J. N. HAHN.

PACKING TRAY FOR FRAGILE ARTICLES.

APPLICATION FILED OCT. 27, 1913.

1,116,695.

Patented Nov. 10, 1914.

Fig. 1.

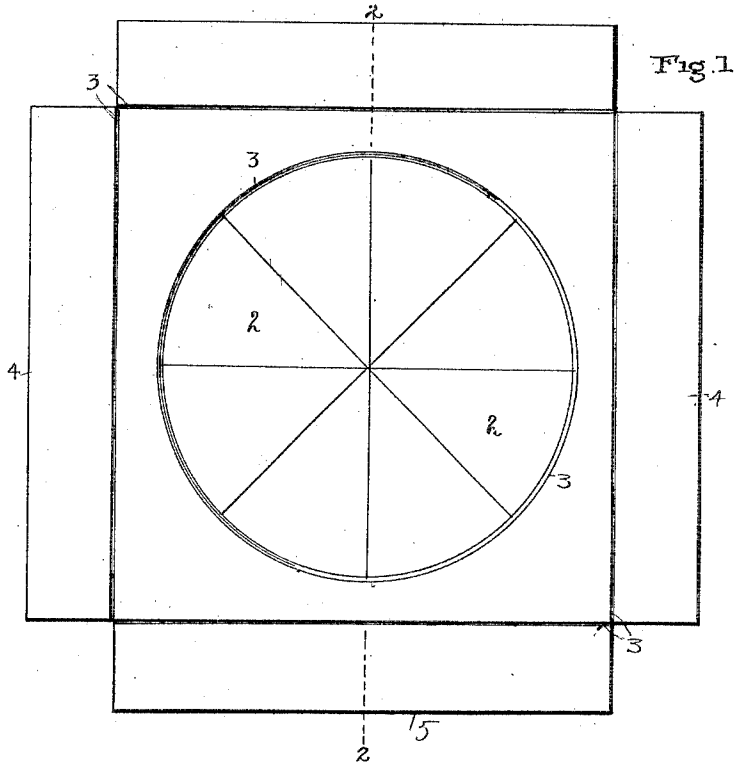


Fig. 2.

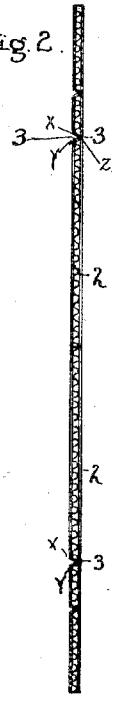
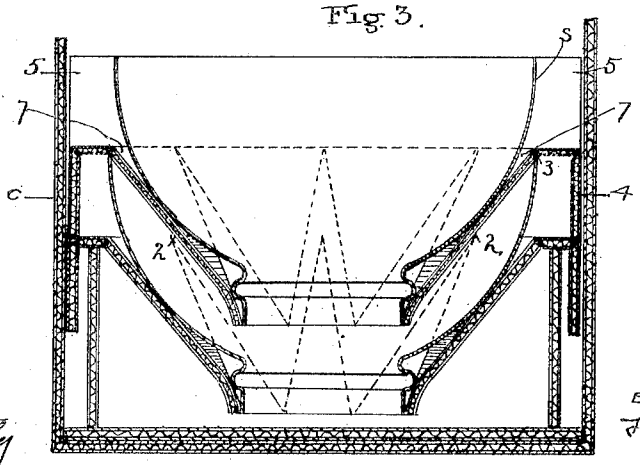


Fig. 3.



ATTEST

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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PACKING-TRAY FOR FRAGILE ARTICLES.

1,116,695. Specification of Letters Patent. Patented Nov. 10, 1914.

Application filed October 27, 1913. Serial No. 797,457.

To all whom it may concern:

Be it known that I, JOHN N. HAHN, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Packing-Trays for Fragile Articles, of which the following is a specification.

This invention relates to an improvement in packing trays for fragile articles, such as lamp shades and other articles having dome-shaped or bowl-like bodies, all substantially as shown and described and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a bottom view of a tray constructed according to the present invention, and Fig. 2 is a cross section thereof on line 2—2, Fig. 1. Fig. 3 is a sectional elevation of a portion of an inclosed casing and of a pair of trays and shades therein and representing an improvement on the construction shown in Letters Patent of the United States issued to me April 22, 1913, and numbered 1,059,359. In the said patent I show a tray made of double-faced corrugated paper as in the present application, and the said tray or trays were and are provided with wings 4 and 5, respectively, as in the present case and serving as the immediate supports for the trays next within the wall of the case *c* and overlapping one within the other as seen at the left in Fig. 3. The present invention comprises what I regard as a very material and valuable improvement upon the tray as shown in said patent, and consists in a series of specially constructed spurs or tongues 2 as the immediate supports of the shades, in combination with the side wings or supports 4 and 5 as the supports for the trays themselves with their load, the whole constituting a new and original article of manufacture.

