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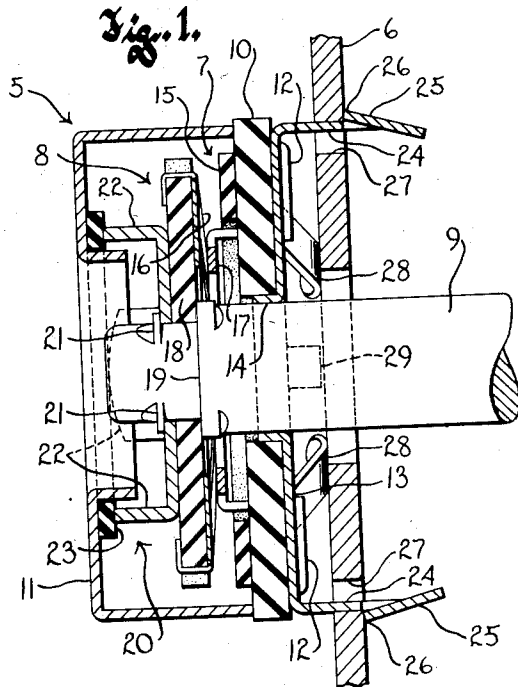
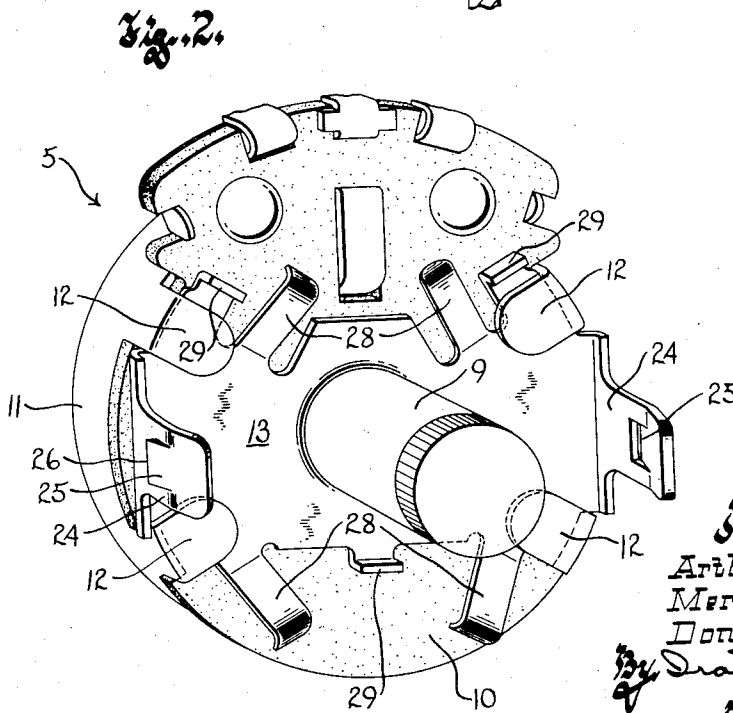
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2,874,254

VARIABLE RESISTOR WITH A PLUG-IN MOUNTING

Filed June 27, 1955

4 Sheets-Sheet 1



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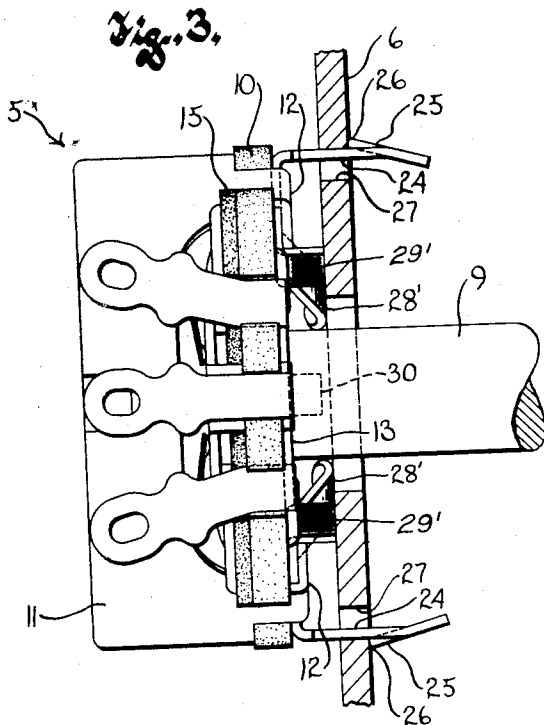
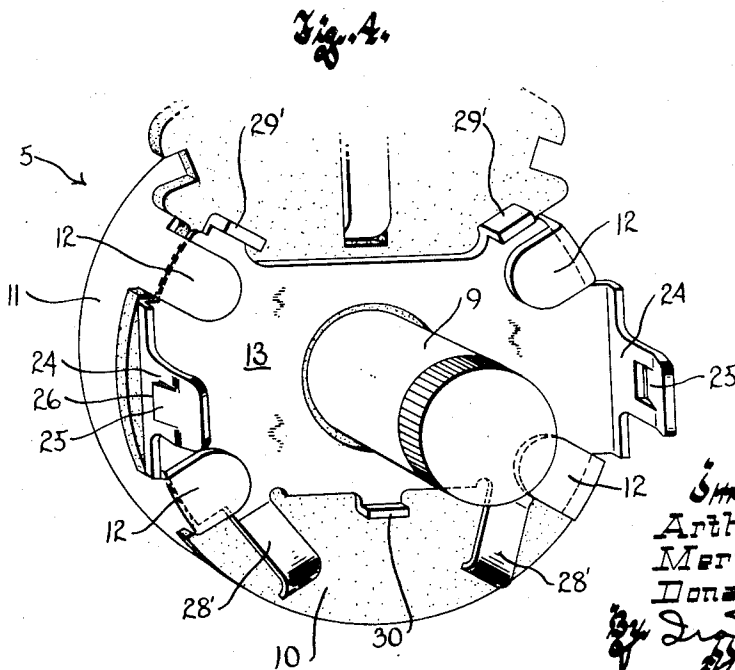
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VARIABLE RESISTOR WITH A PLUG-IN MOUNTING

