D. B. HINMAN.

DYE PRESS.

No. 9,887. Patented July 26, 1853.

Fig. 3.

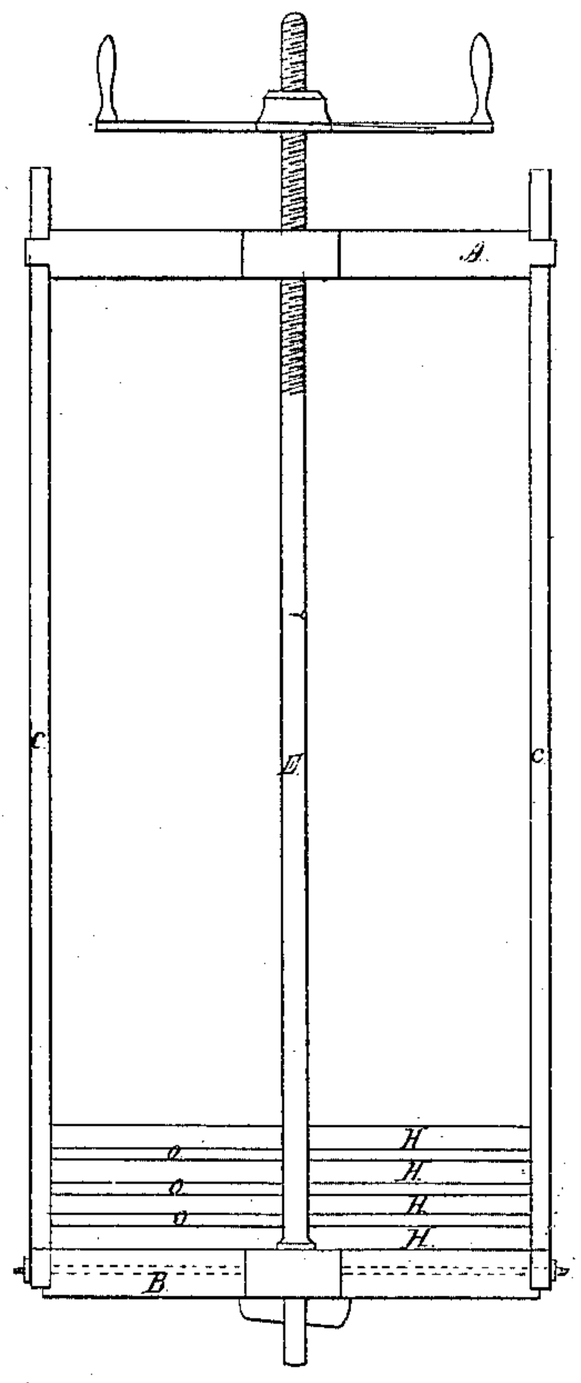

Fig. 4.

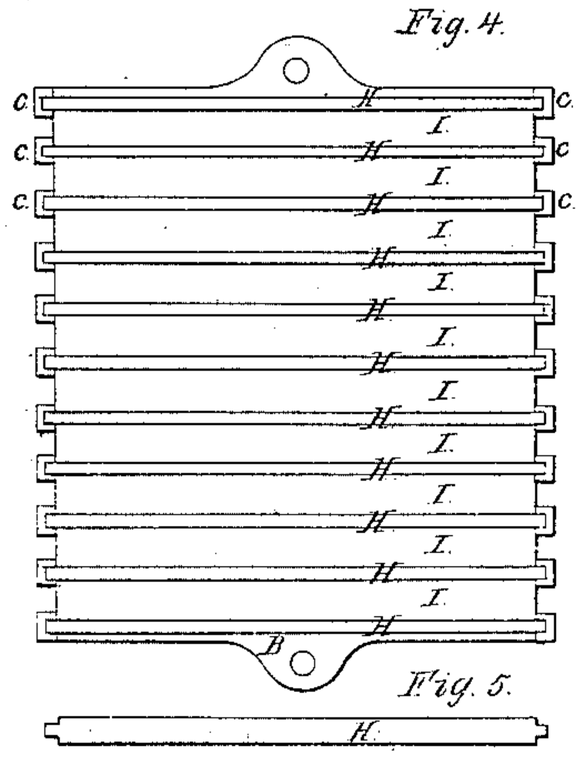

Fig. 5.

Fig. 1.

