

No. 680,502.

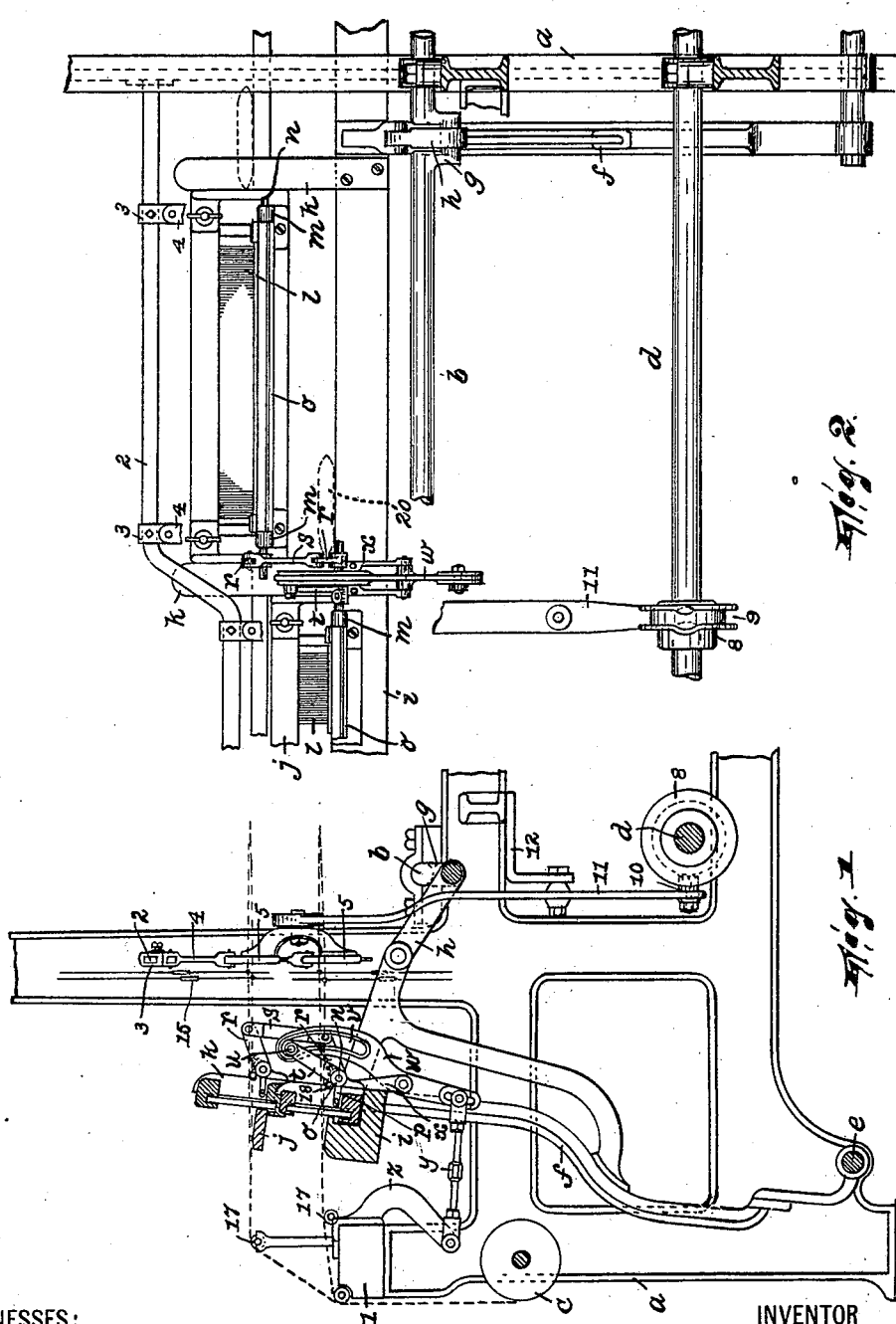
Patented Aug. 13, 1901.