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4 Sheets-Sheet 2



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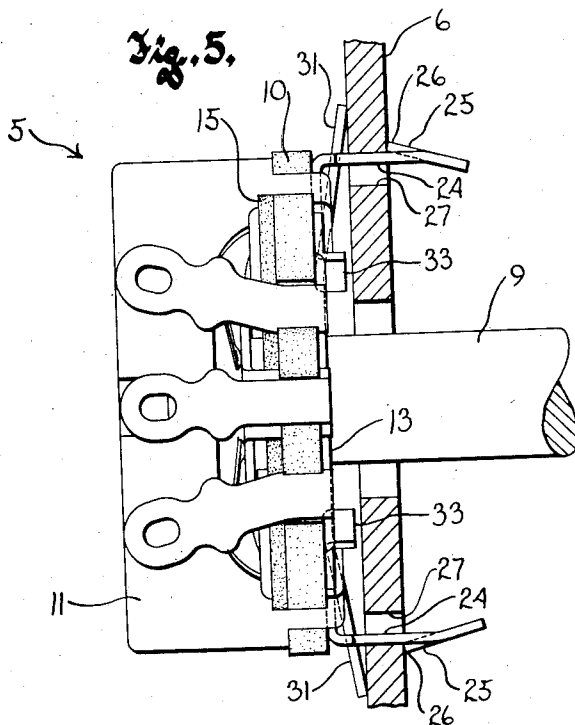
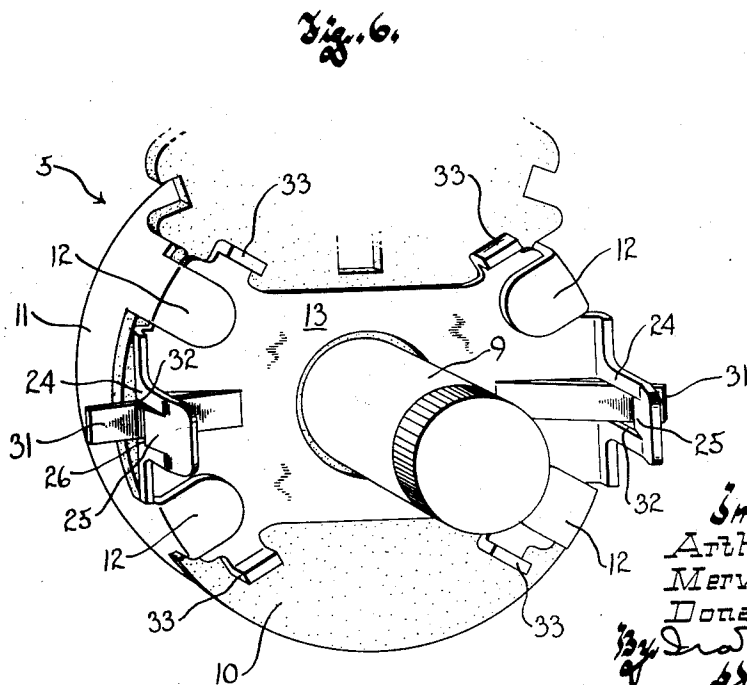
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VARIABLE RESISTOR WITH A PLUG-IN MOUNTING

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4 Sheets-Sheet 3



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VARIABLE RESISTOR WITH A PLUG-IN MOUNTING

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Fig. 7.

