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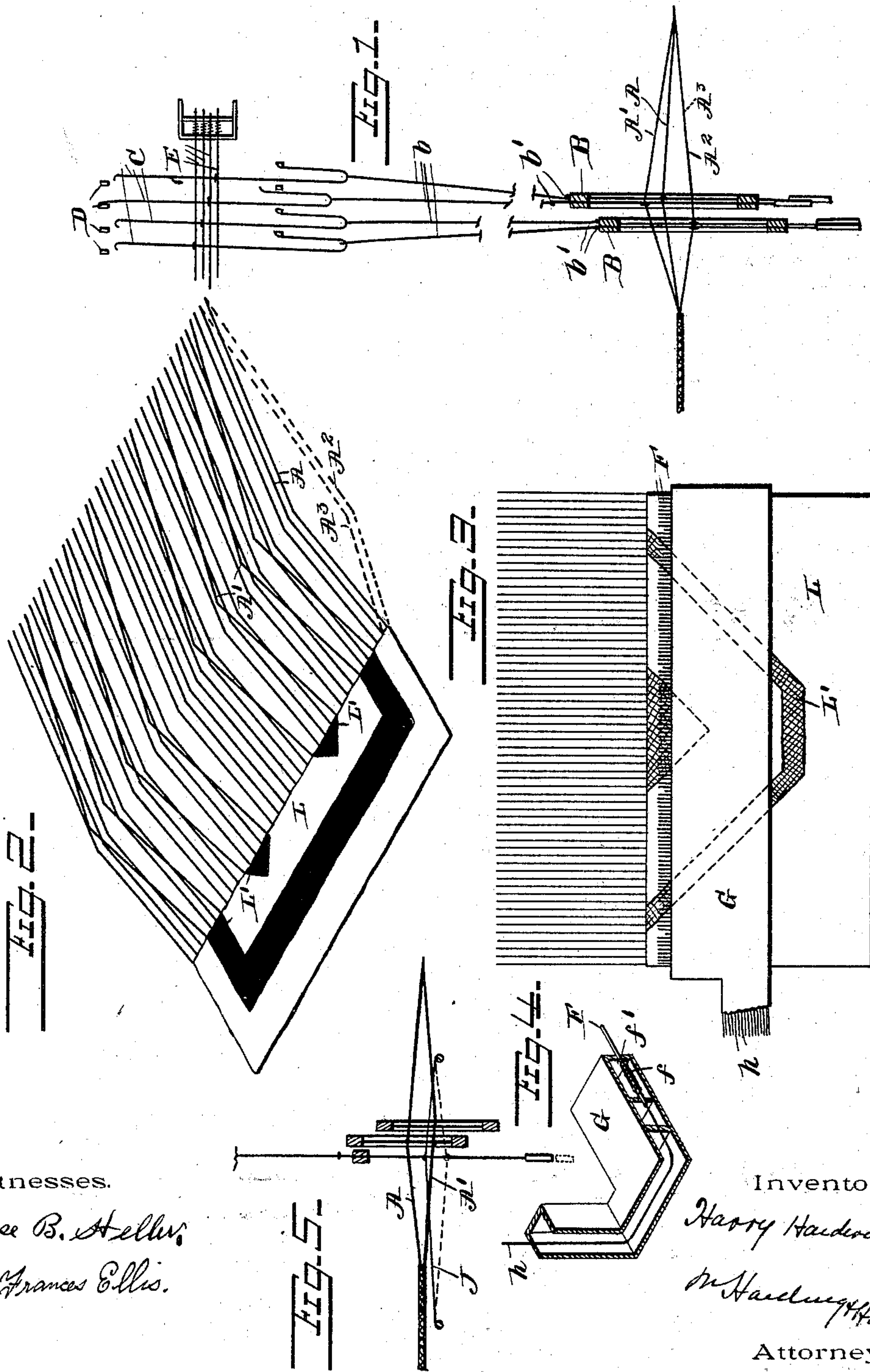
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H. HARDWICK.

LOOM FOR WEAVING CHENILLE FABRICS.

(Application filed Apr. 11, 1898.)

(No Model.)



Witnesses.

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LOOM FOR WEAVING CHENILLE FABRICS.

SPECIFICATION forming part of Letters Patent No. 625,841, dated May 30, 1899.

Application filed April 11, 1898. Serial No. 677,123. (No model.)

To all whom it may concern:

Be it known that I, HARRY HARDWICK, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Looms for Weaving Chenille Fabrics, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

In the weaving of chenille fabrics as now generally carried on, whether the chenille be the ordinary chenille, in which the tufts or fur projects from both sides, or the Axminster type, in which the fur projects from one side, the fur or chenille weft is first prepared according to a prearranged pattern. After each pick of said weft it is placed in correct contiguity with the preceding contiguous weft by the operator, who has before him the pattern and arranges successive weft-picks by hand to bring the proper colors in contiguity to carry out in the fabric the correct pattern shown in the design. This necessitates the use of skilled operatives, is somewhat slow, and often results in mistakes prejudicial to the finish and correct design of the fabric.

My invention has for its object to reduce the skill necessary for the operatives and to make the weaving more rapid, and thus reduce the cost.

It also has for its object to make the setting more certain, and thus reducing to a minimum the mistakes in the fabric, and thus increasing the finish and correct design of the fabric.

