No. 803,748. PATENTED NOV. 7, 1905.

A. G. ELVIN.

CAR AXLE BOX.

APPLICATION FILED OCT. 6, 1905.

FIG. 1.

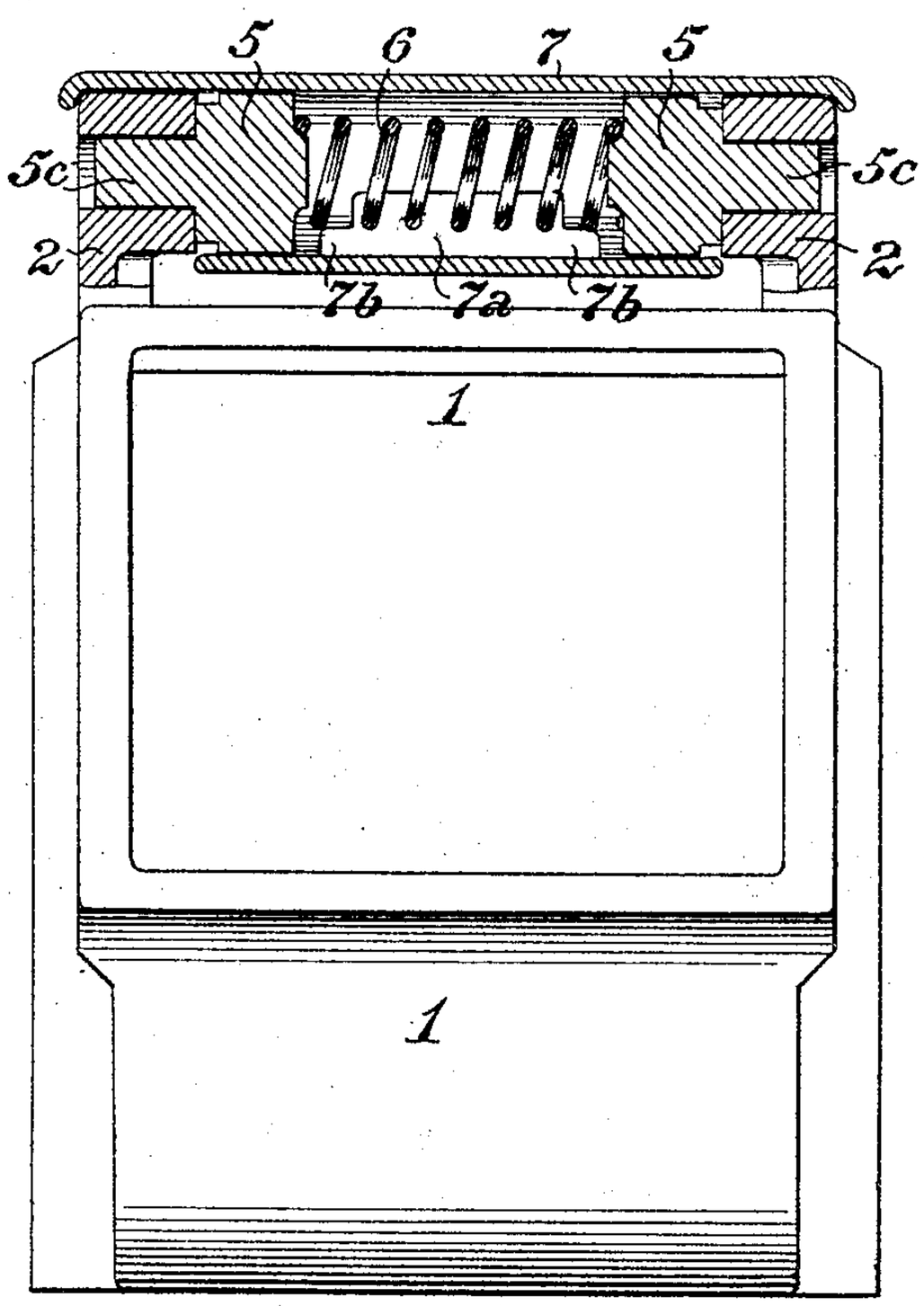



FIG. 2.

