

April 22, 1924.

H. A. ARNOLD

1,491,222

SELF OPENING COVER FOR PHONOGRAPHS OR THE LIKE

Filed Oct. 7, 1922

2 Sheets-Sheet 1

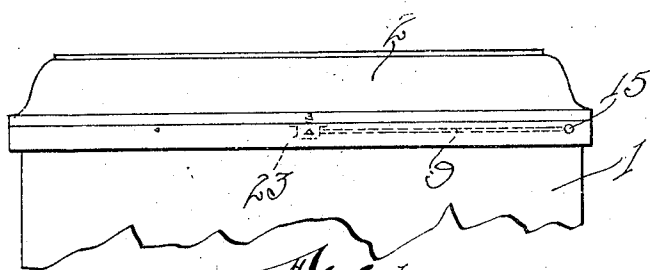


Fig. 1.

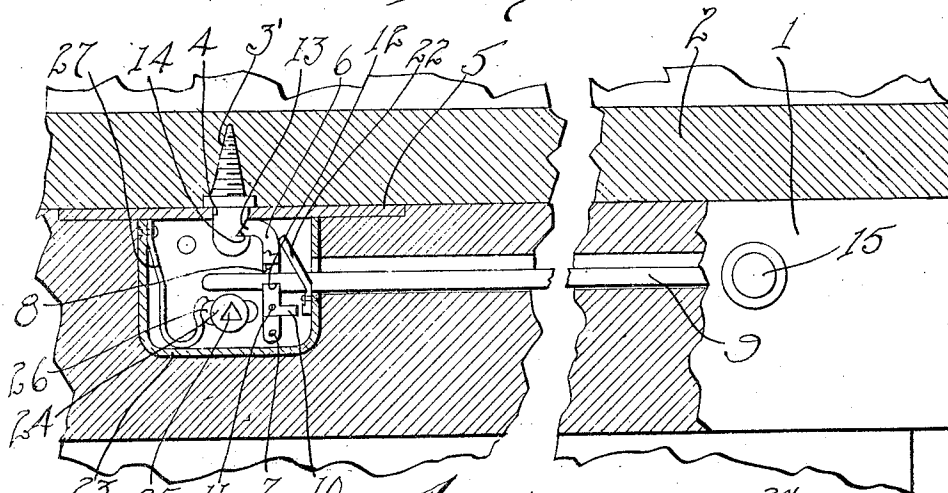


Fig. 2.

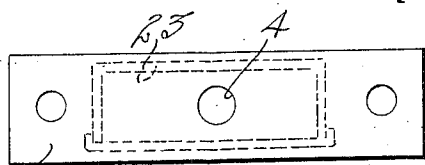


Fig. 3.

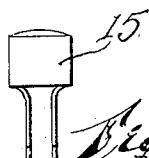
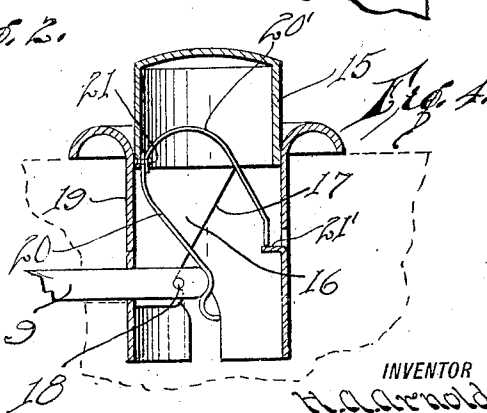


Fig. 4.



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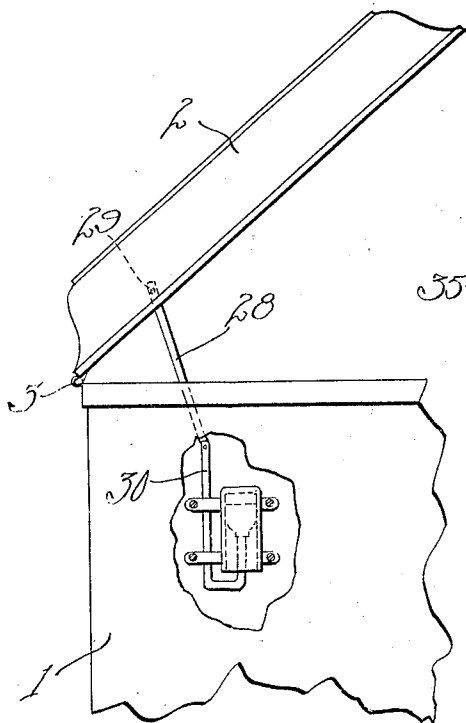


Fig. 6.

