

(No Model.)

C. W. HAYES.  
DUST GUARD FOR CAR AXLE BOXES.

No. 411,100.

Patented Sept. 17, 1889.

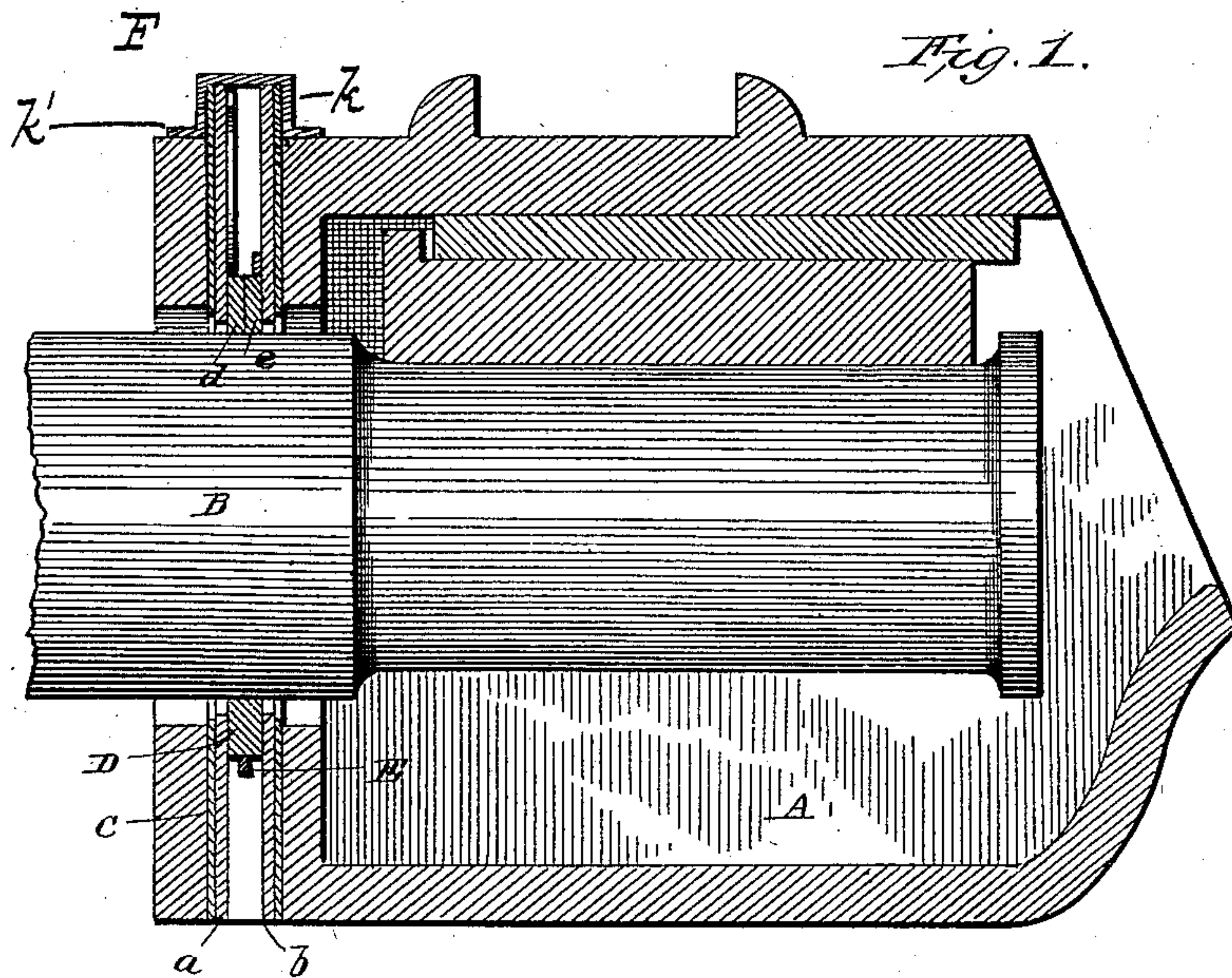


Fig. 2.

