Nov. 15, 1938. J. A. LE PAGE 2,136,552

HAND LOOM

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FIG.1.

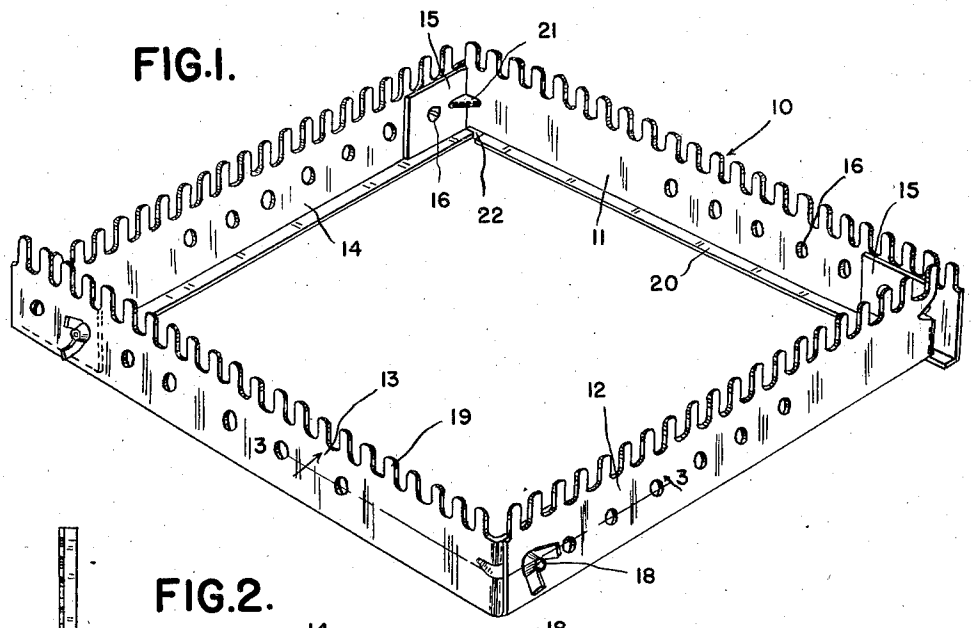


FIG.2.

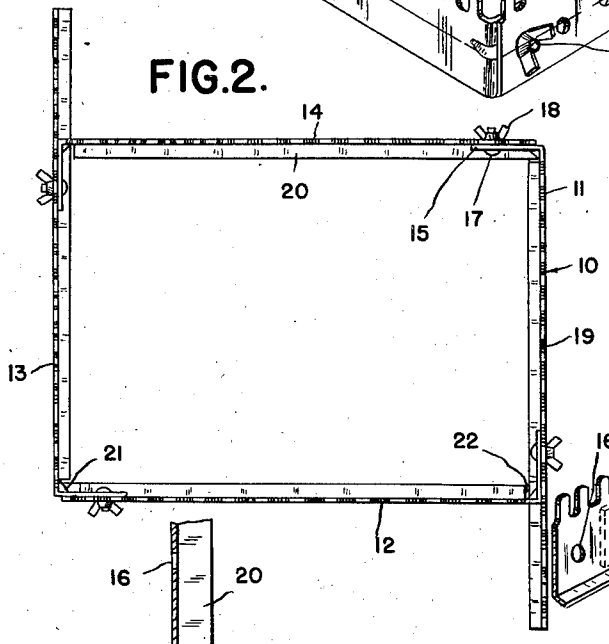


FIG.4.

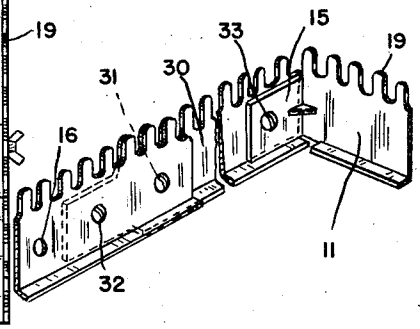
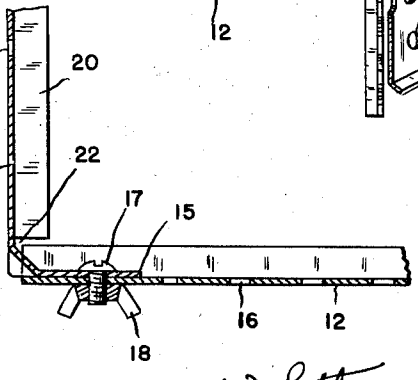


FIG.3.



