E. Fairman.

Loom.

No. 595. Patented Feb. 6, 1838.

Fig. 1.

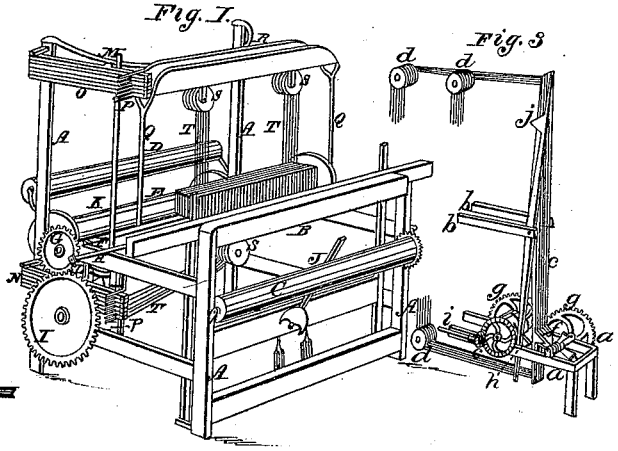

Fig. 2.

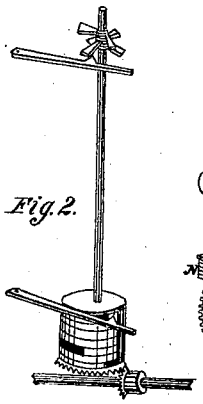

Fig. 3

Witnesses,

Wm Keller

Rodolphus Woodworth

Inventor:

Elijah Fairman

N. PEYERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ELIJAH FAIRMAN, OF STAFFORD, CONNECTICUT.

POWER-LOOM.

Specification of Letters Patent No. 595, dated February 6, 1838.

To all whom it may concern:

Be it known that I, ELIJAH FAIRMAN, of Stafford, in the county of Tolland and State of Connecticut, have invented a new and useful Improvement in Power-Looms, by which the harnesses are made to operate more correctly and the warp to open more freely and the loom better suited to the weaving of either light or heavy fabrics.

As the loom, excepting the improvements, is the same as others in common use, it may not be necessary to describe particularly all its parts; reference to the drawing may suffice.

My improvement consists in the addition of another cam and another set of treadles.

The drawing is for a satinet loom, and has two sets of treadles, six in each, more or less may be used if required. The treadles lie horizontally, one set near the bottom of the loom, and the other set near the top. Each set of treadles is supported at their outer end by two short arms, or bars, projecting from one of the back corner posts of the loom; between which the ends of the treadles are placed one upon another, and a pin or bolt passes through them and the supporting arms. The other ends of the treadles are supported by short thin pieces of iron or wood, fastened to short posts, or studs in the frame, projecting out horizontally, one underneath each treadle, forming rests and slides for the treadles to play upon. Each treadle has an iron shoe fastened to its front edge, of a triangular form, on which the cam acts to give the treadle motion. To the end of each of the upper treadles are attached two cords, one of which passes over one pulley, and the other over another pulley, suspended between two harness rails at the top of the loom, and passing down, are fastened to the harness, one near each end. To the end of each of the under treadles, is attached one cord, which passes under a pulley in the lower part of the loom, and coming up is fastened to the under side of the same harness, in the center. These cords hold the harness firm that it cannot move up or down till moved by the treadle; and when one part of the harness is raised, the other parts are held down, so that the warp opens to let the shuttle pass freely.

The cams by which the treadles are moved, are placed near the top and bottom of an upright shaft so as to match with the shoes of the treadles; and are so arranged as that when an upper cam strikes the shoe of one of the treadles so as to raise a harness, the corresponding treadle in the lower set attached to the same harness, gives way to the motion, by its shoe being drawn into its appropriate space, in the cylinder cam; and when the upper cam has passed the shoe of the treadle, the treadle is drawn back to its place again, by the shoe of the under treadle being thrown out of its space, and pulling upon the harness cord. By these alternate movements of the treadles, by the aid of an additional cam, the action is made free and easy, and the harnesses kept closely confined to their places, and made to open wider and more clear, that the shuttle may pass without danger of over-shots. The cam shaft is turned by means of a bevel gear on the bottom of the cylinder cam, driven by a pinion on the shaft of the picker gear. See Fig. 2, in the drawing.

Another method of producing the same motions, and effecting the same objects is, to have but one set of long double treadles, standing upright, extending from top to bottom of the loom, and turning upon a pin in the center, which passes through them and a short arm or bar on each side, firmly attached to the loom to support the treadles. The cams such as already described, are placed horizontally between two bars or arms attached to the frame of the loom at one end, and at the other supported by a post or posts standing upon the floor. The lower ends of the treadles have a shoe on each side, exactly opposite, and stand directly beneath the cams. The cams are carried by a bevel gear and pinion similar to those by which the horizontal treadles are moved; the pinion being placed upon the end of the shaft of the picker cam. Two match wheels, one on the end of each cam shaft, regulate the motion of the cams to turn equally alike. By the action of the cams on each side of the treadles the bottoms of the treadles are thrown alternately one way and the other, giving the same motion to the tops of the treadles, but in a contrary direction, operating upon the harnesses in the same manner as before described. Or one of the cams may be placed near the top of the treadles and on the same side as the one at bottom, and the shoes for each on one and the same side.

I do not claim as my invention, the power loom, nor any several part thereof; but I do claim—

1. The improvement of the application of an additional cam and a set of treadles; one cam operating upon the harness in the usual manner, by moving it in one direction, my improvement by adding another cam and set of treadles, is for moving it in the other direction, and for confining the harness, by cords from the treadles attached to both upper and under side of the harness instead of the upper side only, as is the usual method.

2. I also claim as my improvement the plication of the additional cam to the l upright double treadle, as above descri and also the additional cords extending f the bottom or lower ends of said long t dles to the under side of each harness.

ELIJAH FAIRMAN.

Witnesses:
WM. FIELD,
RODOLPHUS WOODWORTH.