United States Patent [19]

Gorman

[11] **3,908,239**

[45] **Sept. 30, 1975**

[54] **CASTING DECORATIVE ARTICLES**

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[22] Filed: **Oct. 18, 1973**

[21] Appl. No.: **407,570**

[52] **U.S. Cl.**..... **24/163 K;** 24/186; 24/265 AL; 24/265 BC; 403/158; 16/136; 16/127

[51] **Int. Cl.**[2]..... **A44B 11/22;** A44C 5/18

[58] **Field of Search**..... 24/186, 176, 215, 265 AL, 24/265 BC, 265 R, 163 KO, 163 R, 73 BB, 201 HE; 403/158; 16/127, DIG. 33, 136

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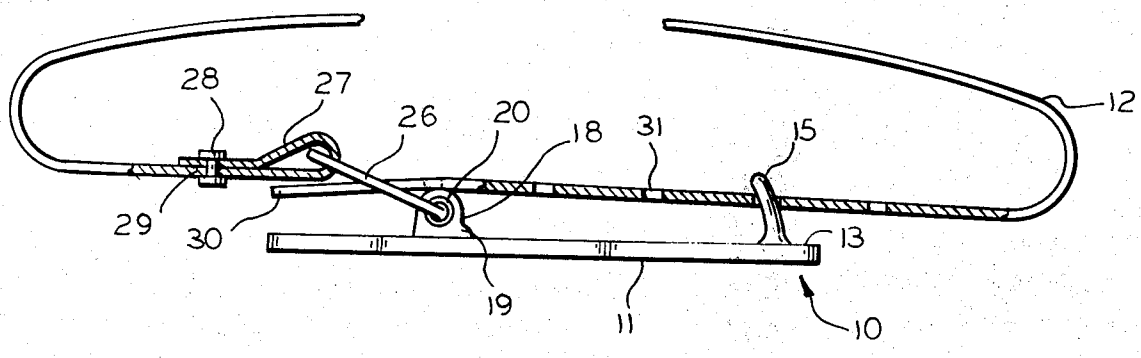
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Primary Examiner—Bernard A. Gelak

[57] **ABSTRACT**

A wear resistant tubular insert is provided as an integral part of cast decorative articles, such as belt buckles. The insert increases the wear characteristics of the decorative article. Deformable casting molds allow for rapid insertion of the inserts and reduce manufacturing time in the production of such articles. The preferred method of casting disclosed herein includes centrifugally casting fluid molding material around the tubular inserts.

