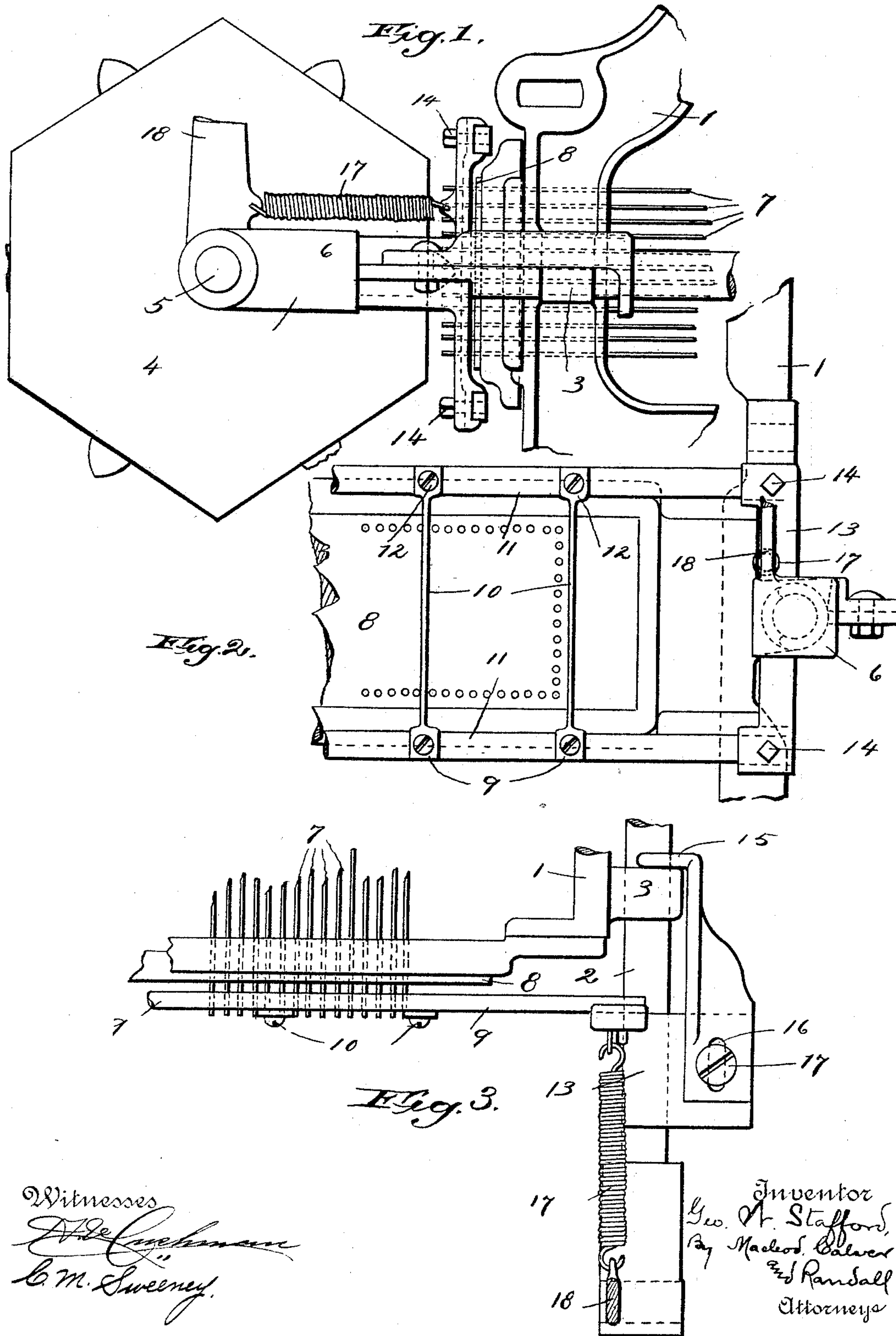


(No Model.)

G. W. STAFFORD.
JACQUARD MECHANISM FOR LOOMS.

No. 497,833.

Patented May 23, 1893.



UNITED STATES PATENT OFFICE.

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JACQUARD MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 497,833, dated May 23, 1893.

