PACKING CONTAINER FOR OBJECTS OF VARIABLE LENGTHS

This is a continuation-in-part of Ser. No. 568,386 filed Apr. 16, 1975, now abandoned.

SUMMARY OF THE INVENTION

The present invention is directed to a packing container for elongated objects and, more specifically, it concerns the arrangement of two elongated hollow bodies each closed at one end and open at the other so that the bodies can be telescoped one into the other and fixed at a variable selected length by relative rotation of the bodies about their longitudinal axes.

If elongated objects of different variable lengths are to be packed in a container so that they perform little or no movement in the longitudinal direction, it is necessary to provide a container corresponding to each of the different lengths of the objects. Such a packaging procedure leads to a plurality of different sized containers each adapted to one of the different lengths of the objects. As a result, not only does the cost of packaging increase, because different molds or tools are required for producing the packing containers, but the cost of stock-keeping is also increased, since a supply of the containers for each length of object to be packaged, must always be available. Another factor which complicates the problem of packaging elongated objects, for instance drills, chisels and the like, is that such objects have larger cross sectional dimensions in accordance with the length of the object, that is, there is a certain ratio between the length and the diametrical dimensions of the object.

To meet the demands for a reduction in the number of container parts of different longitudinal and cross sectional dimensions which must be stocked, it has been known to utilize a container formed of two elongated parts each closed at one end face and with the open end joined together by a threaded arrangement. In such a container one part of a standard size is used for objects within a certain range of dimensions, while the other part is provided in variable lengths with a cross sectional configuration corresponding to the part of standard length. As a result, it is possible to reduce the costs of producing and storing the containers, since only the length of one part needs to be varied within certain limits while the other or standard length part remains unchanged. However, this known container arrangement is still unsatisfactory, because the one part must be provided in a variety of lengths corresponding to the lengths of the objects to be packaged.

If we assume, for example, that drills having lengths of 20 to 40 cm are to be packaged and they have delicate cutting edges which must be protected and there is only slight variation in the diameter of the drills, a container of a constant diameter can be used, however, only one part of the container can remain constant in size while the other part must be provided in a number of graded lengths.

The present invention is directed to the problem of providing a container for use in packaging elongated objects which have a wide length range, where the same parts can be used over the length range of the objects. Accordingly, the same two-part container can be used to package objects where the longest object is about twice the length of the shortest object.

If we assume, for example, that a drill of 35 cm in length must have a container of a corresponding length, the same container should be usable for drills of about twice that length, for example 60 cm in length.

In accordance with the present invention, the problem is solved by providing a two-part container consisting of a first part telescopically movable into a second part so that the outer wall of the first part bears on the inner wall of the second part. The two parts are each closed at one end and open at the other and a groove is formed in the first part extending from its open end parallel to its longitudinal axis. A plurality of locking grooves extend transversely to the axis of the longitudinal groove and the locking grooves are equidistantly spaced apart along the longitudinal groove. At least one inwardly projecting detent is formed on the second part adjacent its open end and is shaped to pass through the longitudinal groove and to fit tightly into the locking grooves.

With such a two-part container the problem of a single container for objects having a range of lengths is solved. Due to the relative displaceability of the two parts one within the other and the provision of a longitudinal groove in one with locking grooves opening from it and the detent in the other part which is movable through the longitudinal groove and lockingly positionable within the locking grooves, it is possible to provide a container whose length can be varied in accordance with the length of the object being packaged. The range of lengths to be accommodated within the container is determined by the spacing between the locking groove closest to the open end of the first part and the locking groove closest to the closed end of the first part.

Preferably, both parts of the container are cylindrical. Further, it is preferably if the longitudinal groove extends from the open end to the closed end of the first part so that the maximum portion of its total length is usable. Accordingly, locking grooves are provided over the entire length of the longitudinal groove and are equidistantly spaced apart. A spacing of 1.5 to 2 cm has been found to be particularly advantageous for the locking grooves.

Though a single detent in the second part of the container may be sufficient, it is advantageous if several detents, preferably three, are used, since the multiple detents afford a better locking action and greater rigidity to the overall container, especially if the two parts are in a telescoped arrangement over only a relatively small length. Furthermore, it is preferable if the detents are circular and more particularly frusto-conical with a steep cone shell angle.

The opening from the longitudinal groove into each of the locking grooves has a width which is preferably equal to or slightly smaller than the diameter of the detent, so that a certain resistance must be overcome in displacing the detents into and out of the locking grooves. Alternatively, a ridge can be formed in the common surface leading from the longitudinal groove into each of the locking grooves to provide the desired resistance or limitation to movement between the grooves. Further, the opening into the locking grooves has a pair of opposed surfaces which preferably are arranged first in converging relationship from the longitudinal groove towards the locking groove and then in diverging relationship into the configuration of the locking groove. As a result, a pair of oppositely arranged apexes are provided in the surfaces of the open-