

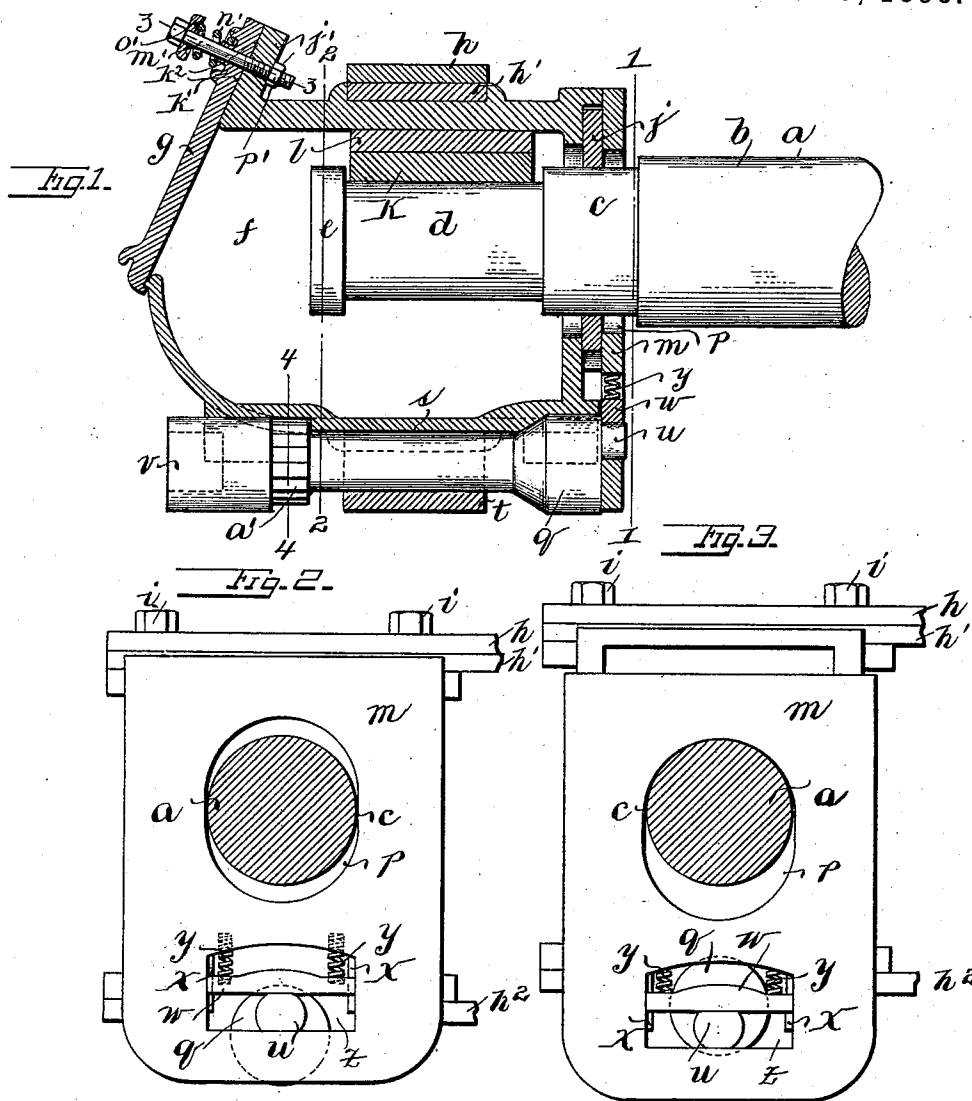
(No Model.)

2 Sheets—Sheet 1.

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AXLE BOX.

No. 534,369.

Patented Feb. 19, 1895.



Witnesses.

Jesse B. Heller,
J. E. Shaw.

Inventor.

