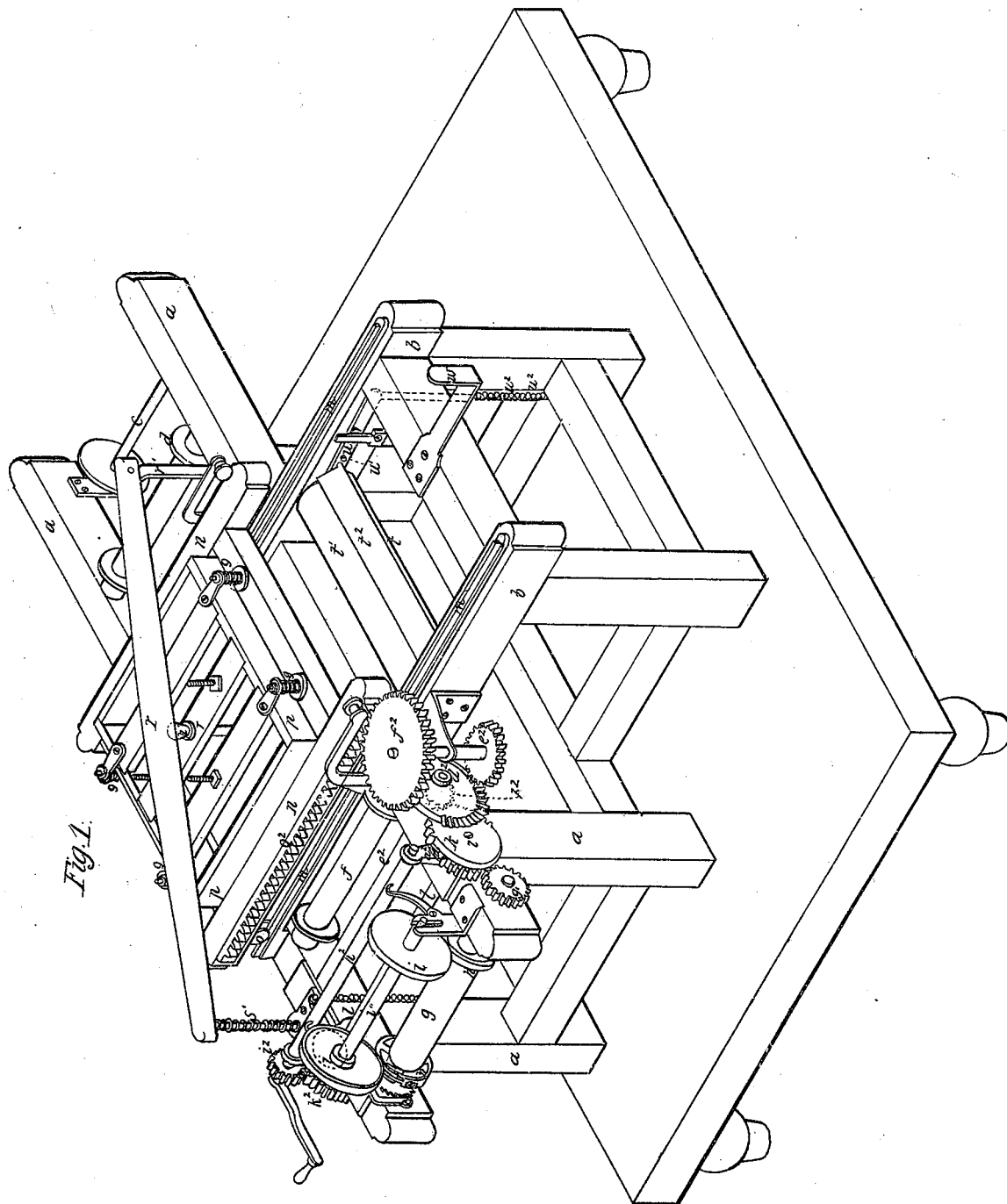
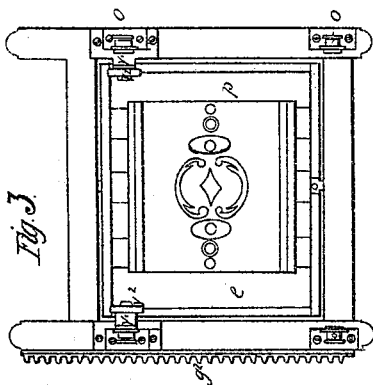