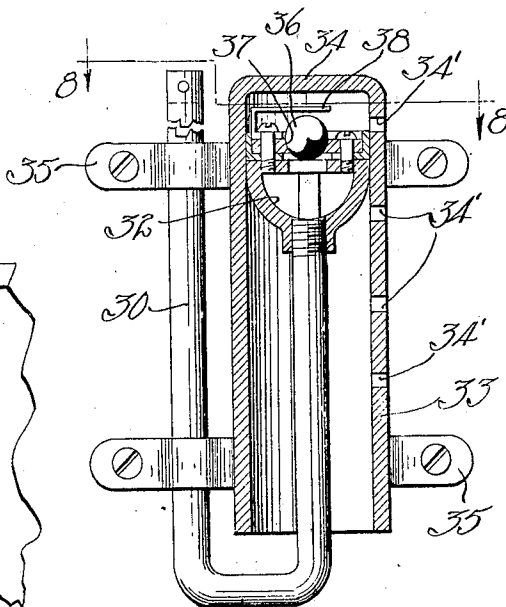


Fig. 7.

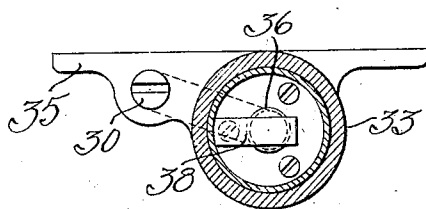


Fig. 8.

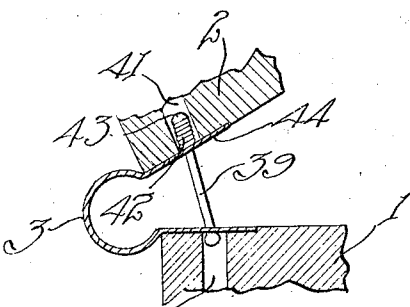


Fig. 9.

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UNITED STATES PATENT OFFICE.

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SELF-OPENING COVER FOR PHONOGRAPHS OR THE LIKE.

Application filed October 7, 1922. Serial No. 593,013.

To all whom it may concern:

Be it known that I, HAROLD A. ARNOLD, a citizen of the United States, and a resident of Lenora, in the county of Norton and State of Kansas, have invented a new and useful Improvement in Self-Opening Covers for Phonographs or the like, of which the following is a full, clear, and exact description.

My invention relates to improvements in self-opening covers for phonographs or the like, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a self-opening cover for phonographs or the like which is adapted to instantly open when a push button is pressed.

A further object of my invention is to provide a device of the type described which has novel means for permitting the cover to open rapidly at first and to come to a relatively slow stop.

A further object of my invention is to provide a device of the character described in which the hinges act as the cover opening means.

A further object of my invention is to provide a device of the character described which has novel means for permitting the cover to be readily swung into closed position.

A further object of my invention is to provide a device of the character described which has a novel releasing mechanism for the cover.

A further object of my invention is to provide a device of the character described in which the releasing mechanism is made inoperative when the locking means of the cover is operated.

A further object of my invention is to provide a device of the character described which is simple in construction and which may be readily secured to any phonograph cabinet or like device in which it is desired to have a cover instantly open when released by a push button.

A further object of my invention is to provide a device of the character described which comprises relatively few parts and which can be manufactured at a slight expense.

Other objects and advantages will appear in the following specification, and the novel

features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a front elevation of a portion of a phonograph showing the releasing mechanism operatively applied thereto,

Figure 2 is an enlarged sectional detail of the releasing mechanism,

Figure 3 is a plan view of a portion of the releasing mechanism,

Figure 4 is a sectional view of another portion of the releasing mechanism,

Figure 5 is a side elevation of the push button,

Figure 6 is a side elevation of the phonograph cabinet, showing the cover lifting and controlling means operatively applied thereto,

Figure 7 is a sectional view of the cover controlling mechanism,

Figure 8 is a section along the line 8—8 of Figure 7, and

Figure 9 is an enlarged sectional view of the novel type of spring hinge used.

In carrying out my invention, I make use of an ordinary phonograph cabinet 1, or any other like box, which has a hinged cover 2 secured thereto. The cover 2 is secured to the box 1 by means of spring hinges 3 (see Figure 9). These hinges are adapted to swing the cover into the position shown in Figure 6 when the cover is released by a means now to be described.