6 Claims, 3 Drawing Figures



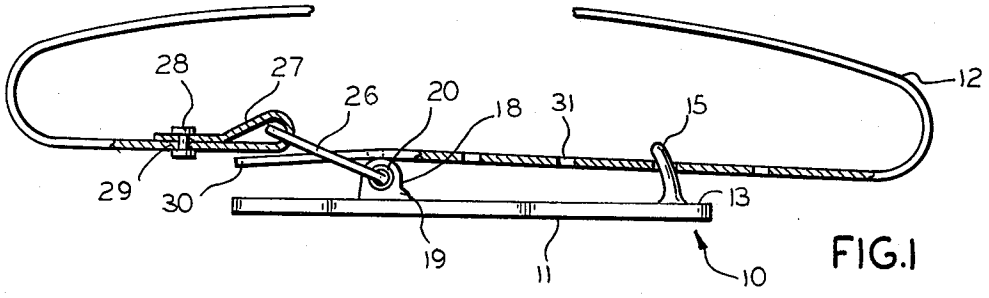


FIG.1

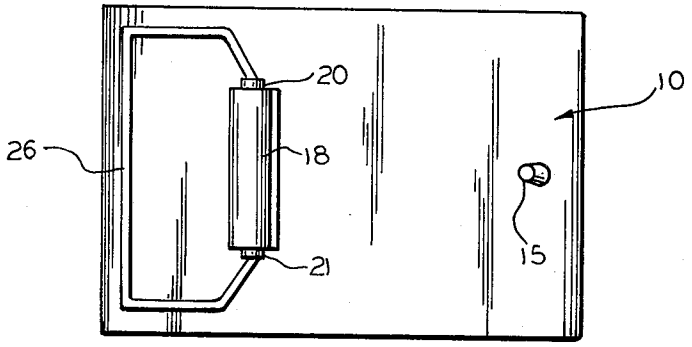


FIG.2

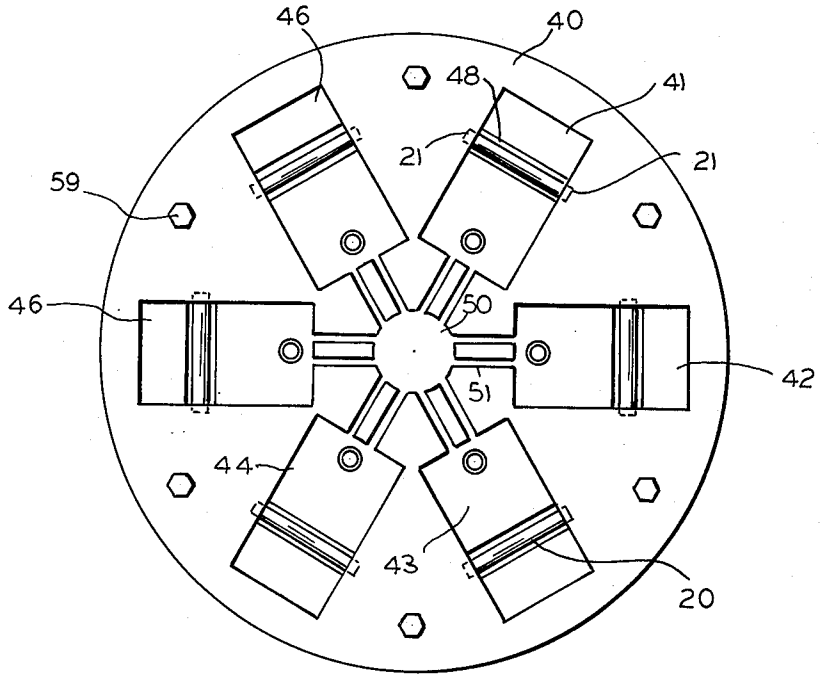


FIG.3

CASTING DECORATIVE ARTICLES

BACKGROUND OF THE INVENTION

This invention relates generally to the art of casting decorative articles from pewter or like materials and the decorative articles made according to the disclosed casting process. More specifically, the invention relates to decorative articles which are attached to a belt or other strap member by a rotatably mounted wire clip.

One prior method for casting such decorative articles utilized a mold for casting unitary articles. No provision was made however, for attaching the wire clip to the finished article. After the casting and cooling process was completed, the decorative article was subjected to a drilling operation to provide an opening into which a wire clip could be inserted. Another method for the preparation of such articles includes attaching a suitable mounting means for the wire clip to the decorative article by soldering, welding, etc. These methods suffer several disadvantages. Multicomponent articles are likely to break along joint lines, and drilling a hole for the wire clip adds an expensive and time-consuming processing step. The latter problem is compounded by the fact that decorative articles may be made in many shapes and sizes so that different drilling procedures may be necessary.

Another known method uses a preformed wire attachment ring which is made a permanent part of the decorative article by inserting it into a slit in a rubber mold and casting the buckle around the short, split-side of the ring. This results in a unitary casting which permanently secures the wire attachment ring. The ring is capable of being rotated **180°** about the axis of its secured side, but this method suffers an additional disadvantage in that the casting material, such as metal or plastic flows into the slits in the mold which hold the attachment ring in place. This results in a jagged line of excess material on the cast piece which must be removed by a costly manual operation. A still further disadvantage of this latter method is that the casting material, which may be relatively malleable and soft, is subjected to wear around the split side of the wire attachment ring. Constant rotation about the axis of attachment can rapidly wear through the unitary casting so that the ring becomes loose and may eventually pull away from the body of the article.

OBJECTS OF THE INVENTION

It is a primary object of the present invention to provide a method of casting unitary decorative articles having a tubular insert for ring attachment, the insert being an integral part thereof.

It is another object of the present invention to provide a unitary decorative article wherein a wire attachment clip may be inserted into the article without additional processing steps.

It is yet another object of the invention to provide a unitary decorative article which may be prepared without drilling, soldering, welding or hand trimming operations.