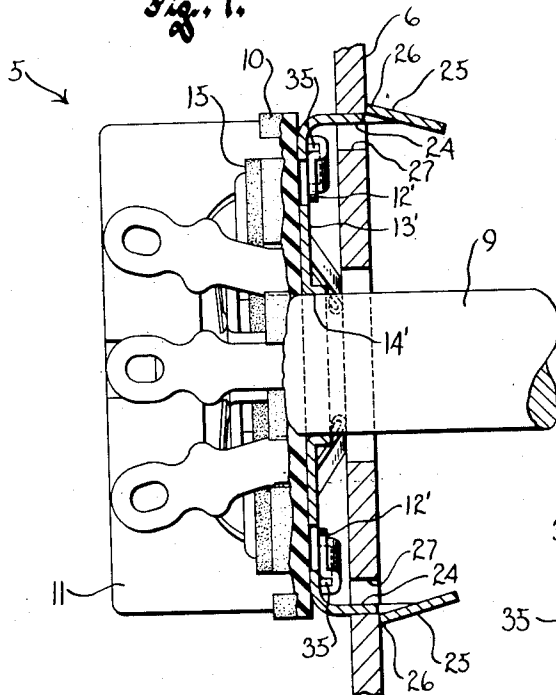


Fig. 9.

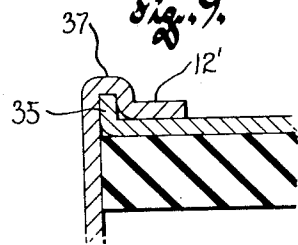


Fig. 8.

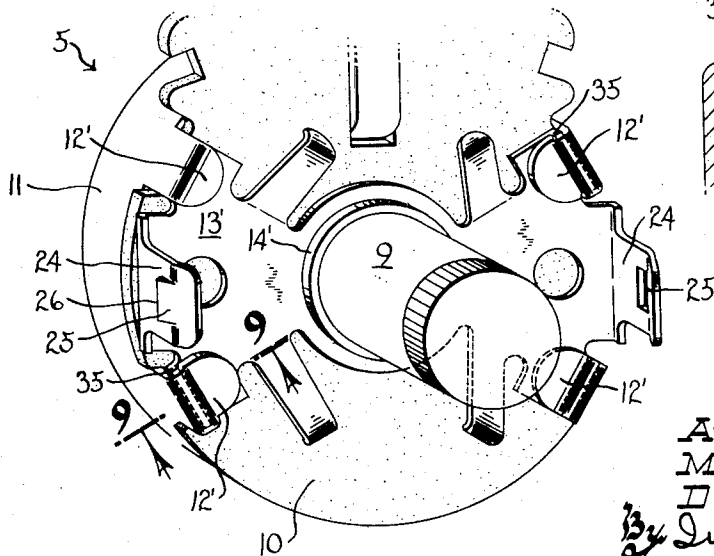
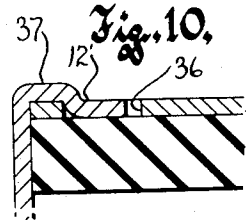


Fig. 10.



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VARIABLE RESISTOR WITH A PLUG-IN MOUNTING

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Application June 27, 1955, Serial No. 518,134

22 Claims. (Cl. 201—55)

This invention relates to controls for radio and television apparatus and refers more particularly to variable resistors and similar controls intended to be mounted upon a panel or wall of a chassis. The primary purpose of this invention is to provide a control of the character described with a plug-in or snap-in type mounting. Such a mounting eliminates the necessity for using clamping nuts, twisted fastening ears, and/or other attaching means requiring additional operations to effect the securement of the control or component to the mounting panel. A plug-in type mounting thus achieves a substantial economy in assembly costs.

The broad general concept of a plug-in type mounting, is of course, not new, but such mountings heretofore available for this purpose lacked the desired stability, and for this reason were objectionable to radio and television set manufacturers. This was especially true in the case of controls having relatively long operating shafts projecting through the mounting panel, for in such instances, any angular movement or freedom of the control permitted by the mounting, results in considerable lateral displacement of the knob on the end of the shaft, and creates a very definite and objectionable sense of looseness.

It is therefore, an object of this invention to provide a control of the character described, with a plug-in or snap-in type mounting which will hold the control more solidly than attaching means of this type heretofore available.

Another object of this invention is to provide a control of the character described with a plug-in type mounting which will secure the desired firm attachment for the control regardless of the thickness of the mounting panel within a relatively wide range.