In Figures 1 and 2 I have shown portions of the phonograph cabinet which are adjacent to the releasing mechanism for the cover and have shown the releasing mechanism disposed in operative position. The cover 2 is provided with the ordinary catch 3' (see Figure 2) which projects through an opening 4 in a plate 5 when the cover is swung into closed position, and which is held in this position by means of a spring pressed detent 6. The detent 6 is pivotally secured at 7 and has an opening or slot 8 therein through which one end of a releasing rod 9 extends. A latch 10 is disposed in the slot 8 and is secured in place by means of a pin 11. The arm 9 has a slot 12 which receives the latch 10, whereby the arm 9 is operatively connected to the dog 6. The upper end of the dog 6 has a hook-shaped member 13 which is received in a hook-

shaped recess 14. From this construction it will be observed that when the arm 9 is moved to the right in Figure 2, it will swing the dog 6 so as to free the catch 3' and to permit the spring hinges to swing the cover into opened position.

The means for actuating the arm 9 is clearly shown in Fig. 4 and comprises a push button 15 of the shape shown in Figure 5. The arms 16 of the button have cam-shaped sides 17 upon which a pin 18 rides. The pin 18 is secured in the end of the arm 9 and projects within the housing 19 which slidably retains the push button 15. When the push button 15 is moved inwardly by manual pressure, the pin 18 rides on the cam surfaces 17 so as to move the arm 9 to the right as shown in Figure 2 so as to swing the dog 6 and release the cover 2. A spring 20 engages with the arm 9 and tends to move the arm so as to swing the dog into locking engagement with the catch 3'. The spring 20 is held by means of a rivet 21, this rivet in turn also securing a spring 20' in place. A lug 21' supports the free end of the spring 20'. The spring 20' is adapted to return the button 15 to normal position. A leaf spring 22 yieldingly holds the dog 6 in locking engagement with the catch 3'.

The phonograph 1 is provided with the ordinary locking mechanism that is customary in phonographs of ordinary construction. In fact, the dog 6 and the arm 9 are mounted in the casing 23 of the locking means. A key locking member 24 is carried by the casing 23 and has a recess 25 which is adapted to receive a key by means of which the member 24 is rotated so as to swing a lug 26 into engagement with the arm 9. When the lug 26 is in engagement with the arm 9, the arm is thrown upwardly so as to release the slot 12 from the latch 10. It will now be observed that the push button 15 may be actuated and will not release the dog 6 from the catch 3'. A leaf spring 27 engages with the lug 26 when the locking member 24 is in opened position, whereby the member is retained or held in this position.

In Figures 6, 7, and 8, I have shown a novel mechanism for regulating the movement of the cover 2 as it is swung into opened position by means of the springs 3. A link 28 is pivotally connected to the cover 2 at 29 and has its other end connected to one arm 30 of a U-shaped member 31. The other end of the U-shaped member 31 carries a novel piston valve 32 which is disposed within a cylinder 33 having a closed end 34. The cylindrical wall of the cylinder 33 has air vents 34' adjacent to the upper end thereof for a purpose hereinafter described. Brackets 35 are adapted to secure the cylinder 33 and the member 31 to the phonograph 1. When the cover is in closed position, the

member 31 is moved downwardly so as to dispose the valve 32 adjacent to the open end of the cylinder 33. When the valve is in this position, all of the openings 34' communicate with the closed portion of the cylinder 33.

If now the push button 15 is actuated so as to release the cover 2, the springs 3 will tend to swing the cover 2 into opened position quickly. It will also be noted that as the cover 2 swings upwardly, the valve 32 will be moved upwardly within the cylinder 33. The openings 34' permit the air within the portion of the cylinder closed by the valve 32 to pass therethrough as the valve moves upwardly. As the valve 32 moves upwardly, it closes off certain of the openings 34' so that the exhaust of air from the closed portion of the cylinder 33 is reduced. The decreasing passage of air out from the cylinder 33 retards the movement of the valve 32 in an upward direction, which in turn retards the movement of the cover 2. It will therefore be observed that the cover 2 will be brought to a relatively slow stop. The valve 32 is provided with a ball 36 which is disposed within a valve seat 37. The ball 36 is seated when the valve 32 moves upwardly, but is unseated as the valve moves downwardly, whereby the air may readily pass through the opening 37 and into the closed portion of the cylinder 33, thereby permitting the rapid descent of the valve 32.

The cover 2 is manually closed and this can be readily accomplished since the air is not retarded as it passes into the cylinder 33, but is permitted to pass freely into the cylinder through the opening 37. A guard 38 permits the ball 36 to become unseated, but prevents the ball from moving out of alinement with the opening 37. It will be observed from this construction that the cylinder 33 with the valve 32 controls the movement of the cover 2 from closed to opened position and at the same time permits the cover to be readily closed by hand.

