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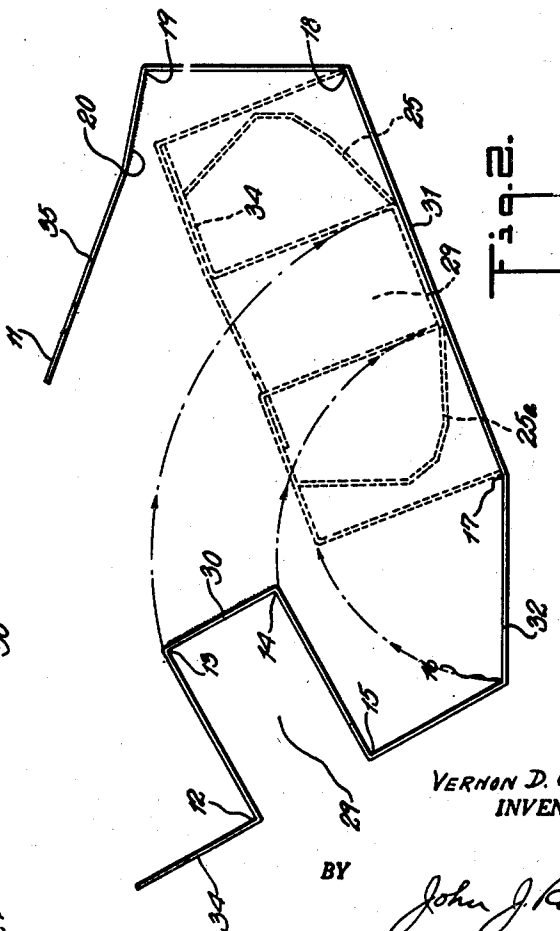
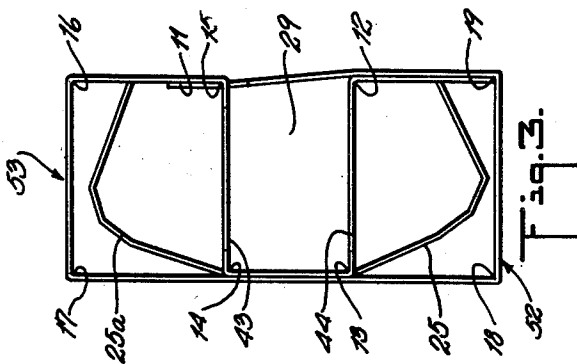
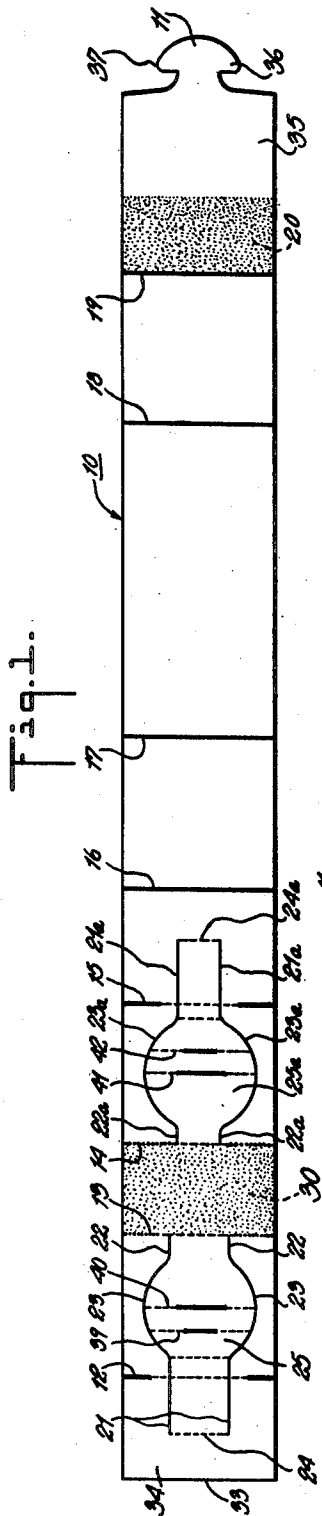
V. D. GOODWIN

2,473,582

CARTON FOR RADIO TUBES AND THE LIKE

Filed June 18, 1946

2 Sheets-Sheet 1



VERNON D. GOODWIN  
INVENTOR.

BY

John J. Rogan  
ATTORNEY

June 21, 1949.

