

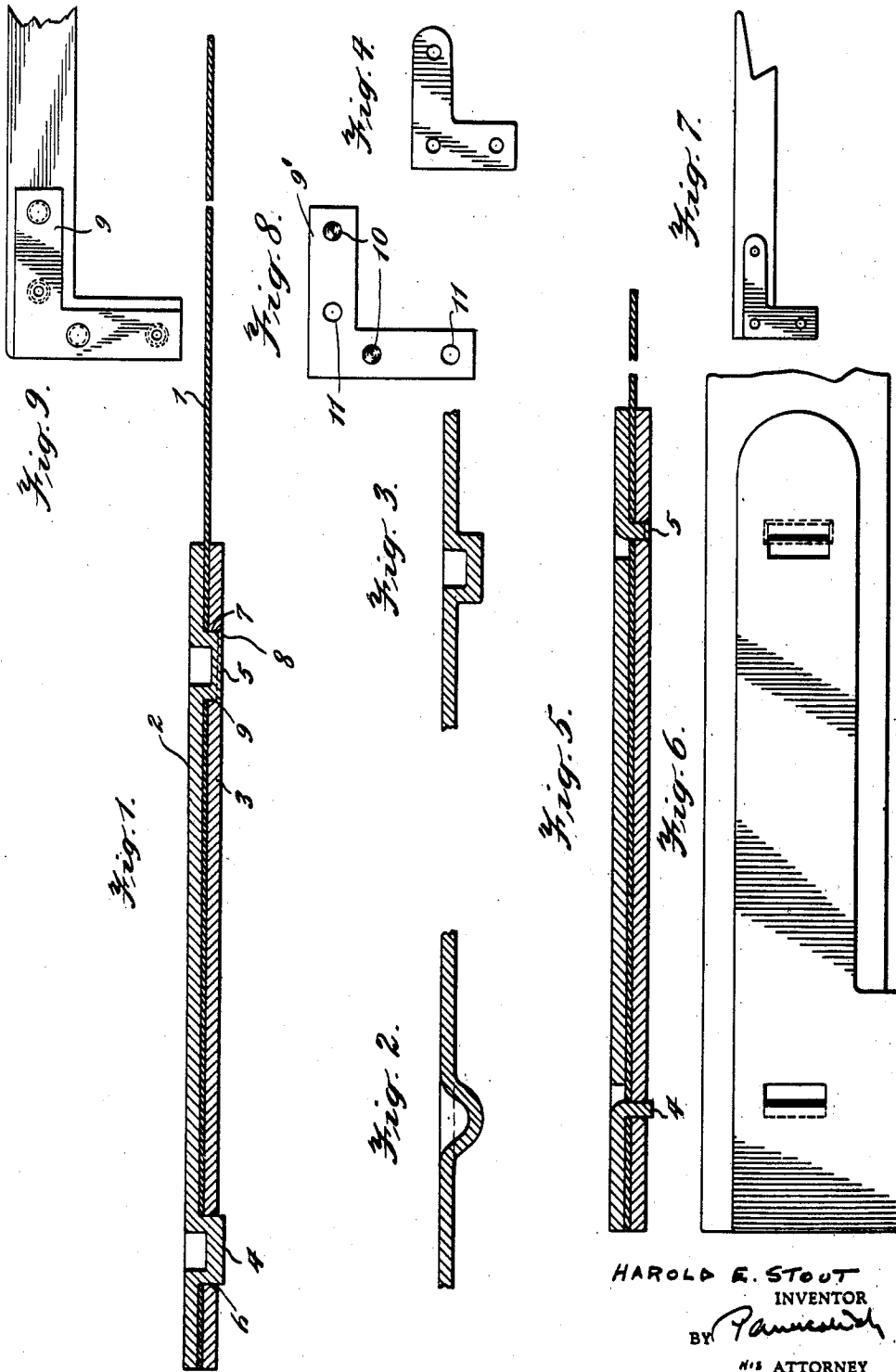
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METHOD OF MANUFACTURING SINKERS FOR KNITTING MACHINES

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METHOD OF MANUFACTURING SINKERS FOR KNITTING MACHINES

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This invention relates to improvements in the method of manufacturing sinkers for knitting machines.

It is an object of the present invention to provide a cheap and efficient method for constructing and accurately assembling sinkers for knitting machines.

In accordance with my invention I provide an improved method whereby the rivets ordinarily used in holding the reenforcing side plates of the blade of a sinker are eliminated. In place of the rivets used according to the prior art, I provide struck up or raised lugs or projections on the side plates, formed integral therewith. These lugs serve as means for positively aligning the reenforcing plates with respect to the blade, as well as rivets for holding the plates against the blade.

In constructing sinkers for knitting machines, it is necessary accurately to align the reenforcing plates with respect to the blade to which they are attached, in order to secure the best results. According to the prior art, it has been the custom to secure the reenforcing side plates to the blade of these sinkers by means of rivets passing through the plates and blade, the ends of the rivet being flattened in countersunk holes in the side of the plates. This method of construction requires great care in assembling, as the rivets are rather small and hence are difficult to handle. Furthermore, because the plates, blade and rivets are all separate pieces, great care must be used during the riveting operation, in order to insure that the respective parts maintain their proper position with respect to one another so that the finished article is in its correct form and alignment.

With a device constructed in accordance with my invention, the holding means are lugs forming a part of one of the plates and therefore are positively and accurately maintained in their proper position. In carrying out the assembling process, it is necessary merely to place a blade having the proper holes therein over one of the reenforcing plates having struck up lugs thereon corresponding to the holes in the blade, then

place the second reenforcing plate in position on top of the blade, this plate being furnished with holes corresponding with the lugs similarly to the blade and then head over the rivets, thereby finishing the operation. With this construction the lugs being formed integrally with one of the side plates are not readily moved out of alignment during the assembling and heading operation.

