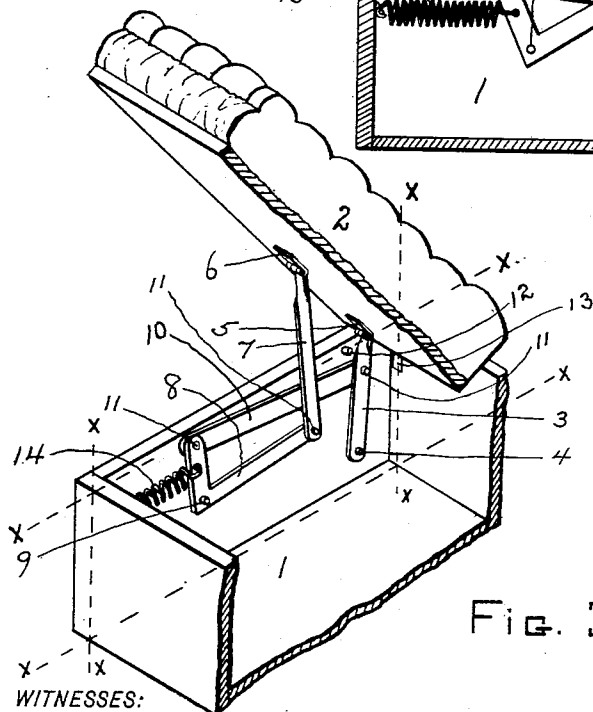
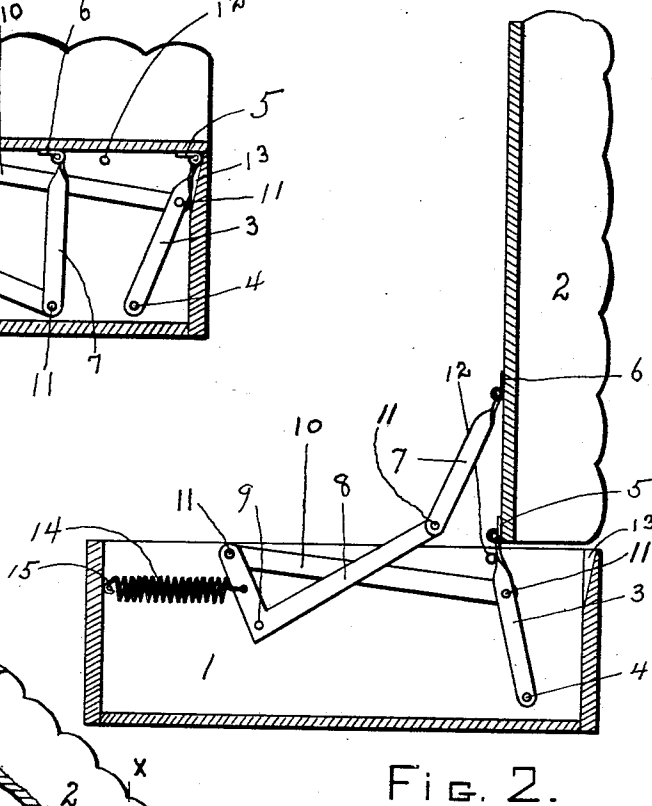
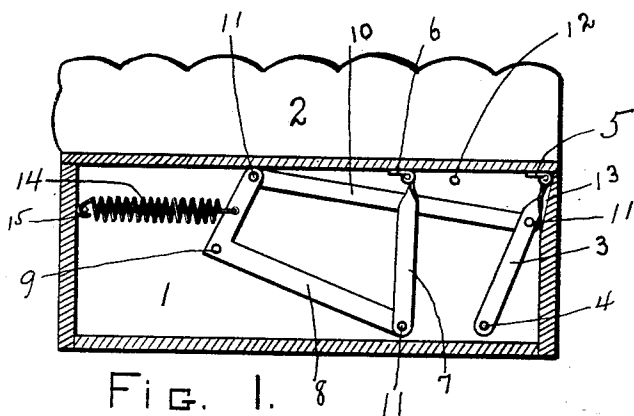


(No Model.)

B. G. COATES.
BOX COUGH.

No. 586,476.

Patented July 13, 1897.



WITNESSES:

H. S. Rollins
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UNITED STATES PATENT OFFICE.

RAY G. COATES, OF PASADENA, CALIFORNIA.

BOX-COUCH.

SPECIFICATION forming part of Letters Patent No. 586,476, dated July 13, 1897.

Application filed December 14, 1895. Serial No. 572,155. (No model.)

To all whom it may concern:

Be it known that I, RAY G. COATES, of the city of Pasadena, county of Los Angeles, and State of California, have invented a new and useful Improvement in Box-Couches, which improvement is so clearly set forth in this specification and the accompanying drawings that one skilled in the necessary arts may readily apply it to practice.

10 The object of my improvement is to so swing the lid of a box-couch that in opening the couch there will be no necessity for moving the entire couch away from the wall, against which they are customarily placed, and to also reduce the labor required for the act of opening.