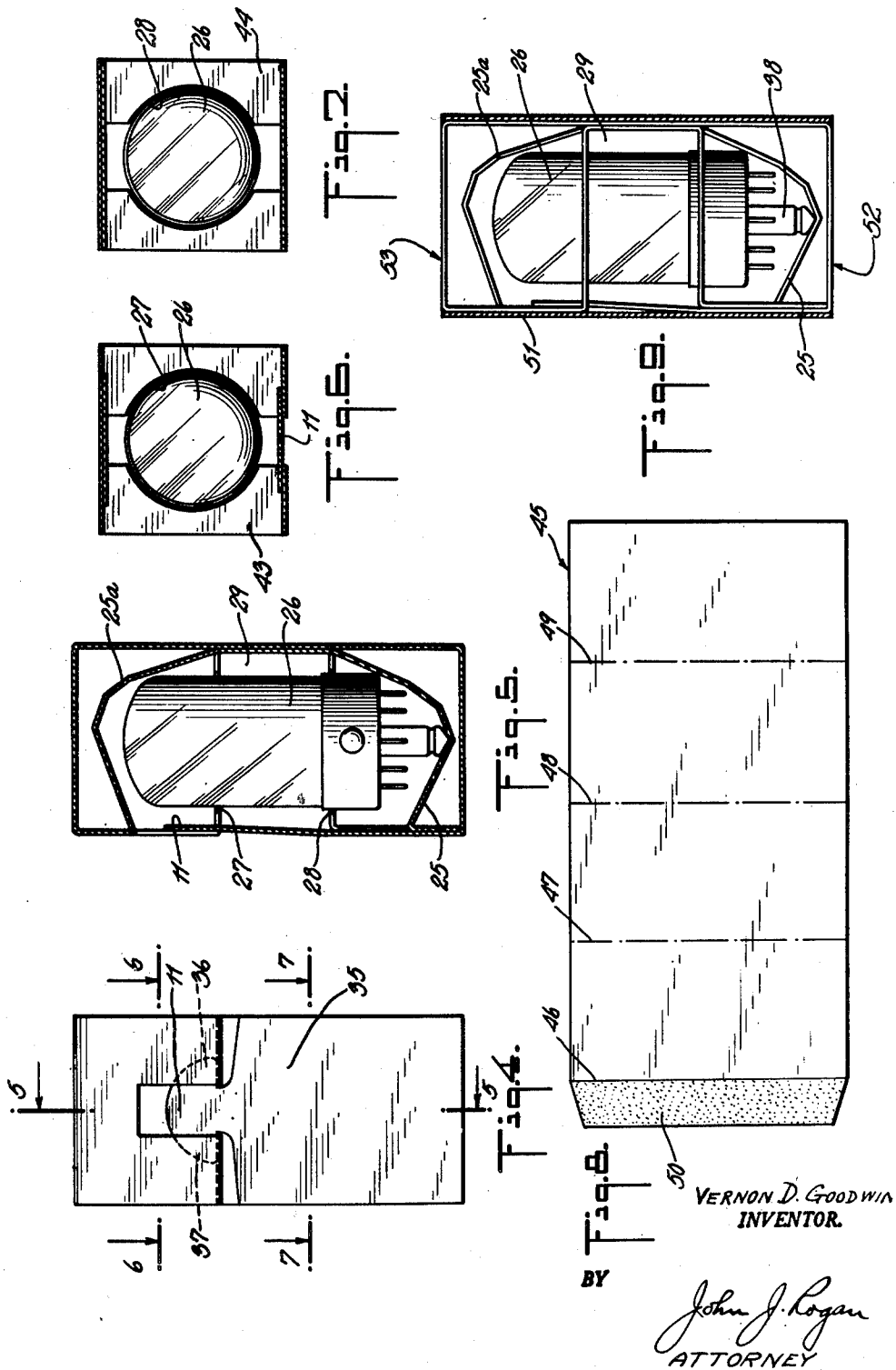
V. D. GOODWIN

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CARTON FOR RADIO TUBES AND THE LIKE

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2 Sheets-Sheet 2



## UNITED STATES PATENT OFFICE

2,473,582

## CARTON FOR RADIO TUBES AND THE LIKE

Vernon D. Goodwin, Floral Park, N. Y., assignor  
to Sylvania Electric Products Inc., Emporium,  
Pa., a corporation of Massachusetts

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1 Claim. (Cl. 229-6)

1

This invention relates to cartons and more particularly to cartons for housing such fragile devices as radio tubes, electric lamp bulbs, and the like.

A principal object of the invention is to provide a simple and easily assembled carton for enclosing and protecting radio tubes and the like during handling and shipping.

Another object is to provide a supporting cradle and wrapper for such devices as radio tubes, the wrapper including a pair of side walls and a pair of internal transverse flexible partitions which serve to space and support the tube with respect to the said side walls. In accordance with this object, the cradle is made from a single length of cardboard strip which can be shaped and held in final shaped conformation by a single gluing operation.

