

(No Model.)

S. MORGAN.  
JACQUARD MACHINE AND CARD PROTECTOR.

No. 556,316.

Patented Mar. 10, 1896.

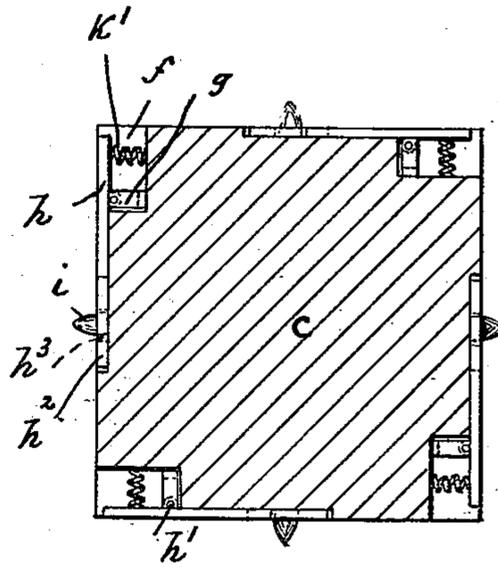
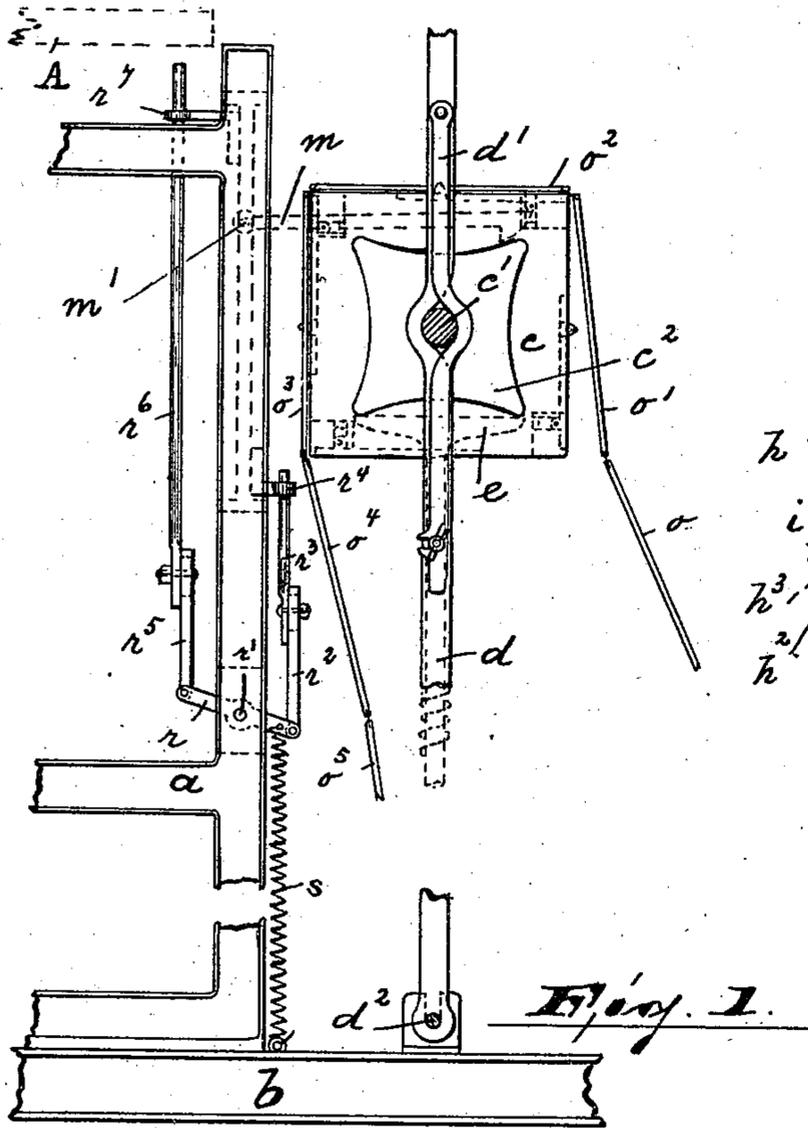


Fig. 2.

