(No Model.) 2 Sheets—Sheet 1.

A. W. ZIMMERMAN.

AXLE BOX LID.

No. 489,889. Patented Jan. 10, 1893.

Fig. 2.

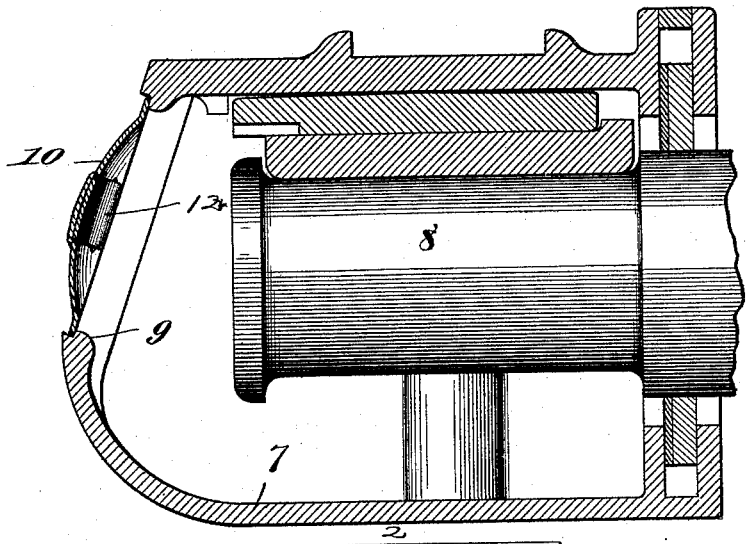


Fig. 1.

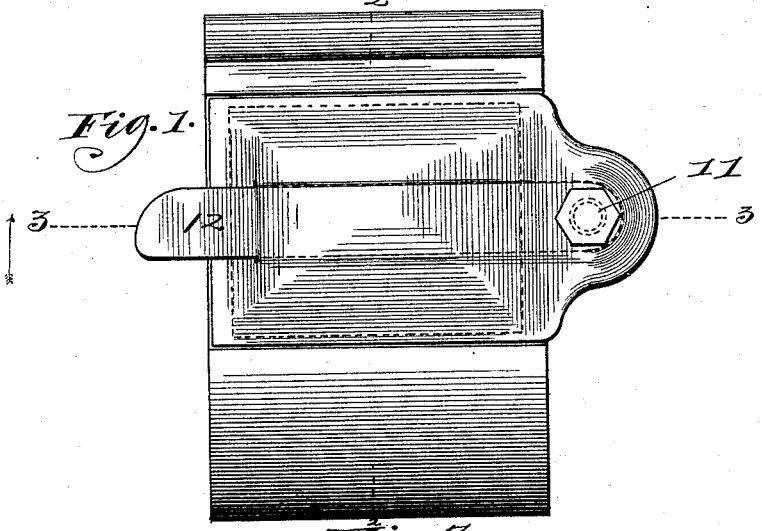
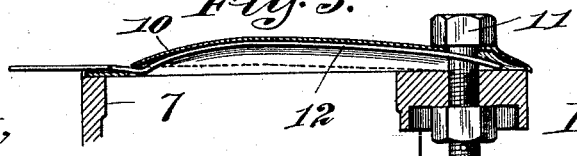


Fig. 3.



Witnesses,
F. E. Mann,
F. C. Goodwin

Inventor,
Arnold W. Zimmerman
By Offield, Towle & Linthicum
Atty's.

(No Model.)

2 Sheets—Sheet 2.

A. W. ZIMMERMAN.

AXLE BOX LID.

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Fig. 4.

