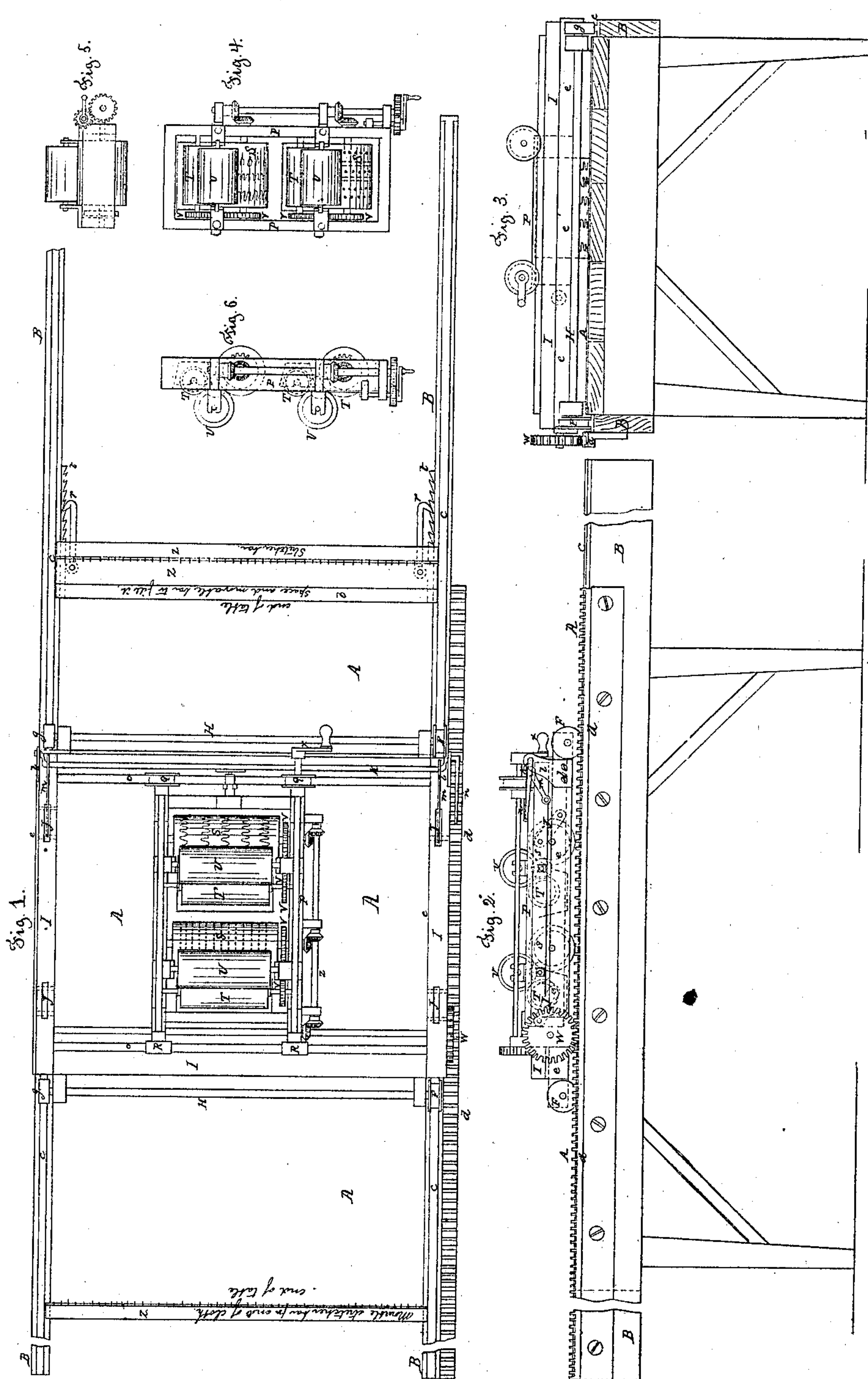


A. F. Buchanan, Oil Cloth Printing.

No. 108,563.

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Letters Patent No. 108,563, dated October 25, 1870.

IMPROVEMENT IN OIL-CLOTH PRINTING MACHINERY.

The Schedule referred to in these Letters Patent and making part of the same.

