July 4, 1944. R. R. SAWIN 2,352,803

MEANS FOR PACKING FRANGIBLE ARTICLES

Filed Oct. 16, 1940 2 Sheets-Sheet 1

Fig.1.

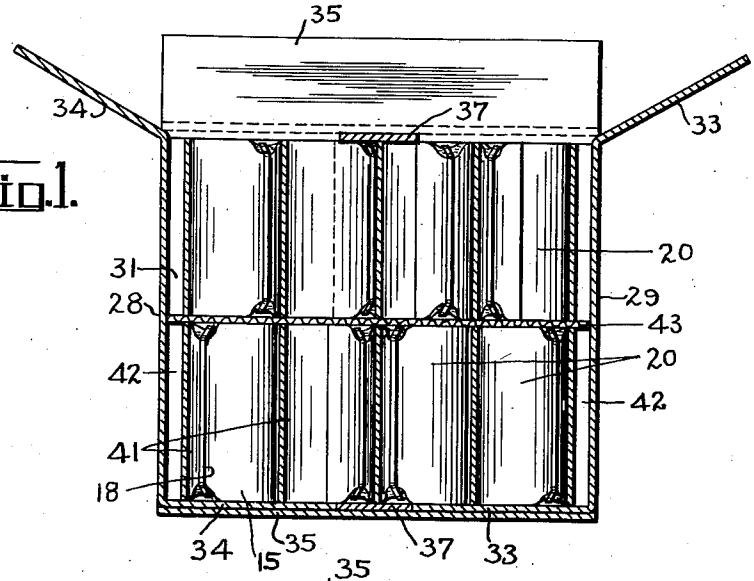


Fig.2.

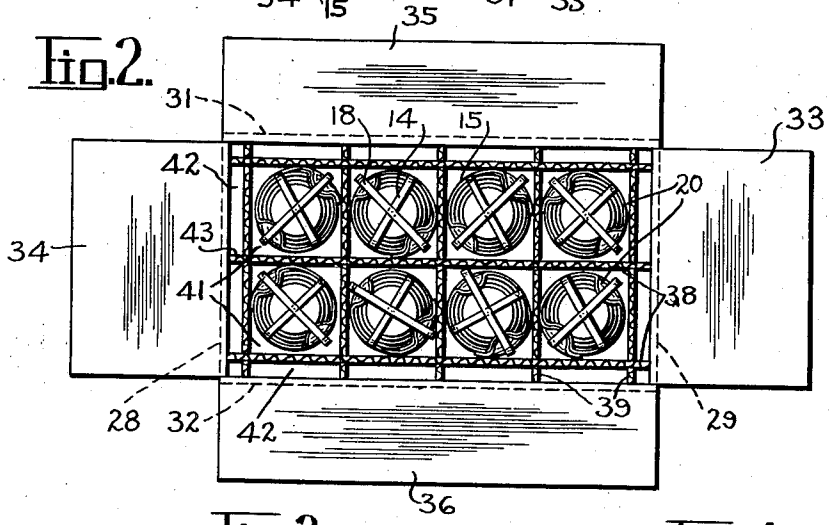


Fig.3.

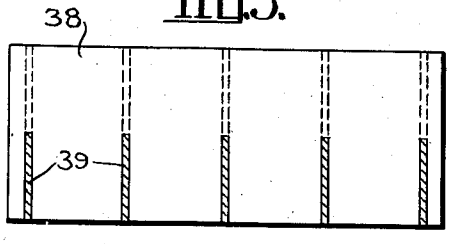
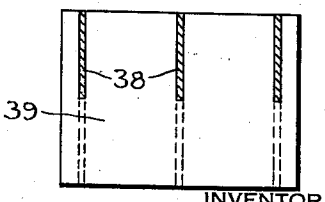


Fig.4.



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Filed Oct. 16, 1940 2 Sheets-Sheet 2

Fig. 5.

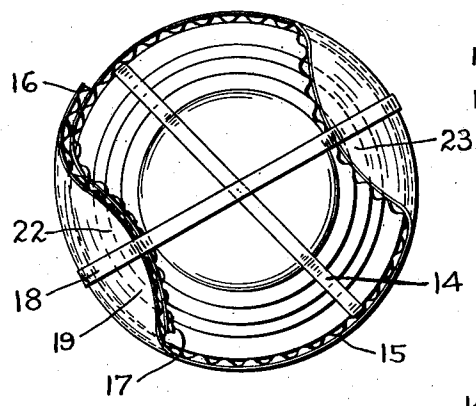


Fig. 7.