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HAND LOOM

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4 Claims. (Cl. 139—34)

It is one of the principal objects of this invention to simplify, appreciably reduce the cost of manufacture, and otherwise improve weaving devices of the type set forth by providing a construction wherein the several side bars of the loom frame are interchangeable and may be readily formed from sheet metal by a simple stamping operation. This construction renders it possible to form the several side bars of the frame from a single set of relatively simple dies and, as a consequence, the tool costs for manufacturing the loom are reduced to the minimum.

Another advantageous feature of the present invention resides in the novel manner in which the several frame bars are readily detachably secured together to form the frame of the weaving device.

A further advantageous feature of the present invention resides in the provision of a loom frame capable of being readily adjusted to permit weaving fabrics of different sizes. This feature, as well as the foregoing objects, will be made more apparent as the description proceeds, especially when considered in connection with the accompanying drawing, wherein:

Figure 1 is a perspective view of a loom constructed in accordance with this invention;

Figure 2 is a top plan view of the construction shown in Figure 1;

Figure 3 is a construction taken substantially on the plane indicated by the line 3—3 of Figure 1; and

Figure 4 is a fragmentary perspective view of a slightly modified form of construction.

In the illustrated embodiment of the invention, the loom comprises a rectangular-shaped frame 10 having four side bars 11, 12, 13, and 14 preferably in the form of sheet metal stampings. The frame bars are interchangeable or, in other words, each of the bars are identical in construction and may be completely formed from a single set of dies. Upon reference to the drawing, it will be noted that each frame bar is provided with an angularly extending attaching flange 15 at one end and is formed with a plurality of openings 16 adjacent the opposite end. The openings 16 in the bars are spaced from each other longitudinally of the bars and the openings through each bar are adapted to successively register with a corresponding opening through the attaching flange 15 on the adjacent frame bar.

The frame is assembled with the attaching flange 15 of each bar abutting the inner side of the adjacent bar in spaced relation to the attaching flange on the latter, and the bars are detachably secured together by means of the bolts 17 and nuts 18. As shown particularly in Figure 3, the bolts 17 extend through the openings in the attaching flanges 15 and through the registering opening 16 of the bar adjacent the attaching flange, and the wing nuts 18 are threaded upon the extremities of the bolts to clamp the bars together. It will, of course, be understood that the area defined by the cooperating frame bars may be progressively diminished from a predetermined maximum by selectively registering the openings in the attaching flanges 15 with the longitudinally spaced openings 16 in the ends of the frame bars adjacent the flanges 15. Inasmuch as each of the bars is provided with a plurality of openings 16, it follows that a large number of adjustments may be secured and this is desirable in order to permit weaving fabrics of different dimensions.

Each of the frame bars is shown as having relatively closely spaced upwardly projecting teeth 19. These teeth are formed integral with the bars during the stamping operation and cooperate with one another to hold the warp and woof threads during the weaving operation.

Inasmuch as it is preferred to form the frame bars of relatively light gauge stock, it may be desirable to reinforce the bars and this is accomplished herein by forming each of the bars with a laterally inwardly extending flange 20 at the lower longitudinal edge thereof. Also, the attaching flanges 15 are effectively reinforced by interconnecting the attaching flange and the body portion of each bar with a rib 21. The ribs 21 extend diagonally from the attaching flanges 15 to the body portions of the bars and are formed by a pressing operation. The foot flanges 20 are formed by bending the bottom longitudinal edge portions of the bars inwardly and the top surfaces of the flanges 20 are located in a plane including the bottom edges of the attaching flanges 15. Also, the foot flanges 20 terminate short of the attaching flanges 15 providing a slot 22 of a width at least as great as the width of the foot flanges 20. The arrangement is such that when the bottom edges of the attaching flanges 15 seat upon the top surfaces of the foot flanges 20, the extremities of the teeth on each frame bar lie in substantially a common plane when the bars are in assembled relationship. In other words, the teeth of the frame are all of a uniform elevation in each of the several adjusted positions of the frame bars.

