Nov. 28, 1950 D. C. ROCKOLA 2,531,646

DOOR STRUCTURE

Filed Feb. 28, 1947 2 Sheets-Sheet 1

Fig. 1

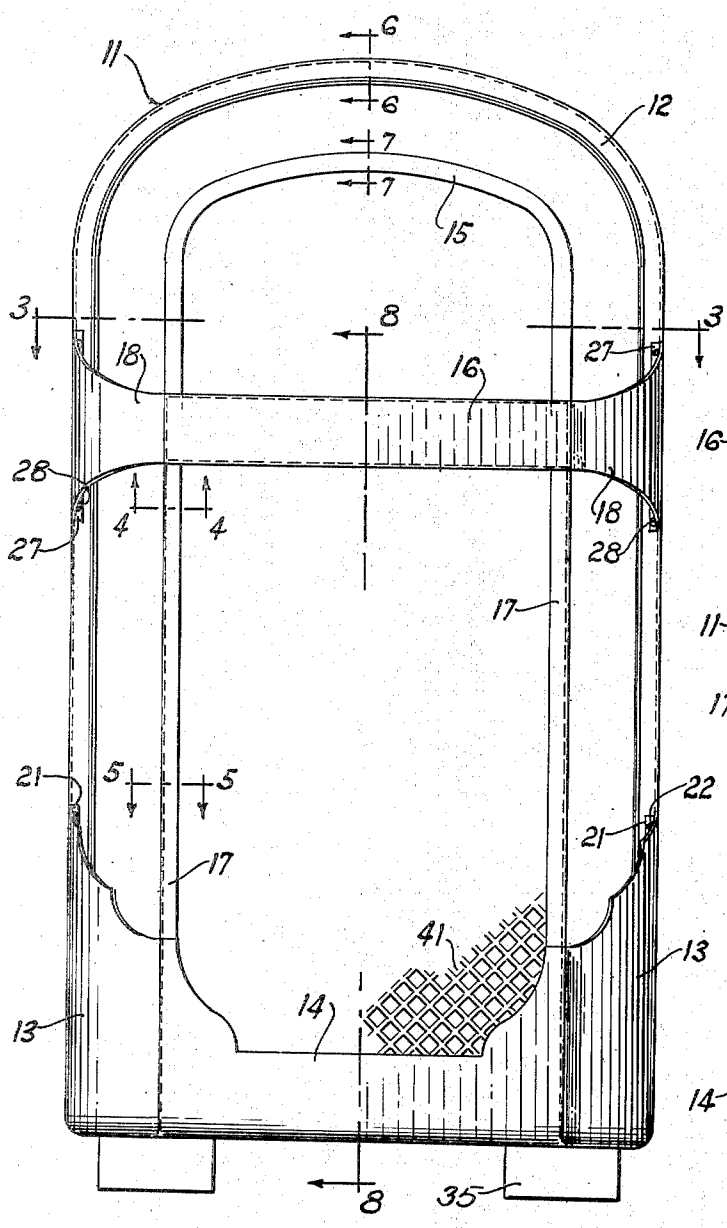
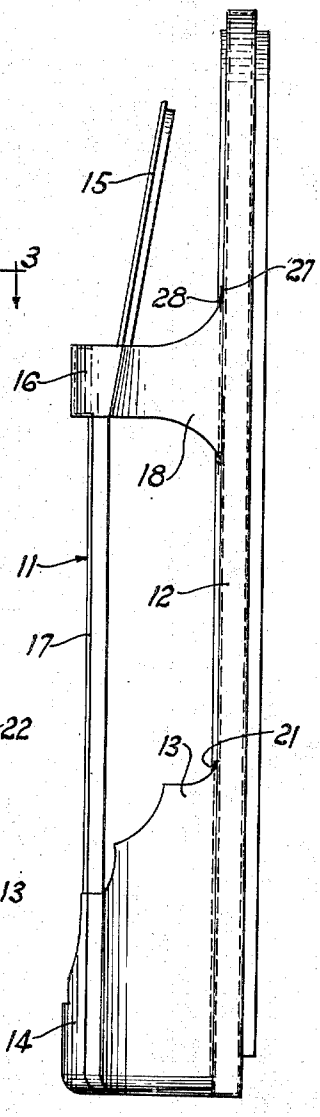


