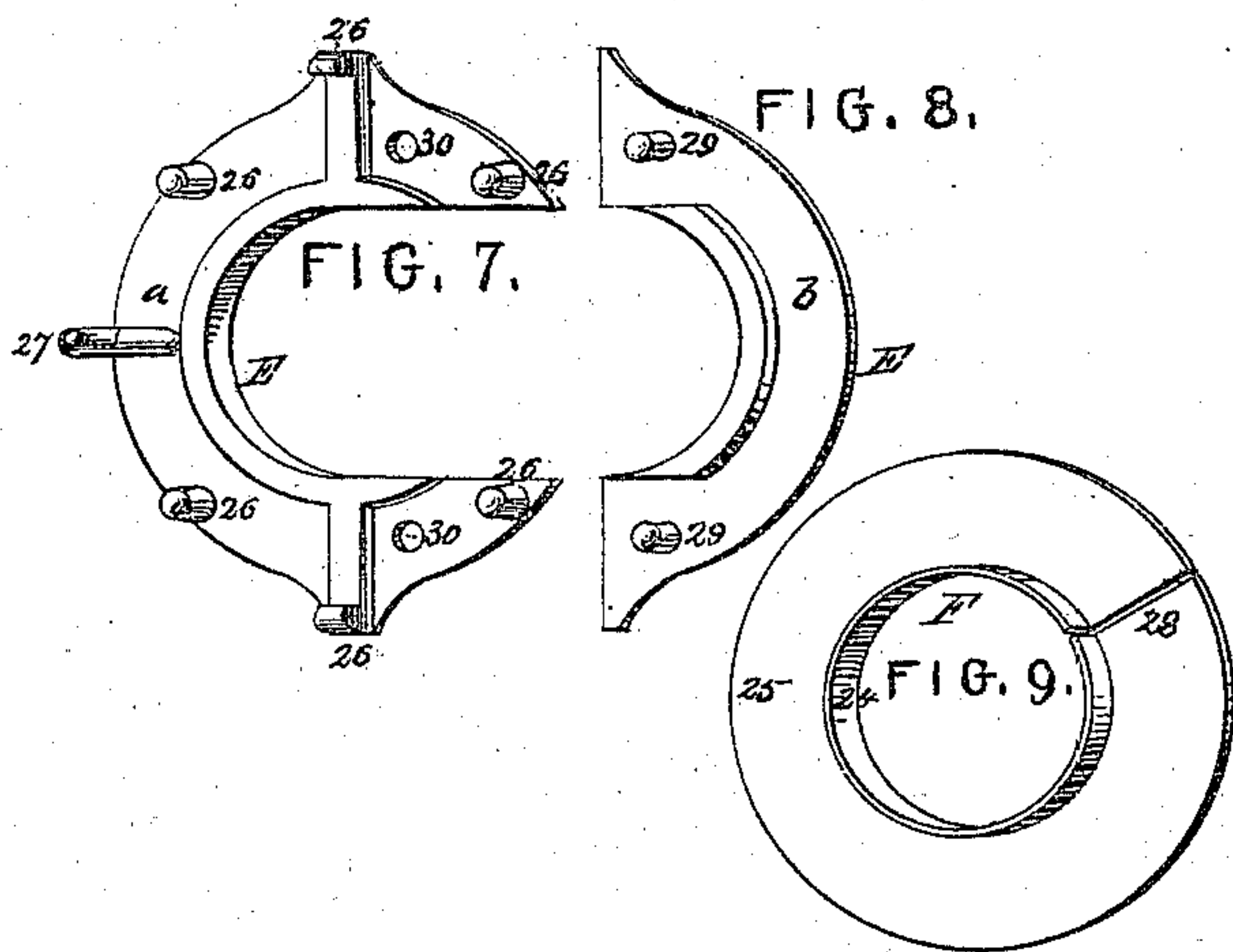
