

UNITED STATES PATENT OFFICE

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CASE FOR RADIOTUBES

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This invention is a case for radio tubes and is intended more particularly for use as a receptacle for holding in proper spaced and identified relation the various tubes of a radio set. It is well recognized in the radio art that it is desirable from time to time to test the respective tubes of a radio set, each tube of such a set having its own peculiarities and a tube which will operate for example in connection with radio frequency amplification will not work as well as another similar tube in connection with audio frequency amplification, or vice versa. In other words, tubes of the same make and of the same type will vary in characteristics which render them particularly adaptable for different uses in the same set or for the same use in different stages of amplification.

Considerable care should be exercised in the fitting of tubes to particular radio sets in order that the best results may be obtained through the use of tubes of proper characteristics. When such an assembly has been obtained, it is highly desirable to preserve this relationship. It is nevertheless important from time to time to test the respective tubes. This is generally accomplished by removing all of the tubes from the set and taking them to a dealer equipped with proper appliances for testing and after the tubes are thus tested suitable replacements are made and the tubes thereupon returned to the set.

Under prior practice, the tubes have generally been marked by tying or pasting tags thereto as they are removed from the set in order that no mistake may be made in returning them to their proper places. It is not infrequently found, however, that the tags become loose or are lost and difficulty is experienced in determining the correct places for the respective tubes.

According to the present invention, a case is provided so constituted as to provide pockets or compartments for the individual tubes and these pockets or compartments are marked or identified, so that when a tube is removed from a set it may be immediately placed in a corresponding pocket. After all of the tubes have been placed in the case, the

cover of the case may be closed and the case readily transported to the dealer for testing the tubes. After they have been tested and suitable replacements made, the case provides a convenient package for transporting the tubes back to the set where they may be lifted out of the pockets of the case and returned to their proper tube sockets.

The object of the present invention is to provide a simple and convenient structure for carrying out the results which we have specified and to produce an economical case which may be conveniently manufactured at such a low cost that it may be given away as an advertising medium. The tubes may be initially sold in such a case, and the case is preferably made collapsible so that after the tubes are removed and placed in the set, the case may be collapsed and stored conveniently as for example by slipping it into the back of the cabinet of the set, from whence it may be removed and readily set up at such subsequent time as it is desired to test the tubes.

The case is characterized by the provision of a body portion having therein pockets formed in a novel and inexpensive manner, yet thoroughly efficient to firmly hold the tubes in position and to preclude their contact with one another and with said body portion cooperates a cover to conceal the tubes when the cover is closed. The structure is so worked out that it may be fabricated from a single blank of paper or cardboard suitably cut and folded as will hereinafter be more fully described.

Features of the invention, other than those described, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawing.

The accompanying drawing illustrates one practical embodiment of the invention but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a perspective view showing a case embodying the present invention with a plurality of tubes therein. The cover is shown as open, a stiffener which we may employ is shown as partly removed.

Figure 2 shows a development of the blank from which the device is made.

Figure 3 is a transverse section taken on the line 3—3 of Figure 1.

5 The case of the present invention may, as hereinbefore stated, be conveniently formed from a single blank of material, such, for example, as cardboard. The parts of the blank which form the several parts of the case clearly appear in Figure 2 from which it will be noted that 1 designates the bottom, 2 the top and 3 the cover portions. Between the top 2 and bottom 1 is interposed a side wall 4 and the several other sides of the top are provided with side walls 5, 6 and 7. The ends of the side wall 4 are extended to form tabs 8 and 9, while the ends of the side walls 7 are extended to form tabs 10 and 11. Long narrow tabs 12 and 13 extend along the outer edges of the side walls 5 and 6. A similar long narrow tab 14 extends along one edge of the bottom 1 and between the bottom 1 and the cover 3 is interposed an extension flap 15. The free end of the cover has tongues 16 adapted to enter into slots 17 formed at one margin of the top 2.

The several parts to which we have referred are separated from one another by lines of scoring, so as to facilitate bending along these lines when it is desired to fold the flat blank into box or receptacle form.

All of the parts which we have thus far described except the top 2 may be made flat and imperforate. The top 2 is, however, perforated, slit and scored in a manner to permit various parts thereof to be folded, so that these parts will serve to collectively form pockets or compartments for the several tubes. Provision is made in the form of the invention shown for eight tube compartments and a description of the structure of one of these compartments will serve to impart an understanding of all of them.

Each compartment comprises a portion and end wall 18 cut entirely from the top except at the line 19 which forms a line of scoring. The center of the end wall 18 is perforated at 20 to receive the base prongs of a tube *t*. The side walls 21 and 22 of such compartment are cut away entirely from the top except along the lines 23 and 24 which constitute lines of scoring and it will be noted that these side walls 21 and 22 are substantially triangular in shape, their width being substantially equal to the width of the side walls 4, 5, 6 and 7. The width of the end wall 18 is substantially the same dimension. Some of the compartments are provided with straight end cuts 25, while others are provided with opposite end cuts 26. These end cuts may be all straight or all offset as may be desired, but for the particular radio set which the illustrative showing is adapted, there are three "ordinary" tubes and five screen grid tubes, the offset under cut being to per-

mit the entry of the projecting end of a screen grid tube. It will be understood, however, that the straight end cuts 25 are used on relatively long compartments which are of sufficient length to receive a screen grid tube, so that this shaping feature while facilitating use with a particular set is not intended to be restrictive of the present invention.

