2 Sheets—Sheet 1.

J. CRAIG.

Machine for Striping Fabrics.

No. 224,656. **Patented Feb. 17, 1880.**

Fig: 1.

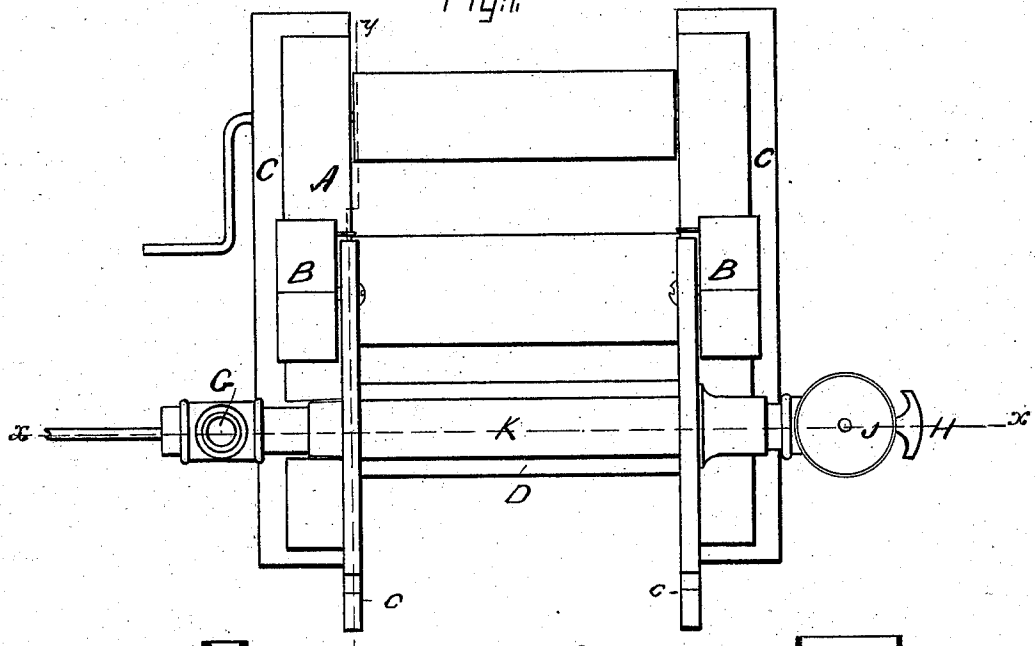
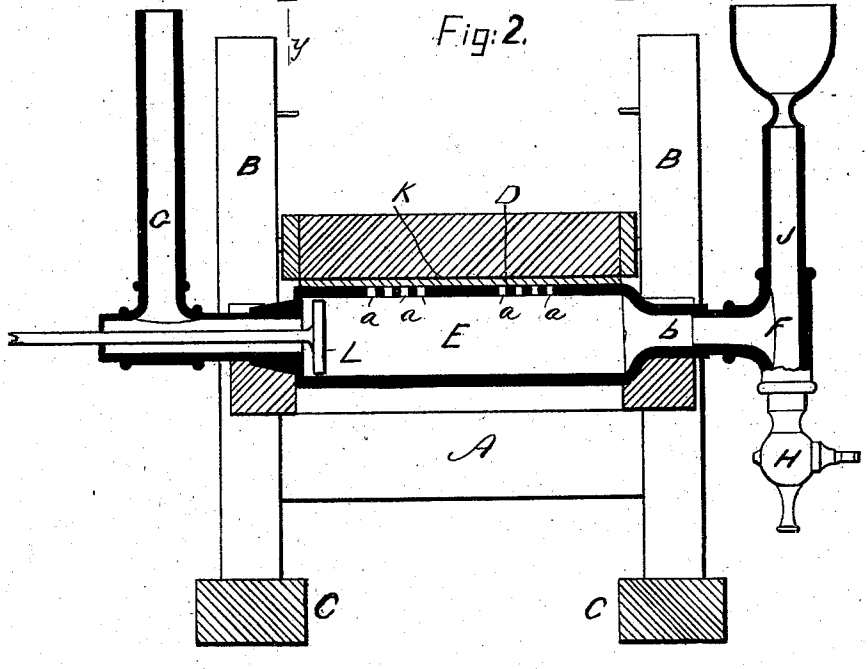


Fig: 2.



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2 Sheets—Sheet 2.

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Fig: 3.