In controls of the type with which this invention is concerned, it is customary to house the control instrumentalities in an enclosure formed jointly by a stamped cup-shaped metal cover and a disc of insulating material closing the open end of the cover; and it is also conventional to provide such controls with a mounting plate overlying the front of the insulating disc and provided with means by which the control may be secured to a panel. The specific plug-in or snap-in mounting of this invention is carried by and forms part of such a mounting plate.

To secure the desired stability in the mounting of the control, it is therefore important that the mounting plate be solidly and firmly secured to the rest of the control. Any looseness in the securement of the mounting plate to the control proper would result in an objectionable side play of the shaft. It is also of utmost importance that the means by which the mounting plate, insulating disc, and metal cover are held assembled, be able to withstand any impact that might be imparted to the projecting shaft.

Heretofore it has been customary to hold these parts assembled by fastening tangs extended from the front edge of the cover, across the periphery of the disc and

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mounting plate and then simply folded over the front face of the mounting plate. Experience has demonstrated that this manner of holding these parts assembled does not afford the desired rigidity and is not capable of withstanding impacts or blows often applied to the end of the control shaft during assembly of the radio or television set.

With these objections to past and existing structures of this type in mind, it is another object of this invention to provide an improved manner of holding the mounting plate to the rest of the control, and wherein the same means not only assures the desired rigidity in the mounting for the plate, but in addition assures against disassembly of the housing parts by any impact that might be imparted to the end of the operating shaft.

With a view toward simplifying and generally improving the construction of controls of this type, and with particular reference to the mounting therefor, it is another object of this invention to utilize the connecting means by which the mounting plate is secured in place to provide solid abutments projecting forwardly from the control for engagement with the rear of the panel upon which the control is mounted and thereby positively define the minimum clearance between the front of the control and the panel.

With the above and other objects in view, which will appear as the description proceeds, this invention resides in the novel method and construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate several complete examples of the physical embodiments of the invention constructed according to the best modes so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a longitudinal sectional view through a variable resistor equipped with the snap-in attaching means of this invention and illustrating the control mounted upon a panel;

Figure 2 is a perspective view of the front aspect of the control shown in Figure 1, but detached from the panel;

Figure 3 is a top view of a control provided with a slightly modified embodiment of this invention and illustrating the same secured to a panel;

Figure 4 is a perspective view of the control shown in Figure 3 taken from the front;

Figure 5 is a top view similar to Figure 3 illustrating another embodiment of this invention;

Figure 6 is a front perspective view of the control shown in Figure 5;

Figure 7 is a top view of a variable resistor illustrating still another embodiment of this invention;

Figure 8 is a front perspective view of the control shown in Figure 7;

Figure 9 is a sectional view taken through Figure 8 on the plane of the line 9—9; and

Figure 10 is a sectional view similar to Figure 9 but showing a variation of the structure there illustrated.

Referring to the accompanying drawings, the numeral 5 designates generally a variable resistor of the type used in radio and television apparatus. In accordance with this invention, the control 5 is provided with a novel plug-in or snap-in mounting means by which it may be quickly and easily secured to a mounting panel 6 which may be the front or rear wall of a television or radio receiver chassis. This plug-in or snap-in mounting constitutes the main feature of this invention, and will be fully described hereinafter.

As is customary, the variable resistor 5 comprises a stator 7 and a rotor 8 adjustable by means of an operating shaft 9. A housing formed jointly by a disc 10 of insulating material and a stamped metal cup-shaped cover 11 encloses the instrumentalities of the control. The disc 10 and the cover 11 may be secured together by ears or tangs 12 extended from the front edge of the cup-shaped cover and folded over the disc and a mounting plate 13 overlying the front of the disc. The disc 10 serves as the base of the stator, and the plate 13, overlying the front of the disc as it does, constitutes the ground plate of the resistor and hence is a permanent part thereof.

The operating shaft 9 passes through aligned holes in the disc or base 10 and the mounting plate, and in that embodiment of the invention illustrated in Figures 1 and 2, the hole in the base is larger than the shaft and receives a flange 14 projecting from the marginal edge of the hole in the mounting plate. The flange 14 thus provides a bearing for the shaft. A similar bearing is provided by a flange 14' on the mounting plate 13' in the modification shown in Figures 7 and 8, but in this case the flange does not enter the hole in the base 10, but rather projects forwardly from the base. In the other modifications of the invention shown in Figures 3 to 6 inclusive, the shaft is journaled directly in the hole in the disc or base without the additional support of a flange on the attaching plate.

In all of the disclosed embodiments of the invention, the stator 7 includes a flat annular resistance element 15 mounted on the back of the base 10, and the rotor 8 comprises a contactor 16 having resilient paddles or fingers riding upon the resistance element and a collector ring 17. The contactor is carried by an insulated driving disc 18 which is firmly and non-rotatably secured to the operating shaft as by being clinched between a shoulder 19 on the shaft and a combined stop plate and thrust washer 20, held in place by swedged shaft portions 21.