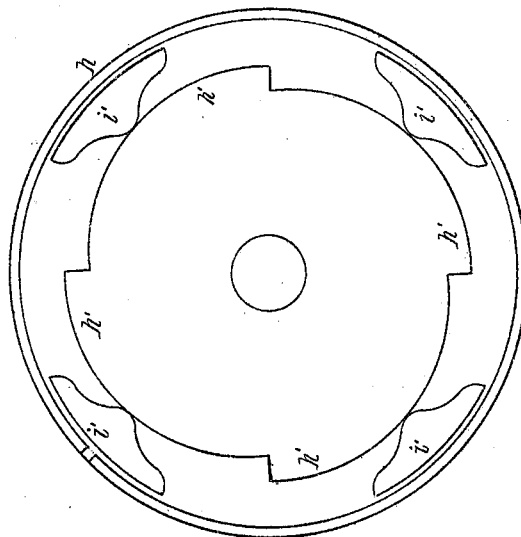
*R. L. Hawes Sheet 1 of 2 Sheets.*  
*Printing Paper Hangings.*  
*N<sup>o</sup> 5525. Patented Apr. 18. 1848.*



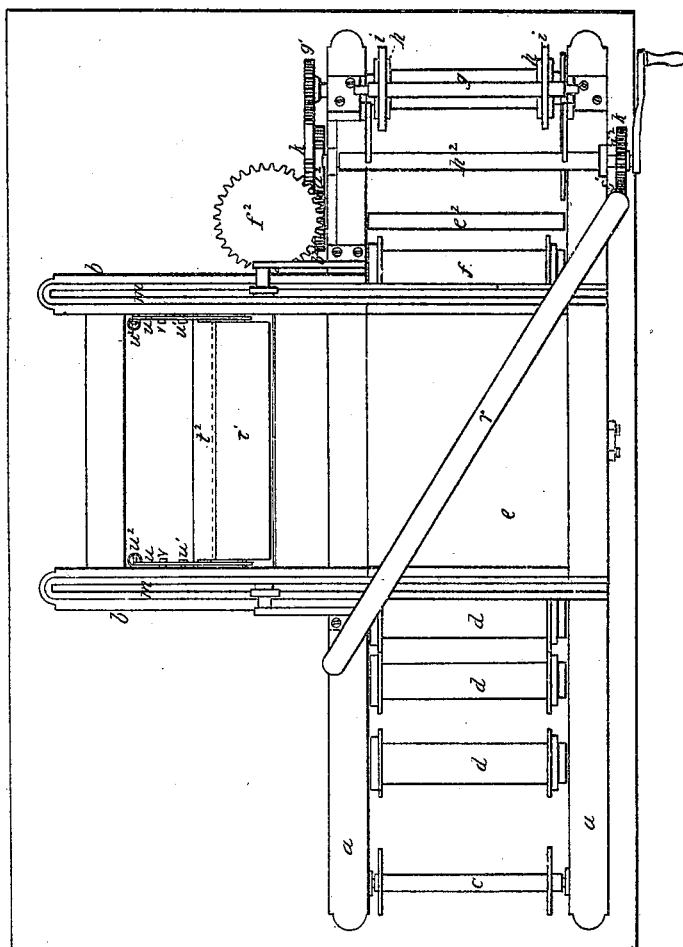
*R.L. Hawes. Sheet 2. 2 Sheets.*  
*Printing Paper Hangings.*  
*N<sup>o</sup> 5525. Patented Apr. 18. 1848.*



*Fig 3.*



*Fig 4.*



*Fig 2.*



# UNITED STATES PATENT OFFICE.

R. L. HAWES, OF WORCESTER, MASSACHUSETTS.

## PRINTING PAPER HANGINGS.

Specification of Letters Patent No. 5,525, dated April 18, 1848.

*To all whom it may concern:*

Be it known that I, RUSSELL L. HAWES, of the town and county of Worcester and State of Massachusetts, have invented new and useful Improvements in Machines for Printing Paper Hangings, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an isometrical view of the machine; Fig. 2, a top plan of the frame, &c., with the carriage detached; and Fig. 3, a view of the underside of the carriage.

The same letters indicate like parts in all the figures.

The nature of my invention consists in the manner of laying the color upon the block in such a way as to prevent any inequality in its distribution by allowing them to come in contact while the carriage is moving one way only; and also in the manner of drawing the paper through by the borders or edges the proper distance for the pattern that is to be presented. It becomes necessary to convey the paper through by the border in order to have its length accurate in consequence of the center portion, when it receives the color, being dampened thereby, which causes it to stretch unequally; while the border, being unprinted, remains the same length throughout the operation of printing; and, by only touching the border after printing I avoid marring it.

The frame on which my apparatus is sustained is T shaped, the main part (a) containing the apparatus for holding the sheet of paper and giving the impression; the other part of the frame (b) which joins the first at its center on one side contains the color apparatus. In the main frame (a) is hung a roller (c) at one end thereof on which the roll of paper to be printed is wound; from thence the paper passes over two or more carrying rollers (d), these last named rollers are furnished with flanges at each end that slide up toward each other so that they can be adjusted to the exact width of the paper to be printed; these direct the paper in its course between the block upon which the figure is cut (hereafter described) and a stationary bed plate (e) on which the

paper is printed, from thence the paper passes on over another carrying roller (f) (made like those before named) to a roller (g) on the ends of which are two adjustable rings (h) which are more distinctly shown in an enlarged view, Fig. 4; these rings are so constructed as to be expanded or contracted to a greater or less diameter by any ordinary means, one of which is shown in Fig. 4, in which four inclined planes are shown at (h') having wedge pieces (i') between them and the ring; by turning these it will be obvious that the ring can be expanded or contracted thus varying the diameter, so that one revolution shall draw a sufficient quantity through for one length of the pattern; on these rings two wheels (i) attached to an axle (i'') rest, which pinch the border only of the paper between them for the purposes above named.

