SHIPPING UNIT FOR CLOTH LENGTHS 
HAVING A DELICATE SURFACE
PARTICULARLY WOVEN AND
KNITTED PLUSHES, VELVETS AND
FURNISHING BROCADES

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ABSTRACT

Shipping unit for material lengths having easily damaged surfaces, particularly cloths, characterized by a central tube and two end units (1), cylindrically flat, round or polygonal, made of plastic, cardboard or other substances, of a length equal to the width of the cloth wound in a spiral and fastened by clips (4) on the inside face of the end units (1). These cloth lengths (5) are held at a distance from each other, namely without touching. A cylindrical outer cover (6) either of plastic, paper, cardboard or other substance, is fastened by means of clips (4) on the edges of the rim (14) of the end units (1). Handles (17) are also fastened on these rims (14) in order to carry the whole unit.

10 Claims, 14 Drawing Figures
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SHIPPING UNIT FOR CLOTH LENGTHS HAVING A DELICATE SURFACE PARTICULARLY WOVEN AND KNITTED PLUSHES, VELVETS AND FURNISHING BROCADES

The invention relates to a shipping unit for lengths of material which have easily damaged delicate surfaces, plushes, synthetic furs, chiffon velvet, and similar fabrics, for example, wound into a roll which takes the form of a spiral, in such a way that the individual layers are arranged with a space between them and without touching.

Usually, cores or textile carriers are made from wood and cardboard and are relatively heavy, these cores are wrapped in packing paper then either tied with string or glued for transportation.

Similar shipping units are very costly, and are also very cumbersome, even without the rolled material. Apart from this, these carriers do not allow simple and regular rolling and fastening because the end guides are formed from crossed wood members and, particularly, the lateral tension of the rolled material decreases with an increasing diameter.

The invention has the basic aim of providing a shipping unit which obviates the aforementioned drawbacks, is resistant to inclement weather and can be assembled on site with individual light elements.

According to the invention, two end units are proposed, which can be cylindrically flat, round or polygonal in plastic, fixed to the ends of a rigid axial element, equal in length to the width of the material, which carries the material rolled in a spiral with its edges folded, without one turn of the material touching another, fastened to the end units, on the outside of which an outer cover of plastic, paper or cardboard or any other substance, is provided and is clipped to the edges of the rims of the end units.

This shipping unit is easy to transport or to store, being rigid in itself.

So that the traction forces exerted by the lengths of material are better compensated on the end units, it is better for the end units to be provided with radial spokes on their outward facing sides. These spokes can be any shape whatsoever for resisting strong differential traction forces and may, for example, be partially cut out.

In this shipping unit, there is another distinguishable point, relating to the invention, which comprises two forms in relief on the inside diameter of the end units which take the axial tube, these forms only permitting the assembly of these axial elements on the winding machine.

Given the fact that during rolling the end units can be subjected to large tension forces which tend to bend the two opposite end units inwardly, the invention has been rendered more complete in designing the inside parts of the end units in a slightly convex manner so that the roll of material has the same tension over the whole diameter of the end units.

So that the rolled merchandise can be looked at without the need for the shipping unit to be unwrapped, an inspection panel has been anticipated as being provided in the end units.

The invention has been generally illustrated with the examples of several embodiments in the drawing which shows:

FIG. 1, a perspective view of the shipping unit with the outer cover partially attached.

FIGS. 2a and 2b, a longitudinal section of the end units and the outer cover.

FIG. 3, a shipping unit in longitudinal section.

FIG. 4, a partial enlarged longitudinal section of an end unit.

FIG. 5, a view of FIG. 4 in the direction V in FIG. 4.

FIG. 6, an enlarged side section through a strengthening rib.

FIG. 7, a partial outside view of a round end unit.

FIG. 8, a partial outside view of a polygonal end unit.

FIGS. 9a to 9e, a longitudinal section of the end units made in different ways according to the invention.

FIG. 1 shows the shipping unit according to the invention with the outer cover not closed and with reference to the drawing, the shipping unit is composed of cylindrically shaped flat end units (1) with an axial tube (2) joining the two end units (1) to which are fastened the layers of material, wound on as a spiral, with a space between them and their edges (3) folded over adjacent the end units (1), and fastened by means of clips (4). This easily damaged material, chiffon velvet, for example, brocades, plush or any other delicate material, as well as the outer cover (6), of plastic, packing paper, cardboard or similar substance, the edges forming a rim on the end units (1), is fastened by means of clips (4).

As in FIG. 2, the outer cover (6) can project over the outside edge of the end units (1) and thus protect it (FIG. 2b). Also, as shown in FIG. 2a, it can also be placed in a recessed portion at the inside of a vertical rim (7) against which the outer cover (6) presses because of this, is better protected against possible damage.

