ABSTRACT
An improved beater for home use and a method for making it are disclosed. A cross-like piece is formed with an opening through its hub and slipped over and attached between the ends of a thin shaft. The elongated arms of the cross-like piece form the blades which are bent and attached at the bottom of the shaft.

5 Claims, 7 Drawing Figures
BEATER AND METHOD FOR MAKING SAME

SUMMARY OF THE INVENTION

In my method for the production of a beater for home use, for example for beating eggs, an integral cross-like piece, having elongated arms, is formed preferably by stamping from thin metal. An opening and flange are formed in the hub of the cross-like piece and it is slipped over a thin shaft to a point intermediate the ends of the shaft at which point the shaft has been roughened, preferably knurled. The flange is crimped against the roughened portion of the shaft by any suitable means. The arms of the piece which form the blades of the beater are then bent and pinned at the bottom end of the shaft, thereby forming the completed beater. The shaft at its upper end has means for locking the shaft in a hand or electric operated device for rotating the beater for use in the home to beat a variety of materials.

My method eliminates soldering and provides other process improvements. Using the method permits the production of an attractive, serviceable beater for home use which may be inexpensively produced.

DRAWINGS

FIG. 1 of the drawings shows the completed beater.
FIG. 2 shows an enlarged side view of the lower portion of the beater taken along line 2—2 of FIG. 1.
FIG. 3 is a top view taken along line 3—3 of FIG. 2.
FIG. 4 is a top view taken along line 4—4 of FIG. 2.
FIG. 5 shows the cross-like piece (to form the blades of the beater) after an opening has been formed in its hub. FIG. 5 also shows the shaft of the beater before the cross-like piece is assembled to it.
FIG. 6 shows the shaft of the beater and the center of the cross-like piece attached to it prior to attachment of the blades to the bottom of the shaft.
FIG. 7 shows a method for attachment of the blades to the bottom of the shaft.

DETAILED EMBODIMENT OF THE INVENTION

In making a beater according to the method of this invention, an integral cross-like piece, having elongated arms for making the blades of the beater, is formed from thin metal (or other suitable material), preferably by stamping. The piece has the configuration shown in FIG. 5, in which the piece generally is 10, the arms are 12, and the end of each arm is 16. The surface 17 of each of the arms away from the shaft 20 after the beater is formed, as shown in FIGS. 1 and 3, is preferably concave throughout the length forming the vertical portion of the blade. This shape is preferably imparted to the cross-like piece at the time it is stamped. At or after the time of stamping, the cross-like piece is pierced through its hub 11 to form an opening 14, slightly larger than the shaft 20 of the beater (FIG. 5). A portion of metal projects from the opening and results from its formation. This projection or flange is shown as 18 in FIG. 5, and preferably extends toward the bottom of shaft 20.

The shaft of the beater consists of a thin rod of metal (or other suitable material) 20 (FIGS. 1 and 5) having ears 22 near its upper end, a knurled portion 24 intermediate its ends and an extended thinner portion 26 at its bottom (FIG. 6).

To form the beater, the cross-like piece 10 is attached to the shaft 20 by sliding the shaft through the hole 14 in the hub 11. The flange 18 is positioned on the shaft adjacent the knurled portion 24. Pressure is applied to the flange 18, by conventional means not shown, around its periphery so that it is firmly crimped around the knurled or roughened portion 24 (FIGS. 2 and 4).

The arms at their ends 16 are then bent (FIG. 6) and attached to the shaft 20 at its bottom by any suitable means. The preferred method for attachment is to form small holes 27 in the arms of the cross-like piece at their ends (FIGS. 5 and 6) of a size just to fit over the extended rod portion 26 of the shaft. Each of the four arms is then slipped over the extended rod portion 26 (see FIG. 7) and that rod portion is flattened to secure the arms (blades) to the bottom of the shaft. (FIG. 2)

The completed beater may then be electroplated by conventional means.

The knurled portion 24 of the shaft in cooperation with the flange 18 prevents the blades of the beater during use from rotating around the shaft at that point. The concave shape of the blades on their outer surfaces enhances agitation during use. The ears 22 on the shaft (or other locking means) permit the shaft to be locked in an apparatus (hand or electrical operated) for rotating the beater to be used in a conventional manner in the home for beating a variety of materials.

My method permits an attractive serviceable beater for home use to be made inexpensively.

I claim:

1. The method of forming a beater for home use comprising forming an integral cross-like piece having elongated arms for forming blades, forming an opening in said piece at its center, and thereby forming a flange defining said opening, passing a thin shaft, having a locking means near its top and having a roughened portion intermediate its ends, through the opening so that the flange is adjacent the roughened portion, crimping the flange against the roughened portion, bending the arms to form blades and fastening them to the bottom of the shaft.

2. The method of claim 1 wherein in the cross-like piece is formed by stamping.

3. The method of claim 1 wherein the surface of each of the blades away from the shaft has a concave configuration on at least a part of its length.

4. A beater for home use comprising a thin shaft having locking means near its top and a roughened portion intermediate its ends, a blade member having a hub and a plurality of elongated blades integral with and extending from the hub, the hub having an opening through its center and a flange defining the opening, the flange being crimped around the roughened portion, thereby fixedly attaching the blades to the shaft, the ends of the blades being attached to the bottom of the shaft.

5. The beater of claim 4 wherein in the cross-like piece is made of metal and each of the blades on the surface away from the shaft has a concave configuration on at least a part of its length.

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