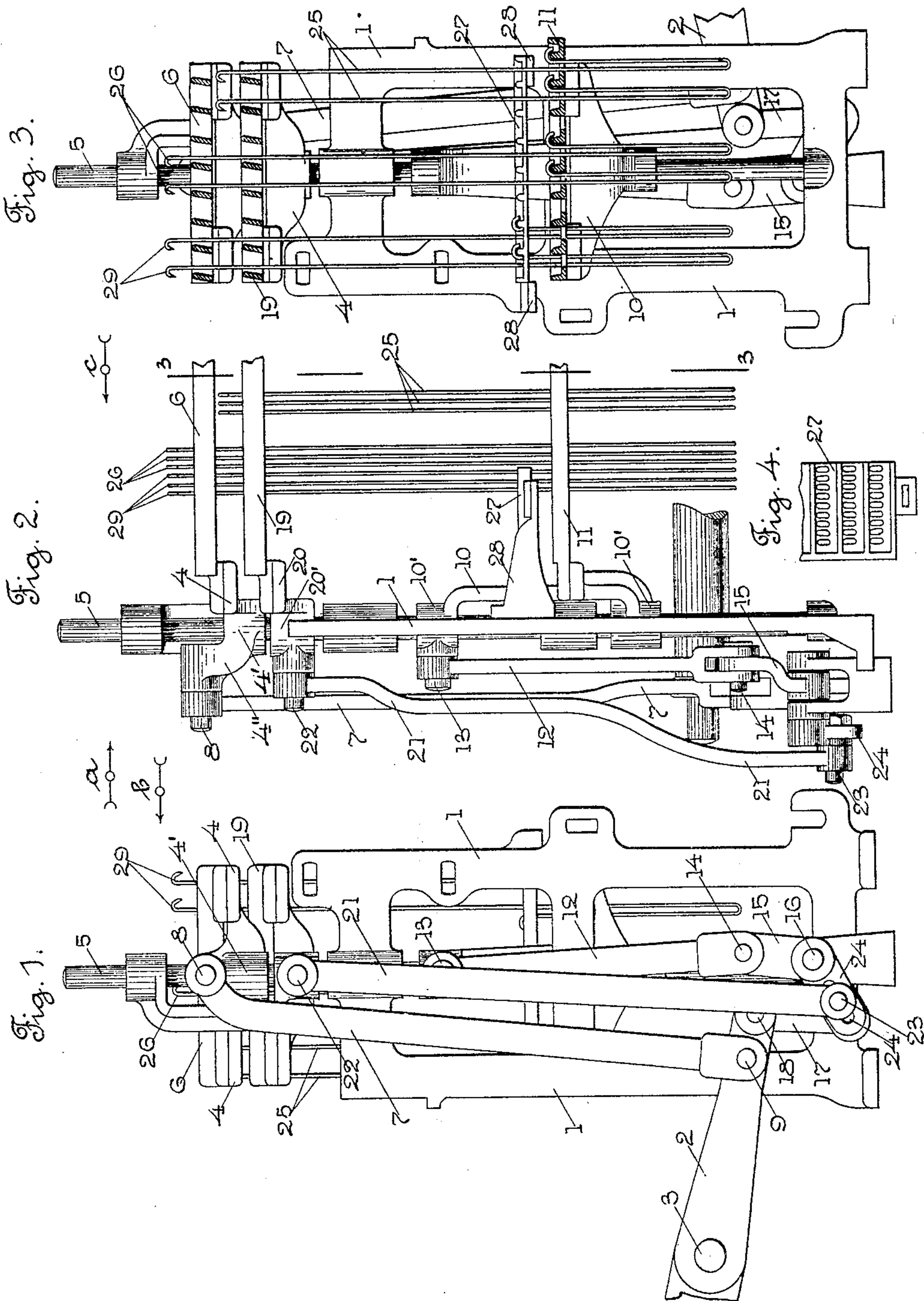


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JACQUARD MECHANISM FOR LOOMS.
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JACQUARD MECHANISM FOR LOOMS.

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To all whom it may concern:

Be it known that I, HERMAN GERBER, 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.

My invention relates to jacquards, and more particularly to jacquard mechanism for weaving leno or cross-border fabrics, on what is known as a "rise-and-fall" jacquard or a jacquard on which a part of the warp-threads are caused to fall and the other part raised in forming the shed.

It is well known that leno or cross-weave differs from other weaves in that a pair of contiguous warp-threads are made to cross each other between any two consecutive picks of the shuttle. One of said warp-threads, commonly termed the "standard," is on the upper side and the other or doup thread on the lower side. The operation of crossing the doup-thread over the standard takes place between the ordinary jacquard-harness and the back of the lay and requires a certain amount of slack in the doup-thread during the act of crossing in order to avoid breaking said thread. It is necessary that this slack be taken up in weaving the ordinary, fancy, or plain weaves.

The object of my invention is to improve upon the class of jacquards referred to as now ordinarily made and more particularly to combine with the jacquard of ordinary construction and operation, having a top griff and bottom griff with a rising-and-falling motion, an additional griff located below the top griff and also having a rising-and-falling motion and also a stationary plate for some of the wire lift-hooks located above the bottom griff, so that certain threads used in connection with the cross or doup threads will not be raised as high as those used on other parts of the fabric.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

I have only shown in the drawings a detached portion of one end of a jacquard-frame and mechanism sufficient to illustrate my improvements combined therewith.