I, ALEXANDER FORDYCE BUCHANAN, of East Newark, county of Hudson, State of New Jersey, have invented certain Improvements in Apparatus for Printing and Ornamenting Oil-Cloths or Japanned Cloths for Stair and Table-Covers, and other useful and ornamental purposes, of which the following is a specification, with accompanying drawing and a description thereof.

The nature of my invention consists in the combination of certain frames and apparatus for carrying several printing-rollers, one for each color, having the pattern to be printed raised in relief thereon, with color and distributing-rollers for supplying each one, all mounted in said frames in such manner that they can be made to print simultaneously a portion of the cloth the width of the rollers, having the patterns in relief each in its distinct and separate color, the piece of japanned cloth being stretched upon a long table, and held by certain bars and pins while the frames and rollers are made to move and roll over the cloth by the workman, whereby it will print an impression of the various rollers used, and being moved or rolled over different parts of the same piece of cloth in succession until it is all printed or ornamented, as desired, some frames and rollers being used for the more central parts of the surface, and some for the borders, according to the requirements of the pattern and purposes for which it is intended.

In order to make the description of my invention clearer, I will first describe the common mode of printing stair oil-cloth, table-covers, &c.

First, the oil-cloth to be printed or ornamented being rolled up, a portion of it is unrolled and laid flat upon a bench, about six feet by three feet, which is covered by a thick felt blanket or a cushion, upon which the cloth is laid, and the printing is done by means of blocks, upon which patterns of various designs are raised in relief, which are first pressed upon a suitably-prepared surface upon which coloring matter, mixed with oil or varnish, is spread, and then placed upon the oil-cloth, and an impression of the pattern will be printed upon the cloth in the colors used; and if the pattern consists of two or more colors, then a block for each separate color, and having each its particular part of the pattern raised in relief, is used in a similar mode in succession, until all that part of the cloth upon the bench is printed, when, by drawing it off the bench, a fresh portion of the same piece of cloth is drawn upon the bench, and repeated in succession until the whole piece is printed.

The following is a description of my mode of printing and ornamenting oil-cloths, together with the drawing annexed, in which—

Figure 1 represents a plan of a long table and the other apparatus for carrying the printing and other rollers;

Figure 2 is a side elevation; and

Figure 3, an end view of the same.

Figure 4 represents a detached frame similar to the frame *p*, for carrying similar printing-rollers, and

Figure 5 is an end view, and

Figure 6, a side view of the same.

The same letters refer to the corresponding parts in all the figures.

A A A, figs. 1, 2, 3, is a long table covered with a thick felt blanket or cushion.

To the sides of the table I attach two long supports, B B B, extending considerably beyond the table at either end, upon which are placed two straight railway-tracks, *c c c*, figs. 1, 2, 3, and along one side the table, but outside the rail-track, is a rack, *d d d*, fastened to one of the long supports B, the pitch-line of the teeth being slightly below the level of the surface of the felt blanket or cushion, and this constitutes the fixed or stationary part of the apparatus.

The moving parts consist of three rectangular frames, of wood or metal.

The lower frame *e e e* extends across the table, *vide* figs. 2, 3, and is carried by the two double-flange wheels F F and the two plain wheels *g g*, connected by the shafts or axles H H, figs. 1, 2, 3, and running upon the rail-tracks *c c* longitudinally along the table A.

Immediately above the frame *e e*, and resting thereon, is another frame, I I I, which is attached to the frame *e* by the four links J J J J, figs. 1, 2.

At K K, figs. 1, 2, is a shaft, having a crank at each end and supported by pieces *l l*, attached to the lower frame *e e*.

Upon these cranks are two links, *m m*, whose opposite ends are attached to the frame I I.

By means of the lever *n n* the shaft K can be turned about half way round, which will cause the frame I I to be lifted up about three-quarters of an inch above the frame *e*.

Upon the frame I I, extending across the table, are two short rail-tracks, *o o*, upon which a third frame, *p p p*, supported by the two double-flanged wheels Q Q, and the two plain wheels R R, upon the rails *o o*, and having a transverse motion across the table.

The frame *p p* carries the printing or pattern-rollers S S, figs. 1, 2, 3, which have the designs or patterns raised in relief upon them.

