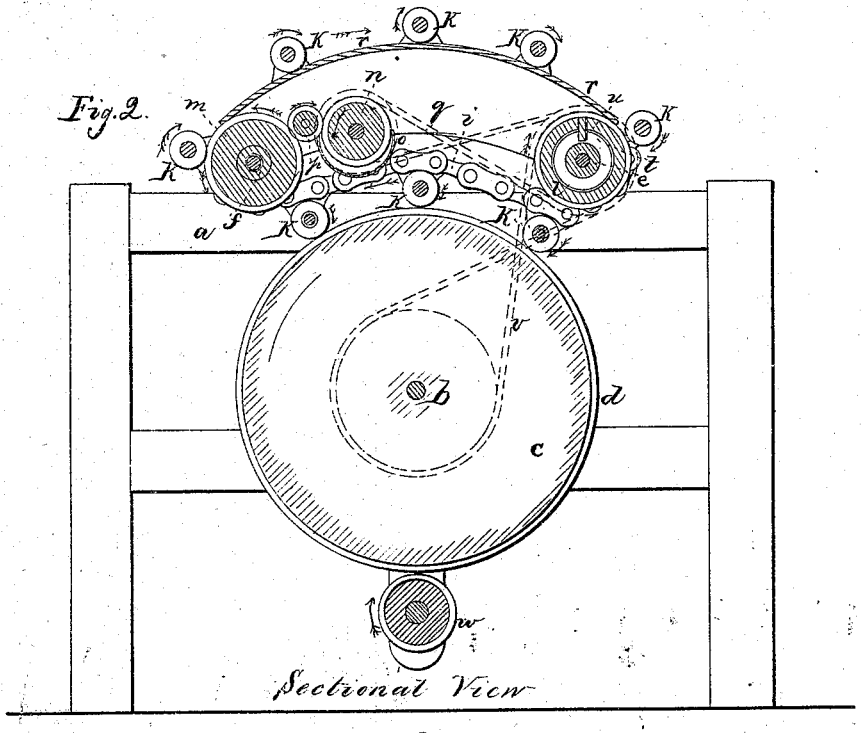
F. S. Monroe Jr. & T. Mason.

Printing Paper Hangings.

No. 48199. Patented Jun. 13. 1865.

Fig. 2.



Sectional View

Fig. 1.

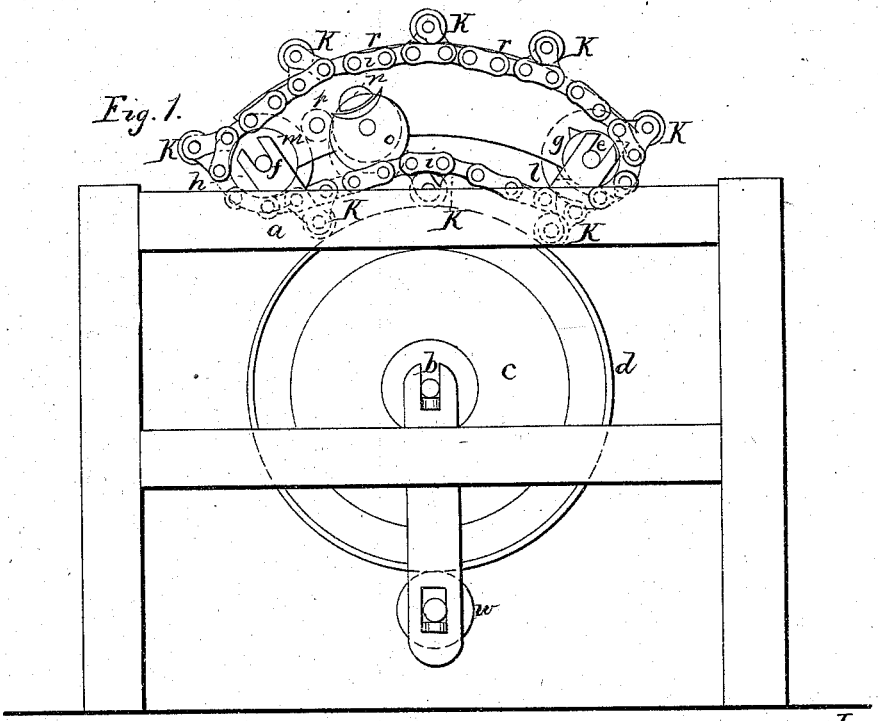
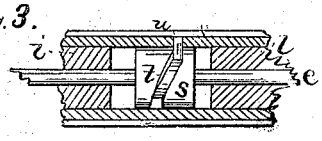


Fig. 3.



Witnesses.
S. B. Kidder
Francis Gould

Inventors.
Thomas Mason
Francis S. Monroe Jr.
By their Atty. W. B. Cushing

UNITED STATES PATENT OFFICE.

FRANCIS S. MONROE, JR., OF GRANTVILLE, AND THOS. MASON, OF BOSTON, MASSACHUSETTS.

