

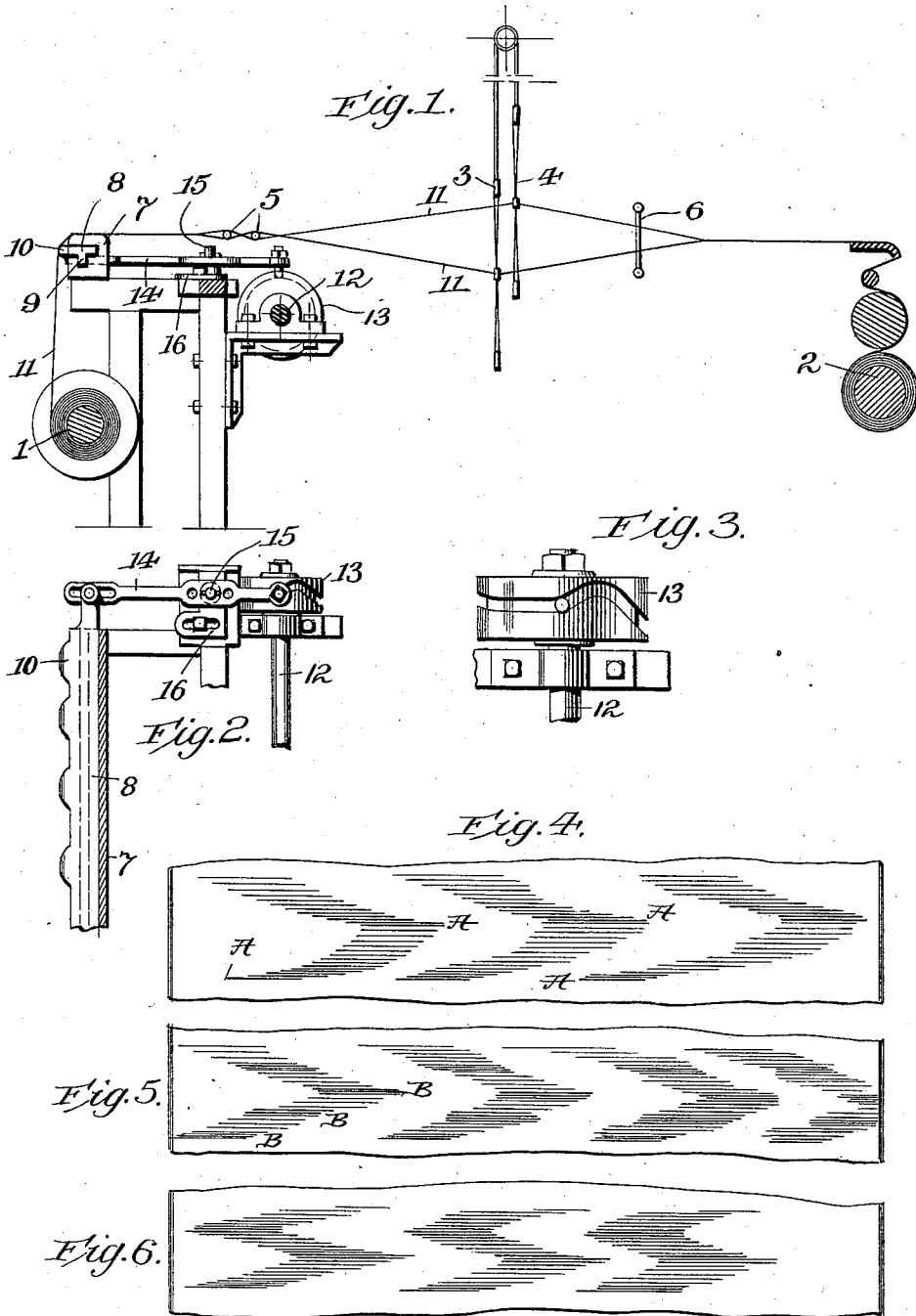
L. A. AUMANN.

LOOM.

APPLICATION FILED AUG. 5, 1911.

1,065,766.

Patented June 24, 1913.



WITNESSES

James Hie
H. E. Montague

INVENTOR

Louis August Aumann,
by Dodge & Sons Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS AUGUST AUMANN, OF CHICOPEE, MASSACHUSETTS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LOUIS AUGUST AUMANN, a citizen of the United States, residing at Chicopee, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Looms, of which the following is a specification.

My present invention pertains to improvements in looms, and has reference more particularly to the construction of a loom wherein the mechanism is such that a variety of patterns may be produced in a fabric by merely causing the weft threads to assume varying positions with reference to one another.

In the broad sense the invention may be said to comprise means adapted to place some of the warp threads under stress while the weft is being positioned and beaten up, combined with a secondary means for laterally shifting the position of said first means to bring the same into operative relation with other warp threads, whereby the same or varying patterns may be reproduced throughout the cloth. By changing or varying the rate of movement of said warp-tensioning means and by varying the rate of movement throughout different portions of its reciprocation in one or the other direction, or both, as the case may be, a great variety of patterns may be produced.

The loom is especially adapted for the production of relatively sheer, patterned material, though it is to be understood that it is not limited in its use to the manufacture of such goods.

The invention in a simple form is illustrated more or less diagrammatically in the annexed drawings, wherein:

Figure 1 is a sectional elevation of so much of a loom structure as is necessary to illustrate my invention; Fig. 2 a top plan view, partly in section, of the warp-tensioning device and its operative mechanism; Fig. 3 an enlarged detail view of one form of cam which may be employed to actuate the parts; and Figs. 4, 5 and 6 sketch plans of the fabric, illustrating various forms of patterns which may be produced.

