

B. CREMERIEUX.
Loom for Weaving Fringe.
No. 220,130. Patented Sept. 30, 1879.

Fig 1

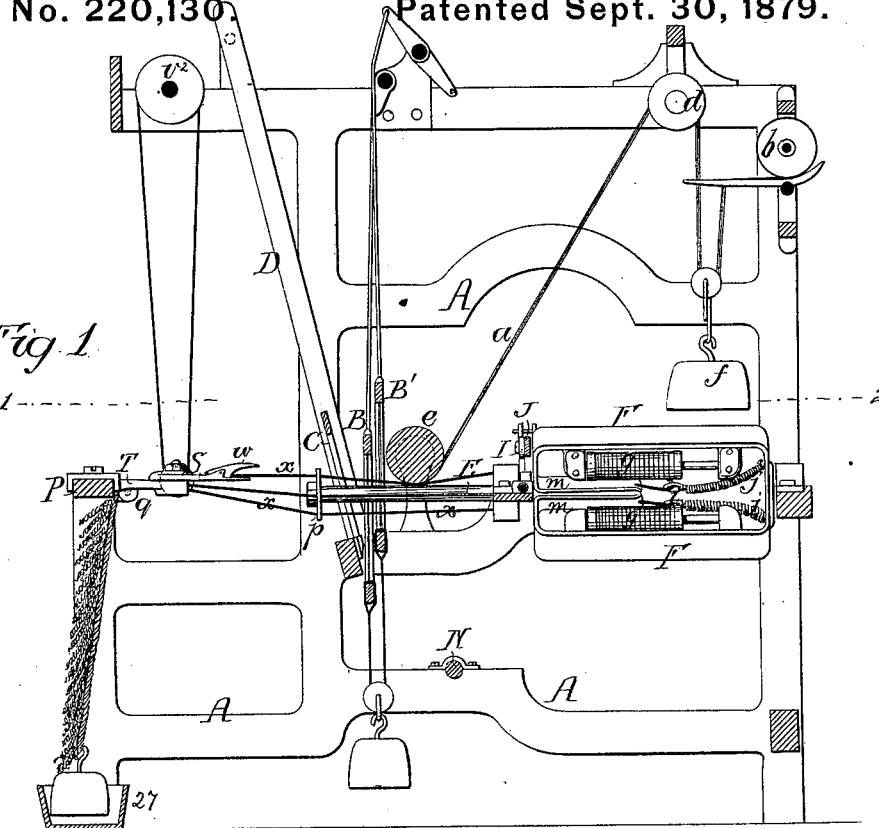
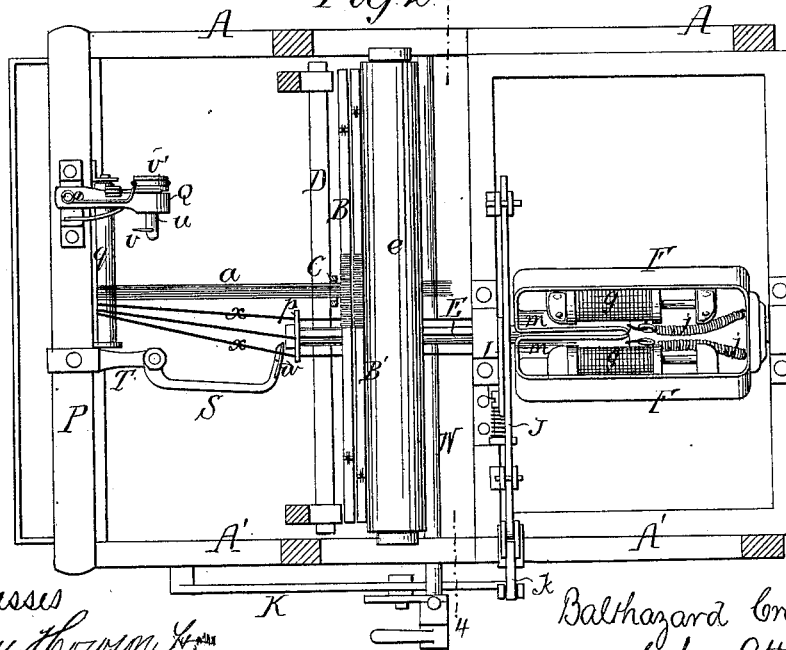
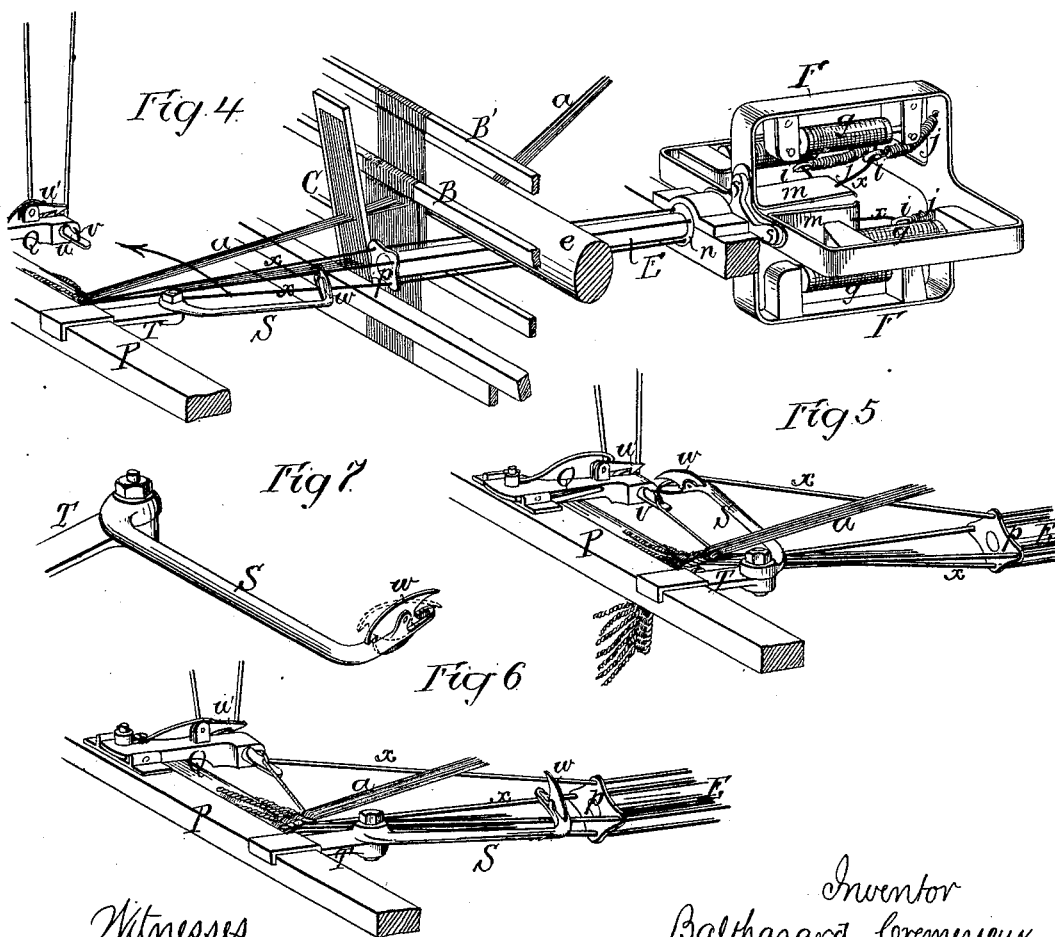


