C. A. Swett.

Color Printing Press.

No. 13857. Patented Nov. 27. 1855

Fig. 1.

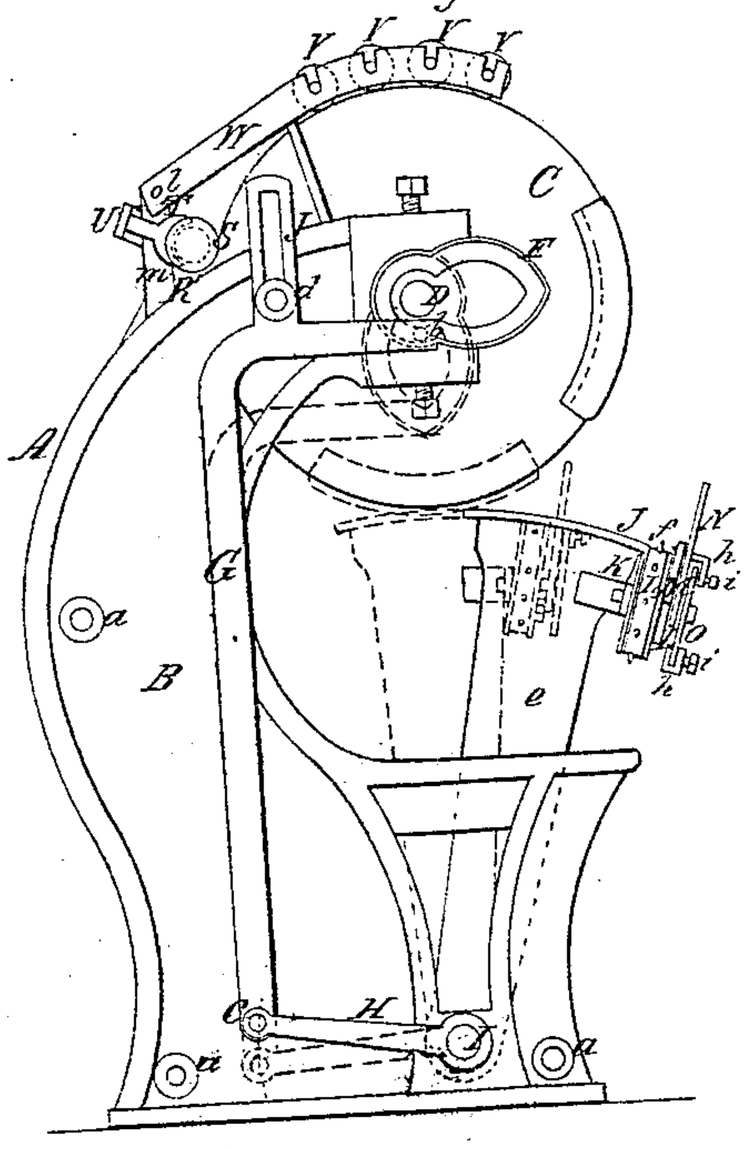


Fig. 2.

