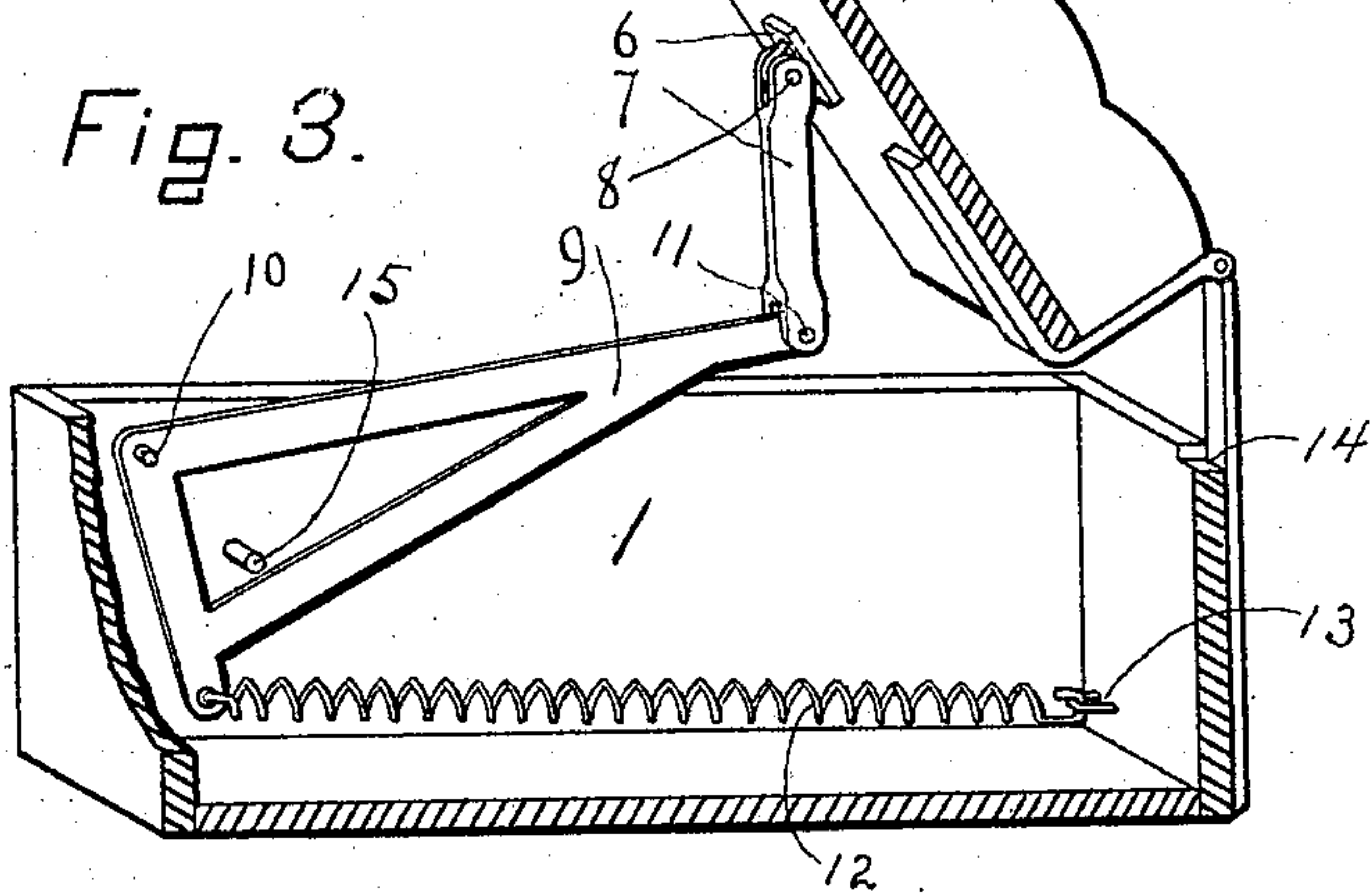
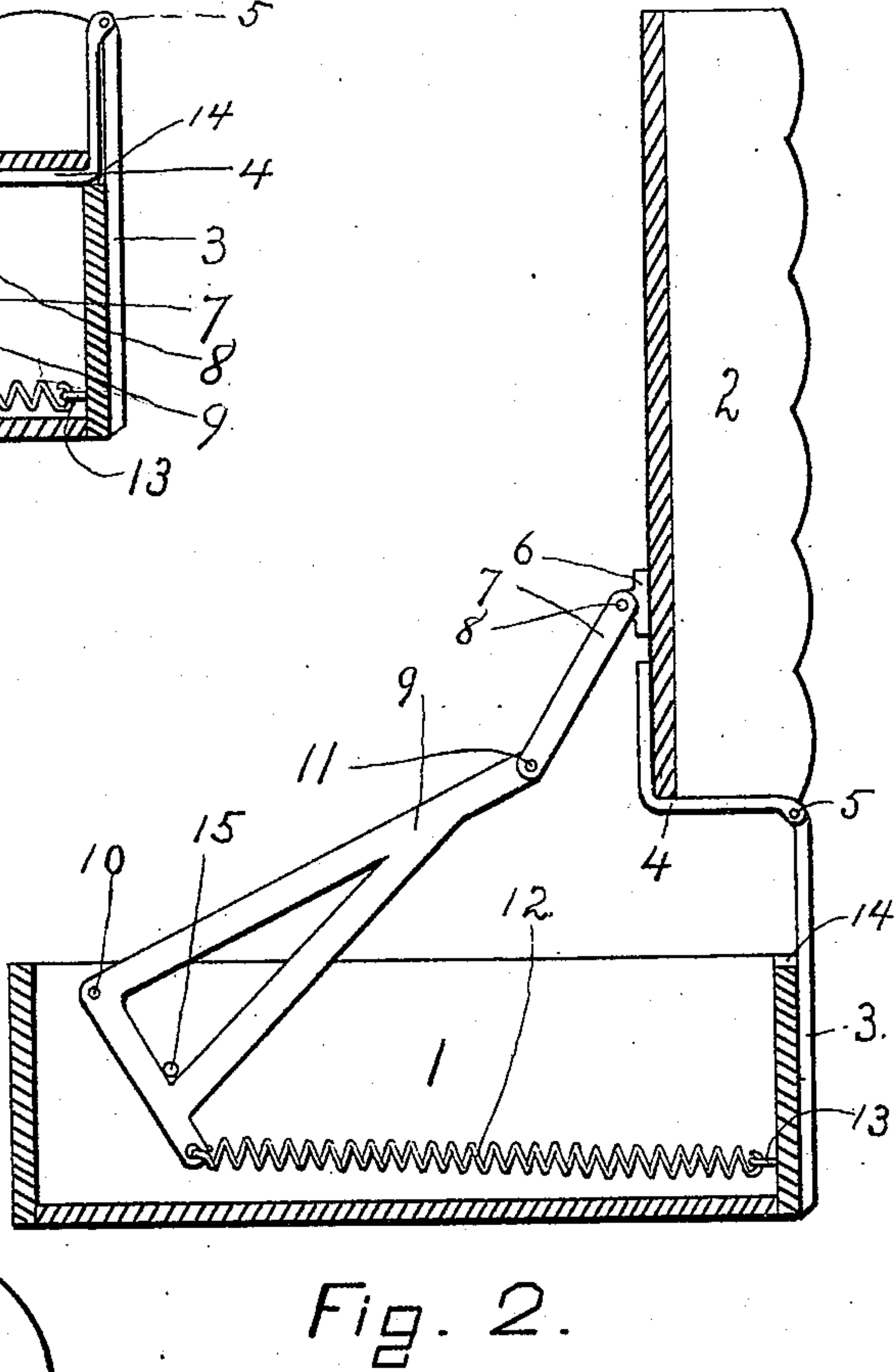