T. A. ROBINSON.
GAUZE LOOM.

(Application filed Mar. 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Wm. S. Bell.
Robert J. Pollett

INVENTOR,

Thomas A. Robinson,

BY
Garbur & Leonard
 ATTORNEYS

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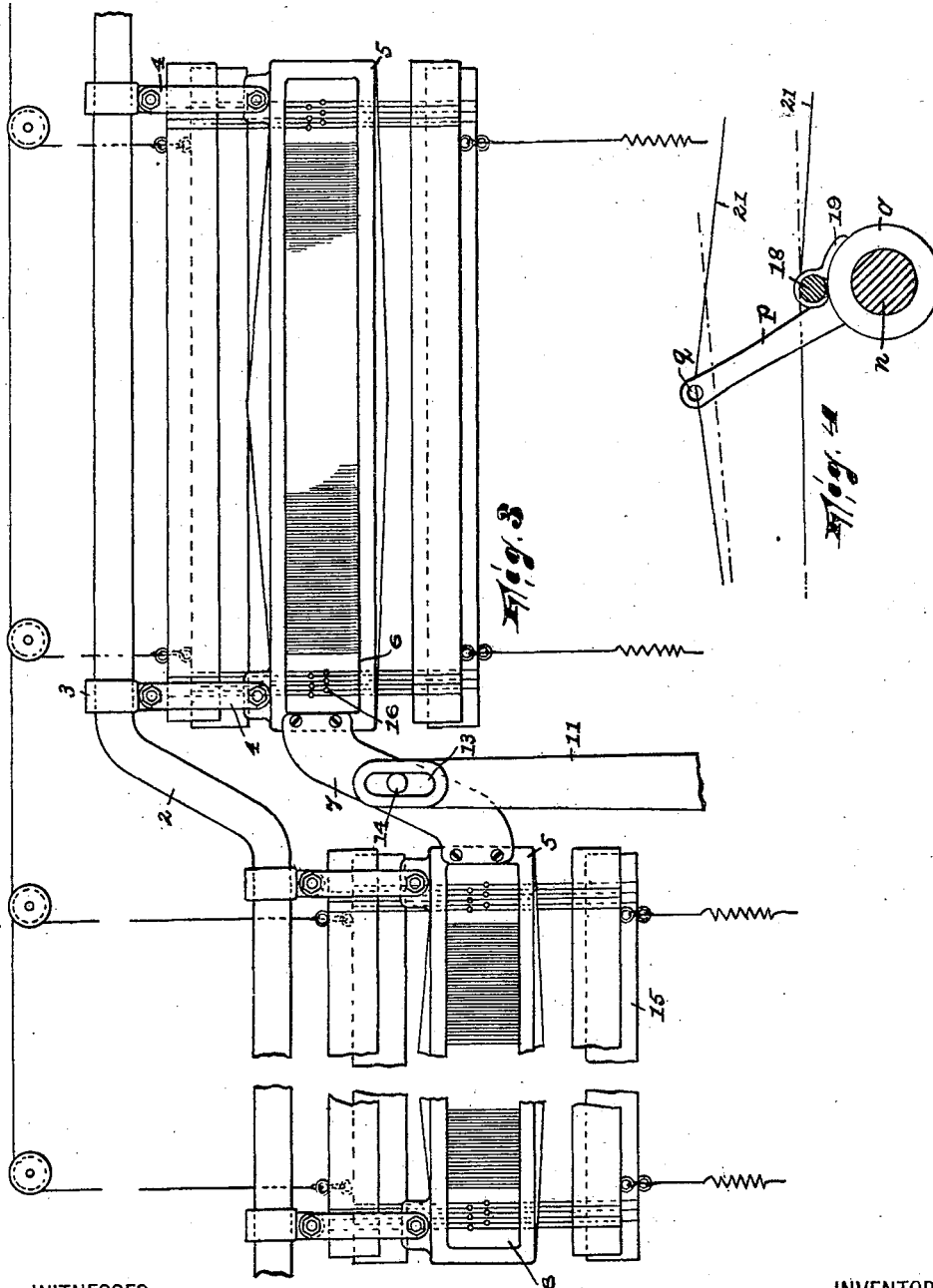
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UNITED STATES PATENT OFFICE.

THOMAS A. ROBINSON, OF PATERSON, NEW JERSEY.

GAUZE-LOOM.