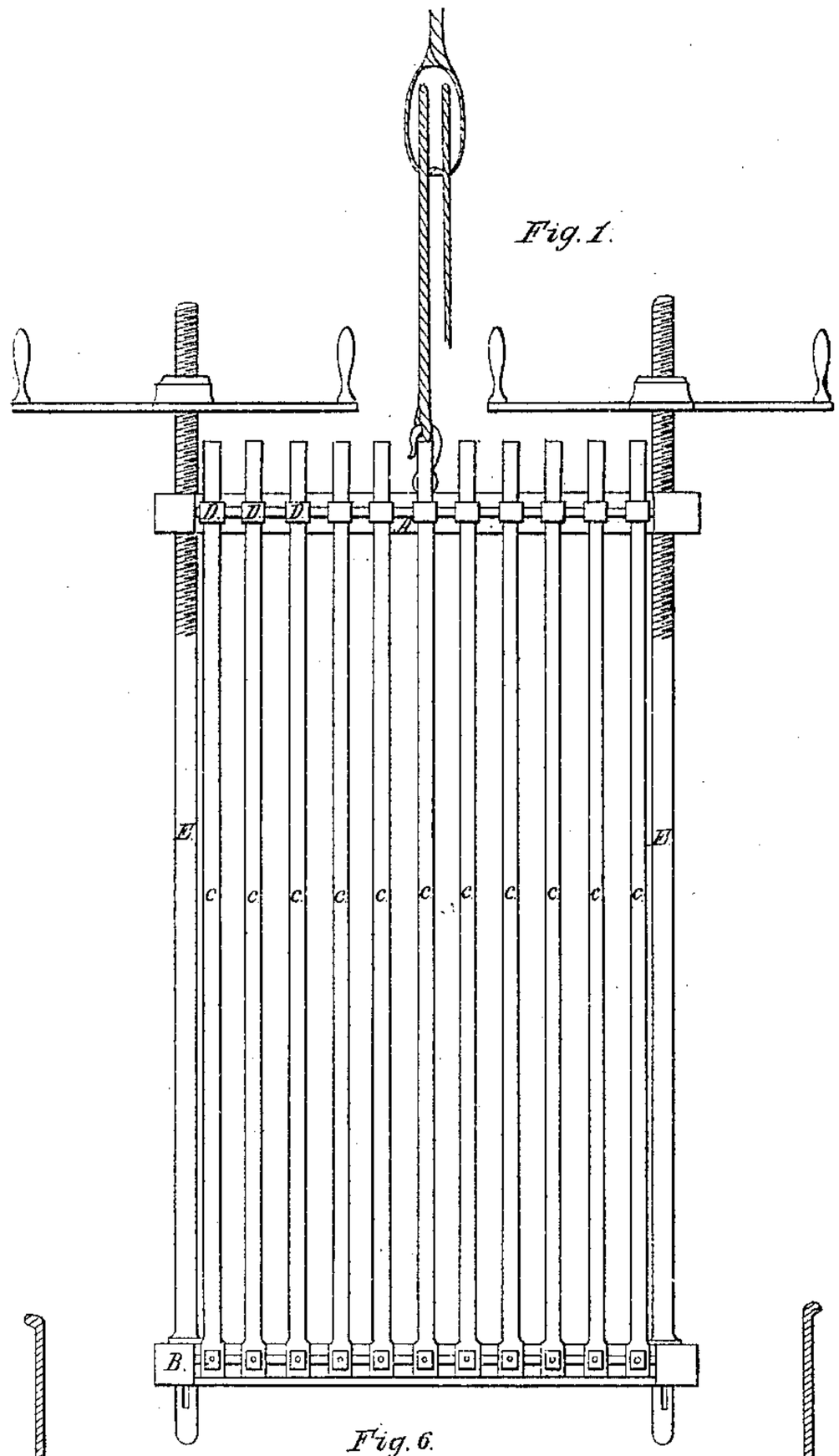

Fig. 6.

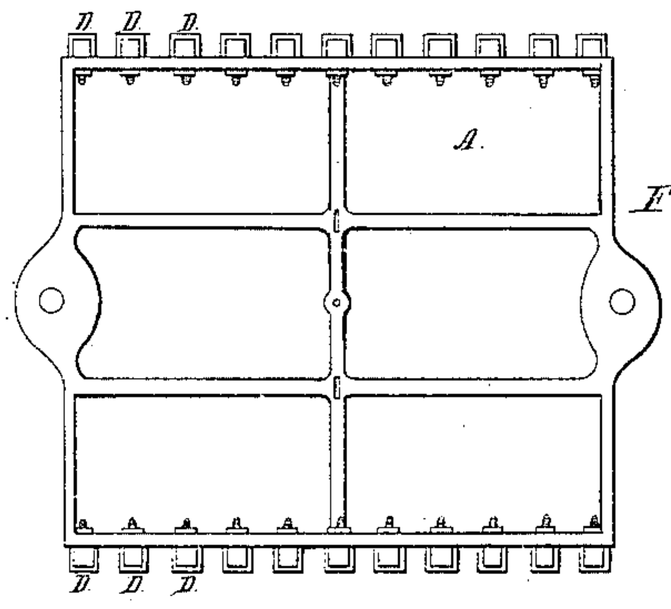

Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL B. HINMAN, OF PHILADELPHIA, PENNSYLVANIA.

DYEING YARN PARTY-COLORED.

