June 8, 1948. J. E. LUNDBERG 2,442,955

LID SUPPORT

Filed Aug. 10, 1944

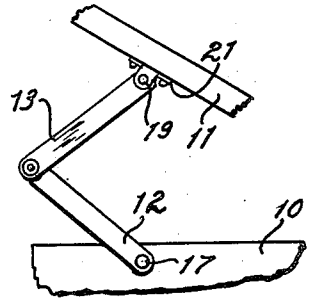


FIG-1

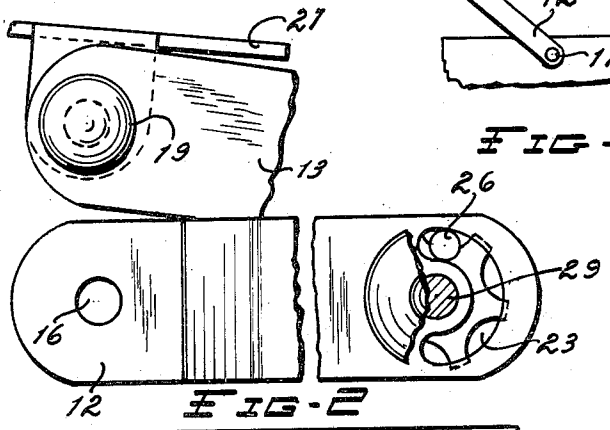


FIG-2

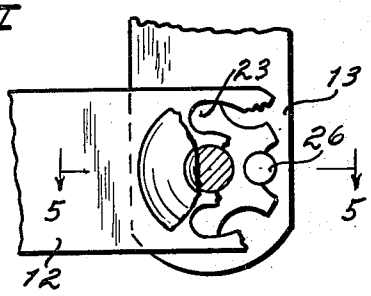


FIG-3

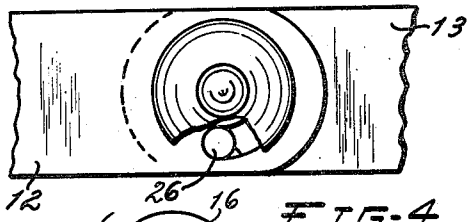


FIG-4

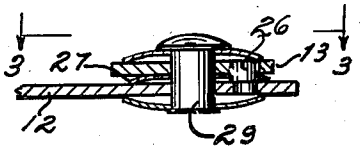


FIG-5

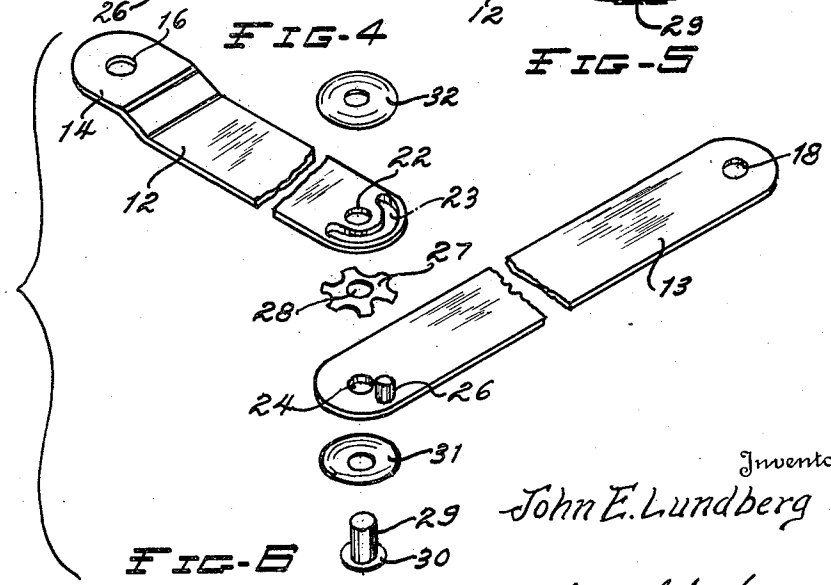


FIG-6

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LID SUPPORT

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2 Claims. (Cl. 217—60)

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This invention relates to hinge supports for cabinet lids and particularly to that type of support in which is embodied frictional means by which to prevent inadvertent moving of the lid from any desired set position.

Although many types of friction supports are known to have been utilized prior to this invention for the purpose of maintaining a cabinet lid in any desired set position, it is believed these supports have not been entirely satisfactory since, for the most part, they included a multiplicity of parts which were bulky and unsightly and very often required specific designing of the cabinet or lid in order that they might be as inconspicuous as possible when installed. In some instances the supports have been of such complexity as to require careful adjustment following installation and even frequent adjustment during use.

It is an object of the present invention to provide a friction support for the hinged lid of a cabinet that not only will sustain the lid in any position to which it may be moved but will also effectively act to prevent inadvertent slamming of the lid into either a closed or opened position.

Another object of the invention resides in the provision of a lid support that includes a minimum number of parts of such location and proportion as to be entirely inconspicuous, require no periodic adjustment, nor special accommodating structure in either the cabinet or lid.

Another object of the invention resides in the provision of a lid support in which stop means for limiting relative movement of the operative parts is located at their pivotal connection, the stop means being so designed as to be entirely concealed and involving no exterior structure.

A still further object of the invention resides in the use of a means located in the connection of a pair of pivotally joined arms that constitute the support which provides a predetermined frictional pressure as between the arms.

