April 28, 1931. W. M. HEINA 1,802,345

PORTABLE RADIO APPARATUS

Filed Feb. 9 1928

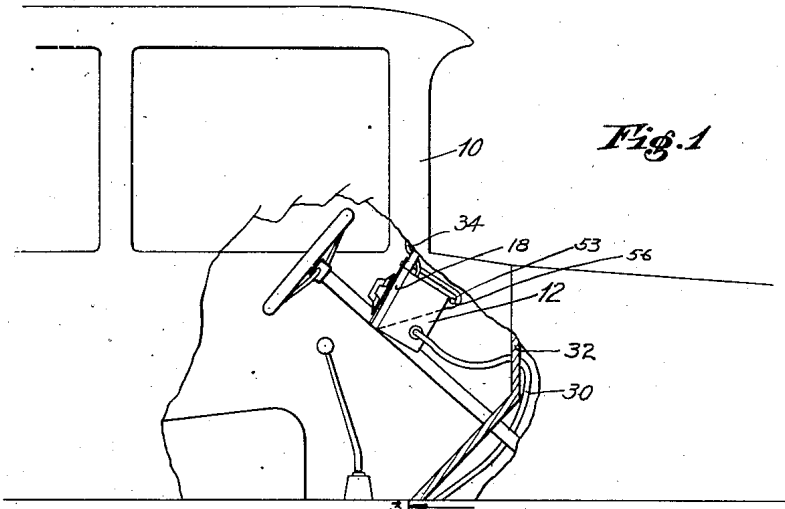

Fig. 1

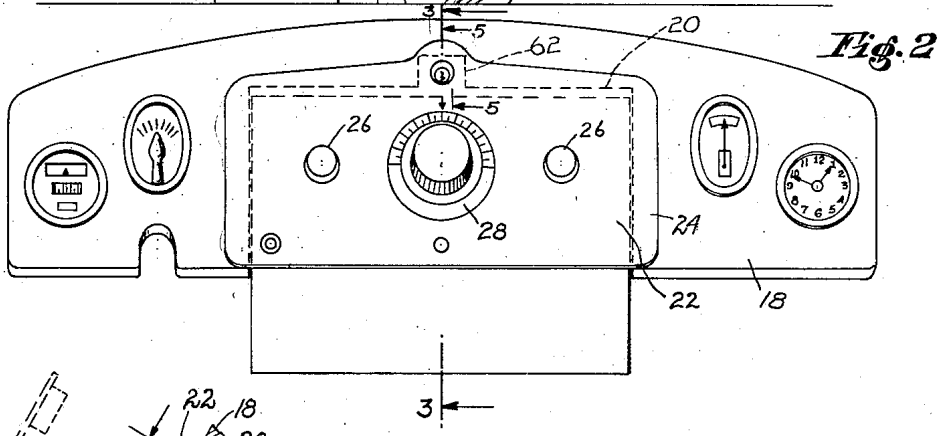

Fig. 2

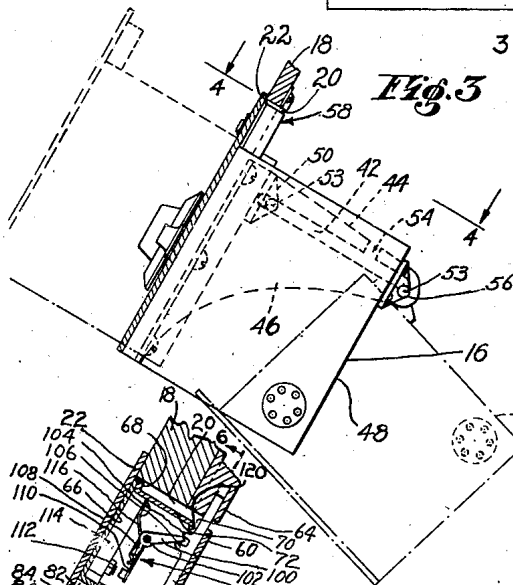

Fig. 3

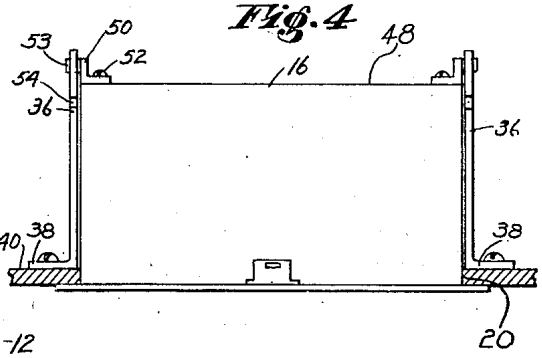

Fig. 4

Fig. 5

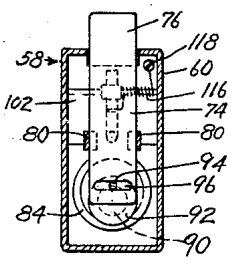

Fig. 6

INVENTOR
William M. Heina
BY
ATTORNEY

Patented Apr. 28, 1931 1,802,345

UNITED STATES PATENT OFFICE

WILLIAM M. HEINA, OF LONG ISLAND CITY, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO TRANSITONE AUTOMOBILE RADIO CORPORATION, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE

PORTABLE RADIO APPARATUS

Application filed February 9, 1928. Serial No. 253,012.

This invention relates to portable radio apparatus.

One object of this invention is to provide an improved portable radio apparatus, adapted to be mounted on motor vehicles, or other portable structures, in which a receiving set is mounted in swingable relation on some convenient support on said vehicle to permit the receiving set to be readily removed therefrom, or to be conveniently and reliably mounted therein.

Another object of the invention is to provide improved practical means for removably, but firmly, positioning a cabinet of any desirable sort, herein shown as a cabinet housing a radio set, on any convenient support of a portable vehicle of any particular kind, herein shown as the dashboard of a motor vehicle.

A further object of the invention is to provide a mounting of the character described in which the cabinet is mounted for sliding movement in and out of the support to permit inspection or repair of the radio set.

A further object of this invention is to provide a portable cabinet, mounted in an improved manner in an opening in a motor vehicle dashboard, or suitable supporting wall thereof, for swinging and translatory movement to provide accessibility to the interior of the radio set and to the space in back of the dashboard with the radio set retained by its supporting means or to be readily completely moved from its supporting means, and to be conveniently and reliably replaced and retained in its mounted position in useful and ornamental relation with the dashboard.