To that end, while still employing the ordinary warp, which may be operated by shafts in the usual manner, my invention consists in placing across the loom in the line of the weft a plurality of indicating devices, which are connected by appropriate mechanism with a jacquard operated by pattern-cards, which pattern-cards are cut to correspond to the prearranged pattern, so that after each pick of the chenille-weft the proper indicating devices are operated to locate the proper setting position for the weft thrown, so that a mechanical point is indicated without the operator referring to the design. The indicating devices may be the mark of a position of a given color of the weft thrown or may indicate the beginning and ending of the figure and

ground or any desired prearranged scheme; but in any event the operator has only to locate the prearranged indicia upon the weft with relation to the declaration of the indicating devices.

I will now describe the embodiment of my invention as shown in the accompanying drawings.

Figure 1 is a diagram showing my improved method of indicating the change of color by means of the warp. Fig. 2 is a perspective view of the fabric and the upper warps. Fig. 3 is a plan view of a modified form of indicating device. Fig. 4 is a detail perspective of a portion of Fig. 3. Fig. 5 is a diagram of another modified form.

Where the warp used in weaving the fabric is fine enough and sufficient in number, I prefer to use this same warp as indicating devices. Such construction is shown in Figs. 1 and 2. In that construction $A A' A^2 A^3$, &c., represent the warp, which is connected to the shafts B in the ordinary manner. This warp is connected to tails b and extends through orifices in the shafts, having the knot b' to enable it to be lifted by the shaft. The tails b extend beyond the shaft and are connected to the hooks C of an ordinary jacquard lifted by the griff or knife D and controlled by the needles E , operating the cards in the ordinary manner. The lift of the jacquard is made greater than the lift of the shaft, so that when a warp is lifted by the jacquard it is elevated higher than the lift of that or any other warp by the shaft. The jacquard is so arranged as to operate for each pick of the tuft or fur and the card controlling the hooks to be lifted so cut that the warp is lifted by the jacquard at the desired indicating-points and, being lifted higher than any warp lifted by the shaft, leaves a mechanical and visual point of setting. In Fig. 1 warp A is lifted by the shaft, warp A' by the jacquard, and warps $A^2 A^3$ are unaffected either by shaft or jacquard.

The general scheme is illustrated in Fig. 2. In this the prearranged scheme is that the indicating devices shall indicate the change from ground L to figure L' , and vice versa, and it is shown after a pick has been thrown and the warp at those points lifted by the jacquard to a higher level than the warp lifted

by the shafts. The operator has, therefore, only to set the proper color at those points mechanically, and the pattern is followed with certainty and celerity. The cards are of course so cut that after each pick through-
 5 out the weaving the warp at the proper point will be lifted by the jacquard.

Of course I do not intend to limit myself to any particular form of jacquard or equivalent
 10 mechanism. A lifter-board jacquard would operate equally well, or a dobby, or any kind of mechanism in which, through or by the indication of a card or series of cards or equivalent device, any one or a plurality of warps
 15 may be lifted. This is of course a general definition of a jacquard, and also equally applies to kindred mechanism to accomplish the same result, and when I use the term "jacquard-machine" I intend to include, broadly,
 20 any such mechanism as would be covered by this definition.

In Figs. 3 and 4 I have shown another form of embodiment of my invention. In this embodiment instead of using the warp as indicating devices I use a series of pins F, projecting from a box G across the loom. As
 25 may be seen, these pins are acted upon by the spring *f* to hold them normally projecting through the orifices *f'* in the box. Each pin
 30 is connected to a tail *h*, which extends backward along and beyond the box and are each connected to a jacquard apparatus. (Not shown.) The operation is similar to that of Figs. 1 and 2, the difference being that the
 35 action of the jacquard pulls the pin operated into the orifice, leaving an open space to indicate the point where the setting is to be done. When the jacquard descends, the spring *f* returns the pin.

40 In Fig. 5 I have shown the same general form of embodiment of my invention shown in Figs. 1 and 2 applied to a fabric in which the warp A A', &c., used in weaving the fabric are too few in number across the loom to
 45 provide sufficient number of indicating devices across the loom to set the pattern absolutely. In that case I use supplemental warp

J, which are connected to the jacquard, but not to the beam, and in the loom lie below the regular warp, so as not to interfere with
 50 the weaving. After each pick the predetermined warp are lifted by the jacquard to indicate the setting-points.

The specific embodiment of my invention shown in Fig. 5 and described in the foregoing specification, which consists in combining
 55 with the shafts and regular warp connected therewith a plurality of supplemental warp, a jacquard, and connection between said supplemental warp and the jacquard for the purpose
 60 specified, is not specifically claimed herein, but forms the subject-matter of and is specifically claimed in a separate application filed by me April 8, 1899, Serial No. 712,201.

65 Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In looms for weaving chenille fabrics, the combination of a plurality of indicating
 70 devices extending across the loom, a jacquard mechanism and connection between said indicating devices and the jacquard mechanism for the purpose specified.

2. In looms for weaving chenille fabrics, 75 in combination with the shafts, of a plurality of warp connected therewith, a jacquard-machine, and connection between said jacquard and the warp for moving parts of the warp out of the plane of the warp for the purpose
 80 specified.

3. In looms for weaving chenille fabrics, in combination with the shafts, of a plurality of warp connected therewith, a jacquard-machine and connection between said jacquard
 85 and the warp, the lift of the jacquard being greater than the lift of the shaft for the purpose specified.

Signed by me, at Philadelphia, Pennsylvania, this 23d day of March, A. D. 1898.

HARRY HARDWICK.

Witnesses:

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