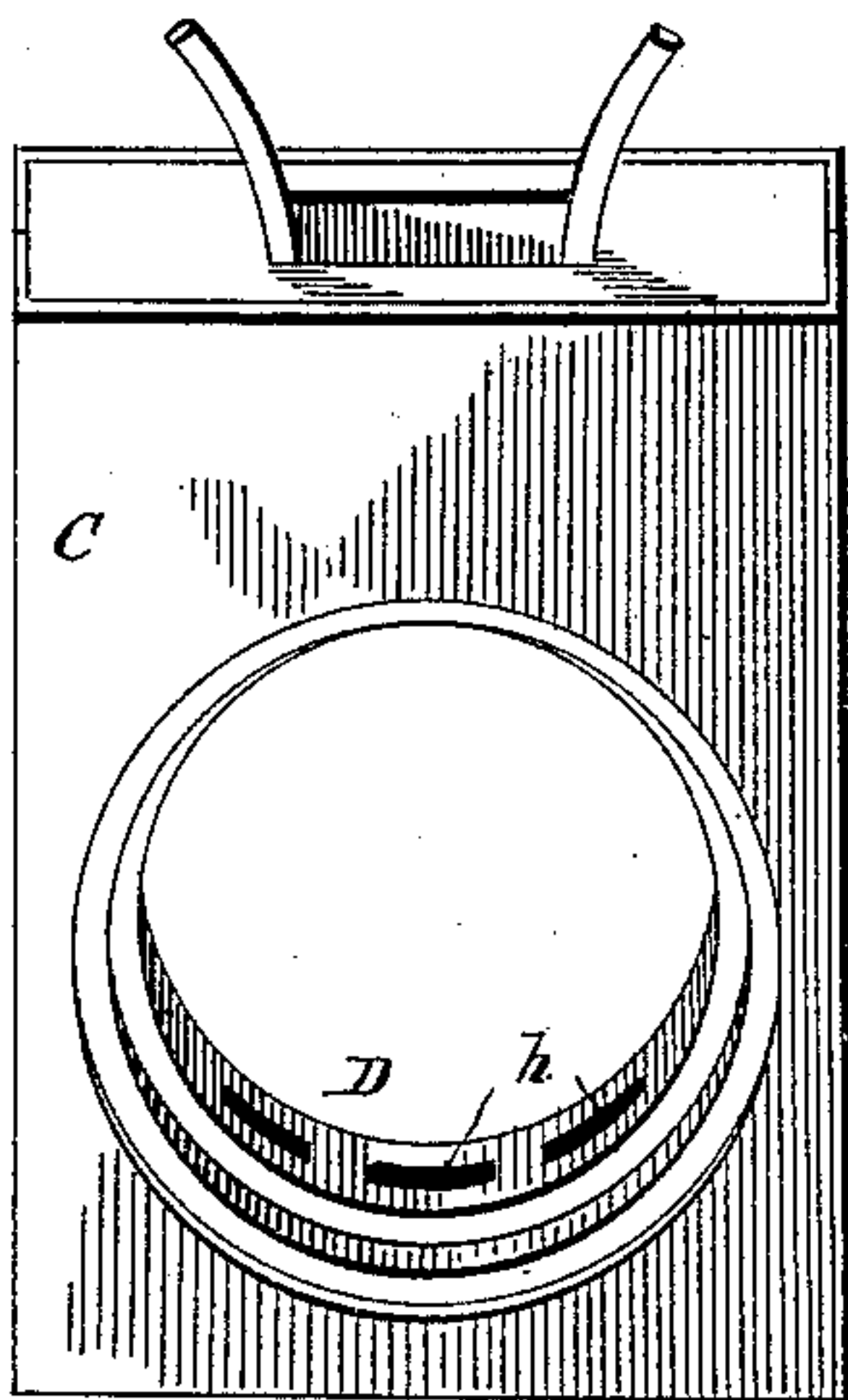


Fig. 3.

