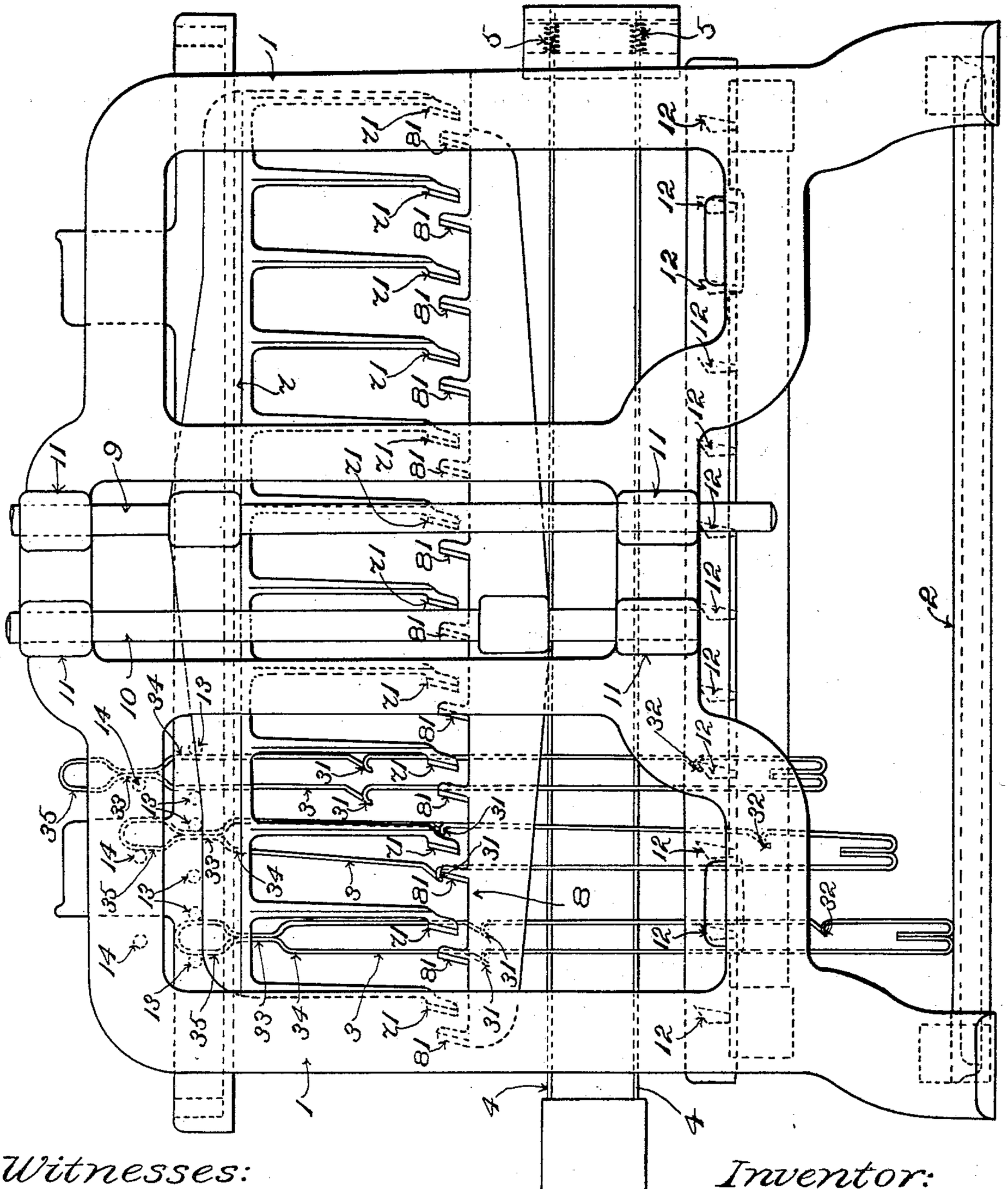
No. 625,562. Patented May 23, 1899.

A. E. KELMEL.

DOUBLE ACTION JACQUARD MACHINE.

(Application filed June 29, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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DOUBLE-ACTION JACQUARD-MACHINE.

SPECIFICATION forming part of Letters Patent No. 625,562, dated May 23, 1899.

Application filed June 29, 1898. Serial No. 684,742. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. KELMEL, 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 Double-Action Jacquard-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

The invention relates more particularly to what are known as "double-action" or "double-acting" jacquard-machines. In certain forms of machines of this class there is employed for each neck and tail cord a double hook or hooked upright, and the machine has two griffs working alternately and both intended to engage with the said double hook or hooked upright, but not both at the same time, the one griff ascending while the other is descending for one pick, and vice versa for the next pick, and so on. In consequence of the fact that the double upright has two griff-hooks, one for engagement with each griff, it follows that when one griff is descending, carrying with it an upright which previously was raised, but which should occupy a lowered position in the next shed formation, the disengaged hook on said upright projects into the path of movement of the ascending griff, and hence the latter will engage with the said hook of the descending upright unless such engagement is provided against and by arresting the descent of such upright and carrying it into an upper position make a false indication and cause a mispick.

