

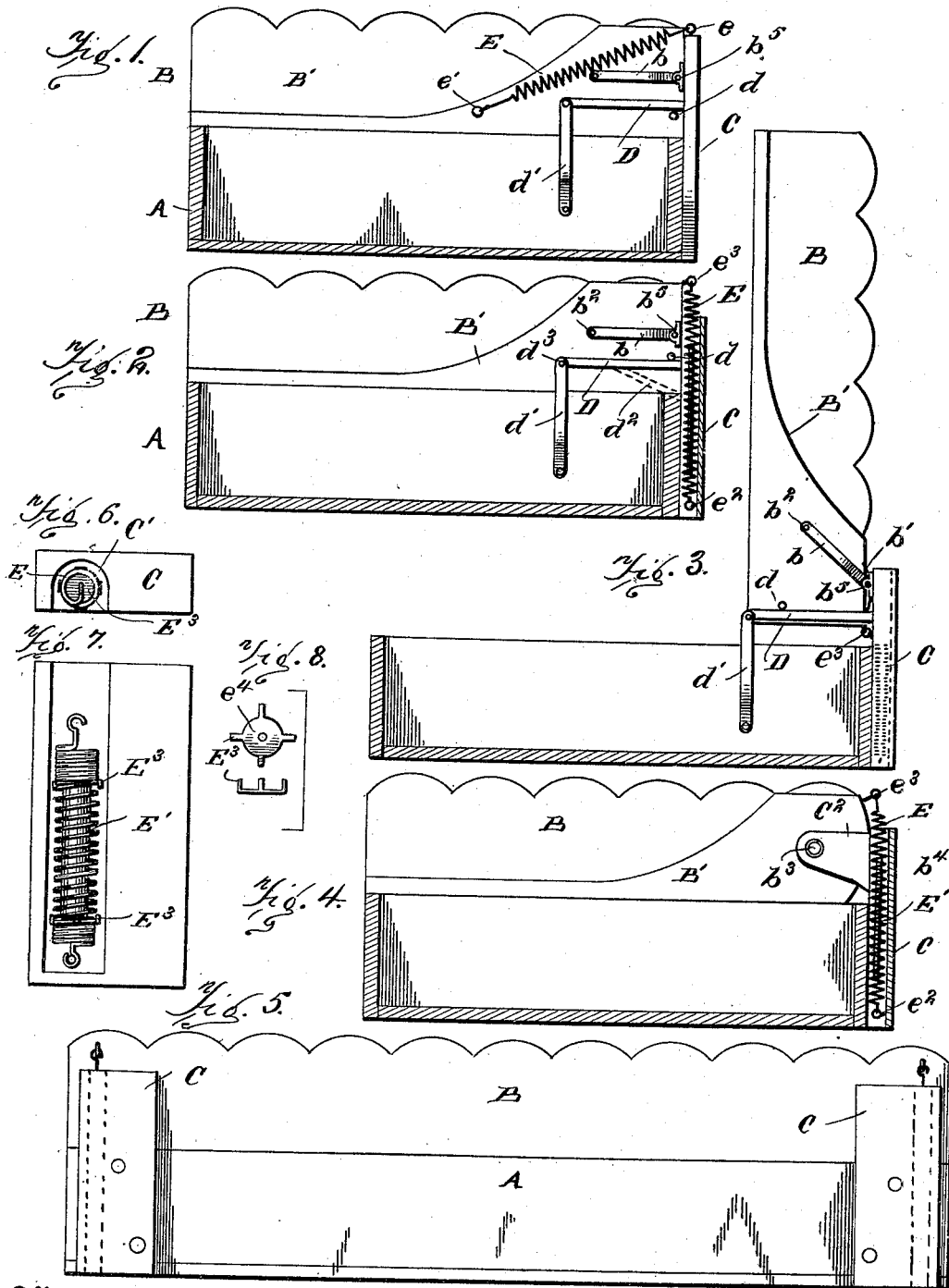
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G. T. SMALLWOOD & A. H. SULSER.
BOX COUCH.

(No Model.)

