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CABINET STRUCTURE

Filed Feb. 24, 1966

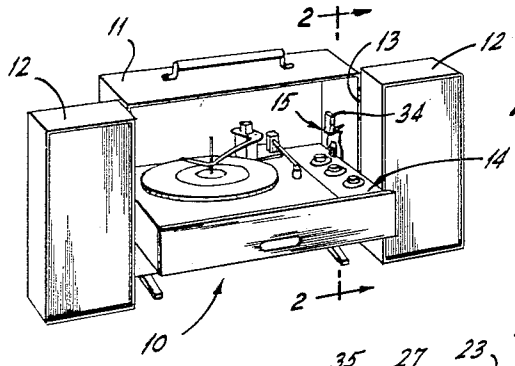


FIG. 1.

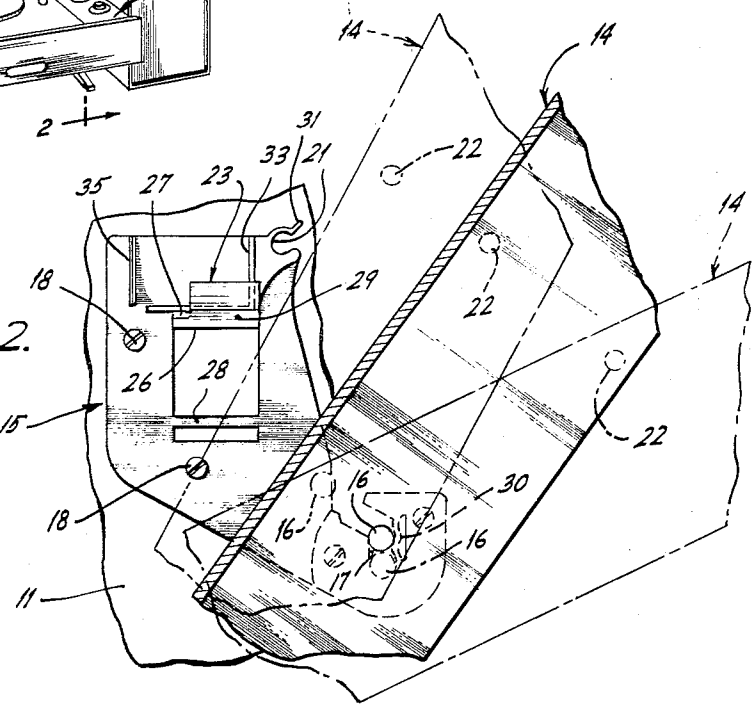


FIG. 2.

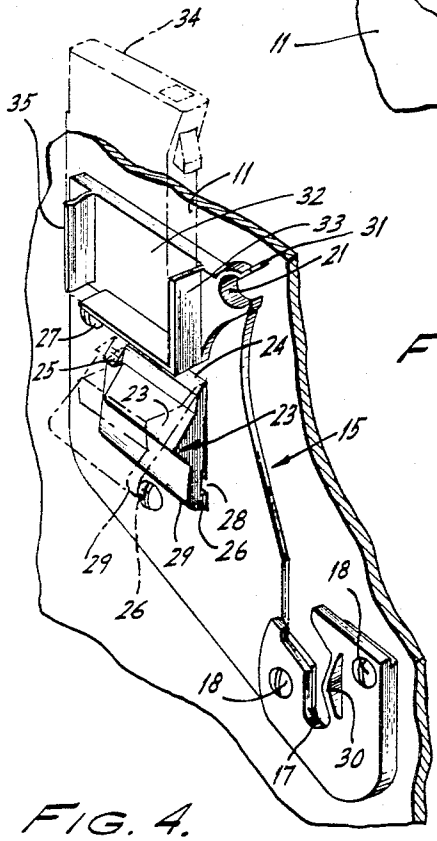


FIG. 4.