Application filed February 14, 1893. Serial No. 462,295. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STAFFORD, a citizen of the United States, residing at Providence, in the county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Jacquard Mechanism for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

Sometimes in the operation of a Jacquard mechanism one of the perforated pattern cards used therein, when brought by the working of the mechanism into proximity to the horizontal needles, will buckle or otherwise project from the position it is intended to occupy so far that in its advancing movement its edge will strike the ends of the horizontal needles which extend through and in front of the needle-board, and therefrom will result injury to the card or needles, or to both.

My invention has for its object to render such accident and resulting injury impossible, and it consists, therefore, in a guard or protector for the said horizontal needles, of a character hereinafter specified, and connected and combined with the parts of a Jacquard mechanism in the manner which hereinafter is made to appear.

The invention will be fully described with reference to the accompanying drawings, and then will be particularly pointed out and clearly defined in the claims appended to this specification and forming a part hereof.

In the drawings, Figure 1 is a view in end elevation of part of a Jacquard mechanism having my invention applied thereto. Fig. 2 is a view in front elevation showing the same parts, with the exception of the prism or card-cylinder, which is removed. Fig. 3 is a view in plan of the parts which are shown in Fig. 2.

I have shown in the drawings only the parts at one end of the Jacquard mechanism, but it will be understood that the construction is the same at both ends.

At 1 is shown one of the end frames of a Jacquard mechanism, and at 2 one of the usual horizontal rods employed for carrying the prism or card-cylinder, or other known device for presenting the cards to the ends of the horizontal needles 7, the said rod 2 moving in guides 3 on the said end frame, 1, only one of such guides being represented.

At 4 is shown an ordinary prism or card-cylinder, its shaft or journal 5 being supported in a bearing 6 provided on the corresponding rod 2.

In practice the prism or cylinder is rotated intermittently by usual means, not shown, to feed the cards, and the rods 2 are moved endwise by suitable known devices, also not shown, to press each card in turn against the ends of the horizontal needles 7.

Any other known or suitable form of devices for feeding the cards along, and for presenting them successively to the ends of the said horizontal needles may be employed. The said ends of the needles in practice are permitted to project a short distance in front of the perforated needle board 8 by which the needles are supported at the front of the mechanism, and in consequence of this projection the ends are liable to be struck, in the movement of the cards as they are being fed along or advanced, by any card which is buckled or from any other cause projects unduly from the surface of the prism or cylinder, or other backing therefor. When the ends of the needles are thus struck, the card which strikes is likely to become torn, and the needles are likely to become bent.

To prevent the ends of the horizontal needles from being struck by the cards as the latter are being fed along, I provide a guard or protector which is supported and arranged in a manner to permit it to move forward and back in a manner like unto the prism or cylinder, or other card presenting device employed, through a part of the distance traversed by the latter, so as that the said guard or protector may be carried out by the moving parts of the mechanism in order to shield the projecting ends of the needles prior to each feeding or advancing movement that is communicated to the cards. The said guard or protector is shown at 9, it being represented as having a number of vertical wires or cross-bars 10, 10, that are passed between adjacent vertical rows of horizontal needles, and are connected at their upper and lower ends with a supporting-frame. The said supporting-frame comprises longitudinal bars 11, 11, to which the ends of the wires or cross-bars 10, 10 are attached in suitable manner, as by screws 12, 12, and end-pieces 13, only

one of these end-pieces being shown. The said end-pieces 13 are each constructed with arms to which the bars 11, 11 are attached in suitable manner, as by screws 14, 14, and are intended to slide on suitable supports so as to enable the guard or protector to be moved in the manner above set forth. Preferably, the end-pieces 13 are formed, as shown, to fit upon and slide along the horizontal rods 2 which carry the prism or cylinder, or other device for presenting the cards to the needles.

The best mode of moving the guard or protector outward at the proper time to enable it to cover the ends of the horizontal needles and serve as a shield therefor is, in my opinion, by connecting it with the supporting or carrying devices for the prism or cylinder, or whatever device it may be that is employed for presenting the cards to the needles, so as that when the prism or cylinder, or other device, is moved out or away from the needles the guard or protector is carried with it, the guard or protector being arrested, when it has moved outward to the desired point, by the stop 15, projecting therefrom, which engages with a fixed stop on the adjacent end-frame, the said fixed stop being the guide 3 in the present construction. The guard or protector is thus arrested before the completion of the outward movement of the prism or cylinder, or other card presenting device, in order that there may be secured between the two an unobstructed space which will permit the card to be fed along or advanced.