Fig. 2



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Fig. 3

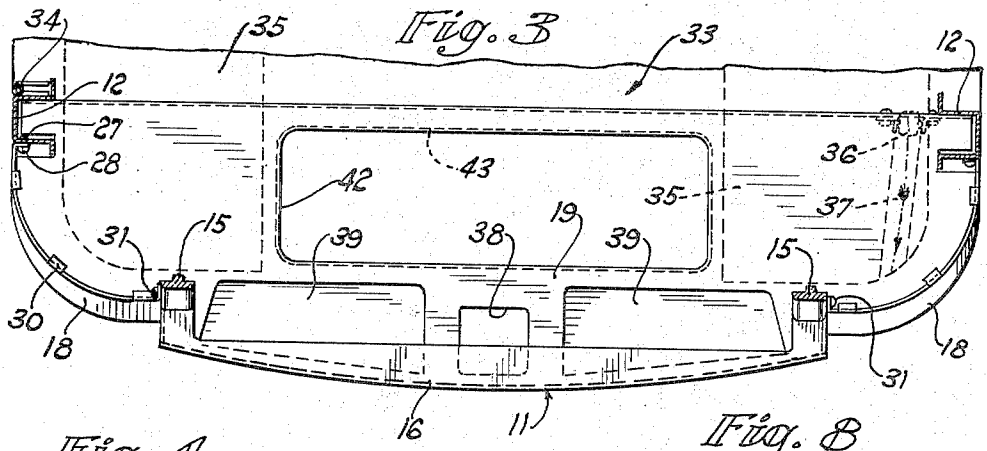


Fig. 4

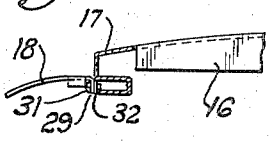


Fig. 5

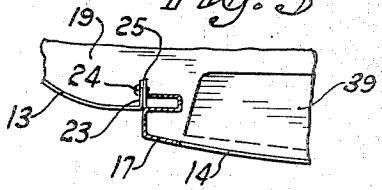


Fig. 6

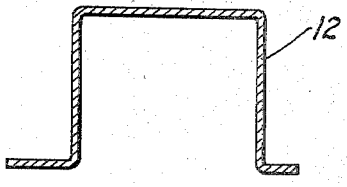


Fig. 7.

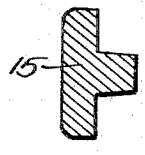


Fig. 9.

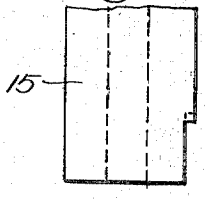
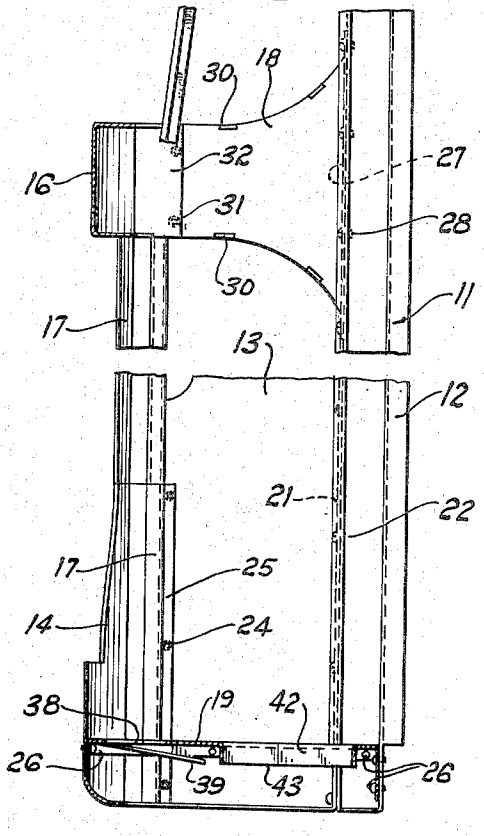


