

Feb. 10, 1931.

L. MANN

1,791,629

PACKING FOR FRAGILE ARTICLES

Filed March 30, 1929

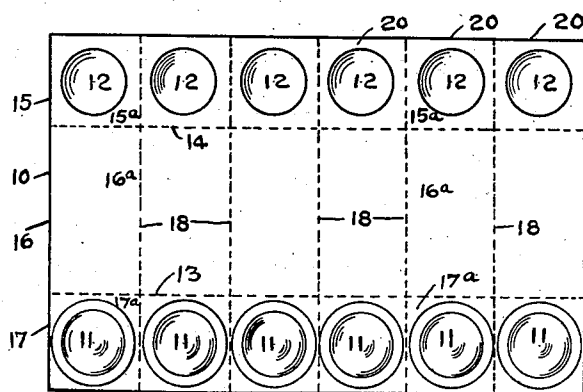


Fig. 1

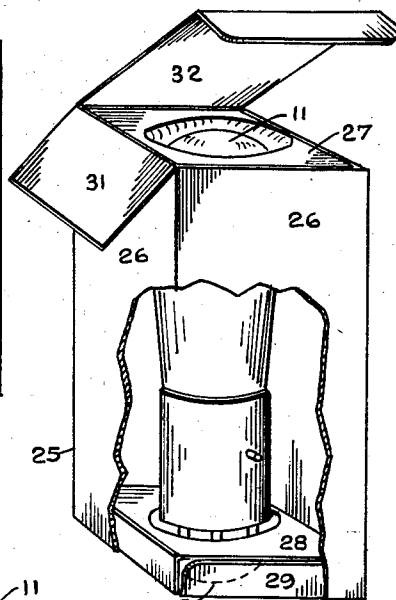


Fig. 5

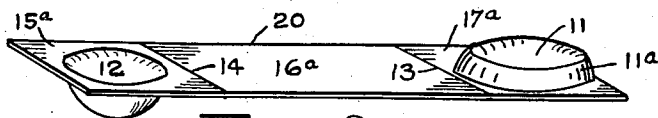


Fig. 2

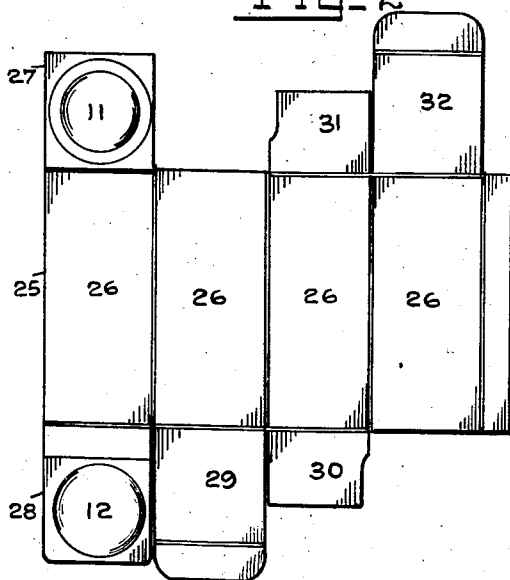


Fig. 4

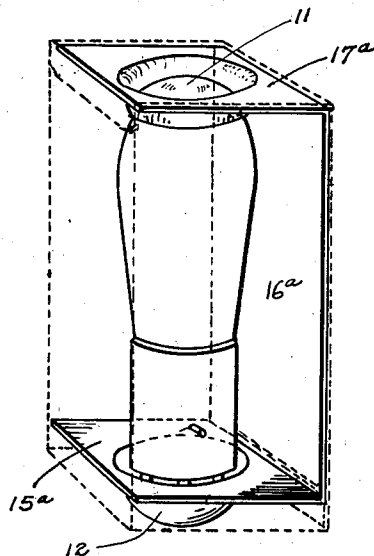


Fig. 3

Inventor
Leon Mann
By his Attorney S. J. Cox.

UNITED STATES PATENT OFFICE

LEON MANN, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO HOLED-TITE PACKING CORPORATION, A CORPORATION OF NEW YORK

PACKING FOR FRAGILE ARTICLES

Application filed March 30, 1929. Serial No. 351,155.

