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F. P. GARDNER

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HAND LOOM

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2 Sheets-Sheet 2

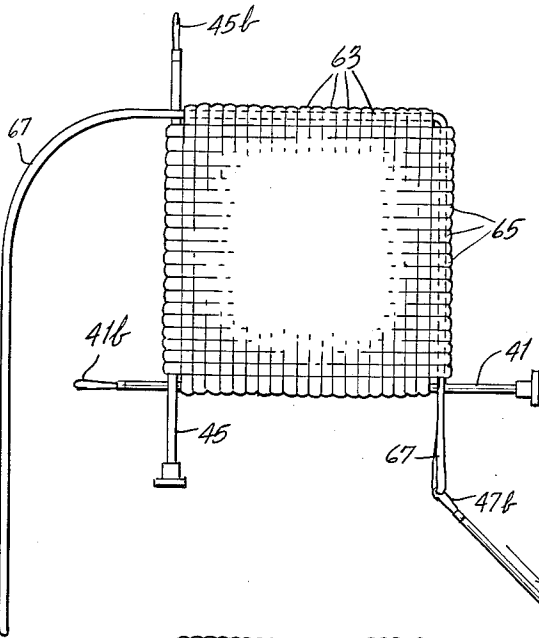


Fig. 3.

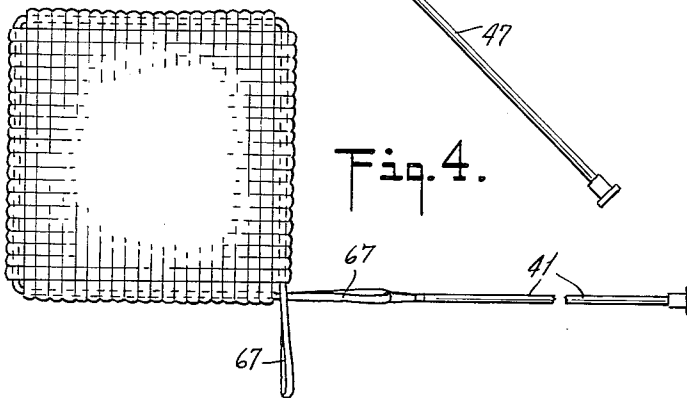


Fig. 4.

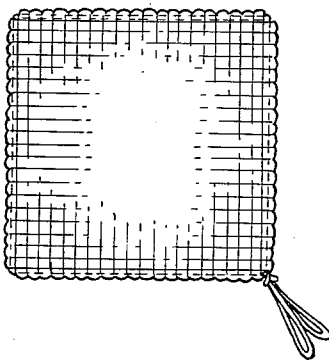


Fig. 5.

INVENTOR.
FREDERICK P. GARDNER
BY
Darby & Darby
ATTORNEYS

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HAND LOOM

Frederick P. Gardner, New York, N.Y., assignor of eighty-five percent to Sylvia A. Gardner and fifteen percent to Dick R. McLain, both of New York, N.Y.
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This invention relates to hand looms and more particularly relates to a hand loom of a type which requires a minimum of skill, manual dexterity and visual acuity to operate.

Heretofore, hand looms have been somewhat inconvenient to manipulate, especially for producing an intricate weave or providing an edging or selvage for the woven fabric or block such as in the finishing operation. These characteristics have been objectionable, particularly when used by children both in and outside of school and for instruction and therapeutic purposes for persons in vocational schools and for the blind. These prior art looms were substantially rectangular or oblong in shape having a series of upright fingers or pegs about the perimeter of the loom and on which the loops of material were placed. These pegs were by necessity spaced close together to provide a tight weave, and thus these looms required a high degree of manual dexterity and were often difficult, if not impossible, to operate by the handicapped person. It was also necessary to use rubber bands to keep these loops from sliding off the pegs. The finishing operation was especially difficult on these prior art looms for the unskilled, since it required interlacing each loop around the four sides of the woven square. If even a single loop end were missed, the square would unravel.

It is therefore an object of the present invention to provide a loom for loop and yarn weaving which is simple to manipulate even by unskilled children and handicapped persons.

Further, it is an object of the present invention to provide a hand loom which allows the woven square to be finished easily and conveniently even by the most unskilled person, and which requires little visual effort.

