No. 773,721. PATENTED NOV. 1, 1904.

# W. S. DUVALL.

## LID LIFTER FOR BOX COUCHES.

APPLICATION FILED MAR. 16, 1903.

NO MODEL.

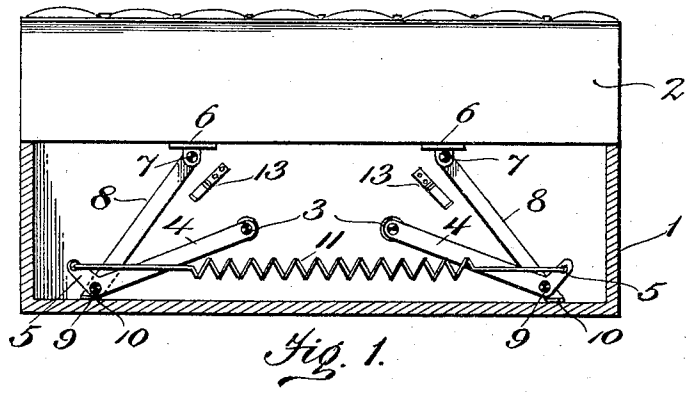



Fig. 1.

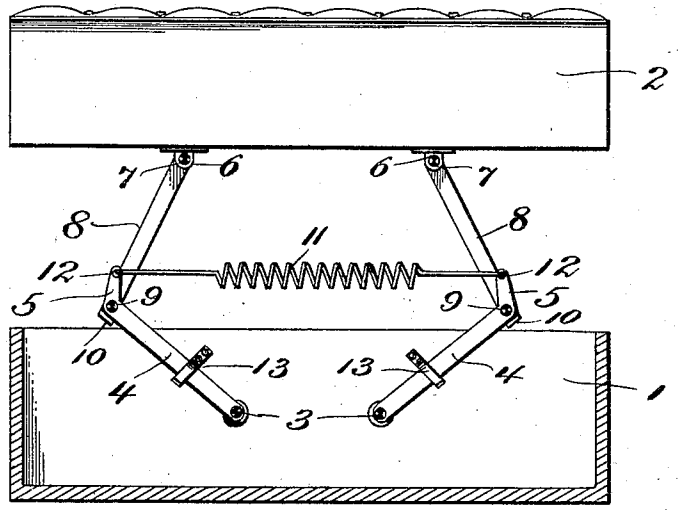



Fig. 2.

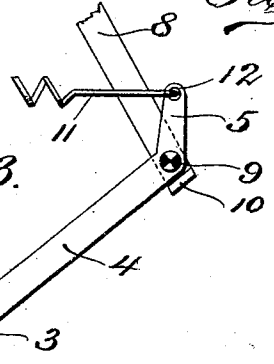



Fig. 3.

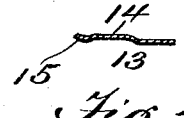



Fig. 4.

Witnesses:

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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 773,721. Patented November 1, 1904.

# UNITED STATES PATENT OFFICE.

WILLIAM S. DUVALL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE SENG COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## LID-LIFTER FOR BOX-COUCHES.

SPECIFICATION forming part of Letters Patent No. 773,721, dated November 1, 1904.

Application filed March 16, 1903. Serial No. 148,087. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. DUVALL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Lid-Lifter for Box-Couches, of which the following is a specification.

My invention relates to improvements in lifts for box-couches.

Heretofore it has been usual to provide mechanisms embodying in their make-ups springs for either wholly raising or aiding in the raising of box-couch lids or tops, such mechanisms involving a system of levers. At a further period in the art it was found advantageous and means were devised for elevating said lids within their own vertical area, whereby it became unnecessary to withdraw such couches from an adjacent wall for the purpose of permitting a raising of the lid, and finally mechanisms were involved which would permit not only a raising of the lid within its own vertical area, but also which would permit of a raising of either side of said lid, whereby the box-couch as a whole became reversible. Many advantages arise from this construction, principal among which is that it virtually doubles the life or utility of the couch in that, as is well known, the upholstering at one side becoming damaged from use the said couch can be reversed and the good or unused side placed outermost.

