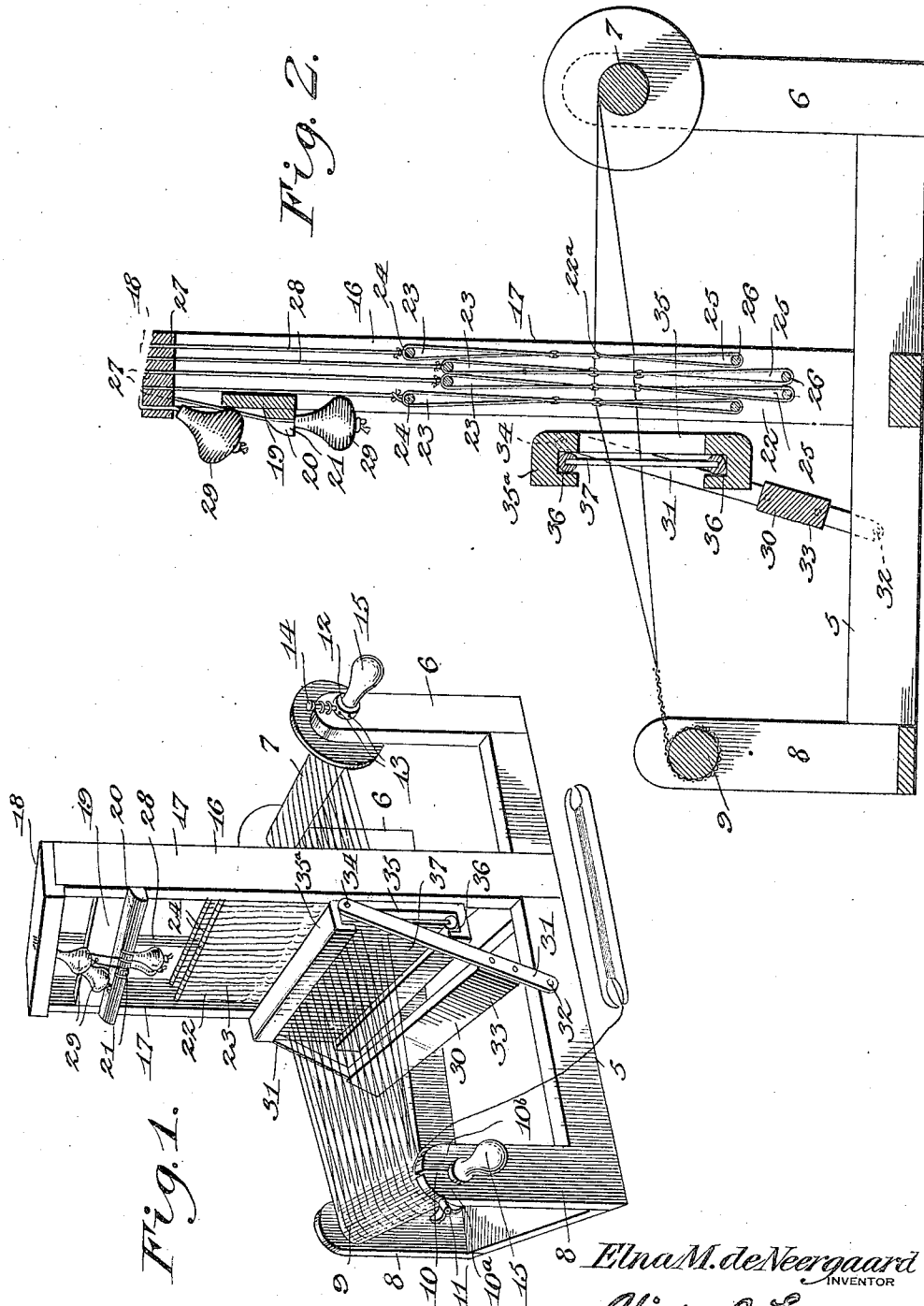


Feb. 13, 1923.

E. M. DE NEERGAARD.
LOOM.
FILED JUNE 18, 1920.

1,445,493.



WITNESS:

W. E. Eady

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UNITED STATES PATENT OFFICE.

ELNA M. DE NEERGAARD, OF NEW YORK, N. Y.

LOOM.

Application filed June 18, 1920. Serial No. 389,937.

To all whom it may concern:

Be it known that I, ELNA M. DE NEERGAARD, residing at New York, in the county of New York and State of New York, have
 5 invented new and useful Improvements in Looms, of which the following is a specification.

This invention relates to looms and more particularly to the class described and shown
 10 in my prior Patents Numbers 1,332,165, and 1,332,166, dated February 24th, 1920. In my prior looms, I provide a simplified mechanism and arrangement of parts whereby the
 15 loom could be conveniently transported from place to place and used in vocational schools or by convalescents or by those who were physically incapacitated and unable to satisfactorily operate foot power machines. In
 20 each of said patents I designed the same so as to bring all of the controlling or operating parts within convenient reach of the user and while such parts were incorporated in a portable hand loom, they were designed and assembled to create a loom which would
 25 be practical in every respect and capable of being actuated with the greatest convenience.