To provide for varying the point at which the guard or protector is arrested in its outward movement, the stop 15 is made in a separate piece and formed with a slot 16 through which is passed the screw 17 that binds the stop 15 to the end-piece 13.

The simplest and best manner of connecting the guard or protector with the support or carrier for the prism or cylinder, or other device, so as to cause the said support or carrier in its outward movement to carry the former with it until arrested by the stops, which I have yet devised, is by means of the spring 17 having one end thereof attached to the end-piece 13 and its other end attached to the projection 18, the latter being formed on the bearing 6 or otherwise connected with the support or carrier.

As will be apparent, when the prism or cylinder, or other card presenting device, is moved away from the needles the guard or protector will be carried in the same direction until it reaches a point just beyond the ends of the needles, and has covered the said ends, when the stop 15 engages with the fixed stop and prevents the guard or protector from going farther, the continued movement of the cylinder support or carrier merely stretching the spring 17. This presents the series of vertical wires or cross-bars 10, 10 beyond the ends of the needles, and across the whole length of the series of needles, so that if the advancing card buckles or otherwise projects

it will come in contact with the said wires or bars instead of the needles and cannot become torn itself or bend the needles. On the inward movement of the prism or cylinder, or other card presenting device, the guard is moved back positively, as by the bearing 6 coming in contact with the end-piece 13.

I deem it best that the movable guard or protector should be employed in addition to the usual fixed needle-board 8, and between the latter and the card-presenting device, as shown, although I do not regard it as being outside of my invention, except in so far as I have more restrictedly claimed the latter hereinafter, to omit the fixed needle-board.

I am aware that heretofore it has been proposed to employ a movable needle-board which is normally pressed outward by the action of springs so as to cover the ends of the needles, and also that it has been proposed to employ in connection with a fixed needle-board a supplemental guard or protector similarly pressed outward by springs, the movable needle-board in the one case, and the guard or protector in the other, being carried back by the card when the latter is advanced toward the needles and the springs being thereby compressed. I do not claim any such arrangements.

In devices embodying my invention there are no springs having to be compressed in order to permit the ends of the needles to be exposed.

I claim as my invention—

1. The combination with the needles of a Jacquard mechanism, a card-presenting device, and a moving support or carrier for the said card-presenting device, of a guard or protector for the needles, operated by the said support or carrier and moved outward thereby to cover the ends of the needles at each feeding or advancing movement of the cards and thereby prevent said ends from being struck by a card, and stops for limiting the extent to which the guard or protector is moved out by the said support or carrier, substantially as described.

2. The combination with the needles of a Jacquard mechanism, a fixed needle-board through which the ends thereof project, a card-presenting device, and a moving support or carrier for the said card-presenting device, of a guard or protector between the needle-board and the card-presenting device, operating by the said support or carrier and moved outward thereby to cover the ends of the needles at each feeding or advancing movement of the cards and thereby prevent said ends from being struck by a card, and stops for limiting the extent to which the guard or protector is moved out by the said support or carrier, substantially as described.

3. The combination with the needles of a Jacquard mechanism, a card-presenting device, and a moving support or carrier for the said card-presenting device, of a movable guard or protector for the ends of the needles

dles, a spring connecting the said guard or protector with the support or carrier to enable the latter in its outward movement to carry the former with it, and stops for limiting the extent to which the guard or protector is drawn out in consequence of its connection with the support or carrier, substantially as described.

4. The combination with the needles of a
10 Jacquard mechanism, the card-presenting device, the sliding-rod, and the bearing carried thereby, of the guard or protector having an

end-piece fitted to the said sliding-rod, the spring connecting the guard or protector with the bearing or rod, and stops whereby to limit
15 the extent to which the guard or protector is drawn out, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. STAFFORD.

Witnesses:

CHARLES H. POLAND,
JOHN A. VICKERY.