The embodiment of the invention shown in Figure 4 illustrates the manner in which the

maximum area of the loom shown in Figures 1 to 3, inclusive, may be increased in the event it is desired to weave fabrics of a dimension greater than the area capable of being attained by the standard loom construction. As shown in Figure 4, the maximum area of the loom shown in Figure 1 may be extended by providing extensions 30 which may be assembled with each of the side bars of the frame, or may be used in connection with one pair of opposed bars only, depending upon the particular shape of the fabric to be woven. In other words, in a case where it is merely desired to increase the length of the loom frame, the extensions 30 are merely assembled with a pair of opposed side bars of the frame. It will be noted from Figure 4 that the extensions are adapted to be assembled with the loom bars at the outer sides of the latter and adjacent the ends of the same opposite the flanges 15. Each of the extensions 30 are provided with longitudinally spaced openings 31 therethrough adapted to successively register with the openings 16 in the side bars of the loom frame and to be clamped to these side bars by means of the fastener elements 32. The free ends of the extensions, of course, extend beyond the side bars of the loom frame and are adapted to be secured to the flanges 15 of the adjacent side bar of the loom frame by means of the fastener elements 33.

Thus, from the foregoing, it will be observed that I have provided a relatively simple and inexpensive weaving device capable of being readily assembled and disassembled. It will also be noted that the several bars forming the frame of my weaving device are interchangeable and may be formed from sheet metal by a relatively simple stamping operation.

What I claim as my invention is:

1. A weaving device having a frame comprising a plurality of identical sheet metal stampings cooperating with each other to form the several sides of the frame, each stamping having one end bent laterally to provide an attaching flange for abutting an adjacent stamping of the frame, means for securing the flanges to the said adjacent stampings, and a reinforcing rib pressed laterally from each stamping at the junction of the attaching flange and body of the stamping to strengthen said flange.

2. A weaving device having a frame comprising a plurality of identical stampings cooperating with each other to form the several sides of the frame, each stamping having a laterally extending flange at the lower longitudinal edge thereof and having a laterally extending attaching flange at one end of the same adapted to abut an adjacent stamping, the laterally extending edge at the bottom flange of each stamping terminating short of the attaching flange by an amount at least equal to the width of the bottom flange to permit extending the flanged end of one section over the bottom flange of an adjacent section while maintaining the sections at a uniform elevation, and means for securing the lateral flanges to the adjacent stampings.

3. A weaving device comprising a frame having sheet metal stampings cooperating with each other to form adjacent sides of the frame, one longitudinal edge portion of one stamping being bent laterally to form a foot flange extending from one end of said stamping and terminating short of the opposite end of the latter, the opposite longitudinal edge of the aforesaid stamping and the corresponding longitudinal edge of the other stamping having a series of relatively closely spaced vertically extending projections stamped out therefrom, said first stamping also having a portion extending beyond the end of the foot flange bent laterally to form an attaching flange adapted to abut the adjacent stamping, and means detachably securing the attaching flange to the adjacent stamping at different points along the length of the latter.

4. A weaving device having a frame comprising adjacent side members having laterally extending foot flanges at the bottom longitudinal edges thereof, one of the side members having a laterally extending flange at one end adapted to abut the adjacent member, the laterally extending foot flange at the bottom edge of the first member terminating short of the attaching flange on the latter member by an amount at least equal to the width of the foot flange on the second member to permit extending the attaching flange over the foot flange on the second member while maintaining the top longitudinal edges of the members at a uniform elevation, and means for securing the lateral flange on the first member to the second member at different points spaced longitudinally of the latter.

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