Oct. 22, 1935. W. H. CRAIG 2,018,605

MEANS FOR PACKING ARTICLES WITHIN PACKING BOXES

Filed Feb. 20, 1933

Fig. 1.

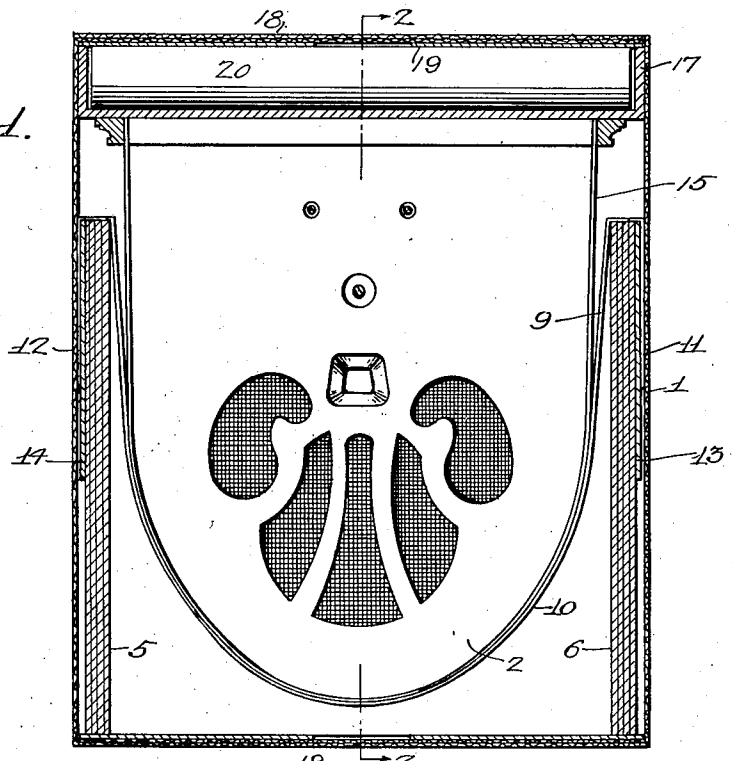


Fig. 2.

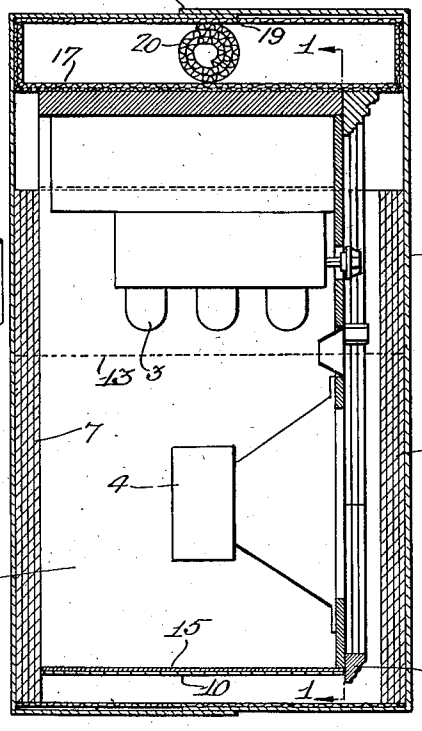
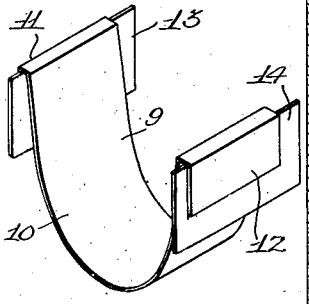


Fig. 3.



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Patented Oct. 22, 1935 2,018,605

UNITED STATES PATENT OFFICE

2,018,605

MEANS FOR PACKING ARTICLES WITHIN PACKING BOXES

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Application February 20, 1933, Serial No. 657,698

6 Claims. (Cl. 229—14)

This invention relates to packing devices and particularly to devices for supporting fragile articles within packing boxes or crates.

One object of the invention is to provide a device of simple form and construction which may be economically manufactured commercially.

Another object of the invention is to provide a device of novel construction which functions to support an article within a packing box in a shock-proof manner, thereby substantially eliminating any possibility of breakage and effecting a saving both in money and time to manufacturers or shippers of large quantities of fragile articles.

A device constructed in accordance with the invention comprises essentially a novel suspensory member and oppositely disposed auxiliary walls within a packing box or crate for supporting the suspensory member. This member comprises a sling having rigid end members extending downwardly between the auxiliary walls and the walls of the box. The sling functions at all times to support the packed article in the desired fashion.

