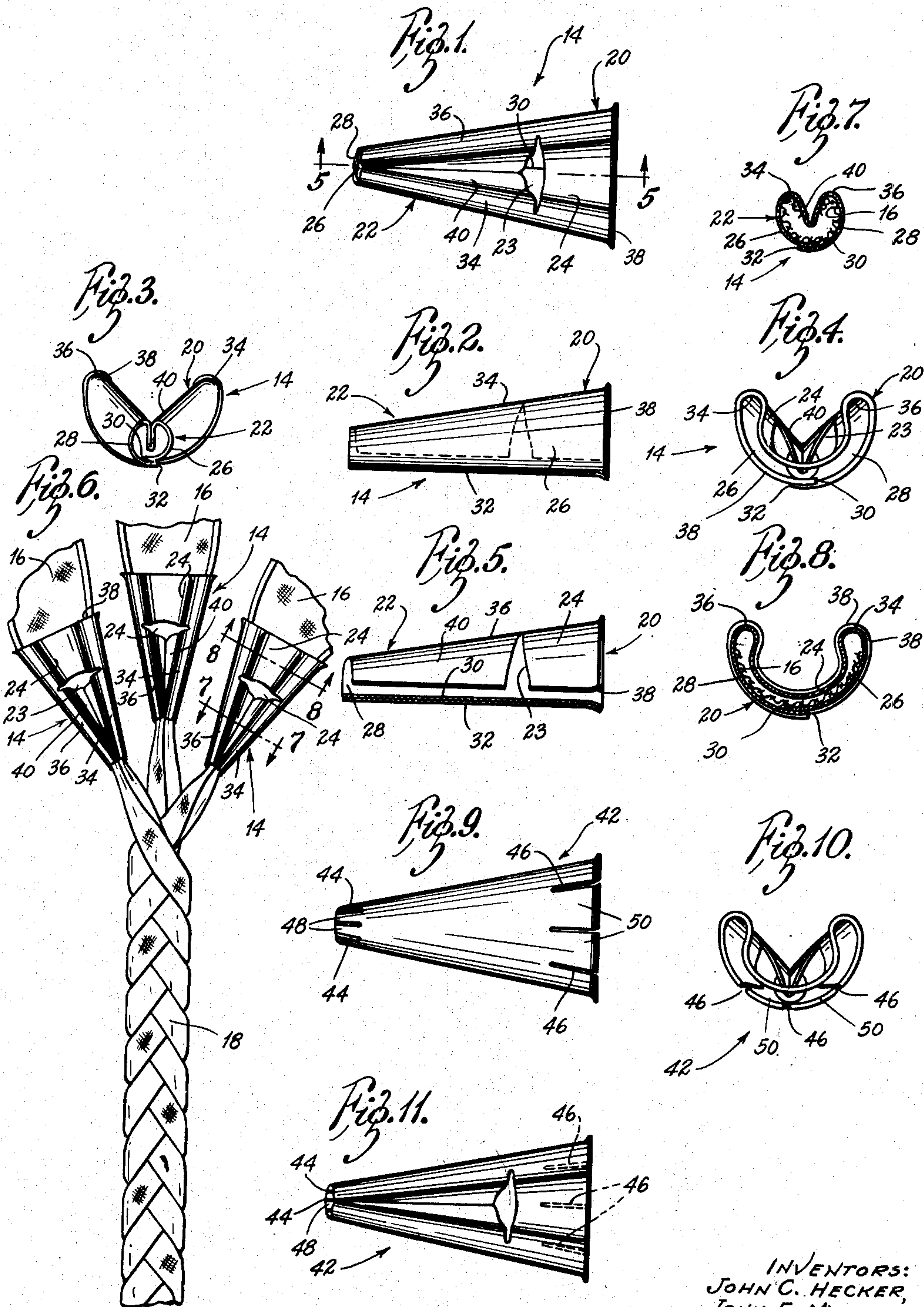


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CLOTH FOLDING SHUTTLE

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CLOTH FOLDING SHUTTLE

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The present invention relates generally to the cloth folding art, and more particularly to a novel cloth folding shuttle used to fold strips of cloth preparatory to their being braided together for use in making rugs.

