

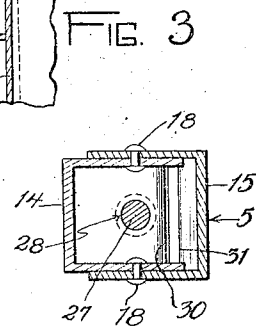
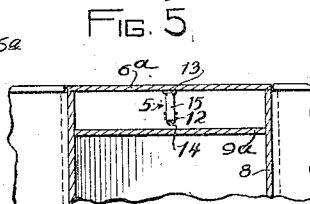
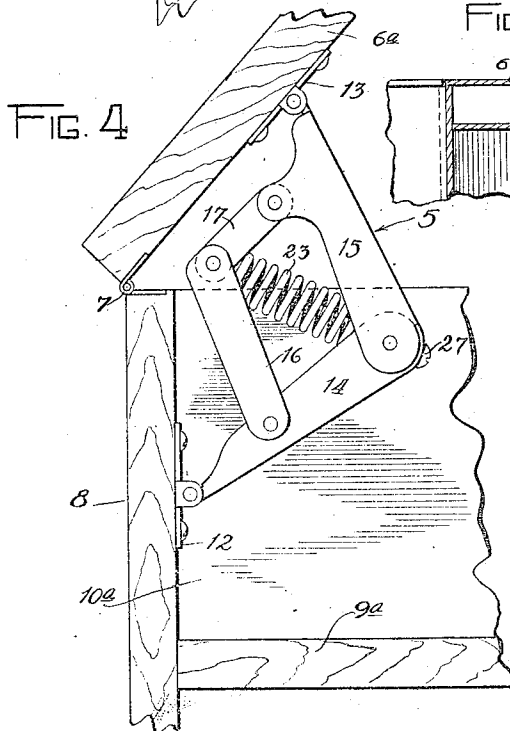
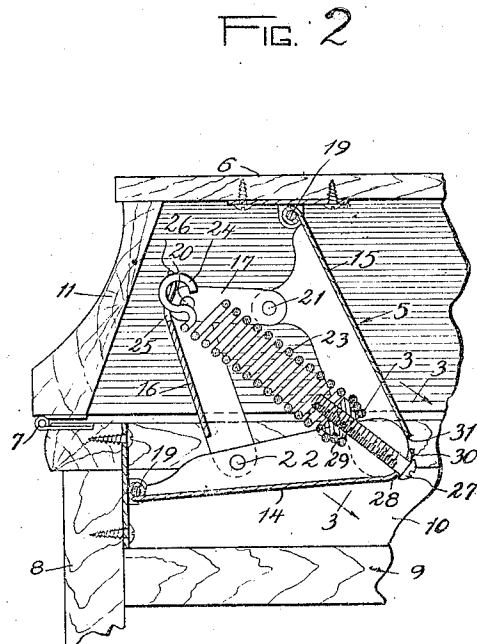
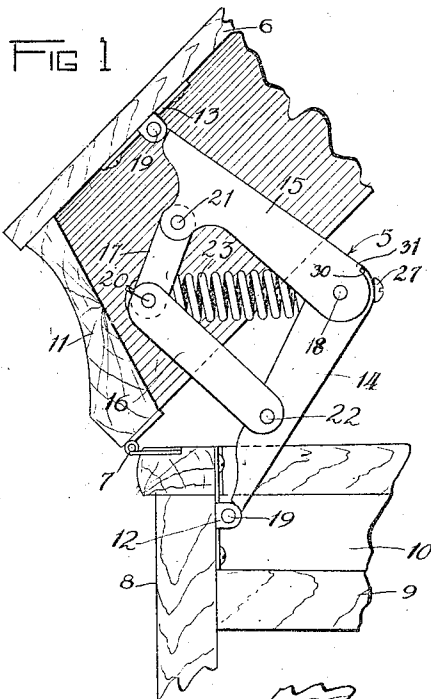
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W. G. ALDEEN

PHONOGRAPH LID SUPPORT

Filed May 6, 1922



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UNITED STATES PATENT OFFICE.

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PHONOGRAPH-LID SUPPORT.

Application filed May 6, 1922. Serial No. 558,847.