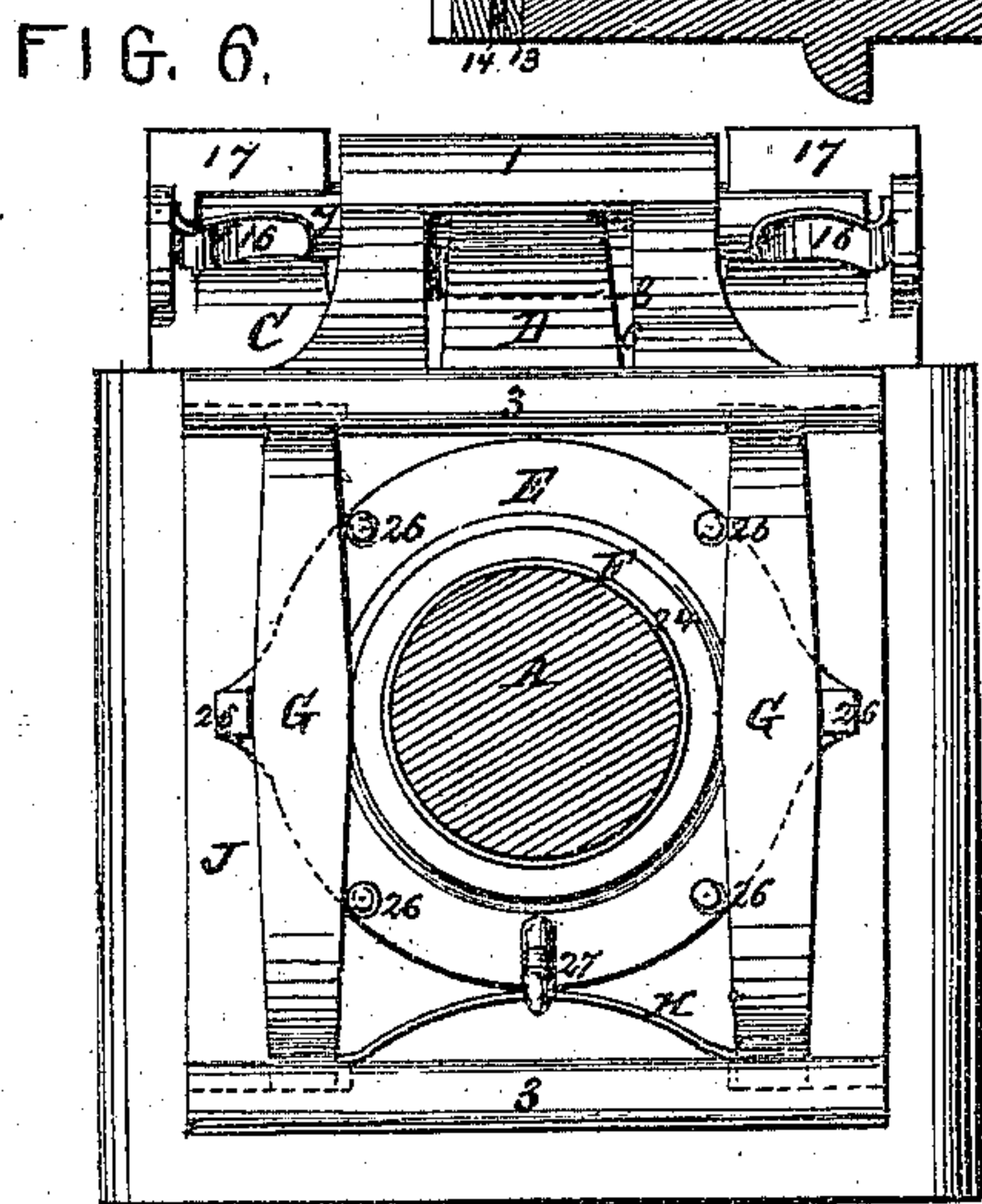
