

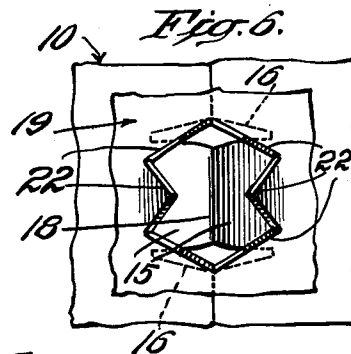
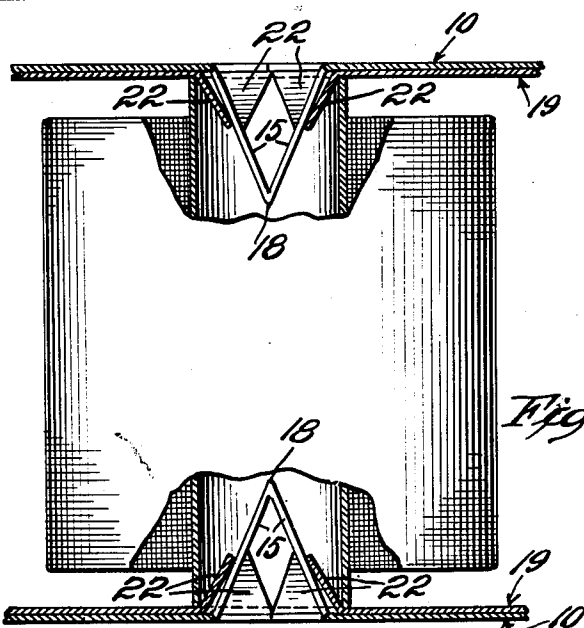
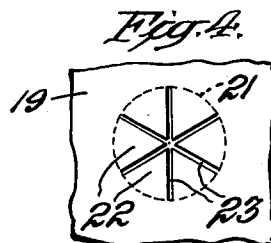
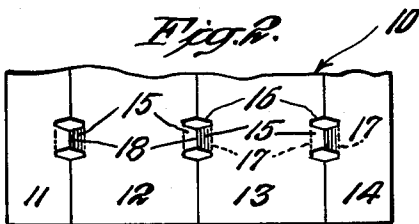
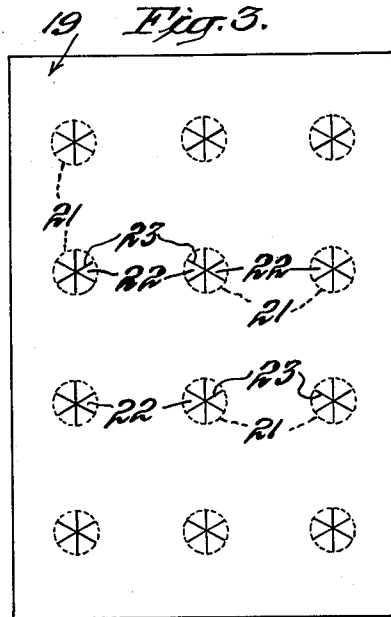
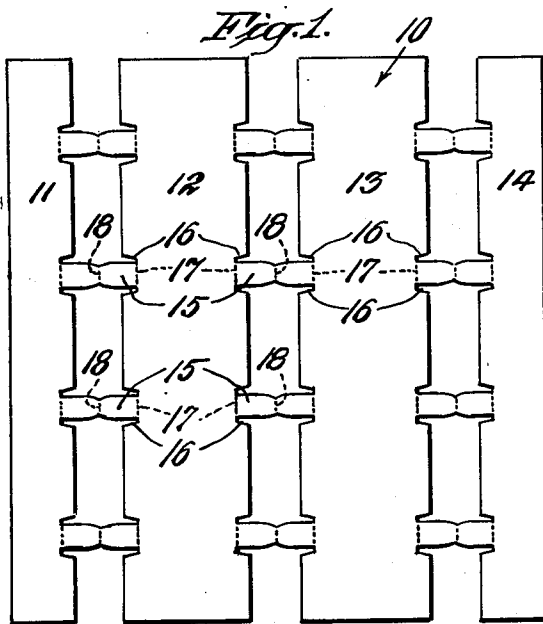
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TRAY

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TRAY

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The present invention relates to improvements in trays for shipping containers. More particularly it pertains to a new and improved tray or holder for shipping and storing cones of rayon, nylon, yarn or other similar material.