The present improvements relate, in general to packing for fragile articles and more particularly to packing for radio tubes, incandescent bulbs and the like, although the improvements may be embodied in various other forms adapted for packing and shipping individual glass or ceramic articles.

A primary object of the improvements is to provide a novel one-piece packing for individual fragile articles. A further object is to provide a novel packing sheet from which a plurality of packing strips may be readily sheared.

A still further object is to provide an improved one-piece holder for an individual fragile article which may be easily folded and inserted in an enclosing container.

Another object of the present improvements is to provide a novel collapsible container having integral cushion means, whereby an article may be packed therein without employing separate or auxiliary packing such as paper, excelsior and the like.

To improve packing means in general, obtain greater efficiency therefrom as well as to reduce breakage of packed articles constitute further objects of the improvements.

Other objects and advantages of the present improvements will be apparent to those skilled in the art upon reference to the accompanying specification and drawings, in which

Fig. 1 is a plan view of a sheet of material embodying the present improvements;

Fig. 2 is a perspective of an unfolded strip embodying the improvements;

Fig. 3 is a view of a phantom container illustrating the strip in article holding position therein;

Fig. 4 is a plan view of a collapsible carton in unfolded condition, illustrating a form of the improvements;

Fig. 5 illustrates the sheet of Fig. 4 in folded position with an article packed therein.

In practicing the present improvements, the packing is formed of cardboard, wood pulp or other similar material. Preferably the pulp sucking process is employed wherein the sheet or strips and the projecting por-

tions thereon are formed by one and the same process so that a one piece member is produced.

In forming the sheet and parts thereof, wood pulp, cellulose or other fibrous material is employed, the fibres being first placed in a liquid bath. Macerated paper, thoroughly disintegrated and mixed with water until it has the consistency of thick soup may be employed, as may other similar materials. The formation of the sheets may then be accomplished by molding or felting by means of suitable dies or molds, whereby a sheet of relatively yieldable material results, with the hereinafter mentioned protuberances therein, all consisting of intimately matted fibres.

These sheets and cushions therein are of such form and are so constructed and arranged as to be relatively rigid, and yet have a sufficient degree of elasticity to accommodate themselves to pressure exerted thereon. Moreover the nature of the construction insures proper and accurate form and the preservation of that form in use, since any pressure on the sheet or any part thereof will tend to move its matted fibres from their normal position into a more intimate union and will be constantly resisted thereby, to the end that the parts will always have a tendency to return to their original form, which causes them to exert a counter pressure when slightly pressed or drawn therefrom. An inherent resilience and elasticity is thus present in the sheets and parts thus formed, resulting in a cushioning effect under the influence of pressure.

Referring to the drawings, the sheet 10, formed in the foregoing manner, is provided with rows of protruding members 11 and 12 thereon. As illustrated in Fig. 1, the members 11 form a row adjacent one edge of the sheet, while members 12 form a row adjacent the opposite edge thereof. Fold lines 13 and 14 are disposed longitudinally of the sheet 10 and serve to divide the sheet into three portions 15, 16 and 17, two of which have the aforementioned protuberances and the third intermediate thereof, which serves as

a connecting body for the contiguous end portions.

A score line 18 is provided between the protruding members and extends across the sheet thus dividing it into a plurality of strip sections 20, each of which has an end portion 15^a, an intermediate portion 16^a and another end portion 17^a. Accordingly the sheet 10 may be torn or cut into a plurality of strips 20, such as illustrated in Fig. 2.

Referring more particularly to Fig. 2, the member 12 is dome or cupped shaped and extends beneath the plane of the strip while the member 11 extends above the plane of the strip 20 in a direction opposite to that of the protruding member 12. Member 11 is likewise dome or cupped shaped and comprises a frusto-conical wall 11^a, the upper rim of which merges with a concave dome whose apex approaches the plane of member 17^a.

When used as packing for a fragile article, the flaps 15^a and 17^a are folded in the same direction along lines 14 and 13 respectively, thus forming an enclosure which may be inserted in the commonly known cardboard carton, as seen in Fig. 3. As thus employed, the flap 15^a and dome 12 serve as a base or seat for an article such as a radio tube, while portion 16^a serves as a side wall portion connecting the flaps and at the same time holding them in spaced relation. When the tube is seated in the carton, the flap 17^a may be folded over the top thereof and the dome-shaped member 11 grips and surrounds the dome-shaped end of the tube. The member 11 likewise serves as a seat for the tube since the tube is firmly supported at both ends regardless of which end of the carton may happen to be down.