A further object of this invention is to provide a cabinet or radio apparatus of the character set forth, in which a conveniently accessible securing means retains the cabinet or receiving set in its usual operating position.

A further object of this invention is to provide a radio apparatus having a demountable receiving set, and a locking device to retain said receiving set in mounted position, in which said locking device is operative to break the circuit of said radio receiving set when the set may be removed from its mounting, and to permit the circuit to be either made or broken when the set is locked in position.

A still further object of this invention is to provide a portable radio apparatus, as set forth, comprising few and simple parts, inexpensive to manufacture, and yet efficient in use to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a view in side elevation of a motor vehicle, parts being broken away to show the method of incorporating the invention therein.

Fig. 2 is a view in front elevation of the dashboard of said motor vehicle, illustrating its appearance with the invention associated therewith.

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2, parts being shown in elevation illustrating the various positions to which the radio set, here shown as embodying the invention, may be moved.

Fig. 4 is a sectional view of the assembly, as seen from line 4—4 of Fig. 3.

Fig. 5 is a detail vertical sectional view of a combined locking and switching device, as

assembled with the dashboard and radio set, cut on line 5—5 of Fig. 2.

Fig. 6 is a detail sectional view of said device, taken on line 6—6 of Fig. 5.

Referring in detail to the drawing, a vehicle, here shown as a motor vehicle 10, has associated therewith a radio apparatus housed in the cabinet 12. The latter may be conveniently and reliably mounted for operation by the operator of the motor vehicle in the dashboard 18 of said motor vehicle, in a neat and ornamental relation. However, it is to be understood that the invention may be applied in connection with any type of radio set, or with various kinds of apparatus and mountings that may advantageously embody the improvements herein disclosed.