To all whom it may concern:

Be it known that I, WILHELM G. ALDEEN, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Phonograph-Lid Support, of which the following is a specification.

This invention relates to a support for phonograph lids adapted effectively to prevent the lid from dropping and also to insure the proper counterbalancing of the lid so that it may be left at will in either open, intermediate or closed position.

One of the principal objects of the invention is to provide a support of exceedingly compact form which is arranged to be mounted above the motorboard at the hinge connection between the lid and the cabinet, thereby obviating the necessity for making holes in the motorboard which besides being unsightly are objectionable in that dust and dirt and frequently reproducer needles fall through them and lodge in the driving mechanism suspended under the motorboard. The manner of attachment, furthermore, enables individual users to procure the support as an accessory and to apply the same to replace the ordinary prop type of supports with which, phonographs have commonly been equipped in the past.

Another advantage arising from the manner of attachment of the support is that it can be positioned in the middle of the lid or nearly so and is not limited to attachment at the sides as are prior supports. Warping of the lid is in this way avoided although only a single support is used instead of having to use two supports, one at each side, as some manufactures have done in an effort to prevent warping of the lid. Furthermore, the support being above the motorboard is readily accessible for the purpose of adjustment.

A further object is to provide a lid support which by virtue of its compactness can be applied to either the dome or the console type of phonograph of practically all standard makes.

A still further object is to provide a support of attractive appearance which is simple and economical to manufacture.

In the accompanying drawings illustrating a preferred embodiment of my invention Figure 1 is a vertical section through

the upper rear portion of a phonograph of the dome type, showing a lid support constructed in accordance with my invention operatively connected between the cabinet and the lid thereof, the lid being illustrated in open position. Fig. 2 is a similar view showing the lid support in section, the phonograph lid having been moved to closed position. Fig. 3 is a transverse sectional detail of a portion of the lid support and is taken on the line 3—3 of Fig. 2. Fig. 4 is a view similar to Fig. 1 showing the support applied to a phonograph of the console type. Fig. 5 is a sectional detail on a reduced scale of a phonograph cabinet illustrating how, in accordance with my invention, a single lid support may be attached at the middle of the lid to support the same without causing it to warp.

While I have herein shown my invention as applied to phonographs, it will, of course, be understood that the same may be adapted to use with various types of cases and cabinets wherein counterbalancing lid supports find use, and although the invention is hereinafter described with considerable particularity, it is to be understood that the invention is not limited thereby in the interpretation of the appended claims except as necessarily limited by the state of the prior art.

Referring to Figs. 1 to 3, inclusive, the reference numeral 5 is applied to the support as a whole mounted in operative relation to a lid 6 hinged at 7 to the phonograph cabinet 8. The phonograph illustrated in Figs. 1 and 2 will be recognized as being of the dome type wherein the motorboard 9 occupies a position close to the top of the cabinet, thus providing only a shallow upper compartment 10 wherein the turntable is mounted to operate. In this type the lid 6 is hollow and has inclining ornamental side walls 11. When used in connection with this type of phonograph the support is mounted substantially as illustrated in Figs. 1 and 2 with the brackets 12 and 13 thereof secured respectively adjacent the upper edge on the inner rear wall of the cabinet 8 and to the inner side of the lid 6. When thus secured, ample clearance is afforded for the support in all positions to which the lid is moved with respect to the cabinet.

The device comprises a main pair of lid

supporting arms 14 and 15 and an auxiliary or secondary pair 16 and 17. The arms 14 and 15 are preferably channel-shaped in cross section as most clearly appears in Fig. 3, the arm 14 having its side walls fitting within and pivotally connected to the side walls of the arm 15 by rivet pins 18. The free ends of the arms 14 and 15 have their web portions bent to provide eyes pivotally connected to the brackets 12 and 13 by pivot pins 19. The pins 19 preferably have their ends upset similarly to the pins 18. The arms 16 and 17 form a toggle connected between the arms 14 and 15 as shown. The arm 16 of the toggle is preferably channel-shaped in cross section. The arm 17 of the toggle preferably comprises a pair of links pivotally connected to the arm 16 by means of rivet pins 20. The links comprising the arm 17 are similarly pivotally connected to the arm 15 in its opposite side walls by means of rivet pins 21, at a point intermediate the ends of the arm 15. In a similar manner the arm 16 is pivotally connected to the arm 14 by rivet pins 22 at a point intermediate the ends of the arm 14.