Referring to the drawings, Figure 1 is an end view of a portion of a jacquard mechanism with my improvements combined therewith looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a side view of the parts shown in Fig. 1 looking in the direction of arrow *b*, same figure. Fig. 3 is a section on line 3 3, Fig. 2, looking in the direction of arrow *c*, same figure; and Fig. 4 is a plan view of a detached portion of the stationary griff-plate.

In the accompanying drawings, 1 is the end frame or stand of the jacquard mechanism.

2 is an operating-lever fulcrumed on a stud 3 on a stand (not shown) and receiving motion from some driven part of the loom in the usual way.

4 is a stand having a hub 4' thereon mounted to slide up and down on a vertical guide-rod 5, which is supported on the frame. Secured to the stand 4 is the top griff or hook lifter-plate 6, which has a rising-and-falling motion communicated thereto through a connector 7, pivotally attached at one end to a stud 8, secured in an arm 4'' on the hub 4' of the stand 4. The lower end of the connector 7 is pivotally attached by a pin 9 to the operating-lever 2. A stand 10 has hubs 10' thereon, which are loosely mounted on the vertical guide-rod 5. To the stand 10 is attached the bottom griff or hook lifter-plate 11, which has a rising-and-falling motion communicated thereto through a connector 12, pivotally mounted at its upper end on a stud 13 on the upper hub 10' and pivotally connected at its lower end by a stud 14 with one arm of an angle or bell-crank lever 15, pivotally mounted on a stud 16. The other arm of the bell-crank lever 15 is connected by a link 17 with a pin 18 on the inner end of the operating-lever 2.

All of the above-mentioned parts are of the ordinary and well-known construction.

I will now proceed to describe my improvements.

A third wire griff or hook lifter-plate 19 extends below the top griff 6 and is secured to a stand 20, having a hub 20' thereon, which is mounted on the vertical guide-rod 5 to have an up-and-down motion thereon.

The griff 19 receives a rising-and-falling motion through connector 21, pivotally attached at its upper end to a stud 22 on the hub 20'

and at its lower end to a stud 23, adjustable in a longitudinal slot 24' in an arm 24, fast on the stud 16.

The motion of the griff 19 is similar to the motion of the top griff 6; but said griff 19 does not rise so high on account of the difference in leverages between the operating-lever 2, which operates the top griff 6 through the connector 7, and the lever 24, which operates the griff 19 through the connector 21.

By reason of the difference in the movement of the griffs 6 and 19 the wire lift-hooks 25 engaging with the griff 19 will not get the same amount of vertical motion as the wire lift-hooks 26 engaging with the top griff 6.

27 is a stationary plate secured to the brackets 28 on the frame 1. The stationary plate 27 extends just above the bottom griff 11 and forms a rest-plate for the wire lift-hooks 29.

By means of the stationary plate 27 the wire lift-hooks 29, resting on same, are motionless when not in engagement with griff 6. If plate 27 were not used, the hooks 29 would rest on bottom griff 11, which is always in motion.

Therefore warp-threads connected with the hooks 29 would be in motion, increasing the liability of breakage. The warp-threads used for douping or crossing are slackened or eased by the lift-hooks 29 engaging with griff 6.

The three sets of wire lift-hooks 25, 26, and 29 may be varied as regards the proportion or number of each set, as desired.

Referring now to the drawings, and particularly Fig. 3, the set of wire lift-hooks 26, in combination with the upper griff 6 and the bottom griff 11, will produce the ordinary plain and fancy weaves produced by the rise-and-fall jacquard. The set of wire lift-hooks 25, in connection with the griff 19 and bottom griff 11, receive about one-half as much movement as the griff 6 on account of a difference in the levers which operate the same. When the sets of wire lift-hooks 26 and 25 are properly indicated, the crossing of the warp-threads will be effected in the ordinary and well-known manner, which will make necessary the slackening of the doup-threads, which is accomplished by means of the set of

wire lift-hooks 29 engaging with the griff 6. The set of wire lift-hooks 29 are used only for the purpose of slackening the doup-threads. The crossing of the doup-threads is done by means of the combination of wire lift-hooks 26 and 25. The stationary plate 27 forms a rest for the wire lift-hooks 29 and does away with any unnecessary movement of the doup-threads when they are not used for douping or crossing.

It will be understood that only one end of a jacquard mechanism is shown in the drawings (see Fig. 1) and that the parts shown are duplicated on the other end of the jacquard mechanism.

It will be understood that the details of construction of my improvements may be varied, if desired, and that the stationary plate 27 can be used on leno-weaving in connection with the regular top griff 6 and bottom griff 11 without the additional top griff 19 and also that the additional top griff 19 can be used without the stationary plate 27.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a jacquard mechanism, the combination with the top griff and bottom griff, having a rising-and-falling motion, of an additional griff, located below the top griff, and having a rising-and-falling motion of a less degree than the top griff, substantially as shown and described.

2. In a jacquard mechanism, an additional griff located between the top griff and bottom griff, and having a rising-and-falling motion, substantially as shown and described.

3. In a jacquard mechanism, the combination with the top griff and bottom griff, having a rising-and-falling motion, of an additional griff located below the top griff, and having a rising-and-falling motion, and a stationary plate located above the bottom griff, substantially as shown and described.

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