MACHINE FOR PRINTING PAPER-HANGINGS.

Specification forming part of Letters Patent No. **48,199**, dated June 13, 1865.

To all whom it may concern:

Be it known that we, FRANCIS S. MONROE, JR., of Grantville, county of Norfolk, and THOMAS MASON, of Boston, county of Suffolk, all of the State of Massachusetts, have invented an Improved Machine for Printing Paper-Hangings, &c.; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

This invention relates to the construction of elastic-surfaced cylinder-machines for printing paper-hangings, the improvement consisting in the arrangement or combination with an elastic-surfaced printing-cylinder, of an endless band or series of color-rolls receiving ink from a color-trough through the medium of a trough-roll and distributing-rolls, and having the color evenly laid upon them by the passage of the rolls over and in contact with a convex tablet, and the reciprocating lateral motion imparted to the tablet.

A machine embodying our invention is shown in the drawings, Figure 1 denoting a side elevation, and Fig. 2 a vertical longitudinal section of the same.

a denotes the frame of the machine, supporting in suitable bearings a shaft, *b*, carrying a cylinder, *c*, which is covered by an elastic surface, *d*, having the design to be printed upon the paper configurated upon it. Upon the top of the frame, and at or near the opposite ends thereof, are two shafts, *e f*. On the two ends of the driving-shaft *e* sprocket-wheels *g* are fixed, guide-wheels *h* being placed in corresponding position on the other shaft, *f*. Around each set of wheels *e f* an endless sprocket-chain, *i*, works, these chains supporting a series of elastic color-rolls, *k*, as seen in the drawings. A drum, *l*, is mounted upon the driving-shaft *e*, and an elastic distributing roll or drum, *m*, upon the shaft *f*. This distributing-roll receives its color from a color-roll, *n*, revolving in a color-trough, *o*, through an intervening friction-roll, *p*, which is so hung as to be in contact with the surfaces of both rolls *n m*, thus taking the color from the roll *n* and feeding or laying it upon the roll *m*.

The color-roll *n* receives motion from the connection of a pulley on its outer end with a pulley on the corresponding end of the driving-shaft *e* by a cross-belt, *q*. This rotary motion it communicates by contact to the feed-roll *p*, which by friction rotates the distributing-roll *m*, the several arrows in Fig. 2 denoting the direction of movement of the respective rolls and the endless series of rolls. The roll *m* is loose upon its shaft, its rotary motion being in a direction opposite to the motion of the series of rolls *k*. The rotation of the driving-shaft imparts motion through its sprocket-wheels to the endless series of rolls *k*, and as each roll *k* reaches the distributing-roll *m* it is rotated by contact therewith, and receives its color from such rotation and contact. Immediately after passing the distributing-roll each roll *k*, in the continuation of its movement, is carried onto a long convex-surface tablet, *r*, extending across the machine and from the roll *m* to the drum *l*. The surface of this tablet is made smooth, and by its convex surface the tendency of the sprocket-chains to draw the line of rolls into a straight line causes the rolls as they pass over this tablet to press down upon its surface, and by this pressure and their rotation against this tablet the ink is laid evenly upon their surfaces.

To prevent lines from forming upon the tablet and rolls a lateral motion is imparted to the whole series of rolls at each semi-rotation of the driving-shaft, as follows: The drum *l* is incapable of rotation upon its shaft *e*, but slides upon said shaft, and the adjacent end of the tablet is fastened to the ends of this drum. A cylinder, *s*, having a cam-groove, *t*, formed in it, as seen in Fig. 3, which is a central section of a portion of the drum, is fixed upon the shaft, and into this groove a pin, *u*, extends from the drum, which is made hollow to receive the cylinder *s*. It will be readily understood that rotation of the shaft will cause the cam-groove to impart a lateral movement to the pin *u*, and thence to the drum and tablet. After thus passing over the tablet and by the drum *l* the rolls reach the surface of the printing-cylinder *c*, by contact with which they successively rotate, motion being communicated to the cylinder *c* by a cross-belt, *v*, running around a pulley on the shaft *b* and one upon the driving-shaft *e*, the movement of the cylinder being so graduated that the successive rolls *k* lay their color

upon its whole surface in their progress. The paper receives its impression of color between an elastic pressure-roll, *w*, and the configurated surface of the cylinder *c*, as will be readily understood, the rotation of the cylinder *c* against the paper held between it and the roll *w* feeding the paper through as it is printed.

A machine thus organized and arranged is found to be very reliable in its action, affording a cheaper and more satisfactory means of coloring or printing paper-hangings than is obtained by machines now in use for this purpose.

We claim—

The endless series of ink-rolls *k* and the tablet *r*, when combined and arranged to operate together and in connection with the inking apparatus and the elastic printing-cylinder *c*, substantially as set forth.

In witness whereof we have hereunto set our hands this 24th day of January, A. D. 1865.

F. S. MONROE, JR.

In presence of— THOMAS MASON.

FRANCIS GOULD,

HENRY PUFFINBARGER.