The roller (g) is connected by a spur pinion (g') on its axle with a segment wheel (k) or wheel having teeth around half of its periphery on the main shaft (l) where the teeth on said wheel are brought into contact therewith, so that during half the revolution of the main shaft the roller (g) remains stationary for the paper to be printed, and for the other half revolution of said shaft it is made to revolve once. The bed is crossed by two rails (m) which are raised high enough for the paper to be drawn in under them over the bed. It is obvious that the paper can be drawn through by other means by the border; on said rails the carriage frame (n) runs on four small wheels (o) the frame (n) consists of four pieces which surround the pattern (p) to which the print block is affixed on the underside; this platen moves up and down within the frame, guided by four rods, with which it is connected to the frame; the rods are surrounded by spiral springs (q) that serve to raise the platen. To bear down the platen to give the impression upon the paper a lever (r) is provided that is suspended over the bed at a sufficient height for the carriage to run under it and extend diagonally across the center thereof as clearly shown in the figures, one end being attached to the frame by an adjustable fulcrum (r'); the end has a stirrup (s) affixed to it that descends down under a cam on the main shaft (l) of common construction and not shown in the drawing by which

the impression is given; the lever when borne down acts upon a boss ( $p'$ ) on the center of the platen.

The carriage frame ( $n$ ) runs out onto the cross frame ( $b$ ) to receive color before each impression.

The color apparatus consists of a trough ( $t$ ) that contains the color, into which a roller ( $t'$ ) dips that conveys it to the block, the quantity of color taken up being regulated by a thin strip of metal called the "doctor" ( $t^2$ ) that scrapes the surface of the roller as it rises from the color in the font or trough. This part of the apparatus bears a general resemblance to the inking apparatus of a printing machine for type printing. The font and roller are affixed to the ends of two levers ( $u$ ) which have their fulcrums at ( $u'$ ) so that as the opposite end is depressed the roller will be raised. A spiral spring ( $u^2$ ) is attached to the rear end of the lever that causes the roller to rise when left at liberty to do so; between the fulcrums of the levers ( $u$ ) and the spiral springs are spring catches ( $v$ ) which when the roller is borne down catch the lever and hold it till the carriage is run back when two projections shown at ( $v'$ ) Fig. 3 on the under side of the carriage frame strike the catches and release the levers, and allow the roller ( $t'$ ) to rise so as to come in contact with the block just as the carriage has run clear out against the spring ( $w$ ) Fig. 1, which stops its momentum—the carriage is then run forward over the roller and the block pattern is charged with color, it is essential that the roller should only pass once across the block as otherwise it would cause an uneven appearance in the paper stamped; as the carriage leaves the cross frame ( $b$ ) a roller ( $v^2$ ) which projects down from the frame of the carriage presses down the ink roller and causes the spring catches above named to hold it. The carriage stops directly over the paper and the impression is made as above described. The carriage is then again caused to move back over the inking apparatus as before; the gearing for effecting

this may be varied, but I have adopted the following in my experiments; on the main shaft ( $l$ ) there is a wheel ( $a^2$ ) with spur teeth extending half round, thus at every semi-revolution turns a pinion ( $b^2$ ) on a parallel shaft ( $e^2$ ) outside of which there is a beveled wheel ( $d^2$ ) having teeth only half round which work alternately on two pinions ( $e^2$ ) (one of which only is seen in the drawing) the other being hid by the large spur wheel ( $f^2$ ) turning them and the shaft on which they are placed one entire revolution first one way and then the other as it acts on the upper or under one, the large spur wheel ( $f^2$ ) above named works into a rack ( $g^2$ ) on the side of the carriage and turns it out and in at the proper intervals and leaves it over the paper long enough to give the impression.

The machine is driven by a shaft ( $h^2$ ) which is turned by a hand crank or other power and on this shaft there is a pinion ( $i^2$ ) that gears into a wheel ( $k^2$ ) on the main shaft and communicates motion to it and the other parts of the machine.

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

1. Combining the carriage with the coloring apparatus as described, so as to apply the color roller only once over the surface of the block at each impression as described.

2. I also claim drawing the paper through by the border as described by pinching it between the rings ( $h$ ) and wheels ( $i$ ) or by any analogous device so as to exactly regulate the length drawn through, and not mar the printed portion, as herein set forth in the first part of my description.

3. I also claim the employment of expanding rings constructed substantially as above described for the purpose of regulating the length of paper to be drawn through to suit the pattern to be printed.

R. L. HAWES.

Witnesses:

A. P. BROWN,  
J. J. GREENOUGH,