No. 743,892. PATENTED NOV. 10, 1903.

J. KROHN.

AXLE BOX.

APPLICATION FILED FEB. 7, 1903.

NO MODEL.

Fig. 1.

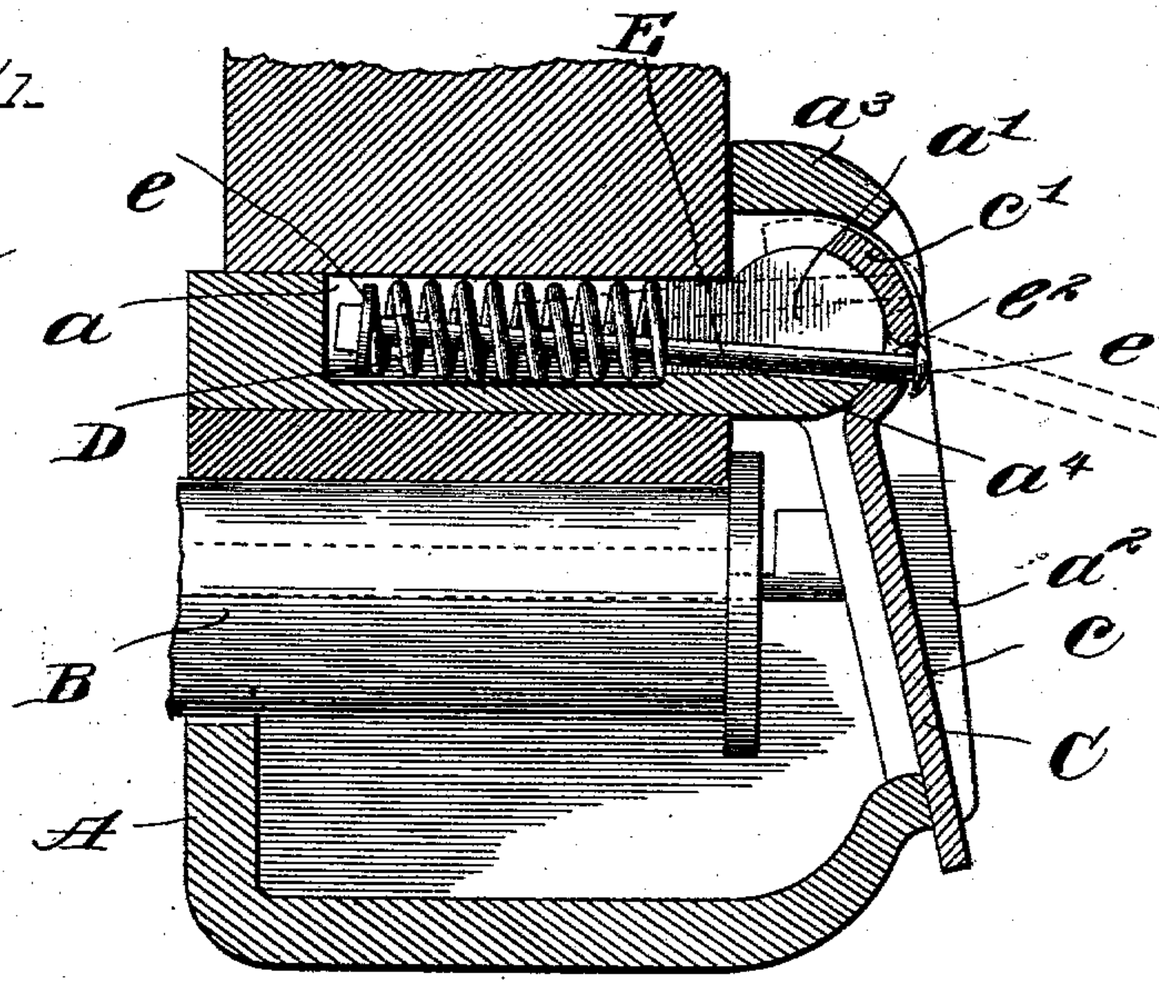


Fig. 2.