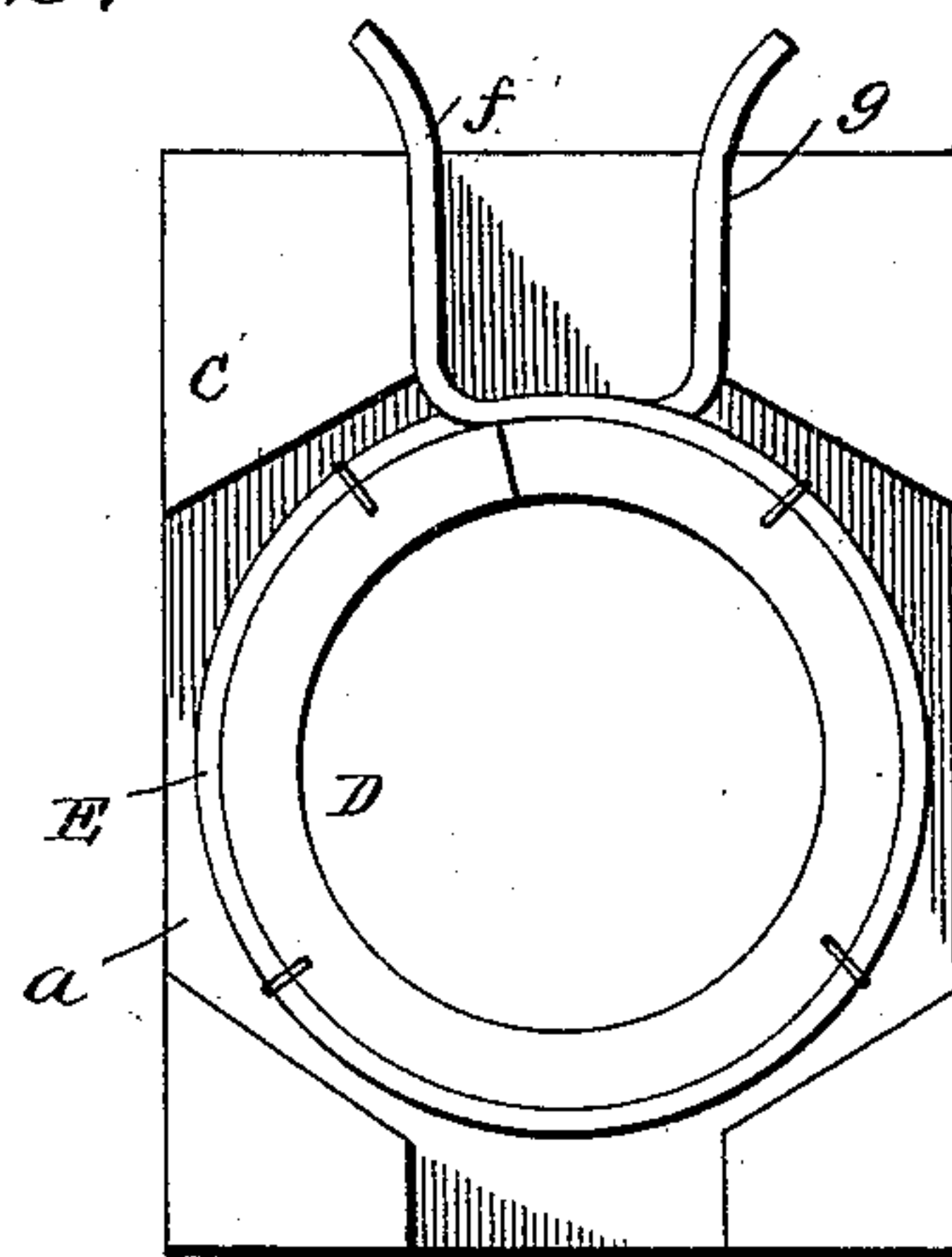


Fig. 4.