The cabinet casing 16 for the receiving set extends behind the dashboard 18 through an opening 20 therein, said opening being closed by a panel 22 forming the front of the cabinet 12, the panel 22 having edge portions or flanges 24 which seal the space between said casing and opening 20 and which seat against the outer edge surfaces of the opening 20, this arrangement, by reason of the inclination of the dash board 18, permitting the radio set 12 to be firmly supported on the dashboard 18. The usual operating knobs 26 and indicator dials 28 are mounted on the panel 22. A cable 30 extending forward through a front wall 32 of the vehicle may have associated therewith suitable means to connect the receiving set to suitable sources of power for its proper operation. A conductor 34 may connect the receiving set to an antenna (not shown). Said antenna may be of any desired type, as, for instance, the arrangements shown and described in my application, Serial No. 224,159, filed October 5, 1927. The cable 30 and the conductor 34 may be connected to the receiving set in any suitable manner. If desired, the connection may be made permanent; preferably the connection will be made by multiple contact cap and plug members.

The cabinet casing 16 is mounted for sliding movement through the opening 20 of the dashboard 18, the latter being provided with a pair of spaced angle brackets 36, secured by means of the bracket legs 38 to the inner face 40 of the dashboard 18, the set being positioned between said brackets. Each bracket 36 has a slot 42 extending rearwardly of the dashboard 20 in the upper portion of the bracket rib 46, the central axis of said slot being substantially perpendicular to the plane of the dashboard.

On the rear face 48 of the casing 16 adjacent side edges of said casing are mounted a pair of carrier arms 50, secured to said face by any suitable fastening means 52. Oppositely extending carrier arms or trunnion pins 53, projecting laterally from arms 50, are received in the slots 42, openings 54 formed in the upper edge 44 of brackets 36, and communicating with said slots, affording means for removably mounting said pins in said slots. Said pins and slots are so disposed as to maintain proper alinement of the casing 16 with the dashboard opening 20. Said slots 42 slope downwardly away from the dashboard 20, pin receiving depressions or recesses 56 being provided at the rear ends of said slots for a purpose hereinafter appearing.

To assemble the radio set 12 with the dashboard 18, the pins 53 of the carrier arms 50 are first engaged in the slots 42 by passing them through the openings 54, after which the receiving set will be positioned with its panel board 22 facing downward, as shown in dot and dash lines in Fig. 3. The entire set is then pulled forward, with the panel 22 clearing the lower edge of dashboard 18, the pins 53 riding in the slots 42. When the panel 22 has completely passed the dashboard, the entire set is swung upwardly with pins 53 as pivots, into the position shown by the dash lines in Fig. 3. These movements are possible since the opening 20 is cut into dashboard 18 so as to open downwardly, the body of the casing 16 entering said opening, after which the pins 53 are moved down the incline of the slots 42 until the panel board 22 closes the opening 20. In this position, the dashboard forms an abutment for the panel board 22, preventing the set from swinging about pins 53, the latter being then positioned in the recesses 56 which thus assists in effectively retaining the set in its mounted position. The movements detailed above may be reversed and the set may be brought into either position shown in dash lines or dot and dash lines. Thus, the movements of the radio set from its mounted position provide accessibility to the interior of the radio set for inspection, repair or renewal of radio tubes and accessibility to the space in back of the dashboard in case of needed attention to dashboard instruments or other apparatus, without completely removing the radio set from its supporting means, i. e. with the radio set still retained by its supporting means. Or, the radio set may be readily completely detached from its supporting means.

To prevent unauthorized removal of the set and to fasten the set positively in position on the dashboard, a securing means or locking device 58 is provided. Said locking device is preferably positioned at the upper part of the cabinet and includes a casing 60, secured on the rear side of the panel board 22, a properly formed cutout 62 in the dashboard above the opening 20 being adapted to receive the casing 60, so that it is properly positioned relative to a strike 64 mounted on said dashboard. The casing 60 may be made of any suitable material, preferably

being formed as a metal stamping having a metallic cover plate 66, which may be spot-welded to the panel board 22. The casing 60 may be formed with flanges 68 for securing means to said plate 66. The casing 60 is further provided with an opening 70 through an end wall 72 thereof, through which a bolt 74 is movable to engage the strike 64. Preferably the bolt 74 has a shank 76 slidable on the wall 78 of the casing opposite the plate 66, said wall having guide lugs 80 to retain the shank 76 for slidable movement therebetween.