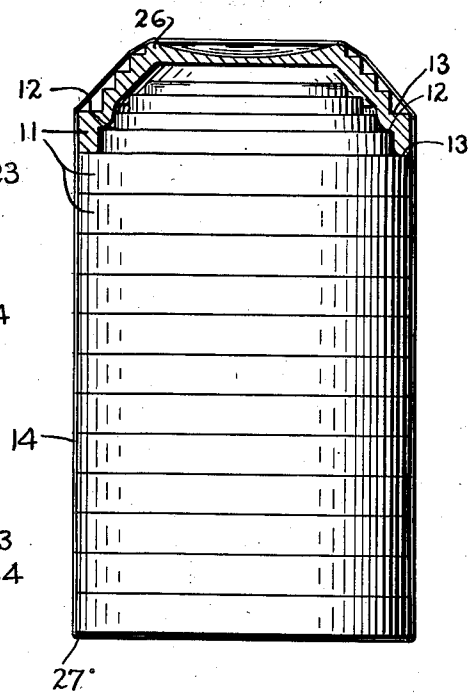
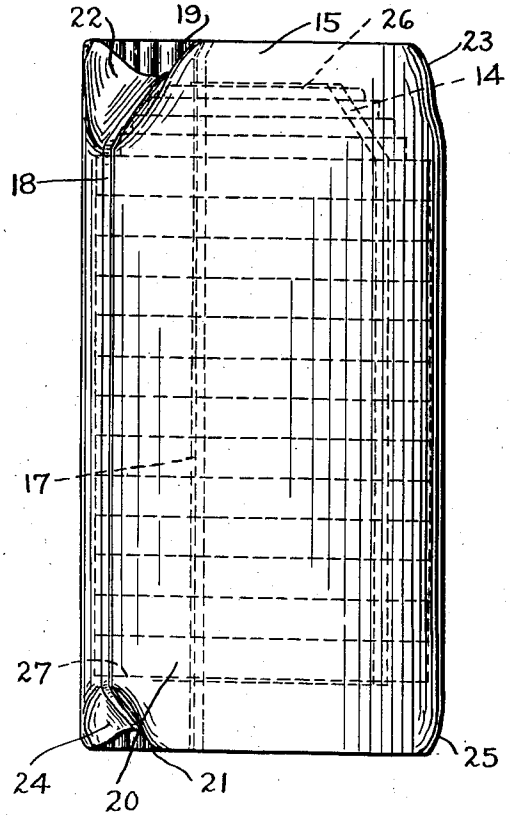


Fig. 6.



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MEANS FOR PACKING FRANGIBLE ARTICLES

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2 Claims. (Cl. 206—46)

This invention relates to improvements in means for packing particularly frangible articles and more particularly for packing disc-like projectible targets commonly known as clay pigeons and which are used in the popular trap shooting sport.

The articles particularly referred to above for use in aerial target practice, and as a sport, are made exceptionally frangible so that shot from a shot shell, upon hitting such a target as it flies through the air, will shatter it to score a hit. Such targets are generally made of a mixture of granular material, such as limestone dust, and either petroleum or bituminous pitch, the proportions of such ingredients being varied to obtain the desired degrees of frangibility. The degree of frangibility of the targets under consideration will be recognized by consideration of the following requirements in the structure and use of one form of the same. One form of target which may be efficiently packed for shipment without breakage by the means for packing of this invention, is made from a mixture of pitch and granular material, such as limestone dust, in the proportions of, say, 50–50 by weight. Such a target is adapted to completely shatter in the air when struck from a 22 calibre shot shell at distances at least up to thirty-five feet. The 22 calibre shot shell generally used contains about 120 #12 shot, each of which is approximately .05 of an inch in diameter.

One object of this invention is to provide an improved means for packing frangible articles whereby breakage in transit will be reduced to a minimum.

Another object is to provide improved means for packaging a plurality of frangible flying targets to adapt them to be packed with other similar packages in a common container for shipping.

Still another object is to provide a method of, and means for packing a plurality of particularly frangible flying disc-like targets in a shipping container, wherein the targets are divided into separate and removable packages each having a plurality of nested targets therein, directly in contact with each other to save space, and which may be delivered to a user in package form without unpacking and separating the individual targets from the same, and thus avoid possible breakage in handling.