The object of the present invention is to provide a means of preventing undesired engagement of a descending upright by the ascending griff which shall obviate the necessity of making an extra beat of the card cylinder or prism for the same purpose. Where it is undertaken to prevent improper engagement of a descending upright by the ascending griff at the time when the two griffs are passing each other by causing an additional movement of the card cylinder or prism to present again to the needles the same card which was last presented thereto, a slowing down of the operation of the loom below the speed that otherwise would be attainable is necessitated, since such additional movement of the card cylinder or prism renders it necessary to occasion two complete beats or movements of the cylinder or prism for each pick of the loom. For instance, if it were desired to run a loom at the rate of one hundred and fifty picks per minute the card cylinder or prism would be required to make three hundred beats against the needles per minute. By obviating the necessity of making the second or extra beat of the card cylinder or prism for the purpose of preventing improper engagement of the ascending griff with the descending upright and by providing devices to press back the descending upright out of reach of the ascending griff I am enabled to run a loom having a double-action jacquard-machine applied thereto at a higher rate of speed than I have heretofore known to be possible.

The invention consists in the novel features and combinations which I will now proceed to describe with reference to the accompanying drawing, in which latter I have illustrated the best embodiment of my invention that I have yet contrived. The distinguishing and characteristic features of the invention are particularly pointed out and distinctly defined in the claim at the close of this specification.

The accompanying drawing shows in side elevation certain portions of a double-action jacquard-machine having one embodiment of my invention applied thereto, only such old parts being shown as are necessary to make clear the relations and mode of operation of my invention.

The framing and certain fixed parts which are applied thereto are designated 1 1, the usual bottom board being designated 2, the double hooks or uprights being designated 3 3, the usual needles coöperating with said uprights being designated 4 4, the springs which are applied to the said needles being designated 5 5, and the usual card cylinder or prism being designated 6.

7 and 8 respectively designate the two moving griff-frames, the blades applied to the said griff-frames being designated, respectively, 71 and 81 and being arranged in alternating

succession, as shown. The two griff-frames 7 and 8 are shown as mounted, respectively, on the slide-rods 9 10, as usual, the said slide-rods being fitted to move in guides 11 on the fixed framework of the machine, all as usual, and the griff-frames being in practice actuated through suitable power connections, (not necessary to be shown or described herein,) and thereby being caused to move simultaneously in opposite directions with respect to each other.

The card cylinder or prism 6 in practice will be supported and operated by devices of usual character and construction, (not herein shown,) and thereby will be caused to make one beat for each shed formation, this usually corresponding with one pick of the loom to which the jacquard-machine is applied. The uprights 3 3 are double, as shown, each limb of each of such uprights having a hook, as 31. One limb of each upright is designed for cooperation with a griff-blade 71, and the other limb thereof is designed for coöperation with the adjacent griff-blade 81, one of such griff-blades being designed to be uplifted for one shed and the other thereof being designed to be uplifted for the succeeding shed, and so on in regular alternation.

12 12 designate the blades of a stationary griff such as is employed in order that an up-raised upright may be retained in its elevated position for several picks in succession without being caused to descend meanwhile.

32 32 designate hooks that are formed on the uprights 3 3 for engagement with the said griff-blades 12 12.

The devices which have been described thus far are common to preëxisting jacquard-machines.

With the foregoing devices I combine certain novel features whereby as each of the moving griffs in turn descends after having been elevated the disengaged hooks of the uprights which are engaged and descending therewith are pressed back, so that the said disengaged hooks thereof shall be out of the path of the ascending griff. Thereby I obviate the necessity of making an extra beat of the card cylinder or prism and the pattern-card thereon against the needles for the purpose of preventing the ascending griff from picking up a descending upright and raising it at a time when it should be lowered into a depressed position. I secure the desired result by bending the two limbs of each double upright toward each other, as shown, forming a reduced neck, as 33, with portions 34 35 of greater width below and above such neck. The neck and wider portions above and below the same coact with wires 13, 13, and 14 or equivalent bearings relatively to which the double uprights move as they ascend and descend in unison with the griffs. The said wires or bearings are mounted in a fixed portion of the framing of the machine, in the upper part thereof. They coöperate with the double upright in each rise or fall of the upright to cause a backward movement or recession of the upper portion of the upright at the time when the two sets of griff-blades are passing each other, which is the time at which the ascending griff is likely to pick up the descending upright and carry it again into an elevated position. This backward movement or recession of the upright is not sufficient to disengage the hook thereof which is engaged with a moving griff-blade from the said griff-blade, but is sufficient to press back the disengaged hook of such upright out of the path of the adjacent oppositely-moving griff-blade. Each upright acts in connection with two of the bearings 13 13, which latter are spaced at a distance apart corresponding with the width of the portions 34 and 35 of the uprights which are next adjacent above and below the neck 33. The said bearings 13 13 serve to maintain the upright in its normal vertical position except during the period of rearward deflection of the upright at the time when the two sets of griff-blades are passing each other. The bearing 14 in each movement of the upright up or down by its engagement with the shoulders at the front of the head 35 operates to deflect the upright rearwardly. The rear bearing 13 by its engagement with the shoulders above and below the neck 33 operates to deflect the upright forwardly again. The bearing 14 is located at a higher level than the bearings 13 13 and at an intermediate position horizontally with reference to the two latter in order to enable it to act in connection with the upright to occasion the desired rearward deflection of the latter. The first upright at the left is shown in a depressed position, with the head of the same fitting between two of the bearings 13 13. The second upright is shown in an intermediate elevation, with the upper portion thereof deflected rearwardly through its engagement with bearing 14. In this position of the upright the rear bearing 13 enters the recess at the rear of the neck 33. The third upright is shown in its full elevated position, with bearing 14 received in the recess at the front of the neck 33.

I claim as my invention—

The combination with the griffs moving oppositely with relation to each other, of the double upright having the limbs thereof contracted together to form the reduced neck, and also having the limbs thereof separated above and below such neck and the bearings coacting with said uprights to move the same laterally.

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

ALBERT E. KELMEL.

Witnesses:
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