Fig 2



Witnesses
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Fig. 9.

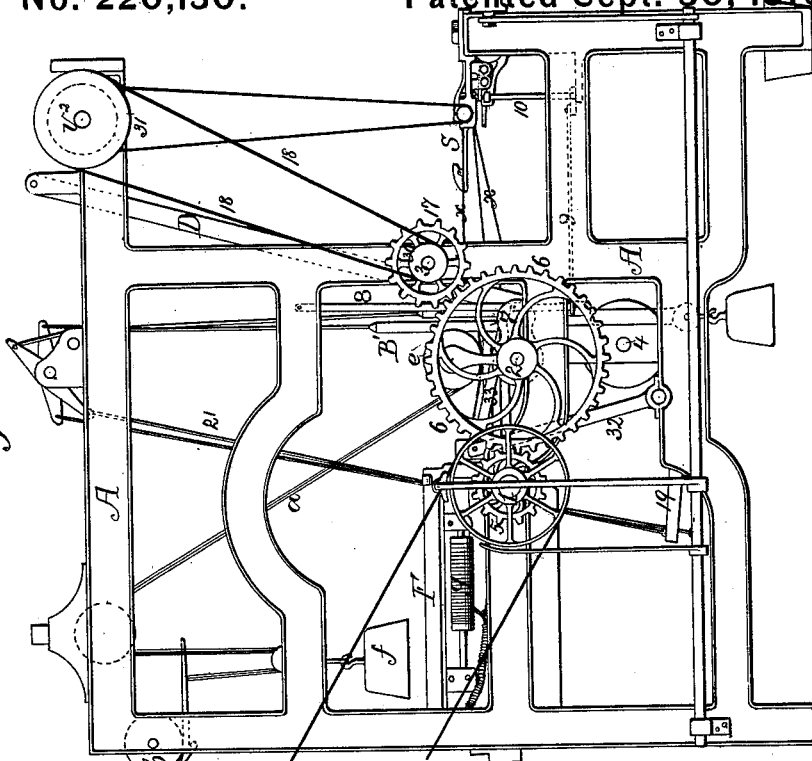
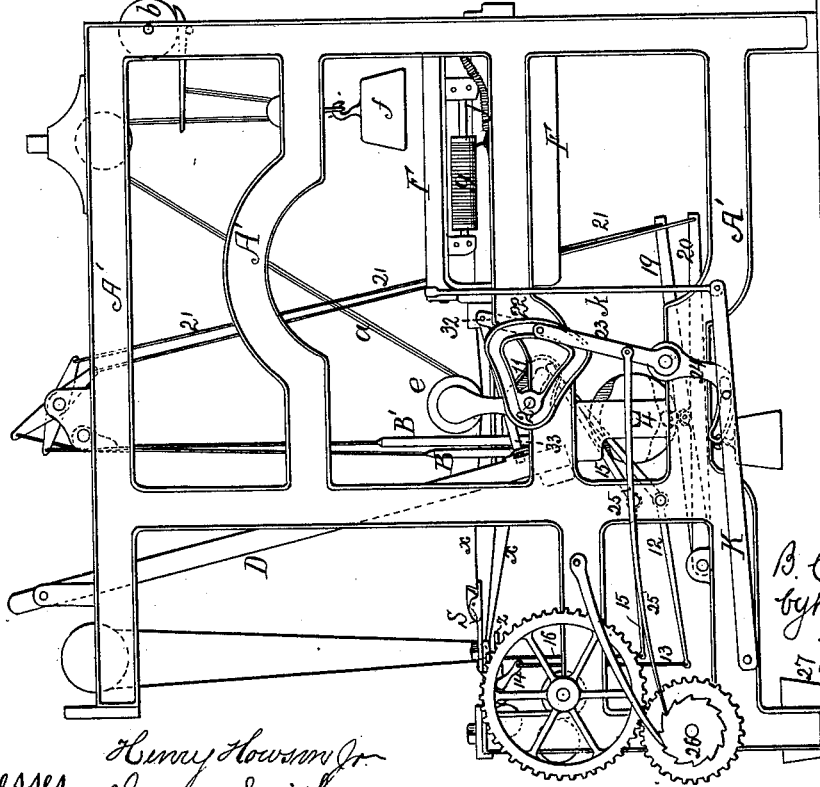


Fig. 8.



Witnesses, Henry Lawson Jr.
Harry Smith

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UNITED STATES PATENT OFFICE.

BALTHAZARD CRÉMÉRIEUX, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO F. ODEN HORSTMANN, SAMUEL CLARKSEN, WILLIAM P. ELLISON, AND
WALKER HORSTMANN, TRUSTEES, OF SAME PLACE.