To actuate the bolt 74, a tumbler lock 82 of any particular construction may be provided and may have a barrel 84 threaded into an annular flange 85 struck out of the plate 66 and retained thereagainst by a locknut 87. Within said barrel are mounted the operating elements of said lock, the face 86 of said barrel being provided with suitable key receiving means 88 by means of which a pin 90, having a crank arm 92 secured thereto and to the rotary parts of said lock, may be given a rotary movement. The crank arm 92 is mounted for rotation in a plane substantially parallel to the plane of the shank 76, and has a projecting crank pin 94 so mounted as to be received in a slot 96 transverse the shank 76. Since the pin 94 is mounted on crank arm 92 eccentrically with relation to the pin 90, when rotary movement is imparted to the pin 90, the pin 94 will reciprocate shank 76 longitudinally of the casing 60. It will now be apparent that when the bolt 74 is moved to engage the strike 64, the receiving set cannot be moved relative to the dashboard, and is consequently effectively retained in properly mounted, elevated position.

While the invention has thus far been described in connection with its application to a portable radio apparatus for auto vehicles, it will be understood that the cabinet construction and its mounting may be equally employed or adapted for housing other apparatus or implements, such as tools for the vehicle and the like. The cabinet in that instance, while arranged in relation to the dashboard of the vehicle in the manner above described, will have a particular desired construction so as to serve as a tool chest or the like.

To provide the locking device 58 with automatic and semi-automatic circuits for switching the circuit or circuits of the receiving set to disconnect the latter from circuit when it is desired to remove the set from its mounting, or to connect or disconnect the receiving set, at the option of the operator, when the set is locked in place, switch means 98 is provided, preferably within the lock casing 60, and controlled by the arm 100, which may be actuated by the shank 76. The arm 100 may be mounted for pivotal movement on a shaft 102 carried transverse the casing 60, so that the free end of said arm barely clears the upper surface of the shank 76 and is engaged between the nubs 104 and 106, so as to be swung through a predetermined angle when the bolt 74 is projected or retracted. The arm 100 is formed at its pivoted end with a finger 108 having secured thereto a spring contact 110, extending from said finger so that, when the bolt 74 is partially retracted a predetermined amount from its extended position within the strike 64, said arm 100 will be rotated in clockwise direction to cause the free end of said spring contact 110 to be brought into contact with a terminal 112 fixed on an insulating block 114 to close a circuit through the receiving set. Said block 114 may be secured to the rear face of the plate 66 in any suitable manner to position the terminal 112 relative to the end of the contact spring 110, the terminal 112 being connected by any suitable means (not shown) to the receiving set. When the bolt 74 is fully retracted to release the set for removal from the dash board, the nub 104 will pass and release the end of the arm 100, whereupon the spring 116, coiled around the shaft 102 and having its ends secured respectively to the finger 108 on the arm 100 and to a securing means 118, which functions as one terminal of the switch and is located on the block 114, will throw said arm in counterclockwise diretion so that the circuit will be broken. The spring 116, while normally separating the contact spring 110 and the terminal 112, retains the arm 100 in operative position for proper action with the nubs 104 and 106, when the bolt 74 is again moved from its retracted position, the spring 116 being of such elasticity that the arm 100 will readily respond to motion when engaged by said nubs.

If the bolt 74 is fully projected, the nub 104 easily passes the end of the arm 100 against the resistance of the spring 116, finally abutting the stop or lip 120 formed by the opening 70 in the casing 60, the arm 100 being then engaged between the nubs 104 and 106, and the circuit maintained broken until further actuation of the bolt 74.

Thus, a full projection or a full retraction of the bolt 74 disconnects the radio set from the circuit, and a partial retraction of said bolt from its full projected position connects the set into the circuit, this arrangement being desirable since the operator is enabled to connect or disconnect the radio set at will with the set locked in position at all times, and he may leave the vehicle with the set operating but insured against tampering. Also, the operator is enabled to automatically disconnect the radio set from its circuit when he desires to remove the set from its mounted position for inspection or repair.

