H. R. PARKER.

NEEDLE LOOM.

APPLICATION FILED DEC. 16, 1919.

1,364,138. Patented Jan. 4, 1921.

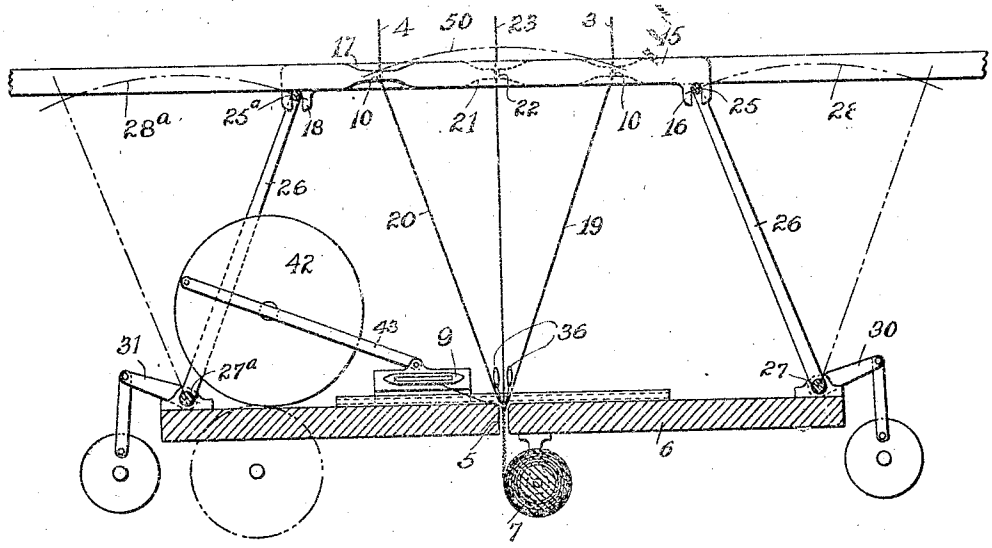


Fig. 1.

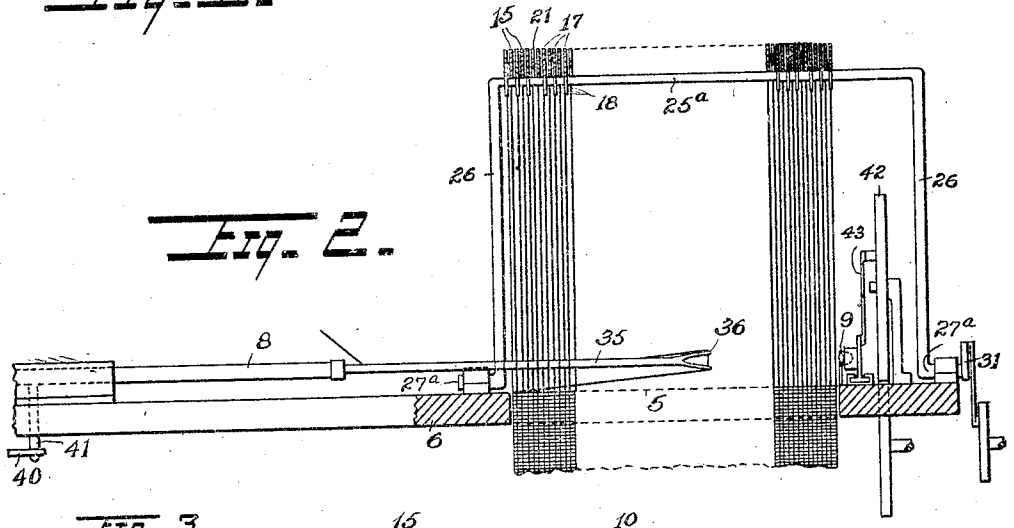


Fig. 2.

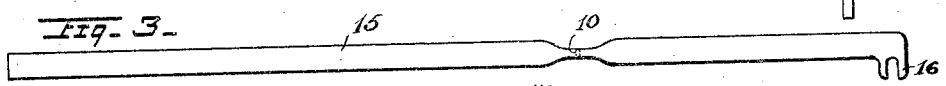


Fig. 3.