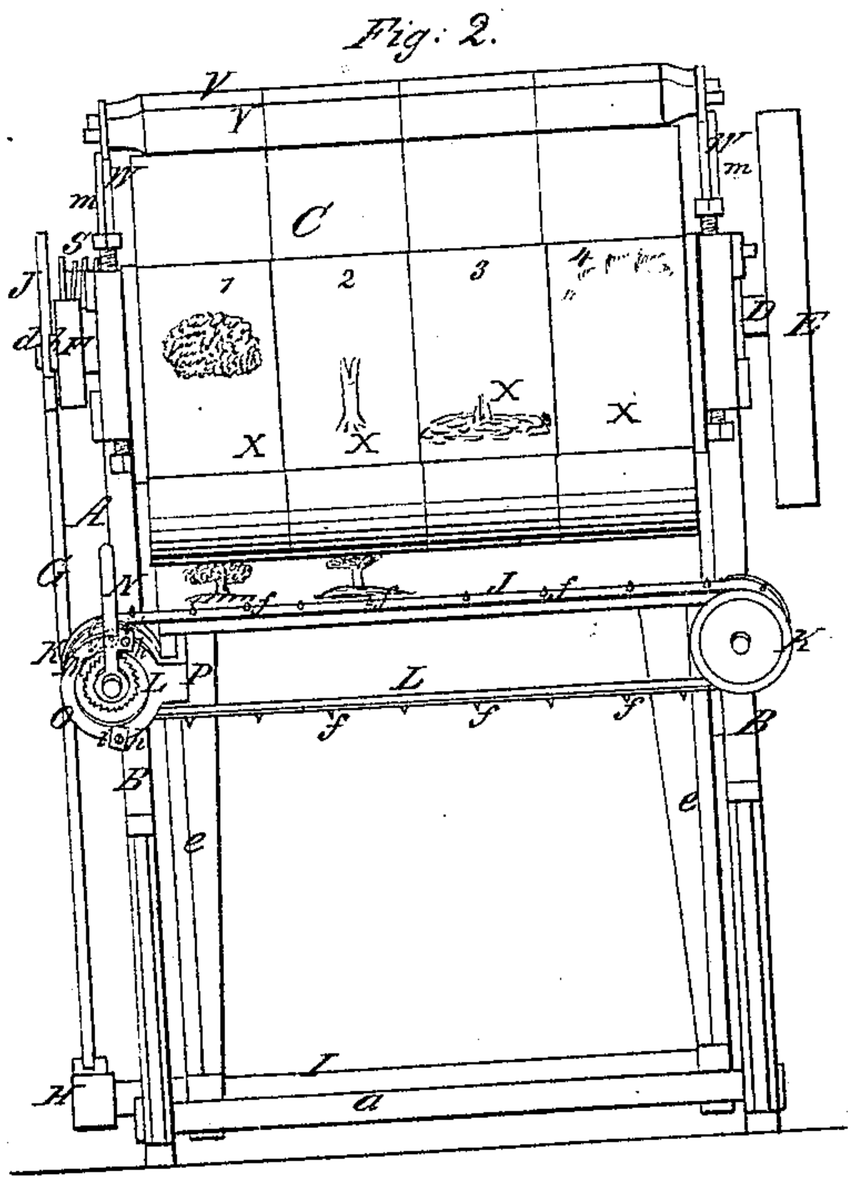
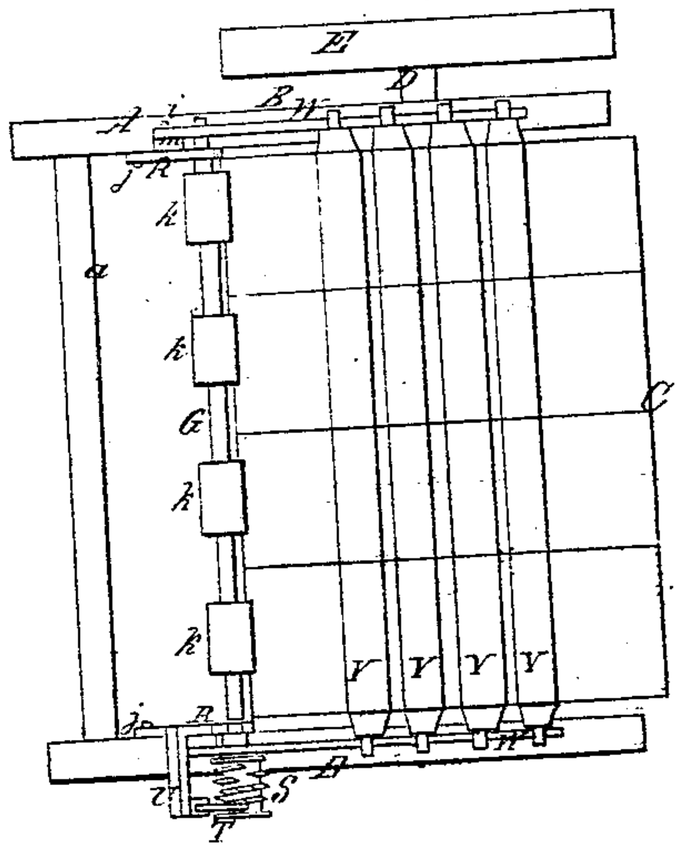


Fig. 3.



UNITED STATES PATENT OFFICE.

C. A. SWETT, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification of Letters Patent No. 13,857, dated November 27, 1855.

To all whom it may concern:

Be it known that I, CYRUS A. SWETT, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Printing-Press for Printing in Colored Inks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side view of my improvement. Fig. 2, is a front view of ditto. Fig. 3, is a plan or top view of ditto.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in a peculiar mode of inking the several blocks with their appropriate or proper colors, and also in the employment or use of a cylinder, and a vibrating bed or plate with an endless apron attached the above parts being arranged as will be presently shown and described.

This press is intended to be used for printing in colored inks, several different colors being employed at the same time, the press furnishing when in full operation, a complete colored impression at every revolution of the cylinder.

A, represents the frame of the machine which may be constructed of cast iron side plates B, B, connected by transverse rods (*a*).

C, is a cylinder constructed of cast iron and placed in the upper part of the frame A, and allowed to turn freely therein. The shaft D, of the cylinder C, has a driving pulley E, attached to it at one end, and the opposite end of the shaft D, has a grooved cam F, attached to it, in which cam a pin (*b*) attached to the upper end of a lever G, is fitted. The lever G, is of curved form and its lower end is attached by a pivot (*c*) to an arm H, which is attached to a transverse shaft I, at the lower part of the frame A. The upper part of the lever G, has an upright slotted arm J, attached to it, said arm working on a guide pin (*d*) attached to the frame A.

