

Aug. 15, 1950

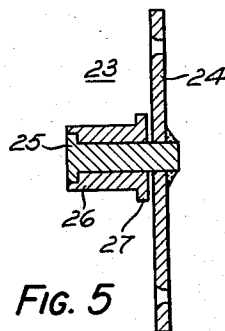
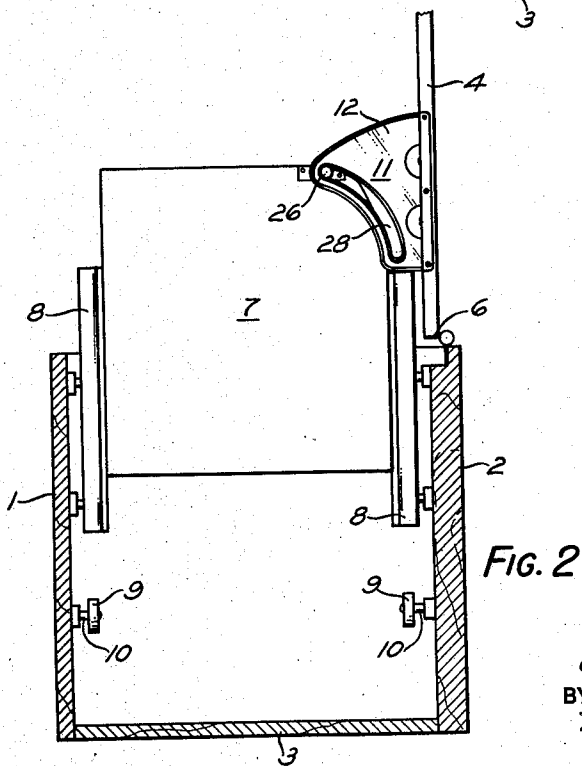
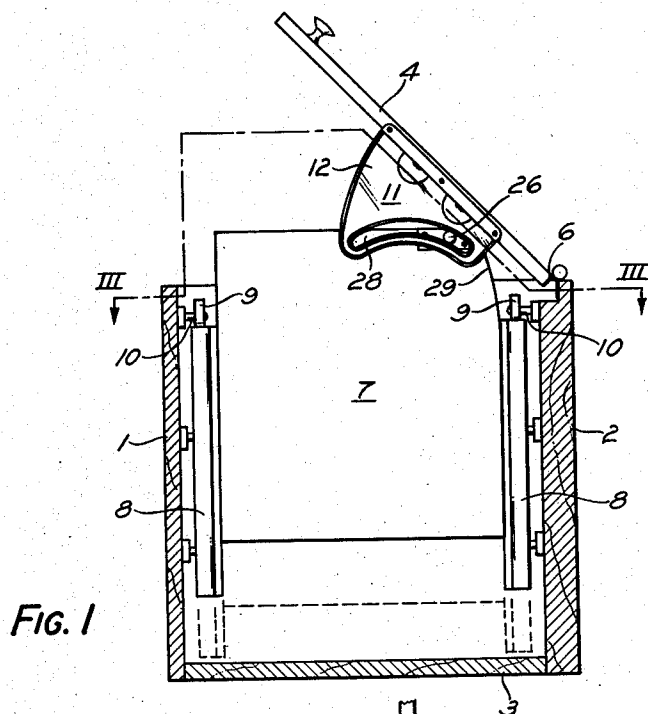
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2,518,985