A further object of the invention is to provide a casting method for preparing decorative articles which is adaptable to decorative articles of different sizes and shapes.

A still further object of the invention is to provide a method for casting unitary decorative articles wherein mold space may be utilized to the maximum.

Another object of the invention is to provide decorative articles which have increased lifetimes when used with wire attachment rings.

How these and other objects of the invention are accomplished will appear from time to time throughout the following more detailed description of a preferred embodiment of the invention taken in conjunction with the drawings. Generally, however, the method of casting includes placing a tube of durable metal into cavities in a casting mold so that the ends of the tube are protected from contact by the casting material. In a preferred form of the invention, molten casting material is added to a recess in the central portion of the mold and the mold is then centrifugally spun to fill the mold cavities with casting metal and encase the tube. If the decorative article is being used as a belt buckle, the article may be completed by removing the casting from the mold and inserting a generally C-shaped spring wire clip into the open ends of the tube. The method may be used for casting decorative articles of many different types, and the casting material employed may be metal, plastic, rubber or other known casting materials.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a decorative article in the form of a buckle and prepared according to the casting method of the present invention;

FIG. **2** is a view of the back of the decorative article shown in FIG. **1**; and

FIG. **3** is a schematic diagram of the back piece cavity of a mold which may be used for incorporating the tube into a decorative article, such as is shown in FIG. **1**, by the centrifugal casting process.

DESCRIPTION OF A PREFERRED EMBODIMENT

FIG. **1** illustrates a buckle **10** prepared according to the principles of the present invention and a strap or belt **12** attached thereto. Buckle **10** may be attached to any suitable belt **12** and may contain a decorative design on its face **11**. As will be more fully understood hereinafter, buckle **10** may be cast in a mold which reproduces a design on face **11**, or in the alternative, a design may be produced on face **11** after the casting process is completed. The particular shape of the decorative article is a matter of choice, and buckle **10** is shown for purposes of illustration to be generally rectangular. Any suitable material may be used for preparing buckle **10** such as pewter, copper, zinc based alloys, silver, gold and natural or synthetic plastic materials.

It should be understood at the outset that buckle **10** is a unitary structure without weld joints or seams. Prong **15** and the tube support means **18** are thus continuous with the body of buckle **10**. Prong **15** is shown to be in the form of a round shaft while tube support means **18** is formed as part of the backing **13** of buckle **10**. Support means **18** is generally cylindrical with a flattened side **19** continuous with the back face **13** of buckle **10**. FIG. **1** also shows a tube **20** which extends transversely through tube support means **18**. Tube **20** may, for example, be **3/16** inch outside diameter tubing constructed preferably of a relatively hard metal such as setel or brass. The primary requirement for the material used for tube **20** is that the material have greater wear resistance than the metal or plastic used for the remainder of the buckle **10**. Referring to FIG. **2**, it can

be seen that ends 21 of tube 20 extend a small distance on either side of the tube support means 18.

Referring once again to FIG. 1, buckle 10 is shown to include a wire attachment ring 26 which may be formed of spring hand drawn steel and is generally C-shaped. Ring 26 is used for attaching one end of belt 12 to the buckle 10. Although the method of attachment of the belt 12 to buckle 10 forms no part of the present invention one method in which this can be accomplished is to loop first end 27 of belt 12 around ring 26, overlapping that end with an intermediate portion 29 of belt 12 and affixing end 27 to belt 12 by a rivot 28 or other suitable attachment means. The second end 30 of belt 12 is provided with holes 31 in a manner known to the belt making art which are of such size that prong 15 may fit therethrough for securing belt 12 around the waist of the wearer. Second end 30 of belt 12 would then pass through ring 26 and is thereby secured between first end 27 of belt 12 and the backing 13 of buckle 10.

The buckle 10 shown in FIG. 1 is merely illustrative in that the decorative article and casting method which form the subject matter of the present invention are not limited to any particular article configuration. For example, the article with tube insert might be used in suspender buckles, shoe buckles, buckles for leather goods such as luggage and handbags, etc. In fact, the casting method and the articles prepared therefrom can be used in any environment wherein rotatably mounted attachment rings are employed.