The shuttle comprises a funnel-like member including inlet and outlet sections, the former of said sections having one side thereof bent inwardly to form a U-shaped portion spaced from the opposite side of the section so as to provide a passage, and the latter section having one side thereof bent inwardly to form a V-shaped portion spaced from the opposite side of the section so as to provide a pair of passages, and means for enlarging the ends of the passages. Said enlarging means, in preferred forms, comprises having a series of spaced longitudinal slots formed at the ends of the member, or having the said opposite sides of the sections split longitudinally with the edges so formed overlapping and free to move relative to each other.

There are numerous cloth folding devices in use at the present time, but most of them are unsatisfactory in their operation in one respect or another. Many are not adjustable to accommodate different thicknesses of cloth, and, in some, proper folding does not always occur. Some devices often become jammed. Also, the transverse ridge or seam formed where two strips of cloth are sewed together causes a great deal of trouble in many of the known devices.

It is an object of the present invention, therefore, to provide a novel cloth folding shuttle which is automatically adjustable to accommodate strips of different thicknesses.

Another object is to provide a novel cloth folding shuttle which maintains the cloth in proper position while it is being folded so that it does not become jammed in the device.

Another object is to provide a novel cloth folding shuttle which can accommodate strips of various widths.

Another object is to provide a novel cloth folding shuttle which can be used by inexperienced and unskilled workers after a minimum amount of instruction.

Other objects are to provide a novel cloth folding shuttle which is rugged in construction and relatively inexpensive to manufacture.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is shown, in which:

Fig. 1 is a top plan view of a cloth folding shuttle made in accordance with the teachings of the present invention;

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Fig. 2 is a side elevational view of the shuttle; Fig. 3 is an end view of the shuttle as viewed from the left of Fig. 2;

Fig. 4 is an end view of the shuttle as viewed from the right of Fig. 2;

Fig. 5 is a vertical longitudinal sectional view taken on the line 5—5 in Fig. 1;

Fig. 6 is a top plan view of three shuttles being used to fold strips of cloth which are being braided together;

Fig. 7 is a vertical transverse sectional view taken on the line 7—7 in Fig. 6;

Fig. 8 is a vertical transverse sectional view taken on the line 8—8 in Fig. 6;

Fig. 9 is a bottom plan view of a modified cloth folding shuttle;

Fig. 10 is an end view of the modified shuttle taken from the right of Fig. 9, the end view showing the device rotated through ninety degrees; and

Fig. 11 is a top plan view of the modified shuttle.

Referring to the drawing more particularly by reference numerals, specifically Figs. 1 through 8, 14 indicates generally a novel funnel-like shuttle embodying the teachings of the present invention used to fold strips of cloth 16 immediately prior to their being braided into a cord 18.

The shuttle 14 is made of relatively thin resilient material such as sheet metal, and is preferably of unitary construction, but, for the purposes of description, it will be referred to as having an inlet section 20 and an outlet section 22 which are separated by a slot 23.

The inlet section 20 comprises a converging U-shaped portion 24 which is positioned above, and spaced from, a pair of converging crescent-shaped portions 26 and 28 which have overlapping bottom edges 30 and 32, respectively. The upper edges of the U-shaped portion 24 are joined with the upper edges of the crescent-shaped portions 26 and 28 by rounded portions 34 and 36, respectively. As shown in Fig. 4, the rounded portions 34 and 36 are slightly larger than the distance between the upper edges of the U-shaped portion 24 and the upper edges of the crescent-shaped portions 26 and 28, so as to form a bulge at the junction of the portion 24 with the rounded portions 34 and 36 for a purpose described hereinafter. The front edge of the inlet section 20 contains an outwardly extended flange portion 38, as shown in Figs. 2 and 5.

The outlet section 22 includes a converging V-shaped portion 40 which is positioned above, and spaced from, crescent-shaped portions 26

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and 28 forming continuations of the crescent-shaped portions 26 and 28 of the inlet section 20, the upper edges of the portion 40 being joined to the latter two by the rounded portions 34 and 36 forming continuations of the rounded portions 34 and 36 of the inlet section 20. It will be noted from an examination of Figs. 3 and 4 that, at the beginning of the outlet section 22, the two sides of the V-shaped portion 40 are spaced apart, but that, as the end of the section is approached, the sides converge until, at the very end as shown in Fig. 3, the sides are touching.