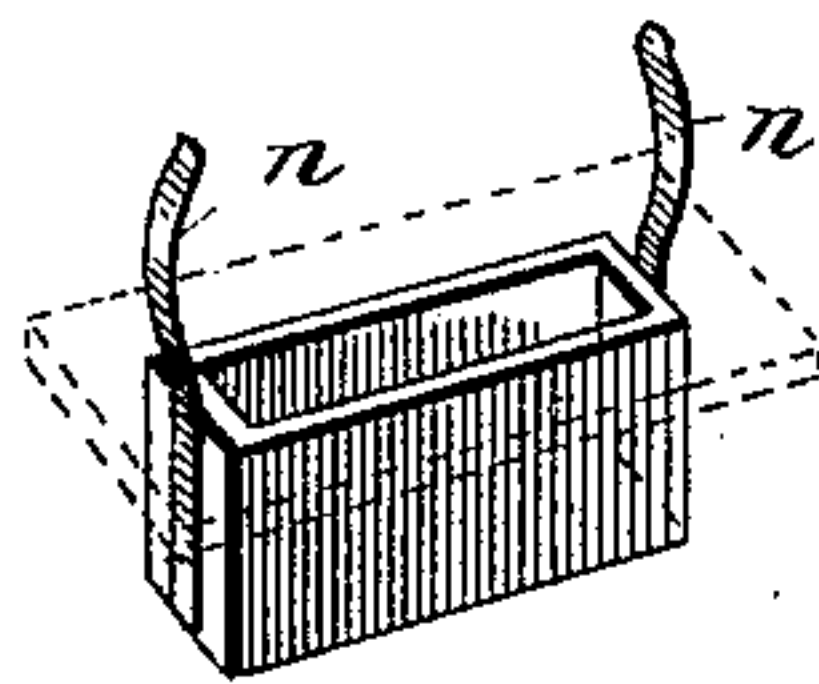
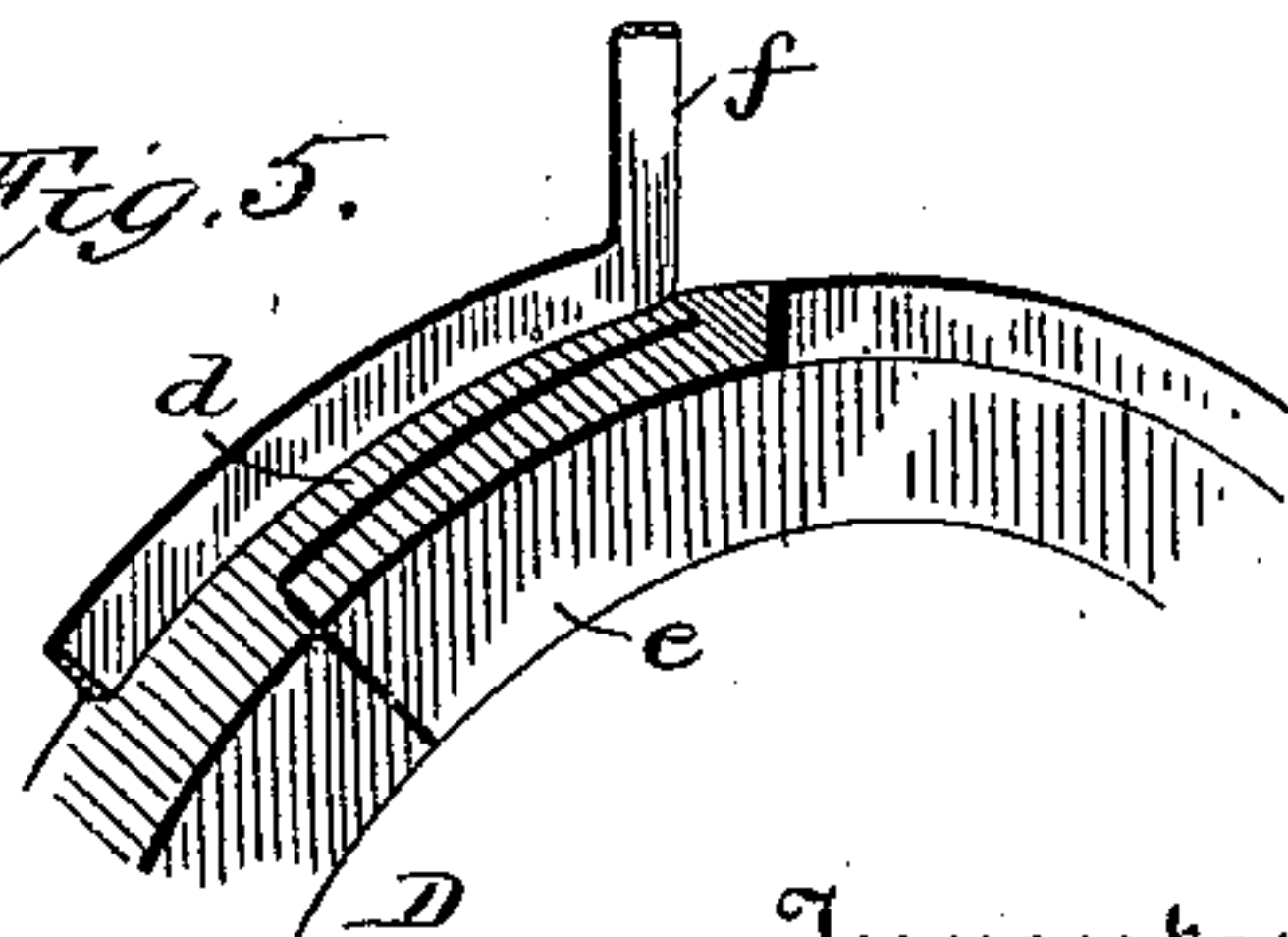