Fig. 8



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Patented Nov. 28, 1950

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UNITED STATES PATENT OFFICE

2,531,646

DOOR STRUCTURE

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Application February 28, 1947, Serial No. 731,492

10 Claims. (Cl. 312—189)

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This invention relates in general to cabinet construction, and more particularly to an improved door structure for the cabinet of an automatic phonograph.

A principal object of the invention is the provision of a door for an automatic phonograph cabinet which comprises a frame structure made throughout of relatively thin metal parts, formed primarily as sheet metal stampings, and so designed as to facilitate assembly thereof into a light weight, rigid construction of the desired shape and contours to match those of the phonograph cabinet upon which it is to be mounted, and which is capable of supporting therein some of the operating mechanism of the phonograph.

Another object of the invention is to provide such a sheet metal door frame, hinged at one side on a phonograph cabinet, with novel means for supporting the other side of the door, which is of particular importance in relieving the hinge means and frame of strain during movements of the door to and from open position and in guiding the door into proper engagement with the cabinet as it is swung into closed position.

A further object of the invention is the provision in such a door construction of a floor member having ventilation providing means, and outlet apertures for any foreign material forced through a front grill on the door, these apertures having means associated therewith for insuring sliding or rolling out of the door of any such foreign material so deposited therein and also for preventing access through the apertures to any operating mechanism carried by the door or disposed interiorly of the cabinet on which it is mounted to eliminate unauthorized tampering with such mechanism from the underside of the door.

Another object of the invention is to provide a metal door frame which is so designed to receive inserts of translucent plastic material for the decorative effects obtainable therewith as to reduce the costs of such plastic inserts in comparison with those previously employed in wooden door constructions by simplifying their shapes and installation.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, when taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

In the drawings:

Fig. 1 is a front elevation of a door frame embodying the features of the instant invention;

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Fig. 2 is a side elevational view of the door structure of Fig. 1;

Fig. 3 is a horizontal section taken substantially on the line 3—3 of Fig. 1 and showing part of the cabinet upon which the door is mounted in broken lines;

Figs. 4 and 5 are horizontal detail sections taken substantially, respectively, on the lines 4—4 and 5—5 of Fig. 1;

Figs. 6, 7, and 8 are detail vertical sections taken substantially on the lines 6—6, 7—7 and 8—8, respectively, of Fig. 1; and

Fig. 9 is a detail, fragmentary front view of the lower end of the right-hand leg portion of the upper member of the inner frame.

Referring more particularly to the drawings, reference numeral 11 indicates in general a door frame structure embodying the features of this invention made up of a plurality of thin metal parts and including an outer frame portion comprising a substantially U-shaped frame member 12, curved side panels 13 and a center panel 14, an inner frame comprising an upper U-shaped frame 15, a central rail 16 and side frame members 17, curved side panels 18 interconnecting the outer and inner frames, and a floor member 19.

As best seen in Figs. 3 and 6, the U-shaped outer frame member 12 is in the form of a channel having the leg portions thereof extending downwardly. The front legs of this frame member are secured at suitable points along the bottom portions thereof, to laterally extending flanges 21 provided on the curved side panels 13 by means of screws or bolts 22, as shown in Figs. 1 and 8. The front, inner ends of these curved side panels 13 are provided with rearwardly extending flanges 23 similarly secured by suitable screws or bolts 24 to a similar flange 25 on each end of the center panel 14, as best seen in Figs. 5 and 8. The floor member 19 is secured by means of screws or bolts 26 (Fig. 8) to the several members 12, 13 and 14.