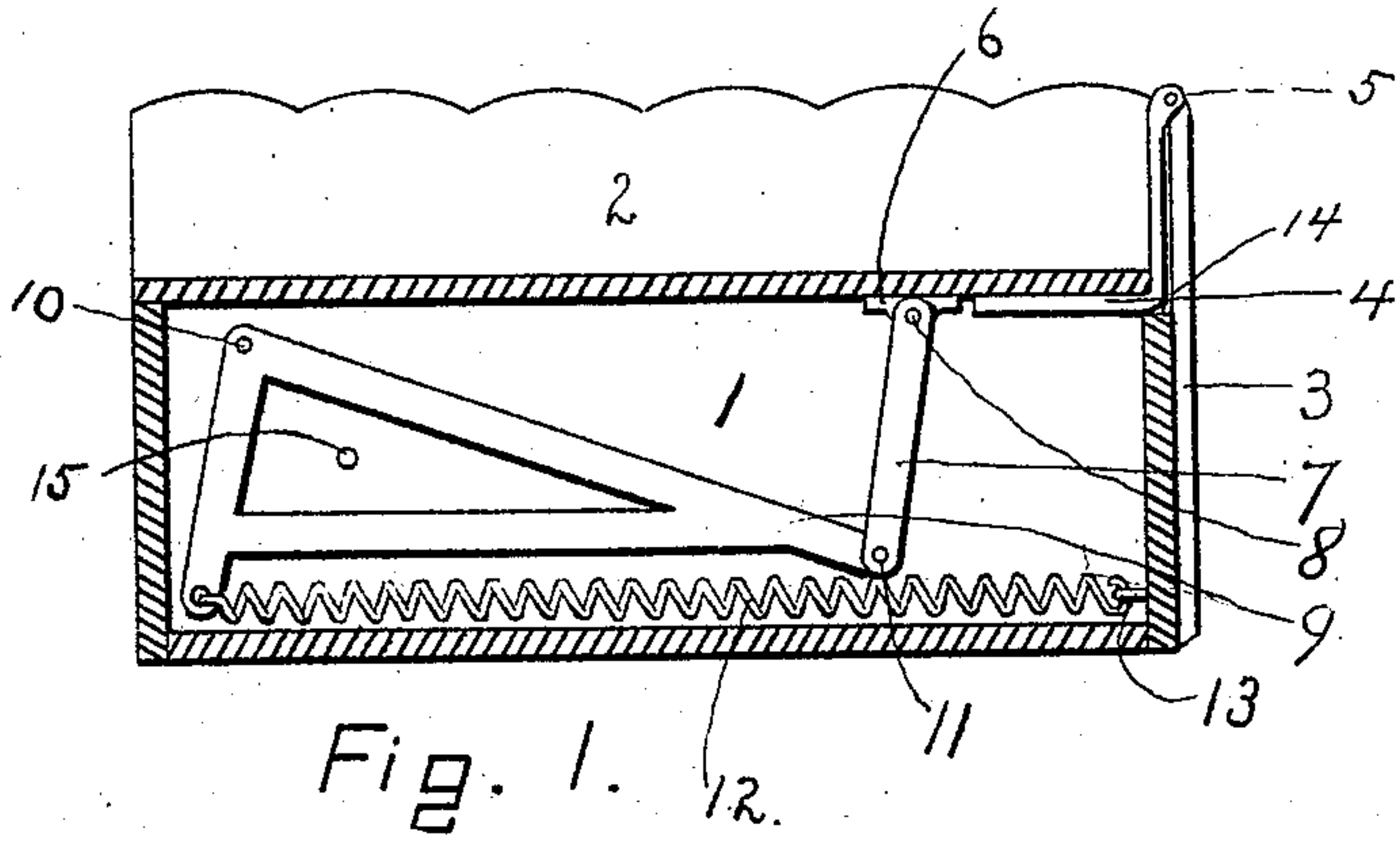


