

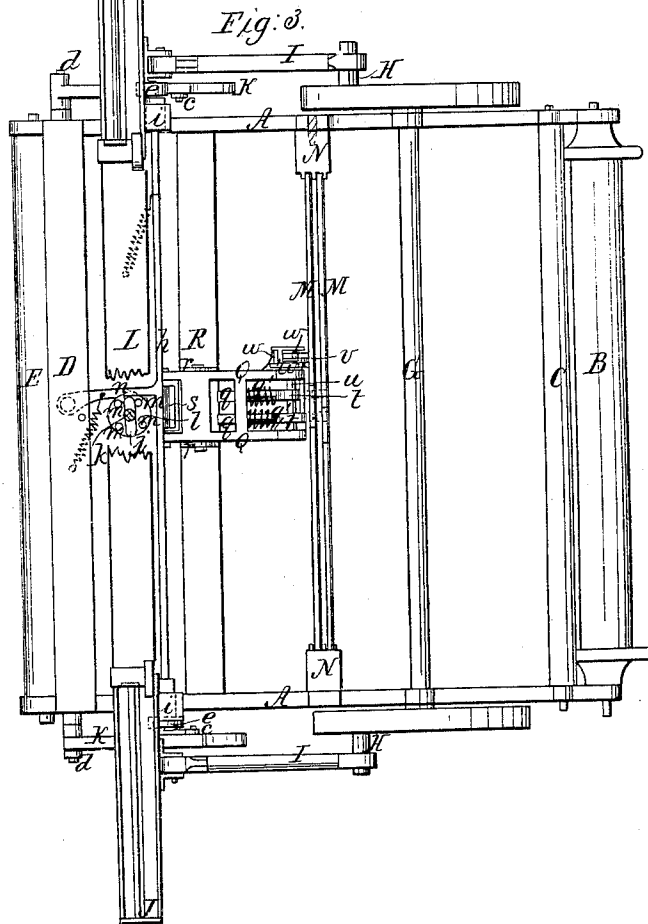
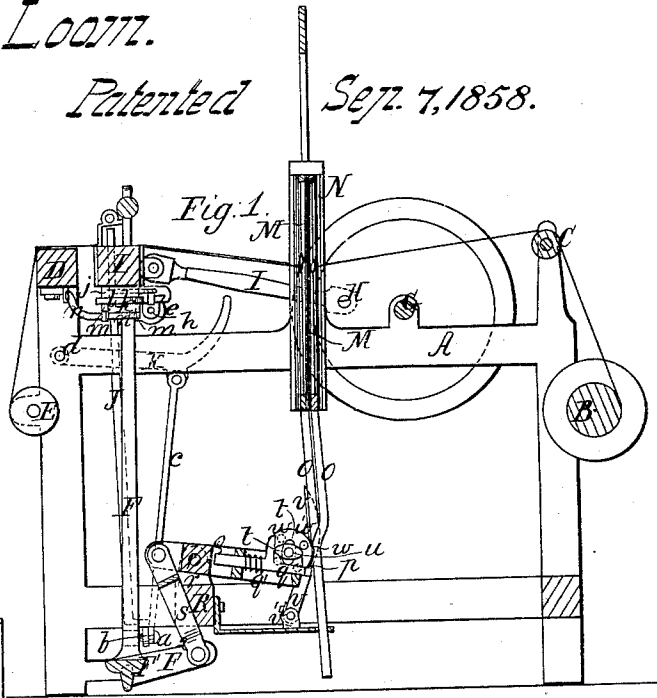
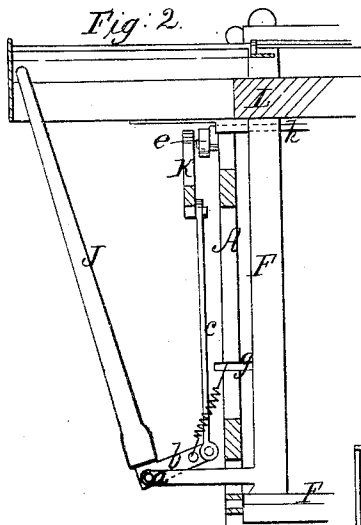
E. M. Scott.

Loom.

N^o 21,448.

Patented

Sept. 7, 1858.



UNITED STATES PATENT OFFICE.

E. M. SCOTT, OF AUBURN, NEW YORK.

LOOM.

Specification of Letters Patent No. 21,448, dated September 7, 1858.

To all whom it may concern:

Be it known that I, E. M. SCOTT, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements 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, taken parallel with the warp, of a loom with my improvements. Fig. 2, is a front view exhibiting the mechanism for operating one of the picker staves. Fig. 3, is a plan of the loom.

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

This invention provides for the operation of the shuttle motion and harness motion by the movements of the lay; thus dispensing with the cam-shaft and cams and treadles and simplifying the construction of the loom.

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, the yarn beam; C, the whip roll; D, the breast beam; and E, the cloth beam. F, L, is the lay; G, the main shaft; H, H, the cranks for moving the lay; and I, I, the connecting rods connecting the cranks with the lay. All the above parts are like the corresponding parts of power looms heretofore used.