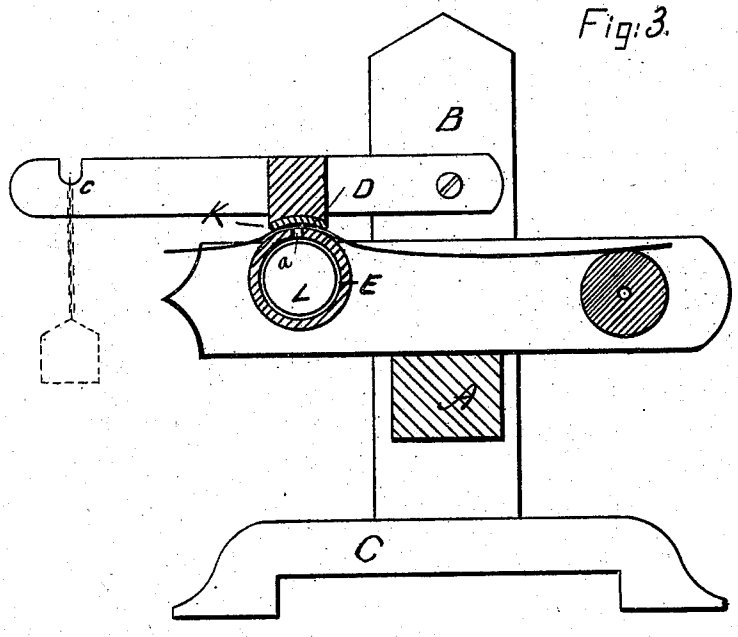
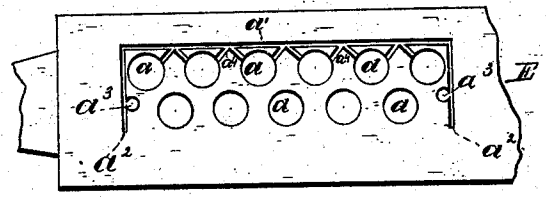


Fig: 4.



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UNITED STATES PATENT OFFICE.

JAMES CRAIG, OF PEABODY, MASSACHUSETTS.

MACHINE FOR STRIPING FABRICS.

SPECIFICATION forming part of Letters Patent No. 224,656, dated February 17, 1880.

Application filed April 15, 1879.

To all whom it may concern:

Be it known that I, JAMES CRAIG, of Peabody, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Striping Fabrics, of which the following is a full, clear, and exact description.

This invention relates to machines for striping cloth, felt, paper, and other fabrics either woven or otherwise produced.

The main object of my invention is to effect the application to a fabric of a coloring-matter in perfect solution, and to obviate the deposit upon the fabric of sediment or any undissolved pigment used in preparing said coloring-solution. Another object is to secure a uniform width for the stripes formed upon a fabric by a striping-machine in which a coloring-liquid is caused to flow directly against said fabric, and another is to secure a uniform distribution of the coloring-liquid within the limits of the space proposed to be colored.

It consists, essentially, in the combination, with a suitably-supported horizontal color-chamber having perforations through its upper wall, of a device for forcing a coloring-liquid contained in said chamber through said perforations, and a pad or plate adapted to press a fabric upon the upper perforated surface of said chamber while said fabric is being drawn across the same. It will be readily seen that any undissolved pigment or sediment which may be contained in the coloring-solution will settle to the bottom of the chamber, leaving at the top a clear solution to flow through the apertures or perforations and be deposited upon the fabric. In many striping-machines hitherto constructed the color-tank has had its delivery-perforations in its bottom, where the sediment and undissolved pigment naturally collect and are carried through the apertures and deposited upon the fabric, giving the stripe an uneven surface and untidy appearance. In this old style of machine the down-flowing liquid has also a tendency to spread by gravity upon the fabric, any inequality of the surface of which will increase this tendency and cause the stripe to have an uneven edge, while by my arrangement, as the striped surface is turned downward, the liquid is not caused by gravity, nor will inequalities of the surface of the fabric cause the liquid, to flow laterally and give an uneven edge to the stripe.

The invention also consists in a color-chamber for striping-machines having the color-emitting perforations formed in two approximately parallel rows in the top thereof, and having in front of the perforations of the front row a straight shallow groove connected with said perforations by means of shallow oblique grooves. These grooves receive any surplus coloring-liquid which may be deposited in any particular place and cause it to spread evenly on the fabric. In order to give a straight well-defined edge to the stripe, I form at each end of the front groove a rearward extension at right angles to the same and connected therewith and with the end perforations. These extensions form conduits for a portion of the coloring-liquid, which they deliver to the fabric at the edges of the stripe and prevent irregularities or breaks therein.

The invention further consists in certain details of construction essential to the proper operation of the machine, and which will be particularly hereinafter described.

