

LOOM.

Patented Feb. 24, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

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LOOM,
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2 SHEETS—SHEET 2.

Fig. 3.

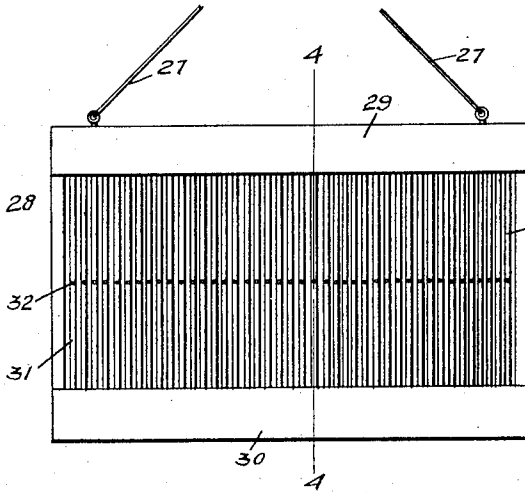


Fig. 2.

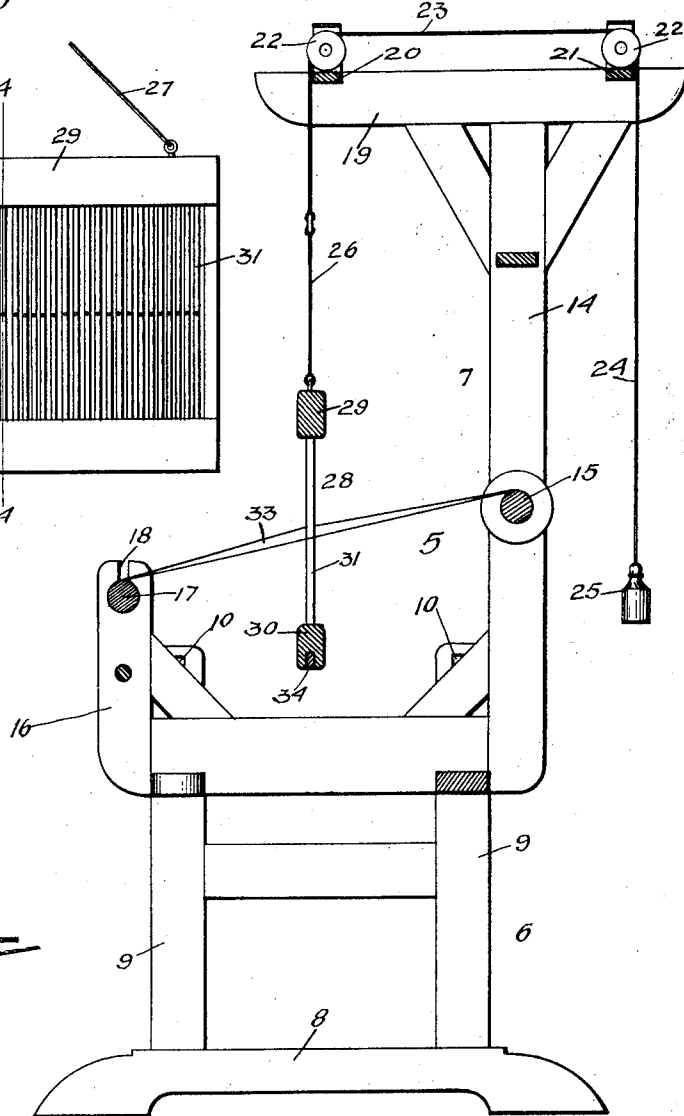
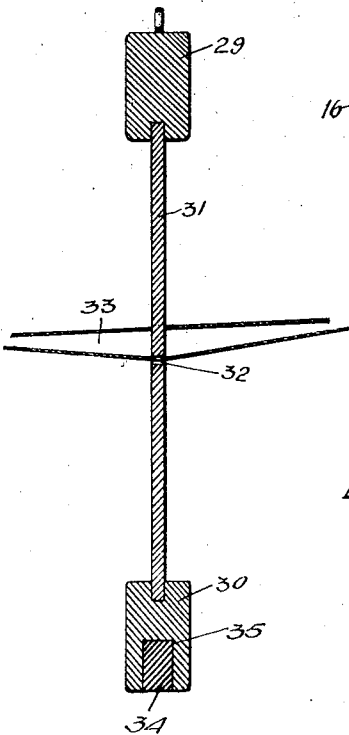


Fig. 4.



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Specification of Letters Patent.

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To all whom it may concern:

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

This invention relates to looms and has for its principal object, the provision of a structure of this character which will be simple, strong and durable and of a design which readily fits it for use by the hand of convalescents or those who are physically incapacitated and unable to control foot power machines; the same being otherwise arranged and adapted to be controlled whereby its operation may be effected without unduly exerting the user.

A still further object of the invention resides in the provision of a hand controlled loom which will consist of one principal element which will operate in the multiple capacity of a heddle frame, reed and batten, the same being positioned between the yarn beam and cloth beam and provided with means whereby the threads are serially separated systematically and adapted to be controlled and alternately drawn upward and downward to form a shed between the ranks of the warp threads through which the shuttle may be thrown or shot by hand; the said element being mounted for vertical movement and secondly for substantially horizontal movement in order that it may be manually actuated as a batten to drive the weft thread against the previously woven part of the texture with a uniform sharp blow and thereby produce a thread surface of an even texture throughout.