As formerly made the tray has been found deficient or defective in that portion which held or engaged the shade because it had nothing more than a round hole with a practically harsh narrow edge in or on which the shade was seated at about its middle or swell portion and with the larger or wider portion thereof extending above said seat. This was found to serve the purpose in a sense, as where the handling of the package was very careful, but such handling is exceptional and it was found that a mere edge support really jeopardized every shipment and in the end entailed great loss by breakage of shades. Of course the wings of the tray actually sustain the burden and these are a necessary part of the present invention, but close and safe packing of the shade requires that it be relieved of the sharp edge formerly used and given a spring grip which not only eliminates such edge but supports the shade where it cannot be injured by a side thrust on the package. Formerly there was constant danger of the shade being cracked or broken because porcelain shades are very fragile and side thrust or pressure on the package was liable to deliver a cracking or breaking blow through said seat, particularly since the board is rigid and in a thrust is about as dangerous as an all wood board would be in the same relation. The present invention is therefore especially directed to this defect in the former construction, and remedy is afforded by omitting the said edge as an edge and substituting the V-shaped spurs or tongues 2 as the immediate supports for the shades. It is especially to be noted that all the said spurs start from or in a circular crease 3 in the bottom of the tray and run to a point at the center and that the stock which, in the old construction, was cut out to form the hole for the shade, is utilized in this tray as the immediate support for the shade. I mean that the shade is suspended or supported upon the flat and cushioning sides of the said spurs or tongues which engage the bulge of the shade a considerable distance beneath the body or horizontal portion of the tray where the sharp edge formerly engaged the shade, and that the said spurs in effect and fact are a series of practically rigid springs, constituting together a spring basket for the shade. I say rigid because the board I use is a rigid board necessarily. The internal corrugated sheet and the outer layers of strong paper pasted thereon make a rigid structure, and the bending of the spurs or tongues on the curve of the crease 3 would be physically impossible as the same is bent herein if the said crease did not outline and afford the bend required. Furthermore, with the said crease as I make it I provide each spur with a spring hinge in which the real secret of this invention resides. It will be seen that the crease is of such depth as to break down the corrugated middle sheet and to bring the two outside sheets together thereon, but this is done without rupturing

any of the sheets. It follows that a hinge is made with three layers of paper working together and strengthening each other. Furthermore, the said crease is only of such width that when the spurs or tongues are turned down to a supporting inclination for the shade the side walls or shoulders x and y come together and serve as stops to further depression or swing of the spurs. This is their supporting position and it would require actual violence to press a spur farther back and require the breaking of its support.

Of course I do not weight a set of spurs in a given tray with more than a single shade, and utilize the wings 4 and 5 as before to sustain the load, but they will carry a much heavier weight than an ordinary shade and maintain their spring quality for almost an indefinite period, thus adapting the tray to repeated use. This construction also removes the shade from the body of the tray by the distance shown in the intervening space 7, and hence it does not impinge upon the said body at all. On the contrary, the shade is bodily removed from the body of the tray such a considerable distance that no side thrust upon the package can possibly reach the shade, unless it is of a package crushing character. This alone insures the safety of the shade in handling and shipping, but this is not all.

It will be seen that the spurs are struck from a curved crease or depression and not from a straight one. This produces lines of resistance which cross each other when the spurs are bent down and provides a permanent spring effect which would not be possible if the said crease and hinges were straight. It follows that the total effect of this construction at the base of the spurs is such as produce a practical stoppage and resistance to the spurs against further depression than shown and which cannot be extended farther downward without breaking down the shoulders x and y or rupturing the hinge z, and that the tendency in the spurs to spring back is permanent. It will also be noticed that the circle of the crease 3 for the spurs is cast on lines at least as large as the cross section of the shade at its largest portion and it might be larger relatively, because I want to provide plenty of room in the space 7. As it is the shade would drop through the tray if it were not adequately supported by the spurs as shown. But by springing the spurs from their base edge in said crease and abutting the shoulders x and y in the angle and depending on the three-ply hinge formed by the crease 3 and its segmental curvature for the desired resistance the total sustaining value of the six spurs is found to be such as would hold up a materially heavier object than a porcelain or like shade. It will be noticed also that the extremities of the spurs flex somewhat to accommodate themselves to the neck of the shade, so that the entire length of the spurs is practically utilized and a spring basket carrier or crib is formed for the shade in which the shade does not come in contact with the body of the board at any point but is removed therefrom all around by the space 7.

What I claim is:

A packing tray to carry fragile articles made from three-ply corrugated paper board and having a series of tapered spurs radially disposed about a common center, the said spurs having each a spring hinge at its base formed from the said plies of paper pressed together at one side in a crease and opposite shoulders at the sides of said crease limiting the downward turn of the spurs, whereby when the spurs are inclined on their hinges to carrying position the said shoulders will contact and resist further depression.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN N. HAHN.

Witnesses:
E. M. FISHER,
F. C. MUSSUN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."