

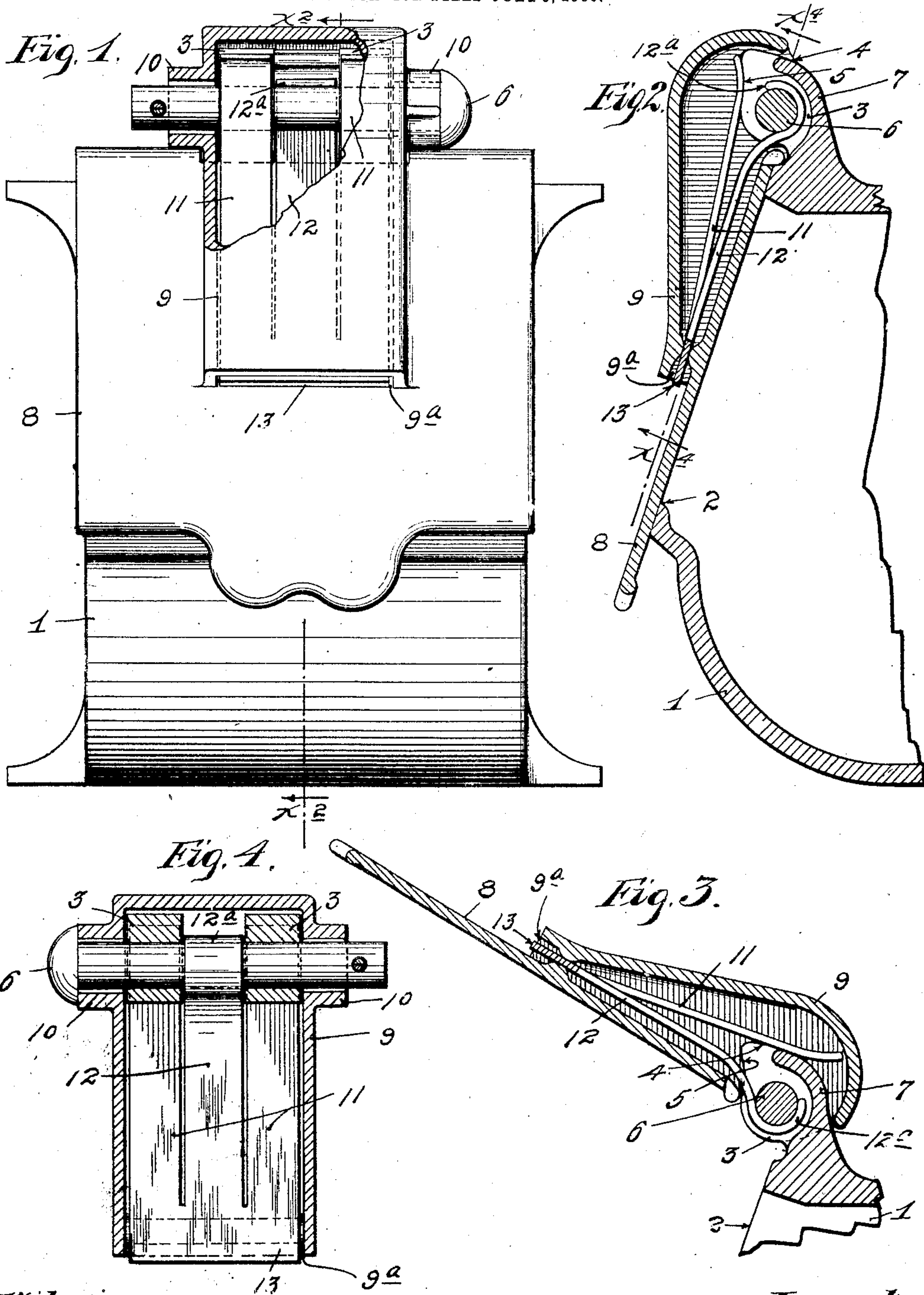
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PATENTED JAN. 1, 1907.

A. C. McCORD.

CAR AXLE BOX LID.

APPLICATION FILED JULY 5, 1906.



Witnesses.
H. A. Kilgore,
E. W. Jeppson.

Inventor.
Alvin C. McCord.
By his Attorneys.
William M. Muckent

UNITED STATES PATENT OFFICE.

ALVIN C. McCORD, OF CHICAGO, ILLINOIS.

CAR-AXLE-BOX LID.