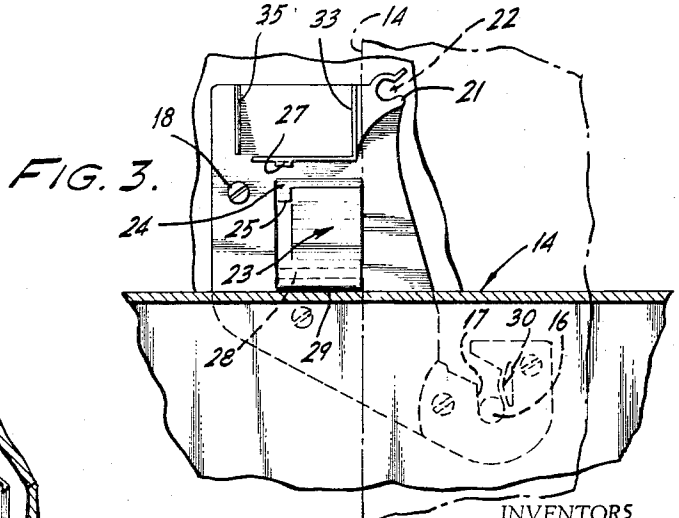


FIG. 3.

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CABINET STRUCTURE

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ABSTRACT OF THE DISCLOSURE

A unitary, molded plastic hinging and latching device provides for pivotal operation, as well as assembly and disassembly of a phonograph changer pan with respect to its cabinet. The hinging device includes a slot for engaging a pivot pin extending laterally from the changer pan. A catch also molded into the bracket resiliently engages another laterally presented pin on the changer pan to hold it in a stored vertical position.

This invention has to do with cabinet structure, and especially to cabinet structure for housing photographs or the like.

Portable phonographs of one well-known type comprise a record player and changer-pan or shelf assembly arranged to be stored in a vertical position within an upright cabinet. When the phonograph is in use, the changer-pan assembly is folded or tilted outwardly of the cabinet and downwardly into a horizontal, record-playing position.

It is a general objective of the present invention to provide improved hardware for mounting player and changer-pan assemblies of the aforementioned type. It is a more specific objective to provide inexpensive, unitary, preferably molded plastic, hinging devices that facilitate pivotal operation, as well as assembly and disassembly, of the changer-pan with respect to the cabinet.

Summary of the invention

Cabinet structure embodying the invention comprises phonograph apparatus featured by the provision, in one molded device, of the following: means affording changer-pan pivotation, with means to retain the changer-pan pivot pin; a catch to hold the changer-pan in its stored vertical position; a hinged, two-position stop adapted in a raised position to facilitate installation and removal of the changer-pan during assembly and disassembly, respectively, and in its normal lowered position, to stop the changer-pan in a horizontal record-playing position; a first latch molded into the device to hold the stop in its recited raised position; and a second latch molded into the device to hold the stop in its normal lowered position. The device also includes means molded therein for storing a record adapter spindle.

The manner in which the foregoing as well as other objectives and advantages of the invention may best be achieved will be more fully understood from a consideration of the following description, taken in light of the accompanying drawing in which:

FIGURE 1 is a perspective showing of portable phonograph apparatus embodying the invention;

FIGURE 2 is a view, partly in section and with parts removed, looking generally in the direction of arrows 2—2 applied to FIGURE 1, and illustrating several of the operational features of the invention;

FIGURE 3 is a view similar to FIGURE 2 and illustrating an operational feature, and

FIGURE 4 is a somewhat enlarged perspective showing, with parts removed, of apparatus illustrated in FIGURES 1, 2, and 3.

With more particular reference to the drawing, and first to FIGURE 1, a portable phonograph cabinet **10** includes an upwardly extending, main box-shaped portion **11** provided with loudspeakers **12** at each side. In accordance with conventional practice, and by way of example alone, loudspeakers **12** are hinged along vertical corners, as at **13**, so that they are pivotable between their stored, folded, positions (not shown) and their illustrated in-use positions. It will of course be understood that the loudspeaker construction is a matter of choice, and need not be further described for an appreciation of the invention to be disclosed in what follows.