It will be understood that a plurality of contact springs 110 may be provided to take

care of a plurality of circuits, and to be actuated as a unit by the arm 100. Where but one circuit is to be controlled, the arm 100 and the finger 108 may be of metal in one piece, the casing 60 thereby providing a terminal for the circuit. Due to the sensitivity of the arm 110, the nubs 104, 106, may pass and repass the end of the arm 100, actuating the switch elements in the desired manner with ease and simplicity.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination with a dashboard of a vehicle having an opening therethrough, of a cabinet disposed in said opening and movable from and into said opening through the front and lower side of said opening, supporting means mounted behind the dashboard and having said cabinet movably mounted thereon, whereby the cabinet may be supported behind the dashboard when out of said opening, said supporting means permitting movement of the cabinet from behind the dashboard to the front thereof and into said opening, and conversely.

2. The combination with a dashboard of a vehicle having an opening therethrough, of a cabinet retained in said opening and movable from and into said opening through the front and lower side of said opening, supporting means mounted behind the dashboard, said cabinet being mounted on said supporting means, said supporting means permitting movement of the cabinet from behind the dashboard to the front thereof and into said opening and conversely, while being supported thereby, and laterally extending flanges on the front face portion of said cabinet to engage and overlap the edges of said opening, when in position in said opening.

3. In an apparatus of the character described, the combination with a member having an opening therein, of a cabinet removably retained in said opening and having portions for covering said opening, means for supporting the cabinet when out of said opening and during its movement into and out of said opening, said means permitting slidable movement of the cabinet relative to the axis of the opening and lateral swinging movement of the cabinet relative to said member.

4. In an apparatus of the character described, the combination with a member having an opening therein, of a cabinet removably retained in said opening, supporting means for the cabinet behind said member and having a guide extending rearwardly from said member, carrier arm means on said cabinet and slidably and pivotally engaging said guide whereby the cabinet may be slidably moved in said opening rearwardly and forwardly of said member and swung laterally into and out of said opening, while being so supported.

5. In an apparatus of the kind described, the combination with a substantially vertical member having an opening therein, of a cabinet removably extending in said opening, bracket means behind said member and extending laterally beyond said member, carrier members at the rear end portion of the cabinet swingably supporting said cabinet on said bracket means whereby the cabinet is swingably supported from one end portion and behind said member when out of said opening, means on the front portion of the cabinet engaging said member, whereby the cabinet is supported in said opening and closes the same.

6. In an apparatus of the kind described, the combination with a member having its front face inclined upwardly and rearwardly from its lower edge and having an opening therein extending from the bottom edge of said member upwardly for a distance, said opening also extending horizontally through said member, of a cabinet removably disposed in said opening, means hingedly supporting said cabinet remotely from and behind said member for swinging movement into and out of said opening through the bottom edge of said member, and a laterally extending abutment on the front face of the cabinet to engage and bear against the front face of said member, when the cabinet is in position, whereby the cabinet is held in position and against reversed swinging movement out of the opening.

7. In an apparatus of the kind described, the combination with a vertically inclined member having an opening therein, of a cabinet removably extending into said opening, brackets extending rearwardly beyond said member and having elongated guide slots therein extending laterally with respect to said member, trunnions at the rear end portion of said cabinet and swingably and slidably mounted in said guide slots, whereby the cabinet is swingably supported from one end portion and behind said member when out of said opening, said brackets each having an opening in its upper edge permitting said trunnions to be moved into and out of said guide slots, lateral flanges on the other end portion of said cabinet engaging and overlapping the edges of said opening in said

member when the cabinet is positioned in the opening, and a locking device engaging the cabinet and said member to prevent movement of the cabinet from said position.

8. In combination, a member having an opening therethrough, of a removable cabinet mounted in said opening, and means for retaining said cabinet in its mounted position, said means including supporting elements permitting sliding and swinging movement of the cabinet relative to said member, when moving said cabinet into and out of said opening, and for supporting said cabinet when out of said opening.

In testimony whereof I affix my signature.

WILLIAM M. HEINA.