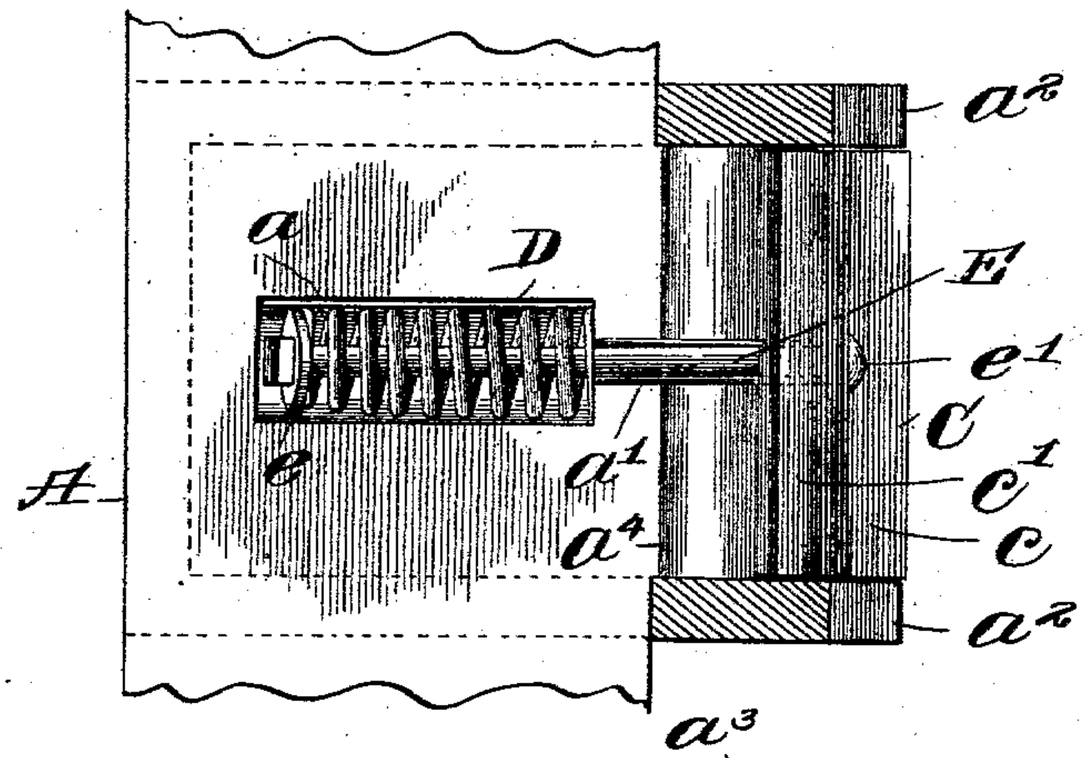
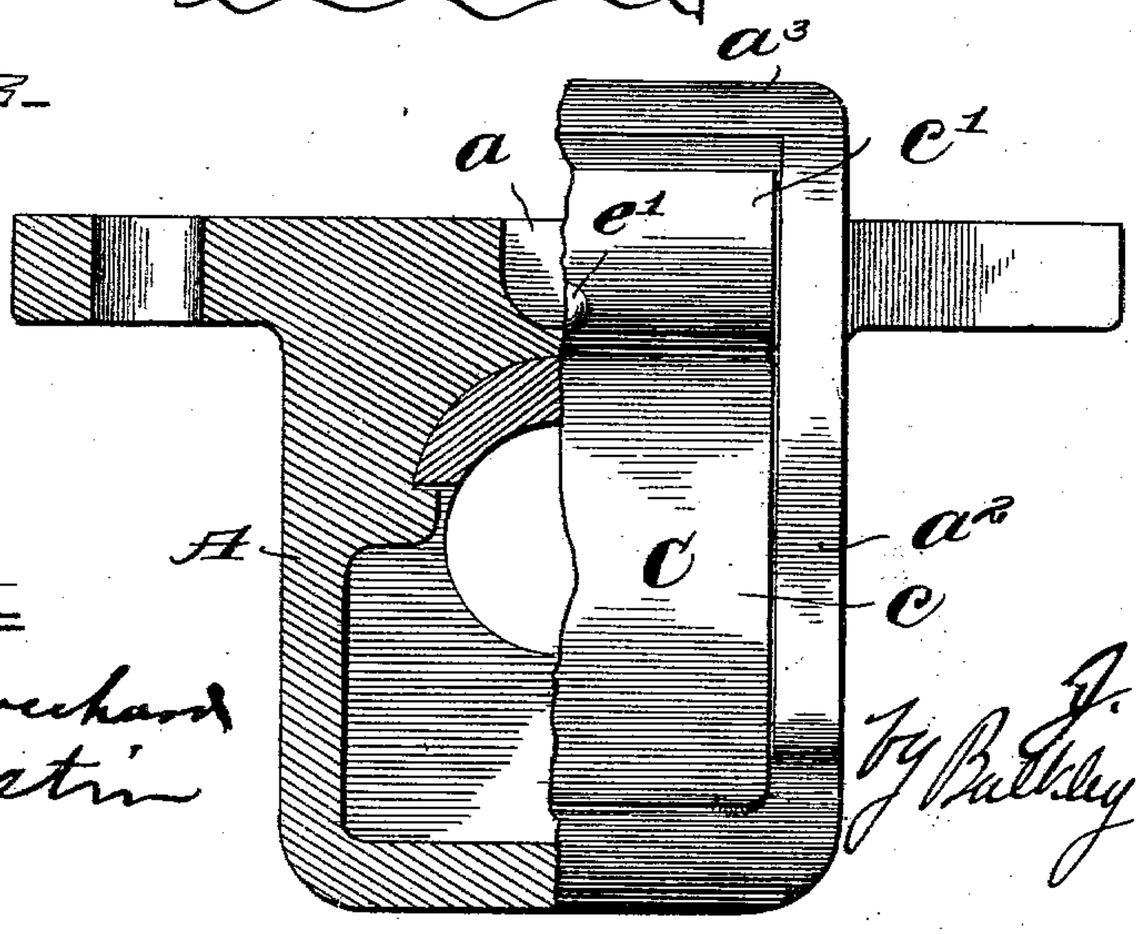


