(No Model.)

R. SOUTTER.

CAR AXLE BOX LID.

No. 461,203. Patented Oct. 13, 1891.

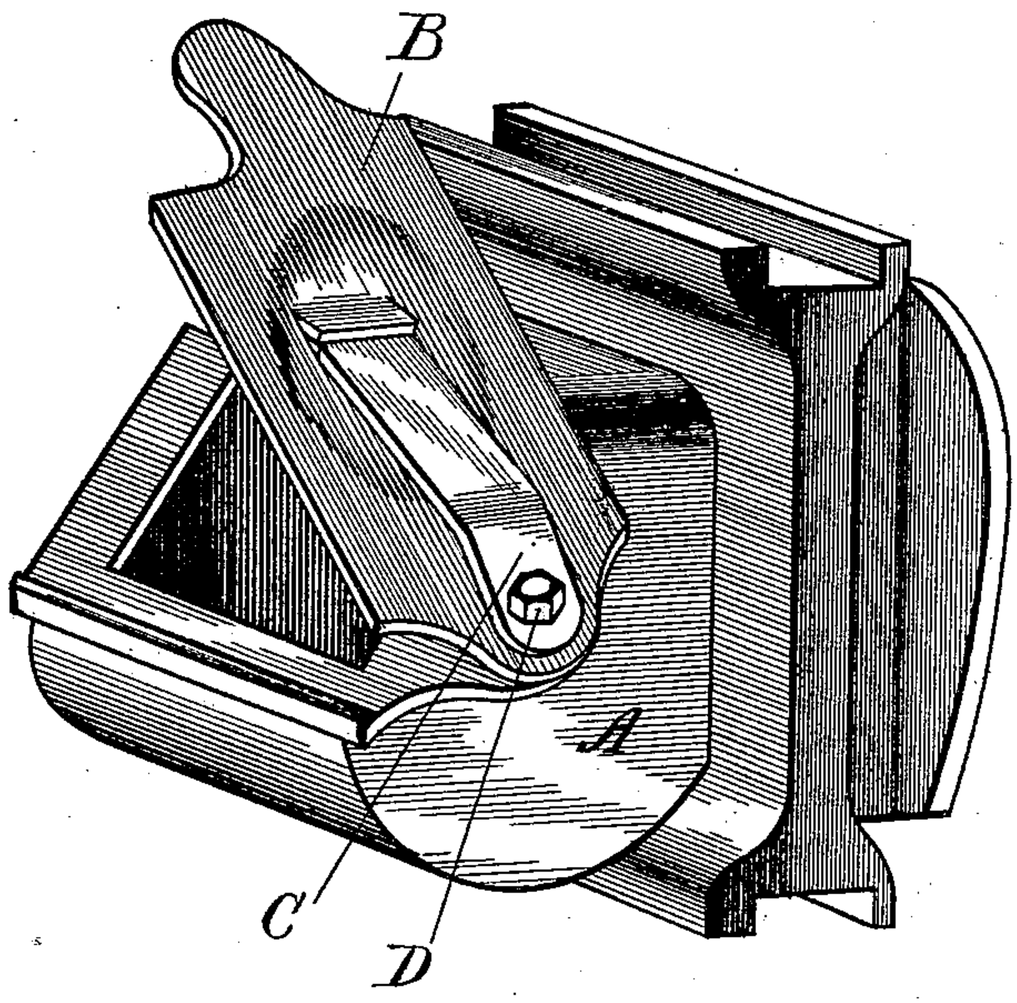

Fig. 1

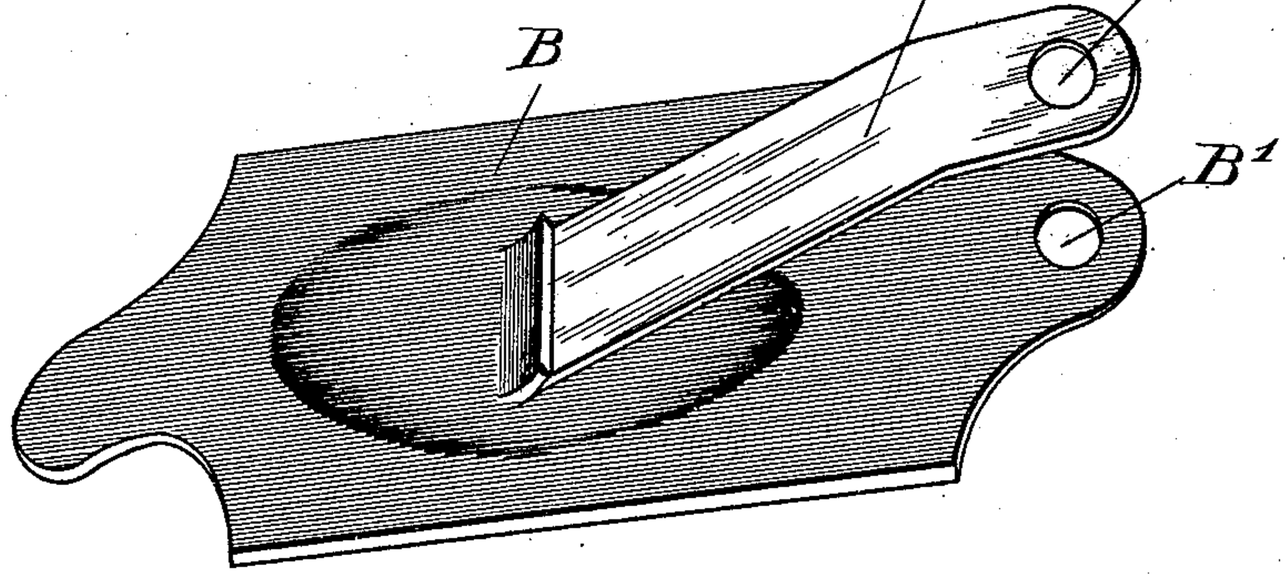

Fig. 2

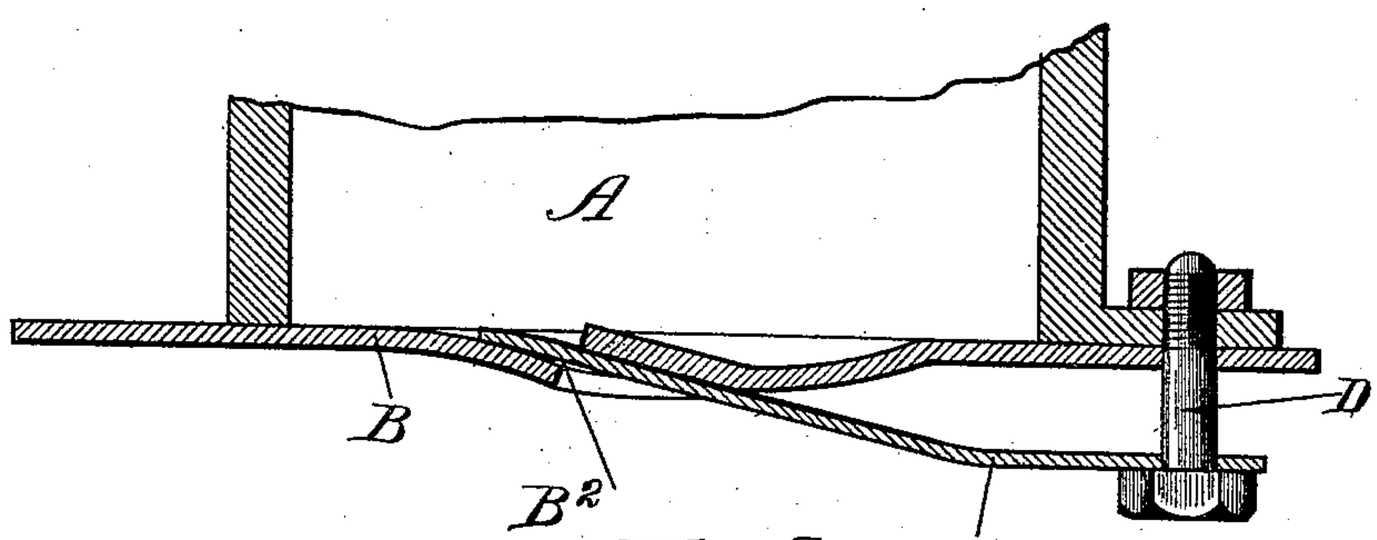

Fig. 3

Witnesses.
J. L. Tunison.
Jean Elliott.

Inventor.
Robt Soutter.
By Burton & Burton
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UNITED STATES PATENT OFFICE.

ROBERT SOUTTER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO FRED A. HAINES, OF SAME PLACE.

CAR-AXLE-BOX LID.

SPECIFICATION forming part of Letters Patent No. 461,203, dated October 13, 1891.

Application filed September 11, 1891. Serial No. 405,384. (No model.)

To all whom it may concern:

Be it known that I, ROBERT SOUTTER, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Car-Axle-Box Lids, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a perspective of a car-box with my improved lid partly opened. Fig. 2 is a perspective of the lid and retaining-spring removed from the box. Fig. 3 is a longitudinal section through the lid, spring, and portion of the box, showing the lid in closed position.

A is the axle-box, and B is the lid; C, the spring; D, the pivot-bolt.