(Application filed Nov. 4, 1899.)



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UNITED STATES PATENT OFFICE.

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BOX-COUCH.

SPECIFICATION forming part of Letters Patent No. 646,921, dated April 3, 1900.

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To all whom it may concern:

Be it known that we, GEORGE T. SMALLWOOD and ADAM H. SULSER, residents of Washington, District of Columbia, have invented a new and useful Improvement in Box-Couches, which invention is fully set forth in the following specification.

Our invention relates to means for hinging covers to boxes, and more particularly to hinging an upholstered or other cover to a box, thereby forming what is commonly known as a "box-couch." In this class of couches it is desirable to have the cover of the couch so hinged that it may be raised for the purpose of opening the box to gain access thereto without the necessity of withdrawing the couch from the wall against which it may be standing. Furthermore, it is desirable in box-couches, as well as other forms of boxes, to have the mechanism by which the cover is suspended in its open position and by which it is controlled during its opening movement outside of the box portion proper in order that such mechanism may in no way interfere with the contents of the box or the contents of the box interfere with the operation of the mechanism.

The object of our invention is to construct a box having the above-described advantages; and with this object in view our invention consists in a box, herein shown as a box-couch, having standards secured to one of the walls of the box and projecting above the upper edge thereof and a cover hinged by means of suitable links to said standards, so as to turn about a point or axis in front of the standards.

Furthermore, our invention consists in a box having standards secured to one of its walls and a cover hinged to said standards by suitable links, and a power device, preferably a spring, acting either directly or through the medium of suitable levers to assist in opening the box-cover, said power device and its connected levers being without the box proper. Such power device, with its connected levers and operated mechanism, may be either wholly concealed within the cover portion of the box or may be secured outside of the box and cover, as may be found desirable.

Furthermore, our invention consists in cer-

tain details of construction hereinafter described, and specifically pointed out in the claims.

Our inventive idea may be embodied in a great variety of mechanical forms, and we have herein shown some of the forms which the same may assume; but it is to be understood that such forms are shown for the purpose of illustration only and not as defining the limits or scope of the invention.

In the drawings forming part of this specification, Figure 1 is a transverse vertical section of a box-couch looking toward the end thereof, with certain parts in elevation and upholstery shown in diagrammatic outline. Fig. 2 is a similar view of a slightly-modified form, the cover being closed. Fig. 3 is a view similar to Fig. 2, the cover being open. Fig. 4 is a view of a further modification. Fig. 5 is a back view of the couch such as shown in Figs. 2, 3, and 4. Fig. 6 is a plan view of a hinge-supporting cleat and the spring concealed therein. Fig. 7 is a front elevation of said cleat and spring, and Fig. 8 is a detail of the stop device employed in connection with the spring of Figs. 6 and 7.

Referring to the drawings, A is a box, herein shown as a box-couch, and B is a cover thereto.

C C are cleats secured to one of the walls of the box, preferably the rear wall, said cleats being of sufficient length to project upward a considerable distance above the top of the box proper.

Referring to Figs. 1, 2, and 3, *b* is a link pivoted by means of ears *b'* to the front face of the cleat C and preferably extending therefrom a short distance forward in a horizontal line when the cover is closed and pivoted at *b²* to the end B' of the cover.

D is a track or way above the upper edge of the box proper and extending forward from the cleat C, and *d* is a pin rigidly connected to the end B' on the cover and projecting inward, so as to travel along the way D when the cover is opened. As here shown, the way D is in the form of a bar with the pin *d* traveling along the upper or lower edge thereof; but, if desired, the way may be in the form of a bar with a longitudinal slot therein, within which slot the pin *d* travels. One end

of the way D is secured to the cleat C, and the other end is supported in any suitable manner, here shown as by means of an upright standard d' , secured to the inner face of the end of the box, though, if desired, said way 5 may be supported by means of a brace d^2 , extending from the cleat C at a point above the upper edge of the box, as shown by dotted lines in Fig. 2. The standard d' and the way 10 D may be pivotally connected at d^3 , and in the original adjustment of the parts the standard d' may be raised or lowered, so as to give the way D any inclination desired.

