Oct. 9, 1962 D. L. DOUTY 3,057,472

PACKAGE OF SLENDER ARTICLES AND METHOD OF MANUFACTURE

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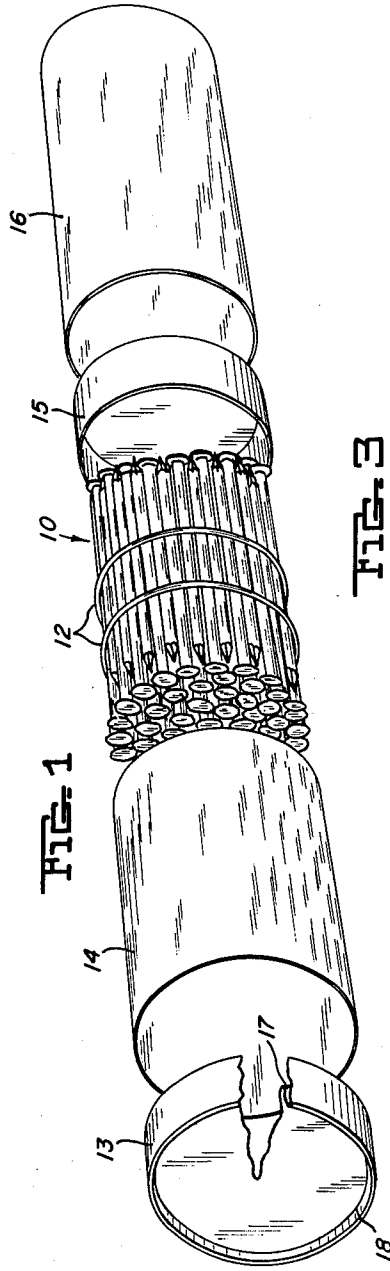


FIG. 1

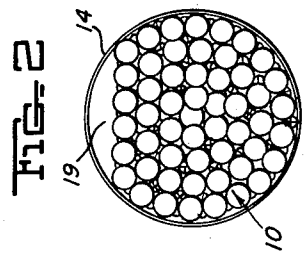


FIG. 2

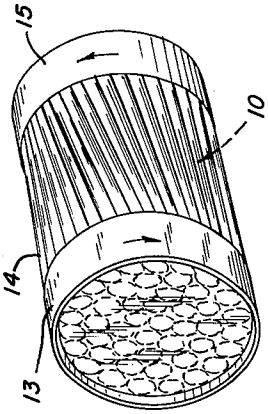


FIG. 3

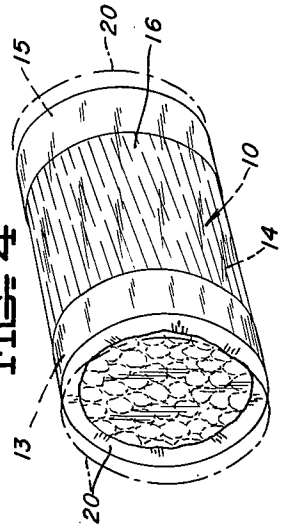


FIG. 4

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PACKAGE OF SLENDER ARTICLES AND METHOD OF MANUFACTURE

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3 Claims. (Cl. 206—65)

This invention relates to an improved package of slender articles, such as nails, and to the method of making it.

An object of the invention is to provide an improved package which retains a plurality of slender articles compactly and securely, yet leaves the articles visible.

A further object is to provide a package which has the foregoing characteristics and can be readily stacked with other similar packages.

A further object is to provide an improved method of packaging slender articles to furnish the foregoing advantages.

In accomplishing these and other objects of the invention, I have provided improved details of structure, a preferred form of which is shown in the accompanying drawing, in which:

FIGURE 1 is an exploded perspective view of the components of my package prior to assembly;

FIGURE 2 is an end elevational view of my package partially assembled before the articles are "broomed";

FIGURE 3 is a perspective view of the partially assembled package after the articles are "broomed"; and

FIGURE 4 is a perspective view of my finished package.