A further object of this invention is to provide a means for packing frangible articles which will be relatively simple in construction, compact, of pleasing appearance, and very durable in use.

With these and other objects in view, which will appear as the description proceeds, there has been illustrated in the accompanying drawings one form in which the invention may be conveniently embodied in practice.

In the drawings, wherein like reference numerals designate like parts throughout the several views:

Figure 1 is a sectional view of an opened container, for packages of frangible disc-like flying targets, constituting and embodying the features and principles of this invention;

Figure 2 is a top view of the same;

Figure 3 is a side view of a partition member;

Figure 4 is a side view of another partition member;

Figure 5 is an enlarged top view of one of the packages of such targets taken from the container shown in Figure 1;

Figure 6 is a side view of the package of targets; and

Figure 7 is a side view of a plurality of targets ready for packing.

The frangible article selected to illustrate the features and principles of this invention in respect to an improved means for packing the same comprises a target similar to the target shown and described in a copending application Serial No. 319,857 filed February 20, 1940. Such forms of targets are generally frusto-conical in shape and, by being hollow and having a base rim 11 adapted to fit over a first vertical shoulder 12 and rest on the upper surface 13 of the base rim 11 of a similar target, are adapted to be nested together to form a vertical pile of targets as illustrated in Figure 7. In this instance thirteen targets are shown nested together and in direct contact with each other at their base rims, but it will be understood that more, or less than, thirteen targets may be so nested together in the manner herein shown if it is so desired.

After nesting a plurality of targets together, a narrow band, or cord, of material 14, such as a common rubber elastic band, is placed over and about the same from one end of the pile to the other so as to resiliently and firmly bind the plurality of targets together and against each other. A strip of, preferably corrugated, cardboard 15, with the corrugations thereof preferably on the inside and extending lengthwise of the package, is then wrapped transversely about the sides of the pile of nested targets, as indicated in Figures 5 and 6. The end edges 16 and 17 of the cardboard strip 15 overlap to some ex-

tent and a narrow band, or cord, of material 18, such as a common rubber elastic band, is placed over and about the package 20, so formed, from one package end 19 to the other package end 21.

The width of the cardboard strip 15 is greater than the height of the nested plurality of targets so that the package ends 19 and 21, when the strip 15 has been wrapped about these targets, may be bent, or crimped, inwardly, at opposite points, as at 22, 23 and 24, 25 respectively, to position the pile of targets within and spaced from the ends of the package so formed. Preferably the band 18 is disposed about the package to lie in these crimped-in portions and to extend along one side of the package over the overlapped end edges 16 and 17 of the strip 15. It is also preferable that one crimped portion at each end of the package be disposed at the overlapping end edges 16 and 17 of the strip 15 to form an interlock between these ends to assist in preventing this strip from unwinding. As shown, it is preferable to start the bent, or crimped-in, portions 22, 23 at the top edge 26 of the uppermost target of the pile, and to start the bent, or crimped-in, portions 24, 25 at the bottom edge of the base rim, or bottom, 11, of the lower-most target of the pile so that the pile of targets will be held between these crimped-in portions and be spaced from the protruding ends 19 and 21 of the package so formed.

By so packing a plurality of nested targets, each directly in contact with the other, a package is formed which, in this instance, is cylindrical in form, and has its ends 19 and 21 spaced from the respective upper and lower-most target of the nested pile thereof, whereby the end targets are protected against contact with any other article when the package is seated on either of its ends, and are also protected against contact with any surface upon which the package may be dropped, and the inner targets of the pile are relieved from shattering shocks which might be imposed upon the package. Due to the provision of a rubber elastic band 14 about the nested targets and that the cardboard strip 15 while tightly wrapped thereabout frictionally engages this band 14, an added means is provided to resist endwise slipping of the pile of targets in respect to its wrapper, the cardboard strip 15. The provision of a rubber elastic band 18 to constantly and resiliently urge the crimped-in portions of the wrapper, or cardboard strip 15 into tight engagement with the targets enfolded thereby, insures that no side slip will result between the wrapper and the targets or between the targets themselves, but will allow some expansion of either, or both, of these crimped-in portions lengthwise of the package to absorb any shocks imposed thereon when the package is dropped.