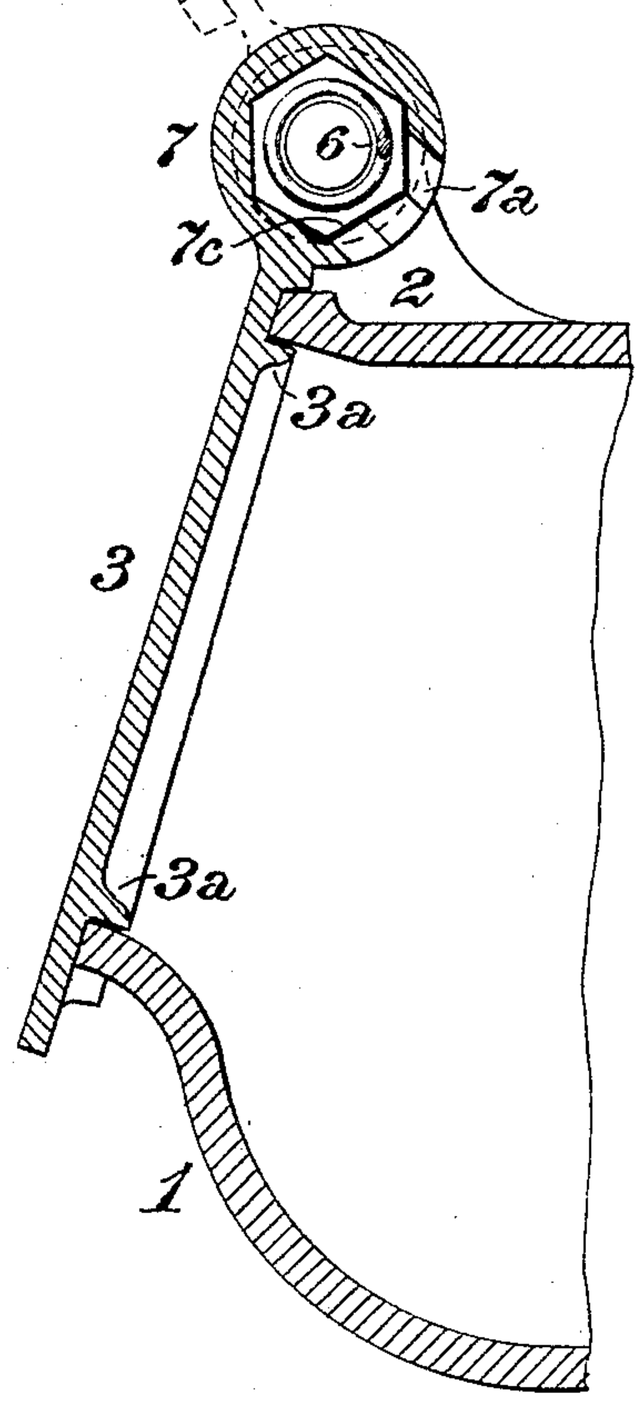



FIG. 3.

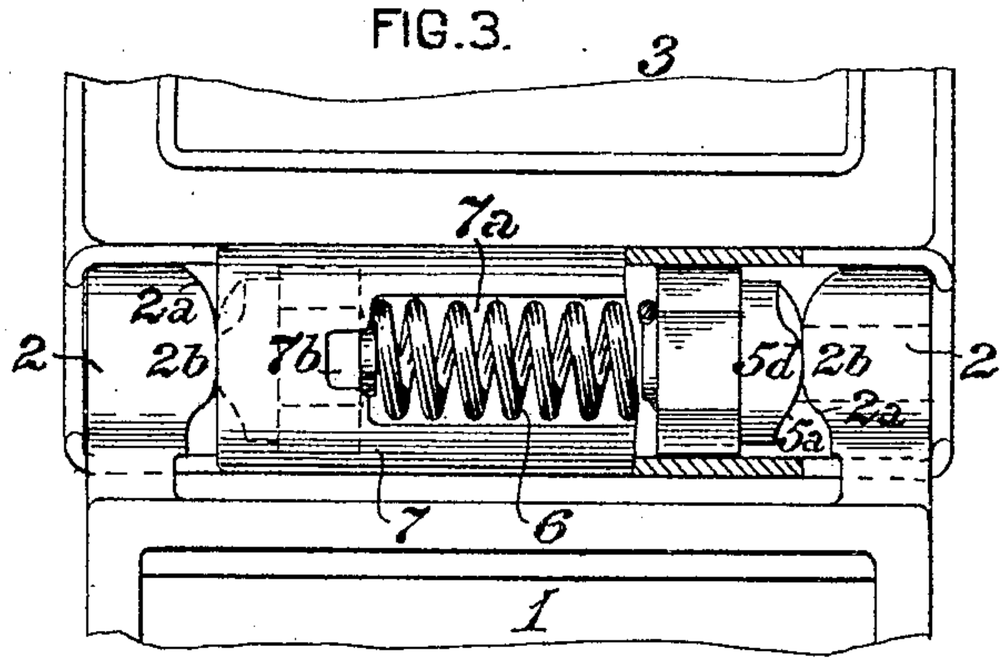



FIG. 5.

