

C. R. McCOLLUM.
CLOSURE OPERATING DEVICE.
APPLICATION FILED MAR. 2, 1921.

1,406,468.

Patented Feb. 14, 1922.

FIG. 1

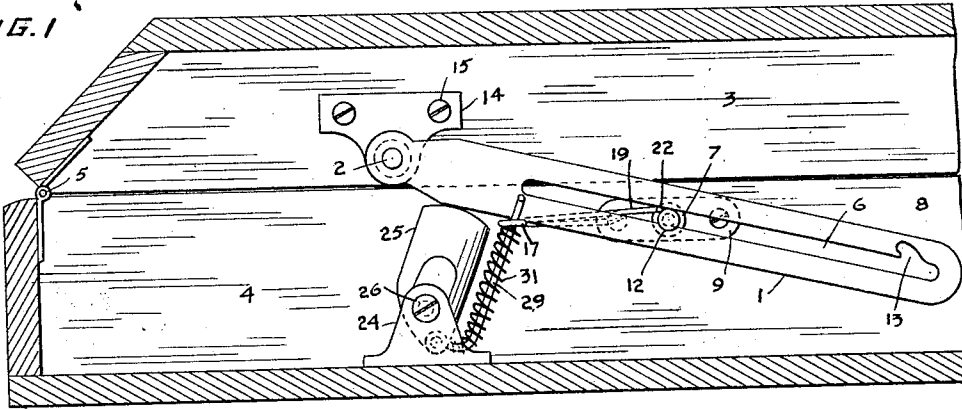


FIG. 2

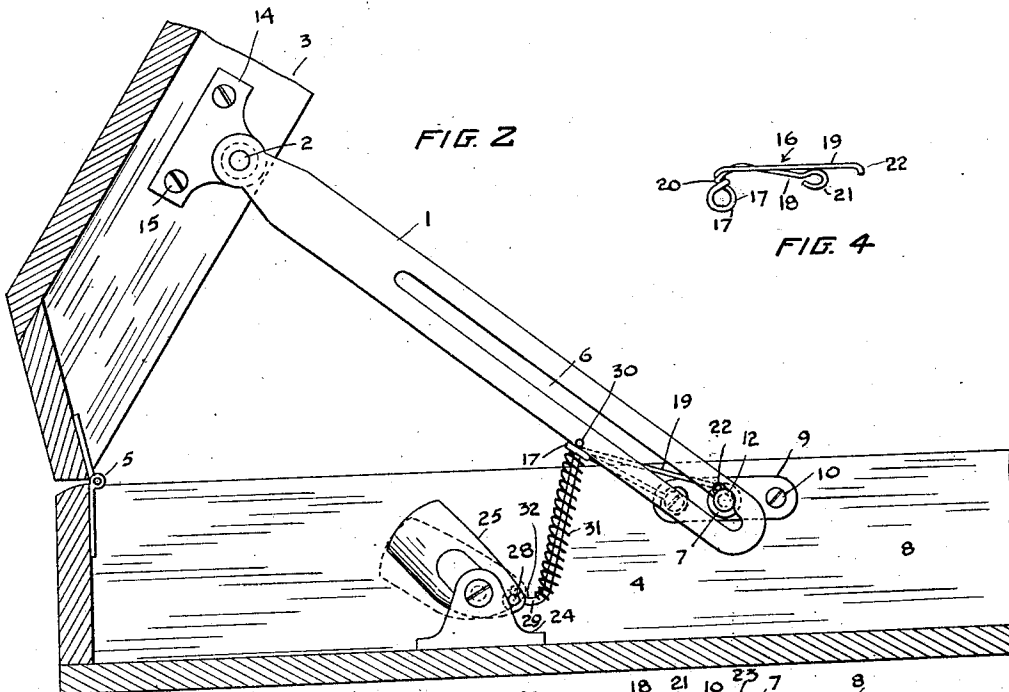
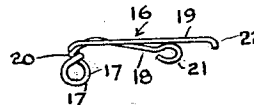