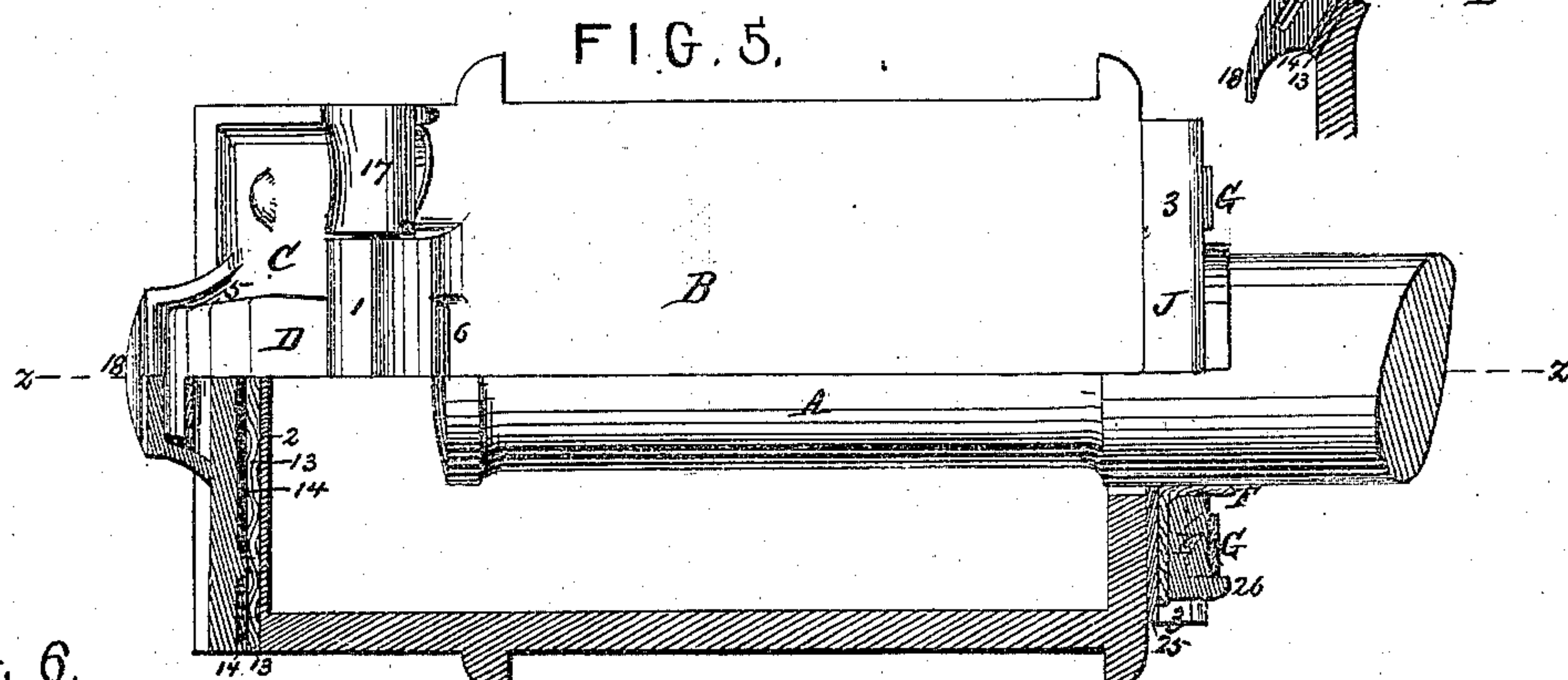
