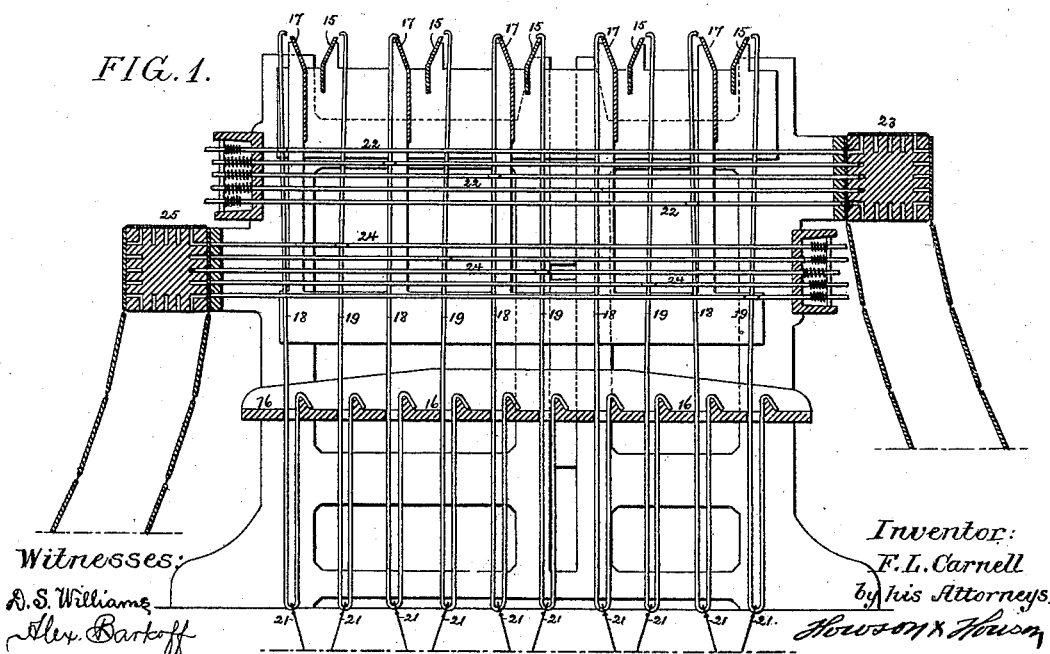
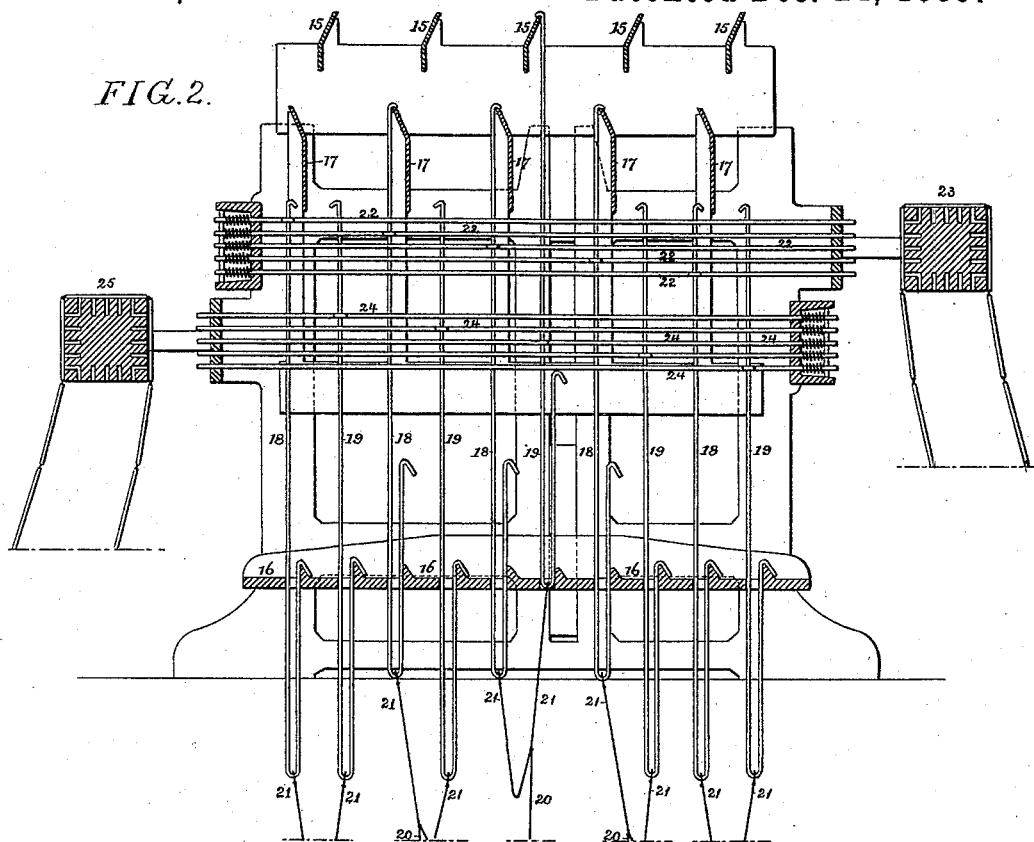


(No Model.)