FIG. 4

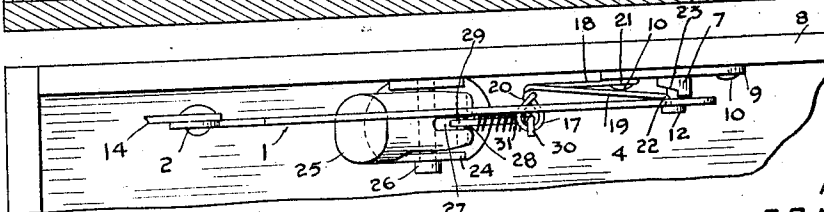


FIG. 3

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CLOSURE-OPERATING DEVICE.

1,406,468.

Specification of Letters Patent. Patented Feb. 14, 1922.

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To all whom it may concern:

Be it known that I, CLARENCE R. McCOLLUM, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Closure-Operating Devices, of which the following is a specification.

The present invention relates to improvements in apparatus for automatically holding or propping a hinged or pivoted closure in open position when the closure is raised or opened and for automatically releasing the closure when the latter is moved upwardly past its propped-open position, whereby the closure will gravitate or may be moved freely into closed position.

The device of this invention is especially adapted for use in connection with hinged lids or covers of phonographs but may be used in connection with bin closures or for any other purpose to which it is suited.

An object of the invention is to provide a simply constructed and inexpensive device of the character described which may be more readily and easily attached to phonographs, bins or other devices having hinged or pivoted closures, without necessitating any changes in the construction of said phonographs, bins or other devices, and which will operate in a more reliable manner and not be subject to becoming readily deranged or broken.

Another object of the invention is to provide a device of the character described which will operate smoothly and noiselessly, prevent slamming of the closure, and be so disposed as not to interfere with the operation or use of the device to which it is attached.

A further object of the invention is to provide a device of the character described which is of such construction that it may be more readily and easily assembled and disassembled, and repaired than the devices of a similar nature now in use, and which will be superior to said devices by reason of its simplicity and durability of construction and its certainty and reliability of operation.

The invention possesses other advantages and features some of which, with the fore-

going will be set forth at length in the following description where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming a part of the present specification. In said drawings I have shown one form of the construction of my invention, but it is to be understood that I do not limit myself to such form since the invention as expressed in the claims may be embodied in a plurality of forms.

Referring to the drawing:

Figure 1 is a sectional view of a device or body such as a phonograph cabinet and closure therefor showing the invention attached thereto and in side elevation, the closure being closed.

Figure 2 is a view similar to Figure 1 showing the device as it would appear when the closure is raised or opened.

Figure 3 is a fragmentary plan view of the device as it would appear when the lid or closure is raised or opened.

Figure 4 is a top plan view of one of the details of the device.

Referring to the preferred form of the invention, as shown in the accompanying drawings, there is provided a propping member or supporting arm 1 pivoted as at 2 at one end to the lid, cover or closure 3, of a box, cabinet, or other device 4, the closure being hinged as at 5. The member or supporting arm 1 has a longitudinal slot 6 therein extending close to the other end thereof and a stud or projection 7 fixed to the body 1, to a side piece 8 thereof, extends into said slot. The stud 7 is carried by a plate 9 held by screws or other fastenings 10 to the piece 8, and projects inwardly horizontally therefrom, having a head 12 of larger diameter than the width of said slot. The slot is enlarged at one end by a notch 13 cut into the upper edge of said slot close to the forward or lower end thereof and by this arrangement the head or the stud may be inserted through the slot. The pivot 2 is mounted on a plate 14 fastened by screws 15 to the inner side of the lid 3 preferably at a point on the side of the lid spaced outwardly from but near the hinges. The stud 7 is disposed above the body of the device sufficiently to provide for proper clearance of

the arm 1 in operation. These points of mounting the parts may be varied as desired to suit the particular closure and device to which the invention is attached.