The curved side panels 18 are each provided with a flange 27 at the rear end, similar to the flanges 21, which are secured by screws or bolts 28 to the front leg of the outer frame member 12, as shown in Figs. 1, 3 and 8. These curved side panels 18 are also provided with rearwardly extending flanges 29 at their inner ends which are secured by screws or bolts 31 (Figs. 3, 4 and 8) to associated, rearwardly extending flanges 32 at the ends of the central rail 16. The side frame

members 17, as seen in Figs. 4 and 5, comprise rails of substantially S-shape, the front legs of which abut against the lower edge of the central rail 16 and the upper edge of the central panel 14 at their upper and lower ends, respectively. The other legs of these side frame members or rails 17 preferably extend downwardly for the full depth of the center panel 14 (as shown in Fig. 8) for the stiffening effect obtained thereby, and these members 17 are welded, or otherwise suitably secured, to the center panel 14 and the central rail 16.

As shown in Fig. 8, the central rail 16 is formed as a channel member having the leg portions thereof horizontally disposed and extending rearwardly for the purpose of receiving parts of the operating mechanism (not shown) of an automatic phonograph, upon the cabinet of which the instant door structure is mounted. Such operating mechanism comprises a selector control unit similar to that disclosed in my co-pending application, Serial No. 681,459, filed July 5, 1946. Since such selector control mechanism includes manually operable members disposed forwardly of the inner U-shaped frame member 15, and a program holder mounted to the rear thereof so that a glass panel may be mounted in the frame 15 to extend between such program holder and selector control members, the frame member 15 is sloped rearwardly at a slight angle to the vertical, as best seen in Figs. 2 and 8. The lower ends of this U-shaped frame 15 are slightly recessed on their outer side surfaces to receive the end flanges 32 of the central rail 16. The outer vertical surfaces of the frame 15 are thus vertically aligned with the outer surfaces of the inner frame members 17. The lower ends of the U-shaped member 15 are welded or otherwise suitably secured to the central rail 16.

It will be understood that the several thin metal parts of this door frame structure 11 may all be welded together instead of being interconnected by means of the screws illustrated, if desired. Also, the members 15 and 17 may be formed as a unitary part, like the member 12, and the same may be done with the members 16 and 18, and for the members 13 and 14, although the arrangement herein illustrated is preferred.

With the above described arrangement, spaces are provided between the outer frame member 12 and the inner frame members 17, as best seen in Fig. 1, and between the curved panels 13 and 18, which are adapted to be filled by inserts comprising suitably curved panels of plastic material (not shown), the panels 13 and 18 having tabs 30 (Figs. 3 and 8) formed thereon for engagement with such plastic inserts. Likewise, the space between the U-shaped frame member 15 and the outer frame 12 is intended to be filled with similar plastic panel inserts. For this reason and to similarly receive the glass panel above mentioned, the frame member 15 is given the cross-sectional shape shown in Fig. 7.

The door frame structure 11 is adapted to be mounted upon an open front cabinet for an automatic phonograph, which is shown in part in broken lines at 33 in Fig. 3. The door comprising the frame structure 11 is mounted as a closure means for the open front end of the cabinet 33 by means of a suitable piano-type hinge 34 connected in well known manner between the cabinet and the rear wall of the left-hand leg portion of the outer frame member 12. The door is thus arranged to be swung forwardly about the vertical pivot provided at the left side thereof by the hinge 34. It will be understood that the shape of the outer frame member 12 is such as to conform to the vertical sectional shape of the top and sides of the cabinet 33 upon which it is mounted.