COMBINATION DOOR AND SUPPORTING STRUCTURE

Filed Dec. 20, 1945

2 Sheets-Sheet 1



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COMBINATION DOOR AND SUPPORTING STRUCTURE

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2 Sheets-Sheet 2

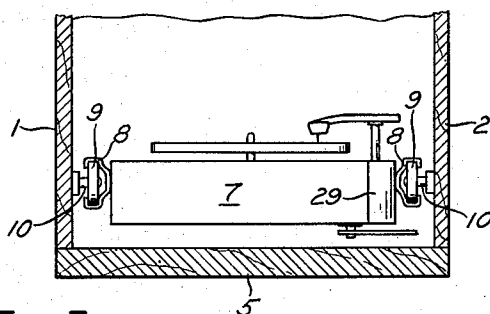


FIG. 3

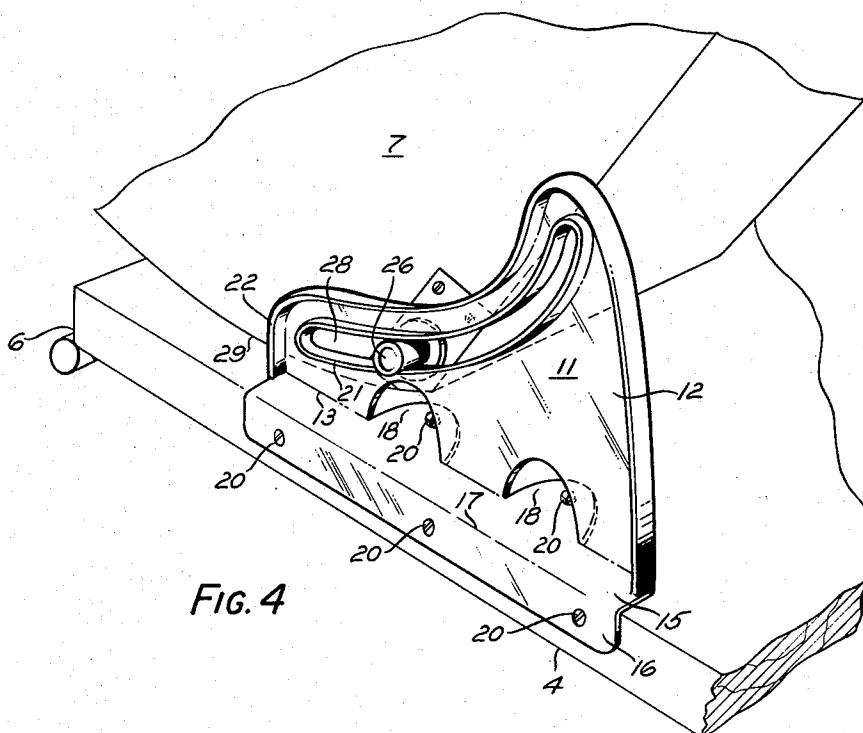


FIG. 4

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COMBINATION DOOR AND SUPPORTING
STRUCTURE

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1 Claim. (Cl. 312-186)

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This invention relates to cabinets and more particularly to a cabinet provided with a hinged door or cover and means connected therewith by which a carriage is housed within the cabinet when the door is closed and is withdrawn from the cabinet to an accessible position when the door is opened.

In certain articles of furniture and equipment, for example those housing phonograph reproducers, filing cards, or typewriters, it is desirable that such articles be completely housed within a cabinet when not in use, in order that the cabinet may present an artistic appearance or for other reasons, but be easily withdrawn for accessibility when desired.

It is an object of this invention to provide a cabinet having means for positively and easily moving an article or an article supporting carriage between a position in which it is fully housed within a cavity formed in the cabinet and a position of accessibility from without the cabinet.

It is another object of the invention to provide in a cabinet such a means which is operable by the opening and closing of a door or cover of said cavity.

It is a further object of the invention to provide in a cabinet such a means which insures easy operation of the door to withdraw and return the article or carriage, without binding or sticking of parts, and without jarring the article or carriage during withdrawal or return thereof.

It is yet another object of the invention to provide in a cabinet such a means which is rugged, simple and easy to manufacture.

Other objects and advantages of the invention will become apparent from a consideration of the following description, taken in connection with the accompanying drawings, in which:

Figure 1 is a bottom sectional view of a phonograph reproducer cabinet embodying the invention, with the bottom wall of the cabinet removed, the door of the cabinet being partially open and the reproducer unit shown in plan partially withdrawn;

Figure 2 is a view similar to that of Figure 1 with the door of the cabinet fully open and the reproducer completely withdrawn;

Figure 3 is a front elevation partly in section of the lower portion of the cabinet taken along the line III-III of Figure 1, the door being removed;

Figure 4 is a view in perspective of an enlarged fragment of the cabinet of Figures 1, 2

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and 3 showing more clearly the means connecting the door with the reproducer; and,

Figure 5 is a cross-sectional view of the pin and roller element shown in Figure 4 as attached to the reproducer unit.

Throughout the several figures of the drawing similar reference characters denote corresponding parts.

In the illustrated embodiment of the invention there is shown a cabinet formed of side walls 1 and 2, rear wall 3, front wall 4, and bottom wall 5. The front wall 4 is hinged along its edge 6 to the side wall 2 to form a door.

A phonograph reproducer indicated generally at 7 is disposed within a cavity of the housing formed by the walls thereof, being mounted for sliding movement into and out of the cabinet by means of channeled tracks 8 secured to its sides and forming a carriage therefor and cooperating with rollers 9 journaled on stub shafts 10 secured to and extending inwardly from cabinet walls 1 and 2.