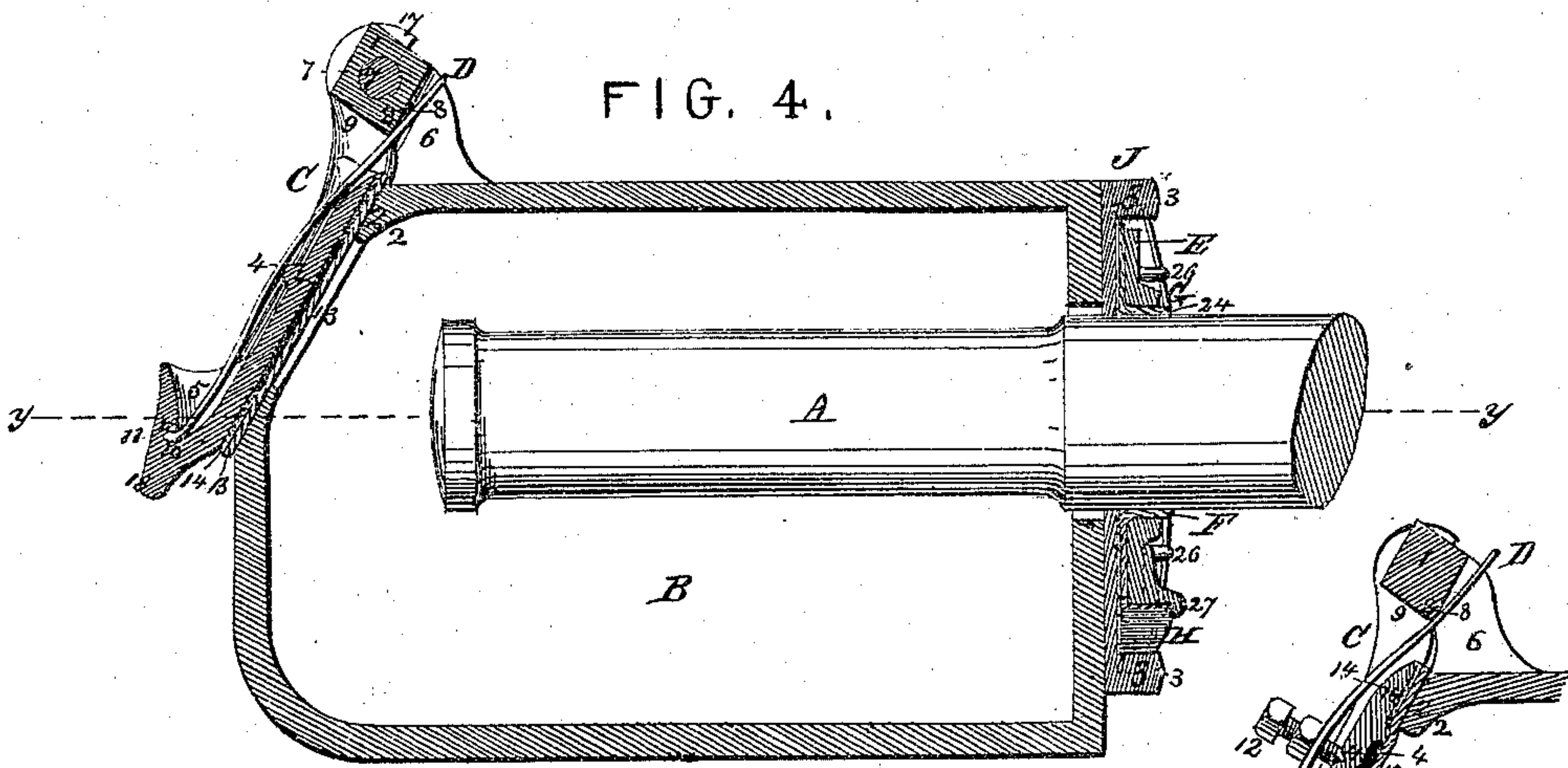