It is a still further object of the present invention to provide a versatile hand loom which is simple and easy to operate, economical to make and use, and which can produce a wide variety of products.

In accordance with the present invention a woven finished piece, which may be made of a wide variety of materials, such as wool, cotton, nylon, etc. is produced on the hand loom, which pieces can be used for pot holders, etc., or later be joined together to produce afghans, blankets, scarves, etc.

Other objects will be apparent after consideration of the following specification taken with the accompanying drawings, in which:

FIGURE 1 is a plan view of one embodiment of a loom made in accordance with the present invention showing a partially completed weave of material thereon;

FIGURE 2 is a side elevational view partly in section, taken along line 2—2 of FIGURE 1;

FIGURE 3 is a plan view showing the completed woven block on the loom, which is partially shown, and showing a step in the finishing operation of the woven block;

FIGURE 4 is a plan view showing a succeeding step in the finishing operation after that shown in FIGURE 3; and

FIGURE 5 is a plan view showing the finished woven block with a loop for hanging.

The hand loom shown in the drawings has a base frame indicated generally at 10. While base frame 10 is shown generally square in shape, if desired it may be

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of other geometric forms, such as a circle, a rectangle, a parallelogram, an oblong, or other type polygon. The frame may be of any convenient size depending on the desired size of the finished woven piece, and the size of the rods and finishing loop used. Base frame 10 has a pair of parallel work support arms 11 and 13 and a cross arm which interconnects arms 11 and 13. As will be observed hereinbelow, this generally H-shaped frame provides a generally open frame and gives the maximum freedom from interference of the frame during the starting and finishing operations. At each corner of the base frame 10, or at each end of arms 11 and 13, is mounted a block or post indicated respectively at 12, 14, 16 and 18. Post 12 has a hole or opening 21, and post 14 has a hole or opening 23 therein. These holes are axially aligned and of about the same diameter. Posts 16 and 18 have similar holes 25 and 27, respectively, aligned with one another. The axes of the holes 21 and 23 are approximately parallel to the axes of holes 25 and 27. Each of the posts 12 and 14 has a second hole 31, 33, respectively, at right angles to and in a plane above holes 21 and 23. Holes 31 and 33 are generally parallel to each other.

Slidably received in holes 21 and 23 is an elongated rod, needle or work holding means 41. A similar rod 43 is slidably received in holes 25 and 27. A similar rod 45 is slidably received in opening 31 in post 12 and rests on the upper surface of the opposite post 18. A similar rod 47 is slidably received in opening 33 in post 14 and has its other end resting on the upper surface of the opposite post 16. Rods 41, 43, 45 and 47 are all of a length greater than the distance between the posts they engage, so that when in operating position, each rod extends beyond frame 10 at both its ends, as seen best in FIGURE 1. Advantageously the rods are made of a flexible material for allowing the rods to be deflected from their respective axes in a manner described below.

Preferably rods 41, 43, 45 and 47 each have a head portion designated respectively 41a, 43a, 45a and 47a and at the opposite end of each rod is an adjustable eye or clasp 41b, 43b, 45b and 47b made of a flexible material, such as spring steel, in the form of a loop, made of two arms 48 and 49. Arm 48 overlays an edge of arm 49 and is normally in the closed position as shown in FIGURE 1. Arms 48 and 49 may be sprung apart to insert a loop of material 67 therein as indicated at eye 43b.

Advantageously in each of posts 12, 14, 16 and 18 is a slot or groove in the upper surface to serve as a guide for the location of the holes when the loom is used by a blind person. Further, these slots aid in removing the finishing loop or cord from the blocks and the finished woven piece from the frame in a manner as will be described below. Thus, slots 51 and 53 are above openings 21 and 31, respectively, in post 12. Similarly, post 14 has slots 55 and 57 above openings 33 and 23, respectively, and in post 18 a slot 59 is above opening 27 and post 16 has a slot 61 above opening 25. The rods are slidably mounted in their respective holes to allow lateral displacement of the rods for aiding mounting the loops thereon.

In operation yarns, ribbons, or narrow fabrics may be used in weaving a block upon the loom. Endless loops of such materials are widely used in prior art hand looms and are shown in the drawings, as may be best seen in FIGURE 1.