A feature of the invention relates to a simplified cardboard protective shell for radio tubes and the like, which shell is formed from a single length of cardboard strip secured in such a way that by relatively simple folding steps a plural side wall wrapper is provided having a pair of integral perforated transverse partitions extending between the side walls.

Another feature relates to a novel cardboard blank for forming a wrapper or container for radio tubes, electric lamp bulbs and the like.

Other features and advantages not particularly enumerated will be apparent after a consideration of the following detailed descriptions and the appended claim.

In the drawing,

Fig. 1 is a plan view of the single cardboard strip which is secured and slitted according to the invention.

Fig. 2 is a view explaining how the strip of Fig. 1 is bent and glued.

Fig. 3 is a view of the finished blank of Fig. 1 forming a supporting and enclosing shell for a radio tube or the like.

Fig. 4 is a right-hand elevation of Fig. 3.

Fig. 5 is a sectional view of Fig. 4, taken along the line 5-5 thereof.

Fig. 6 is a sectional view of Fig. 4, taken along the line 6-6 thereof.

Fig. 7 is a sectional view of Fig. 4, taken along the line 7-7 thereof.

Fig. 8 is a developed plan view of the blank from which the outer wrapper is formed.

Fig. 9 is a vertical sectional view of the completed carton showing a radio tube positioned and supported interiorly thereof.

Referring more particularly to Fig. 1, there is shown an elongated strip 10 of cardboard or other similar flexible and easily scorable material. This strip is formed at its right-hand end with a locking tongue 11 adapted to lock the folded-over strip in its final position as shown in Fig. 3.

Strip 10 has a series of main transverse scor-

2

ings 12-19, all on the same face of the strip as viewed in Fig. 1, so as to enable the strip to be bent as shown in Fig. 2. For purposes of explanation and illustration, the different kinds of scorings are indicated in the drawing by the following symbols:

Simple crease scores=dash line

Cut crease scores=double thin line

Perforated crease scores=dotted line

The strip is also provided with four separate die-cut slits, these slits having pairs of parallel straight edges 21, 21a, 22, 22a with intervening curved edges 23, 23a. Strip 10 also has on its scored face a simple crease score 24 which extends only between the slits 21. Likewise, a creased score line 24a is provided on the scored face of the strip extending between the slits 21a. These slits thus provide the strip with two straps 25, 25a, which can be readily pushed out of the plane of the strip to the position shown in dotted lines in Fig. 2, and in full lines in Fig. 3. These pushed-out straps 25, 25a, form in effect transverse members which limit the sliding of the radio tube 26, when the latter is placed in the carton as shown in Fig. 9. When the straps 25 and 25a are pushed out as above described, they leave substantially circular openings 27, 28, which are of slightly greater diameter than the outside diameter of the bulb 26, so as to enable the said bulb to be easily inserted through the openings while preventing any appreciable lateral movement of the bulb within the carton. To facilitate pushing out and shaping of the straps 25 and 25a, they are each scored as indicated in Fig. 1. In the particular type of bulb 26 shown, the contact base 27 may be of slightly greater outside diameter than the glass bulb portion, in which event the opening 28 should be large enough to permit insertion of the said base therethrough. The region between the score lines 13, 14, on the unscored face of the strip 10 is provided with a coating of suitable glue or mucilage as is the region 20 adjacent score line 19.

One manner of folding the strip 10 is illustrated in Fig. 2. The initial folding steps are represented by the full lines, while succeeding folding steps are indicated by the dotted lines. The first step is to fold the strip 10 so that the length between the score lines 13 and 14 is substantially parallel to the length of the strip and so that the lengths between the score lines 12-13 and 14-15, are substantially perpendicular to the length of the strip. This forms a right-angled reentrant portion 29. The strip is partially bent around the score line 16 and is then bent around the score line 17 to bring the flat glued surface 30 flush against the central region between the score lines 17 and 18. The glued surface may then be heated or moistened under pressure so as firmly to glue the surface 30 to

the surface 31. As a result of this double bending operation, the length 32 of the strip is rotated around the score line 17 so that it becomes perpendicular to the length 31. The next step consists in folding the strip around the score lines 18 and 19, so that the edge 33 abuts against the strip adjacent the score line 19. The previously glued region 20 may then be glued to the end section 34. The section of the strip between the tongue 11 and the gluing section 20 forms a locking flap 35 whereby the tongue 11 can be inserted through the opening which is left by the pushed-out strap 25a. In this position the ears 36 and 37 extend beyond the edges of the straight sides of the opening as indicated in Fig. 4, thus locking the folded strip in the position shown in Fig. 3.

