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V. OLIVOTTO

3,487,920

PACKAGING ROD-LIKE ARTICLES

Filed April 19, 1968

FIG. 1

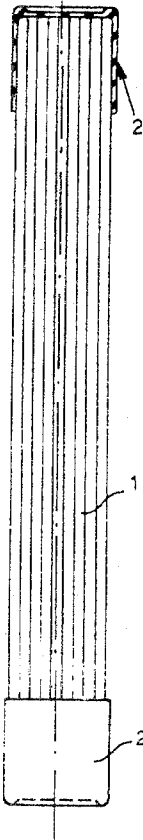


FIG. 4

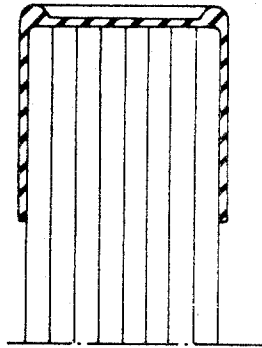


FIG. 3

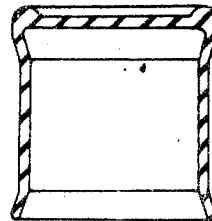


FIG. 5

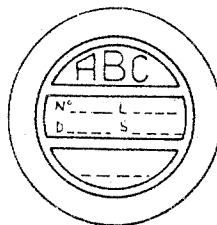


FIG. 2

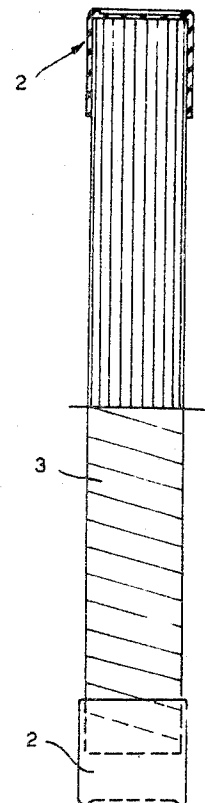


FIG. 6

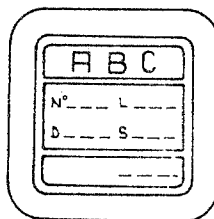
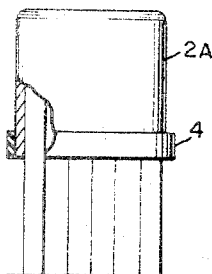


FIG. 7



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PACKAGING ROD-LIKE ARTICLES

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50,768/68

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2 Claims

ABSTRACT OF THE DISCLOSURE

Tubes or rods are assembled to a bundle by fitting on each end of the bundle a cap comprising a circumferential wall resiliently gripping the bundle.

The invention relates to a package comprising essentially two resilient caps enclosing both ends of a bundle formed by a given number of tubes or rods of brittle material, more particularly glass, so as to clamp and pack the bundle of tubes or bars.

More particularly, the resulting package may be circular, square or polygonal in cross section or of any other form and may be optionally further wrapped by one or more wrappings of paper, plastics or other suitable material. Transport and stockage of tubes or rods of brittle materials necessitates accurate wrapping and packaging in order to prevent scouring or breaking.

Experience has shown that breakage occurs prevalently at the head portion of the packages unless these have been conveniently protected.

For instance, with thin tube glasses for the manufacture of injection vials, breakage may be so considerable as to recommend packaging even for transport simply within the work.

Obviously, in such case the package should be simple, quickly applied and inexpensive.

The package according to the invention satisfactorily meets all these requirements as well as further ones which shall be explained hereafter.

With the package:

(a) A bundle of tubes previously cut to the same length, if desired thermally treated and sized by a sequence of operations which may be effected by hand or in part or all mechanically, can be grouped to a bundle; the tubes or bars to be grouped to a bundle can be counted; the tubes or bars are bundled to a cylindrical bundle; both ends of the bundle can be capped by means of two resilient caps fitted thereon after having been resiliently expanded.

(b) The bundle of tubes or bars can be tightly packed to prevent longitudinal displacements which might lead to scouring.

(c) The head portions are adequately protected against shocks.

(d) Access of dust to the inside of the tube package is prevented.

(e) The resulting packages can be easily placed upright or horizontally for transport within large containers which may be either re-utilized or disposed of.

The use of caps differing in color will permit of readily distinguishing the various standards and size of the tubes or bars in each package.

(f) For short transport within the work the caps can be easily disassembled and recovered, thereby considerably reducing the cost of manufacture.

(g) When storing or transporting tubes as semi-finished product, the bundle can be further protected by manually or automatically wrapping one or more sheets or webs of paper, plastics or the like adhering throughout or over most of the length of the bundle, the ends of the winding being arranged either beneath or over the caps.

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ished product, the bundle can be further protected by manually or automatically wrapping one or more sheets or webs of paper, plastics or the like adhering throughout or over most of the length of the bundle, the ends of the winding being arranged either beneath or over the caps.

(h) A space may be made available on each head end of the packages for providing thereon labels containing technical or trade indications relating to the tubes or bars in the package.

(i) The name of the manufacturer can be applied in relief on the caps.

The indications on the head portions according to paragraphs (h) to (i) may be easily read when the packages are placed in containers or stored on shelves.

The invention will be understood with the aid of the accompanying drawing, wherein:

FIGURE 1 is a longitudinal sectional view of a bundle of tubes 1 held by two end caps 2 fitted after having been resiliently expanded.

FIGURE 2 is a front view of a package with a further wrapping made of a band 3 wound about the bundle and of the said end caps.

FIGURES 3 and 4 are longitudinal sectional views of an empty cap and of the cap forced in position.

FIGURES 5 and 6 are front views of a cap of circular and square shape, respectively, with an inscription in relief and labels applied thereto for technical or trade indications.

FIGURE 7 is a part view of a modified embodiment. The end caps may be made of any flexible resilient material such as rubber, plastics (elastomers), etc.

According to the modification shown in FIG. 7, a cap 2a is used made of pressed cardboard with its inlet edge elasticized by a resilient rubber ring 4 encircling the open end of the cap.

The normal section of the caps, hence of the package may be circular, FIG. 5, or square, FIG. 6, or of any polygonal shape.

Preferred embodiments have been described and shown, but it will be understood that modifications can be made without departing from the scope of the invention.

What I claim is:

1. A package comprising a bundle of co-extensive rod-shaped articles, wherein each of the opposite ends of the bundles is fitted with a resilient elastomeric cap member including a circumferential wall resiliently clamping the bundle.

2. A package comprising a bundle of co-extensive rod-shaped articles, wherein each of the opposed ends of the bundle is fitted with a cap member including a circumferential wall resiliently clamping the bundle, the cap member being formed from a pressed cardboard material and includes a resilient rubber ring encircling the open end of the cap member.

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MARTHA L. PRICE, Primary Examiner

U.S. Cl. X.R.

150—52