

T. M. MORROW.
JACQUARD MACHINE.
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1,055,068.

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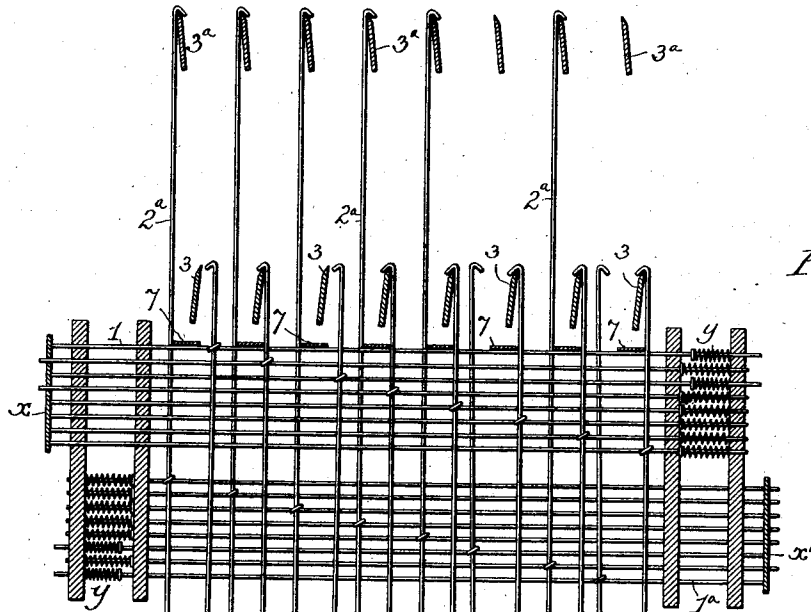


Fig. 1

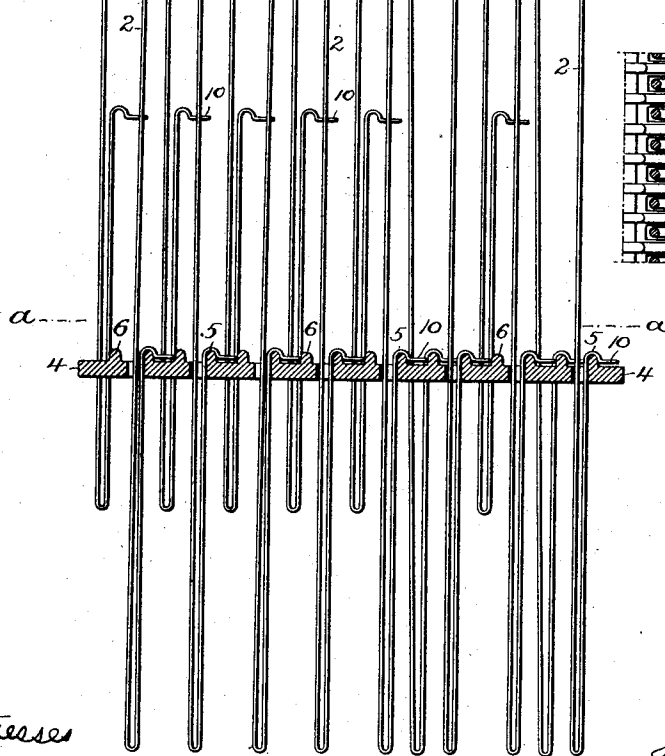


Fig. 2

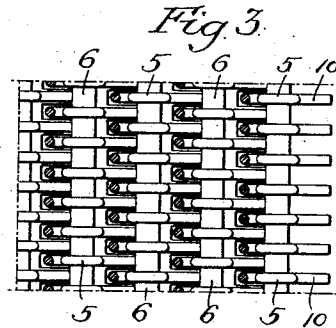


Fig. 3

Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS M. MORROW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THOMAS HALTON'S SONS, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

JACQUARD-MACHINE.

1,055,068.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS M. MORROW, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Jacquard-Machines, of which the following is a specification.