The arms 14, 15, 16 and 17, it will thus appear constitute a quadrilateral frame, two diagonally opposite corners of which are connected to the cabinet and to the lid, respectively, so that in the swinging movements of the lid from open to closed position the frame is distorted for a purpose presently to appear. The other diagonally opposite corners of the frame are joined by a coiled tension spring 23, the one end of which is bent to provide a hook 24 entered through a slot 25 in the web of the arm 16 and arranged when in operative position to fit in a notch 26 in the outer edge of the web of the arm 16 thus to prevent the spring from turning. An adjustment of the tension thereof may be made by a screw 27 entered through an opening 28 provided in the extended web of the arm 14 (see Fig. 2). The screw 27 threads into a nut 29 upon which are suitably clinched the convolutions of the reduced end 3 of the spring 23. It will be noted that in operation the head of the screw 27 is presented at the front side of the support where it is readily accessible for the purpose of adjustment. Thus when a screw driver is engaged therewith to turn the same, the nut 29 being of course prevented from rotation within the end of the spring 23, the tension of the latter may be adjusted as desired. Thus the user will, after installing the support, determine from experiment whether the tension of the spring is sufficient to counterbalance the lid in its various operating positions, the spring being adjusted correspondingly as the lid is heavy or light.

A stop for limiting the extent of swinging movement of the lid is preferably provided

to avoid possible injury in the careless handling thereof. I prefer to provide in this connection shoulders 30 and 31 on the arms 14 and 15, respectively, provided by the ends of the webs of the two arms. Thus, when the arms arrive at the relative positions shown in Fig. 1, the shoulders come into abutment and prevent further relative pivotal movement thereof and thus limit the extent of movement of the lid.

In the operation of the device it will be apparent that when the lid is in its extreme open position as shown in Fig. 1, a considerable portion of the weight thereof is supported directly by the hinges 7, that is, comparatively little counterbalancing effort is required to sustain the lid against dropping. Accordingly, in this position of the lid, the spring 23 is adjusted to comparatively light tension. However, as the lid is moved toward closed position the tension of the spring must necessarily become progressively greater to provide greater counterbalancing effort for obvious reasons. In fact the counterbalancing of the support with a proper adjustment of the spring tension may be made sufficient to prevent the lid from dropping excepting perhaps only gently. With a proper spring adjustment the lid may be counterbalanced so that it can remain at an intermediate position unless actually moved to closed position. At the extreme closed position the spring tension is considerably greater because of the distortion of the support frame wherein the diagonally opposite corners thereof are considerably displaced as will be apparent by comparison of Figs. 1 and 2. By virtue of this counterbalancing action of the support and the preciseness with which it may be adjusted, the lid may be made to operate with considerable ease and in fact it should require practically no greater effort to raise the lid from an extreme closed position than from an intermediate position to open position if proper adjustment has been made. It will further be seen that by the particular mode of attachment of the support the diagonally opposite corners of the frame are disposed normally approximately in horizontal alinement. Then as the lid is closed the diagonally opposite corners are displaced in the distortion of the support frame. The elongation of the support frame by distortion can be effected in a relatively confined space as will be noted from Fig. 2. The support is, of course, attached so as to avoid interference with the turn table and when in use does not constitute an obstruction as do the ordinary prop types of supports.

It is furthermore possible with this lid support to attach the same at the middle of the lid or nearly so as appears in Fig. 5. With this arrangement warping of the lid is

effectively prevented although only one support is used. Obviously the support may be attached alike to either the console or dome types of machines so that a single standard size serves for both styles of instruments. This obviates the necessity for providing arms of different lengths for the two styles of machines as has been the practice in the past. It is further apparent that since the device may be attached to the underside of the roof of the lid and at any point on the lid without regard to whether it is the right or left hand side, the necessity for providing right and left hand fittings, as was commonly necessary where the supports were limited to attachment at the sides of the lid, is of course also obviated.