My invention relates more particularly to improvements in this latter construction of couch—that is, to a couch which may be reversed side for side, and thus its life or period of utility practically doubled.

The main objection to what is known as the "reversible" lid-lifter is that, like lifters of this class heretofore constructed, only a portion of the box or receptacle of the couch is accessible and in many instances the mechanism is so constructed as to require a certain amount of preliminary manipulation before the lid can be operated from the opposite or inner side.

The objects of my invention are to provide a cheap, simple, strong, and durable construction of lid-lifting mechanism which is designed to be operated either wholly or partially by suitably-arranged springs and which will propel and guide said lid in a practically vertical manner, so that the box or receptacle part is accessible from the ends as well as the sides.

With such general objects in view my invention consists, broadly, in a mechanism that will elevate the lid of a box-couch vertically in connection with a spring or springs so arranged as to aid in the elevation of said lid or wholly elevate the same, as preferred, and in certain other features of construction and combination of parts hereinafter described, and particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 represents a box-couch having a lid-raising mechanism or opener embodying the principle of my invention, the lid being shown closed and in end elevation and the box or receptacle portion being shown in vertical transverse section. Fig. 2 is a similar view with the lid raised. Figs. 3 and 4 are details hereinafter referred to.

Similar numerals of reference indicate similar parts in all the figures of the drawings.

It will be understood that I consider my invention broadly novel in so far as it relates to a bodily vertical raising of the lid, and I do not, therefore, wish to be considered as in any way confined to any or all of the mechanism hereinafter described for accomplishing the end in view and consider my invention as sufficiently comprehensive to include any mechanism that is adapted to raise the lid vertically and bodily from the receptacle.

Referring more particularly to the several figures of the drawings, 1 designates the box or receptacle portion of an ordinary box-couch, and 2 the lid, such parts being of the conventional type. Pivoted at suitable points to the end walls of the receptacle portion—as, for instance, at 3—are the inner ends of a pair of links or levers 4, the outer extremities of which may be disposed at an angle thereto, thus producing branches 5. At suitable points on the under side of the lid adjacent

to its end and in bearing-brackets 6, for instance, there may be pivoted, as at 7, the upper ends of a pair of upper links 8, which may be pivoted, as at 9, to the links 4 coincident with their angles and may be extended slightly beyond such pivoted points and laterally bent to form stop-shoulders 10.

Between the branches 5 of the links 4 may be stretched an ordinary retracting-spring 11, the terminals of which are secured in perforations or over studs 12, with which the terminals of the branches 5 may be provided.

Spring-keepers 13 (shown in detail in Fig. 4) may be secured to the end walls of the receptacle portion, between their ends offset slightly, as at 14, and at their free ends flared, as at 15, such keepers being so disposed and located as to limit the upward movement of the links 4 and to receive and lock the same in their raised position, as illustrated in Fig. 2. Any means adapted for this purpose may be substituted for the keepers 13, the office of such keepers being merely to form stops for the links 4 and to also have a tendency to retain said links in their upper positions. When the couch-lid is raised to its vertical position, as shown in Fig. 2, the stop-shoulders 10 (see Fig. 3) will abut against the outer edges of the links 4, and thus prevent any further upward movement of the lid. These stop-shoulders also prevent any tendency on the part of the lid to wabble.

Taking the parts in the position shown in Fig. 1, it will be seen that the springs 11 are below the pivot-points 3, or they may be substantially in line therewith, and hence also the springs are near their greatest tension and do not by reason of their positions have a tendency to elevate the lid. Immediately, however, upon a slight impetus given the lid the springs pass the pivot-points 3, so that said springs begin to act to raise the lid or aid in so doing through the system of links 4 and 8 described. When the lid is wholly raised, the tension of the spring is greatest, or rather the links are in such position as to render the tension more powerful, so that the spring also aids in steadying the opener by drawing the links 4 up up into the stop-clips 13 and maintaining them therein.

