Feb. 7, 1933. J. R. NORTHWAY-LEY 1,896,326

CONTAINER OR BOX FOR FRAGILE ARTICLES

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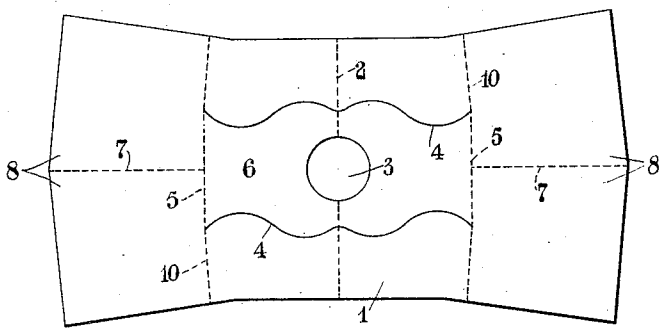


Fig.1.

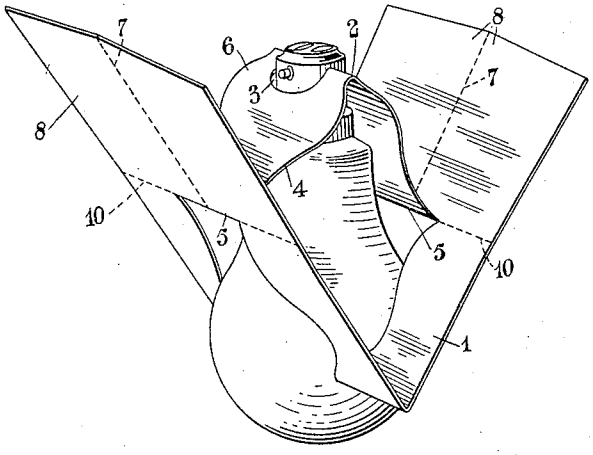


Fig.2.

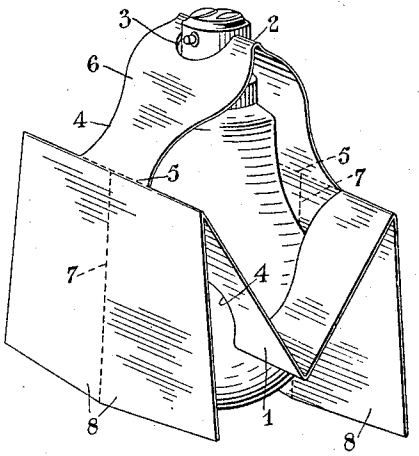
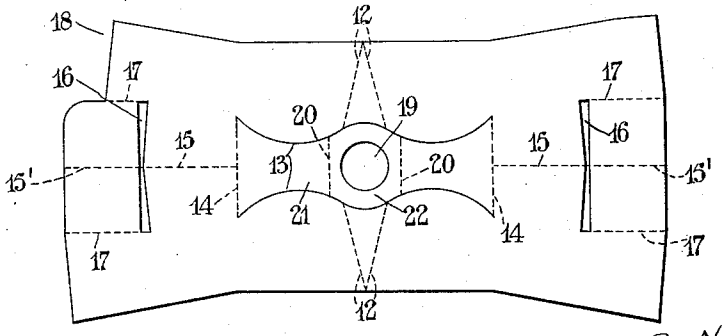


Fig.4.

Fig.6.



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CONTAINER OR BOX FOR FRAGILE ARTICLES

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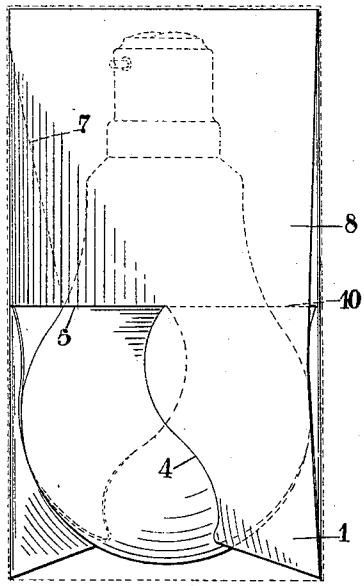


Fig.3.