In Fig. 4 I have shown the device as applied to a phonograph of the console type. In such phonographs the lid 6^a is usually flat and the motorboard 9^a considerably sunk in the cabinet to provide a relatively deep upper compartment 10^a. When used with this type of phonograph the one bracket 12 will be secured at a point somewhat below the upper edge of the inner rear wall of the cabinet compartment 10^a, the other bracket 13 being secured to the underside of the lid 6^a, similarly as in the dome type of phonograph.

I claim as my invention:

1. In a phonograph cabinet or the like having a lid arranged to move open and closed, a main pair of supporting arms, said arms being channel-shaped in cross section and being pivotally connected in the side walls of the channels, the webs of said channels being adapted to serve as limiting abutments to prevent more than a limited amount of relative pivotal movement of said arms whereby to limit the opening movement of said lid, pivoted arms forming a toggle having pivotal connection with said main arms, a spring providing a resilient connection between the middle of said toggle and the point of pivotal connection between said main arms, and a screw passing through the web of one of said main arms for adjusting the tension of said spring.

2. In a phonograph cabinet or the like having a lid thereon arranged to be swung open and closed, a quadrilateral frame having pivotally connected sides, said frame being operatively connected between said lid and cabinet with a pair of diagonally opposite corners normally approximately horizontally arranged, spring means acting between said corners tending to maintain said frame in normal condition, the other diagonally opposite corners being normally approximately vertically aligned and having connection with said lid and said cabinet respectively, said lid upon closing being adapted to distort said frame whereby said horizontal corners are displaced approxi-

mately horizontally against the tension of said spring means within the confines of said cabinet beneath said lid.

3. In a phonograph cabinet or the like having a lid arranged to swing open and closed, a quadrilateral frame having pivotally connected sides, two adjacent sides of said frame being of greater length and extending past the point of pivotal connection with the other two adjacent shorter sides to provide means for connection with said lid and said cabinet respectively, said shorter sides being adapted to swing toward each other inside said longer sides when the latter swing together in the distortion of said frame incident to the closing of said lid whereby said frame is operable in a comparatively confined space in said cabinet, and means in said frame adapted yieldingly to restrain said cover from movement.

4. In a phonograph cabinet or the like having a lid thereon adapted to swing open and closed, a main pair of lid supporting arms having pivotal connection and having connection at their free ends with said lid and said cabinet, respectively, stops adapted to limit the extent of relative pivotal movement between said arms to limit the opening movement of said lid, an auxiliary pair of supporting arms having pivotal connection with said main arms, said auxiliary arms forming a toggle connected between said main arms, and means having resilient connection with the middle of said toggle adapted to restrain the distortion thereof incident to the closing of the lid.

5. In a phonograph cabinet or the like having a lid arranged to swing open and closed, two pairs of pivoted arms interposed between said lid and said cabinet, one of said pairs of arms being adapted in the movement of said lid to have relative pivotal movement and comprising means for limiting the extent of movement of said lid, the other of said pairs of arms providing a toggle having connection with said first pair of arms whereby to have relative pivotal movement communicated thereto in the relative pivotal movement of said first pair of arms, and means yieldingly resisting such movement of such second pair of arms to restrain said lid in its movement.

6. In a phonograph cabinet or the like having a lid arranged to swing open and closed, two pairs of pivoted arms interposed between said lid and said cabinet, one pair of arms being adapted to limit the swinging movement of said lid with respect to said cabinet and the other pair of arms being adapted to provide a toggle effective in counterbalancing said lid, said toggle being adapted upon the closing of said lid to be distorted, and means yieldingly resisting the distortion of said toggle whereby to restrain said lid in its movement.

7. In a phonograph cabinet or the like provided with a lid arranged to swing open and closed, a pair of pivotally connected supporting arms having connection at their free ends with said lid and said cabinet, respectively, said lid being prevented from opening more than a limited amount, a toggle interposed between said lid and said cabinet in addition to said arms, said toggle being adapted in the movement of said lid to be distorted, and means adapted for straightening said toggle to restrain said lid in its movement.