FIG. 3 illustrates one half 40 of a typical mold which can be used to cast articles such as the one illustrated in FIGS. 1 and 2. Mold half 40 includes 6 cavities 41–46 for defining the back 13 of buckle 10. A recess 48 is shown in each of cavities 41–46 for prong 15 and an additional recess 49 is shown at the circumferential portion of each mold cavity for the tube support means 18. Depending, of course, on the size and shape of the articles, the number and placement of cavities could vary greatly from the number illustrated in FIG. 3. Mold half 40 also includes six tubes 20 as previously described in connection with FIG. 1. In accordance with the casting method of the present invention tubes 20 are inserted into cylindrical holes 53 in the sides of recesses 49 so that the ends 21 thereof are enclosed by mold half 40. One way of accomplishing this would be to use a rubber mold 40 which is twisted or otherwise distorted to allow insertion of the ends 21 of tubes 20 into the holes 53 in the walls of cavities 41–46. After the tubes 20 are inserted into the holes 53 a similarly shaped mold half (not shown) for the face 11 of buckle 10 is clamped or otherwise secured against mold half 40. To insure proper alignment between the two halves of the mold various locators 49 are provided at the interface of the mold halves so that proper alignment may at all times be maintained.

Mold half 40 also includes a plurality of small runners 51 leading radially from a central recess 50 to each of cavities 41–46. Runners 51 are cut into the mold to form passageways through which the casting material enters the cavities 41–46 during the centrifugal casting operation. The combined mold is then placed on a spinning apparatus, much in the manner of a recording disc on a record player and by using a funnel or other suitable apparatus a quantity of the casting material, for example, pewter, is metered into central recess 50. The centrifugal force caused by rotation of the two mold halves causes the material to pass through runners 51 to the peripheral ends of each of cavities 41–46. A back fill of the cavities 41–46 then occurs as the mold is filled with casting material. If necessary, vents (not shown) may be provided in a manner known to the casting art to allow for escape of the air being forced out of cavities 41–46 as they fill with the casting material. If several runners 51 are provided for each cavity air vents may not be necessary. Vents may however, be necessary when the casting method according to the present invention is used to prepare irregularly shaped articles.

After the molten material has solidified within the mold the decorative articles are separated from the thin strand of cooled metal, known as sprue, in runners 51 and are then finished in any suitable manner. For example, the decorative articles may be engraved, plated, lacquered, etc.

While the invention has been described primarily in connection with a centrifugal casting process the tube insert principle can be used with other molds such as those which use a gravity fill. All that is necessary is that the tubes extend within the mold a sufficient distance to prevent an influx of casting material into the tube. Obviously, the easier the tubes are to insert into the mold the greater the time savings resulting from the use of this casting method. Rubber molds therefore are preferably used, however, metal molds can be used as long as some provision is made for containing the tubes within a recess in the metal mold. This may be accomplished by placing suitable gaskets around the terminal ends 21 of tube 20 before they are placed into an accommodating slot in the metal mold. This of course, would require the additional step upon completion of the casting process of removing the gasket seal means.

So while the invention has been described in connection with a single preferred embodiment thereof, the invention is not to be limited by that description but is to be limited solely by the claims which follow.

I claim:

1. A fastening device comprising;
- a generally plate-like, integral cast body having front and rear opposing surfaces,
- a hollow, wear-resistant tubular means positioned spaced from said body having its axis generally parallel to said rear surface,
- a first elongate raised portion integral with said body fixedly cast about said tubular means, said tubular means being of harder material than said raised portion and including terminal ends extending at least a finite distance beyond said first raised portion, and
- a rotatable, elongate attachment means mounted on said body and having first and second end portions receivably engaged by said terminal ends of said tubular means and an intermediate portion disposed exteriorly of said body and tubular means.

2. The invention as claimed in claim 1 wherein said fastening device is a belt buckle and in addition to said first raised portion said body includes at least a second raised prong-shaped portion.

3. The invention as claimed in claim 1 wherein said attachment means comprises a generally C-shaped spring wire ring means.

4. The invention as claimed in claim 1 wherein said body is constructed of a metal.

5. The invention as claimed in claim 4 wherein said metal is an alloy.

6. The invention as claimed in claim 1 wherein said body is constructed of a plastic material.

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