The above mentioned and other objects and advantages and the manner of attaining them will be made clear in the following description taken in connection with the accompanying drawings:

In the drawings Fig. 1 illustrates in vertical section a sinker constructed in accordance with my invention.

Fig. 2 illustrates in section a portion of a side plate after the first step of forming a lug thereon.

Fig. 3 is a view in section of a portion of a side plate showing the finished lug thereon.

Fig. 4 illustrates in plan view one of the reenforcing plates.

Fig. 5 is a vertical sectional view of a modified form of sinker constructed in accordance with my invention.

Fig. 6 is a plan view of a portion of the sinker shown in Fig. 5.

Fig. 7 is a plan view of a finished sinker.

Fig. 8 shows a form of side plate adapted to be used on either side of a sinker blade in cooperation with a like plate.

Fig. 9 is a view of a portion of an assembled sinker using the type of side plate shown in Fig. 8.

Referring more particularly to the drawings reference numeral 1 indicates a sinker blade having attached thereto reenforcing plates 2 and 3. Plate 2, as indicated in Fig. 1, is provided with a pair of lugs or rivet portions 4 and 5 formed integral therewith. The lugs 4 and 5 project through cooperating holes 6 and 7 in the blade 1 and are just long enough to provide a head 8 which is riveted into a countersunk portion 9 of the holes 6 and 7, so as to form a flat surface with the face of the plate 3. The size of the lugs 4 and 5 is such that they fit closely and accurately in the holes of the blade. The

holes in the plate 3 are made the same size as the holes in blade 1 and therefore the lugs 4 and 5 fit tightly within the plate 3 and position it accurately with respect to plate 2 and blade 1.

As previously stated, in accordance with my invention I eliminate the small rivets by drawing or forming the metal out of one of the side plates, to the proportion of the rivet desired. To accomplish this, only one die of the progressive type is required. The sequence of operations of this die are, forming and then blanking the outside to the shape required. The number of forming operations required to produce the finished lug may vary according to the characteristics of the metal used. The first operation of the die may form the metal approximately to the shape indicated by Figure 2, after which the lug may be brought to the finished shape indicated by Figure 3, by one or more operations depending on the characteristics of the metal used; after which, by the final operation, the metal is blanked or cut out to the finished shape as indicated by Figure 4. The operations required to convert the element of Fig. 2 to the shape shown in Fig. 3 may comprise a setting back step to change the rounded projection of Fig. 2 to one with straighter sides such as in Fig. 3; and a final setting or coining operation to produce sharp, clear cut angles or corners on the lug. By this method all of the lugs are first made to an exact and uniform length and diameter, and the plate blanked out thereafter so that an accurately dimensioned finished article is obtained.

While I find it preferable at present to form the lugs by a series of drawing operations, they might be made by extruding the metal of the side plate in the form of a tubular rivet.

Referring to the modifications shown in Figs. 5 and 6 of the drawings, the lugs or rivets 4 and 5 are formed by cutting out and striking up a portion of one of the side plates. But two operations are required in making this type of plate. During the first operation the lugs are cut out and struck up and during the second operation the plate is blanked out to the required size. The sinker is then assembled in exactly the same manner as set forth in connection with the sinker shown in Fig. 1. In making this form of sinker, while the lugs may be struck up both in the same direction it may be found desirable to form them oppositely, so that they face each other as indicated in Fig. 5 of the drawing. The reason for this is that with the type of lug shown, there might, under certain conditions, be a slight tendency for one plate to move slightly with respect to the other during the riveting operation because of a slight bending of the lug. If two rivets are made facing each other this

tendency will be overcome, especially if the riveting of the two lugs is accomplished simultaneously.

While I have shown one plate as carrying both lugs, it will be understood that each of the plates might be made to carry a lug, or pair of lugs, in which case a riveted head would be on each side of finished sinker. With certain forms of sinkers this construction would be desirable as it would enable one to make identical plates to be used on both sides of the sinker blade and thereby reduce the number of operations required in the manufacturing process.

Fig. 8 shows a plate 9' constructed as described above, having two lugs 10 and two holes 11. When made in this manner an identical shape of plate serves for both sides of the blade, the lugs on one plate fitting in the holes in the other plate. The plates are shown assembled in Fig. 9.

While I have described a particular embodiment of my invention for the purpose of illustration, it will be obvious to those skilled in the art that various modifications and adaptations may be made without a departure from the spirit of the invention as set forth in the following claims.

What I claim is:

1. The method of progressively die forming a sinker plate for a knitting machine which comprises first striking up a projection on a piece of stock, then setting back said projection to form a lug, and finally setting the stock to produce sharp corners on the lug where desired and blanking out the stock to the form of a sinker plate.

2. The method of constructing a sinker for a knitting machine having a blade and side plates, which comprises forming accurately positioned integral rivets on one side of one of said side plates, forming corresponding rivet holes in the other side plate and in said blade, assembling said one of said side plates with said blade and the other side plate by means of said corresponding rivet holes, and finally heading said rivets.

3. The method of constructing a sinker for a knitting machine which comprises providing a blade having rivet holes therein, forming a side plate by striking up rivet-like projections on a sheet of stock and blanking out said sheet to the shape of a side plate having said projections accurately positioned thereon, and thereafter assembling said blade and said side plate and heading said rivet-like projection.

In testimony whereof, I have signed my name to this specification, this 6th day of October, 1928.

HAROLD E. STOUT.