The cabinet 33 of the automatic phonograph is mounted upon suitable laterally spaced leg members 35, shown in Fig. 1. Means are provided for eliminating some of the strain from the hinge 34 and the door frame 11 and for guiding the latter into proper cooperative relationship with the cabinet 33 when being swung into closed position. This means comprises a roller 36 (Fig. 3) mounted at the lower right-hand corner of the door frame structure 11 in any suitable manner, which rests upon a track rail 37 provided on the upper surface of the right-hand leg 35, the legs 35 extending forwardly from the cabinet 33 under the door structure. These parts, of course, may be reversed, if desired, by mounting the roller 36 on the leg 35 and the track 37 on the bottom of the door frame 11.

The floor member 19 is provided with a centrally disposed aperture 38 in its forward portion for direct ventilation upwardly to, and downward clearance for the motor of, a color animation device like that disclosed in my co-pending application Ser. No. 729,794, filed February 20, 1947, adapted to be mounted in the door to directly illuminate a central translucent lens-like viewing panel centrally disposed between the inner frame members 17, with changing color designs, and indirectly to similarly illuminate the side panels extending vertically between the frame members 17 and 12. Such decorative viewing panels are shown in my co-pending design application Serial No. D. 136,937, filed February 15, 1947 and issued May 11, 1948 as Patent No. Des. 149,589. Sloping tabs or baffles 39 punched and bent downwardly from the floor member 19 (Figs. 3 and 8) on each side of the aperture 38 are spaced at their rear edges downwardly from the floor member to provide outlet apertures communicating with the interior of the door structure. The tabs 39 thus also prevent access to any operating mechanism mounted in the door to eliminate unauthorized tampering with the latter from the underside of the door. These apertures at the rear of the downwardly and rearwardly sloping floor tabs 39 are provided as outlets for any foreign material which may be shoved through grills 41 (Fig. 1) that are mounted between the inner frame members 17 and the central viewing panel referred to above. These grills 41 are backed by protective panels (not shown) spaced rearwardly therefrom to permit light from the centrally disposed color animation device above mentioned to reach the plastic side panels mounted between the inner and outer frame members 17, 12, so that it is possible for unthinking or malicious persons to force foreign material, such as cigarette butts, through them. Any foreign material forced through the grills 41 can fall only onto the sloping floor tabs 39, and will slide or roll rearwardly down the latter and out of the door. The floor member 19 is also provided with a flanged aperture 42 for receiving a suitable grill (not shown). The flange 43 around this aperture (Fig. 8) is formed from the main body portion of the floor member in the stamping thereof, and has the additional function of a stiffening element for the floor member. This aperture 42 and the grill work therein mounted provides ventilation to the interior of

the door structure and of the cabinet 33 upon which it is hinged.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A door structure for the cabinet of an automatic phonograph having a transverse vertical section of generally inverted U-shape, comprising an outer metal frame shaped to conform to the shape of the top and sides of said cabinet in a vertical plane, an inner metal frame spaced inwardly from and shaped similarly to said outer frame and disposed forwardly thereof to provide interior depth to the door structure to facilitate mounting of part of the mechanism of said phonograph therein, curved metal side panels interconnecting said inner and outer frames, and a metal floor member interconnecting said inner and outer frames.

2. A door structure for an automatic phonograph, comprising an outer frame of thin metal parts including a frame member of inverted U-shape having leg portions joined at one end by interconnecting panels, interconnecting thin metal panels disposed between said leg portions intermediate their ends, and an inner frame of thin metal parts including a frame member of inverted U-shape joined at its ends to said last recited interconnecting panels, and side frame members spaced respectively from said leg portions and connected at their ends to said panels.

3. In a door for the cabinet of an automatic phonograph, a frame structure of thin metal parts, comprising an outer member of inverted U-shape having parallel leg portions extending at their lower ends to the bottom of said frame structure, interconnecting bottom panels joining and secured to the lower ends of said leg portions, a floor member connected to said bottom panels and said leg portions, interconnecting intermediate panels joining and secured to said leg portions intermediate their ends, an inner member of inverted U-shape spaced from said outer member and connected at its ends to said intermediate panels, and side frame members spaced from said leg portions as vertical extensions of the ends of said inner member and connected at their ends to said panels.