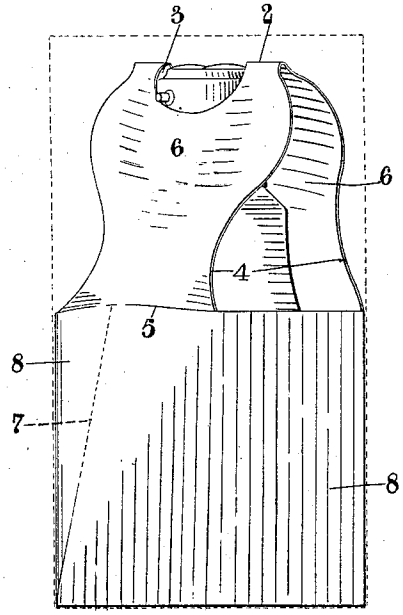


Fig.5.

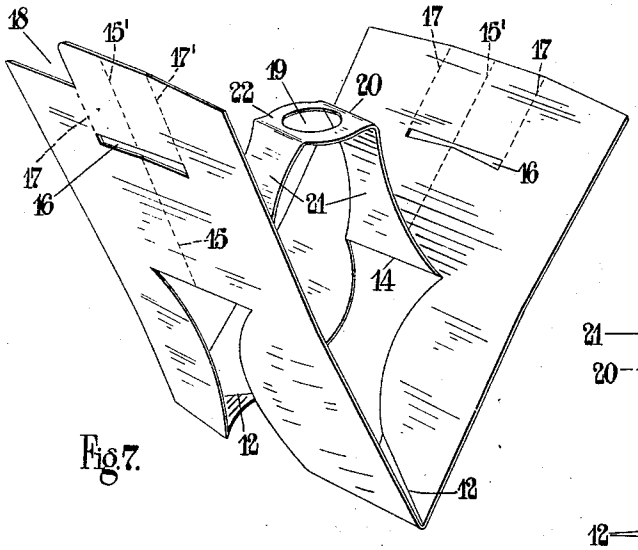
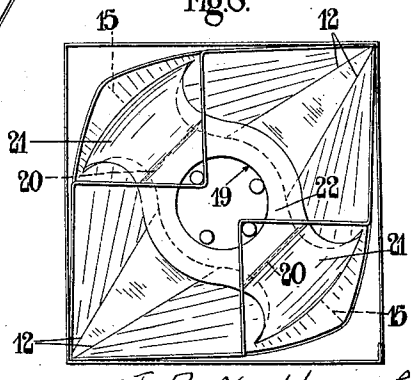


Fig.7.

Fig.8.



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CONTAINER OR BOX FOR FRAGILE ARTICLES

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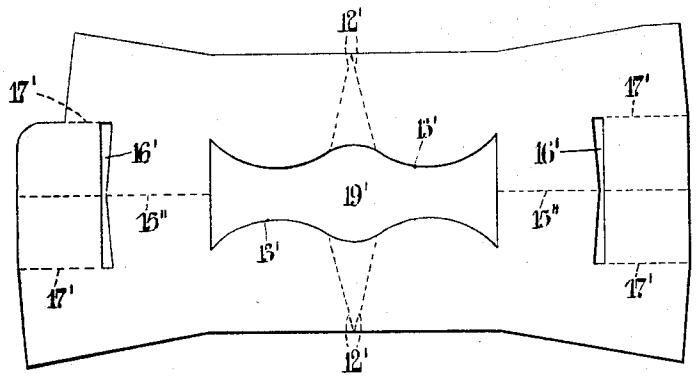


Fig. 9.

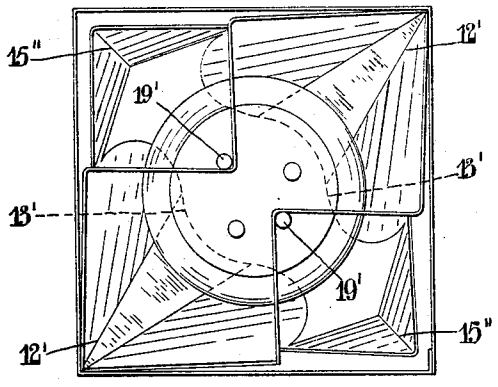


Fig. 10.

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Patented Feb. 7, 1933 1,896,326

UNITED STATES PATENT OFFICE

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CONTAINER OR BOX FOR FRAGILE ARTICLES

Application filed July 18, 1930, Serial No. 468,958, and in Great Britain September 28, 1929.

This invention relates to containers or boxes for fragile articles, of the type wherein an internal supporting unit is provided in which the article is positioned to protect it from external shocks. The invention has more particular reference to boxes and supporting units of the knock-down or collapsible kind.