- 5 Means is provided for automatically causing the supporting arm to be moved so as to bring the notch into engagement with the stud when the lid has been raised its full extent and is then allowed to gravitate
10 or is pushed a slight distance downwardly, whereby the arm will be prevented from sliding relative to the stud and will be locked in raised or opened position. This means also acts to automatically disengage
15 and hold disengaged the notch and stud when the lid is raised slightly from its proposed open position, whereby the lid may then be closed by being allowed to gravitate or by being pushed into closed
20 position.

- The means aforementioned comprises a plurality of elements one of which is a rocker or trip member 16 preferably formed of a single strand of wire or the like bent
25 to provide an eye or bearing 17 at one end and so as to provide divergent arms 18 and 19, which arms at their pin juncture are twisted to provide a laterally extending projection 20 having an eye 21 at its outer end.
30 This projection 20 is disposed under so as to engage and support the arm 1. The outer end of the arm 18 has the eye 17 therein which eye is rotatable on one of the screws 10. The other arm 19 has a right
35 angularly bent end forming a trip or stop member 22 which is disposed above the stud to one side thereof but so as to engage in the slot 6. The stud is notched as at 23 so as to receive said trip 22 when
40 the trip is in one of its positions whereby the trip will not interfere with the engagement of the stud in the notch 13.

- Mounted in a bracket 24 secured to the body 4 rearwardly of the stud 7 is a weight
45 member 25. A pivot pin 26 is supported in the bracket and is inserted through the weight horizontally near one end thereof so that the weight may have a swinging movement forwardly and rearwardly on
50 said pivot. The end of the weight, below the pivot, is bifurcated as at 27 and a pin 28 is inserted through the weight so as to extend across the slot provided by said bifurcation. A link 29 is pivoted at its
55 lower end to the pin 28, extends upwardly through the eye 21 and is bent right angularly at its upper end to provide a stop 30. The stop extends over the side of the eye and presents accidental withdrawal of
60 said link. A helical expansion spring 31 loosely surrounds the link 29 and at its lower end rests upon a lateral extension 32 of said link while its upper end engages said eye 21 so as to place the spring under

a slight tension. This tension is sufficient
65 to hold the eye 21 and stop 30 in such relation as to prevent unintentional or accidental withdrawal of said link from said eye.

Operation.

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When the lid or closure is down or shut the arm 1 lies in a position slightly inclined to the horizontal and depresses the projection 20 so as to compress the spring
75 31, the weight of the lid overcoming the tension or action of the spring. The weight 25 lies in balanced position, forwardly inclined against the spring, which spring serves as a stop for said weight. The trip
80 22 engages in the slot in the arm 1 along the upper edge of said slot, being placed under tension by the action of the spring 31 and the depression of the arm 19.

When the lid is raised the pressure on the
85 spring 31 is released and the weight is given a slight rearward movement as the arm 1 lifts clear of the projection 20 and the spring expands. This brings the weight into nearly vertical position. When
90 the lug reaches the lower end of the slot 6, the trip 22 passes the rear edge of the notch 13 and the downward pressure on the trip, being thus removed, the trip snaps upwardly into the uppermost rear corner
95 of said notch. At this time, the stud is forward of and below the notch. The operator releases hold upon the lid and the lid will by its own weight move forwardly and downwardly as in closing. The front
100 edge of the notch 13 is beveled so that as the lid lowers the lug will engage in the notch and prevents more than a very slight downward movement of the lid. As the
105 lid lowers so as to bring the lug into the notch the downward pressure on the trip 22 rocks the member 16 so that the link 29 is lifted upwardly. This communicates a
110 pull to the lower end of the weight 25 and causes the weight to be thrown into a rearwardly inclined position, shown in full lines in Figure 2. Thus simultaneously with the
115 movement of the arm 1 to cause the lug to engage in the notch, the weight is shifted and causes the projection 20 to be pushed upwardly and maintained in such position as to engage the under side of the arm 1. The weight pushes upwardly on the lateral extension 32 and the link 29 and through
120 the spring 31, this pushing action is transmitted to the eye 21, with which eye the upper end of the spring engages. Thus, when the weight is thrown over, the spring acts as a stop and cushions the fall of the weight preventing disengagement whereby
125 any noise which would otherwise be made, is eliminated. The weight of the lid when not held up by the operator rests slightly on the