(No Model.)

R. G. COATES.  
BOX COUCH.

No. 574.393.

Patented Jan. 5, 1897.



**WITNESSES:**

H. S. Rollins  
W. W. Bell

***INVENTOR***

Ray G. Coates.



# UNITED STATES PATENT OFFICE.

RAY G. COATES, OF PASADENA, CALIFORNIA.

## BOX-COUCH.

SPECIFICATION forming part of Letters Patent No. 574,393, dated January 5, 1897.

Application filed December 14, 1895. Serial No. 572,156. (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  
5 useful Improvement in Box-Couches, which improvement is so clearly set forth in this specification and the accompanying drawings that one skilled in this particular branch of the arts may readily apply it to practice.

10 Box-couches, meaning thereby couches in which the body or foundation of the couch forms a receptacle for clothing, &c., while the upholstered lid conceals the contents and is at the same time utilized as a couch, are gen-  
15 erally, as articles of furniture, placed against a wall. When in this position, the thickness of the upholstery requires that the couch be moved bodily from the wall whenever the box  
20 is opened, since in raising the lid that part of the latter above the hinge begins to swing past the vertical plane of the back of the box.

The object of my improvement is to eliminate the necessity of removing the couch from the wall when it is desired to open it and also  
25 to reduce the labor required in this action. In general I accomplish these results by placing the axis of the hinges upon which the couch swings approximately on the level of the upper surface of the upholstery and by  
30 the use of counterbalances which assist in supporting the weight of the upholstered lid.