Referring to FIGURE 1, it is seen that the first operation comprises looping cords or loops, indicated generally as 63, on rods 41 and 43. This is easily accomplished by withdrawing the ends of rods 41 and 43 from openings 21 and 27 in posts 12 and 18, respectively. Rods 41 and

43 may be flexed toward each other for aiding in sliding loops 63 thereon. After the desired number of loops 63 are placed on rods 41 and 43, the ends of the rods are slid back into openings 21 and 27, respectively.

At right angles to loops 63 are loops designated generally as 65 which are woven over and under alternate loops 63 and caught at their ends on rods 45 and 47, respectively. This may be accomplished by slidably removing one rod, such as rod 47, part way from frame 10, such that its end 47b is no longer resting on block 16, and inserting end 47b through a loop end. The loop 65 is then woven over and under alternate loops 63 and the end of loop 65 caught over rod 45b, one end of which may be slidably removed part way from frame 10 for this purpose. The loop 65 may then be pushed forward to make a tight weave. Since the ends of rods 47 and 49 are not within holes, but are resting on posts 16 and 18, respectively, they can be flexed inwardly toward each other away from their normal axial position to aid in looping the cross loops thereon. This cross weaving is done in a substantially similar manner as was done in the prior art and not only its placing on the rods is novel, but also the simple method by which the article is removed from the frame. When loops 65 completely fill the desired space between rods 41 and 43 the edges of the block should preferably be finished.

The finishing operation is easily performed on the hand loom apparatus as shown best in FIGURES 3 through 5. For ease in description only the outline of the frame structure is shown.

The finishing material, which is preferably of yarn, ribbon, narrow tape, loops or lace, is shown at 67 in FIGURE 1. Loop 67 is placed in the eye 43b of rod 43 by springing apart arms 48 and 49. Rod 43 is pulled out of frame 10 carefully so that end 43b is pulled through opening 27 in block 18 and through the ends of loops 63 and on through opening 25 in block 16. Since loop 67 is held by eye 43b it is also pulled through all the openings of loops 63. About one-half of the length of loop 67 is pulled through the ends of loops 63 so that a little more than one-quarter of its length is beyond these loops. Loop 67 is then removed from eye 43b of rod 43 and pulled through slot 61. Loop 67 may be pulled back through hole 25.

This end of loop 67 is transferred from eye 43b to eye 47b of rod 47, being inserted in that eye in a manner similar to that described above with respect to placing it in eye 43b. Rod 47 is then slid through the ends of loops 65 so that the cord of loop 67 is pulled through the ends of loops 65 in a manner which is shown best in FIGURE 3, thereby catching all of these loops along that edge.

As shown in FIGURE 3, the finishing cord 67 has been pulled through one end of all the loops of the block weave. The other end of cord 67 is then pulled through slot 59 and placed in eye 45b of rod 45 and rod 45 is slidably pulled through the other ends of loops 65. Loop 67 is removed from eye 45b, pulled through slot 52 and transferred to the eye 41b of rod 41. Rod 41 is then slidably pulled through the ends of loops 63 as seen best in FIGURE 4 so that there are two ends of finishing lace 67 at one corner. Preferably, these ends of finishing lace 67 are pulled through slots 55 and 57 and tied together in a bow or knot and the pot holder or block weave is complete.

While preferably the posts 12 and 18 have openings 21 and 27, respectively, to receive the ends of rods 41 and 43, the posts may support the ends of the rods on top of the posts as was described with respect to rods 45 and 47 on posts 18 and 16, respectively, or even have grooves therein to provide some material support for the rods instead of having holes. Further, if desired, each rod could have a separate pair of posts. Also, while rods or work holding means 45 and 47 are shown resting on

posts 16 and 18, they could rest in grooves or be inserted in openings. The rods could of course be slidably held in position by any suitable means, such as clamps, instead of being inserted through openings, and the posts could, of course, be made integral with and a part of said frame.

If yarns or ribbons are used instead of loops they may, of course, be passed around the rods instead of being looped around them; and if used for the finishing strand 67 may be tied to the ends of rods 41, 43, 45 and 47, or suitable clamping means may be substituted for the eyelets.

In the embodiment described, the heads of each pair of rods are positioned on the same side. If desired, the heads of the rods may be placed alternately so that each corner of the frame has a head of a rod positioned on one side of the frame.