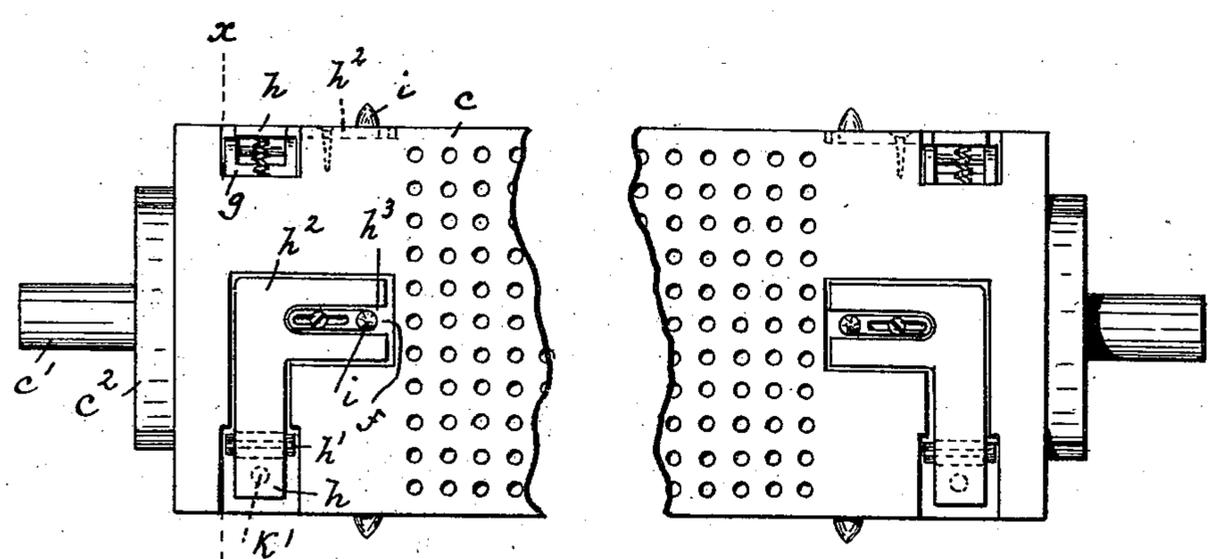


Fig. 3.

WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

SIMON MORGAN, OF PATERSON, NEW JERSEY, ASSIGNOR OF ONE-HALF TO WILLIAM CARSON VAN VOORHIES, OF SAME PLACE.

## JACQUARD MACHINE AND CARD-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 556,316, dated March 10, 1896.

Application filed July 11, 1895. Serial No. 555,604. (No model.)

*To all whom it may concern:*

Be it known that I, SIMON MORGAN, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Jacquard Machines and Card-Protectors; 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to the class of Jacquard machines and card-protectors, and is an improvement on United States Letters Patent No. 479,895, granted to me on August 2, 1892. Its object is to provide a durable and strong device, reliable and positive in its operation and not liable to get out of order.

The invention consists in the improved Jacquard machine and card-protector, its operating mechanism, and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claim.

Reference is made to the accompanying drawings, in which—

Figure 1 represents an end elevation of the cylinder provided with my improved attachment, only those parts of the Jacquard machine being shown which are necessary to fully illustrate the invention. Fig. 2 is a sectional view on line  $xx$  of Fig. 3, and Fig. 3 an enlarged detail front elevation of Fig. 1.

In the drawings,  $a$  and  $b$  represent a portion of the Jacquard and loom frame respectively. The square cylinder  $c$  is pivotally secured at  $c'$  to the oscillating support  $d$  with locking-bar  $d'$ , which support is pivoted at  $d''$  to the loom-frame. The above-mentioned parts, as well as the turning-block  $c^2$ , the upper knogger,  $m$ , pivoted at  $m'$ , the lower knogger,  $e$ , and the pattern-cards  $o$ ,  $o'$ ,  $o^2$ ,  $o^3$ ,  $o^4$ , and  $o^5$  are the same and operated in the same manner as in the said Patent No. 479,895.

