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MOUNT TRAY

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Fig. 1

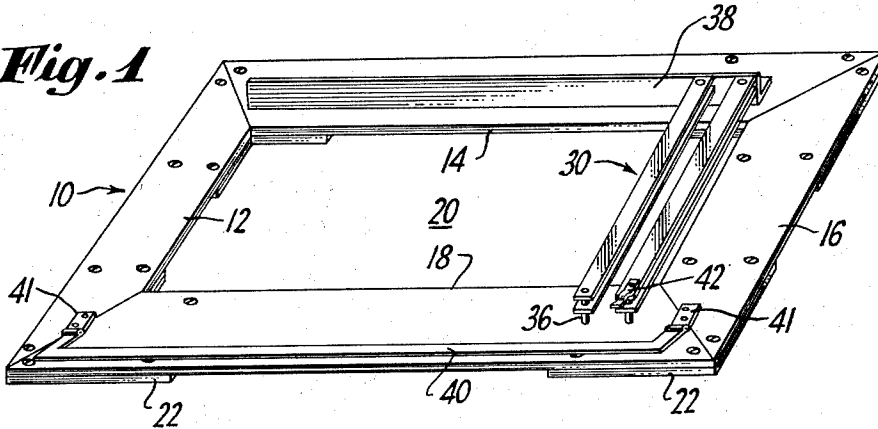


Fig. 2

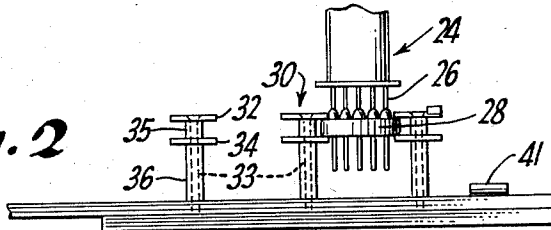


Fig. 3

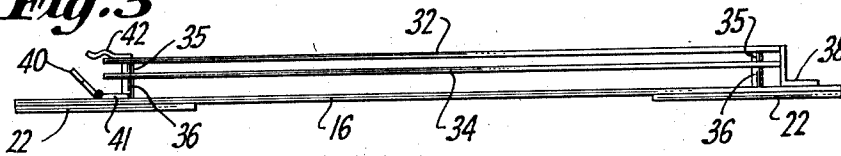
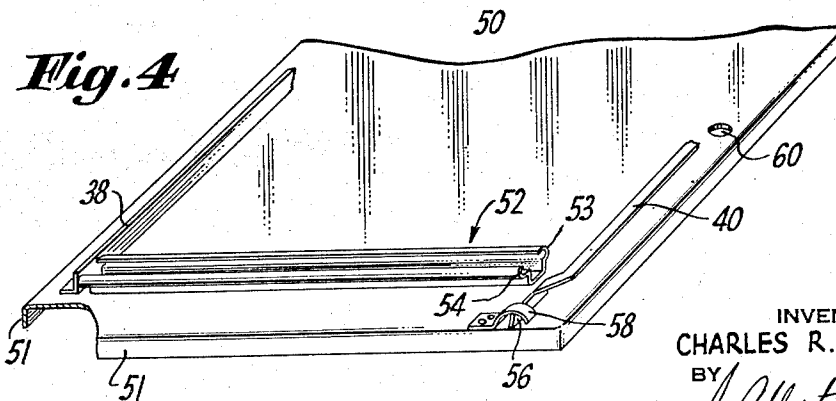


Fig. 4



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MOUNT TRAY

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1

The present invention relates to a tray for handling or storing small parts and more particularly to a tray which is adapted to securely hold a number of mount assemblies destined to be fabricated into electron discharge tubes for convenience in processing, transferring and storing such mount assemblies.

An object of the present invention is the provision of a carrying tray for partial assemblages of electron discharge devices.

Another object of the present invention is the provision of a tray as aforesaid which is simple to use and inexpensive to construct.