After packaging each pile of nested targets as above described they are disposed in a container illustrated in Figures 1-4 inclusive, and which comprises a rectangular box, preferably made of corrugated cardboard and having ends 28, 29, sides 31, 32, end cover and bottom flaps 33, 34, side cover and bottom flaps 35, 36, and a separate cover and bottom end flap spacer 37. The end cover and bottom flaps 33 and 34 with the spacer 37 form a flat inner surface and with the side cover and bottom flaps 35, 36 which abut at the center form a double thickness wall of corrugated cardboard at the top and bottom of the container.

The container also includes two sets of interlocking partitions 38 and 39 of corrugated cardboard with the corrugations disposed vertically in respect to the packages, which form vertically disposed pockets 41 in which the packages of targets are vertically slipped, and the walls of which firmly engage these packages of targets. The lengthwise partitions 38 extend at each of their ends beyond the cross-wise partition 39 adjacent thereto to snugly engage against the adjacent end of the container. The cross-wise partitions 39 likewise extend beyond the lengthwise partition 38 adjacent their ends to snugly engage against the adjacent side of the container. This construction forms a protecting space 42 surrounding the packages of targets between the partitions 38 and 39 and the ends 28, 29 and the sides 31, 32 of the container, and the partitions 38 and 39 reinforce the container sidewise and endwise whereby a crushing force imposed either lengthwise or sidewise upon the container will tend to buckle the respective partitions before it can effect the packages of targets.

The sets of interlocking partitions 38 and 39 are superimposed one above the other, being separated by a loose horizontal partition 43, also of corrugated cardboard with the corrugations disposed transversely across it, upon which the upper plurality of packages are seated. When filled with packages of targets, the container is closed at its top by the respective cover flaps and suitably sealed with gummed paper disposed along the jointure of the abutting side flaps 35, 36. When closed, the container, due to the vertical reinforcement of the partitions which, with the horizontal partition 43, extend between the top and bottom cover parts and are engaged thereby, resists crushing forces to protect the packages of targets therein. When again opened, the first layer of packages of targets may be removed intact, one at a time, without disturbing the others. Preferably, and to insure that the packages of targets do not slip lengthwise in the pockets 41, the height of the partitions 38 and 39 is substantially equal to the height of the packages from one end 19 to the other end 21 thereof, so that these package ends will be engaged by the top or bottom double wall of the container and the horizontal partition 43 and firmly held in place.

By means for packing frangible articles as above described, a plurality of the articles, in this instance the disc-like flying targets 11, are resiliently suspended in a package which is in turn packed with a plurality of similar other packages in a container and with them is held firmly in place and protected against crushing forces in any direction. By what is termed resiliently suspending the articles, or targets, in the packages thereof, any abrupt shocks sustained, for instance should the package be dropped, will be compensated for by the bands 18 and the expandable crimped-in portions 22 and 23 of the strip 15 while the crushing force of such shocks will be absorbed by the container walls and the partitions therein before the packages are effected thereby and then by the protruding ends 19 and 21 of the packages.

While there has been shown and described herein one means for packing frangible articles, it is to be understood that the invention may be embodied in other forms without departing from the spirit and essential attributes thereof. It is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, and it will be

further understood that each and every novel feature and combination thereof, present in, or possessed by, the means herein disclosed, forms a part of the invention included in this application.

What is claimed as new and for which it is desired to secure Letters Patent, is:

1. Means to package a plurality of frangible articles nested together in contact with each other in the form of a pile, a band of material extending lengthwise about said pile of articles, a wrapping of crushable material, such as corrugated cardboard, wrapped transversely about the pile and having peripherally spaced apart portions thereof upstanding and extending beyond both ends of the pile, the remaining portions of cardboard at each end of the pile being bent over into engagement with the end articles, and a band of material extending lengthwise about the wrapping and disposed between the upstanding portions and upon the bent over portions to hold it about the pile of articles and to suspend said articles between its ends.

2. Means to package a frangible article comprising a wrapping of material encircling the article with its side edges overlapped and having end portions extending beyond the upper and lower ends of said article, said extending end portions being crimped inwardly against the peripheral edge of the adjacent end of said article at peripherally spaced apart points, one of the crimped-in points being disposed at the overlapped joint of the side edges to interlock them the remaining portion of the extended wrapping ends being left projecting beyond the crimped-in portions to protect the article against endwise shocks, and means to resiliently press the crimped-in portions of the wrapping at both ends of the article against the adjacent end thereof.

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