Fig. 3.



Witnesses.

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No. 743,892. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

JOHN KROHN, OF BARBERTON, OHIO, ASSIGNOR TO THE NATIONAL DRILL & MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 743,892, dated November 10, 1903.

Application filed February 7, 1903. Serial No. 142,434. (No model.)

To all whom it may concern:

Be it known that I, JOHN KROHN, a citizen of the United States of America, and a resident of Barberton, Summit county, Ohio, have invented a certain new and useful Improvement in Axle-Boxes, of which the following is a specification.

My invention relates to axle-boxes adapted more particularly for use on cars.

Generally stated, the object of my invention is to provide a simple, comparatively cheap, and highly-efficient axle-box.

A special object is to provide an improved construction of such character that the closure or cover of the box will automatically lock in both its closed and opened positions.

Another object is to provide a construction in which this automatic holding of the closure or cover in either direction is accomplished through the medium of a coil-spring and a pull-rod inclosed within the body of the box.

A further object is to provide a construction and arrangement whereby the closure or cover may be of the simplest and lightest form.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency and serviceability of an axle-box of this particular character.

To the foregoing and other useful ends my invention contemplates an axle-box having a cover or closure which is adapted to be held in either of its two positions—that is to say, either in its opened or closed position—by a spring inclosed within the body of the box and so arranged that it exerts a pull below the axis of the cover or closure when the latter is closed and also above the center when the said cover or closure is raised for the purpose of permitting access to the oil and waste chamber within the box. In this way the cover or closure of the box can be very light and of the simplest possible form. The nature and advantages of my invention will, however, hereinafter more fully appear.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through an axle-box embodying the principles of my invention, the end of the axle being shown in side elevation. Fig. 2 is a plan of the box shown in Fig. 1, the upwardly-projecting side portions in the front of the box being shown in horizontal section. Fig. 3 is a front elevation of the axle-box shown in Fig. 1, one-half of the box being shown in vertical transverse section.

As thus illustrated, the body A of the box can be of any suitable or desired form or construction consistent with its use. The upper portion of the said body is, however, preferably provided with a cavity or recess a and also with a slot a', extending forward from this recess or cavity and opening at the front of the body portion of the box. Furthermore, the front of the box is preferably formed with a pair of vertically-arranged cheeks a^2, connected at their upper ends by the horizontal web or overhanging lip a^3. In cross-section the overhanging upper front portion a^4 of the body portion of the box is cylindric, as shown in Fig. 1. The axle B can be arranged within the interior of the box in any suitable manner, as shown in the drawings.

The very light and simple form of closure or cover C preferably consists of a thin flat body portion c and of a curved semicircular upper portion c'. This curved upper portion of the closure is, it will be seen, of the same curvature as the cylindric portion a^4. Thus the cover or closure is adapted to swing up and down, so as to open and close, and in so doing it practically swings about a pivotal point which is coincident with the axis of the cylindric bearing portion a^4.