The cover, hinged to cleats C C by means 15 of the links b , may be elevated by hand; but in the case of a box of any considerable size it is desirable to have some power device to assist in the manual operation of the cover, and for this purpose we prefer to employ a 20 spring, which is placed under tension in the act of closing the cover of the box, which tension is utilized to assist in the opening movement of the cover. Various means may be employed to thus place the spring under tension either by the direct attachment of the 25 spring to the cover and box or through a system of suitable levers. In Fig. 1 we have shown the spring E secured at one end to the box by way of the upper end of the cleat C at e and at the lower end to the cover of the box at e' , the spring in this instance lying wholly within the cover of the box, and thereby concealed from view. In Figs. 2, 3, and 4 the spring E is attached at e^2 to the box at a point at the 30 rear of and outside of the box and at the point e^3 to the rear edge of the cover above the pivotal point thereof when the cover is closed. In the construction shown in Figs. 2, 3, 4, and 5 the spring may, if desired, be exposed to 35 view on the outside of the box; but preferably they are concealed within a groove C' , (see Fig. 6,) cut in the face of the cleat, to one side thereof. For the purpose of affording a stop to determine the point beyond which the cover 40 cannot be opened we have inserted within the coils of the spring a suitable rod E' , (see Figs. 4 and 7,) the length of the rod being such that when the lid is opened to the desired extent the ends of the rod will come in contact with 45 suitable abutments and prevent the further opening movement of the box or the further contraction of the spring. These abutments may be the pins of eye-staples e^2 e^3 , to which the spring is secured to the box and cover, respectively; but we prefer to adopt the form 50 shown in Figs. 7 and 8, wherein the abutments consist of suitable clips E^3 , preferably of sheet metal, of the form shown in Fig. 8, which clips are of a suitable size to be inserted between the coils of the spring E at any desired point, with the arms e^4 bent around the wire of the spring to hold the abutment E^3 in position. 55 When the spring is expanded and the cover of the box closed, the abutments E^3 in no way affect the functioning of the spring; but when the cover is raised the spring contracts evenly throughout all its coils until the abutments

E^3 contact the ends of the rod E' , after which that portion of the spring lying between the abutments E^3 can contract no farther. The 70 tension of the spring will then act to hold the cover of the box in the position to which it may have been raised, preventing it from moving downward or closing, and the rod E' will prevent the cover from moving backward 75 or opening farther, and thus between the action of the spring and the rod the cover will be maintained in the desired position. The operation of this stop device is not dependent upon the particular manner of hinging the 80 cover to the box, and it may therefore be employed in any construction wherein the spring is used to assist in raising or opening a hinged cover.

In Fig. 4 we have shown brackets C^2 extending forward from the front face of the cleats C, said brackets being rigidly secured to the cleats and having pivot-pins b^3 extending through their outer ends and pivotally connecting the cover B with the brackets C^2 . In 90 this construction the rear ends of the end boards B' of the cover are rounded, as shown at b^4 .

The operation of the device is as follows: Referring more particularly to Figs. 2 and 3, 95 when the cover B is raised from the position shown in Fig. 2 to the position shown in Fig. 3 the links b at either end turn in a vertical plane about their pivots b^5 and the cover turns about the pivots b^3 , where it is attached to the links b , the main weight of the cover in its elevating movement being sustained by the pins d , traveling along the ways D. The tension of the spring acts to hold the pin d firmly 100 down upon the upper line of the ways D. When the couch-cover is fully opened, the cover will occupy the position shown in Fig. 3, wherein no portion of the cover, except, possibly, the upholstery, extends backward to a point beyond the rear line of the box proper. 105 In this form the length of the said rods E and the position of the abutments E^3 will be such as to hold the cover in a vertical position. If it is desired to have the cover assume any different angle with relation to the top line 110 of the box, this may be secured by a proper adjustment of the abutments E^3 with relation to the rod E' and by an adjustment of the inclination of the ways D, the pivotal connection between the ways D and their 115 supporting-standards d' being for this purpose. When the cover is moved in the act of closing, the spring will be again placed under tension and the pins d will move backward along the ways D. In the construction 120 of Figs. 2 and 3 the tension of the spring upon the cover is at all times downward, and for this reason the pins d are placed above the ways D, whereas with the spring attached in the manner shown in Fig. 1 the tension of 125 the spring has a tendency to lift the rear edge of the cover from the box, and therefore the pins d are placed under the ways D. When the way D is in the form of a slotted bar, the