In FIG. 3 the shipping unit is shown in longitudinal section.

As can be seen from the drawing, the end unit (1) which can be made from expanded plastic, is provided with a hub (8), made up from two concentric cylindrical parts (9) and (10) and which are joined on the outer side of the end units (1) forming a circular slot (11) which takes the axial tube (2). This hub (8) is shown in a larger scale in FIG. 4. In order to prevent the rotation of the axial tube (2) when winding, ribs (12) are situated on the inside rim of the ring (9), these ribs (12) being a type of radial knife edge integral with the part (9). These ribs enter the ends of the axial tube (2) in order to compensate for inequalities in manufacture of the slot (11), rings (9) and (10), and the thickness of the axial tube (2).

In the simplest case, only one rib (12) is necessary. The arrangement of the ribs (12) can be seen in FIG. 5.

The end unit (1), as shown in FIGS. 7 and 8, can take the form of a circular as well as a polygonal rim. This end unit principally consists of a hub (8), already described, with a base (13) and a round or polygonal rim (14), these different parts being integral with one another.

The base (13) acts as a protection for the rolled material against dust and dampness. In order to allow inspection of the rolled material (5) as well as for any other check without undoing the outer cover (6), for example, for customs control or store checks, the base (13) is provided with an inspection panel (15) made by reducing the thickness of the substance so that it is easily cut out and replaced by a cover.

Where the material is fastened, the end units (1) are provided with strengthening ribs (16) which, as shown in FIG. 9, can be embodied in different ways. These strengthening ribs (16) act against the tension forces which are exerted on the material (5) fastened to the insides of the end units (1).

As the traction force of the material (5) acts not only on the strengthening ribs (16) as a uniformly distributed load, it is useful to reduce the thickness of the base (13) as well as the strengthening ribs (16) according to the increasing diameter of the end units (1) as in FIGS. 4 to 6. The ribs (16) have a cross section in the shape of a "T" and are integral with the end units (1) as seen in FIG. 6. This method leads to an economy in material, therefore in weight, without the strength of the end units (1) being lessened. In particular cases, it is even possible to omit the base (13).

In view of the possibility of the end units (1) being subjected to bending, incurred by very strong tension forces exerted on them by the material (5), it is useful to make them in convex shapes as shown in FIGS. 9c and 9e. By this method, the different layers of the rolled material (5) are subject to a uniform tension. This new shipping unit is easily produced in large quantities and its different individual parts are very light and easily stored.

The units (1) on the extremities of the axial tube (2) are very easily and very quickly mounted on the winding machine. The substance of which these end units are fabricated is selected to ensure a perfect hold for the clips (4).

Handles (17) are applied by clips or any other method to the end units (1) for use in carrying the shipping unit.

There is also a possibility in its relatively light shipping weight and very great strength.

What is claimed is:
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1. Shipping unit for cloth or other material having easily damaged surfaces, comprising a hollow tube, two end units fitting on opposite ends of said tube, each of said units comprising an inner hub member, an outer hub member integrally joined at their outer ends and spaced radially apart to receive an end portion of said tube between said inner and outer hub members and an integral flange portion extending outwardly from the axially inner end portion of said outer hub portion and having a smooth inner face, opposite edges of said material being secured by clips to said flange portions of said opposite end units, said flange portions diverging outwardly from one another so that the axial distance between them increases with an increase of radial distance from said tube to hold successive layers of said cloth under uniform tension.

2. A shipping unit according to claim 1, in which at least one radial rib on one of said hub member extends into said space between said hub members and engages said tube to prevent rotation of said end units on said tube.

3. A shipping unit according to claim 1, in which said flange portion comprises a plurality of radial spokes, an integral web portion extending between the spokes and an integral axially extending outer rim portion connecting outer ends of said spokes.

4. A shipping unit according to claim 3, in which said spokes are of T-shaped cross section.

5. A shipping unit according to claim 4, in which the web portions between said spokes are thinner than material forming said spokes.

6. A shipping unit according to claim 1, in which said flange portion of each end unit has an axially extending peripheral rim and in which a cover of sheet material is wrapped around said shipping unit and has marginal portions wound around and supported by said rims.

7. A shipping unit according to claim 6, in which each said rim has an axially inner recessed portion receiving and protecting the respective edge of said cover.

8. A shipping unit according to claim 1, in which at least one said flange portion has a thinner weakened window portion that can be opened for inspection of said material.

9. A shipping unit according to claim 1, comprising handles on said end units for handling said shipping unit.

10. A shipping unit according to claim 1, in which each end unit is integral of expanded plastic material.

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