Still another object of the present invention is the provision of a tube mount tray which will hold a large number of mount assemblies for miniature electron discharge devices by contact with the header button of such devices leaving the mount itself free and open for performing such operations as may be required on the mount itself.

The foregoing objects and others which may appear from the following detailed description are accomplished in accordance with an aspect of the present invention by providing on a base structure a number of pairs of opposed channel members, such channels being adapted to receive and embrace the edge of the bottom header of a mount assembly for a miniature electron discharge device. Each pair of channels accommodates a column of such devices in a regular columnar array while the columns are arranged, adjacent one another, in an array over the entire tray. The channel members which receive the header button of the mounts are preferably closed at one end by a fixed stop which prevents the mounts from sliding out that end and at the other end by a readily displaceable stop bail. In loading the tray the bail is moved so as to open the ends of the opposed channels whereby the headers may be inserted between the channels. In storing or transporting the trays or for heat treating a tray full of mounts the open ends of the channels are closed by swinging the bail back up into position against the open ends of the channels.

The present invention will be more fully understood by reference to the following detailed description which is accompanied by a drawing in which Figure 1 illustrates in a perspective view one embodiment of the present invention, while

Figure 2 is a partial side elevation of the device of Figure 1 and

Figure 3 is an end elevation of the device of Figure 1 and

Figure 4 is a partial perspective view of a modified form of the invention.

The structure shown in Figure 1 includes a base member 10. The base member 10 may be

2

constructed of four flat strips of metal 12, 14, 16 and 18, each having their ends mitered at an angle thus forming a sort of a picture frame arrangement with an open central area 20. The corners of the base frame 10 are secured together by angle plates 22, screwed, riveted or otherwise secured firmly to the corners of the frame member where the mitered edges abut.

The electron tube mount assembly, as shown in Figure 2, includes the mount proper 24, which is supported on leads 26 passing through a wafer such as glass bottom header 28. The lower ends of leads 26 beneath the header 28 may serve as contact prongs for insertion into a conventional socket with which the tube when completed is adapted to be associated. The mount assembly is adapted to be inserted into a glass bulb having a top tubulation. The edge of the bulb is then fused to the edge of header 28 to form a hermetic seal to maintain a vacuum within the bulb. The mount assembly as shown in Figure 2, after being assembled, may require transporting to another location in the manufacturing plant or it may be required that it be stored for a considerable period of time before being used. Alternatively, washing operations may be required to remove oil and grease handling during fabrication or it may be required that the mounts be heat treated in an oven. Thus the frame 10 of the tray as so far described is provided with a number of channel members 30 which are spaced apart just far enough so that the header button 28 may be received between a pair of adjacent channels. While only a few channel members are shown in the figures in order to simplify the disclosure of the invention, it should be understood that the entire top surface of the tray is covered by an array of opposed channels whereby a large number of mounts is accommodated in a number of columns. The channels are spaced above the base member 10 far enough so that the portions of the lead in wires 26 below the header 28 clear the base member 10. Where an exhaust tube is provided in the center of header 28, the spacing of channels 30 over base 10 should be sufficient to clear the exhaust tubes.

In the form of the invention shown in Figures 1, 2 and 3 the channel members 30 which oppose each other to receive the button header 28 are each constructed of a pair of elongated thin flat strips of metal 32, 34 separated apart by a washer 35 and supported the proper distance above the base plate 10 by a hollow spacer member 36. All these aforesaid members are fastened together by a long rivet or screw 33 passing through holes in each of the members and through a hole in the base member 10. All of the channel members are closed at one end by an L-shaped stop member 38 having one leg of the L riveted or

otherwise secured to the base plate 10 and the other lying against said end of the channels. The header assemblies 24 may then be loaded into the racks through the other, open end of the channels. When the carrier or tray has received the desired number of mount assemblies 24, the open end of the channels, facing the viewer in Figure 1, are closed by swinging the flat bail member 40 upwardly from its position of rest on the base member 10, pivoting about the pins in hinge members 41 secured to the base plate 10 until the horizontal portion of the bail 40 snaps under and is latched under the spring clips 42.