One object of my invention is to so construct jacquard apparatus for looms, that, when the needles which control the lifters are retracted, the vibration of said lifters will be restricted, and they will not be permitted to assume such a relation to the descending griff bars, that bending or other injury to the lifters will be caused by reason of the contact of said descending griff bars therewith.

A further object is to prevent such twisting of the lifters as will prevent proper engagement of the griff bars with the hooked upper ends of said lifters, or of the lower ends of said lifters with the slotted frame whereby they are guided in their vertical movements and supported when in a lowered position.

These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawing, in which—

Figure 1 is a longitudinal sectional view of sufficient of a jacquard machine to illustrate my invention; Fig. 2 is a transverse section illustrating part of the top row of needles and one of the devices for preventing vibration of the lifters, and Fig. 3 is an enlarged sectional plan view of part of the jacquard apparatus, the section being taken on the line *a-a*, Fig. 1.

In the drawing, a number of the needles of an ordinary double lift, double cylinder jacquard machine are represented at 1 and 1^a, each of these needles having an eye for the reception of one of the lifters 2 or 2^a of the machine, whereby, when either of the needles is moved by contact with its respective jacquard card, the lifter controlled thereby will be moved so as to carry its hooked upper end out of position for engagement with the lowered griff bars 3 or 3^a, the lifters thus operated consequently remaining in the lowered position when the griff bars rise and the lifters not thus operated, remaining in position to be engaged by the griff bars when they rise. The lifters are guided in their vertical movements by a slotted frame 4, and each of them is

looped at its lower end, each loop terminating at its upper end in a hook 5 which rests upon a transverse bar 6 of the slotted frame 4, when the lifter is lowered. The needles 1 are moved in one direction by means of pattern cards *x*, and the needles 1^a are moved in the opposite direction by means of pattern cards *x'*, the needles of each set being returned to normal position on the withdrawal of the card by the action of suitable springs *y*.

In an ordinary jacquard machine the vibration of the lifter on the backward movement of the needles is unrestricted and it sometimes happens that such vibration will carry the upper end of the lifter into the path of a descending griff bar and the lifter will be struck thereby and bent to such an extent as to render it inoperative or even to cause it to interfere with the proper operation of adjacent lifters. In order to overcome this objection, I place strips or plates 7 between successive rows of lifters, said strips being of any available material, preferably sheet metal, and serving to restrict the vibration of the upper ends of the lifters in respect to one another and thereby overcome the above noted objection. The strips 7 can be conveniently supported by resting them upon the top row of needles 1, as shown in Figs. 1 and 2, lateral displacement of the strips being prevented by bending their ends, as shown, for instance, at 9 in Fig. 2, so as to cause them to engage with the end needles of the row.

In order to prevent the looped lower ends of the lifters from twisting in the slots of the frame 4, so as to carry their top hooks out of position for engagement with the griff bars, or their lower hooks 5 out of position for engagement with the bars 6 of said frame 4, I provide each of the hooks 5 with a tongue 10, which projects between the looped lower ends of adjoining lifters, as shown in Figs. 1 and 3, and thereby prevents any twisting action of either lifter during the rising and falling movements of the same.

I claim:

1. The combination, in a double-lift jacquard machine, of the upper and lower sets of needles, two sets of griff bars and two sets of lifters, one set controlled by one set of needles and engaging one set of griff

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bars and the other set controlled by the other set of needles and engaging the other set of griff bars, and transverse strips located between the rows of lifters and serving, by contact therewith, to restrict the vibration of the lowered lifters on the retraction of the needles controlling the same. 20

2. The combination of the upper and lower sets of needles, the lifters, and the two griff bars of a double lift jacquard machine, with strips interposed between the rows of lifters, said strips resting upon the top row of the upper set of needles and serving to restrict the vibration of the lowered lifters on the retraction of the needles. 25

3. The combination of the upper and

lower sets of needles, the lifters, and the two griff bars of a double lift jacquard machine, with strips located between the rows of lifters and resting upon the top row of the upper set of needles, said strips being hooked at their opposite ends to engage with the end needles of the row and thereby provide for the lateral retention of the strips.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

THOMAS M. MORROW.

Witnesses:

JAMES WOODHEAD,
PAULINE ELLIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."