Other objects and details of construction of a device constructed in accordance with the invention will appear hereinafter. For a complete understanding of such a device, reference may be had to the following detailed description and the accompanying drawing, in which

Fig. 1 is a sectional view of a device constructed in accordance with the invention and adapted to support a radio receiver within a packing box as illustrated, such view being taken along line 1—1 of Fig. 2;

Fig. 2 is a sectional view along line 2—2 of Fig. 1 and showing diagrammatically the elements of the receiver; and

Fig. 3 is a perspective view of the aforementioned suspensory member which constitutes one of the essential features of the invention.

Referring to Figs. 1 and 2 of the drawing, there is disclosed a packing box or container 1 which may take any desired form but in the present instance takes the form of the usual packing box made of corrugated cardboard. I have chosen to illustrate the invention in connection with a radio receiver 2 having the usual vacuum tubes 3, reproducer 4, etc., since it is particularly adapted for use in the packing and shipping of such receivers. Furthermore, articles of this nature, comprising as they do various fragile and breakable elements, such as vacuum tubes, serve to illustrate clearly the manner in which the invention proposes to pack such articles and prevent breakage thereof. It will be understood, however, that the invention may be utilized for packing any suitable article whose construction enables the utilization of the principles of the invention set forth hereinafter.

In accordance with the invention, I provide a pair of oppositely disposed relatively thick walls 5 and 6 within box 1. These walls are preferably built up of layers or laminations and, in the present instance, may take the form of several layers of corrugated cardboard. Since the article to be supported is substantially disposed between these walls, it is preferable that they be resilient to a certain degree and the built-up corrugated cardboard structure has the desired degree of resiliency. I also prefer to provide these walls by inserting within the box a liner extending completely around the interior of the box. This is evident from Fig. 2, wherein a pair of walls 7 and 8 similar to walls 5 and 6 are shown adjacent the front and rear walls of the box. By utilizing a single liner as stated, the necessary side walls 5 and 6 are not only provided but resilient walls are provided entirely around the article to be packed and serve as a cushion for such article within its packing box. Furthermore the liner is more easily manipulated than would be separate walls.

Auxiliary walls 5 and 6 are of less height than the side walls of box 1 and function to support a suspensory member 9 therebetween. As illustrated in Fig. 3, this member comprises a sling 10 having overturned ends 11 and 12 which are firmly attached to rigid end pieces or members 13 and 14, respectively. In the present instance, I prefer to form sling 9 of flexible cardboard and to utilize stiff pieces of cardboard as end members 13 and 14. As is well known, many radio receivers have an arch-shaped wall 15 which constitutes the sides and top of the receiver. In accordance with the invention, the suspensory member 9 is supported by the auxiliary walls 5 and 6 by interposing the downwardly extending rigid end members 13 and 14 between the auxiliary walls and the adjacent walls of box 1 as illustrated in Fig. 1. The suspensory member is adapted when so disposed to receive the radio receiver in inverted position as clearly illustrated. The sling 9 of the suspensory member adjusts itself to conform with the arch-shaped wall 15 of the receiver and snugly embraces the same. The sling is so dimensioned that it supports the receiver a desired distance above the base of the box.

The radio receiver with which the device is

used in the present illustration is provided for sake of appearance and rigidity with a projecting molding edge 16 which extends around the front edge of wall 15 (see Fig. 2). In order to allow for this projecting edge of the receiver cabinet, sling 9 is eccentrically disposed with respect to the rigid ends 13 and 14, as shown in Fig. 3. The ends are of substantially the same width as the walls of box 1 adjacent walls 5 and 6, and snugly fit within the box. Sling 10 is of substantially the same width as the arch-shaped wall 15 of the receiver. When the receiver is properly supported in the sling of the suspensory member, the projecting edge 16 extends within the space between the sling and wall 8 provided by the eccentricity of the sling with respect to the rigid ends previously mentioned. Fig. 2 clearly illustrates the manner in which the projecting edge 16 extends beyond the sling into the space provided.

The dimensions of the various elements are such that the base of the receiver cabinet lies at some distance below the top of the packing box when the receiver is properly supported as set forth above. In order to fill the space between the base of the receiver and the lids of the box and also to substantially immobilize the receiver within its support, I provide a shallow dished member 17 which preferably is formed of a sheet of corrugated cardboard having upturned edges which rest firmly against the walls of box 1. This member is so dimensioned that it fits exactly between the base of the receiver and the lids of the box when in closed position. As is common in packing boxes of the type used herein, two pairs of overlapping lids 18 and 19 are provided. In order to maintain member 17 in proper engagement with the base of the receiver so that it at all times exerts the desired pressure on such base, I provide a resilient spacer 20 between the closed lids of the box and member 17. This spacer may consist of a sheet of corrugated cardboard rolled as illustrated in Fig. 2. It is simply necessary to place this spacer upon member 17 previous to closing the lids of the packing box. When so disposed, the spacer will act as a resilient cushion interposed between the receiver base and the lids of the box.