Specification of Letters Patent No. 9,887, dated July 26, 1853.

To all whom it may concern:

Be it known that I, DANIEL B. HINMAN, of the city of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Dye-Presses for Dyeing Woolen and other Yarn that it May be of Different Colors of Determined Lengths; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making part hereof, and in the different figures of which like letters refer to like parts.

The nature of my invention consists in pressing the yarn between series of separate and adjustable or changeable bars of hard wood, whose pressing faces are parallel to each other, in such parts and for such distances as are not intended to be dyed, while the parts of the yarn of such distances as are to be dyed, remain, without being pressed, between and beyond the sides of the bars; the dyeing liquor in the dye tub coming freely in contact with these parts, while it is excluded from those parts that are pressed between the faces of the adjustable bars. The parts that are pressed therefore remain of the original color or colors, and the parts not pressed are dyed by the liquor in the dye tub.

The Figures 1 and 3 of the drawings are elevations of the press, in which A is the top plate and B is the bottom plate of cast iron, and C C C, &c., are adjustable vertical cast or wrought iron guides having a groove from top to bottom, in which the ends of the adjustable and changeable cross bars of hard wood H H, &c., that press the yarn rest, while the upper plate A by means of the arm screws, on the rods E E, presses them on to the yarn which rests in beds between them in the spaces O, O, O, &c. These vertical cast or wrought iron guides are adjusted and secured to any distance apart by means of rods and nuts at their lower ends, which rods respectively pass through slots in a flange or rim extending down on the bed plate B, each rod securing opposite guides; their upper ends being controlled in square eyes D D, secured by a screw and nut to each one in a slot through a flange extending up on the upper plate A. This method of fastening these guides and these slots, both of which are shown in Fig. 1, render these guides adjustable to any required distance apart, which adjustability together with the selection of the cross bars of wood of such width of pressing faces as may be required to dye the yarn of the proper lengths determine the length and distance apart of the different colors of the yarn to weave any desired figure in a manner well known.

Fig. 2, is a vertical view of the top plate A showing the square eyes D D and the nuts that secure them.

Fig. 4 is a vertical view of the bottom plate or bed plate B, and the vertical guides C C C, &c., having the wooden cross bars H H H H, &c., in place, and showing the parts of the yarn I I I I, &c., between their sides that are colored, or about to be colored. It will be observed, that the pressing faces of the bars shown in position are no wider than the width of the grooves in the guide bars; and when a greater width of pressing face is required, the bar H in Fig. 5, having a broader face, and a tenon on each end to pass in the grooves of the vertical guides, shows the form of bar that may be used, in place of the narrower bars, in the same press, which is adjustable to suit all the different width as required.

To dye the yarn so that it shall be of two colors, it is first dyed all of one color, or taken white; then a series of bars H H, &c., is laid on the bottom of the press; then a bed of yarn is laid across these bars; then another series of bars is laid directly over the other series, on this bed of yarn; then another bed of yarn is laid across these bars, and so on alternately until the press is filled; when the top is screwed down which creates a pressure of the yarn between the bars; and as much yarn extends beyond the outside of the bars, and between the sides of the bars as is intended to be dyed. The press is then hoisted by a tackle and lowered into the dye tub, Fig. 6, and boiled until the color is set in the yarn, after which it is raised, allowed to drain, and the yarn is removed, being of two colors.

When it is desired not to dye all of the yarn first of one color; but to dye the two colors on the white yarn, one color is first dyed equal in length to the space between the bars, the width of the bars being the same as the length intended for the other color. Bars of a width equal to the length of the first color are then used pressing that color between their faces, and the remaining white between their sides is then dyed of the other desired color. It is apparent also that

this press will dye yarn of three or more different colors. For example, if it be intended to dye the yarn so that it shall be alternately three colors, say three inches green, three inches red and three inches black, the width of the pressing faces of the bars must be six inches, and the spaces between their sides each three inches. The yarn is put in the press, say, white, and the three inches between the bars dyed black, the part pressed by the bars remaining white. The yarn is then moved so that the three inches black and three inches of the white come under the pressing faces, leaving three inches of the white again between the bars and this is then dyed red. The yarn is again moved so that the black and red come under the pressing faces leaving three inches of the white again, which is dyed green. Upon removing the yarn from the press it is green, red and black in alternate distances of three inches each. In this way any number of different colors equal to the proportion of the space between the bars, to the sum of their width and space, may be obtained, and the length of these colors and their number may also be varied by using bars of different widths in order to weave with the yarn different figures of cloth as may be desired in a manner well known.

Having now fully described the dye press and the various modes of using it, what I claim as my invention is—

The employment of series of separate and adjustable or changeable bars one above the other in an adjustable press, and pressing between their faces the parts of the yarn not intended to be dyed while the liquor is in contact with and dyes the parts of the yarn between the sides of the bars, substantially as described.

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Witnesses:
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J. O. HOXIE.