To the shaft I, two upright plates (*e*) (*e*) are permanently attached. The upper ends of the plates (*e*) (*e*) have a convex plate or bed J, attached to them, said plate being equal in length to the cylinder C, and its convexity equal to a segment of said cylinder.

K, K, are two pulleys attached to the upper ends of the plates (*e*) (*e*). These pulleys have an endless belt L, passing around them, said belt having small points or teeth (*f*) attached to it, see Figs. 1 and 2. The upper part of the belt L, fits in a groove or recess at the front edge of the convex plate or bed J, and one of the pulleys K, has a ratchet L, attached to its axis, in which ratchet a pawl M, atached to a lever N, gears, said lever being fited loosely on the axis of the wheel.

O, is an annular rim or plate attached to one of the plates (*e*) by an arm P, and directly in front of the ratchet L. This rim or plate has two stops (*h*) (*h*) upon it which are secured at desired points upon the rim or plate by set screws (*i*).

Q, is a shaft the ends of which are fitted in arms R, R, attached by pivots (*j*) to the frame A. This shaft has upon it at proper distances apart elastic ink rollers (*k*) see Fig. 3, which rollers are permanently attached to the shaft Q, and rotate with it. One end of the shaft Q, has a screw S, upon it in which a fork T, fits, said fork being attached to a plate U, which is connected with one of the arms R.

V, V, V, V, are rollers, the ends of which are fitted in curved arms W, the lower ends of which are attached by pivots (*l*) to uprights (*m*) (*m*) on the upper part of the frame A.

The rollers (*k*) and V, bear upon the periphery of the cylinder C. The cylinder C, has a recess made longitudinally in its periphery and in this recess, engraved blocks or the stereotype or electrotype parts X, of engraved blocks are fitted, said plates being curved or bent so that their convexity will be equal to segments of the cylinder C.

There is a block X, for each colored ink used, and the different blocks are placed side by side within the recess in the cylinder, as shown in Fig. 2.

Operation: The rollers (*k*) each receive its proper colored ink from a fountain, and as the cylinder C, rotates the rollers (*k*) will distribute upon the periphery of the cylinder belts of different colored inks, the width of the belts being equal to that of the blocks X. The shaft Q, has a longitudinal vibrating movement given it as it rotates by the screw S, and fork T, so that the rollers (*k*) will distribute evenly the ink upon the cylinder. The different colored belts of ink will be taken from the

cylinder C, by the rollers V, which ink the plates X, as they pass underneath them, each plate receiving its appropriate color. The cylinder C, rotates in the direction indicated by the arrows.

The sheet of paper to be printed is placed upon the plate J, and as the cylinder C, rotates the cam F, will operate the lever G, and arm H, and the plate or bed J, will be drawn underneath the cylinder C, and plates X, which will leave their impressions upon the sheet of paper.

In the drawings Figs. 2 and 3, four different colors and blocks are represented. At the first impression there will be four different colored impressions. The operator or attendant after the first impression grasps the lever N, and moves the belt L, and consequently the sheet of paper on the plate or bed J, the distance of the width at one block to the left, at the second revolution of the cylinder, three of the previous impressions will receive a different color, for instance, the part of the sheet that receive the impression from block 2, will receive it from block 1, and the part of the sheet that received an impression from block 3, will receive an impression from block 2, and so on. At the third revolution of the cylinder C, two of the first impressions will receive a third impression from different blocks, the sheet being shifted as before and at the fourth revolution of the cylinder the last of the first impressions will receive an impression from the remaining block, and a complete picture is formed. At every subsequent revolution of the cylinder one complete picture is formed, as it receives the impressions of the four different colored blocks in succession.

The cam F, is so formed as to cause the lever G, and arm H, to draw the plate or bed J, underneath the cylinder C, and also throw it out from underneath it and give the necessary "dwell" when out to allow the operator to shift or move the sheet of paper. The paper may be fed from a continuous roll upon the plate or bed J.

The above improvement is simple and will expedite and diminish to a very great extent the hitherto tedious and expensive process of printing plates or cuts in different colored inks. There is no part of the press liable to get out of repair and it is not expensive to manufacture.

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

1. I claim inking the blocks X, with their appropriate colored inks by means of the rollers (*k*), V, arranged as described in the body of the specification.

2. I further claim the cylinder C, vibrating bed or plate J, with endless apron L, attached, when the above parts are constructed, arranged and operated substantially as shown for the purpose specified.

CYRUS A. SWETT.

Witnesses:
JOHN H. WAKEFIELD,
T. L. WAKEFIELD.