The object of the present invention is to provide an improved form of internal supporting unit which may be manufactured very cheaply, is capable of production by a minimum of manufacturing steps, permits rapid packing of the articles while at the same time providing a unit which adequately protects the article in transit and storage.

The invention broadly consists in the provision of a unit of cardboard or other suitable material folded upon itself and comprising two portions, adapted when the unit is erected to occupy oppositely disposed positions, one for locating or supporting the article towards one end (say, the spigot of a lamp) and the other portion for locating or supporting the article (say, the lower portion of the bulb of a lamp) towards the other end thereof.

Reference will now be made to the accompanying drawings, in which:—

Figure 1 is a view of a supporting unit formed from a single blank suitably shaped or creased.

Figure 2 is a view of a partially folded blank or unit with an electric lamp in situ.

Figure 3 is a perspective view of the supporting unit bent into a position affording support for an electric lamp, and showing the position it will occupy within a box or carton.

Figure 4 is a modification of the unit shown in Figures 2 and 3.

Figure 5 is a perspective view of the supporting unit folded in the manner shown in Figures 3 and 4 and positioned within a box or carton.

Figure 6 is a view of a modified form of supporting unit formed from a single blank suitably shaped or creased.

Figure 7 is a view of the blank shown in Figure 6 partially folded.

Figure 8 is a plan view of the supporting unit shown in Figures 6 and 7 in the position it will occupy within a box or carton.

Figure 9 is a view of a modified form of supporting unit formed from a single blank suitably shaped or creased.

Figure 10 is a plan view of the unit shown in Figure 9 in its erected form in the position it will occupy within a box or carton.

The supporting unit may be made from a single blank as shown in Figure 1, the blank being cut from a cardboard sheet having a general rectangular outline or shape. The particular form illustrated is particularly suitable for use with an electric light bulb, but it may be modified to conform to the shape of any other article which it is desired to support. Furthermore, the actual contour may be modified to conform to the cubical form and dimensions of the box in which the unit is to be accommodated, consideration being also taken of the change in outline brought about by folding the blank for positioning within the box.

The blank 1 is scored along a transverse centre line 2 and is cut with a circular orifice 3 in the centre and formed with a pair of spaced incisions 4 disposed symmetrically upon each side of the transverse and longitudinal centre lines of the blank. The particular form of the incision may be varied to suit the article but in cutting a blank for an incandescent electric lamp the incisions are made so that when the blank is folded to form a support for the lamp they will conform to the shape of the bulb. In the form shown the incisions on each side of the transverse centre line may conform to the outline of an S or be of sinuous shape from one end thereof to the other.

The blank is preferably formed with creasing lines 5 which join the outer extremities of the incisions 4 for forming a hinging fold for the central zone or cradle 6 and further scorings 7 are provided extending along the centre line of the blank from the ends to the creasing line 5 joining the extremities of the lateral incisions for enabling the skirt portions to fit closely into a box in which the support is inserted in its folded condition.

When a box of square cross-section is employed the scorings 7 will occupy opposite corners of the box whilst the lateral edges of the skirt portion will fit into the other corners.

The folding of the blank is preferably effected simultaneously with the insertion of the lamp. The blank is shown in its folded or erected condition in Figure 3 and in order to bring it to this position the lamp spigot is passed through the central orifice 3 with the shoulders of the lamp abutting against that portion of the central zone or cradle 6 immediately surrounding the orifice. The central portion is then moved in a direction axially of the lamp as shown in Figure 2 so that the blank itself is folded about its transverse central line 2 and the central zone or cradle 6 is hinged inwardly or upwardly as viewed in this figure, and caused to occupy a position between the skirt portions 8 of the blank. The S or sinuous incisions 4 afford a seating for the bulb end of the lamp which fit snugly its curved surface so that the lamp is positioned both axially and laterally, thus affording protection from damage by lateral or end shocks.

In Figure 3 the support is shown in the position it occupies in a box. The lamp is introduced into an outer collapsible box of any known form with the transverse folding centre line 2 of the blank arranged diagonally of the box and the longitudinal centre line 7 lying towards the opposite corners of the box. It will be understood that the usual end closures of any suitable form may be provided for the box in order to maintain it in its cubical shape and enclose the article.