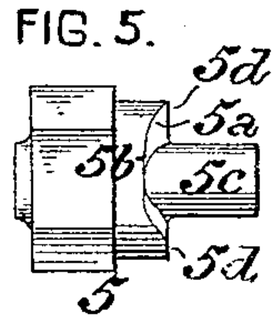
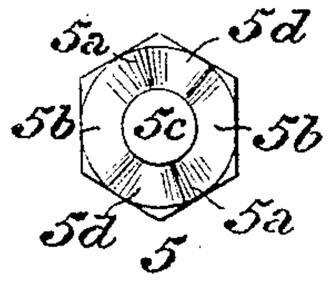



FIG. 4.




WITNESSES

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# UNITED STATES PATENT OFFICE.

ALBERT G. ELVIN, OF FRANKLIN, PENNSYLVANIA.

## CAR-AXLE BOX.

No. 803,748. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed October 6, 1905. Serial No. 281,567.

*To all whom it may concern:*

Be it known that I, ALBERT G. ELVIN, of Franklin, in the county of Venango and State of Pennsylvania, have invented a certain new and useful Improvement in Car-Axle Boxes, of which improvement the following is a specification.

My invention relates to axle or journal boxes for railroad-car trucks having self-closing lids; and its object is to provide an axle-box of such type which shall be of simple, substantial, and inexpensive construction, in which the loss of the lid, looseness, and the entrance of dust shall be effectually prevented, and the lid be made capable of being opened or raised higher than in prior constructions and of standing in desired position after being raised to a determined degree.

In a separate application, filed by me May 13, 1905, Serial No. 260,240, I have set forth an improved axle-box of the type above specified, and my present invention is designed to present the advantages of that of my said separate application and to further simplify the construction of the appliance by dispensing with the pivot-pin.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a front view, partly in section, of a car-axle box embodying my invention; Fig. 2, a partial vertical longitudinal section through the same; Fig. 3, a partial front view, partly in section, showing the lid raised; Fig. 4, a face view of one of the dogs, and Fig. 5 a side view of the same.

In the practice of my invention I construct an axle or journal box 1, which is provided with a vertical lug 2 on its top at each side of its front face and which, except as to the specific form and location of its lugs 2, may be of the Master Car-Builders' standard or of any other known and preferred type. Two diametrically opposite inclines $2^a$ are formed upon the inner sides of the lugs 2—that is to say, the sides nearer the vertical longitudinal plane of the box—each of said inclines being of segmental form and extending from the plane inner side of the lug to an upper flat bearing-face $2^b$ parallel therewith.

A flat lid 3, having flanges $3^a$ fitting within the opening of the front of the box, closes said opening when shut down, as shown in Fig. 2, and is pivoted to the box by two dogs 5, each having a cylindrical stem $5^c$ fitting a corresponding bore in one of the lugs 2 of the box and having flat sides formed on its body which fit a corresponding flat-sided socket in one of the ends of a casing or tubular lug 7, formed upon the top of the box-lid, which consequently in being raised and lowered turns with the dogs in the bearings formed by the cylindrical bores of the box-lugs 2. The dogs 5 are completely inclosed within the lug of the lid, and their abutment-faces hereinafter described are correspondingly protected from dust and grit.

In order that the box-lid may be self-closing and be held in either open or closed position, as desired, the dogs 5 are provided with cam-faces which abut against the faces above described of the inner sides of the box-lugs 2 and are maintained in operative relation thereto by a spring 6. The cam-faces of the dogs are located on the sides of their bodies which adjoin their stems $5^c$ and are formed similarly to those of the box-lugs 2—that is to say, are provided with two diametrically opposite inclines $5^a$, each of which is of segmental form and extends from a lower flat bearing-surface $5^b$ to an upper flat bearing-surface $5^d$, the flat and inclined surfaces being thus alternated similarly to those of the box-lugs 2. The spring 6 is interposed between and abuts against the inner sides of the dogs 5 and acts with a constant tendency to maintain their cam-faces in contact with the adjoining faces of the box-lugs 2.