A record changer **14** is hingedly mounted for pivotal movement about a horizontal axis, from a vertical position (broken lines, FIGURE 3) within the main cabinet portion **11**, to a horizontal record-playing position (FIGURES 1 and 3), in which position it extends partially to the outside and partially to the inside of the mentioned main cabinet portion.

In particular accordance with the invention, and as best seen in FIGURES 2 and 3, hinged movements of changer pan **14** advantageously are provided by a pair of individual hinging devices comprising hinge brackets **15**, in cooperation with horizontally extending hinge pins **16** carried by the changer pan. It is a feature of the invention that each bracket may, if desired, comprise an integral member molded of plastic material. Left-hand and right-hand brackets **15** are provided, and it will be appreciated that each bracket is a mirror image of the other. In view of this similarity, illustration of only the right-hand bracket **15** is undertaken for purposes of disclosing the invention. The brackets **15** each are disposed intermediate opposite confronting sides of main cabinet portion **11** and changer pan **14**, and are conveniently held in place by screws of the type seen at **18**. Each bracket **15** includes a lower open-ended slot **17** (see particularly FIGURES 3 and 4) and an upper, open-ended slot **21**.

As further seen in FIGURE 3, a pair of hinge pins **16** on the opposite sides of changer pan **14** are disposed for pivotal movements in lower slots **17**. Another pair of pins on changer pan **14**, one of which is illustrated at **22**, are receivable in the upper slots **21**, when the pan is pivoted to a vertical position for storage. The slots **21** and pins **22** cooperate to lock the changer-pan in its stored position (broken lines, FIGURE 3). When the pan is moved to its horizontal position (full lines, FIGURE 3), pins **22** disengage slots **21** and the rear, upper portion of pan **14** is translated into abutting engagement with ledge portion **29** of a detent means **23**. The pan is held in this horizontal, record-playing position by engagement of means **23** with an upper surface portion of the pan until such time as it is again stored.

In especial accordance with the invention, each detent means **23** is hinged about a pintle **24**, and the means **23** and pintle **24** are molded in the body of material comprising bracket **15**. Pintle **24** preferably comprises a reduced, highly flexible section of the molded bracket that connects means **23** to the main body of the bracket. A synthetic organic thermo-plastic material, such for example as polypropylene, has been found suitable as a material from which bracket **15** may be molded. The invention is not limited to use of this specific material, although it is especially adapted to fabrication by molding from flexible plastic materials characterized by relatively high resistance to fatigue failure under repeated flexing.

With reference to FIGURES 2, 3, and 4, detent means **23** is pivotable between a lower locked retracted position (FIGURES 3 and 4) in which it is effective to hold changer-pan **14** in its horizontal, record playing position, and an upper locked extended position (FIGURE 2) permitting removal and installation of the changer-pan.

Detent means **23** includes a pair of molded latch elements **25** and **26** cooperable, respectively, with molded latch surfaces **27** and **28** on bracket **15**. Element **25** and surface **27** interlock by virtue of the inherent resilience of the material from which the device is molded, to hold detent means **23** in the upper position, as will be understood from FIGURES 2 and 4. Element **26** and surface **28** interlock to hold detent means in the down position illustrated in FIGURES 1 and 4. Detent means **23** includes a pan-holding surface or ledge **29** on a portion thereof adjacent latch element **26**. In the lower latched position of detent means **23**, ledge **29** is so positioned as to provide a stop engageable with the upper horizontal surface of the changer-pan to hold the pan in its horizontal position.

As illustrated in FIGURE 2, detent means **23** in its upper latched position, is so spaced from lower slot **17** as to permit the pan to be manipulated in order that hinge pin **16** may be inserted in or removed from lower slot **17**. Hinge pin **16** is held in place by a resilient molded loop **30** that projects into slot **16**. In order to install or to remove pan **14**, detent means **23** is latched in its upper position, and pan **14** is then manipulated through positions as shown. In one of these positions pin **16** is caused to deflect molded loop **30** (FIGURE 2) to permit movement of the pin to or from slot **17**.