Another object of the invention is to provide a loom which will consist of a frame including a stationary base section and a vertically adjustable superposed section, the latter carrying the operating parts of the loom and designed whereby it may be conveniently arranged for the use of a convalescent operator.

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 out in the claim.

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 modifications within the scope of the claim may be resorted to when desired.

Figure 1 is a perspective view of the loom.

Fig. 2 is a vertical section therethrough.

Fig. 3 is a front view of the combined heddle, batten and reed.

Fig. 4 is a section taken on the line 4—4 of Fig. 3.

The loom which will be hereinafter described both broadly and specifically, is admirably intended for use in sick rooms, hospitals and the like and one of the principal features which I desire to emphasize is the arrangement of a collection of instrumentalities which are capable of being controlled solely by hand. I wish also to lay stress upon one particular element of the loom which is designed to serve in the multiple capacity of a heddle frame, batten, and reed, the same being mounted between the yarn beam and cloth beam whereby it may be freely grasped by the hand of the operator and actuated with no appreciable physical exertion. The loom therefore consists of those features of novelty which are now described, as follows:—

A frame 5, is employed, the same consisting of a base or stand 6, and a superposed section 7. The base 6 is provided with supporting feet 8—8 each having a plurality of vertical standards 9. In each standard is formed a vertical series of horizontal passages 10 which are suitably spaced apart in order that the super-structure 7 can be raised or lowered from the base section to permit the operating parts of the loom to be brought in the presence of a convalescent who may be reclining in a sick bed or the like. In other words, the adjustability of the loom will, at any time, permit the principal operating parts to be properly arranged for operation according to given conditions. The upper section 7 is provided with horizontal extensions 11 adapted to be arranged in the openings 10 according to the adjustment desired. These extensions are provided with key-ways 12 which are arranged to receive fastening keys 13. These keys are substantially of wedge formation and when associated in the key-ways, they are adapted

to co-act with the standards 9 to establish a firm connection between the base section 6 and said upper section 7 of the frame.

Rising from the superposed section are rear vertical standards 14—14 and mounted in said standards is a yarn beam 15 of any suitable well known construction. At the front of the superposed frame 7 are short standards 16—16 which support a cloth beam 17. These standards are slotted vertically at 18 for the reception of the ends of the cloth beam and the arrangement provides means whereby said beam can be readily connected with or disconnected from the loom as the occasion requires.

The standards 14—14 support horizontal cross pieces 19, the same being rigidly connected together by transverse bars 20 and 21. Each of these transverse bars supports a pulley 22 over which a flexible connection 23 passes. This connection has a vertical lead 24 which is disposed at the rear of the yarn beam 15 and at the lower end of said lead is a counter-balancing weight 25 whose office will be fully explained hereinafter. Said connection is provided with a front vertical lead 26 from which is suspended by suitable devices 27—27, an element or member which has for its purpose, the functioning of (1) a heddle frame, (2) reed and (3) batten. This element comprises a frame 28 in which is included parallel horizontal bars 29 and 30, and reed slats 31. These slats are spaced apart and each is provided with perforations 32 for the reception of some of the warp threads. These perforations of the respective slats are arranged in the same horizontal alinement. The slats are spaced apart and in view thereof and in consideration of the horizontal series of passages 32 the warp threads are separated systematically into two series, each controlled and alternately drawn upward and downward by the vertical motion of the frame 28, thus leaving a shed 33 between the ranks of warp threads, through which the shuttle is adapted to be thrown or shot by hand. These

warp threads are therefore adapted to be serially opened as the frame 28 is actuated. It will be noticed here that threads of one sheet pass through the slits, while those of the other sheet pass through the perforations in the slats. The frame, through the fact that it is mounted from the flexible connection described, is adapted to be swung to and fro with respect to the cloth beam and it is therefore adapted to serve as a batten to drive the weft thread against the previously woven part of the texture to keep the surface well together. In order to augment the action of the frame as a batten and to normally separate the respective series of warp threads to form the necessary shed between said series, use is made of the mentioned counter balancing weight 25 and in addition thereto, I provide the bar 30 of the frame 28 with a weight 34. This weight is preferably of continuous strip form and is embodied in a receiving recess 35 in the bar 30. It may be constructed of lead in order that it can be freely driven into its receiving recesses and fixedly confined therein, but in this respect I do not desire to limit myself.

What is claimed as new is:—

A loom comprising a main frame, a yarn beam, a cloth beam, guiding means on the main frame above the said beams, a cable movable on the said guide means and having spaced pendent portions at opposite sides of the yarn beam, a counter-balance weight on the pendent portion of the cable at the opposite side of the yarn beam with reference to the cloth beam, and a combined heddle batten and reed pendent on the other pendent portion of the cable and movable vertically between the cloth beam and yarn beam and also movable laterally toward and from the cloth beam; said combined heddle batten and reed having separate passages for the separate sets of warp thread.

In testimony whereof I affix my signature.

ELNA M. DE NEERGAARD.