Fig. 5.



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# UNITED STATES PATENT OFFICE.

CHARLES W. HAYES, OF WASHINGTON, DISTRICT OF COLUMBIA.

## DUST-GUARD FOR CAR-AXLE BOXES.

SPECIFICATION forming part of Letters Patent No. 411,100, dated September 17, 1889.

Application filed January 29, 1887. Serial No. 225,904. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. HAYES, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Guards for Car-Axle Boxes, of which the following is a description.

My invention relates to guards for car-axle boxes; and it consists in the improved construction hereinafter fully described and explained.

Figure 1 represents, partly in longitudinal vertical section and partly in elevation, so much of a car-axle box and axle as is sufficient to illustrate my invention as applied thereto. Fig. 2 is a perspective view of my improved guard. Fig. 3 is a view in elevation of said guard, one side of the same and its case being removed. Fig. 4 is an inverted plan view of the top or lid of the guard, the flange being shown in dotted lines; and Fig. 5 is a detail perspective view of the upper part of the bearing portion of the guard, one of the extended portions of the operating-spring being broken away to show more clearly the overlapping ends of the said bearing portion.

The axle-box A is provided at its rear with the vertical guard-receiving recess. The case proper of the guard for said recess consists, preferably, of two plates *a b*, which are secured together, and between which at the corners thereof are interposed blocks *c*, generally of the form shown in Fig. 3, and adapted to so relatively hold the plates *a b* as to present a central space. The plates *a b* both have registering-openings slightly larger than the diameter of the larger part of the car-axle B. If desirable, the bottom, sides, and ends of the guard are protected by a metallic sheathing or case C.

D refers to the movable plate forming the bearing portion of the guard, which portion consists of an annular section split at its upper side, so as to form overlapping tongues *d e*, as shown in Fig. 5. A circularly-bent metallic spring E embraces the movable bearing, as seen in Fig. 3, said spring being looped or otherwise connected to said portion. The extended ends *f g* of said spring are bent so as to extend up through the opening in the top of the guard between the upper blocks *c*

*c*. It will be noticed, by reference to Fig. 3, that the extended ends of said spring are so arranged that by pressing them together they will effect the separation of the overlapping tongues *d e* of the bearing portion, and consequently increase the dimension of the axle-opening. The bearing portion D is made from asbestos fiber or other like suitable substance capable of resisting frictional heating. Within the bearing-face of said portion are located sections *h*, of rawhide, metalline, or other anti-friction-bearing substance.

Instead of forming independent sections *h* of the anti-friction substance, the same may be arranged in a single extended or continuous strip.

