Oct. 3, 1933. H. J. KASCH 1,929,188

HOLLOW KNOB

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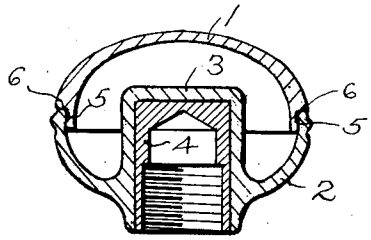


Fig. 1.

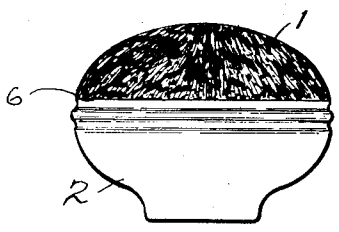


Fig. 2.

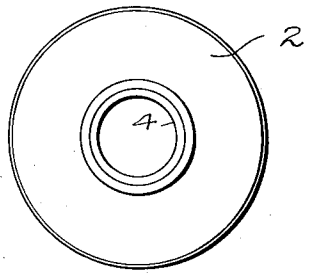


Fig. 3.

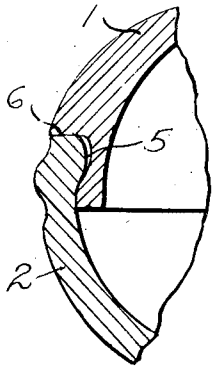


Fig. 4.

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HOLLOW KNOB

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4 Claims. (Cl. 16—121)

My invention relates to the manufacture of hollow articles, and more particularly to knobs, and the like.

The present invention is shown and described as applied to the manufacture of knobs for use on automobile gear shift levers, door knobs, knobs for automobile radiator ornaments, and other analogous purposes, although obviously the construction, principle, and mode of operation involved may be applied to the manufacture of other articles. In order to minimize weight, and also to economize material it is desirable that the knobs or other articles be formed hollow. To this end the knobs referred to and described as illustrative of the present invention are formed in two independent concave sections which may be of either stamped or cast metal, but are preferably molded from thermoplastic materials having the character of phenolic condensation material, synthetic resin, or the like. These concave sections are peripherally interlocked with each other. To permanently secure the sections tightly against disengagement overlapping marginal portions of the concave sections are formed with interlocking camlike contact surfaces. The sections are adjusted while one of the parts is in a heated and consequently expanded condition so that the interlocking cam faces will readily pass each other. As the expanded section subsequently contracts, the camming action of such contact faces tends to draw the sections axially towards each other to form a tight joint. One of the overlapping marginal portions is preferably rabbeted to afford a stop shoulder, against which the other section bears under the influence of the contractile tension. One of the concave knob sections is formed with an inwardly projecting boss in which is embedded a screw-threaded sleeve to enable the engagement of the knob with a suitable mounting.

The object of the invention is to simplify the structure as well as the means and mode of manufacturing hollow knobs and analogous articles, whereby they will not only be cheapened in construction, but will be light in weight requiring minimum consumption of material, and unlikely to get out of repair.

A further object is to provide an improved form of interlocking joint for permanently securing independently produced parts one to another.

A further object of the invention is to provide an improved form of connecting joint which will automatically tend to draw the joined sections one toward the other.

With the above primary and other incidental objects in view, as will more fully appear in the specification the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents, as hereinafter described and set forth in the claims.

Referring to the accompanying drawing wherein is shown the preferred, but obviously not necessarily, the only form of embodiment of the invention, Fig. 1 is a vertical sectional view of a hollow knob formed by the present method and embodying the present invention. Fig. 2 is a side elevation of such knob, Fig. 3 is a bottom plan view thereof, Fig. 4 is an enlarged detail sectional view of the coupling joint between the independently formed sections.

Like parts are indicated by similar characters of reference throughout the several views.

While, as before stated the present invention is applicable to articles other than knobs, and while the material employed may be metal, fiber, rubber, composition, or the like, the invention has been shown for illustrative purposes embodied in a hollow knob preferably constructed from a thermo-plastic material of which there are numerous variations now employed in the manufacture of molded articles. The knob adopted for illustrative purposes is of spheroidal form comprising a concave top section 1 and a complementary concave lower section 2. The lower section 2, as illustrated in the drawing, is provided with a centrally disposed inwardly projecting boss 3 in which is embedded a screw-threaded metallic thimble 4. This enables the knob to be conveniently connected to a suitable mounting such as an automobile gear shift lever, a lock stem or other support. The sections 1 and 2 are joined in marginally overlapping relation. The section 1 is provided with a marginal peripheral rabbet 5 into which the margin of the lower section 2 extends in overlapping engagement. Such overlapping marginal portions are provided with irregular contact surfaces of substantially compound arcuate form which affords an interlocking or somewhat dove-tailed engagement.

In order to interengage the sections in such overlapping interlocked relation, one of the sections is expanded, preferably by heating until it will pass the arcuate face or peripheral bead of the other section. Obviously the same effect can be achieved by contracting the section having the inner overlapping marginal portion with the same effect as afforded by expanding the section having the outermost overlapping marginal portion. As the expanded section contracts, the camming action of the undulating bearing faces one upon

the other under influence of radial pressure tends to cause a slight shifting or drawing adjustment of the sections 1 and 2 toward each other in an axial direction, thereby causing the marginal edge of the lower section 2 to tightly abut upon the shoulder 6 of the marginal rabbet 5 formed upon the upper section 1. This automatic tightening of the parts or sections under the influence of the camming action induced by contractile tension, insures a tight joint at all times and prevents any rattle or clatter of the parts and the overlapping interlocking engagement insures a permanent coupling joint preventing subsequent removal or displacement of the sections. In practice it has been found that quite attractive and effective color combinations can be produced by molding the sections 1 and 2 from differently colored materials, or by joining a mottled section with one of solid color as shown in Fig. 2.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprises the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. A hollow knob of spheroidal form comprising two rigid concave bodies, each extending somewhat beyond the equatorial line of the knob and peripherally overlapped, the overlapping portions being of substantially ogee contour, and subjected to contact pressure in a direction angular to the surface of contact whereby there is established a tendency for the bodies to draw one toward the other.

2. A hollow knob of substantially spheroidal form comprising two rigid concave bodies separately molded from plastic molding material and permanently interlocked with each other, each of the bodies extending in overlapping relation with the other body beyond the equatorial line of the knob, the overlapping contact faces converging in reverse directions and interlocking with each other to form a permanent interlocking engagement.

3. A hollow knob of substantially spheriodal form comprising two rigid concave bodies each extending somewhat beyond the equatorial line of the knob into permanently interlocked overlapping relation with each other, the contacting faces of which are each reversely tapered with the walls of the respective bodies converging away from their margins and forming in one an inwardly spaced circumferential seat for the marginal circumferential enlargement of the opposing body, and a support carried by one of said bodies for supporting the knob.

4. A hollow knob of substantially spheroidal form, comprising two concave sections having overlapping peripheral engagement, and having circumferential ogee contact faces exerting camming action one upon the other for inducing an automatic relative adjustment of the sections axially one toward the other.

HENRY J. KASCH.