No. 839,871.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALVIN C. McCORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Axle-Box Lids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to car-axle-box lids, and has for its object to improve the same in the several particulars hereinafter noted.

The invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

Referring to the drawings, Figure 1 is a view in side elevation showing the improved lid applied to a car-axle box, some parts being broken away and some parts being sectioned. Fig. 2 is a vertical section taken through the box and lid on the line $x^2 x^2$ of Fig. 1, some parts being broken away. Fig. 3 is a view corresponding to Fig. 2, but showing the lid in an open position; and Fig. 4 is a vertical section taken on the line $x^4 x^4$ of Fig. 2.

The axle-box 1 is of the usual construction, except as hereinafter specifically pointed out, and it is provided with the customary opening at its outer portion, the marginal portion of which forms a flat lid-seat 2.

The outer portion of the upper wall of the box at its intermediate portion transverse of the box is provided with laterally-spaced hinge-lugs 3, formed with approximately horizontal thrust-surfaces 4 and with approximately vertical thrust-surfaces 5. A hinge-bolt 6 is passed through the hinge-lugs 3, and its ends terminate inward of the sides of the box 1. The top plate of the box 1 is also provided with a vertical web 7, that is formed integral therewith and with the inner portions of the laterally-spaced hinge-lugs 3. It will be noted that the said web 7, is located considerably inward of the hinge-bolt 6, so that a clearance is left around said hinge-bolt between it and the hinge-lug 3.

The lid 8 is formed at its intermediate upper portions with an outwardly-bulged pocket 9 and with aligned sleeve portions 10 on the opposite sides of said pocket. The sleeves 10 work loosely and with considerable clearance around the end portions of the hinge-

bolt 6, and the upper portion of said pocket 9 loosely fits the upper edge of the box-web 7.

The novel spring device which acts upon the lid preferably comprises a pair of laterally-spaced leaf-springs 11 and an intermediate leaf-spring 12, which springs are connected at one end by a plate portion 13, shown as formed integral therewith. The free ends of the springs 11 press against the thrust-surfaces of the laterally-spaced hinge-lugs 3, and the free end of the spring 12 is curved to form a segmental journal-surface 12^a, that directly engages that portion of the hinge-bolt 6 which is between the laterally-spaced hinge-lugs 3. The plate portion 13 of the spring device 11 12 is passed through a seat 9^a in the lower extremity of the lid-pocket 9 and is thus loosely connected to the central portion of the lid 8. This feature is very important, because it applies the lid-closing force to the central or intermediate portion of the lid and causes the lid to be tightly seated at all four edges or at its entire marginal portion against the entire mouth or lid-seat of the box.

The intermediate spring 12, as is evident, is capable of only pivotal movements on the hinge-bolt 6, while the free ends of the springs 11 are capable of sliding movements on the thrust-lugs 3. The tension of said springs is such that they pinch upon or tend to press together the parts with which they engage, and the result is that when the free ends of the springs 11 are engaged with the thrust-surfaces 5 the attached or connected ends of the said springs are moved pivotally toward the mouth of the box. This resulting force of the springs acting upon the lid forces the same against the mouth of the box and holds the same seated. Inasmuch as the force of the said springs and inasmuch as the lid-closing force of the said spring is applied to the central portion of the lid, it is evident that said lid will be seated against the box at its upper, lower, and side portions. The obvious purpose of clearance between the hinge-bolt 6 and the sleeves 10 of the lid-pocket 9 is to permit the lid to be freely seated against the box without interference from said hinge-bolt.

When the lid is turned into its open position, (shown in Fig. 3,) the springs 11 engage the upper horizontal thrust-surfaces 4 of the hinge-lugs, and they then tend to hold the lid in such position.

The arrangement of an intermediate spring

between laterally-spaced opposing springs is desirable, because it prevents torsional strains upon the lid—that is, it prevents the one side of the lid from being pressed more tightly closed than the other; but the same general results, broadly stated, may be secured by the use of two opposing springs, in which case only a single cooperating lug on the box with the properly-arranged thrust surface or surfaces would be required.

The device, while extremely simple, is highly efficient for the purposes had in view. Furthermore, the lid may be very easily and quickly attached to the box and removed therefrom.