In shipping or storing cones of such material it is necessary that they be properly separated from each other and from the trays and walls of the shipping container so that the material will not be damaged by chafing or abrasion. The present invention achieves that result by providing a tray or holder which retains and supports the cones in separated fixed positions and keeps the material out of contact with the tray and container, thus completely protecting the material from damage and eliminating the need for wrapping the cones.

A further object of this invention is to provide a tray which is formed of two pieces of stock rectangular in shape, can be shipped and stored in unassembled form in flat condition, and is so cut and scored that it can be set up into a tray ready for use without fastening means, special tools or skilled help.

Another object of this invention is to provide a tray of the character stated which is simple in design, rugged in construction, and economical to manufacture.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a view of blank from which the base sheet of the tray is formed;

Figure 2 is a view of a portion of the blank of Figure 1 showing the rectangular members in abutting position and the connecting strips buckled upwardly;

Figure 3 is a view of the sheet which overlies the base sheet;

Figure 4 is an enlarged view of a portion of the sheet of Figure 3;

Figure 5 is a sectional view of a yarn cone held top and bottom by the supports of the trays of the present invention; and

Figure 6 is a top view of one of the supports.

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Referring more particularly to the drawing there is shown in Figure 1 a blank 10 from which the base sheet of the tray is formed. It is of one piece construction, scored or creased along certain lines to facilitate folding of the same, and is supplied to the customer in the flat condition shown in this figure. It may be made of corrugated board or other suitable fibrous folding board. This blank is of generally rectangular shape and is die-cut to provide rectangular members 11, 12, 13 and 14, connected by a plurality of strips 15. Further cuts or slots 16 are made in the rectangular members along lines 15, so that said strips will be joined to the rectangular members along lines 17 indented from the edges of the said members. The blank is scored along said lines 17 and along lines 18 in the centers of the connecting strips. The strips 15 may be rectangular or may be tapered slightly along the sides, as shown in Figure 1, such taper serving to facilitate insertion of the strips into the pockets of the upper sheet, as will be further described.

In assembling the tray the rectangular members of the blank 10 are pushed together so that the inner edges of the members are in abutting position, as shown in Figure 2. This serves to project the strips 15 upwardly to form triangular projections while the members arranged in abutting position provide a base sheet for the tray. To give the triangular projections additional strength the corrugations of the board for the blank are preferably run lengthwise of the strips 15 so that when said strips are buckled upwardly the corrugations will run upward from the base sheet.

The upper sheet 19 of the tray, shown in Figure 3, is similarly of one piece construction, may be formed of corrugated board or other suitable fibrous folding board, and is supplied to the customer in flat condition. It conforms in size and shape to the base sheet formed when the members of the blank 10 are arranged in abutting position. This sheet 19 is cut and scored to provide a plurality of pockets, so located that they will register with the triangular projections when the upper sheet is placed over the base sheet.

Referring to Figures 3 and 4 such pockets are defined by circular or similarly shaped score lines 21, with the area within each score line divided into a series of triangular tongues 22 by the radiating slits 23. Such score line conforms

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generally in size and shape to the inside of the tubes on which the yarn is wound so that the bases of the tongues will constitute a seat for such tube. Although each pocket as shown is provided with slits disposed sixty degrees apart forming six tongues similar in size and shape, it will be understood that the number and size of such tongues may be varied. When the upper sheet is placed over the base sheet and each triangular projection is pressed upward through the corresponding pocket, the triangular tongues are disposed around the projections and are bent upward to form raised supports on which the tubes can be seated. The insertion of the projections in the pockets serves to retain the tongues constituting the supports in raised positions and to lock the rectangular members of the blank 10 in abutting position.