J. E. UHL.  
Car Axle-Boxes.

No. 138,717.

Patented May 6, 1873.



Witnesses  
Geo. L. Ewins  
Walter Allen

Inventor,  
J. E. Uhl  
By *[Signature]*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOHANN ERNST UHL, OF RENOVO, PENNSYLVANIA.

## IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **138,717**, dated May 6, 1873; application filed September 28, 1872.

*To all whom it may concern:*

Be it known that I, JOHANN ERNST UHL, of Renovo, in the county of Clinton and State of Pennsylvania, have invented an Improved Car-Axle Box, of which the following is a specification:

### *Nature and Objects of the Invention.*

The subject-matter of this invention is an axle-box for railway cars, having a hinged lid with peculiarly-applied spring and packing and a peculiar spring-supported, or spring-supported and detachable or renewable dust-guard. The first part of the invention consists in a hinged cover provided with a spring bearing upon a square upon the hinge-lug of the box, so as to hold the cover either closed or open, the spring being applied externally and to the center of the cover in such a manner as to press it upon all parts of its seat. The invention further consists in a peculiar construction and arrangement of the spring and its bearings, whereby the resiliency of the spring serves to secure it; also, in applying the pressure of the spring to the center of the cover through the medium of a set-screw, so that its force may be graduated as required; also, in applying to the under surface of the cover a pad of leather or other soft material, with a cement foundation, which is caused to harden while the cover is pressed upon its seat, so that a perfectly tight joint may be formed; also, in the provision of clips cast in the body of the cover to secure the open hinge of the cover; also, in a frame for application to old boxes to receive the improved cover; also, in means for locking the bolts employed to attach such frame; also, in a peculiar construction of packing for the rear end of the axle-box, to exclude dust and to retain oil, and in a peculiar application of springs thereto; also, in a peculiar construction of such packing to render the same detachable and renewable without separating the box and axle.

### *Description of the Drawing.*

Figure 1 is a perspective view of the outer end of an old car-axle box with the improved cover, in a preferred form, applied thereto.

Fig. 2 is a perspective view of the cover detached and inverted. Fig. 3 is a perspective rear view of the cover-frame for application to old boxes. Fig. 4 is a vertical longitudinal section on the line *z*, Fig. 5, of an axle-box manufactured according to this invention. Fig. 5 is a part plan and part horizontal section on the line *y* of the box represented in Fig. 4. Fig. 6 is a rear elevation of the same. Figs. 7, 8, and 9 are perspective views of the separated parts of a detachable dust-guard. Fig. 10 is a vertical longitudinal section illustrating the application of a graduating-screw to the cover-spring.

Like letters of reference indicate corresponding parts in the several figures.

The end of an axle, A, is shown in elevation in Figs. 4 and 5, and in transverse section in Fig. 6.

### *General Description.*

This invention does not relate to nor affect the axle A, nor the box proper B, nor the interior fittings of the latter.

The new cover C and its spring D, and the dust-guard E with its packing F, and springs G H may be applied to an old box, Fig. 1, by the use of a suitable cover-frame, I, and a frame, J, for the dust-guard; or new boxes, Figs. 4, 6, and 10, may be cast with suitable hinge-lugs 1 and seats 2 for the covers, and with parallel pairs of grooved flanges 3 to support the dust-guard springs.

The cover C, for the reception of its spring D, is constructed with a central bearing, 4, and a fulcrum-socket, 5, at its lower end. The hinge-lug 1 is also constructed with a recess, 6, below the pintle 7, and its contiguous portion is squared to form a point, 8, and a surface, 9, to constitute bearings for the spring in the closed and open positions of the cover, the bearing-point 8 being below the axis of the pintle 7 and outside of the plane of the cover-seat 2. The spring, pressing upward and outward against this point, and exerting its force on the center of the cover, firmly presses every portion thereof against its seat. In order that this spring may be secured by its own resiliency, the lower end of the same is furnished with a cylindrical enlargement,



10, and its socket 5 is constructed with a corresponding groove, 11, and with a flaring mouth to receive and direct the end of the spring as it is being driven to place. The enlarged end 10 of the spring constitutes its fulcrum, and securely retains it against accidental longitudinal displacement. The central bearing 4 of the spring may be a simple flange or projection, as represented in Figs. 1 and 4; or, preferably, it may consist of a seat for a set-screw, 12, Fig. 10, passing through the spring and constituting an adjustable stud, by which to regulate its pressure.

To constitute a superior packing for the face of the cover, a pad, 13, of leather or other soft material, is superimposed upon a foundation, 14, of cement, applied in plastic condition and caused to harden while the cover is pressed upon its seat. The face of the cover is thus permanently conformed to every part of the seat, so as to form a perfectly tight joint.