The combined thrust washer and stop plate 20 has circumferentially spaced flange portions 22 which ride upon a smooth bearing surface 23 supported on the adjacent rear wall of the cover 11 to carry the rearward end thrust imposed upon the rotor by the resilient contact fingers of the rotor. A stop lug on the plate 20 cooperates with a stationary stop abutment (neither of which are shown) to define the limits of rotation of the rotor.

The snap-in or plug-in mounting which constitutes the main feature of this invention comprises a pair of diametrically opposite mounting ears 24 integral with and projecting forwardly from the mounting plate 13. The outer end portions of these ears 24 are sheared and bent to provide tabs or barbs 25 disposed at an angle to the inner portions of the mounting ears, that is those portions of the ears adjacent to the mounting plate, the inclination of the tabs or barbs being such that they converge toward one another. The abutments formed by the rear ends 26 of these tabs or barbs thus lie beyond the outer faces of the ears 24 and face the plane of the base 10 from which they are spaced the same distance.

In mounting the control upon the panel 6 the mounting ears are inserted into holes 27 in the panel 6 until the tabs or barbs 25 snap over the edges of the holes. This prevents withdrawal of the control from the panel except by deflection of the ears toward one another. To enable this simple and quick attachment of the control to the panel, it is of course to be understood that the ears 24 have sufficient resilience to permit them to be flexed, and the holes 27 must be so located that the distance between their remote edges is substantially equal to the distance between the outer faces of the two ears 24 when in their normal free positions. Also the holes 27 must be large enough to accommodate the needed flexure of the mounting ears from their normal free positions as the tabs or barbs pass through the holes and snap over the edges of the holes.

In the embodiment of the invention illustrated in

Figures 1 and 2, the mounting plate 13 has four forwardly projecting spring fingers 28 to engage the rear face of the panel 6 when the control is in position thereon. During the attachment of the control to the panel these spring fingers are placed under tension so as to draw the rearwardly facing ends of the tabs 25 firmly against the front face of the panel. The mounting plate 13 also has three forwardly projecting feet 29 of a height to be normally clear of the rear face of the panel but to engage the same if the control shaft is tilted slightly from its proper position. The feet 29 thus limit possible rocking or tilting of the control and its shaft to an inconsequential minimum. The feet 29 also guard against undue flexure of the spring fingers 28 during attachment of the control to the panel and prevent grounding of the terminal portions of the control which are exposed at the front of the base.

In order that the snap-in or plug-in mounting may accommodate different panel thicknesses, the difference between the height of the feet 29 and the distance between the front of the control and the level of the rearwardly facing ends or extremities of the tabs or barbs 25 must be slightly greater than the maximum thickness of the panel for which the mounting is designed.

If desired, the spring fingers and the supporting feet may be arranged to cooperate in the manner illustrated in Figures 3 and 4. In this case there are only two spring fingers 28' both lying at the same side of the axis of the control and at one side of the diametrical plane passing through the snap-in mounting ears. At the opposite edge of the mounting plate, there are two supporting feet 29', each substantially opposite one of the spring fingers 28' but longer than the abutments or supporting feet 29 of the previously described construction. Hence when the unit shown in Figures 3 and 4 is mounted in position, the supporting feet 29' as well as the spring fingers 28' bear against the back of the panel. A somewhat shorter supporting lug 30 projecting forwardly from the mounting plate between the spring fingers 28' serves to limit rocking movement of the control and also prevents undue flexure of the spring fingers 28'. In other respects the construction shown in Figures 3 and 4 is similar to that of Figures 1 and 2.

In the embodiment of the invention illustrated in Figures 5 and 6, the resilient means by which the control is urged rearwardly away from the panel and the tabs or barbs 25 are drawn tightly against the front face of the panel comprises a pair of diametrically opposite outwardly facing spring blades or fingers 31 formed integrally with the mounting plate 13 and passing through openings 32 in the mounting ears. The free ends of these spring fingers or blades bear against the rear face of the panel radially outwardly of the attaching ears and thus tightly draw the barbs 25 against the front of the panel. As in the construction shown in Figures 1 and 2, the embodiment of the invention shown in Figures 5 and 6 includes forwardly projecting supporting feet or lugs 33 on the mounting plate to engage the panel and limit possible rocking or tilting of the control as well as to preclude undue flexure of the spring fingers or blades 31.