SPECIFICATION forming part of Letters Patent No. 680,502, dated August 13, 1901.

Application filed March 13, 1901. Serial No. 50,917. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. ROBINSON, a citizen of the United States, residing in Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Gauze-Looms; 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 and numerals of reference marked thereon, which form a part of this specification.

This invention relates to looms, and has reference particularly to looms designed to effect cross-weaving.

The invention constitutes an improvement upon the mechanism disclosed and claimed by me in United States Letters Patent dated April 2, 1901, and bearing No. 671,148. In my previous construction a laterally-reciprocating roller, over which the warp-threads passed, was made use of with elevatory needles to effect the crossing of the thread, this roller being disposed in front of the needles, adjacent the breast-beam. In my present construction I employ a reed to perform the function of the roller, preferably placing the same back of the needles. By using a reed instead of a roller more positive action of the threads in effecting their crossing is secured, and by arranging said reed back of the needles said reed may be placed as close to the needles in the position they occupy when the crossing is effected as the insuring of a perfect crossing of all the threads demands.

My invention is fully illustrated in the accompanying drawings, wherein it is shown as applied to a loom constructed so as to be convertible with the object of producing either one or more than one piece of goods, and wherein—

Figure 1 is a vertical sectional view of the front portion of said loom. Fig. 2 is a rear view of substantially what is shown in Fig. 1, certain parts being removed. Fig. 3 is an enlarged view in rear elevation, showing the reeds for effecting the crossing and the sel- vage-controlling harness; and Fig. 4 is a view of a detail of the invention.

A loom of the convertible kind above referred to will be found illustrated in United States Letters Patent No. 479,903, dated August 2, 1892, and issued to L. Teweles and myself. In view of this patent it will be unnecessary for me to describe parts of the loom other than those directly involved in the operation of said loom as provided with my improved mechanism for effecting cross-weaving.

In the drawings, *a* designates the framing of the loom, in which are journaled in the usual manner the main shaft *b* and the take-up roller *c*, the means for driving which is not shown. In the framing, substantially beneath the main shaft *b*, is journaled another shaft *d*, and in the lower front portion of said framing, as at *e*, are fulcrumed the lower ends of the lay-swords *f*. The shaft *b* carries cranks *g*, which are connected with the lay-swords by links *h*. On the lay-swords is secured the main lay or batten *i*. Above this batten is arranged an auxiliary lay or batten *j*, which is mounted on brackets *k*, carried by the main lay or batten. It will be understood that by extending the lay-swords the two battens may be both directly secured to them.

l designates the reeds, the same being arranged between and preferably secured to the brackets *k*.

In pairs of brackets *m*, which are secured back of each reed to the corresponding lay or batten, is journaled a rock-shaft *n*. On each rock-shaft is rigidly secured, so as to turn therewith, a sleeve *o*, from which projects a series of flat needles *p*, the series of needles being perforated at their ends in a direction parallel to the axis of the shaft, as at *q*. If the needles are perforated in the manner just indicated, they can be made considerably thinner, and consequently a greater number of them can be placed in a given space than if perforated in a direction at right angles to the shaft. The adjoining ends of the shafts are provided with cranks *r*, the ends of said cranks being pivotally connected by a link *s*. Also on one of the shafts, preferably the lower one, is secured a crank *t*, said crank carrying at its end a pin *u*, which works in a curved slot *v* of a lever *w*, the said lever being ful-

crumed in a fork-shaped bracket *x*, which is secured to the main batten *i*. The lower end of this lever is pivotally connected, by means of a pitman *y*, with a stationary arm *z*, which is mounted on the breast-beam 1 of the loom. It will be understood that by the mechanism just described the needles *p* will be oscillated in a rise-and-fall movement as the batten swings backward and forward. Back of the batten is arranged a horizontal stationary rail 2, the same being bent in such manner that one end portion—*i. e.*, that adjacent the higher reed and accessory parts—is higher than the other end portion. Pairs of brackets 3 are secured on this rail, and from each pair of brackets is suspended by means of links 4 a reed 5, the dents at each end of said reed being removed to leave a blank space 6. The reeds 5 are arranged in opposition to the corresponding reeds *l* and are rigidly connected for movement together laterally by a coupling 7.