Any kind of an arrangement of opposing springs arranged to react against a suitable base of reaction on the box and against the central or intermediate portion of the lid and to impart a closing movement to the lid would be within the scope of this invention. It is immaterial whether the hinge-bolt 6 is mounted to rotate in its bearings on the box or whether it is fixed against rotation in such bearings. The spring 12 or corresponding spring may also press against a lug or part cast integral with the box, if desired, and instead of having a crooked curved end for engagement with the said bolt or corresponding part it might be otherwise held against end-wise movements with respect to the lid. The important feature is the arrangement of the two springs so that their opposing forces impart a pivotal closing movement to the lid and apply such closing force to the central or intermediate portion of the lid, so that the lid when closed will be pressed at all four edges or at its entire marginal portion against the mouth or lid-seat of the box.

What I claim is—

1. The combination with a box and a lid hinged thereto, of opposing springs reacting against the central or intermediate portion of the lid and serving to cause the lid to swing into a closed position and to press said lid against the entire mouth or lid-seat of the box, substantially as described.

2. The combination with a box and a lid hinged thereto, of opposing springs loosely connected to the central or intermediate portion of the lid and arranged to swing with said lid, one of said springs being arranged to react against a base of reaction on the box and to move pivotally, and the other of said springs being arranged to react against another base of reaction on the box and to slide thereon, the said springs cooperating to impart a closing movement to the lid and to seat the lid against the entire mouth or lid-seat of the box, substantially as described.

3. The combination with a box having a hinge-lug and a hinge bolt or shaft, of a lid hinged to said box, and opposing leaf-springs reacting, the one against said hinge-bolt and the other against a thrust-surface on said

thrust-lug, and which springs serve to impart closing movement to said lid, and to seat the same against the box, substantially as described.

4. The combination with a box having a hinge-lug and a hinge-bolt, of a lid hinged to said box, and opposing springs applied to the central portion of said lid, one of which springs reacts against said hinge-bolt and is pivoted thereon, and the other of which springs reacts against a thrust-surface on said thrust-lug, and which springs impart pivotal closing movement to said lid, and seat the same against the box, both at its upper and lower portions, substantially as described.

5. The combination with a box having a hinge-lug and a hinge-bolt, said lug having upper and lower thrust-surfaces, of a lid hinged to said box, and opposing leaf-springs applied to the central portion of said lid, one of which springs reacts against said hinge-bolt and is pivoted thereon, and the other of which springs is engageable with the upper of the thrust-surfaces of said hinge-lug to hold the lid in an open position, and is engageable with the lower of the thrust-surfaces of said lug, to impart pivotal closing movement to said lid, the said springs serving to seat the lid against the box, both at its upper and lower portions, substantially as described.

6. The combination with a car-axle box having laterally-spaced hinge-lugs and a hinge-bolt, of a lid having sleeve portions that surround the end portions of said hinge-bolt with clearance, and opposing leaf-springs applied to the central portion of said lid, certain of said springs having a curved end that engages the intermediate portion of said hinge-bolt, and certain other of said springs reacting against a thrust-surface of said hinge-lug, the said springs serving to impart pivotal closing movement to said lid and acting to seat said lid against the box, both at its upper and lower portions, substantially as described.

7. The combination with a box 1 having laterally-spaced hinge-lugs 3 formed with thrust-surfaces 4 and 5, of a hinge-bolt 6 projecting through said lugs, a lid 8 having sleeve portions 10 surrounding the projecting ends of said hinge-bolt with clearance, and an intermediate spring 12 and laterally-spaced springs 11 applied to the central portion of said lid, said spring 12 having a curved end 12^a that engages said hinge-bolt, and the said springs 11 pressing against said hinge-lugs and engageable with the thrust-surfaces 4 and 5 thereof, substantially as described.

8. The combination with an axle-box 1 having laterally-spaced hinge-lugs 3, said lugs having flattened thrust-surfaces 4 and 5, of a hinge-bolt 6 projected through said hinge-lugs, the lid 8 having the pocket 9 inclosing said hinge-lugs and having the sleeve

portions 10 surrounding the end portions of said bolt with clearance, and the intermediate spring 12 and laterally-spaced springs 11, located within said pocket and applied to the
5 central portion of said lid, said spring 12 having a curved end 12^a that engages said thrust-bolt, and said springs 11 reacting against said hinge-lugs and engageable with the thrust-surfaces 4 thereof to hold the lid open

and engageable with the thrust-surfaces 5 10 thereof to impart pivotal closing movement to the lid, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALVIN C. McCORD.

Witnesses:

B. A. MIDDLEKAUFF,
E. B. FLEISCH.