As will be readily appreciated from the description thus far, the stability of the mounting depends upon the plate 13 being rigidly and solidly secured to and held against any possible displacement from the control. Under ordinary circumstances the conventional manner of using bent-over tangs or ears may be sufficient for this purpose, but more positive assurance against looseness in the securing of the mounting plate is obtained by the constructions illustrated in Figures 7 to 9 and 10. In the first of these two schemes the mounting plate has a tongue 35 directly adjacent to each of the tangs or ears 12' and the tangs or ears are rolled or hooked over these tongues as clearly shown in Figure 9 with the end portions of the tangs disposed rearwardly of their medial rolled-over portions and lying flat against the front face

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of the mounting plate. With this arrangement the tangs 12' are better able to resist forces tending to separate the base 10 from the cover 11.

An alternate, though slightly less effective adaptation of this manner of achieving greater strength in the securing of the parts is that illustrated in Figure 10, where instead of upstanding tongues on the edges of the mounting plate, holes 36 are formed therein close to its edges and in line with the tangs 12' to receive the end portions thereof. In effect, therefore, even in this construction the tangs are hooked over parts of the mounting plate.

The constructions of Figures 9 and 10 have the added advantage of providing widely spaced supporting feet for the front of the control and thus obviate the need for the sheared-out and upturned feet 29. This follows from the fact that the rolled-over portions 37 of the tangs 12' project a substantial distance forwardly of the front face of the control.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in this art that this invention provides a very convenient snap-in or plug-in mounting for a variable resistor and that because of its unprecedented stability, it effectively overcomes the faults of snap-in type fastening devices heretofore available for the mounting of controls of this character. Also, as will no doubt be appreciated, the exceptional stability provided by the invention results from the fact that the mounting fingers by which the unit is secured to the panel are spaced a substantial distance out from the axis of the control—in fact are located at the very outer edge of the control; and that the elements of the mounting cooperate to hold the control on the panel so securely that any normal lateral force applied to the end of the operating shaft is successfully resisted, while abnormally strong side thrusts imposed upon the end of the operating shaft succeed only in engaging one or more of the supporting feet 29 or their equivalent with the panel to thereby limit rocking or tilting of the control and its shaft to an inconsequential minimum.

What we claim as our invention is:

1. In a variable resistor having an operating shaft projecting from the front thereof, a snap-in mounting to secure the resistor to the back of a panel with its operating shaft accessible from the front of the panel, comprising: a stamped metal plate rigidly fixed to the front of the resistor as a permanent part thereof, said plate having a shaft hole therein; resilient mounting ears extending forwardly from said plate at a substantial distance radially out from the shaft hole to project through holes in a panel upon which the resistor is to be mounted, and thereby secure the resistor against rotation about the shaft axis; tabs sheared from the mounting ears with the ends of the tabs facing said plate, said tabs being disposed at an angle to the portions of the mounting ears nearest the plate so that the rear ends of the tabs are spaced from the adjacent faces of the ears to snap over the edges of the holes in the panel as the mounting ears are inserted into the holes, providing the holes are so located that said edges thereof are engaged by the faces of the ears from which the rear ends of the tabs are spaced; the resilience of the mounting ears permitting flexure thereof as the tabs snap over the edges of the holes in the panel; and spring fingers projecting forwardly from the plate to bear against the rear face of the panel and yieldingly force the resistor rearwardly away from the panel to thereby draw the ends of the sheared tabs firmly against the front of the panel.

2. In a panel mounting type control for radio and television apparatus having an operating shaft, a snap-in mounting to secure the control to the back of a panel with the shaft of the control substantially perpendicular to the panel, comprising: a stamped metal mounting plate rigidly secured to the front of the control as a permanent

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part thereof, said plate being substantially perpendicular to the shaft axis; widely spaced resilient mounting ears projecting substantially perpendicularly forwardly from the mounting plate to project through appropriately located holes in a panel when the control is positioned thereon, each of said ears having an inner face facing the shaft axis and an outer face facing away from the shaft axis; a barb on each of said mounting ears projecting, in each instance, from the same face of the ear, the ends of the barbs facing rearwardly toward the control and being spaced therefrom a distance greater than the maximum thickness of the panel for which the mounting is designed so as to snap over the edges of the holes in the panel at the front face thereof when the control is positioned on the panel with its mounting ears passing forwardly through the holes, providing the holes are so located that said edges thereof are engaged by the faces of the ears from which the barbs project; the resilience of the mounting ears permitting flexure thereof as the barbs pass through the holes and snap over the front edges thereof during mounting of the control upon the panel; and spring means at the front of the control projecting forwardly therefrom to engage the rear face of the panel and yieldingly draw the ends of the barbs firmly against the front of the panel.

3. The structure set forth in claim 2 wherein said spring means at the front of the control comprises resilient fingers formed up from the mounting plate and projecting forwardly therefrom.