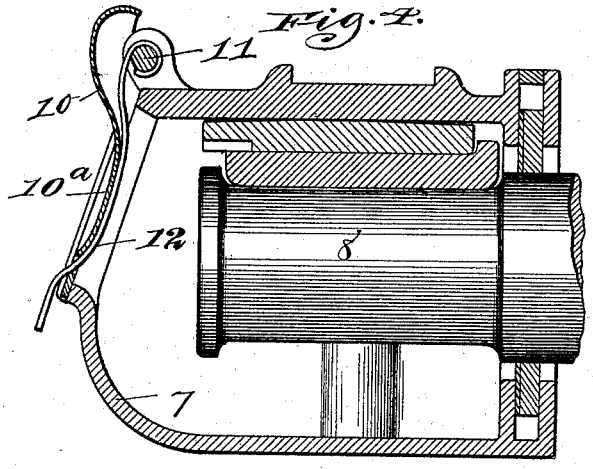


Fig. 5.

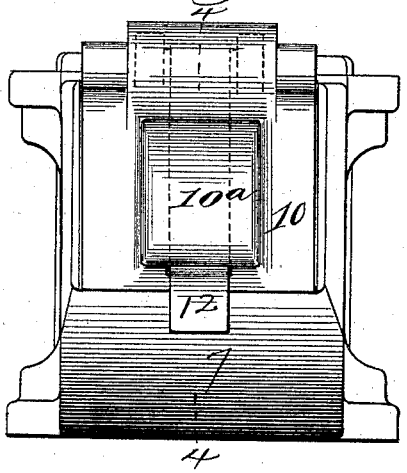
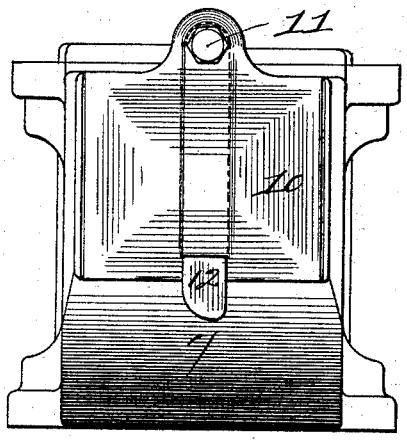


Fig. 6.



Witnesses,
S. G. Mann
F. C. Goodwin

Inventor,
Arnold W. Zimmerman
By Offield, Towle & Linthicum
Attys.

UNITED STATES PATENT OFFICE.

ARNOLD W. ZIMMERMAN, OF CHICAGO, ILLINOIS.

AXLE-BOX LID.

SPECIFICATION forming part of Letters Patent No. 489,889, dated January 10, 1893.

Application filed March 15, 1892. Serial No. 425,050. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD W. ZIMMERMAN, of Chicago, Illinois, have invented certain new and useful Improvements in Car-Box Lids, of which the following is a specification.

This invention relates to an improvement in car axle box lids of that class in which a spring is employed to hold the lid closed, and more particularly to that class in which a flat steel spring is used in conjunction with the box lid in such manner that the raising of the lid out of its seat between the side flanges of the box operates to increase the tension of the spring.

The purpose of my invention is to provide a simple and efficient device of this character and one in which the main portion of the spring shall be confined upon the under side of the box lid, one end of the spring projecting through an aperture in the lid and bearing thereon the projecting end furnishing a lever, whereby the lid may be swung on its pivot by force applied to the spring instead of the usual manner in which the spring is carried with the lid by force applied to the latter.

My invention is adapted to box lids which are either hinged at the side or at the top and is applicable to a "master car builder's standard journal box."

In the accompanying drawings, Figure 1 is a front elevation of a car axle box having my improved spring lid applied thereto. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Figs. 4, 5 and 6 show my improvement applied to a box lid hinged at the top, Fig. 4 showing the invention applied to a box lid hinged upon a horizontal pivot so that it can be thrown up. Fig. 5 is a front elevation of the same; and Fig. 6 shows the box lid hinged at the top but adapted to swing side-wise instead of toward the perpendicular.

In the drawings, 7 represents a car axle box of standard construction and 8 the journal of the axle.

