the lower rollers so that the whole of the rollers may revolve simultaneously in the direction pointed out by the arrows.

The rollers for transferring the printing material from the troughs *m*, to the printing rollers are driven from the shafts of the latter by a suitable system of cog wheels one of the rollers of each set having a lateral motion imparted to it by cams as already described or by any other suitable device.

In the present instance the surfaces of the printing rollers are formed for printing miniature flags. On the rollers H, H′, are a series of ribs corresponding to the stripes of the flag a portion of several of the ribs being cut away in both rollers so as to leave a blank imprinted space which has to receive the blue ground with white stars by being submitted to the printing rollers I and I′, on each of which is a raised portion corresponding to the size of the blank space in the rollers H, and H′, the raised portions of the rollers having indentations of the form of stars. Both sets of printing rollers are so arranged that the ribs and blank spaces on the roller H, coincide with those of the roller H′, the raised portions as well as the recesses which form the stars of the roller I, coinciding with those of the roller I′. The fabric is wound around the flanged roller G, on the frame C, and the ends pressed between the printing rollers H, and H′, then between the rollers I, and I′, and finally between the friction or drawing rollers J, and J′. The troughs *m*, for the set of rollers H, and H′, are furnished with red printing material, and those for the rollers I and I′, with blue printing material. The machine is then set in motion by turning the shaft of the roller J, in the direction of the arrow. The friction imparted to the roller G, by the screw *e*, (Figs. 1 and 2,) as the rollers J, and J′, draw the fabric forward, tends to keep the latter tight as it is submitted to the printing rollers. By passing between the rollers H, and H′, a series of red stripes will be imparted to both sides of the fabric the stripes on one side exactly coinciding with those on the opposite side, a blank space will also be left on both sides to receive the impression from the rollers I, and I′, which print on both sides of the fabric the blue ground with the white stars. After passing between the rollers J, and J′, the fabric may be conveyed over other rollers or rods placed at a suitable distance so as to be dried before it is cut into the requisite lengths.

It will be observed that the accuracy in the position of the red and blue figures in relation to each other, depends upon the exactitude with which the frames with the two sets of printing rollers are adjusted, hence the reason of hinging them to separate frames sliding on the rails B, B, of the base plate A.

Although I have illustrated my machine as applied to the printing of miniature flags, it will be evident that it may be applied to the ornamentation of fabrics with different colors and devices, the number of independent printing rollers on independent frames however must be equal to that of the different colors used.

In printing flags, window shades, and transparencies the machine should be arranged as illustrated in the drawing, but when used for printing wall papers with figures of different colors, or show bills with letters of different colors one side only of the fabric has to be printed in which case one printing roller only on each independent frame, is necessary, the lower roller being simply used as a pressure roller.

I am aware that a system of printing rollers corresponding in number to that of the colors employed, for the purpose of printing designs of different patterns and colors on fabrics at one operation, is described and illustrated in the patent granted to Peter Force Aug. 22d, 1822. I therefore do not claim broadly such an arrangement; but

I claim as my invention and as an improvement on the aforesaid patent of Peter Force—

Hanging the rollers used for printing separate colors and patterns on separate frames D, E, and constructing and arranging the said frames so that they may be adjusted independently of each other on the rails B, as and for the purpose herein set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN K. WRIGHT.

Witnesses:

HENRY HOWSON,

CHARLES D. FREEMAN.