When the device is to be used for housing a radio tube, the flap portion 35 is free, and the two substantially rectangular folded-over end sections of the blank can then be slightly spread apart so as to enable the tube 26 to be inserted through the openings 27 and 28. When so inserted, the upper end of the bulb may engage the pushed-out strap 25a while the center plug-in pin 38 on the tube base engages pushed-out strap 25. It will be understood that in the strip of Fig. 1, the strap 25 is provided with two parallel score lines 39, 40, on the upper face of the strip, so that when the tongue 25 is pushed out, it forms a channel or trough to receive the extremity of the pin 38. Likewise, the strap 25a is provided with a pair of parallel score lines 41, 42, so that when strap 25a is pushed out, it forms an arch-like shape as shown in Fig. 9. In effect therefore, the folding of the strip 10 in the manner indicated in Fig. 2, and to the shape shown in Fig. 3, provides a tube holder having upper and lower walls and two side walls one of which is arranged to be opened by means of the locking flap 11. The holder is also provided internally with a pair of stationary parallel platforms or shelves 43, 44, to center the tube 26 within the carton and a pair of transverse arched partitions 25, 25a, which limit the end-wise movement of the tube within the carton. When the tube is to be shipped, the folded blank 11 can be telescoped within a tubular cardboard wrapper. The blank 45 of which this outer wrapper is formed may be of any conventional design having four score lines 46, 47, 48, 49, and a glued locking flap 50. The blank 45 is folded along the score lines to form a rectangular wrapper 51 into which the tube holder proper can be telescoped.

One of the important advantages of forming the inner tube holder as shown in Figs. 1-3, is that this holder has completely flat closed ends 52, 53, thus avoiding the use of an outer wrapper 45 with the usual tucked-up end flaps.

While one specific embodiment of the invention has been described, various changes and modifications may be made therein without departing from the spirit and scope of the invention. For example, while Fig. 2 shows one possible manner of folding the blank to the finished conformation to receive a radio tube, the preferred manner of folding the blank so as to economize storage space is to fold it so that the blank is substantially flat until it is ready to receive the radio tube or the like. For this purpose, the straight portion of the blank extending from cut score 16 to the end 33 is folded back at score 16 on to the top of the remainder of the blank, so as to form a double thickness flat. This brings

the end 33 over to, and in alignment with cut score 19 and with the glued area 30 flush against the central region between the score lines 17 and 18, where the gluing operation takes place. Then locking flap 35 is folded back at cut score 19 on to the top of end section 34 where it is glued in a flat position. There is thus formed a substantially flat folded blank which can be kept in this flat condition for storage or packing until the actual insertion of a radio tube or the like. When the flat blank is to be used to receive a radio tube, the blank is opened for use merely by the proper application of pressure on the ends or by a push-pull effect on locking flap 35, thus opening the blank to the shape shown in Fig. 3, but at this stage the straps 25 and 25a have not been displaced out of the plane of the remainder of the blank and the locking flap 35 has not been inserted in locking position. When a tube is inserted in the holder, the ends of the tube engage the straps 25 and 25a to force them out of the plane of the blank to the position shown in Fig. 3, whereupon the locking flap 35 can be locked as above described.

What is claimed is:

A blank for forming a holder of the type described comprising a single elongated oblong strip of cardboard which has a pair of parallel folding crease lines extending transversely of the strip determining the length of one side wall of the finished holder, the portion of the strip between one of said crease lines and the shortest end of the strip being provided with a transverse folding crease line dividing said portion into two panels, the first of which forms the end wall of the finished holder and the second or end panel forms a part of the other side wall of said finished holder, said end panel being provided with a tongue at its extreme end for locking with a corresponding slit and with a gummed portion near its folding crease line for gluing with the other end of said blank, the strip at the other end of said crease lines being divided into six panels by five transverse crease lines with the first, third and fifth panels of substantially the same length as the panel forming the end wall of the finished holder, the combined length of panels 2, 4 and 6 being substantially equal to that of the side wall of the finished holder, said fourth panel being provided with a gummed surface for gluing to said first named side wall of the finished holder, said second and third and fifth and sixth panels being provided with substantially symmetrical, longitudinal slits which when pushed out form cradling straps in the finished holder, said straps being provided with transverse lines to facilitate pushing out and shaping of said straps, said end panel having a length greater than the combined length of said fourth and sixth panels whereby the tongue in the finished holder will lock in the slits provided in the second and third panels.

VERNON D. GOODWIN.

#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

| Number       | Name           | Date          |
|--------------|----------------|---------------|
| 70 1,151,821 | Raynaud        | Aug. 31, 1915 |
| 1,586,447    | James          | May 25, 1926  |
| 1,748,256    | Tinsley        | Feb. 25, 1930 |
| 2,125,312    | Ringler        | Aug. 2, 1938  |
| 2,368,753    | Elliott et al. | Feb. 6, 1945  |
| 75 2,397,041 | Pantalone      | Mar. 19, 1946 |