In the drawings, Figures 1 and 2 represent cross-sectional views near one end of an improved couch, with the latter closed and open,  
35 respectively; and Fig. 3 is a sectional interior view of a similar part in a partially open position.

Referring again to the drawings, 1 represents the box forming the foundation of the  
40 structure. The couch 2 is in reality an upholstered lid to the box.

3 represents that member of the supporting-hinge which is fastened to the box. 4 is the other member of the hinge, and it is secured  
45 to the under side of the couch near the rear edge, as shown.

The hinge formed by the members 3 and 4 is so placed that the axis or pin 5 is approximately level with the upper surface of the upholstery, and the said axis is also parallel with  
50 the rear edge of box 1.

In order to securely fasten the hinge to the

box and couch, I prefer that it have a long bearing on the box and also on the under side of the foundation-piece of the couch, as shown. 55 The latter is readily accomplished by so shaping the part 4 that it forms an angle, one arm of which reaches to the axis and the other to the under side of the couch, where it is secured in any firm and approved manner. In  
60 order that the member 4 may not prevent the couch from being seated upon the box, the upper edge of the latter may be cut away next the part 3, as is shown by the notch or recess 14. By this construction the couch may be  
65 raised to the vertical position without any of its parts passing the vertical plane of the back of the box.

When the couch is open, its center of gravity is forward of the pin 5, upon which it rests. 70 It therefore requires support to maintain it in a vertical position. To this end, secured to the under side of 2, forward of the rear edge, is the hinge-plate 6. A bar 7, by means of the pin 8, is flexibly connected to the plate 6. 75 A lever 9, swinging on the pin 10, which latter is firmly fastened to the box 1, is also flexibly connected to the other end of the bar 7 by means of the pin 11. To the lower end of the lever 9 is hooked one end of the spring 12. 80 The opposite end of 12 is hooked into the staple 13, and the latter is fastened to the rear interior wall of the box 1, as shown.

In opening the couch the hinge-plate 6, rising, will carry with it the connected bar 7, 85 and this latter will raise the lever 9. Lever 9 will then partially rotate around the pin 10, and its lower arm will move toward the rear of the box. If the spring 12 is one of tension, its elasticity will act on the couch 2, through  
90 parts 9, 7, and 6, in a direction that reduces the effort required to effect the act of opening. In the position shown in Fig. 2 the strength of the spring should be sufficient to slightly overbalance the weight of the couch. In the  
95 position of Fig. 1 the weight of the couch should, however, somewhat overbalance the strength of the spring, in order that the couch may be firmly seated on the box. It will be evident that the center of gravity of the couch  
100 is much farther from the pin 5 in the position of Fig. 1 than in that of Fig. 2. Therefore the couch naturally overcomes the increasing strength of the spring as the latter is extended.



An additional opportunity of adjustment is possible by varying the length of the lever, or point of application on the couch, or by a combination of these several methods. For the  
5 purposes of illustration the spring is shown as one of tension. One of compression is equally applicable, provided that it is so placed as to be compressed as the couch descends, and it is also adjusted in strength, as  
10 previously set forth. It will be further evident that so long as the reaction and strength are as specified the spring may have any desired form.

To prevent the couch from passing the vertical position, the motion of the lever may be  
15 limited, as, for instance, by the stop 15, which latter is a pin secured to the end of the box in such a position that the lever comes in contact with it when the couch has arrived at the  
20 vertical position. In applying the improvement herein described a hinge 3, 4, and 5 is to be attached between the couch and the box near each end of the rear side of the structure. The counterbalancing device may be  
25 applied at one end, and one spring will then be sufficient, but this method has a tendency to twist the couch. Therefore I prefer that the counterbalancing device be applied in

duplicate, one part at each end of the couch and with the springs of a strength equal to 30 half of the necessary total strength.

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

The combination of a box, an upholstered 35 top hinged approximately on the line of intersection of the plane of the upper surface of the upholstery with that of the rear wall of the box, a lever fulcrumed on said box, a connecting-piece pivoted to the said lever and to 40 the said top, and a spring so attached to the said box at one end and to the said lever at the other that the line of the direction of the reaction of the spring and the line joining the  
45 fulcrum and the point at which the said spring is attached to the said lever are more nearly perpendicular than parallel to each other in all positions of the said lever, whereby the  
50 said spring reacts on the said top, through the said lever, with a great lifting force when said top is down, substantially as described.

RAY G. COATES.

Witnesses:

N. W. BELL,

H. S. ROLLINS.