4. The structure set forth in claim 2 further characterized by the provision of solid abutments projecting forwardly from the front of the control, the height of said abutments being less than the distance said spring means projects from the front of the control, and the difference between the height of said abutments and the distance between the front of the control and the level of the rearwardly facing ends of the barbs being slightly greater than the maximum thickness of the panel for which the mounting is designed so that said abutments are engageable with the rear face of the panel to limit possible angular displacement of the control to an inconsequential minimum.

5. In a panel mounting type control for radio and television apparatus having an operating shaft projecting from the front of the control, a snap-in mounting for the control comprising: a stamped metal ground and mounting plate rigidly secured to the front of the control to form a permanent part of the control, said plate extending diametrically across the front of the control and having the operating shaft passing therethrough; mounting ears projecting forwardly from the diametrically opposite extremities of the mounting plate to pass through appropriately located holes in a panel upon the back of which the control is to be mounted with its operating shaft accessible from the front of the panel, said mounting ears being flat and when free lying in planes normal to a plane containing the shaft axis and bisecting the mounting ears so that the ears have inner faces facing the shaft axis and outer faces facing away from the shaft axis, and said mounting ears being resiliently yieldable toward and from the shaft axis; spring means on the stamped metal mounting plate to engage the rear face of the panel and urge the control rearwardly of the panel and thereby tend to withdraw the mounting ears from their respective holes in the panel; and a barb on each mounting ear displaced out of the plane thereof with its end, in each instance, spaced from the same face of the ear and facing rearwardly to engage over the edges of the holes at the front face of the panel and prevent rearward displacement of the control from the panel by said spring means upon projection of the mounting ears through said holes, providing that the holes are so located that said edges thereof are engaged by the faces of the mounting ears from which the barbs are spaced, the displacement of the barbs out of the planes of the mounting ears causing the mount-

ing ears to flex out of their normal free positions as the ears pass through the holes in the panel and to return to their normal positions as the barbs snap over the edges of the holes.

6. In a panel mounting type control for radio and television apparatus having an operating shaft exposed at the front of the control, a snap-in mounting for the control comprising: a stamped metal ground and mounting plate rigidly secured to the front of the control to form a permanent part of the control, said plate extending diametrically across the front of the control and having a hole for the operating shaft; mounting ears struck up from the extremities of said plate substantially perpendicularly to the plate at opposite sides of the shaft and facing forwardly substantially parallel with the shaft axis, said ears being resiliently yieldable towards and from the shaft axis, the outer end portion of each mounting ear being inclined out of the plane of the remainder thereof so as to provide a cam surface, the inclination of the outer end portions of the two mounting ears being opposite to one another so that upon entry of the mounting ears into appropriately spaced holes in a panel upon which the control is to be mounted, the mounting ears will be deflected from their normal free positions providing the holes are so spaced that edges thereof are engaged by said cam surfaces; a tab sheared out of each mounting ear and lying substantially in the plane of its inclined outer end portion, the sheared ends of the tabs projecting barbwisely away from the adjacent faces of the mounting ears and facing rearwardly to snap over said edges of the holes in the panel upon projection of the mounting ears far enough into the holes; and means on the stamped metal mounting plate including spring fingers formed integrally therewith to bear against the rear face of the panel and draw the barb-like ends of the tabs firmly against the front face of the panel.

7. The structure set forth in claim 6 further characterized by the provision of rigid supporting feet structure forwardly from the mounting plate to positively define the minimum spacing between the control and a panel on which it is mounted.

8. The structure set forth in claim 7 further characterized by the fact that certain of said supporting feet are longer than others so as to engage the rear face of the panel and to coact with the spring fingers in holding the control in place.

9. In a panel mounting type control for radio and television apparatus, the snap-in mounting of claim 2 further characterized by the fact that: the securement of the mounting plate to the front of the control comprises spaced apart portions on the mounting plate defined from the remainder thereof in a manner allowing fastening tangs to be rolled thereover; and fastening tangs extended from the front of the control and rolled over and around said portions on the mounting plate with the extremities of said tangs disposed rearwardly of their rolled over portions so that the rolled over portion of each tang is spaced further from the control and the front of the mounting plate than the extremity of the tang.

10. The structure set forth in claim 9 further characterized by the fact that: the foremost surfaces of the rolled over portions of the fastening tangs all lie in a plane substantially normal to the shaft axis and rearwardly of the ends of the barbs a distance greater than the thickness of the panel for which the mounting is designed, to provide solid abutments to bear against the rear face of the panel and limit possible angular displacement of the control to an inconsequential minimum.

11. The structure of claim 9 wherein said portions on the mounting plate over and around which the fastening tangs of the control are rolled, are raised above the front face of the mounting plate.

