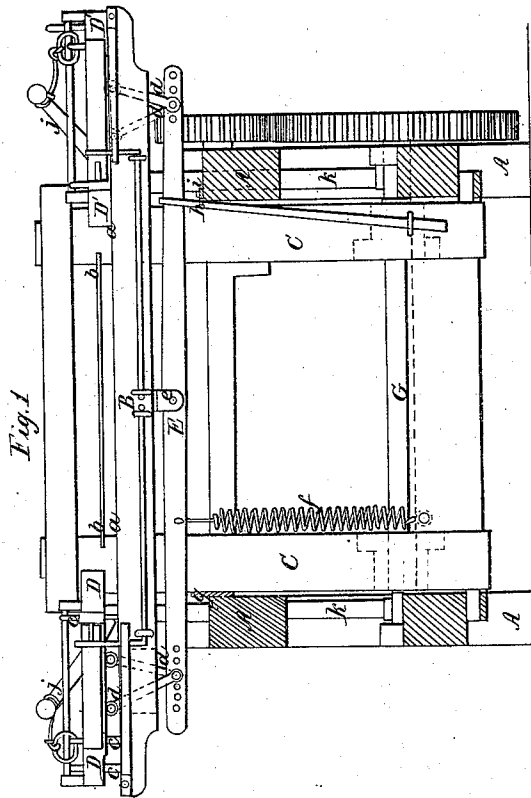
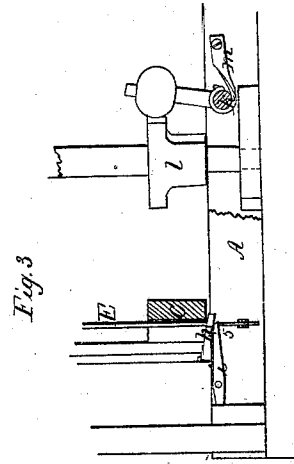
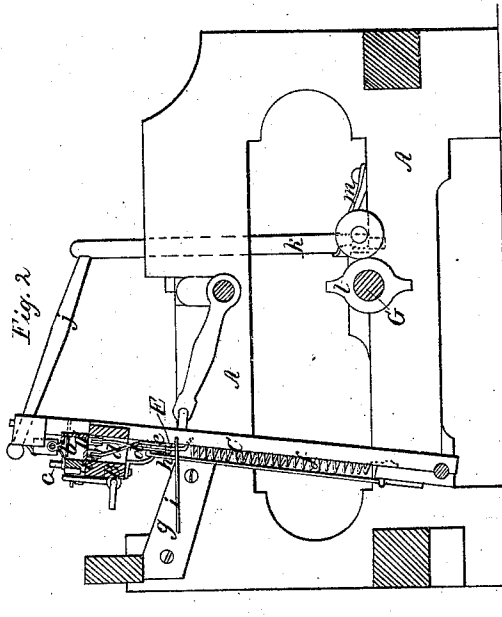


G. Copeland. Woven Bag.

N^o 952.
3,956.

Patented Apr. 9, 1861.



Witnesses
M. J. Thompson.
Lewis A. Tucker.

Inventor
G. Copeland.

UNITED STATES PATENT OFFICE.

GEORGE COPELAND, OF NORTH GRAY, MAINE.

LOOM.

Specification of Letters Patent No. 31,956, dated April 9, 1861.

To all whom it may concern:

Be it known that I, GEORGE COPELAND, of North Gray, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a vertical section of a loom parallel with and just behind the breast beam. Fig. 2, is a vertical section of the same parallel with the side of the loom. Fig. 3, is a plan of part of my invention.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to looms for weaving seamless bags and other double or tubular fabrics; and it consists in certain novel and very simple means of raising and dropping the shuttle boxes to permit the simultaneous throwing of two shuttles and weaving at the same time of the upper and lower portions of the bag or tube.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, is the framing of the loom.

B, is the lay and C, C, its swords.

a, a, is the lower raceway and b, b, the upper raceway.

D, D', are the shuttle boxes fitted to rise and fall bodily on upright guide pins c, c, secured in the lay, and attached by rods d, d, to opposite arms of a lever E, arranged under the lay where it works on a fulcrum pin e, which attaches it to the lay. The lever is like that described for connecting the shuttle boxes in my Letters Patent of January 23, 1855. Near the left side of the loom a spring f, connects the said lever E, with the lower part of the lay in such a manner as to exert a constant tendency to depress the left end of the lever and draw or hold down the left hand shuttle box D, on the lower raceway a, a, and consequently to elevate the right end of the lever and lift or hold up the right shuttle box D', to a level with the upper raceway b, b.

To the left side of the framing A, there is attached an upright plate g, whose upper edge has an upward inclination in a forward direction (shown in Fig. 2) that the lever E, in moving forward with the lay, will, by passing over and in contact with

the said edge, have its left end lifted high enough to elevate the left box D, to a level with the upper raceway b, b, and will consequently have its right end depressed far enough to bring the right box D', to a level with the lower raceway a, a. This is the position represented in Figs. 1 and 2.

Near the right side of the loom there is secured to the lower part of one of the lay swords a spring h, which I call the "holder spring," the upper part of which is turned back to form a catch to act upon the upper edge of the lever E, to hold down the right end of the lever and keep the shuttle boxes in the condition represented in Fig. 1. On the same side of the loom there is firmly secured to the framing what I call the "tripping piece" i, for the purpose of operating upon the holder spring h, to liberate the lever E, from it. This tripping piece is made with a hook or projection as shown at 5, in Fig. 3, to catch and hold the holder spring as the lay completes its backward movement.

When the lay commences its advance the lever E, is held down by the spring f, with the shuttle box D, on a level with the lower raceway a, a, and the shuttle box D', on a level with the upper raceway b, b, and the holder spring rests against the face of the lever, but as the lay advances and the left end of the lever is elevated by moving along the inclined edge of the plate g, the positions of the boxes with regard to the level of the two raceways is reversed as before explained and as illustrated in Fig. 1, and the lever by its upper edge passing below the catch at the upper end of the holder spring h, is locked by the said catch slipping over it, in which condition it remains with the shuttle boxes as represented in Fig. 1, till just as the lay is terminating its backward movement and the shuttles have been thrown, when the holder spring h, by having come in contact with the tripping piece i, and been thereby stopped while the lay, and with it the lever, moved back, liberates the lever and allows the spring f, suddenly to bring the lever and shuttle boxes to the position first mentioned. One shuttle is thrown from the box D, along the upper raceway b, b, and the other from the box D', along the lower raceway a, a. The shuttle motion is so timed relatively to the movement of the lay that the change of position of the boxes must follow the throwing of the shuttles quickly

enough for the shuttle that was thrown from either box to be caught in the other one.

Any kind of shuttle motion may be used in connection with this mode of operating the shuttle boxes. I have represented the picker sticks *j, j*, as carried by upright rock shafts *k, k*, which are operated by cams *l, l*, on the shaft *G*, and springs *m, m*.

My improved means of raising and dropping the shuttle boxes may be employed in connection with shuttle boxes pivoted at their outer ends to the lay as described in my hereinbefore-mentioned Letters Patent.

I do not here claim the lever *E*, arranged

under the lay and connected with the shuttle boxes, but

What I claim as my invention and desire to secure by Letters Patent, is:

The employment in connection with the lever *E*, of the inclined plate *g*, the springs *f*, and *h*, and the tripping piece *i*, the whole applied and combined to operate substantially as and for the purpose herein specified.

GEO. COPELAND.

Witnesses:

M. M. LIVINGSTON,
C. W. COWTAN.