In a modified form, instead of folding the unit or blank as described with reference to Figures 2 and 3, the skirt portions 8 may be hinged downwardly as shown in Figure 4 and the blank will in its finally folded form within a carton or box assume a position as shown in Figure 5. In this case the scorings 5 may be dispensed with and the blank scored along the line 10 as shown in Figure 1. By folding the blank in this manner less protection is afforded for the spigot whilst added protection is given by the skirt portion to the bulb end of the lamp.

In the modified form of the invention shown in Figures 6, 7 and 8 the blank is provided with a circular orifice 19 and laterally extending creases 12 which terminate at their inner ends in a pair of spaced incisions 13. The blank is also provided with creasing lines 14 arranged at the extremities of the incisions 13 so as to form a central zone or cradle 21. This zone or cradle is provided with creasing lines 20 so that when the blank is folded into the position shown in Figure 7 a platform 22 will be formed which is particularly adapted for supporting the base end of a wireless valve or thermionic tube. The portion of the blank situated between the creases 12 provides, when the blank is folded as shown in Figure 7, support for the reverse end of the valve. The blank is also formed with creasing lines 15 to enable it to be folded into an appropriate shape for inserting a box or carton as shown in Figure 8.

Adjacent each end of the blank a portion is cut away as shown at 16 and further creases are provided at 15′ and 17 which extend from the cut away portion 16 to the extreme edges of the blank. That portion of the blank bounded by the creases 17 and the opening 16 is thus capable of being folded inwardly towards the centre as shown in Figure 8 and in this position divisions into which the pins or legs of a valve may project will be provided.

The blank is adapted to be folded up in the manner previously described with reference to Figure 1 and may be inserted in a suitable box or carton as shown in plan view in Figure 8. The box or carton may be of the form in which tuck-in flaps are provided and when the blank is made to fit this type of box one end thereof is cut away as shown at 18 so as to form accommodation or facilitate the insertion of the tuck-in flap at the end of the box.

In the further modified form of the invention shown in Figures 9 and 10 the blank is provided with laterally extending creasing lines 12′ which terminate on their inner ends at an opening 19′. The walls or edges 13′ when the blank is folded about the creases 12′ contact with the article and provide a support for one end thereof. The blank is also provided with central creasing lines 15″, openings 16′ and further creasing lines 17′ extending from the extremities of the openings 16′ to the edges of the blank. The creasing lines 15″ extend beyond the openings 16′ to the edge of the blank and permit that portion of the blank between the opening 16′ and the edge of the blank to be folded inwardly into the position shown in Figure 10 and into contact with the valve pins 19′. It will be noted that in this form of the invention the central zone or cradle 21 shown in Figures 6, 7 and 8 is dispensed with.

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

1. An improved supporting unit for a fragile article comprising a blank folded to form a support for preventing all lateral movement of one end of an article and a section hinged to the blank at a point intermediate the ends thereof and extending away from said fold when the unit is erected, said section being adapted to support the other end of said article.

2. An improved supporting unit for a fragile article comprising a blank folded

along a transverse centre line, means formed by said fold for supporting one end of the article to prevent all lateral movement thereof and other supporting means hinged at a point intermediate the ends of the blank oppositely directed with respect to said first mentioned means and adapted to support the other end of said article.

3. An improved supporting unit for a fragile article comprising a blank having creases extending transversely thereof, spaced supports for one end of an article preventing all lateral movement thereof, and a section hinged at a point intermediate the ends of the blank for supporting the other end of said article extending in opposite direction to said spaced supports when the unit is erected.

4. An improved supporting unit for a fragile article comprising a blank having creases extending transversely thereof, spaced supports for one end of an article preventing all lateral movement thereof, a hinged section for supporting the other end of said article, and a skirt portion in two parts connected to said spaced supports and said hinged section.

5. An improved supporting unit for a fragile article comprising a blank folded to form a support for one end of an article preventing all lateral movement thereof, a section hinged at a point intermediate the ends of the blank and extending away from said fold when the unit is erected, said section having a platform to engage the other end of said article.

6. An improved supporting unit for a fragile article comprising a blank of rectangular shape scored along a transverse centre line, spaced incisions extending longitudinally of said blank, creasing lines at the extremities of said spaced incisions, the blank being bent about said transverse centre line to provide a support for one end of an article, the portion of the blank between the spaced incisions extending away from said transverse centre line to provide a support for the other end of said article.

7. An improved supporting unit for an electric bulb comprising a blank provided with spaced incisions permitting the central area of the blank to be separated into two sections extending in opposite directions, one of said sections having spaced portions adapted to engage opposite sides of the lamp at one end thereof and the other section having an opening in which the socket of the lamp is adapted to rest.