The opening and closing spring D, which is so nicely and satisfactorily concealed within the body portion of the box, is adapted to lie in the recess or cavity a and is connected with the cover or closure by means of the pull-rod E. The rear end of this pull-rod is provided with a washer and nut e, adapted to provide a compressing-shoulder for the rear end of the spring, and the forward end of the said rod is provided with a head e', adapted to provide a shoulder or enlargement of such character that it cannot slip through the opening e^2 in the curved upper portion of the said closure. The forward wall of the cavity a serves as the other compressing-shoulder for the said spring. When the closure or cover is down, as shown in full lines in Fig. 1, the

tension of the coil-spring, which is normally compressed between the two shoulders, is exerted in the form of a pull on the pull-rod and along a line extending below the axis about which the closure swings; but when the cover or closure is raised, as shown in dotted lines in Fig. 1, then the pull-rod is shifted to a point above the said axis, and the pull of the spring is therefore exerted along a line extending above said axis. In other words, the tension of said spring is normally exerted below the axis of the closure, so as to keep the latter closed and is then exerted along a line above the axis when the closure or cover is lifted, so as to keep the latter in a raised position while it is desired to have free and unhindered access to the interior of the box. In this way the closure or cover is "self-locking," so to speak, in either position, and does not necessitate the use of one hand for holding it up while the box is being cleaned or replenished, and, as stated, the cover or closure is thus yieldingly locked in either of its two positions by a spring which is totally concealed within the body of the box.

What I claim as my invention is—

1. An axle-box comprising a swinging closure, a coil-spring connected to hold said closure in both opened and closed positions, said spring being concealed within the body of the box, and connected to exert a pull below the axis of the closure when the latter is closed, and to exert a pull above such axis when the closure is opened.

2. An axle-box comprising a suitable body portion, a swinging closure for the front of said box, a coil-spring concealed within the top of said body portion, and a pull-rod connecting said spring with said closure, the said spring and rod being adapted to pull below the axis of the closure when the latter is closed and to pull above such axis when the closure is opened.

3. An axle-box comprising a suitable body portion, a swinging closure for the front of the box, and a coil-spring and a pull-rod inclosed within the top of the said body portion, and adapted to yieldingly maintain the said closure in both its closed and opened positions.

4. An axle-box comprising a suitable body portion, the front of said body portion being provided with a couple of vertically-extending and laterally-arranged cheeks connected at their upper ends by an overhanging horizontal portion, a swinging closure arranged between said cheeks and provided with a curved upper end portion adapted to slide under said horizontal portion, and a spring device connected for yieldingly locking said closure in both its closed and opened positions.

5. An axle-box comprising a suitable body portion, said body portion having its front provided with an upper horizontally-extending and substantially cylindric portion, a swinging closure having an upper curved portion adapted to fit and slide upon said cylindric portion, and a spring device concealed within said body portion and suitably connected with the said closure, said spring device being adapted to pull below the axis of the closure when the latter is closed, and to pull above such axis when the closure is opened.

6. An axle-box comprising a hollow body provided at its top with a cavity having its forward end terminating in a forwardly-extending slot, a swinging closure for the front of the box, a coil-spring resting in said cavity, a pull-rod connecting the rear end of said spring with the upper portion of said closure, said pull-rod being adapted to extend through and work up and down in said slot, and said spring and rod being adapted to exert a pull below the axis of the closure when the latter is closed, and to pull above such axis when the closure is opened.

7. An axle-box comprising a hollow body, said body being provided with a horizontal and substantially cylindric upper front portion, a closure consisting of a flat metal plate having its upper edge portion curved to fit and slide upon the said cylindric portion of the body, and a spring device concealed within the said body and connected to yieldingly hold the said closure in both its closed and opened positions, the front of said body being provided with a pair of cheeks extending vertically at opposite sides of said closure.

8. An axle-box comprising a hollow body, said body being provided with a bearing portion, a swinging closure mounted to turn on said bearing portion, a coil-spring concealed within the said body portion, and means for connecting the inner end of the said spring with the said closure, whereby the spring is compressed by the opening and closing movements of the closure, and whereby the said closure is yieldingly locked in both its closed and opened positions.

Signed by me at Barberton, Summit county, Ohio, this 23d day of January, 1903.

JOHN KROHN.

Witnesses:

O. D. EVERHARD,

D. AUSTIN.