Although the strips 15 which form the projections can be varied in size and be arranged in various positions with respect to the tongues, it has been found advantageous to construct the strips of such a width and length that, when projected upward and surrounded by the pockets, two opposite tongues will lie against the flat faces of each projection and the other four tongues will have their points resting substantially against the edges of the said projection, as shown in Figure 6. In this way each tongue of a pocket is similarly raised in an upward projected position and the raised support formed by such tongues is uniform on all sides. It has been found desirable to dispose these tongues at a slight taper so that the tubes on which the yarn is wound can be easily slipped over the support.

The tray of the present invention in unassembled form consists of two sheets which can be shipped and stored in flat condition. These sheets are so cut and scored that the tray can be assembled without the use of fastening means, special tools or skilled help. The rectangular members of the blank 10 are merely pushed together so that the edges are in abutting position, which tends to buckle the connecting strips 15 upward into triangular projections. While in this position the upper sheet 19 is laid over the base sheet and pressed downward so that the triangular projections come up through the pockets of the upper sheet. These pockets keep the strips 15 projected upward and hold the rectangular members in abutting position. In addition to serving as a locking means for the base sheet, they also reinforce the triangular projections.

After the tray has been assembled, it is placed in the bottom of a shipping case or container and the tubes onto which the yarn has been wound are set over the raised tongues constituting the supports so that the inside edge of each tube is seated against the bases of the tongues, as shown in Figure 5. To provide additional support and protection a corresponding tray is inverted and placed over the tubes, the tongues of each support of this top tray likewise extending into the tube. When the cones of yarn are packed in this manner, the yarn is out of contact with the yarn of any other cone and with the container and trays, and is consequently protected from damage.

It is possible to pile up successive layers of trays one on top of the other to any height desired. It will be understood that the trays may correspond in dimensions with the shipping case or container into which they are to be packed and have raised supports sufficient in size and

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number to hold the tubes rigidly and keep them properly spaced and separated.

Although the tray of the present invention is particularly advantageous for the shipment and storage of cones of yarn, it may be satisfactorily and efficiently employed for the shipment and storage of any products which may be similarly held and separated. The term "cones" as used herein should be understood to include the other forms of wound yarn packages such as cheeses, spindles, quills, cops, bobbins, tubes, or the like.

Thus it will be seen that the herein disclosed invention provides a new and useful tray which is particularly adapted for the shipment and storage of cones of yarn, which is fabricated from corrugated board, which holds the product in spaced relation and furnishes increased support and protection during the rough handling of shipping, and which is simple in design, rugged in construction and economical to manufacture.

Since certain changes may be made in the above product and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shipping tray comprising a base sheet provided with a plurality of triangular projections, and an upper sheet overlying the base sheet provided with a plurality of raised supports to receive the articles to be shipped, said supports being disposed around and held in raised positions by the projections.

2. A shipping tray comprising a base sheet provided with a plurality of projections, and an upper sheet overlying the base sheet, said upper sheet being provided with a plurality of sets of radiating slits with the triangular tongues between the slits bent upward to form raised supports on which the articles to be shipped can be seated, said supports being arranged to register with the projections so that the said tongues are disposed around and retained in raised positions by the projections.

3. A shipping tray comprising a blank cut and scored to provide a series of rectangular members spaced from each other and a plurality of strips connecting said members along lines indented from the edges of said members, said members being arranged in abutting position to provide a base sheet, and the strips being buckled upwardly to form triangular projections; and an upper sheet overlying the base sheet, said upper sheet being provided with a plurality of sets of radiating slits with the triangular tongues between the slits bent upward to form raised supports on which the articles to be shipped can be seated, said supports being arranged to register with the projections with the said tongues disposed around the projections so that the rectangular members are locked in abutting position and the tongues are retained in raised positions.

4. A shipping tray comprising a blank cut and scored to provide a series of rectangular members spaced from each other and a plurality

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of strips connecting said members along lines indented from the edges of said members, said members being arranged in abutting position to provide a base sheet, and the strips being buckled upwardly to form triangular projections; and an upper sheet overlying the base sheet, said upper sheet being provided with a plurality of raised supports to receive the articles to be shipped, said supports being in register with and retained in raised positions by the projections.

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