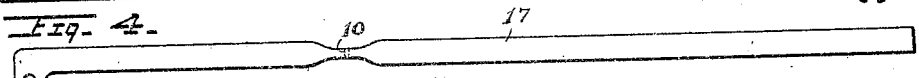


Fig. 4.

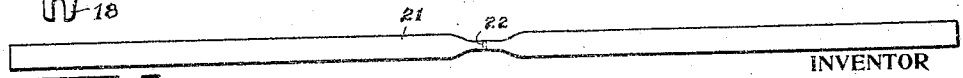


Fig. 5.

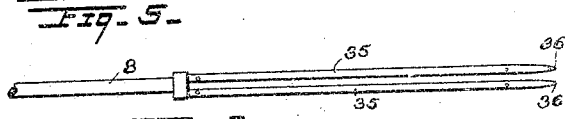


Fig. 6.

INVENTOR

Henry R. Parker,

by W. G. & D. Maxwell

Attorneys

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY R. PARKER, OF NORRISTOWN, PENNSYLVANIA.

NEEDLE-LOOM.

1,364,138. Specification of Letters Patent. **Patented Jan. 4, 1921.**

Application filed December 16, 1919. Serial No. 345,277.

To all whom it may concern:

Be it known that I, HENRY R. PARKER, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Needle-Looms, of which the following is a specification.

My invention relates to looms, and particularly to improved shed-forming mechanism therefor and provision for employing core threads in connection with the warps, as hereinafter fully described in connection with the accompanying drawings, the novel features being specifically pointed out in the claims.

Figure 1 is a diagrammatic cross sectional view indicating the application of my invention to a loom structure.

Fig. 2 is a partial elevation at right angles to that of Fig. 1.

Figs. 3, 4 and 5 are separate views of the three forms of warp thread guides employed; and Fig. 6 shows the particular form of needle provided for passing the weft around the core warps.

As indicated in the drawing the covering warp threads 3 and 4 and woven fabric pass vertically through an aperture 5 in the table 6, the finished fabric being wound upon a take-up roll 7 below said table. The needles are disposed above the table for the passage of the weft thread needle 8, each reciprocating shuttle 9 furnishes a selvage thread of the weft, as shown, generally being similar to that in my prior Patent No. 1,337,259, issued April 20, 1920.

In my present improved shed forming mechanism I employ, as indicated, a series of closely arranged parallel rods each of which is provided with a warp thread guide eye 10, and which are divided into separate groups. The rods 15, having depending ears 16 adjacent one end thereof, form one of these groups, and rods 17, arranged in alternation with rods 15 and having similar depending ears 18 adjacent the opposite extending ends, form a cooperating group; said groups being moved simultaneously in opposite directions, as hereinafter described, to form the walls 19 or 20 of successive vertical sheds. As shown, I have provided in addition a series of interposed core-thread guide rods 21 similar to rods 15 and 17 but having centrally located eyes 22 for guiding any desired number of fixedly extending core threads 23.

All of these warp thread guide rods, as shown, are conveniently supported upon two horizontal pivotally swung cross bars 25, 25ª, upon which they rest by gravity, and which engage respectively the ears 16 of each rod 15, and the ears 18 of each rod 17; each of said bars having radius arms 26, 26 pivotally mounted on the loom table at 27 and 27ª respectively, and having periodic swinging movements imparted thereto in like arcs 28 or 28ª, to throw their guide eye portions alternately to opposite sides of the table aperture 5 for forming the sheds. These simultaneous opposite swinging movements of the bars 25 and 25ª are imparted by suitable mechanism comprising as indicated, crank shaft connections 30, 31 Fig. 2. [illegible] the inward movement of both groups of rods, and dotted lines indicating the reverse swing thereof. The intervening core thread guide rods 21 though supported by the swinging bars 25, 25ª and affected by the slight lifting motion of the latter as indicated, are retained in substantially fixed position longitudinally so that the core threads 23 pass centrally out of the table aperture 5.