In the drawings, 1 denotes the warp roll, 2 the cloth roll, 3 and 4 the heddles, 5 the lease rods and 6 the reed and beater or lay. Located adjacent to the warp beam or roll 1 is a horizontally-disposed fixed beam or

guide 7 provided with a guide-way in which is mounted a bar 8, provided with a guide rib 9. Said bar in the form illustrated is provided on its outer or exposed face with a series of curved bosses or protuberances 10, adapted to contact with the warp threads 11 as they move upwardly past the bar and over the beam 7. The bosses may, of course, be differently spaced and likewise differently shaped or varied in shape throughout the length of the bar.

A shaft 12, driven from a moving part of the machine, has removably secured thereto a cam 13, which cam has such contour as to effect the proper movement of the bar 8 to produce the pattern desired. Motion is transmitted from the cam to the bar through a lever 14, fulcrumed upon a pin 15 mounted upon a plate 16 which may be adjusted toward or from the bar and thus vary the effective length of the lever and the consequent throw of the weft-stressing or pattern bar.

By changing the cam for one of different pattern, and also modifying the effective length of lever 14, the character of the movement imparted to the warp-tensioning bar 8, or whatever means may be employed, may be varied to any extent and the patterns which may be produced are virtually unlimited.

It will, of course, be understood that any mechanism which will actuate the bar may be used, that disclosed and just described being merely indicative of many which may be employed. It is not deemed necessary, in view of the advanced state of the art in looms, to go into a detail description of modifications of this character.

In operation the heddles are moved as usual and the cloth as it is produced will be wound upon the roll 2. As the warp threads are drawn over the bar 8 those which pass over the projections or enlargements 10 will be placed under greater stress than the others, and consequently the reed, when it comes up to press back the filling thread that has been laid, finds that those portions of said thread that are at the loose warp threads can be pressed back more easily than those portions that are at the more tightly strained warp threads. Consequently, those portions of the filling or weft threads at the more loosely stressed warp threads are pressed back farther so

that the portions of adjacent filling threads at such points lie farther apart than they do at those points at which the warp threads are more tightly stressed, thus producing a pattern in the cloth.

As above stated and as will be readily appreciated, the patterns which may be produced are susceptible of great variation, but in order that the invention may be fully understood I have sought to illustrate in Figs. 4, 5, and 6 three variations. The pattern illustrated in Fig. 4 is produced by a bar of the form shown, the bar starting to move at a certain speed and the speed then somewhat decreasing, then returning to the original rate of movement, but in the other direction and then becoming slow. This results in making the pattern distinct, as at A, during the quick portion of the movement of the bar, certain of the warp threads being held under greater stress or strain than the others at such time, thus permitting the weft or filling threads to be beaten up closely where such excess stress or strain upon the warp threads exists. In the pattern disclosed in Fig. 5 the motion of the bar is relatively fast at the inception of this movement. It is decreased while moving in the same direction and then speeded up again, and then it is moved in the other direction. This will produce a series of condensed weft threads at the point marked B. The pattern shown in Fig. 6 is substantially the same as that disclosed in Fig. 4, carried out to a greater extent, and with the bosses on the bar spaced somewhat farther apart. The pattern tends to die away as the movement of the bar becomes slow, and it entirely disappears if the bar stands still for a few moments while the weaving goes on. As the bar comes to rest the bosses thereon will strain or stress some of the warp threads more than others, and then as the weaving goes on while the bar remains at rest these strained threads stretch and soon are subjected to only the same tension as the other threads and when the tension becomes equal on all of the threads, the pattern ceases. By varying the speed of motion of the bar the pattern can be almost indefinitely varied. The exact location of the bar is not essential, so long as it can act upon the various warp threads successively, with the view of placing them under stress or tension in the manner above set forth.

Having thus described my invention, what I claim is:

1. A loom provided with means adapted to place some of the warp threads passing to one and the same side of the shed under stress in excess of others, combined with mechanism adapted to shift said means at varying rates of speed during the operation of the loom to bring it into operative relation with other warp threads.

2. A loom provided with means adapted to place a plurality of warp threads under stress in excess of others, combined with mechanism adapted to reciprocate said means in the plane of and transversely to the path of movement of the warp threads and to thus bring said means successively into operative relation with different warp threads.

3. A loom provided with means adapted to place a plurality of warp threads under stress in excess of others, combined with mechanism adapted to reciprocate said means at varying rates of speed in the plane of and transversely to the path of movement of the warp threads and to thus bring said means successively into operative relation with different warp threads and to cause the stress on some to be maintained for a greater lapse of time than on others.

4. A loom provided with means adapted to place a plurality of warp threads under stress in excess of others, combined with a pattern device adapted to reciprocate said means in the plane of and transversely to the path of movement of the warp threads.

5. A loom provided with a bar having a plurality of projections over which projections some of the warp threads pass, combined with means for reciprocating the bar.

6. A loom provided with a bar having a plurality of projections over which some of the warp threads pass and by which such threads are placed under stress in excess of the others, combined with means for imparting a variable reciprocating movement to said bar.

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

LOUIS AUGUST AUMANN.

Witnesses:

FRANCIS H. NORTON,
THOMAS PRESTON.