While the finishing loop was shown pulled through slots 51, 52, 55, 57, 59 and 61 to aid in the finishing operation, if desired, the loop 67 could be removed from an eye of a rod before the loop is pulled through the second post.

From the above description it will be seen that there is provided a simple hand loom for weaving a variety of articles which is desirable for instructing children in vocational schools and elsewhere, for occupational therapy, for profit, or for amusement purposes. No great skill is necessary to produce the weave herein disclosed by means of the novel loom described above. This loom can be produced economically and is easy to operate, thus making it widely available.

It is of course understood that the various embodiments above described and shown in the drawing are illustrative only and not to be employed by way of limitation inasmuch as numerous changes and modifications may be made within the scope of the appended claims without departing from the spirit of this invention.

What is claimed is:

1. A hand loom for weaving loops of material into geometric configurations which are finished comprising,
 - a frame,
 - four elongated rods,
 - means extending upwardly from said frame for slidably and flexibly holding two of said rods in spaced apart substantially parallel relationship on said frame,
 - means extending upwardly from said frame for slidably and flexibly holding the remaining two rods in spaced apart substantially parallel relationship and substantially at right angles to said first two rods and in a plane parallel to the plane of the first two rods and,
 - means on the ends of each of said rods for removably holding a finishing material whereby selectively removing said rods with the finishing material in said finishing holding means interlaces the loop ends of the work on said loom.
2. A hand loom for weaving yarn comprising
 - a frame,
 - a plurality of support means extending upwardly from four spaced apart areas on said frame,
 - four elongated work holding members,
 - means detachably mounting each elongated work holding member on a pair of consecutive support means for forming a four sided frame for receiving work, and
 - a yarn holding means affixed to the end of each of said work holding members for providing a finishing loop in the woven work on said frame,
 - said yarn holding means comprising a normally closed loop formed of a pair of arms, one of said arms being adapted to yieldably separate from said other arm for passing the yarn through the loop ends of the woven work.
3. The method of weaving a fabric from loops of ma-

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terial on a hand loom having a plurality of slidably and removably supported rods comprising
 placing the ends of each of a series of loops on a parallel pair of said rods,
 positioning said loops supported by said rods in parallel abutting arrangement,
 weaving a loop over and under alternate loops of said first mentioned series and mounting the ends of said loop on a second pair of said rods,
 repeating said loop weaving operation until the space between said first two rods is substantially filled thereby making a tight weave,
 removably mounting a finishing loop to the end of one of said rods,
 sliding said one rod out of the ends of the loops mounted thereon and inserting said finishing loop therein,
 removing said finishing loop from said last mentioned rod, and
 repeating steps of mounting said finishing loop to a rod, sliding said rod from the loops and removing the finishing loop from said rod for each of the remaining three rods.

4. A hand loom for weaving loops of material comprising
 a frame,
 a plurality of spaced-apart members extending from said frame,
 and work-holding rods detachably supported by said members,
 each rod extending between opposed members for forming a support to receive loops,
 said work-holding rods having finishing strand-holding means affixed to one end,
 said strand-holding means being adapted to draw a finishing strand through the ends of said loops as said work-holding rods are consecutively withdrawn.
 5. A hand loom for weaving loops of material comprising

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a frame,
 a plurality of spaced-apart members extending outwardly from said frame,
 a plurality of rods each adapted to interconnect opposing members,
 means supported by said members for slidably receiving said rods,
 said means on opposing members being axially aligned and opposite rods being parallel,
 whereby yarn loops may be mounted about opposite rods in woven condition,
 and means on the ends of said rods for removably receiving a finishing strand,
 said finishing strand being adapted to replace said rods within the ends of said loops as said rods are consecutively withdrawn.
 6. A hand loom for weaving loops of material into a woven form comprising
 a frame,
 a plurality of spaced-apart support members extending from said frame and defining the geometric shape of said form,
 pairs of said members having facing surfaces, a plurality of work holding rods detachably extending between said pairs of facing surfaces to form a peripheral support to receive said loops,
 means carried by said members for detachably supporting in said rods,
 said means allowing its corresponding rod to be removed from said member for adding loops thereon.

References Cited in the file of this patent

UNITED STATES PATENTS

679,132 Todd et al. July 23, 1901

FOREIGN PATENTS

5,271 Sweden Mar. 2, 1894