T T are color-rollers which rotate in boxes containing coloring matter, and

U U are rollers covered with a compound of glue and molasses, for distributing the colors from the color-rollers onto the printing or pattern-rollers.

Each set of color and printing-rollers are connected by gear-wheels V V, having an intermediate wheel, and making their surface velocity equal, and, by means of the wheel W, running the rack *d*.

The printing-rollers S S are made to revolve with—

out depending on the friction of surfaces to make them do so. The circumference of the printing-rollers being the same as the pitch of the wheel *W* running in the rack *d*, gives equal velocity without friction of the rollers on the cloth to be printed.

The upper transverse frame *p* is made to readily take out and change for another containing other rollers, or the rollers can be changed. Thus, one set of rollers will form the borders and another set will print the central parts, and the frame *p* can be shifted from side to side, as will be readily seen; but in order to avoid smearing the oil-cloth, when so shifted, it must always be lifted by the elevating-frame *I*, on which it rests, when, by turning the crank-handle *x*, it will move the frame *p* transversely across the table to the desired position, where it may be held temporarily by the screw-clamp *y* while being moved along the table.

z z z are bars, with pins inserted in them for holding and stretching the cloth tight.

b is a bar, covered with felt, to fill up any space at the end of the table caused by stretching the piece of cloth.

r r are pawls, which catch in the ratchet-bars *t t*, to hold the cloth-tight when stretched.

The mode of operation is as follows:

First, the set of frames carrying the rollers are moved to one end clear of the table and resting upon the projecting supports *B B*. A piece of oil-cloth to be printed is stretched flat upon the table and held tight by the pins and bars at each end, assisted by the pawls and ratchet-pieces, and a bar, *b*, of suitable width and covered with felt, inserted in any space caused by stretching at one end of the table, and forming a temporary continuation of the table. Then, suitable colors having been put into the color-boxes, and the upper frame *p* set in its proper position and fastened by the screw-clamp *y*, the whole may now be pushed longitudinally along the table, over the oil-cloth, near one side first, if desirable, until it has passed the end of the table and the cloth and rests on the projecting supports.

The operator will now lift the frame *I*, carrying the frame *p* and the rollers by means of the lever *n* and the cranked shaft *K K*.

The whole set of frames may now be pushed back to the starting-point. Then slacken the screw-clamp *y*, and, turning the crank-handle *x* round a little, set the frame *p* in its next position adjoining the first, if right for the pattern.

Now let the frame *I* down again, and push the whole along the table, as before, and repeat as often as the pattern requires, changing the frame *p* when desirable for other frames and rollers, according to the pattern, and, as in the case of table-covers, the transverse bordering may be done by an independent frame like the frame *p*, shown at figs. 4, 5, 6, and containing rollers like the frame *p*, with color and distributing-rollers, which can be rolled transversely across the table at suitable distances for borders, and having the two printing-rollers connected by miter-wheels similar to frame *p*, but having a crank-handle, connecting by wheel and pinion with the miter-wheel shaft, whereby the frame being pushed along with one hand, the other hand can turn the crank-handle, and thereby the rollers, without friction of surface or slipping on the cloth, to the injury of the latter.

This independent frame need not have wheels to run upon the rails *o o*, and, if used exclusively for bordering, need not be wider than required for that purpose; and, by making the frames longer, more rollers and colors can be used, and in some patterns and borders additional colors can be added by going over the same cloth carefully the second time before it is removed from the table.

I do not claim the long table with its felt blanket or cushion, as that has been used before; neither do I claim the printing-rollers with the patterns in relief, nor the other rollers for feeding and distributing the color; but

I claim as my invention—

1. The combination of the set of frames carrying the rollers, with the side supports, and rail-tracks, and rack attached to the table, the wheel running in the rack and connections for driving the rollers equal surface velocities with the distances moved, the elevating-frame, all attached to and resting upon the long table, substantially as described for the purposes above mentioned.

2. The tightening apparatus, comprising the stretchers-bars, marked *z z z*, the racks *t t*, and the pawls *r r*, fig. 1, in connection with the long table for stretching and holding the oil-cloth during the process of printing, substantially as described.

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Witnesses:

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