In order to attach the lid to the box, the bodies of the dogs 5 are inserted in the sockets of the tubular lug or casing 7 of the lid and are pushed in sufficiently far to clear the inner faces of the box-lugs 2. The lid is then placed on the box and the dogs are pushed out until their stems are inclosed in the bores of the lugs 2. The lid is then thrown up, as shown in Fig. 3, until it presents for unobstructed access a longitudinal opening $7^a$, formed in the wall of the tubular lug 7, which opening is of sufficient width to admit the spring 6, but is shorter than said spring when expanded to its minimum working length. Short extensions $7^b$ of the opening $7^a$ are formed at its ends, the width of said extensions being less than the diameter of the spring. To insert the spring 6 in operative position, it is compressed by a clamp or pair of pliers sufficiently to be entered into the wide portion of the opening $7^a$, the pliers passing through the narrower extensions $7^b$. The spring is then released and expands until it catches against the ends of the wide portion

of the opening, when the clamp or pliers can be pulled out and the spring pushed into the tubular lug 7, in which it will expand until it bears against the inner ends of the dogs 5 in operative position, from which it cannot be accidentally detached, as it is then of greater length than that portion of the opening $7^a$ which is of sufficient width to permit it to pass out of the tubular lug 7.

To prevent the access of dirt to the spring, a light steel cover-plate $7^c$ may be fitted over the opening $7^a$, as shown in Fig. 2.

In the raising of the box-lid 3 the dogs 5, by reason of the free fitting of their cylindrical stems in the bores of the box-lugs 2 and the engagement of their flat-sided bodies with the corresponding sockets of the tubular lug 7 at the top of the lid, rotate with the lid in the bearings formed by the box-lugs and their inclines slide over the corresponding inclines of the box-lugs, the dogs being thereby moved inwardly and compressing the interposed spring 6, by the tension of which they are thereafter forced outwardly and the lid closed and held closed when released. It will be seen that by reason of the alternated, inclined, and flat surfaces of the abutting faces of the dogs and the box-lugs long wearing-surfaces are presented when the spring which acts upon the dogs is under its maximum tension, and the liability to wear and looseness of the working parts is correspondingly minimized.

The range of swinging movement of the lid which is permitted by the double inclines of the abutting faces of the box-lugs and dogs is such that the lid may be raised to a higher position than in prior constructions of the same general type, and the lid will, after being raised about four inches, stand in any position.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of an axle-box having lugs on its top at each side of its front face, a lid adapted to cover the front opening of the box and having a tubular lug on its top, dogs having flat-sided bodies fitting corresponding sockets in the lug of the lid and fitting freely in the lugs of the box, there being coöperating engaging surfaces on the adjacent faces of the dogs and the lugs of the box, composed of alternated inclines and flats, and a spring interposed between and bearing on the inner ends of the dogs.

2. The combination of an axle-box having lugs on its top at each side of its front face, a lid adapted to cover the front opening of the box, said lid having a tubular lug on its top, provided with a longitudinal opening, the end portions or extensions of which are narrower than the main portion, dogs having flat-sided bodies fitting corresponding sockets in the lug of the lid, and a helical spring, of such dimensions as to be capable, when compressed, of being passed through the wider portion of the opening in the slot of the lid, and which is interposed between and bears on the inner ends of the dogs.

3. The combination of an axle-box having lugs on its top at each side of its front face, a lid adapted to cover the front opening of the box, said lid having a tubular lug on its top provided with a longitudinal opening, the end portions or extensions of which are narrower than the main portion, dogs having flat-sided bodies fitting corresponding sockets in the lug of the lid, a helical spring, of such dimensions as to be capable, when compressed, of being passed through the wider portion of the opening in the slot of the lid, and which is interposed between and bears on the inner ends of the dogs, and a cover-plate closing the longitudinal opening of the lug of the lid.

4. A dog for self-closing axle-box lids, having a flat-sided body, a cylindrical stem projecting from one end of the body, and a cam-face composed of alternated inclined and flat surfaces on the end of the body adjoining the stem.

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Witnesses:
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