It is important to note the advantages and features of the device disclosed herein which embodies the principles of the invention. Referring to Fig. 1, it will be noted that any force exerted upon the base of the radio receiver in a downward direction will cause the receiver to subject the sling 10 to tensional forces along the sides thereof. These forces to which the sides of the sling are subjected will tend to cause end members 13 and 14 to exert lateral outward forces against the walls of box 1. Since, however, the walls of the box are sufficiently rigid and strong to withstand such forces, the suspensory member is at all times rigidly supported as desired. Auxiliary walls 5 and 6 are purposely made of sufficient strength to withstand any strain exerted upon them by the forces mentioned. Packing devices constructed as illustrated herein have been subjected to very severe tests and have been found to function properly to protect the packed article even under the severest abuse. Large weights have been placed upon the top of the receiver to test the strength of the suspensory member constructed as disclosed and previously described and to test also the strength of the supporting arrangement. I have found that the device will readily support the weight of a normal person without any detrimental effects whatever.

It will be noted also that the tubes of the radio receiver are in inverted position and are supported only by their frictional engagement with their respective sockets. Notwithstanding this fact, however, it has been found that the tubes are subjected to substantially no jar which would cause them to become detached from their sockets and thereby injure or break them. The other delicate parts of the receiver are likewise subjected to practically no jarring action to cause any injury whatever to such parts.

An important feature of the invention is that the various parts constituting the same may be cheaply manufactured. As previously set forth, the various elements are preferably composed of cardboard and the cost of such elements is so small as to eliminate entirely any necessity for using the packing device more than once. In other words, it is unnecessary for a shipper to have his consignee send back the packing devices so that he may use them repeatedly in shipping the articles. It will be apparent that the invention provides a simple and novel arrangement for carrying out the desired purpose. Various modifications in the details of construction are, of course, possible without departing from the principles and scope of the invention. Only the limitations imposed by the appended claims are to be placed upon the invention.

I claim:

1. The combination with a packing box or the like, of means for supporting and immobilizing an article within said box, comprising a pair of auxiliary walls disposed adjacent and interiorly of opposite walls of said box, and a suspensory member for supporting said article, said member comprising a flexible sling extending between said auxiliary walls and having rigid ends, said ends extending downward between said auxiliary walls and the adjacent walls of said box, whereby said auxiliary walls retain said ends and support said suspensory member.

2. The combination with a packing box or the like, of means for supporting and immobilizing an article within said box, comprising a member extending around the interior of said box to provide a pair of auxiliary walls disposed adjacent opposite walls of said box, and a suspensory member for supporting said article, said suspensory member comprising a flexible sling extending between said auxiliary walls and having rigid ends, said ends extending downward between said auxiliary walls and the adjacent walls of said box, whereby said auxiliary walls retain said ends and support said suspensory member.

3. The combination with a packing box or the like, of means for supporting and immobilizing an article having a projecting edge within said box, comprising a pair of auxiliary walls disposed adjacent and interiorly of opposite walls of said box and of substantially the same width as said box walls, and a suspensory member for supporting said article, said member comprising a sling of less width than said walls extending between said auxiliary walls and having rigid ends of substantially the same width as said walls, said ends being eccentrically disposed with respect to said sling and extending downward between said auxiliary walls and said box walls, whereby said auxiliary walls retain said ends to support said suspensory member and a

space is provided on one side of said sling for the projecting edge of said article.

4. The combination with a packing box or the like, of means for supporting and immobilizing an article having a projecting edge within said box, comprising a member extending around the interior of said box to provide a pair of auxiliary walls disposed adjacent opposite walls of said box and of substantially the same width as said box walls, and a suspensory member for supporting said article, said suspensory member comprising a sling of less width than said walls extending between said auxiliary walls and having rigid ends of substantially the same width as said walls, said ends being eccentrically disposed with respect to said sling and extending downward between said auxiliary walls and said box walls, whereby said auxiliary walls retain said ends to support said suspensory member and a space is provided on one side of said sling for the projecting edge of said article.

5. The combination with a packing box or the like, of means for supporting and immobilizing an article having a curved wall, such as a midget radio receiver, within said box, comprising a flexible sling arranged to receive said article with the curved wall thereof in engagement with the sling, said sling adjusting itself to conform with said wall, means free of attachment to said box for supporting said sling and the article supported thereby within said box with the sling and article in free suspension, and means for maintaining said article seated in said sling and in its freely suspended position.

6. The combination with a packing box or the like, of means for supporting and immobilizing an article within said box, comprising a pair of relatively thick resilient auxiliary walls disposed adjacent and interiorly of opposite walls of said box, and a sling member for supporting said article having turned over ends extending between said auxiliary walls and the box walls and firmly clamped by the auxiliary walls, whereby said auxiliary walls alone in conjunction with the box walls support said sling member and the article supported thereby, and said auxiliary walls serve as cushions for the supported article.

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