William Hyde

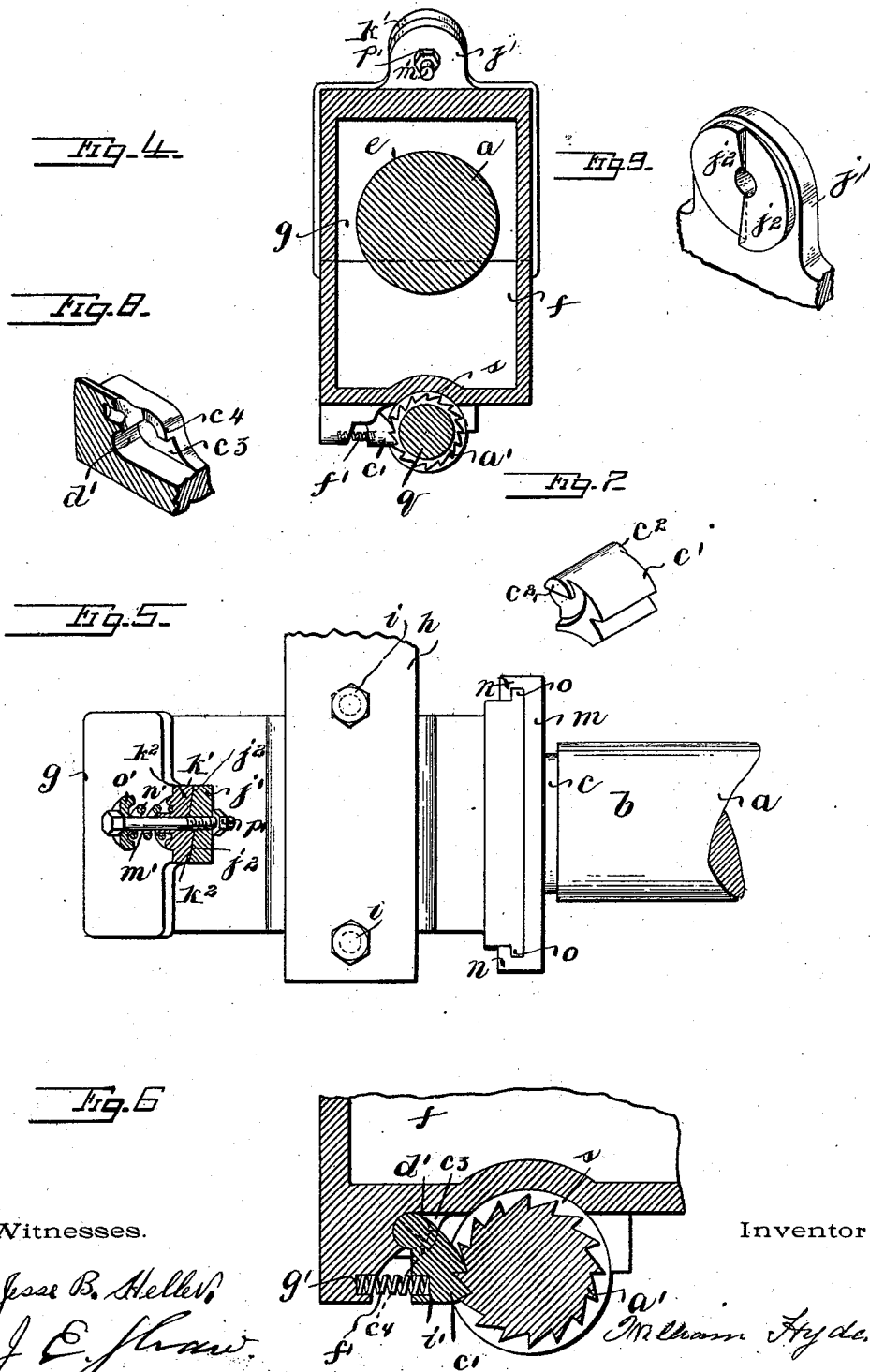
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UNITED STATES PATENT OFFICE.

WILLIAM HYDE, OF PHILADELPHIA, PENNSYLVANIA.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 534,369, dated February 19, 1895.

Application filed June 23, 1894. Serial No. 515,513. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HYDE, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Axle-Boxes, of which invention the following is a specification.

My invention relates to the improved axle-box described in Letters Patent issued to me as assignee of Robert Hyde, May 22, 1894, No. 520,314.

The object of my invention is, first, to provide, in lieu of the spiral spring *b'* described in said patent as being attached to the link and as bearing directly on the cam, a spring which shall have equal capacity with said spiral spring to bear with uniform vertical pressure directly on the cam, while it shall be free from liability to suffer or occasion undue wear; second, to render more certain and secure the action of the spindle and cam in the work of raising the axle box and its load clear of the axle journal; third, to apply to the front opening of the axle-box a lid provided with a lug which, when the lid is drawn or pressed to one side for the purpose of opening the box, shall bear on the corresponding lug of the box with an amount of friction or pressure sufficient to hold the lid until it has been released by the application to it of exterior force.

In the annexed drawings Figure 1 is a vertical longitudinal section through the middle of the box; Fig. 2, a vertical section of the same on the line 1. 1 of Fig. 1 showing the link as it stands when not in use; Fig. 3, a similar view showing the link as in use, that is, brought down to a bearing on the axle; Fig. 4, a vertical section on the line 2. 2 of Fig. 1; Fig. 5, a plan of the box with the lid's lug and the corresponding lug of the box in horizontal section; Fig. 6, a vertical section on the line 4, 4 of Fig. 1, showing the spindle, ratchet and spring pawl, on an enlarged scale; Fig. 7, a perspective view of said spring pawl; Fig. 8, an inverted perspective view of a portion of the box wall showing one half of the recess or socket for the pawl; Fig. 9, a perspective view of the box lid showing the inclined projections on its face.