The square cylinder  $c$  is provided at or near each corner with a groove and adjoining re-

cess  $f$ , in which are arranged the bearings  $g$  for the pivot  $h'$  of lever  $h h^2$ . In the recess  $f$  is placed a spiral spring  $k'$  pressing against the under side of the shorter arm  $h$  of said lever, while the longer arm  $h^2$  is provided with an elongated slot  $h^3$ , surrounding the card-pin  $i$ . The said levers  $h h^2$  when in normal position do not project beyond the surface of the cylinder.

To the Jacquard frame  $a$  is pivoted, as at  $r'$ , the lever  $r$ , supporting with one arm, through link connection  $r^2$ , the rod  $r^3$ , guided by the bracket  $r^4$ , and with its other arm, through link connection  $r^5$ , the rod  $r^6$ , guided in bracket  $r^7$ . The top of the rod  $r^3$  is adapted to engage the shorter arm  $h$  of the lever  $h h^2$ , while the rod  $r^6$  is adapted to be engaged by the descending cross-head or griff  $A$ , only a portion of the same being illustrated in the drawings. The pivoted lever  $r$  is controlled by a spiral spring  $s$ , as clearly shown.

In operation, whenever the cylinder  $c$  is moved toward the frame  $a$  (the hooked end of the upper knogger,  $m$ , is engaging the corner of the drumhead) the cross-head or griff  $A$  is descending and presses on top of the rod  $r^6$ , thus operating the lever  $r$  and lifting in turn the rod  $r^3$ , which latter again presses against the short arm  $h$  of the lever  $h h^2$  and causes it to turn on its fulcrum  $h'$ , whereby the pattern-card adhering to the lower surface of the cylinder  $c$  is disengaged from the pins  $i$  and forced by the longer arm  $h^2$  to drop down. While the cross-head or griff  $A$  is ascending the levers  $r$  and  $h h^2$  are returned to their normal position by action of the spiral springs  $s$  and  $k'$  respectively, the cylinder  $c$  is moved from the frame and simultaneously turned one-quarter of a revolution, and the hereinbefore-described operation is repeated.

The advantage of my present invention over and above the one covered by Patent No. 479,895 rests mainly in the co-operative operation of the descending cross-head  $A$  and of the card-levers  $h h^2$ . It is a positive motion and the said card-levers are not liable to be bent out of shape, which frequently happens to the levers when operated by the stationary side pin, as covered by the above patent.

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

1. In a Jacquard machine, the combination  
5 with the frames, the oscillating cylinder and  
its supporting - bar, of a spring - controlled  
lever pivoted at or near each corner of said  
cylinder, a vertically - reciprocating rod ar-  
10 ranged below said lever and adapted to oper-  
ate the same and means for operating said  
reciprocating rod, substantially as described  
and for the purposes set forth.

2. In a Jacquard machine, the combination  
15 with the frame, the oscillating cylinder and  
its supporting - bar, of a spring - controlled  
lever pivoted at or near each corner of said  
cylinder, a vertically - reciprocating rod ar-  
ranged below said lever and adapted to oper-  
20 ate the same, a spring - controlled lever ful-  
crumed on the frame and adapted to operate  
said reciprocating rod, and means for oper-  
ating said fulcrumed lever, all said parts sub-  
stantially as and for the purposes described.

3. In a Jacquard machine, the combination  
with the frame, the vertically - reciprocating 25  
griff or cross - head, the oscillating cylinder  
and its supporting - bar, of a spring - controlled  
lever pivoted to said cylinder, a vertically -  
reciprocating rod adapted to operate said  
lever, a lever fulcrumed on the frame and 30  
connected with one end through an interme-  
diate link with said reciprocating rod, a ver-  
tically - reciprocating rod connected through  
an intermediate link with the other end of  
said fulcrumed lever and adapted to be oper- 35  
ated by the griff or cross - head, and means for  
returning the fulcrumed lever to its normal  
position, all said parts, substantially as and  
for the purposes described.

In testimony that I claim the foregoing I 40  
have hereunto set my hand this 1st day of  
July, 1895.

SIMON MORGAN.

Witnesses:

ALFRED GARTNER,  
WM. C. VAN VOORHIES.