UNITED STATES PATENT OFFICE.

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DOUBLE-LIFT OPEN-SHED JACQUARD-MACHINE.

931,975.


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To all whom it may concern:

Be it known that I, Emil Trachsler, a citizen of the Republic of Switzerland, residing at Rüti, in the Canton of Zurich, Republic of Switzerland, (whose post-office address is Rüti,) have invented certain new and useful Improvements in Double-Lift Open-Shed Jacquard-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference thereon, which form a part of this specification.

The double-lift open shed Jacquard machine represented in the accompanying drawings belongs to that class which shows groups of griff blades, lying side by side, and where one griff blade of the one group works alternately with one griff blade of the other group. According to this invention each hook of the double-lift open shed Jacquard machine possesses besides the two usual hooks proper for the engagement with the griff blades, a special hook proper which is intended solely for the hanging up of the hook to a fixed hook-rail, extending over the whole breadth of the machine, for the purpose of open-shed position. Further, for the purpose of displacing the hooks proper of the hooks which could, when the griff blades are in their middle position, engage with the griff blades, there are arranged fixed rails forming a cam. This cam is for the purpose of diverting the hooks, so that the hook proper of each hook shall be brought out of reach of the respective rising griff blade, which should not engage with the latter.

Through the automatic diversion of the hooks a considerable constructive simplifying and safer working is insured against the former looms having special diverting devices (such as movable rakes, grilles, etc.).

A loss of power and wearing away of the carrying-planes of the hooks are avoided with the present invention the friction being confined only to those hooks which change their position. The movable parts of the present machine have been reduced to a minimum.

In the accompanying drawings an example of the object of the invention has been represented; Figure 1 showing the card cylinder lifted off, and Fig. 2 showing the card cylinder swung on to the needles. Fig. 3 is an end view of the machine.

1 is the card cylinder, acting in well-known fashion according to the cards 2 upon the needles 3, and 4 are the rods, upon which the hooks 5 lay themselves sidewise. Each hook 5 comprises three arms 6, 7 and 8 and four hooks proper 9, 10, 11 and 12 and a nose or tappet 13. The two hooks proper 9 and 11 of each hook 5 are intended to engage with the griff blades 14 and 15 whereof the one 14 belongs to one group of griff blades the other 15 to the other group. The middle arm 7 of each hook 5 extends beyond the other arms or shafts 6 and 8 and bears the hook proper 10, which is intended for the hanging up of the hook onto the hook rail 16, extending over the whole breadth of the machine. The hook proper 12 of each hook is destined to lay itself, when the hook is in its deepest position, upon a carrying rail 17, which also extends over the whole breadth of the machine. The diverting rails 18, in the form of wedges or cams, are so fixedly arranged on the frame of the loom, that they lie in the line of the hook noses or tappets 13 when the hooks descend in their deepest position.

In Fig. 1 where the card cylinder 1 has been moved off the hook needles 3, and where the middle position of the griff blades is supposed, the nose 13 will be, when in the position I of the hook 5, on the thickest part of the diverting rail or cam. The shafts 7 and 8 with the hooks proper 10 and 11 are thus diverted to the right, so that at a turning back of the loom the hook will not be lifted by the shaft 11 of the rising griff blade 15, so that the hook does not remain in the open shed position.

In position II the hook 5 is in its lowest position. As the nose or tappet 13 has passed over the diverting rail or cam, no diverting of the hook 5 happens. The latter is thus in the ready position to be lifted by the griff blade 15 in its next rising.

In position III the hook 5 is in the highest position and the hook proper 10 is hung in the hook-rail 16. The hook remains in this open shed position, until it will be pushed away from the hook-rail 16 by means of the card cylinder and the needle belonging thereto. At each rising of the griff blades 14 and
15 the hook hung up on the hook-rail 16 will be lifted so much, that a moving away of the hook from the hook-rail 16 is possible at the touch of the card cylinder upon the respective needle.

In position IV the hook is in the middle position and the shafts 9 and 10 of the hook have been diverted from the reach of the griff blade 14 by means of the nose or tappet 13, while the hook proper 11 is supported by the griff blade 15 going down.

In Fig. 2 the card cylinder 1 is represented in the position of the touch upon the needles 3. The griff blades 14 are in their highest position and the griff blades 15 in their lowest position.

In position V the hook 5 is in the lowest position and its hooks proper 10 and 11 are within the reach of the griff blades 14 and 15, ready to rise with the griff blade 15.

In position VI the hook, which lies within the reach of the griff blades 14, 15 is in the open shed position, as the hook proper 10 of the hook is hung onto the hook-rail 16 and remains so, as long as the hook is pushed aside by the needle.

In position VII the hook 5 has been brought quite out of reach of the griff blades 14 and 15 by means of the card cylinder and needle and it is in its lowest position.

In position VIII the hook 5 is in the highest position. The hooks proper 10 and 11 are brought out of the reach of the hook-rail 16 and the griff blades 15 by means of the card cylinder and needle, while the hook proper 9 is engaged with the griff blade 14, ready to descend with the same.

The hooks represented consist of two parts soldered together. One of them comprises the two shafts 7 and 8, the other the shaft 6, the nose or tappet 13 and the hook proper 12.

What I claim is:

A double lift open shed jacquard machine comprising groups of griff blades lying side by side, means whereby one blade of one group works alternately with one blade of the other group, a plurality of hooks each comprising two hooks adapted to engage with the blades, and a third hook for open shed position, a fixed hook rail with which the third hook is adapted to engage, fixed lower rails forming cams, and adapted to divert the blade engaging hooks, and tappets on the hooks adapted to engage with said cams.

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

EMIL TRACHSLER.

Witnesses:
M. SCHUMANN,
HERMANN HUBER.