Similar letters of reference denote similar parts in the several figures.

a represents a car axle, whereof *b* is the wheel seat; *c*, the dust-guard-bearing; *d*, the journal, and *e* the collar.

f represents the axle-box; *g*, the lid covering the front opening of the box; *h*, a portion of the arch-bar; *h'*, a portion of the inverted arch-bar; *h²*, a portion of the tie-bar; *i*, bolts and nuts for securing the axle-box between these bars; *j*, the dust-guard; *k*, the journal-bearing; *l*, the key; *m*, the link provided with lugs *n*, which engage corresponding lugs *o* on the axle box, (see Fig. 5); *p*, an aperture in link *m* for the axle, said aperture being large enough to admit of the necessary movement of the link up and down, as required and also to let the link be clear of the axle, as shown in Fig. 2, when not in use.

q represents the spindle working in a recess *s* in the bottom of the box. The spindle *q* is supported by a cap *t*, Fig. 1. Said cap may be conveniently formed by bending the tie-bar *h²*. The spindle *q* carries cam *u* at one end and is provided at its other end with a socket *v* to receive the head of a crank or lever.

Instead of the spiral spring (*b'*) described in said patent as means for holding link *m* in close contact with cam *u* and also for holding the link up clear of the axle when said link is not in use for lifting, I make use of a bar *w* provided with a groove in each end, the respective grooves being adapted to engage and slide upon and between the respective tongues or guides *x*. Said guides are located upon the sides of the opening *z* in link *m*. The bar *w* is caused to bear with a continuing vertical pressure on cam *u* by means of the spiral springs *y*, the ends of which sit in recesses in the bar and link, as indicated by dotted lines in Fig. 2. I have found that this construction effects the results produced by the spiral spring (*b'*) described in said patent, and at the same time obviates wear.

I provide the spindle *q* with a ratchet *a'* and a pawl *c'*. I prefer to give the pawl *c'* the construction shown. One end of pawl *c'* occupies a recess or socket *d'*; this end being provided with two lugs *c²* which, when the pawl is being put into the socket slide in two similar open spaces or slots one of which *c³* is shown in Figs. 6 and 8. Two similar tongues, one of which *c⁴* is shown in these figures, de-

tain the pawl after its introduction, without interfering with its freedom of movement.

f' represents a spiral spring one end of which rests in a recess g' in the wall of the axle box and the other end in a recess i' in the pawl as shown in Fig. 6. The spring f' insures engagement of pawl c' with the ratchet. This construction enables me to use a longer lever and thus to exert more power for turning the spindle q and it also enables me to hold the box and its load securely at any height to which they may have been lifted and without loss of elevation, when the lever or levers are being shifted or manipulated.

The ratchet and pawl can be applied to the spindle at any point preferred.

When the lid g of the axle box is made in the ordinary way, described in said patent, it (when lifted up) obstructs the free use of the lever employed for turning spindle q . I provide the axle box with a lug j' and the lid g with a lug k' , Figs. 1, 4, 5 and 9. The face of the lug j' is provided with two inclined projections j^2 and the face of lug k' with two correspondingly inclined projections k^2 .

m' is a bolt passing through eyes in the lugs last mentioned and provided with a spring n' and a washer o' .

p' is a nut for securing bolt m' in place.

When the lid is closed the inclined projections k^2 of the lid mesh with the similar projections j^2 of the box lug and thus lock the lid in place. When, in order to open the axle box the lid g is pressed to one side, the inclined projections k^2 of the lid and the corresponding projections j^2 of the box, ride up on each other with increasing mutual pressure due to said inclines and to spring n' ; this pressure being strong enough to hold the lid until released by the hand of an operator or by other exterior means.

I claim—

1. In combination with the axle of a railroad car, an axle box provided with a link capable of downward and upward movements, a spindle adapted to be rotated, a cam arranged on said spindle in engagement with said link and adapted to move said link down to bear on said axle, or to move it up to be

clear of said axle, as required, and a composite spring consisting of a bar w and the spiral springs y , said bar bearing directly on said cam and being adapted to move between guides x substantially as and for the purpose set forth.

2. In combination with the axle of a railroad car an axle box provided with a link capable of downward and upward movements, a spindle adapted to be rotated, a ratchet arranged on said spindle, a pawl adapted to engage said ratchet, a cam fixed on said spindle and arranged in engagement with said link and adapted to move said link down to bear on said axle or to move it up to be clear of said axle, as required, and a spring connected with said link and adapted to bear uniformly with a continuing vertical pressure on said cam, substantially as and for the purpose set forth.

3. In combination with the axle of a railroad car an axle box provided with a link capable of downward and upward movements, a spindle adapted to be rotated, a ratchet arranged on said spindle, a pawl adapted to engage said ratchet, a cam fixed on said spindle, and arranged in engagement with said link and adapted to move said link down to bear on said axle or to move it up to be clear of said axle, as required, and a composite spring consisting of the bar w and the spiral springs y , said bar bearing directly on said cam and being adapted to move between guides x , substantially as and for the purpose set forth.

4. An axle box having a lug j' , the face whereof is provided with inclined projections j^2 in combination with the lid g having a lug k' the face whereof is provided with the correspondingly inclined projections k^2 , bolt m' passing through eyes in said lugs, washer o' , spring n' arranged on said bolt for the purpose of keeping the faces of said lugs in close contact, and means for securing said bolt in place, substantially as set forth.

WILLIAM HYDE.

Witnesses:

J. E. SHAW,
F. M. PEELER.