As illustrated in broken lines in FIGURE 3 pin **22** is held in place by a flexible lip portion **31** of upper slot **21** to provide for storage of the pan in its vertical position.

In further accordance with the invention, at least the right-hand bracket **15** illustrated, has molded integrally therewith a clip **32** for storing a record spindle adapter **34**, such for example as a 45 r.p.m. record adapter of the flat type. Clip **32** comprises an L-shaped shelf and vertical side wall member **33** in combination with a vertically extending, resilient wall **35** curved to accommodate lateral insertion and retention of the spindle in the clip, the shelf member having the detent **27** molded integrally therewith.

From the foregoing it will be appreciated that the invention affords improved hardware for mounting record player changer pans, the invention affording an inexpensive, unitary, molded plastic hinging device that facilitates pivotal operation, as well as assembly and disassembly, of the changer-pan with respect to the cabinet.

We claim:

1. In combination with phonograph cabinet structure having a record changer pan mounted therein, combined hinging and latching structure for mounting said pan within said cabinet structure for pivotation about a generally horizontal axis and selective movement to opened and closed positions and for releasable interengagement while in an opened position, said hinging and latching structure comprising: interengageable hinging and latching pins and brackets disposed upon opposite confronting portions of said cabinet structure and said changer pan, said brackets having first open-ended hinging slots providing pivotal and slidable interengagement of a hinging pin for said changer pan; a second open ended slot having an interference member providing a latched closed position of said pan; and releasably engageable detent means operable to first locked position to cause said changer pan to be stopped upon pivotation to a horizontal position, and operable to a second unlocked position permitting the recited slidable interengagement to accommodate removal and installation of said changer pan.

2. The combination according to claim **1**, and characterized in that said bracket means are made of a flexible plastic material of relatively high resistance to fatigue failure under repeated flexing, and in that said detent means is pivotable between its recited pair of positions, said detent means including a relatively thin cross-sectional region providing for the recited pivotation.

3. The combination according to claim **2**, and further characterized in that said bracket means includes integrally formed latching elements providing for the recited latched and unlatched positions.

4. The combination according to claim **3** and further characterized in that each said bracket means is of one-piece molded construction.

5. In combination with cabinet structure having a shelf-like support member pivotally mounted therein for movement between a retracted position stored within the structure, and an operative position in which it extends at least partially from said structure, combined hinging and latching apparatus for effecting such mounting of said member, comprising: a pair of spaced bracket means each of which is carried by an associated corresponding side wall of said cabinet structure, each bracket means being provided with a hinging slot defining a pivot for said shelf-like member; at least one of said bracket means including a portion formed unitarily therewith and cooperable with a portion of said shelf-like member to retain said member in its stored position within the cabinet; and at least one of said bracket means further being provided with detent means formed unitarily therewith and movable between a first position in which it prevents pivotal movement of said member beyond said extended operative position, and a second position in which it permits disassociation of said shelf-like member from the hinging slots of said bracket means and consequently removal of said member from said cabinet structure as said member is moved between the recited retracted and operative positions.

6. Cabinet structure according to claim **5**, and characterized in that each said unitary bracket means is molded from a flexible plastic material having relatively high resistance to fatigue failure under repeated flexing, and in that said second recited bracket means includes a relatively thin cross-sectional region supporting said detent means, and about which it is pivotable.

7. Cabinet structure according to claim **6** and further characterized in that each said bracket means and pivotable detent means support thereon includes integrally molded latching elements providing for the recited first and second positions of said detent means.

8. Cabinet structure according to claim **2**, and further characterized in that said bracket means comprise unitary structures of molded plastic and in that at least one of said bracket means includes an adapter spindle storage clamp, a portion of which clamp is molded integrally with locking means for holding said detent means in its recited second locked position.

References Cited

UNITED STATES PATENTS

875,270	12/1907	Irish	312—327 X
924,197	6/1909	Shook	312—327 X
2,823,972	2/1958	Saunders	312—328 X
3,196,480	7/1965	Whittom	312—8 X
3,231,927	2/1966	Ammon	312—8 X

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