In the construction shown in Figs. 1, 2 and 3, the front opening of the box is provided with shoulders 9 to form seats for the edge of the box lid 10. The latter is made, preferably, from pressed steel, its margins comparatively straight, and its body curved in section both in the direction of its length and width. In these figures the lid is pivoted at its side upon the bolt 11, and a flat spring 12 is apertured at one end and the bolt passes through such aperture. The spring conforms substantially to the curvature of the body of the lid, which latter is slitted toward its free end and the spring emerges through such slit having a bearing on the margins thereof, and the free end of the spring projects beyond the free end of the lid to furnish a lever, whereby the lid may be swung in opening or closing. The strain of operation comes, therefore, directly upon the spring and is applied to its edge in the direction of its greatest strength, so that continued use does not injuriously affect either the spring or the lid. The spring itself will be constructed of heavier and tougher material than the lid and is better adapted to withstand the strain of opening and closing. It has been found in practice that with previous constructions of lid, the hook projection on the edge of the lid is frequently broken off by want of care in opening and closing it.

The oiler usually employs a car-hook and careless handling results frequently in breaking the hook off entirely or in bending it so that the lid becomes unfit for use. It is of first importance that the lid should not be twisted so that it will unevenly seat itself whereby dust may find its way to the bearing. In my improved construction the lid is maintained tightly and firmly to its seat, is not likely to become twisted, and therefore unfit to retain the oil and exclude dust. The spring takes its bearings near its ends, that is, at the bolt and upon the lid at the slit. The lifting of the lid to clear the side flanges, therefore, serves to increase the tension of the spring and the spring remains under such increased tension until the lid is swung back over its seat when it is forced into and held thereto by the spring. This construction and arrangement of parts affords a strong spring pressure upon the lid near its outer or free end where it is most needed, and the strength of the spring may be varied to suit the requirements of use without making the lid difficult to open or close.

In the construction shown in Fig. 4, the lid

is pivoted at its top and the bolt 11 passing through lugs thereof and the lid itself being of slightly different construction. Its center is depressed, as shown at 10^a, and the spring 12 has one end coiled around the pivot bolt and is downwardly curved so as to conform to the curvature of the depressed portion of the lid, the free end of the spring emerging through a transverse slit in the body of the lid, at the end of the depressed portion, such free end projecting beyond the end of the lid, as in the previously decribed construction. The springs operate upon the same principle in each case, one end of the spring being confined at the end of the lid.

In the construction shown in Fig. 6, the lid is hinged at its top but swings side-wise in opening and closing, but the construction and arrangement of the spring are the same as shown in Fig. 1. The lid as shown in Figs. 1, 2 and 3 has also a portion offset from the plane of its body and the spring rests in this offset portion. The spring may be secured at its inner end to move with the lid in other convenient ways than that shown, and it is not essential that the exact details of construction be followed.

Without limiting my invention to precise details of construction, I claim:

1. In a car axle box lid, the combination with the lid of a flat spring having one end fixed at or near one end of the lid, its body adapted to rest upon the inner side of the body of the lid and having its free end passing through a slit or aperture in the lid and projected beyond the end of the latter, substantially as described.

2. In a car axle box lid, the combination with the lid of a spring composed of a flat strip of resilient metal apertured at one end for the passage of the lid bolt and having its body conforming to and resting upon the under side of the lid, the latter being slitted and the spring projected through said slit and extended beyond the end of the lid, substantially as described.

3. In a car axle box lid, the combination with a lid adapted to be pivoted at one edge thereof, of a spring composed of a flat strip of resilient material adapted to be secured to move with the lid by the pivot bolt of the latter, said lid being slitted near its end opposite its pivot and the free end of the spring bar projected through such slit and beyond the end of the lid, substantially as described.

4. A car axle box lid, comprising in combination with a journal box a lid pivoted at one edge, said lid having a portion of its body eccentrically disposed and an aperture at the end of said offset portion, a spring composed of a flat strip or bar of resilient material having its end apertured for the passage of a pivot bolt of the lid and adapted to rest upon the offset portion of the lid and its free end projected through the aperture and beyond the end of the lid, substantially as described.

ARNOLD W. ZIMMERMAN.

Witnesses:

C. C. LINTHICUM,

E. A. CURTIS.