In Figure 9 I have shown an additional checking means for bringing the cover 2 to a relatively slow stop. This means comprises a pin 39 which is disposed in openings 40 and 41, these openings being alined when the cover 2 is in closed position. The pin 39 projects between the sides of the hinge 3, the sides of the hinge acting as means for preventing the removal of the pin. A compression spring 42 is disposed between the head 43 of the pin 39 and one side 44 of the hinge 3. This spring is compressed when the cover 2 nears its full opened position and tends to quickly bring the cover to rest. These two devices for stopping the movement of the cover when it is nearest its full opened position, prevents the hinges 3 from opening the cover with such force so

that the cover comes to an abrupt stop when opened.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. When desiring to open the cover 2 so as to change the record, the button 15 is pressed which releases the dog 6 from the catch 3', whereupon the cover 2 will be swung into opened position by means of the springs 3 as heretofore described. The movement of the cover will be rapid at first, but will be quickly retarded when the cover nears the end of its movement. This is due to the special construction of the valve 32, the perforated cylinder 33, and the pin 39 which has the spring 42 cooperating therewith.

These mechanisms bring the cover 2 to a slow stop, whereby the cover is not jarred. The valve 32 is constructed so that it is practically inoperative when the cover is swung into closed position by hand. The air can quickly enter the cylinder 33 through the opening 37, whereby it does not require very much force to close the cover. The cover is instantly locked in closed position when closed by means of the dog 6. When the locking member 24 is actuated, it also releases the releasing mechanism from the catch 3'. In this manner, the push button 15 can be actuated as often as desired without placing a strain upon the dog 6 when the cover is locked in closed position.

The device is very simple in construction and can be readily attached to phonograph cabinets with but slight alterations being necessary in the latter. The releasing mechanism for the cover works in connection with the locking mechanism, whereby the releasing mechanism is inoperative when the cover is locked. The device provides novel means by which the cover of the phonograph can be instantly opened by merely pressing a button of a mechanism which is inoperative when the cover is closed by hand. The device is simple in construction and is not likely to easily get out of order.

I claim:

1. The combination with a box having a cover, of spring hinges connecting said cover to said box and being adapted to swing said cover into opened position, means for locking said cover in closed position, and a push button operatively connected to said locking means for releasing said locking means when manually actuated, whereby said cover will swing into opened position.

2. The combination with a box having a cover, of spring hinges connecting said cover to said box and being adapted to swing said cover into opened position, means for locking said cover in closed position, a push button operatively connected to said locking means for releasing said locking means when manually actuated, whereby said cover will

swing into opened position, and means for bringing the cover to a slow stop when swung into opened position.

3. The combination with a box having a cover, of spring hinges connecting said cover to said box and being adapted to swing said cover into opened position, means for locking said cover in closed position, a push button operatively connected to said locking means for releasing said locking means when manually actuated, whereby said cover will swing into opened position, and means for permanently locking said cover in closed position, said last named means disconnecting said push button from said first named locking means.

4. The combination with a box having a cover, spring hinges connecting said cover to said box, a hook carried by said cover, a locking dog carried by said box and normally engaging with said hook to lock said cover in closed position, and a push button operatively connected to said dog, said hinges being adapted to swing said cover into opened position when said cover is released by said push button.

5. The combination with a box having a cover, spring hinges connecting said cover to said box, a hook carried by said cover, a locking dog carried by said box and normally engaging with said hook to lock said cover in closed position, a push button operatively connected to said dog, said hinges being adapted to swing said cover into opened position when said cover is released by said push button, and means for retarding the movement of said cover when the cover is near its full opened position.

6. The combination with a box having a spring pressed cover adapted to swing into opened position when released, of a cylinder having openings in the wall thereof, a piston valve slidably disposed in said cylinder and being operatively connected to said cover, said valve being moved toward the closed end of said cylinder when said cover is moving into opened position, the air in said cylinder passing out through said openings as the valve moves therein, said valve closing certain of the openings as it moves in said cylinder, thereby cutting down the movement of air passing from said cylinder and slowing the movement of said valve, and a ball valve disposed in said piston valve for permitting the rapid movement of said piston valve toward the open end of said cylinder.

7. In a device of the type described, a casing having a cover, a locking dog carried by said casing and being adapted to engage with said cover to lock said cover in closed position, a push button operatively connected to said dog, and means for disconnecting said push button from said dog.

8. In a device of the type described, a cas-

ing having a cover, a locking dog carried by said casing and being adapted to engage with said cover to lock said cover in closed position, said dog having a groove cut therein, a bar having one end slidably disposed in said groove and having a notch adapted to operatively engage with said dog, whereby said dog is actuated when said bar is moved, and means for moving said bar so as to disengage the notch from said dog, whereby said bar may be moved without actuating said dog.

9. In a device of the type described, a casing, a cover, a spring hinge connecting said casing to said cover, a rod connecting the leaves of the spring together, and a coil spring disposed between one end of said rod and one leaf of the spring.

HAROLD A. ARNOLD.