The weft feed thread needle 8 which is suitably reciprocated through each shed as usual, is specially formed as indicated so as to straddle the core thread 23; it being provided with a longitudinally forked body portion, each prong 35 of which has a needle portion 36 formed in a vertical plane, so as to permit its passing therethrough as usual of the selvage thread shuttle 9 indicated.

The needle 8 is suitably projected through each shed formed by the reciprocating rods 15 and 17 by any suitable mechanism, the drawing merely indicating an operating link 40 extending from a post 41 of the slidably supported needle 8; and the selvage thread shuttle 9 is indicated as reciprocatively operated by the crank wheel 42 and link 43. The indicated operating means may be varied in practice, and the [illegible] of course will be synchronized so as to cooperatively move the parts in proper sequence and condition.

The operating of my improved mechanism will be readily understood from the foregoing description thereof; it is very simple and satisfactory, the threads 3 and 4 guided

in the reciprocating rods 15 and 17 form successive sheds through which the needle 8 is projected to carry the weft or filler thread, and the latter is engaged by the selvage thread shuttle 9 to retain the weft in the shed preliminary to its being locked therein by the crossing of the warp threads in forming the next shed. The core threads 23 in connection with the forked prongs 35 of the needle 8, permit the introduction of reinforcing warps to strengthen the fabric, while the double weft introduced covers and locks the core threads within the fabric.

The reciprocating rods 15 and 17 operated by the bars 25 and 25ª, which latter swing in the arcs 28 and 28ª, cause the guide eyes 10 of each reciprocated bar to travel in an arc 50 of equal radius with the arcs 28 and 28ª, so that the warp threads 3 and 4 guided therein swing in a radius from the weaving point above the opening 5 and prevent any see-sawing movement of the threads in the guide eyes. This freedom of reverse movements in the guide eyes 10 eliminates wear upon the threads and permits increased speed of the machine with safety. The rods 21 may be independently supported if desired, above the bars 25 and 25ª so that even the slight rising and falling movement imparted to them may be eliminated.

My improved construction is simple and effective and reduces unnecessary wear on the warp threads, and the forked weft needle permits of satisfactory introduction of reinforcing core threads when desired.

What I claim is:

1. In a loom, a shed forming mechanism comprising warp thread guide rods all arranged in one plane and in parallel relation, with alternate ones grouped together in separate series, and reversely movable carrying devices each of which is operatively connected to one series of rods and slidably supports the other series.

2. In a loom, a shed forming mechanism comprising warp thread guide rods all arranged in one plane and in parallel relation, with alternate ones grouped together in separate series, carrying bars respectively connected to one series of rods and slidably supporting the other series, and means for reversely moving said bars.

3. In a loom, a shed forming mechanism comprising warp thread guide rods all arranged in one plane and in parallel relation, with alternate ones grouped together in separate series, pivotally mounted carrying bars for the respective series, and means for reversely moving said bars in equal arcs.

4. In a loom, a shed forming mechanism comprising warp thread guide rods all arranged in one plane and in parallel relation, with alternate ones grouped together in separate series, and intervening fixed core-thread guides, and reversely movable carrying devices each of which is operatively connected to one series of rods and slidably supports the other series, and said devices jointly slidably supporting the core-thread guides.

5. In a loom, a series of warp thread guide rods comprising oppositely movable groups adapted to form opposing shed walls, intervening fixed core-thread guides, reversely operated devices engaging the respective movable rod groups to form the sheds, a movable weft-thread needle having a forked body adapted to straddle the core threads and with forked prong ends, and a reciprocatively operated salvage thread shuttle.

6. In a loom, a vertical shed forming mechanism, comprising reversely movable horizontal guide rod supporting bars, warp-thread guide rods resting on said bars and arranged with alternate ones grouped together in separate series, operative connections from each series to one of said bars, and means to reversely move said bars.

In testimony whereof I affix my signature.

HENRY R. PARKER.