As shown in FIGURE 1, as a preliminary step to forming my package, I gather a group of slender articles in an approximately cylindrical mass **10**. Individual articles in the mass are parallel. When opposite ends of the articles are shaped differently, as the head and point of a nail, I reverse approximately half the articles end-to-end from the other half. When the articles are of magnetic material (for example steel nails), I can conveniently gather them in this fashion in a magnetic device, such as illustrated in Otto Patents Nos. 2,581,042, 2,602,942 or 2,899,783. I can hold the mass **10** either manually or in a suitable jig **12** shown diagrammatically in FIGURE 1 while I perform succeeding steps in making my package.

The components of my package include a cap **13**, a barrel **14**, another cap **15**, and a sleeve **16**. Cap **13** and barrel **14** are of transparent plastic. This cap is formed with an inwardly facing groove **17** around its circumference and a recess **18** in its exposed face. I fit one end of barrel **14** into groove **17**, whereby the barrel and cap are held together frictionally. My purpose in making the barrel and cap separately is that a single piece of this depth cannot be formed economically with present plastic forming processes. The end of another similar package may nest in recess **18** for convenience in stacking. After I insert the mass **10** in the assembled barrel **14** and cap **13** and remove the jig **12**, I fit cap **15** over the other end of the barrel. Cap **15** preferably is of metal for strength and economy. I do not apply sleeve **16** until later, as hereinafter explained.

As shown in FIGURE 2, the parallel articles do not entirely fill barrel **14** but leave a void **19**, the size of which varies with the article size. I rotate caps **13** and **15** in opposite directions, as indicated in FIGURE 3. This action "brooms" the articles, whereupon the articles fill the void **19**. The length of the mass also descreases, and cap **15** moves farther down in relation to the barrel. Thus there are no loose articles to damage the plastic. In the example of nails, the heads cover the points and prevent the points from contacting the plastic. The length of the barrel is chosen so that the "broomed" articles substantially fill it; thus the individual articles are longer than the barrel.

Next I slip sleeve **16** over the partially formed package. This sleeve is of cellulose xanthate or equivalent which shrinks on evaporation of its solvent and application of heat. Initially the sleeve fits loosely and overlaps at the ends, as indicated at **20**. I shrink the sleeve, conveniently by immersing the package in boiling water. After shrinking, the overlapped portions of the sleeve partially cover the ends and compress the package endwise, as well as circumferentially.

The resulting package retains the articles compactly and securely. The articles remain plainly visible through the transparent sleeve **16** and barrel **14**. I can readily print a suitable trademark or other designation on the sleeve. To open the package, it is only necessary to slit the sleeve and remove it. The remaining components of the package furnish a convenient box for holding the articles as they are used.

While I have shown and described only a single embodiment of my invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claims.

I claim:

1. A package comprising a plurality of slender articles arranged in a broomed substantially cylindrical mass, a transparent plastic barrel of shorter length than individual articles closely receiving said mass, the length of said mass being shortened by brooming the articles to an extent that the mass is contained within the barrel, caps fitted over the ends of said barrel, and a transparent plastic sleeve surrounding said barrel and shrunken into tight engagement therewith and partially covering the ends of said caps.

2. A package comprising a plurality of slender articles arranged in a broomed substantially cylindrical mass, opposite ends of the articles being shaped differently, approximately half the articles being reversed end-to-end from the other half, a transparent plastic barrel of shorter length than individual articles closely receiving said mass, the length of said mass being shortened by brooming the articles to an extent that the mass is contained within the barrel, caps fitted over the ends of said barrel, and a transparent plastic sleeve surrounding said barrel and shrunken into tight engagement therewith and partially covering the ends of said caps.

3. A package comprising a plurality of nails arranged in a broomed substantially cylindrical mass, approximately half the nails being reversed end-to-end from the other half, a transparent plastic barrel of shorter length than individual nails closely receiving said mass, a plastic cap having a circumferential groove frictionally receiving one end of said barrel, a metal cap fitted over the other end of said barrel, and a transparent cellulose xanthate plastic sleeve surrounding said barrel and shrunken into tight engagement therewith and partially covering the ends of said caps, said plastic cap having a recess in its end face adapted to nest with another similar package.

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