F. L. CARNELL.
JACQUARD MECHANISM FOR LOOMS.

No. 417,903.

Patented Dec. 24, 1889.



UNITED STATES PATENT OFFICE.

FRANKLIN L. CARNELL, OF PHILADELPHIA, PENNSYLVANIA.

JACQUARD MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 417,903, dated December 24, 1889.

Application filed June 25, 1888. Serial No. 278,085. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN L. CARNELL, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Jacquard Mechanism for Looms, of which the following is a specification.

My invention consists of certain improvements in looms for weaving double pile fabrics, the loom itself being of the same general character as that shown and described in my application for patent filed May 23, 1887, Serial No. 239,085, the improvements relating especially to the construction of the Jacquard apparatus.

In the accompanying drawings, Figure 1 is a longitudinal section of the Jacquard machine constructed in accordance with my invention, the movable griff-bar and bottom board being shown in the position of rest and the cards acting upon the needles; and Fig. 2 is a similar section showing the action of the griff-bars and bottom board.

The loom may be similar in its general construction to that shown and described in my former application, having two backing-warps under the control of heddles, and a figuring-warp under control of the Jacquard machine, and the lathe having at each end two shuttle-boxes, one above the other.

In the operation of the loom the heddles are operated so as to form two sheds of backing-warps—one for the upper shuttle and the other for the lower shuttle—thus forming two fabrics, one above the other, and the figuring pile-threads pass from shed to shed and are bound into the opposite fabrics and afterward severed in the center, so as to separate the fabrics and form a cut pile on each.

The Jacquard machine which I use for operating the figuring pile warp-threads has, as in the former case, upper movable griff-bars 15, a lower movable bottom board 16, and stationary griff-bars 17; but instead of using for each tail connected to the figuring pile-warp a single wire with opposite spring-fingers, as in the former case, I use for each tail of the harness connected to a figuring warp-thread two wires 18 and 19, each of the wires having a hook at the upper end and a hook some distance above its lower end, and each tail 20 of

the harness is connected by a supplementary tail 21 to wires 18 and 19 of the jacquard. A pair of wires 18 and 19, independent of each other, is thus provided for each tail of the harness, one of these wires being operated by a needle 22 under control of cards carried by a cylinder 23, and the other wire being operated by a needle 24 under control of cards carried by a cylinder 25, these two cylinders working in opposite directions, and the upper hooks of the wires 18 and 19 being likewise oppositely bent.

The wires 18 are adapted to engage with the stationary griffs 17 and the wires 19 with the upper movable griffs 15, and both wires engage with the bottom board 16. When, therefore, by the operation of the needle 24 a wire 19 is caused to engage with and be lifted by the upper movable griff, a lift will be imparted to a warp-thread controlled by these wires; but if the wire 19 is moved out of engagement with the upper griff and the wire 18 into engagement with the stationary griff the warp-thread will be supported by the stationary griff in an intermediate position, while if the wire 18 is moved out of engagement with the stationary griff and the wire 19 out of engagement with the upper movable griff there will be a drop of the warp-thread, due to the fact that both wires are then supported by and move with the movable bottom board, the latter on its rise returning the wires to the intermediate position prior to a further action of the needles thereupon. When a thread after being lifted is dropped, it will pass from the upper to the lower shed and across the space between the same, so as to aid in forming the pile; but if the thread is lifted a number of times in succession from the intermediate position it will work in the backing of the upper fabric and will have no effect in forming pile, and in the same way if a thread after a drop is lifted it will pass from the lower to the upper shed and form pile, while if dropped a number of times in succession it will work in the backing of the lower fabric without forming pile.

In my present machine I insure greater certainty in the operation of the warp-threads than it was possible to attain by the use of wires having spring-arms, as in the former

on the griffs when they should not, or sometimes failed to catch when they should, objections which, as will be evident, are entirely overcome by the use of independent wires.

5 I have not deemed it necessary to illustrate the means for operating the movable griff and bottom board and card-cylinders, as these may be similar to those shown in my former application, to which reference has heretofore
10 been made.

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

15 The combination, in a Jacquard machine for a loom for weaving double pile fabric, of the harness-tails for the figuring pile-warps, machine, for such arms were liable to catch

a set of reciprocating griffs, a reciprocating bottom board, a set of stationary griffs, pairs of independent wires, connections between 20 each wire of a pair and one of the harness-tails, and two reciprocated card-cylinders and sets of needles, the needles of one set acting on one wire of each pair, and the needles of the other set acting on the other wire of each 25 pair, substantially as specified.

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

FRANKLIN L. CARNELL.

Witnesses:

EDWARD M. RILEY,
HARRY SMITH.