A somewhat simplified and more inexpensive form of the invention is shown in Figure 4. In this figure the base plate 50 is a thin sheet of metal formed into a shallow inverted tray by the depending flanges 51 extending around the flat portion of the plate 50. In this form, the channels which receive the headers of the tube mount assembly are formed of U-shaped pieces of sheet metal 52. Each member 52 has the upper edges of the U bent away from each other and then back toward each other to form smaller U-shaped channels 53 and 54 facing each other across the top of the U. The edges of channels 53 and 54 are spaced apart, just as were members 32 and 34 of Figures 1, 2 and 3 so that the header member 28 of the electron tube mount assembly 24 may be received therein. Also, as before, the entire top of the base is covered with an array of header receiving channels though only one is shown for clarity. Each of the channels is, as in the previous figures, closed at one end by an L-shaped stop member 38 and at the other by a swingable bail member 40. In this modification a snap toggle action assuring that the bail 40 rests in either its upper or lower positions is provided by tabs 56 on each end of bail member 40. The longitudinally extending tabs 56, one at each end of the bail member are twisted out of the plane of the bail 40 at an angle such that when the bail member is lying against the base plate 50 the spring 58 presses against one edge of tab 56 and tends to press the bail 40 clockwise in Figure 4, securely against the base plate. On the other hand, when the bail member 40 is swung up against the open ends of channels 54 and 53 the pressure from spring 58 comes against the other edge of tab member 56 such that the bail tends to rotate in a counterclockwise direction so that it is pressed securely against the open ends of channels 53, 54. The bail 40 is, in Figure 4, shown as though it were balanced in the dead center position in which spring 58 has no effect in turning it one way or the other.

Since the tray may have to resist considerable heat during baking operations or strong cleaning solutions, it is preferred that the entire tray be fabricated from a highly resistant metal such as stainless steel. For convenience in loading and unloading said tray from baking ovens and so forth, a hole 60 may be provided in the base plate to receive a handling hook.

While I have shown and particularly described several modifications of the present invention, it should be distinctly understood that my invention is not limited thereto but that modifications and alterations within the scope of the invention may be made.

What I claim is:

1. An electron tube mount tray including a substantially flat base member and a number of mount assembly receiving racks parallel to said

base member and arrayed across the base member, each of said racks including a pair of flanged channel devices with the lowermost flanges of the channel devices above the level of the base member with an unobstructed space therebetween extending to the base level and spaced apart and having the open sides of said channels facing each other to receive and embrace the edges of a disc like member associated with said mounts whereby pins of said mounts may extend into said space, a stop member closing all of said racks at one end and a single bail member pivoted on said base member and adapted to be swung into alignment with all of the channels in said racks at the other ends of the channels whereby said disc like members are retained in said channels.

2. An electron tube mount tray including a substantially flat base member and a number of mount assembly receiving racks parallel to said base member and arrayed across the base member, each of said racks including a pair of channel devices with the lowermost flanges of the channel devices above the level of the base member with an unobstructed space therebetween extending to the base level and spaced apart and having the open sides of said channels facing each other to receive and embrace the edges of a disc like member associated with said mounts; whereby pins of said mounts may extend into said space, said racks being closed at one end, a single bail member pivoted on said base member to swing along an axis parallel to said base member into alignment with all of the channels in said racks at the other ends of the channels whereby said disc like members are retained in said channels and means for locking said bail against said racks.

3. A mount tray including a base member carrying an array of parallel header button receiving channels parallel to and spaced above said base member, said channels comprising a number of U-shaped members having their upper edges formed into grooves spaced above the bottom of the channel and having their open sides opposing one another across the channel, the grooves being adapted to receive and embrace only the rim of a disc shaped member, said channels being closed at one end, and a bail pivoted to said base and adapted to be swung into alignment with said channels for closing their other ends, said bail having a pair of flat tab extensions held between said base and spring members secured to said base, said tabs being twisted at an angle to the plane of said bail, said angle being such as to cause said spring to resiliently press said bail against said ends or against said tabs.

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