IMPROVEMENT IN LOOMS FOR WEAVING FRINGE.

Specification forming part of Letters Patent No. **220,130**, dated September 30, 1879; application filed
December 3, 1878.

To all whom it may concern:

Be it known that I, BALTHAZARD CRÉMÉRIEUX, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Looms for Weaving Fringe, of which the following is a specification.

The object of my invention is to construct a loom for rapidly and cheaply weaving a fringe with corded heading and with pendent cords of different colors; and this object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a longitudinal section of the loom, with all the mere driving parts removed to prevent confusion; Fig. 2, a sectional plan on the line 1 2, Fig. 1; Fig. 3, Sheet 2, a transverse section on the line 3 4; Figs. 4, 5, 6, and 7, views illustrating the operation of the loom; and Figs. 8 and 9, Sheet 3, views of opposite sides of the loom, showing the driving mechanism.

A A' are the side frames of the loom, which, as shown in the drawings, is arranged for the production of but one piece of fringe. It should be understood, however, that in practice the working parts shown in the drawings are duplicated to the extent demanded by the number of pieces of fringe which the loom is intended to produce, the parts being arranged side by side in a single frame.

B B' are two harness-frames, which are raised and lowered by means of levers at the top of the loom, and D is an ordinary swinging lay, carrying a reed, C.

The warp *a* is drawn from the reel *b* at the back of the loom, and passes over a pulley, *d*, and under a roller, *e*, the warp being also acted upon by a suitable tension-weight, *f*.

To bearings at the rear of the frame is adapted a longitudinal shaft, E, which carries a frame, F, the latter having bearings for a number of bobbins, *g*, each of which carries yarn of a color different from that carried by the others. As many of these bobbins are employed in practice as the character of the fringe to be produced may suggest. Each bobbin is acted upon by a suitable brake,

so that a proper tension is imparted to the threads as they are drawn off the bobbins.

From the bobbins *g* the threads *x* pass through rings *i*, secured to the ends of springs *j*, the threads passing thence through openings in the ends of plates *m*, projecting from the end of the frame F. From these openings the threads *x* are carried through openings in a collar, *n*, secured to the shaft E, and thence, after passing through openings in a plate, *p*, at the outer end of the shaft E, the threads extend to the woven portion of the fringe, where the latter passes over a roller, *q*, hung to bearings on the breast-beam P.

The rotation of the shaft E and frame F is effected by means of a hook, I, pivoted to a reciprocating bar, J, said hook acting upon projections *s*, formed on or secured to one end of the frame F. These projections are so arranged that a partial revolution of the frame will be effected upon each reciprocation of the bar J, the frame being locked in position between its movements by a spring-plate, *t*.

The bar J is guided in suitable bearings, and the outer end of said bar is connected by means of a link, *h*, to one arm of a bell-crank lever, M, said lever being pivoted to a lug on the side frame A', and having its other arm connected, by means of links *k k*, to a pivoted arm, K, which is acted upon by a projection carried by an arm on a shaft, N, Fig. 2, the partial vibration of which shaft at intervals is effected by means of devices described hereinafter.

To the breast-beam P is secured a frame, Q, and in the projecting end of the latter is formed a bearing for a shaft, *u*, one end of which carries a hook, *v*, and the other end a pulley, *v*¹, round which passes a belt from a pulley on a shaft, *v*², at the top of the loom, this shaft being rotated during the operation of the loom.

Movement of the shaft *u* is controlled by means of a spring-pawl, *u'*, which acts on a notched disk secured to the shaft, and is operated by mechanism hereinafter set forth.

A stud, T, projects from the breast-beam P, and to this stud is pivoted an arm, S, the

outer end of which carries a pivoted finger, *w*, Fig. 7, weighted at the rear end, so as to elevate the front end of the finger, the latter thus forming, with the front end of the arm S, a jaw, which is in line with the upper thread *x* of the carrier E, when the latter is turned to the position shown in Figs. 3, 5, and 6.