The spring is connected to the lid at about the middle point of the length of the latter, and is bowed up from its connection thereto until it overhangs the line of the pivot of the lid to the box, so that the pivot-bolt D passes through the eye C′ in the spring and through the eye B′ in the lid and binds both together to the box. The bolt D′ will be screwed into the box until the spring has the desired tension—that is, until it holds the lid as firmly as necessary onto the box. In the drawings I have shown my preferred method of connecting the spring to the lid, which consists in making through the lid transversely at about the middle of its length the slot B^2 and striking the metal at one side of said slot upward and at the other side downward, so that the spring, which is a flat steel bar, may be inserted through the slot, and having the end which has the eye C′ carried down toward the plane of the lid. The spring will bear against the under side of the lid on the side of the slot remote from the pivot and on the upper side of the lid on the side of the slot toward the pivot, and thereafter during further tilting or bending of the spring toward the plane of the lid it will operate as rigid with the lid to react against such movement.

The connection of the spring to the lid may be varied considerably, and I do not therefore limit myself strictly to the form of connection shown; but the connection should be such as to make it act as if rigid with the lid where it is in contact therewith when its free end is pressed toward the latter—*i. e.*, for the purpose of reacting against such pressure—and it should also be stopped laterally on the lid, so that the edgewise swinging movement of the lid in uncovering the box shall carry the spring positively with it.

It is of considerable importance that the spring should be of a different piece of metal from the lid, because the spring should be of steel in order to have the requisite capacity for receiving tension, while the lid is preferably of wrought-iron or rolled-iron plate, so that it may be readily hammered perfectly flat, or so as to seat on the margin of the box and make a reasonably close fit at such seat. Steel-plate cannot readily be brought to this condition by hammering while cold, because of its elasticity.

The advantages of this lid and spring, therefore, over other forms now in use are that while having only one point of bearing upon or contact with other attachment to the lid, that point being relatively quite remote from the pivot toward the other end, the tension of the spring is exerted much more advantageously upon the lid and holds it much more securely than if the pressure were exerted near to the pivot, as in some other forms; and this result is attained as perfectly as if the spring were made to bear upon or be secured to the lid at two points on opposite sides of the pivot, as in certain known forms. An advantage of the mode of attaching the spring to the cover over any mode which should constitute a permanent attachment, as riveting, is that it may be removed and a new spring substituted readily and without taking the lid to the shop for the purpose and without mutilating the lid in any way, and also that the expense of any more permanent attachment is avoided; but a further advantage, which is specially related to the other features of construction and mode of operation, is that since the spring is necessarily drawn down toward the lid in tightening the bolt to produce the proper tension of the spring if it is fixedly attached to the lid, as by rivets or bolts or by any other

method which would absolutely prevent longitudinal movement at its point of attachment, either the cover or the spring would have to have the eye through which the pivot-bolt passes elongated, because if the two eyes were in line before the spring had been drawn down at all they would be out of line after the spring had been flexed, as necessary for its tension, because in such flexure the eye would advance substantially in an arc about the point of attachment of the spring to the lid. This attachment being such that the spring can be driven longitudinally, even after it is under tension, it is not necessary to elongate either eye, because the spring would be first inserted in such position as to bring the two eyes C′ and B′ properly coaxial with the bolt, and as the bolt is tightened and the eye C′ approaches the lid the spring will at first by that tightening action be forced longitudinally through the lid, and after it has become too tight to receive such motion by the mere tightening of the bolt an occasional tap of the hammer on the end of the spring as the bolt is tightened will cause it to move sufficiently to keep its eye C′ in line with the eye D′.

I claim—

1. In a car-axle box, a lid pivoted thereto at one end and adapted to swing edgewise about said pivot to uncover the box, a spring which is connected to the lid at one end only at a point remote from the pivoted end of the lid toward the other end, said spring extending from its attachment to the lid toward and overhanging the pivoted end of the latter, and the pivot-bolt passing through said overhanging end and adapted to flex the spring toward the lid to give it tension, substantially as set forth.

2. In a car-axle box, a lid pivoted thereto at one end and adapted to swing edgewise about its pivot to uncover the box, the pivot-bolt, and a spring which is retained by the pivot-bolt and bears and is laterally stopped on the lid at a point remote from the pivoted end toward the other end, substantially as set forth.

3. In a car-axle box, a lid pivoted at one end to the box and adapted to swing edgewise on its pivot to uncover the box, said lid having a transverse slot at a point remote from its pivoted end, and the flat-bar spring adapted to be inserted through said slot from the upper side and upon being tilted downward toward the pivoted end to bear at one side of the slot upon the underside of the lid and at the other side of the slot upon the upper side of the lid, said spring when thus tilted extending toward and overhanging the pivoted end of the lid, and the pivot-bolt passing through said overhanging end and adapted upon being tightened to flex the spring toward the lid and by the tension thus produced to render the spring substantially rigid with the lid, but capable of being forced slightly longitudinally with respect thereto, substantially as set forth.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, in the presence of two witnesses, this 8th day of September, 1891.

ROBERT SOUTTER.

Witnesses:
CHAS. S. BURTON,
F. A. HAINES.