A cam plate or member 11, best shown in Figure 4, is secured to the door 4 near the hinged edge 6. The cam member is formed of a single piece of material, preferably metal, and consists of a substantially triangular arm portion 12 having a straight edge 13 which lies along the door 4, and an extension thereof bent about the edge 13 to form an attaching means by which the member is rigidly attached to the door. The attaching means comprises a flanged portion bent at the edge 13 to form a portion 15 extending at right angles to the arm 12 and a second portion 16 bent at the line 17 to extend parallel to the arm 12. A plurality of feet or tabs 18 are struck out of the material of arm 12 and form extensions of the flange portion 15 lying on the opposite side of arm 12.

The cam member is attached to the inner face of the door 4 along the lower edge thereof in a position adjacent the hinged edge 6 with the arm extending into the cabinet when the door is closed. As shown, the attachment is by means of screws 20 through the flange 16 and the feet 18.

An arcuate cam slot 28 is formed in the arm portion of the cam member, originating in proximity to the door and its hinged edge 6 and sweeping outwardly from the door. The material of the edges of the slot is upset to form a strengthening flange 21 extending at right angles to the main surface of the arm which also acts as a bearing surface for a roller to be described later.

The periphery of the arm portion of the cam

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member is likewise upset to form a flange 22 which adds greatly to the strength and rigidity of the cam member. Both flanges 21 and 22 extend from the side of the arm portion opposite the reproducer.

Attached to the underside of the reproducer 7 adjacent the front corner nearest the hinged edge 6 of the door is a roller assembly 23 shown most clearly in Figure 5. This assembly comprises a base plate 24 provided with screw holes for attachment to the underside of the reproducer. Mounted rigidly on the base plate is a headed pin or shaft 25 on which is journaled roller 26 provided with a base flange 27.

The vertical corner edge of the reproducer nearest the hinged portion 6 of door 4 and adjacent to which the roller assembly 23 is mounted, is rounded off as at 29 to avoid interference with the door as it opens and the reproducer is withdrawn. The roller 26 extends into the slot 28 of the cam member as most clearly shown in Figure 4.

The fully housed position of the reproducer when the door 4 is closed is indicated in Figure 1 by dotted lines. In this position the roller 26 is located in the end of the cam slot nearest the hinged edge 6 of the door.

The same figure shows in full lines the position of the reproducer with the door partially opened and Figure 2 shows the reproducer fully withdrawn and the door fully opened. In the latter position the roller 26 has travelled to the end of the cam slot most remote from the hinged edge of the door. Attention is called to the fact that the cam slot extends near its point of origin in a direction whose major component with respect to the inner surface of the door is in parallelism therewith, then sweeps outwardly from the door, and finally near its termination extends in a direction whose major component with respect to the door surface is at right angles thereto. This feature insures a gradual starting and stopping of the motion of the article when the door is opened or closed, thus avoiding any jarring or jolting of the article during withdrawal or return. This is important, for example, in the case of a phonograph reproducer, since it allows the playing of a record to be started and the reproducer to be returned to its housed position while the record is playing without danger of the needle's being jarred from its groove.

It will be noted that the invention provides a construction characterized by its simplicity and ease of manufacture. The entire cam member may be constructed of one piece of sheet stock by simple stamping and forming operations and is so formed to insure rigidity throughout. The

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cam slot construction provides an unyielding cam path with an adequate bearing surface for the roller 26, which insures ease of operation with no binding or sticking of parts.

Although the invention has been described in its preferred form, many changes of form and proportion falling within the scope of the invention as defined by the appended claim will be apparent to those skilled in the art and it is therefore to be understood that the scope of the invention is not to be limited to the embodiment shown.

What is claimed is:

A cabinet formed with a recess opening through one side thereof, a carriage disposed in said recess and arranged for movement in and out of said cabinet, a door hingedly secured to an edge of said recess and arranged to close the opening thereto, and means linking said door and said carriage whereby opening of said door withdraws said carriage from said recess and closure of said door returns said carriage to said recess; said linking means comprising an element secured to said carriage and extending at right angles to the direction of movement thereof, and a member secured to said door and having at least a portion thereof lying in a plane extending at right angles to the axis of rotation of said door, an arcuate guiding slot formed in said portion and having its origin near the hinged portion of said door and extending from said origin in a direction generally parallel to the inner surface of the door then curving away from said door and terminating in a part extending at substantially a right angle to said surface, said element being received in said slot, said slot having throughout its length a width such as to substantially prevent lateral movement of said element with respect thereto.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
59,413	Knight	Nov. 6, 1866
403,938	Hoogerzeil	May 28, 1889
1,899,171	Warren	Feb. 28, 1933
2,049,237	Wertzeiser	July 28, 1936
2,125,777	Estrates	Aug. 2, 1938
2,263,782	Landsberg	Nov. 25, 1941
2,267,409	Massini	Dec. 23, 1941
2,272,536	Votypka	Feb. 10, 1942
2,276,711	Bilde	Mar. 17, 1942