4. In a door for the cabinet of an automatic phonograph, a frame structure of thin metal parts, comprising an outer member of inverted U-shape having parallel leg portions extending at their lower ends to the bottom of said frame structure, interconnecting bottom panels joining and secured to the lower ends of said leg portions, a centrally disposed horizontal rail adapted to support control mechanism for said automatic phonograph, means connecting the ends of said rail to said leg portions, and an inner member of inverted U-shape spaced from said outer member and having leg portions connected to said rail.

5. In a door for the cabinet of an automatic phonograph having a transverse vertical section of generally inverted U-shape, a frame structure of thin metal parts, comprising a vertically disposed frame member shaped to conform to the shape of the sides and top of said cabinet in a vertical plane, a horizontal central panel disposed forwardly of said frame member, curved side panels interconnecting the ends of said central panel and said frame member, and an inner frame member shaped to conform to the shape of said first frame member and spaced inwardly therefrom, said inner frame member being connected to said central panel and sloping upwardly and rearwardly therefrom towards said first frame member.

6. In combination with an open front cabinet for an automatic phonograph mechanism having supporting legs extending forwardly thereof; a door structure, comprising an outer frame pivotally mounted at one side of the front of said cabinet, an inner frame spaced forwardly from said outer frame to provide interior depth to the door structure to facilitate mounting of part of the mechanism of the phonograph therein, and side panels interconnecting said inner and outer frames; and cooperating track and roller means mounted on the forwardly extending portion of one of said legs and the bottom of said door structure on the side opposite that pivotally mounted on said cabinet for guiding closing movement of said door relative to the cabinet.

7. In combination with an open front cabinet for an automatic phonograph mechanism, a door structure, comprising an outer metal frame shaped to conform to the open front of said cabinet, and pivotally mounted at one side thereon, an inner metal frame spaced forwardly from said outer frame to provide interior depth to the door structure to facilitate mounting of part of the mechanism of said phonograph therein, and metal side panels interconnecting said inner and outer frames, and a roller mounted at the lower end of said door structure on the side opposite that pivotally connected to said cabinet for guiding movements of said door structure to closed position.

8. In combination with an open front cabinet for an automatic phonograph mechanism having supporting legs with portions thereof extending forwardly of the cabinet; a metal door structure, comprising an outer frame shaped to conform to the vertical sectional shape of the top and sides of said cabinet and pivotally mounted at one side on said cabinet, an inner frame spaced inwardly from and shaped similarly to said outer frame and adapted to support part of the mechanism of said phonograph, means interconnecting said inner and outer frames, and a floor member interconnecting at least some of said interconnecting means and said outer frame to complete the bottom of said door structure; a roller mounted at the bottom of said door structure on the side opposite that pivotally mounted on said cabinet, and track means mounted on the upper part of the forwardly extending portion of one of said legs cooperating with said roller to guide closing movements of said door structure relative to said cabinet.

9. In a door structure for an open front cabinet for automatic phonograph mechanism, an outer frame pivotally mounted on said cabinet, an inner frame spaced forwardly from and fixedly secured to said outer frame to provide interior depth to said door structure, a floor member rigidly interconnecting said inner and outer frames to close the bottom of said door structure, and vent means provided in said floor member to permit the flow of air therethrough to ventilate the interior of said door structure and the phonograph mechanism within said cabinet.

10. In a door structure, an outer frame, an

inner frame for receiving a grill in the front portion thereof and connected to said outer frame, a floor member interconnecting said inner and outer frames to close the bottom of said door structure, and a tab struck downwardly from said floor member and sloping downwardly and rearwardly to provide an aperture at the rear end thereof as an outlet from the interior of said door structure for any foreign material which may be inserted through said grill.

DAVID C. ROCKOLA.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,051,132	Dart	Aug. 18, 1936