member 20 and spring so as to prevent the spring from pushing the arm 1 upwardly and disengaging the lug 7 from the notch 13.

To lower the lid, it is lifted upwardly slightly. This disengages the lug 7 from the notch 13 and the weight 25 swings further rearwardly as shown in dotted lines in Figure 2 and lifts the link 29 and member 20 upwardly. This lifts the arm 1 so that the lug, though forward of the notch is below said notch and will not engage therein when the arm 1 slides forwardly. As the lid is lowered the arm 1 slides on the projection and lug 7. When the lid is nearly closed the arm 1 depresses the member 20 which pushes downwardly on the spring 31 and lower end of the weight. This moves the weight back into forwardly inclined position, shown in Figure 1 and the device is set for another operation.

I claim:—

1. In a device of the character described, the combination with a body having a closure hinged thereto, of an arm pivoted at one end to said closure and having a longitudinal slot therein, said slot having a notch therein, a lug on said body extending into said slot and arranged to engage in said notch to hold the closure in raised position, a member pivoted on said body and having a portion on one side of its pivot movable into position to slidably support said arm so that said notch will move clear of said lug after disengagement of said lug from said notch, means which is movable into position to move said portion of said member into arm supporting position and which is operated when said member is rocked on its pivot and a portion on the other side of the pivot of said member which is engaged and causes rocking of said member when said notch engages in said lug.

2. In a device of the character described in combination with a body having a closure hinged thereto, of an arm pivoted at one end to the closure and having a longitudinal slot therein, said slot having a notch therein adjacent to one end thereof, a stud mounted on the body extending through said slot and adapted to engage said notch, a member pivoted on said body and having a portion thereof extending under said arm and another portion adapted to be engaged by the side of said notch and moved so as to rock said member on its pivot when the notch receives said lug, a weight member pivoted

on said body, a member pivoted to said weight member at the lower end thereof and loosely connected with said first named member and an expansion spring mounted on said last named member under slight tension and having one end engaged with the portion of the first named member which extends under said arm.

3. In a device of the character described in combination with a body having a closure hinged thereto, of an arm pivoted at one end to the closure and having a longitudinal slot therein, said slot having a notch therein adjacent to one end thereof, a stud mounted on the body extending through said slot and adapted to engage said notch, a member pivoted on said body and having a portion thereof extending under said arm and another portion adapted to be engaged by the side of said notch and moved so as to rock said member on its pivot when the notch receives said lug, a weight member pivoted on said body, a member pivoted to said weight member at the lower end thereof and loosely connected with said first named member and an expansion spring mounted on said last named member under slight tension and having one end engaged with the portion of the first named member which extends under said arm and an eye on said first named member through which the second named member extends and with which said spring engages.

4. In combination with a body member having a hinged closure and an arm pivoted at one end to said closure and having a longitudinal slot therein, a stud carried by said body and extending into said slot, said slot having a notch therein adjacent to one end into which said lug is adapted to engage so as to support the arm into position to hold the closure open, a member pivoted to said body and having one portion disposed under so as to be engaged with said arm at a point at one side of the pivot of said member and another portion on the other side of the pivot disposed to be engaged and depressed by said arm when the lug engages in said notch whereby said member will be rocked from its pivot and means on the body and connected with said member which when said member is rocked on its pivot will move said first named portion of said member into position to slidably support said arm with the notch clear of said lug.

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