In the accompanying plates of drawings, Figure 1 is a plan view. Fig. 2 is a vertical longitudinal section on line *x x*, Fig. 1. Fig. 3 is a vertical cross-section on line *y y*, Fig. 1. Fig. 4 is a detail view.

In the drawings, A represents a frame-work, composed of parallel end standards, B, base-plates C, and otherwise framed so as to receive and support the various parts to be hereinafter described, composing the present improved cloth-striping machine.

D is the striping-surface. This striping-surface is made with perforations *a a a*, which perforations open into a common chamber, E, supported at each end in the frame-work A, with the said perforations uppermost. F is a passage opening into one end, *b*, of said chamber, and through this opening the color to be used is fed into the said chamber, and by any suitable means, such as hydraulic pressure, made to issue therefrom at the perforations *a a* of the striping-surface D.

G represents a vent-tube at the other end of the chamber E, for the air to escape therefrom as the color is forced therein, as described.

H is a stop-cock for emptying the chamber E and other connecting parts, such as the stand-pipe J for the colors, of the colors, as may found necessary in the use of the machine.

K represents a presser pad or block attached to a frame arranged to swing upon the end standards, B, and in such position that the block or pad will rest upon the perforated striping-surface above described.

The swinging frame, at its free ends *c*, is adapted to be weighted, as may be desired, to produce any given pressure on the pad.

The perforations of the striping-surface are arranged to distribute the striping-color on the cloth, &c., passing between the striping-surface and the presser pad or block in lines or stripes, and these perforations are arranged in relation to each other so as to cover the full width of the stripes desired to be produced.

The operation of the machine above described obviously consists, in substance, in drawing the cloth, &c., to be striped over the striping-surface between it and the presser pad or block, and this drawing of the cloth may be done in any suitable manner. As the cloth is thus drawn over the striping-surface the presser-pad K confines it thereto, and by the pressure exerted upon the color in the chamber it is made to issue from the perforations of the striping-surface, thus bringing the color into contact with the cloth and imparting it thereto in the outline of the space or limits embraced by the perforations.

A piston or plunger, L, is arranged so as to be capable, by means of its rod, of being moved from one end to the other of the cylinder, by which means the color in the cylinder can be agitated to relieve it of air and to secure the free passage of the color at the perforations of the striping-surface.

The whole surface of the cloth, &c., as is obvious, can be colored as well as striped.

Referring to Fig. 4, illustrating the striping-surface of the coloring-chamber, it will be observed that the perforations *a* of the two rows overlap each other laterally about one-fourth of their diameters. This prevents diminution of the coloring-liquid deposited, owing to the decreasing area of the perforations. In front of the front row of perforations is formed a shallow groove, *a'*, having rearward extensions, a^2 a^2, communicating with small perforations a^3, which serve as end overlaps for the end perforations of the front row. Oblique grooves a^4 connect the perforations of the front row with the straight front groove. This straight front groove serves to take up any surplus coloring-liquid deposited in any particular place and spread it evenly across the stripe. The oblique grooves cause the said surplus liquid to flow readily to the straight groove. The end grooves or extensions, a^2, of the groove *a'* conduct to and deliver at the edges of the stripe a supply of coloring-liquid, in order that said edges may be well defined and straight.

There has heretofore been used in a dyeing apparatus a color-chamber having its upper wall perforated, in combination with devices for pressing a fabric upon the perforated surface as it is drawn athwart the same, and said chamber has been connected with devices for forcing a coloring-fluid through the perforations and in contact with the fabric. This invention I do not broadly claim.

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

1. The combination, with the chamber E, having perforations in its upper wall, and the presser pad or plate K, for pressing the fabric upon said wall, of the stand-pipe J and a connecting-passage for supplying the color to said chamber, substantially as described.

2. The combination, with the chamber E, having perforations in its upper wall, of the stand-pipe and connecting-passage for supplying color to said chamber, and the upward-extending vent-tube for conveying the air from said chamber, but preventing the escape of the liquid, substantially as described.

3. The combination, with the chamber E, having the upward-extending vent-tube G, of the horizontally-operating plunger L, provided with an outward-extending stem or handle, and adapted to agitate the liquid in said chamber to facilitate the escape of air therefrom through the vent-tube and to prevent undue settling of the coloring-pigment of the striping-liquid, substantially as described.

4. In the striping-machine color-chamber having its striping-surface provided with perforations, the shallow groove extending in front thereof, substantially as and for the purpose set forth.

5. The striping-machine color-chamber having its striping-surface provided with the perforations *a*, straight grooves *a'* a^2, and oblique grooves a^4, substantially as described.

JAS. CRAIG.

Witnesses:
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