A vibrating movement is imparted to the arm S at the proper intervals, as described hereinafter.

The operation of the apparatus is as follows: The arm S being retracted, as shown in Fig. 4, the thread-carrier E is moved to the position Fig. 3, so as to bring one of the threads *x* uppermost. The arm S is then moved forward in the direction of the arrow, so that the finger *w* strikes the uppermost thread *x*. This causes the depression of the front end of the finger, so as to confine the thread, which is then carried forward by the end of the arm and looped around the hook *v*, as shown in Fig. 5. The arm S is then moved backward, the finger *w* opening as soon as the strain of the thread on the same is removed, so that it has no backward draw on said thread.

When the arm reaches the position shown in Fig. 6, the lay D moves forward and the reed C beats up the looped thread *x*, after which the lay swings back and the harness-frames B B' are operated, so as to change the shed, and thereby bind the looped thread *x* in place. The shaft *u* is then permitted to rotate, so as to impart the proper twist to the looped thread *x*, and the thread-carrier E is then partially rotated, so as to bring a thread, *x*, of another color uppermost and into line with the end of the arm S, so that on the next forward movement of said arm the new thread will be looped on the hook *v*, the twisted thread having been removed therefrom by a knock-off bar, described hereinafter.

The rotary movement of the thread-carrier causes such a twisting of the threads *x* as to produce the desired corded heading on the fringe.

The object of providing the arm S with a finger, *w*, is to prevent the arm from catching such of the warp-threads *a* as are not fully raised or lowered in forming the shed, the incline formed by the front end of the finger and arm being such as to either elevate or depress such of the warps *a* as may be in the path of the arm.

By the above means I am enabled to produce rapidly and cheaply fringe having a corded heading and pendent cords of different colors.

If it is not desired that the pendent cords should be twisted, the devices for rotating the hook *v* may be dispensed with.

The different parts of the above machine are operated from shafts 1, 2, 3, and 4 and the shaft N, in the following manner:

The shaft 1 receives power from any adjacent source, and transmits it to the shaft 2 by means of cog-wheels 5 and 6.

The shaft 2 operates the vibrating arm S by means of the cam 7, swinging arm 8, connecting-rod 9, and rock-shaft 10. The shaft 2 also carries two cams, 11, one of which operates the knocking-off bar *z* through the medium of the lever 12, rod 13, and bell-crank 14. The other cam operates, through the medium of a lever, 15, a lift-bar, 16, which controls the pawl *u'*, and thus governs the periods of stoppage and rotation of the pin-shaft *u*.

The shaft 3 receives its motion from the shaft 2, through the medium of the cog 6 and a cog, 17, and the movement of the shaft 3 is transmitted to the shaft *v* through the medium of a belt, 18, and pulleys 30 31.

The shaft 4 is geared to the shaft 2, and carries two cams, which operate levers 19 20, connected by straps 21 to the heddle-operating levers at the top of the loom.

The shaft N is vibrated by a cam, 22, on the shaft 2, through the medium of a rod, 23, and said shaft N carries a cam, 24, which acts on the lever K.

Connected to the rod 23 also is a pawl, 25, which acts on a ratchet, 26, the motion imparted to which is transferred by suitable gearing to a system of drawing-rolls, by which the finished fringe is conveyed from the point of manufacture to the trough 27.

The lay is operated by means of an arm, 32, on the shaft N, through the medium of a connecting-rod, 33.

I claim as my invention—

1. The combination, in a fringe-weaving loom, of harness mechanism for operating the binding-warp, a reed, C, a retaining pin or hook, *v*, a movable thread-carrier, a vibrating arm, S, for catching a thread and applying it directly to the hook, and means for operating said arm, as set forth.

2. The combination of the movable thread-carrier, the shaft *u*, having a pin, *v*, the horizontal arm S, having a weighted finger, *w*, pivoted to said arm, and arranged at right angles in respect thereto, and mechanism for operating said parts, as set forth.

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

BALTHAZARD CRÉMÉRIEUX.

Witnesses:

ALEX. PATTERSON,
HARRY SMITH.