As shown in Fig. 5, the bottom edge of the V-shaped portion 40 and the bottom surface of the U-shaped portion 24 are substantially parallel with the overlapping edges 30 and 32.

In use, a strip of cloth 16 is inserted into the receiving end of the inlet section 20 of each of the three shuttles 14 between the U-shaped portion 24 and the overlapping crescent-shaped portions 26 and 28, the flange portion 38 assisting the guiding of the strips into the openings. As the strip 16 is pushed through the shuttle 14, the edges of the cloth first ride up the inner faces of the crescent-shaped portions 26 and 28, then around the inner surfaces of the rounded portions 34 and 36, and, when the outlet section 22 is reached, the edges of the strip 16 are guided down the inner surfaces of the V-shaped portion 40 so that, when the strip 16 emerges from the end of the outlet section 22, the edges have been folded inwardly so that no cut edges are exposed. The initial ends of the three folded strips are then tied together (not shown) and the strips braided into a cord 18 in a manner well known to those familiar with the art, the shuttles 14 being pulled over the strips 16 so as to fold them immediately prior to the latter being braided into the cord 18.

If the strip 16, which is inserted in the end of the shuttle 14, is wider than the length of the inlet opening between the two curved portions 34 and 36, the edges of the former can be turned inwardly so as to fit within the bulged or enlarged portions formed at the junction of the U-shaped portion 24 with the rounded portions 34 and 36.

If the strip 16 is quite thick, or if there is a ridge or seam formed where two strips are sewed together, the shuttle 14 will expand both at the inlet and the outlet ends, the overlapping portions 26 and 28 moving outwardly so as to increase the size of the openings, and, after the thick strip or seam has passed through the shuttle, the openings will return to their normal size due to the resiliency of the material of which the shuttle 14 is made.

Furthermore, the bottom edge of the V-shaped portion 40 is quite close to the overlapping portions 26 and 28 so that there is practically no chance for an edge of the strip 16 to work under it so as to pass from one side of the shuttle to the other, thereby jamming the device or faultily folding the cloth as so often occurs with the known devices.

In Figs. 9 through 11, there is shown a modified form of shuttle 42 which is of generally the same shape and size as the shuttle 14, the main difference being that it is not split along the bottom so as to permit the shuttle to expand. Instead, however, it contains spaced longitudi-

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nal slots 44 and 46 at the outlet and inlet ends, respectively, which form tongue-like projections 48 and 50, respectively. Therefore, if a thick strip of cloth or a seam connecting two adjacent strips passes through the shuttle 42, the tongue-like projections 48 and 50 flex outwardly, thereby increasing the size of the openings and after the enlarged section has passed through the openings will return to their normal size because of the resiliency of the material of which the shuttle 42 is made.

Thus, it is apparent that there has been provided a novel cloth folding shuttle which fulfills all of the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawing have been given only by way of illustration and example, and that changes and alterations in the present disclosure, which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. In a cloth folding device, a funnel-like section having one uninterrupted side thereof bent inwardly to form a V-shaped portion, the bottom edge of the V-shaped portion being spaced from the opposite side of the funnel-like section so as to provide a pair of connected passages having a V-shaped configuration, said opposite side of the funnel-like section being split longitudinally and having overlapping edges free to move laterally relative to each other.

2. In a cloth folding device, a funnel-like section having one uninterrupted side thereof bent inwardly to form a U-shaped portion spaced from the opposite side of the section so as to provide a passage having a U-shaped configuration therebetween, said opposite side of the section being split longitudinally and having overlapping edges free to move laterally relative to each other.

3. A cloth folding device, comprising a funnel-like member having two connected sections; one uninterrupted side of the first section being bent inwardly to form a U-shaped portion spaced from the opposite side of the section so as to provide a passage having a U-shaped configuration therebetween; one uninterrupted side of the second section being bent inwardly to form a V-shaped portion, the bottom edge of the V-shaped portion being spaced from the opposite side of the section so as to provide a pair of connected passages having a V-shaped configuration; said opposite sides of the sections being split and having overlapping edges to permit the passages to enlarge laterally.

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