On the shaft *d* is secured a cam 8, which has a peripheral sinuous or cam-like channel 9. In this channel works a roller 10, which is mounted on the lower end of a lever 11, said lever being fulcrumed in a bracket 12, secured to the framing and having a longitudinal slot 13 at its upper end, in which works a pin 14 on the coupling 7, between the two reeds 5.

15 denotes the harness for the selvage-warp. This harness may be of any desired construction. The mails 16 in said harness are arranged opposite the spaces 6 of the reeds 5.

17 denotes rollers which are mounted on the breast-beam and over which the goods passes on its way to the take-up roll, while 18 denotes a glass rod which is secured by clips 19 on each sleeve *o*, carrying the needles *p*. The filler or weft is carried through the sheds by any suitable means, as the shuttle 20, which may be controlled in any desired manner.

As in the case of the construction covered by my Patent No. 671,148, two threads in the body-warp (marked 21 on the drawings) are passed through each dent in the reed and one of these two threads is also passed through the eye of the corresponding needle. The bends in the camway 9 of the cam 8 are such (see Fig. 2) that in one complete rotation of the shaft *d* to the reeds 5 will be imparted a movement which is first to the right and back and then to the left and back, starting from an intermediate position. As the batten swings forward the needles are made to rise and fall in the manner already described, the elevated position thereof being when the batten is forward. At this time, the sheds in the selvage-warps having been formed by the harness 15, the shuttle or shuttles is shot through the sheds, both of the selvage and body. Thereupon the batten swings back and the consequent lowering of the needles occurs, their perforated ends dropping far enough so that the threads held thereby are

brought below the plane of the rest of the threads. Thereupon one of the movements of the common securing means for the warps which the reeds 11 afford (either to the right and back or left and back) occurs so as to effect, with the separate and spaced securing means which the needles and the thread-engaged parts on the breast-beam respectively afford for the two sets of threads, the crossing of the threads. From here on the operation simply is a repetition of what has been just described.

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

1. In a loom, the combination, with the frame, of an oscillatory batten, the warp being adapted to be arranged in two sets, a laterally-movable reed, elevatory devices carried by said batten, adapted to engage one set of the threads, and also adapted to assume their lowermost positions at one of the limits of motion of the batten, and said reed being disposed adjacent said limit of motion of the batten, warp-securing means arranged on the side of the batten adjacent the other limit of motion thereof, and means for introducing the filler, substantially as described.

2. In a loom, the combination, with the frame, of an oscillatory batten, the warp being adapted to be arranged in two sets, a laterally-movable reed, vertically-oscillatory needles carried by said batten, adapted to receive one set of said threads, and also adapted to assume their lowermost positions at one of the limits of motion of the batten, and said reed being disposed adjacent said limit of motion of the batten, warp-securing means arranged on the side of the batten adjacent the other limit of motion thereof, means for actuating the needles, means for actuating the reed, and means for introducing the filler, substantially as described.

3. In a loom, the combination, with the frame and with an oscillatory batten structure, of a plurality of rock-shafts mounted on said batten structure, a series of needles carried by each rock-shaft, a link having eccentric connection with each shaft, a crank carried by one of the shafts, a lever fulcrumed in said batten structure and having a slot-and-pin connection with the crank, and operative connection between said lever and the frame, substantially as described.

4. In a loom, the combination, with a frame and with means for advancing the warp, the thread being adapted to be maintained in two sets, of a laterally-movable reed adapted to engage in common both sets of threads in one portion thereof, a bar or other similar device adapted to engage in common both sets of threads in another portion thereof, a series of needles engaging one of said sets of threads at points intermediate the reed and the bar, means for moving said reed alternately in each direction, means, also, for elevating said

series of needles to move one set of threads
past the other and back again at periods al-
ternating with the lateral movements of the
reed, and means for introducing the weft-
5 thread or filler through the shed each time
the same is produced, substantially as de-
scribed.

In testimony that I claim the foregoing I
have hereunto set my hand this 12th day of
March, 1901.

THOMAS A. ROBINSON.

Witnesses:

MOSES CROSSMAN,
JOHN W. STEWARD.