12. The structure of claim 9 wherein said portions on the mounting plate over and around which the fastening

tangs of the control are rolled, are tongues bent up from the edge of the mounting plate.

13. The structure of claim 9 wherein said portions on the mounting plate over and around which the fastening tangs of the control are rolled are edge portions of the mounting plate defined from the remainder thereof by holes in the mounting plate; and wherein the extremities of the fastening tangs are disposed in said holes.

14. In a control of the character described wherein the instrumentalities of the control are housed within an enclosure comprising a cup-shaped metal cover and a flat disc of insulating material closing the open end of the cover, and wherein an operating shaft extends through the disc and protrudes from the front of the control: a mounting plate overlying the front of the disc; means on said mounting plate for securing the control to a panel with its shaft projecting through the panel; and means for securing the cover, the insulating disc, and the mounting plate properly assembled in a manner assuring against disassembly of said parts by any impact which might be imparted to the shaft, said securing means comprising portions on the mounting plate defined from the remainder thereof in a manner allowing fastening tangs to be rolled thereover, and fastening tangs extended from the front edge of the cover across the periphery of the disc and rolled over and around said portions of the mounting plate with the extremities of said tangs disposed rearwardly of their rolled-over portions so that the medial part of each tang is spaced from the front of the mounting plate a distance greater than the extremity of the tang.

15. The structure of claim 14 wherein said portions on the mounting plate over and around which the fastening tangs of the control are rolled, are raised above the front face of the mounting plate.

16. The structure of claim 14 wherein said portions on the mounting plate over and around which the fastening tangs of the control are rolled, are tongues bent up from the edge of the mounting plate.

17. The structure of claim 14 wherein said portions on the mounting plate over and around which the fastening tangs of the control are rolled are edge portions of the mounting plate defined from the remainder thereof by holes in the mounting plate; and wherein the extremities of the fastening tangs are disposed in said holes.

18. In a panel mounting type control for radio and television apparatus, the snap-in mounting set forth in claim 2 further characterized by the fact that: said spring means which draws the ends of the barbs against the front of the panel comprises spring fingers sheared from the mounting plate and extending through the mounting ears.

19. In a panel mounting type control for radio and television apparatus, the snap-in mounting of claim 20 further characterized by the fact that: the spring means by which the ends of the barbs are drawn against the front of the panel comprises spring fingers sheared from the mounting plate and the mounting ears and extending in opposite directions through and beyond the outer faces of the mounting ears.

20. In a panel mounting type control for radio and television apparatus having an operating shaft, the snap-in mounting for the control set forth in claim 2 further characterized by the fact that: the stamped metal mounting plate extends diametrically across the front of the control and has a shaft hole medially of its diametrically opposite ends; and by the fact that the mounting ears are on the opposite extremities of the mounting plate and the barbs project out from the outer faces of the mounting ears.

21. In a variable resistor having an operating shaft projecting from the front end thereof, a snap-in mounting to secure the resistor to the back of a panel with its operating shaft accessible from the front of the panel, comprising: a stamped metal ground and mounting plate fixed to the front of the resistor, said plate having a shaft hole therein; resilient mounting ears extending for-

wardly from said plate at a substantial distance radially out from the shaft hole to project through holes in a panel upon which the resistor is to be mounted, and thereby secure the resistor against rotation about the shaft axis; rearwardly facing abutments on the mounting ears spaced forwardly of the front of the control a distance greater than the maximum thickness of the panel for which the mounting is designed so as to be engageable over edges of the holes in the panel at the front face thereof when the control is positioned on the panel with its mounting ears passing forwardly through the holes; the front end portions of the ears being oppositely inclined out of the planes of the remainders thereof to provide cam surfaces engageable with edges of the holes as the ears are inserted into the holes to thereby flex the ears flatwise out of their normal free positions and enable the abutments thereon to move past the edges of the holes over which they engage, the resilience of the mounting ears permitting such flexure thereof as the ears move into the holes and causing the abutments to snap over the adjacent edges of the holes in the panel as said abutments clear the front face of the panel; and spring fingers projecting forwardly from the stamped metal ground and mounting plate to bear against the rear face of the panel and yieldingly force the resistor

rearwardly away from the panel to thereby draw the abutments firmly against the front of the panel.

22. In a panel mounting type control for radio and television apparatus, the snap-in mounting for the control set forth in claim 21 further characterized by the fact that: the stamped metal ground and mounting plate has a flat main portion overlying the front of the control and extending diametrically thereacross with its shaft hole located medially of its diametrically opposite ends; by the fact that resilient mounting ears are on the diametrically opposite extremities of the mounting plate; and by the fact that the spring fingers project in equal number from the opposite edges of the main flat portion of the ground and mounting plate, and have their outer extremities substantially equispaced from the shaft axis.

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