In the invention which I will presently describe in detail, I have provided a novel form
 30 of heddle controlling mechanism, having positioned the same between the yarn and cloth beams respectively and adjacent to the batten so that the latter and the heddles would all fall within common reach of the
 35 operator. I have also designed and constructed the parts so that the warp threads are separated systematically by the heddles into two series, each controlled and alternately drawn upward and downward by the
 40 vertical motion of the heddles so as to produce a relatively large shed between the ranks of warp threads through which the shuttle can be conveniently thrown or shot. The batten is mounted to swing so that the
 45 slats or wires of the reed drive the weft thread against the previously woven part of the texture with a uniform sharp blow.

With the above and other objects in view which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed
 50 out in the claim.

55 In the accompanying drawings, has been illustrated, a single and preferred form of

the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and
 60 modifications within the scope of the claim may be resorted to when desired.

In the drawings:—

Figure 1, is a perspective view of the loom.

Figure 2 is a vertical longitudinal section
 65 therethrough.

The frame 5 herein illustrated is quite similar to the frame shown in my Patent No. 1,332,166, of February 24th, 1920, and the same is provided with a pair of rear
 70 standards 6—6 in which the yarn beam 7 is mounted to revolve and a similar pair of front standards 8—8 in which the cloth beam 9 is mounted to revolve. The cloth
 75 beam may be secured in its position of adjustment by splitting one of the standards 8 as shown at 10 and associating a clamping bolt 11 with the standard so as to draw the
 80 divided sections 10^a and 10^b against the trunnion of the cloth beam. The yarn beam is provided with a collar 12 having an annular series of keeper recesses 13 which are adapted to co-act with a manually actuated
 85 locking pin 14 carried by the adjacent standard 6. The said beams 7 and 9 are each provided with an operating handle 15 by means of which the beams can be turned as desired.

Rising from the frame 5 at a point rearwardly of the vertical center of said frame
 90 is a harness frame 16. Said harness frame includes vertical side bars 17—17, a connecting cross bar 18 and a keeper bar 19, the latter having a forwardly projecting off-set 20 in which kerfs 21 are formed, the said kerfs
 95 corresponding in number with the heddles 22. Said heddles are disposed side by side and they occupy a position bounded entirely by the frame 16 and in the upper loops 23 of the heddles, rods 24 are inserted while in the
 100 opposite or lower loops 25 of the heddles, rods 26 are inserted. The rods 26 are formed preferably of metal and the rods 24 of wood so that the former serve as weights to hold the heddles in their operative work-
 105 ing positions in said frame 16.

The top bar 18 has guide apertures 27 formed therein for the reception of the actuating connections 28 with which the heddles are respectively associated. The free
 110 ends of the connections 28 extend in a forward direction or toward the cloth beam 9

and the same are equipped with handles 29 which may be drawn downward by hand and passed under the keeper off-set 20, the connections 28 having free passage in the kerfs 21. When the handles are positioned under the off-set, the heddles are raised against the action of the weight rods 26. The frame 16 rises for a suitable distance above the frame 5 so that the handles 28 can be freely grasped and manipulated by the operator who sits in front of the cloth beam 9. The length of the main frame 5 is also proportioned with respect to the height of the frame 16 so that the handles 15 of the beams 7 and 9 can also be conveniently grasped and manipulated by the operator. The batten 30 embodies parallel links 31—31 pivoted at 32 to the sides of the frame 5. They are connected together by a relatively heavy cross bar 33 and at the upper ends they are pivoted at 34 to a reed carrying frame 35. The construction is such that the reed frame is adapted to lie in parallelism with the heddles at the time of producing a shed between the warp threads. The reed frame 35 is grooved in its length as at 36—36, the said grooves disposed at one side of the pivots 34 so as to permit the reed 37 to be readily inserted in or removed from said frame 35. The warp threads are passed through the usual eyes 22^a of the heddles 22 and then through the reed, the latter being of any suitable well known construction. The threads are then run on to the cloth beam as is usual. Any necessary tension on the threads can be obtained by holding the beam 7 in a relatively fixed position by means of the collar 12 and co-acting locking pin 14. By releasing the tension on the cloth beam

9, on adjusting the bolt 11, said beam can be turned to place the warp threads under the requisite tension. It will be observed that the connections 28 correspond in number with the heddles and the latter are associated with the reed to cause the warp threads to be systematically separated into two series, each capable of being controlled and alternately drawn upward and downward by the connections 28 and weights 26. The position of the bar 18 is such that ample movement may be transmitted to the heddles so as to result in the production of a shed of maximum size between the warp threads. The upper bar 35^a of the heddle frame 35 is formed whereby it can be grasped by the hand of the operator to tilt the batten and drive the weft thread against the previously woven part of the texture with a uniform sharp blow.

What is claimed as new is:—

A loom including a frame having a yarn beam and a cloth beam, means for holding said beams in positions of adjustment to maintain tension upon the warp-threads, a harness frame rising from said first frame, weighted heddles in said second frame, controlling connections leading from said heddles, means co-acting with said connections to hold the heddles in their positions of adjustment, and a swinging batten mounted upon said first frame and including a swinging reed movable independently of the batten's swing operating between the cloth beam and said harness frame.

In testimony whereof I have affixed my signature.

ELNA M. DE NEERGAARD.