By reference to Fig. 1 it will be observed that the upper portion of the guard extends slightly above the upper face of the journal-box, and that the said projecting portion is concealed by the removable cover F, which is of the form shown generally in full and dotted lines, Fig. 4, and consists of the angular body portion *k*. It will be most desirable in practice to have said body portion of such depth that when the lateral flange *k'* rests upon the upper face of the box the closed end of the body will be considerably above the projecting portion of the guard, so as to also receive and conceal the projecting portions of the extended ends *f g*. It will be understood that said extended portions can be more conveniently operated if they project slightly beyond the top of the guard proper.

A spring *m* is secured rigidly at each end of the body *k* and has a curved portion *n* extending beyond the same. The purpose of these springs *m m* is to have them forced between the ends of the guard and the end walls of the guard-recess, so that when the cover is placed in position the curved form of the springs will cause them to become practically wedged, and thus retain the cover in position and prevent accidental displacement of the same by reason of jar or otherwise, and exclude dust.

In practice the dust-guard is dropped in place, and before the cover is applied the extended ends of the spring are manipulated so as to cause the movable bearing portion to enlarge and enable the axle to freely pass through the same. When the axle is prop-



erly in place, the extended ends are released, and the normal tension of the spring causes the bearing portion to intimately bear upon and embrace the axle, so as to prevent oil  
 5 from working along the same and exclude all dust and other foreign matter from the box. All wear experienced by the bearing portion will be immediately taken up by the spring, thus always securing an intimate contact be-  
 10 tween the axle and bearing portion, irrespective of the moderate degree of wear experienced by the latter.

The importance of having the bearing portion independently movable of the guard will  
 15 be appreciated when it is considered that the anti-friction bearing-surface will always be the same, no matter to what extent the axle vibrates in its box, this advantage being coupled with the additional advantage of hav-  
 20 ing the guard remain stationary under all vibrations.

I do not limit myself to the particular construction of the spring E shown, as any arrangement of spring device that can be ma-  
 25 nipulated to cause the bearing portion to yield radially and expand at all points will fall within the scope of my invention. For instance, instead of having the spring extend entirely around the bearing portion, as shown,  
 30 and before described, it may be simply a coiled spring or a bent spring connecting the tongues of said bearing portion.

Many other changes may be resorted to, but I wish it distinctly understood that I do not  
 35 limit myself to the precise construction shown and set forth.

I claim—

1. A guard for axle-boxes, consisting of a case adapted to be inserted in the guard-re-  
 40 cess of the axle-box, and having a recess in which is confined a freely-moving plate, perforated to embrace the axle and form a bearing portion therefor, the said recess being larger than the plate in both vertical and

horizontal dimension, and an anti-friction- 45 bearing substance located in the bearing-surface of said plate, substantially as set forth.

2. The combination, in a guard for axle-boxes, of a case adapted to be inserted in the guard-recess of the axle-box and having a  
 50 recess in which is confined a freely-movable plate, adapted to embrace the axle and vibrate bodily therewith, and comprising an annular section separated at its upper side, an anti-friction-bearing substance located in the bear-  
 55 ing portion of said plate, and a spring E, secured to said annular section and having extended ends by which it may be operated, substantially as set forth.

3. The combination, with a car-axle box 60 having a guard-recess, of a guard in said recess and having a portion extending above said box, and a cap adapted to incase the projecting portion of the guard, substantially as  
 65 set forth.

4. The combination, with a guard for axle-boxes, of a cap therefor, and curved springs  
 n n, depending from said cap, substantially as set forth.

5. The combination, with a guard for axle- 70 boxes, said guard having a case proper confining a freely-moving bearing portion, of an outer metallic sheeting for said guard-case, substantially as set forth.

6. The combination, with an axle-box, of a 75 guard therefor having a yielding bearing portion, an operating-spring therefor connected thereto and having extended ends, and a cap or case for said guard adapted to cover the guard and extended ends above the top of  
 80 the axle-box, substantially as set forth.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

CHARLES W. HAYES.

Witnesses:

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 A..M. PAXTON.