8. In a phonograph cabinet or the like having a lid arranged to swing open and closed, a main pair of pivotally connected supporting arms connected at their free ends with said lid and said cabinet, respectively, said lid being prevented from opening more than a predetermined amount, a toggle connected at one end to one arm and at the other end to the other arm, said toggle being adapted to become distorted upon the closing of said lid, and means tending to straighten said toggle operative to restrain the movement of said lid.

9. In a phonograph cabinet or the like having a motorboard therein and a lid hingedly connected to swing open and closed on said cabinet over said motorboard, a lid support having connection between said lid and said cabinet and disposed above the motorboard in the latter, said device being adapted to be distorted one way to accommodate the relation of said lid to said cabinet in open position and to be distorted transversely within the confines of said cabinet between said motorboard and said lid to accommodate the relation of said lid to said cabinet in closed position.

10. In a phonograph cabinet or the like having a lid arranged to be swung open and closed, a quadrilateral frame having pivotally connected sides and being operatively connected between said lid and cabinet at the hinge connection therebetween over the cabinet motorboard, said frame having two diagonally opposite corners resiliently connected, one of said corners being presented in front away from said hinge connection, means operable from said front side for adjusting said resilient connection to increase or decrease the tension acting between said diagonally opposite corners, the other diagonally opposite corners of said frame being connected to said lid and said cabinet, respectively.

11. In a phonograph cabinet or the like having a lid adapted to swing open and closed, a quadrilateral frame having pivotally connected sides, two of the sides of said frame being extended beyond diagonally opposite corners of said frame to provide means for connection with said lid and said cabinet respectively, spring means con-

necting the other diagonally opposite corners tending to restrain said frame from distortion incident to the closing of said lid and adapted to facilitate the converse distortion of said frame incident to the opening of said lid.

12. In a phonograph cabinet or the like having a lid thereon arranged to swing open and closed, a quadrilateral frame having pivotally connected sides operatively connected between said lid and said cabinet to become distorted in the movement of said lid, and means adapted yieldingly to maintain said frame in normal condition and to restrain the same from distortion.

13. In a phonograph cabinet or the like having a lid thereon arranged to swing open and closed, a quadrilateral frame having pivotally connected sides, two diagonally opposite corners of said frame being connected to said lid and to said cabinet respectively, whereby to distort said frame upon movement of said lid, and the other two diagonally opposite corners having means acting resiliently therebetween adapted to maintain said frame in normal condition and to restrain the same from distortion.

14. In a phonograph cabinet or the like, having a lid arranged to swing open and closed, a quadrilateral frame having pivotally connected sides, means for connecting two diagonally opposite corners of said frame to the lid and cabinet respectively, spring means for connecting the two remaining diagonally opposite corners, and means for adjusting said spring means.

15. In a phonograph cabinet or the like having a lid arranged to be swung open or closed, a pair of pivotally connecting supporting arms, means for connecting the remote ends of said arms to the lid and cabinet respectively, a second pair of pivotally connected arms having their remote ends pivotally connected to said first mentioned arms at points intermediate the ends of the latter, and resilient means operatively associated with said arms to resist the movement of said lid in one direction.

16. A phonograph cabinet or the like having a lid thereon arranged to swing open and closed, a deformable closed linkage having pivotally connected sides, means for connecting two remote corners of said linkage to the lid and cabinet respectively, and means normally tending to deform said linkage, said means acting to resist the movement of said lid in one direction.

17. In a phonograph, in combination, a cabinet, a motorboard in said cabinet, a lid for the cabinet having pivotal connections therewith adjacent the sides of said lid, and a single support for said lid having connection between said lid and said cabinet above said motorboard and between said pivotal connections for said lid.

18. In a phonograph, in combination, a cabinet, a motorboard therein, a lid for said cabinet, and a single lid support for said lid having operative connection above said motorboard between said lid and said cabinet at a point toward the middle of said lid. 5 for connecting said frame to the lid and the cabinet in such a manner that movement of the lid will effect a deformation of the frame, and means resisting the deformation of the frame in one direction. 10

19. In a phonograph cabinet or the like having a lid thereon arranged to swing open and closed, a closed deformable frame, means 15
In testimony whereof, I have hereunto affixed my signature.

WILHELM G. ALDEEN.