pin *d* travels in the slot, bearing upon the upper or lower side thereof, depending upon the action of the spring. In the form shown in Fig. 4 the weight of the cover is carried directly by the pivot-pins *d*³ and the ways *D* are dispensed with. It will be understood that a stop device of the general character illustrated in Fig. 7 may be applied to covers hinged to the body of the box in various ways, and we do not desire to limit ourselves in the employment of such a stop to the specific construction of hinged device shown and described.

It will be observed that in all of the structures herein shown the axis of the cover is on a line in advance of the rear wall of the box and that it is rendered possible to cause the cover to turn about the axis so located by reason of the fact that bearings are afforded by cleats secured to the box and projecting above the upper edge thereof. It will also be observed that by thus pivoting the cover to turn about an axis above the box proper and in front of the rear wall thereof we provide means whereby the box-couch may be opened without withdrawing the same from the wall against which it may be standing and that we also afford an operating mechanism to assist in opening the couch which may be entirely concealed either in the cover of the couch alone or in such cover and in the cleat to the rear of the couch, thereby leaving the body portion of the box entirely free from the presence of any of the moving parts which would interfere with their operation. Furthermore, it will be observed that by pivoting a cover to a link which is in turn pivoted to a cleat or standard projecting above the upper edge of the box proper we are enabled to make the distance between the points where the spring is attached to the box and to the cover, respectively, much less when the cover is open than when it is closed, whereby we are enabled to place the spring under tension by the closing movement of the cover and without the employment of any complicated lever system.

While we have shown the upholstering as extending on a line with the rear wall of the box when the cover is open, it is not to be understood that our invention is limited to such construction, as in many instances the upholstering may when the cover is open extend an inch or two to the rear of the back wall of the couch.

Having thus described our invention, what we claim is—

1. The combination of a box having cleats or standards secured thereto, a cover for said box, links located within the cover and pivoted to the cleats and to the cover, and a spring reacting between the box and the cover. 60

2. The combination of a box, cleats or standards secured to the rear of the box and projecting above the same, a cover for the box, links located within the cover and pivoted to the cleats and to the cover and a spring connected to the box and to the cover. 65

3. The combination of a box, cleats or standards secured thereto, a cover for the box, and links located within the cover pivoted to the cleats and to the cover disposed substantially horizontal when the cover is closed. 70

4. The combination of a box, standards secured to the box and projecting above the same, links pivotally connecting the standards to the cover of the box, a spring or springs acting to assist in the opening movement of the box, a suitable way or ways, and lugs connected to the cover and traveling upon said ways during the opening and closing movement of the cover. 75

5. The combination of a box, the grooved cleats secured thereto and projecting above the box, the cover pivotally secured to the cleats and a spring or springs within the groove in said cleats and reacting between the box and cover to assist in the opening movement of the latter. 85

6. A box, a cover hinged thereto, a spring reacting between the box and cover to assist in the opening movement of the latter, a stop consisting of a rod limiting the contraction of the spring, during the opening movement of the cover. 90

7. A box, a cover hinged thereto, a coiled spring reacting between the box and cover to assist in the opening movement of the latter, a rod within said coiled spring and suitable abutments contacting with the opposite ends of the rod when the cover has reached the desired point in its opening movement. 95

8. A box, a cover therefor, cleats or standards rigidly secured to the box, links connecting the cover to said cleats, suitable lugs projecting from said cover and adjustable ways on the box for supporting said lugs. 100

In testimony whereof we have hereunto set our hands this 31st day of October, 1899.

GEORGE T. SMALLWOOD.

ADAM H. SULSER.

Witnesses:

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S. T. CAMERON.