My invention consists in so moving the upholstered lid that the lower rear edge of the latter advances toward the front of the box 20 simultaneously with the act of raising, so that the said lid is always so far advanced that no part of the upholstery will project beyond the rear of the box at any time during the act of opening; also, of means for effecting this sequence of motions, and, further, of counter-balancing devices to reduce the effects of gravity on the lid.

In the drawings, Figure 1 is a cross-sectional view of the couch closed; and Fig. 2, 30 a similar view, but with the couch open, both sections taken on the plane XX XX XX of Fig. 3, which latter represents a transverse sectional interior view of one end of a couch.

The box 1 forms the foundation of the structure. The upholstered couch 2 is the lid to box 1. To the under rear part of couch 2 is attached, by means of the hinge 5, the swing-bar 3. 3 is also secured to the box 1 by means of the pin 4, around which latter it may swing to a limited extent. To the under side of 2 is also attached the hinge 6, and to the latter the connecting-bar 7.

8 is a bent lever moving on the pin 9 as a fulcrum. The pin 9 is firmly secured to the end of the box 1. The lever 8 is connected to the couch 2 by means of the bar 7 and to the swing-bar 3 by means of the connecting-bar 10, and these connections are articulated by suitable pins, rivets, or bolts 11 11 11. If 2 is raised at the front edge, the hinge 6, rising with it, carries upward 7 and the lower arm of 8. The upward movement of the lat-

ter necessarily moves its upper arm away from the rear of the box 1, and it results that owing to the connection 10 the swing-bar 3 55 also moves forward, carrying with it the hinge 5, to which is attached the couch 2. The points of attachment of the hinge 6, connections 7 and 10 to the couch 2, lever 8, and bar 3 may be so varied as to give any necessary ratio between the angular movement of opening and the forward movement of the rear edge of the couch. The connection 10 may be connected to the under side of 2 directly under some circumstances, and the bar 3 may 65 or may not be omitted.

In order to reduce the effort required to open the couch, a spring 14 is connected to the upper arm of 8. The opposite end of 14 is connected to the box 1 by being hooked 70 over the pin 15, which latter is secured to the box. The strength of the spring is to be such that when the couch is down, as in Fig. 1, the elastic reaction will leave only sufficient unbalanced weight to the couch to firmly seat the latter on the box 1, and when the couch is open, as in Fig. 2, there is to be practically no tension on the spring, since in this position the center of gravity of the couch has 75 passed to the other side of its points of support, and no balancing effort is required. By this construction the couch remains open when raised to the vertical position and closed when seated on the box, and yet requires only a small effort to open it. 85

The apparatus described is to be in duplicate and one attached to each end of the box and couch. The spring may be of double strength and applied to one end only. A spring at each end, however, does away with any tendency to twist the couch and is the preferred construction. The spring may be of any desired form. It will be evident that the use of a compression-spring will require the latter to be so placed that it is compressed 95 when the couch is closed and is permitted to expand as the couch rises. The spring need not be connected to the lever 8, but may be connected in any convenient manner between the couch 2 and box 1, provided its reaction 100 on the former is in the manner specified.

To prevent the couch 2 from passing the vertical position in opening, a stop may be placed in any appropriate location, as the pin

12 in the place shown, since by preventing the movements of the parts of the mechanism beyond any given point the couch will also be limited in its motion.

5 In order that the hinge 5 may be placed near the rear edge of 2, the recess 13 is cut in the back wall of the box 1, thereby furnishing room for the bar 3.

10 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a box, an upholstered top, a two-armed lever fulcrumed on the said box, means for connecting one arm of the said lever to the under side of the said top near its rear edge, and means for connecting the other arm of the said lever to a point on the under side of the said top but forward of its rear edge, whereby the angular movement of the top produces a forward lateral movement of the said rear edge, substantially as described.

2. The combination of a box, an upholstered top, a two-armed lever fulcrumed on the said box, means for connecting one arm of the said lever to the under side of the said top near its rear edge, means for connecting the other arm of the said lever to a point on the under side of the said top but forward of its rear edge, and a spring arranged to react on the said top with a force that is greatest when the said top is down, and ceases when

the said top approaches a vertical position, substantially as described.

3. The combination of a box, an upholstered top, a swing-bar pivoted at its lower end to the said box and at its upper end to the under side of the said top near the rear edge of the latter, a two-armed lever fulcrumed on said box, a pivoted connection from one arm of the said lever to the said swing-bar, a pivoted connection from the other arm of the said lever to the under side of the said top but forward of its rear edge, substantially as described.

4. The combination of a box, an upholstered top, a swing-bar pivoted at its lower end to said box and at its upper end to the under side of the said top near the rear edge of the latter, a two-armed lever fulcrumed on the said box, a connection pivoted to one arm of the said lever and to the said swing-bar, a connection pivoted to the other arm of said lever and to the under side of the said top but forward of its rear edge, and a spring arranged to react on said top with a force which is greatest when said top is down and which ceases when said top approaches a vertical position, substantially as described.

RAY G. COATES.

Witnesses:

N. W. BELL,
H. S. ROLLINS.