J, J, are the picker staves, working on pins *a*, *a*, secured in arms attached to the lower parts of the swords F, F, of the lay. These staves have arms *b*, *b*, at their lower ends, which are connected by rods *c*, *c*, with two levers K, K, which work one on each side of the loom on pins *d*, *d*, secured in the framing; said levers being so situated below the sole-piece L, of the lay as to be operated upon as the lay swings back, by two rollers *e*, *e*, attached to the sole-piece. The action of these rollers is to depress the levers and thus depress the arms *b*, *b*, of the picker staves and move the upper ends of the said picker staves toward the center of the loom for the purpose of throwing the shuttles. The picker staves are returned to the outer ends of the shuttle boxes as the lay moves forward, by means of springs *f*, connecting their arms *b*, *b*, with fixed pins *g*, secured in the framing. To cause the picker staves

to be operated only one at a time and alternately, the two rollers *e*, *e*, are fitted to a shaft *h*, which does not rotate but is fitted to slide longitudinally in guides *i*, *i*, secured to the lay; and the said rollers are arranged at such a distance apart that when one ranges with its respective lever K, the other is nearer the center of the loom and out of range with its respective lever; and said shaft is caused to receive a longitudinal movement after each pick, to cause the rollers to be brought alternately into range with their respective levers, by means of a double cam *j*, which turns on a fixed stud *k*, secured in the bottom of the sole-piece L, which cam has attached to it a plate *l*, in which are four pins *m*, *m*, one of which, as the lay completes its forward movement, strikes a dog *n*, attached to the bottom of the breast beam and thus causes the cam to be turned one-fourth of a revolution. The dog *n* works on a pin *n'*, and is prevented getting out of an operative position by means of a spring *o*, connecting it with the breast beam and a pin *o'*, secured in said breast beam, which permit it to vibrate the distance necessary to operate on the pins *m*, *m*.

M, M, are the heddle frames working in upright stationary guides N, N. Each of these frames has attached to its lower rail a lifting rod O, and these rods are kept stiff by working in guides in a stationary plate P. Each rod has a notch *p*, on its front side and the rods are so bent or formed that their notches are side by side and range in the same planes so that they may be entered alternately to lift the heddle frames each by a separate one of two sliding dogs *q*, *q*, which are arranged side by side in a frame Q, which swings vertically in bearings *r*, *r*, attached to a stationary rail R. The swinging motion of the frame Q, which raises and lowers the heddles is effected by the connection of its rear end by means of a rod *s*, with an arm F², that is cast with or rigidly secured to the bottom piece F' of the lay. This connection causes the rear end of the frame which is next the lifting rods O, O, to rise as the lay swings back and fall as the lay beats up. The greater part of the movement of the frame Q, is effected during the last half of the retreat and first half of the advance of the lay. The two dogs *q*, *q*, are brought alternately into positions to operate on the teeth of their respective lifting rods under the control of two double cams *t*, *t*.

on a shaft *u*, which is fitted to bearings in the rear part of said frame, and receives a quarter revolution every time that part of the frame descends, by the action of a dog *v*, attached to plate *P*, upon one of four pins *w, w*, secured in a disk or turning plate *w'*, on one end of said shaft. The cams *t, t*, do not force the dogs *g, g*, into position to operate on the lifting rods, but that is effected by springs *q', q'*, coiled around the dogs, and the said dogs are each in turn drawn out of the way of its respective lifting rod by its respective cam, while the other is allowed to be forced into an operative position by its spring. The turning of the shaft *u*, is effected just as the lay completes its forward motion, so that the proper dog is in readiness to operate, as the rear end of the frame *Q*, rises with the retreat of the lay. The heddle frame which is not lifted rests on stops in the guides *N*. The dogs not only raise but control the lowering of the heddles, as the latter rest on the dogs till they arrive at the stops above spoken of. The dog *v*, is kept in operative relation to the pins *w, w*, by a spring *v'*, applied near its connection with the plate *P*.

Two heddle frames only are represented in the drawing, but the invention is applicable to operate a greater number by using a corresponding number of dogs *g, g*, and of properly arranged cams *t, t*, on the shaft *u*.

It will be readily understood that as in driving the harness and shuttle motions from the lay, the main shaft only serves to

give motion to and control the length of the beat of the lay, if any other suitable means of controlling the length of beat be applied, the loom may be operated by working the lay back and forth by hand, as is done in the hand loom.

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

1. Operating the shuttle motion by means of the lay, in the manner and for the purpose described.

2. The combination of the sliding shaft *h*, attached to the lay, the rollers *e, e*, or their equivalents on said shaft, the cam *l*, and its appendages attached to the lay for giving longitudinal motion to the shaft, and the dog *n*, attached to the breast beam to operate the cam; the whole applied and operating substantially as described, to actuate the shuttle motions at one side of the loom only at a time by the movement of the lay.

3. Operating the harness motion by means of the lay in the manner and for the purpose specified.

4. The combination of the swinging frame *Q*, and its dogs *g, g*, cams *t, t*, and turning plate *w'*, with the lifting rods *O, O*, below the heddle-frames, the dog *v*, and the lay; the whole operating substantially as set forth to cause the heddles to be operated alternately or in proper order of succession.

EDWIN M. SCOTT.

Witnesses:

F. G. DAY,
JOSEPH H. CHOATE.