Cement for this purpose may be made in the following manner: Dissolve common glue in cold water, and afterward gradually heat the solution. To this add pulverized quick-lime, and to the mixture add ten per cent. of pulverized sulphur, and five per cent. of boiled linseed-oil, and thoroughly mix the same while in a heated state. A sufficient quantity of the cement is spread around the margin of the surface of the cover or pad, and the pad is then applied, and the cover is closed upon its seat under the pressure of the spring. The semi-fluid cement is thus forced into and fills any spaces which may result from inequalities in the thickness of the pad or in the surfaces of the cover and seat, and, on becoming hard, so supports the pad as to secure a permanent and perfect fit at every point, as before stated. For attaching the pad, flexible strips or clips 15, Fig. 2, of wrought-iron, are cast in the cover, and passing through perforations in the pad are bent down so as to secure the same. Similar clips 16, Figs. 2 and 6, are cast in the ends of the open hinge-lugs 17 of the cover, to embrace the ends of the pintle 7, and thus secure the joint. The spring-socket 5 is formed in the enlarged upper end of a lip, 18, by which to lift the cover. The supplemental cover-frame I, Figs. 1 and 3, for application to old boxes, is constructed with a recessed hinge-lug, 1, and cover-seat 2, as before stated, and for its attachment to the box it has bolt-holes 19, corresponding with those in the face of the box for which it is intended, and with lugs 20 to rest on the top of the box. A gasket, 21, of leather or rubber is interposed. The cover-frame is further furnished with flexible strips 22, Fig. 1, cast in the same, to engage when bent with the heads of the attaching-bolts 23 to lock the same. The dust-guard E F, Figs. 4-9, for closing the rear end of the axle-box, consists of a metallic ring, E, and an annular packing, F, supported by the former, and constructed with flanges or members 24 25, at right angles, to embrace the axle and the

back of the box or supplemental frame J. The supporting-ring E is preferably flanged, as shown, to secure inflexibility without unnecessary weight, but this is obviously unessential. Lugs 26 27 projecting from its back, form bearings for the bow-shaped springs G H; the ends of the same being supported by flanges 3 on the box or supplemental frame. The springs G press the dust-guard against its seat on the box or frame. The spring H supports the weight of the dust-guard, so as to relieve the axle from friction and the packing from excessive wear, which would otherwise result. The dust-guard may be undivided, as illustrated in Figs. 4-6, when it is applied to the box prior to the application of the box to the axle. To adapt the same for application to the box after the axle is in position, as in renewing the packing, the packing F 28 is divided, as illustrated in Fig. 9, so as to adapt the same to be sprung over the axle, and the supporting ring E is cast in two overlapping parts, *a b*, with interlocking-lugs and perforations 29 30, to unite the same, as illustrated in Figs. 7 and 8. This may be convenient in applying the dust-guard to old boxes while on the cars.

The improved box it will be observed is securely closed against leakage or the entrance of dust at either end, and the improvements are rendered applicable to either new or old boxes.

#### *Claims.*

The following is claimed as new—

1. The external spring D applied to the center of the cover C, and projecting within a recess, 6, in the hinge-lug 1, and pressing upward against a suitable bearing-surface on the same, so as to hold the cover against all parts of its seat, substantially as described.
2. The combination, with the box B and cover C, of the spring D and angular bearing-surface 8 9, arranged as herein described, so that the said spring will hold the cover against all parts of its seat when closed, and support it when open.
3. The fulcrum enlargement 10 on the end of the spring D, and the flaring fulcrum-socket 5 with groove 11, for securing the spring by its own resiliency, as herein set forth.
4. The adjusting or set screw 12, employed in connection with the spring D and cover C, in the manner and for the purpose specified.
5. The combination of the cover C, pad 13, and an intervening body of cement, 14, applied in manner substantially as herein described, in order to adapt the pad accurately to the cover-seat, as explained.
6. The locking-clips 16, in combination with the open hinge-lugs 17 of the cover C, and the hinge-pintle 7 attached to the box, for the purpose specified.
7. The supplemental cover-frame I, constructed with the recessed hinge-lug 1 and seat 2, for application to old boxes, in combination



with a gasket, 21, and the cover C and its spring D, as herein set forth.

8. The locking strips or clips 22, in combination with the supplemental cover-frame I and its attaching-bolts 23, for the purpose stated.

9. The dust-guard, composed of the metallic ring E and packing F, supported by springs G H, substantially as herein described, for the purpose set forth.

10. The dust-guard-supporting ring E, composed of two interlocking parts *a b*, constructed substantially as herein set forth, in combination with the divided packing F 28, for the purpose specified.

JOHANN ERNST UHL.

Witnesses:

JOHN REILLEY,  
F. H. KOLLER.