From the foregoing description it will be observed that I provide a very simple mechanism adapted to vertically elevate the top and maintain and lock it in its elevated position and which is also adapted by a slight pressure of the hand exerted on the top to liberate the parts and permit a falling of the top, such falling being governed by the tension of the spring, and therefore being gradual.

Having described my invention, what I claim is—

1. In a box-couch, the combination of duplicate pairs of pivoted links arranged horizontally opposite each other at each end of the box-couch and fixedly pivoted at their opposite ends to the end walls of the couch and to the lid at opposite sides of the center of the latter and adapted when extended to vertically raise the lid in a horizontal position above the couch whereby access may be had to the latter, and means for temporarily retaining said lid in its elevated horizontal position.

2. In a box-couch, the combination of duplicate pairs of pivoted links arranged opposite each other and fixedly pivoted at their opposite ends to the end walls of the couch and to the lid at opposite sides of the center of the latter and adapted when extended to vertically raise the lid in a horizontal position above the couch whereby access may be had to the latter, and a spring connecting each duplicate pair, said spring being so arranged with relation to the links as to aid in elevating the lid and its maintenance when elevated and to obviate an exertion on the lid sufficient to operate the latter when said lid is lowered.

3. In a box-couch, the combination, of a duplicate system of pivoted links pivoted to the lid at opposite sides of the center of the latter and to the couch, and adapted when extended to vertically raise the lid to a horizontal position above the receptacle and a spring connecting the system, said spring and links being so arranged as to aid in elevating the lid and its maintenance when elevated and to obviate an exertion on the lid sufficient to operate the latter when said lid is lowered.

4. In a box-couch, the combination, of an opposite pair of lower links pivoted at their inner ends to the walls of the receptacle, a pair of upper links pivoted at their upper ends to the under side of the couch-lid at opposite sides of the center of the latter and at their lower ends to the lower links, whereby, when extended the lid is vertically and horizontally raised to a position above the receptacle to give access thereto, a spring arranged between the two sets of links for exerting a tendency to extend the same subsequent to an initial upward impulse given to said lid, and means for temporarily securing said links in their extended position.

5. In a box-couch, the combination, of the two lower links pivoted at their lower ends to the end of the couch, and having their free ends disposed outwardly, the upper links pivoted to the under side of the couch and at their lower free ends disposed outwardly and pivoted to said lower links and extended beyond said latter pivot-point and laterally bent to form stops for said lower links, whereby the upward movement of the lid is limited.

6. In a box-couch, the combination, of a duplicate system of links pivoted together, to the couch, and to the lid and adapted to elevate the latter, a spring for aiding in such elevation, and spring-stops arranged in the path of said links and adapted to engage the same.

7. In a box-couch, the combination with the

lower links 4 pivoted, as at 3, to the end of the couch and having at their free ends lateral extensions 5, the upper links 8 pivoted, as at 7, to the under side of the couch-lid and, as at 9, to the links 4 and having their ends laterally bent beyond the same to form stops 10, the spring 11 connected to the branches, and the spring-clips 13 arranged in the path of the links 4, said clips being offset, as at 14, and flared at their extreme ends, as at 15, as and for the purpose set forth.

8. In a box-couch, the combination of two mutually-movable horizontally opposite systems of links, the links of each system being pivotally connected, and the ends of the systems being pivoted to the interior of the box and to the lid at opposite sides of the center of the latter, said systems being adapted to collapse or fold within the box when the lid is lowered thereon and when unfolded or extended to elevate the lid to a horizontal position above the box to give access thereto at each of its four sides, and a spring connecting the horizontally opposite systems to aid in mutually actuating the same.

9. In a box-couch, the combination of two mutually-movable horizontally opposite systems of links, the links of each system being pivotally connected, and the ends of the systems being pivoted to the interior of the box and to the lid at opposite sides of the center of the latter, said systems being adapted to collapse or fold within the box when the lid is lowered thereon and when unfolded or extended to elevate the lid to a horizontal position above the box to give access thereto at each of its four sides, and springs connected to the systems to aid in mutually actuating the same.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM S. DUVALL.

Witnesses:

HORACE S. BEALL,

EMORY H. BOGLEY.