Another and most important object of the invention resides in the provision of a lid support that is compact, inexpensive to manufacture and consists of few parts that are easily constructed and assembled and which will remain in operative condition over an indefinitely long period of time.

Other objects and advantages of the invention will be more fully understood and appreciated from a consideration of the following specification taken in conjunction with the accompanying drawing, and in which

Figure 1 is a fragmentary side elevational view of a cabinet and lid in which is incorporated a

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lid support embodying one form of the invention, the lid being shown in a partly opened position;

Figure 2 is a greatly enlarged fragmentary side elevational view showing the position of the arms of the support when the lid is almost closed, parts being broken away at the pivotal connection of the arms to disclose a stop structure for limiting their relative movement;

Figure 3 is a view similar to Figure 2, showing the arms in a different relative position, together with the corresponding position of the stop structure;

Figure 4 shows the arms in fully extended straight line position and the stop structure functioning to prevent movement of the arms beyond this position;

Figure 5 is a vertical sectional view taken substantially on the line 5—5 of Figure 3; and

Figure 6 is an exploded view showing the parts of the support in their relative position prior to assembly.

Referring more particularly to the drawing the reference numeral 10 is employed to generally designate the side wall of a cabinet in which one form of the invention is embodied. A lid 11 is pivotally joined to the cabinet through the use of any conventional hinge (not shown). The lid support comprises a pair of arms 12 and 13. One end of arm 12 may be offset as at 14 to provide clearance and has an opening 16 through which a screw or pin 17 projects to pivotally secure this end of the arm to the cabinet. One end of arm 13 is formed with an opening 18 through which a pin 19 projects to pivotally connect the arm with a bracket 21. Bracket 21 is secured in any suitable manner to the under face of the lid 11.

The other end of arm 12 is formed with an opening 22 and a semi-circular slot 23. A corresponding opening 24 is made in the other end of arm 13 and adjacent this opening a pin 26 may be mounted. The pin 26 or a lug formed from the arm is adapted to project into the semi-circular slot 23 when the arms are assembled. Between the adjacent surfaces of the ends of arms 12 and 13 is located a star washer 27 having an opening 28 corresponding to the openings 22 and 24 of the arms. The space between a pair of prongs of this washer is of a size to receive pin 26. This washer is formed from spring steel and convex in cross-section.

With particular reference to Figure 6 assembly of the arms is now described. A pin 29 having a head 30 is fitted with a washer 31 that is convex in cross-section. The pin 29 is then projected through the opening 24 of arm 13. Next the star

washer 27 is mounted on the projecting portion of the pin 29 and arm 12 is then assembled, pin 29 projecting through opening 22. A further washer 32 is mounted on the pin, this washer also being convex in cross-section and reversely disposed to washer 31. Following mounting washer 32, the projecting end of the pin may be headed over, not only to prevent displacement of the assembled parts but to an extent such as to particularly place washer 27, and to some extent washers 31 and 32 under compression. The desired frictional pressure may be determined by manually pivoting the arms 12 and 13 or if a more accurate setting is required, the assembled support may be subjected to a tester which will accurately reproduce the weight of a lid to which the support is to be applied.

It is to be particularly noted that the frictional pressure obtained by compressing the spring washer 27 is augmented by the exterior washers 31 and 32. Also that the washer 27 is fixed relative to one of the arms due to its interfitting with pin 26. The pin 26 or its equivalent is of no greater height than the thickness of arm 12 and in no wise interferes with washer 32 during assembling of the support and said washer together with washer 31 may be substantially flattened if it is so desired to obtain increased frictional pressure as between the arms. It will of course be understood that the slot 23 shown in the drawing limits relative pivotal movement of the arms to 180 degrees but it is evident this could be increased or decreased as required to limit the opening of a lid to any given extent.

Although applicant has shown and described only one modification of his invention, it will be apparent to those skilled in the art that the exact spring washer contour and curvature, and length of the slot may be modified together with other modifications in adapting this support to different types of cabinets and lids and that such modifications are considered as being within the spirit and scope of the invention in so far as they are defined by the annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. A support for the lid of a cabinet including a pair of arms having a pivotal connection between overlapped ends, said connection comprising a notched spring washer interposed between said ends, one of said ends having an arcuate slot, a lug on the other of said ends projecting through said notch into said arcuate slot, further washers positioned against the remote surfaces of said ends, one of said further washers enclosing said lug and slot, a pin projecting through said ends and washers concentric with said slot and serving as the pivot therefor, said pin being secured in a manner to maintain all of said washers under sufficient compression to provide a given inertia to relative movement of said arms.

2. A support for the lid of a cabinet including a pair of arms having a pivotal connection between overlapping ends, said connection comprising a pronged spring washer interposed between said ends, one of said ends having a semi-circular closed end slot, a lug on the other of said ends projecting between a pair of prongs of said spring washer into said slot, further washers positioned against the remote surfaces of said overlapping ends, a pin projecting through said ends and washers concentric with said slot and serving as the pivot therefor, said pin being secured in a manner to maintain all of said washers under sufficient compression to provide a given inertia to relative movement of said arms, said lug serving to limit relative rotation of said arms about said pin and secure said spring washer against rotation with respect to the lug carrying arm.

JOHN E. LUNDBERG.

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