The blank which we have described is adapted to be stamped out and scored in flat condition and after thus prepared, it may be folded either at the time of manufacture or subsequently into a finished case. The folding operation is accomplished as follows.

Assuming that the bottom 1 remains stationary, the side walls 5 and 6 are first folded up at right angles to the top 2, the tabs 12 and 13 are then folded inwardly at right angles to the side walls 5 and 6 and an adhesive is applied to the then upper surface of these two tabs. The side wall 4 is next folded upwardly at right angles to the bottom 1 along the line of scoring 27 and the top is thereupon folded over at right angles to the side wall 2 on the line of scoring 28. This operation brings the glued faces of the tabs 12 and 13 into facial contact with the upper face of the bottom 1 and they become adhered to the bottom. The tabs 10 and 11 are thereupon folded inwardly at right angles to the side wall 7 and the side wall 7 is thereupon folded on the line of scoring 29, so that its free end abuts the upper surface of the bottom 1 along the lines of scoring 30.

Adhesive is then applied to the tab 14 which is thereupon bent up and adhesively secured to the exterior of the side wall 7. If desired, the tab 14 may be secured to the inner face of the side wall 7 or to the outer face as desired. This is optional. These operations having been accomplished, the body portion 31 of the case is formed with the tabs 12, 13 and 14 adhesively secured in position.

We wish it understood, however, that it is not essential to glue down the tabs 12 and 13, they may, if desired, be left loose with respect to the bottom and we generally prefer to leave them loose, because by so doing, the case may be collapsed flat at any time, whereas if they are glued, it cannot be collapsed flat.

After the body portion has been formed as stated, the several compartments are formed by bending the individual parts thereof in the manner next to be described, each compartment being produced in the same way as the other compartments. The end wall 18 is first bent downwardly into the interior of the body until it is at right angles to the top and bottom and its free end will thereupon be found to engage with the bottom 1. The side walls 21 and 22 are next bent downwardly in the same way and will engage with the bottom of the case. This having been accomplished with each of the compartments

in succession, the structure is complete and ready to receive tubes.

It will be noted that since the walls 21, 22 and 18 are all of a width to engage with the bottom of the box that the top and bottom are thus spaced uniformly throughout and at the same time the friction of the walls 18, 21 and 22 with the bottom will hold these walls in proper position without the use of glue or other adhesive. While it is not necessary, we may, if desired, slip into the interior of the box a cardboard spacer 32 shown in Fig. 1. The purpose of this spacer is to preclude transversely alined tubes from coming in contact with one another in the event that through rough handling the prongs 33 of the tube become disengaged from the perforation 20. This will ordinarily not occur, but if the case is handled very roughly or dropped it is possible and is therefore guarded against in the manner stated. The spacer 32 extends for the full length of the body of the case and is held against shifting by the compartment side walls 21 and 22. To close the box, it will of course be understood that the extension flap is bent upwardly on the line of scoring 33 and the cover thereupon bent on the line of scoring 34, the tongues thereupon being bent and inserted into the slots 17.

If the case is made and adapted for a particular style or make of radio set, there may be stamped, printed or otherwise delineated adjacent each compartment identifying data as to the particular tube adapted to be received in that compartment. However, if the case is to be used for radio sets without particular regard to the make or model, the placing of identifying indicia adjacent the respective compartments may be left to the user who may conveniently mark these compartments with a pencil, pen or the like.

It will be apparent from the foregoing detailed description that the structure of our tube case is extremely simple and may be economically manufactured and readily assembled, but that it nevertheless fulfills its requirements with a high degree of efficiency and provides for the first time a simple and convenient adjunct for the fulfillment of the purposes for which it is adapted. The foregoing detailed description sets forth the invention in its preferred practical form, but the invention is to be understood as fully commensurate with the appended claim.

Having thus fully described the invention, what we claim as new and desire to secure by Letters Patent is:

In an assembly of the character described, a body portion having top, bottom and side walls, the top being provided with cuts forming a plurality of flaps adapted to be infolded into the interior of the body to contact with the bottom and form a series of spaced apart pockets or compartments open at their tops,

and a cover hinged to the body and foldable over the top of said body to cover and conceal the several compartments and form a closure for all of them, one flap of the flaps of each compartment being perforated to receive and hold the prongs of a radio tube, the remaining flaps of such compartment serving to hold the tubes against sidewise movement, and a spacer positioned between the top and the bottom interiorly of the body and adapted to occupy a position between the ends of tubes supported in the said compartments to preclude the ends of adjacent tubes from contacting with one another in an axial direction.

In testimony whereof, we have signed the foregoing specification.

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