8. An improved supporting unit for thermiome tube comprising a blank provided with spaced incisions permitting the central area of the blank to be separated into two sections extending in opposite directions, one of said sections having spaced portions engaging the bulb end of the tube, a skirt portion, the other of said sections having a platform engaging the base of the tube, an opening in said platform, and means on said skirt portion engaging the pins on the tube.

9. An improved supporting unit for a fragile article comprising a blank having creases extending transversely thereof, spaced supports for one end of an article preventing all lateral movement thereof, a hinged section attached to a point intermediate the end of the folded blank for supporting the other end of said article extending in opposite direction to said spaced supports when the unit is erected and means for maintaining said support in its folded condition.

10. An improved supporting unit for a fragile article comprising a blank having creases extending transversely thereof, spaced supports for one end of an article preventing all lateral movement thereof, a hinged section for supporting the other end of said article, and a skirt portion in two parts connected to said spaced supports and said hinged section and means for maintaining said support in its folded condition.

11. An improved supporting unit for a fragile article comprising a blank folded to form a support for one end of an article preventing all lateral movement thereof, a section hinged to the blank at a point intermediate the ends thereof and extending away from said fold when the unit is erected, said section having a platform to engage the other end of said article and means for maintaining said support in its folded condition.

12. An improved supporting unit for a fragile article comprising a blank folded to form a support for one end of an article preventing all lateral movement thereof, a section hinged to a point intermediate the ends of the folded blank extending away from said fold when the unit is erected, a skirt portion, inwardly folding members forming part of said skirt portion and means for maintaining said support in its folded condition.

13. An improved supporting unit for a fragile article comprising a blank of rectangular shape scored along a transverse centre line, spaced incisions extending longitudinally of said blank, creasing lines at the extremities of said spaced incisions, the blank being bent about said transverse centre line to provide a support for one end of an article, the portion of the blank between the spaced incisions extending away from said transverse centre line to provide a support for the other end of said article and means for maintaining said support in its folded condition.

14. An improved supporting unit for an electric bulb comprising a blank provided with spaced incisions permitting the central area of the blank to be separated into two sections extending in opposite directions, one of said sections having spaced portions adapted to engage opposite sides of the lamp

at one end thereof and the other section having an opening in which the socket of the lamp is adapted to rest and means for maintaining said support in its folded condition.

15. An improved supporting unit for a thermionic tube comprising a blank provided with spaced incisions permitting the central area of the blank to be separated into two sections extending in opposite directions, one of said sections having spaced portions engaging the bulb end of the tube, a skirt portion, the other of said sections having a platform engaging the base of the tube, an opening in said platform, means on said skirt portion engaging the pins on the tube and means for maintaining said support in its folded condition.

16. An improved supporting unit for a fragile article comprising a blank folded to form a support for one end of an article preventing all lateral movement thereof, an inner section extending away from said fold, an outer section extending away from said fold, an opening in said outer section and a crease extending from said opening longitudinally of the blank, whereby a portion of said outer section is adapted to engage a projection on the article to hold it.

17. An improved supporting unit for a fragile article comprising a blank folded along a transverse centre line and having means formed by said fold for supporting one end of the article and an opening in the blank located towards the end furthest from the fold, and a crease extending from said opening longitudinally of the blank whereby the end portion of the blank may be bent inwardly to engage a projection on the article to hold it.

18. An improved supporting unit for a fragile article such as a thermionic tube comprising a blank of rectangular shape scored along a transverse centre line, the blank being bent about said transverse centre line to provide a support for one end of an article and having a narrow transverse opening located towards the end of the blank furthest from said centre line and a crease extending from said opening longitudinally of the blank whereby the portion between said opening and the end of the blank may be bent inwardly to engage the pin of the thermionic tube.

19. An improved supporting unit for a fragile article such as a thermionic tube comprising a blank of rectangular shape scored along a transverse centre line and having an opening extending across said line, the blank being bent about said transverse centre line to provide a support for one end of an article and having a second opening located towards the end of the blank furthest from said centre line, and a crease extending from said second opening longitudinally of the blank whereby the portion between said opening and the end of the blank may be bent inwardly to engage a projection on the article.

In testimony whereof I have signed my name to this specification.

JOHN REGINALD NORTHWAY-LEY.