As aforementioned, the entire strips 20 with the protruding members thereon are made in one manufacturing operation so that an integral strip results. This strip is relatively rigid but at the same time possesses inherent elasticity and resiliency whereby an article packed therewith is cushioned and protected against shocks from all directions. The intimately matted fibres which make up the texture of the strip, constantly tend to retain their normal relation and any shock or pressure on the strip is constantly resisted. This tendency of the fibres to preserve the form of the strips and parts, promotes efficient cushioning and protection for the packed article.

Formation of the strips in sheet form, as illustrated in Fig. 1, facilitates manufacture and at the same time is economical. Furthermore, handling and shipping the strips in this form is greatly facilitated since the sheets may be stacked, one upon the other, with the dome-shaped members of a sheet nested in similar members of sheets above and below them. A substantial number of these sheets, thus occupy a relatively small

space, and may be shipped to the fragile article manufacturers for cutting into strips and use in stock cartons which they may have or purchase. The strips 20 need not however, be made in sheet form but may be manufactured individually and independently of one another.

Referring to Fig. 4 a collapsible carton 25 is illustrated in unfolded condition. This carton is likewise manufactured in one operation by the pulp sucking process and comprises a body portion divided by fold lines into wall portions 26. Formed integral with this body portion are a plurality of flaps extending from opposite edges thereof. Flaps 27 and 28 are formed with dome-shaped members 11 and 12 thereon, while flaps 29 to 32 constitute the usual end portions of the carton which are adapted to be folded over and tucked in.

The folded carton is illustrated in Fig. 5, wherein the portions 26 comprise the walls of the carton. Flap 28 is folded in to form the bottom of the carton, after which flap 30 is folded over and subsequently flap 29, which latter has a lip for tucking in. Likewise flap 27 is folded over to form the top of the carton, with flaps 31 and 32 folded over same, in the same fashion as described.

With the article placed in the carton, it is seen that the dome-shaped members provide a seat at each end, in which the ends of the article rest, while the remaining flaps form an enclosing member for the flaps 27 and 28. Accordingly, the article is held against wobbling or shaking relative to the carton. A relatively rigid carton is thus formed, which possesses inherent resiliency and elasticity in all parts thereof due to the texture previously referred to. Efficient cushioning and protection of the article is thus attained.

Unfolded sheets, as illustrated in Fig. 4, may be stacked and nested for shipment in the same manner as described with respect to the embodiment of Fig. 1.

If desired, the outer surface of walls 26 may be ironed or sized for receiving printing or stamping. Furthermore, in both embodiments, the dome-shaped members may be of the same form on each flap, or, being cushion members, they may take other shapes to suit the particular characteristics of the article to be packed. Likewise, cushioning or spacing members may be bulged from the walls 16^a, or 26 of the embodiment. The improvements are not limited to any particular size but may be embodied in various sizes to suit the particular need.

The facility of manufacture, the ease of handling, the adaptability for ready use, the economy of the packing itself cannot be over-emphasized. Furthermore, the lightness of the packing without sacrificing, but in fact, increasing its efficiency, as well as the reduc-

tion in breakage, constitute further advantages of the improvements.

Various other advantages, and modifications of the present improvements within the scope of the invention, may occur to those skilled in the art. It is understood that the improvements are not limited to the embodiments illustrated and described.

I claim:

10 1. An article of manufacture comprising a sheet of material adapted to be separated into a plurality of packing strips, said sheet having spaced rows of dome-shaped members, a plurality of spaced fold lines between
15 said rows, scored lines extending substantially at right angles to said rows and positioned between domes of each row, whereby strips having a pair of spaced dome-shaped members may be formed by tearing said
20 sheet along said score lines.

2. A collapsible container formed of sheet material and having a body portion and flap portions extending from opposite edges thereof, and dome-shaped members protruding from each flap portion, one of said flap
25 portions being hinged directly to said body portion and having its dome-shaped member protruding inwardly when the container is folded into article surrounding condition
30 whereby the surface of said flap portion is flush with the outer end of the container.

Witness my hand this 26th day of March, 1929.

LEON MANN.

35

40

45

50

55

60

65