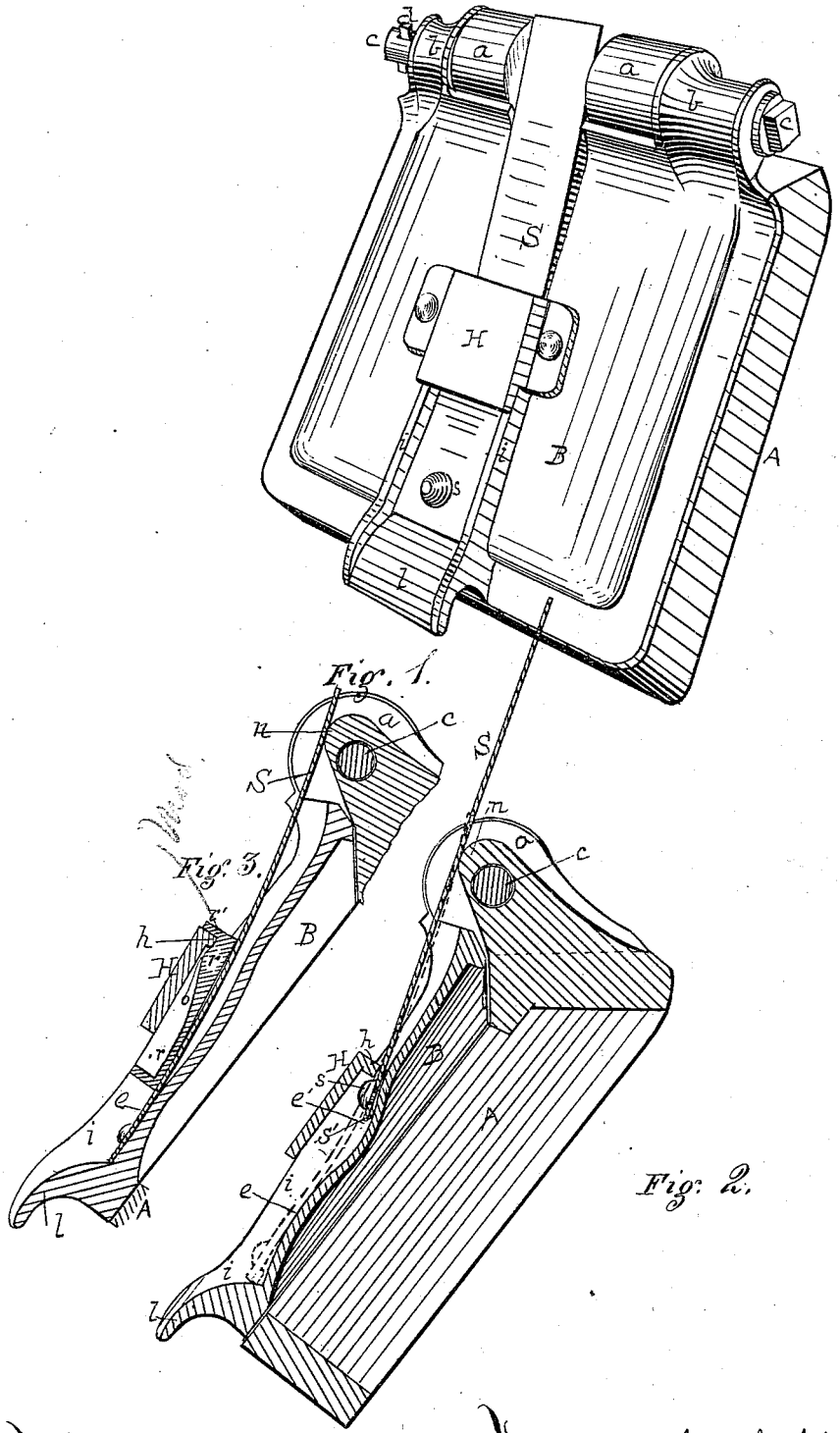
J. KINZER.

Car-Axle Box-Lid.

No. 211,854. Patented Feb. 4, 1879.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB KINZER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CAR-AXLE-BOX LIDS.

Specification forming part of Letters Patent No. **211,854**, dated February 4, 1879; application filed November 21, 1878.

To all whom it may concern:

Be it known that I, JACOB KINZER, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Car-Axle-Box Lids; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective view of my improved axle-box lid closed upon the face of the box. Fig. 2 is a vertical sectional view of the same; and Fig. 3, by a like sectional view, illustrates a modification in the arrangement for varying the tension of the spring.

My invention relates to an improved arrangement of a spring upon an axle-box and lid, whereby the elasticity of the spring may be made operative in holding the lid to its box, or inoperative, at pleasure.

In the drawings, A represents the face of a car-axle box, and B the lid, the two being hinged together, in the usual way, by means of ears *a a* and *b b*, and bolt *c*, which passes through registering-holes in the ears, and is secured by key *d*. The lid is held to its seat on the box by means of a spring, S, one end of which bears on the lid near its front edge, as at *e*, and the other end on a rest, *n*, made on the box over the hinge, and between the ears *a a*, while a third or intermediate bearing is provided by a flange, *h*, extending down from a cap or box, H, which is riveted to the lid, so as to span or cross the line of the spring. The pressure of this flange *h* upon the spring, the end bearings being fixed, will determine the tension of the spring, and the rest *n* being stationary, the end of the spring bearing on the lid will operate to hold the lid upon the box.

I prefer to give the rest *n* a form slightly eccentric to the center of motion of the lid, and arrange such eccentricity so that the point of greatest bearing of the spring shall be intermediate between the opened and closed positions of the lid. The spring will then operate to hold the lid when open, as well as press it upon the face of the box when closed.

If the spring S were fixed in position relatively to the bearings *e* and *h*, the lid could be hinged in place only by compressing or bending down the spring until the lid was in position. This operation would require some convenient clamping device capable of overcoming the resistance of the spring and holding the lid upon the box until the bolt *c* could be inserted, or, in case the lid were being removed, until such bolt could be removed.

Such tools are not always at hand, and I provide for making the spring inoperative during such hinging and unhinging operation by making the spring movable endwise upon its bearings, and also providing a depression, *e'*, between the bearings *e* and *h*, into which the end of the spring may sink as it is moved endwise, as shown in full lines, Fig. 2. The depth of this depression is such that when the end of the spring rests in it, as shown, the spring will lie upon or between the bearings *h* and *n* without being compressed or put under tension. A rivet, *s*, or other suitable head or stop on the lid end of the spring, engaging with the flange *h*, will prevent the spring from being drawn out from under the cap H, so as to become separated from the lid. This I consider an important advantage, since lids are made and shipped in considerable quantities for the purpose of replacing broken ones, and if the springs could become separated they would in many cases be lost.

The bearing *e* and depression *e'* are connected by a curved or inclined surface, as seen in section, Fig. 2, so that by blows with a hammer or other suitable tool upon the hinge end of the spring it may be driven or forced endwise until the lid end, riding up the incline or curve between *e'* and *e*, bears well upon the bearing *e*, when the spring will be under tension and operate as described.

If desired, the bearing *e* may be rounded over to the front edge of the lid, and a slight projection, *s'*, made on the under side of the end of the spring, which, locking against the front receding side of the bearing, will prevent the spring from working endwise by jarring, so as to be freed from action. I also make side walls *i*, which bound the bearing *e* and depression *e'* on either side and prevent the lat-

eral displacement of the adjacent end of the spring; and, if desired, these side walls may be carried out over the front edge of the lid, along with the lip *l*, to form a handle for convenient raising of the lid. The lip *l* also serves as an end stop for the spring, and, in connection with the walls *i*, prevents the spring from being drawn out from under the cap H in that direction.

The spring may easily be forced endwise off the bearing *e*, so as to relieve it from action, by driving against the head *s* with any convenient implement.

Instead of making the spring movable endwise on and off the bearing *e*, a wedge-shaped bearing, *r*, Fig. 3, may be arranged between the flange *h* and spring S, and made movable up and down between the two, while upturned ends *r'* will prevent its becoming separated from the lid. In this modification the lid end of the spring is loosely riveted or secured to the lid, so as to be capable of some vertical movement, and by driving the movable and variable bearing *r* back and forth with any suitable tool the spring will be relieved from or brought into action as before.

I prefer to make the upper end of the bearing *r* thicker or deeper than the lower, as shown, so that it shall be driven down or toward the front of the lid when the spring is in action; and I also prefer to make a slight excess of thickness a little way from the upper end, as at *o*, so as to offer resistance to the upward working of the bearing, caused by jarring and the pressure of the spring. Such excess of thickness will operate as a lock to hold the bearing in position.

Considerable difficulty has also been experience in fitting spring-lids to the face of the box, as it requires closer work in order to secure the requisite degree of exactness than is usually given to this class of castings; and when attempt is made to fit the lid when it is being hinged to the box, the tension of the spring employed adds to the difficulty, unless provision is made, as above described, for relieving the spring from action while it is being fitted; and to further facilitate such fitting, I prefer to make the lid of malleable iron, so that by the blow of a hammer it may be bent to conform to the face of the box, and to hinge thereto without difficulty.

Lids constructed in accordance with my improvement can be shipped to convenient points along the road, and used in new work, or to replace broken ones, and applied by ordinary train-hands without the need of special tools for the purpose.

I claim herein as my invention—

1. In combination with an axle-box and lid, a spring for holding the lid to the box, adapted to be brought into and relieved from action by an endwise motion upon its bearings, substantially as set forth.

2. In combination with an axle-box lid, a spring adapted to hold the lid to its seat, and connected with the lid, substantially as described, whereby the spring is free to be moved endwise upon the lid, but is prevented from separation therefrom.

3. In combination with an axle-box lid, a spring and central bearing, one or the other of which is movable longitudinally along the face of the lid, whereby the spring may be thrown into or out of tension, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JACOB KINZER.

Witnesses:

J. J. McCORMICK,

CLAUDIUS L. PARKER.