

(No Model.)

J. A. BRILL.
DUST SHIELD FOR CAR AXLE BOXES.

No. 418,439.

Patented Dec. 31, 1889.

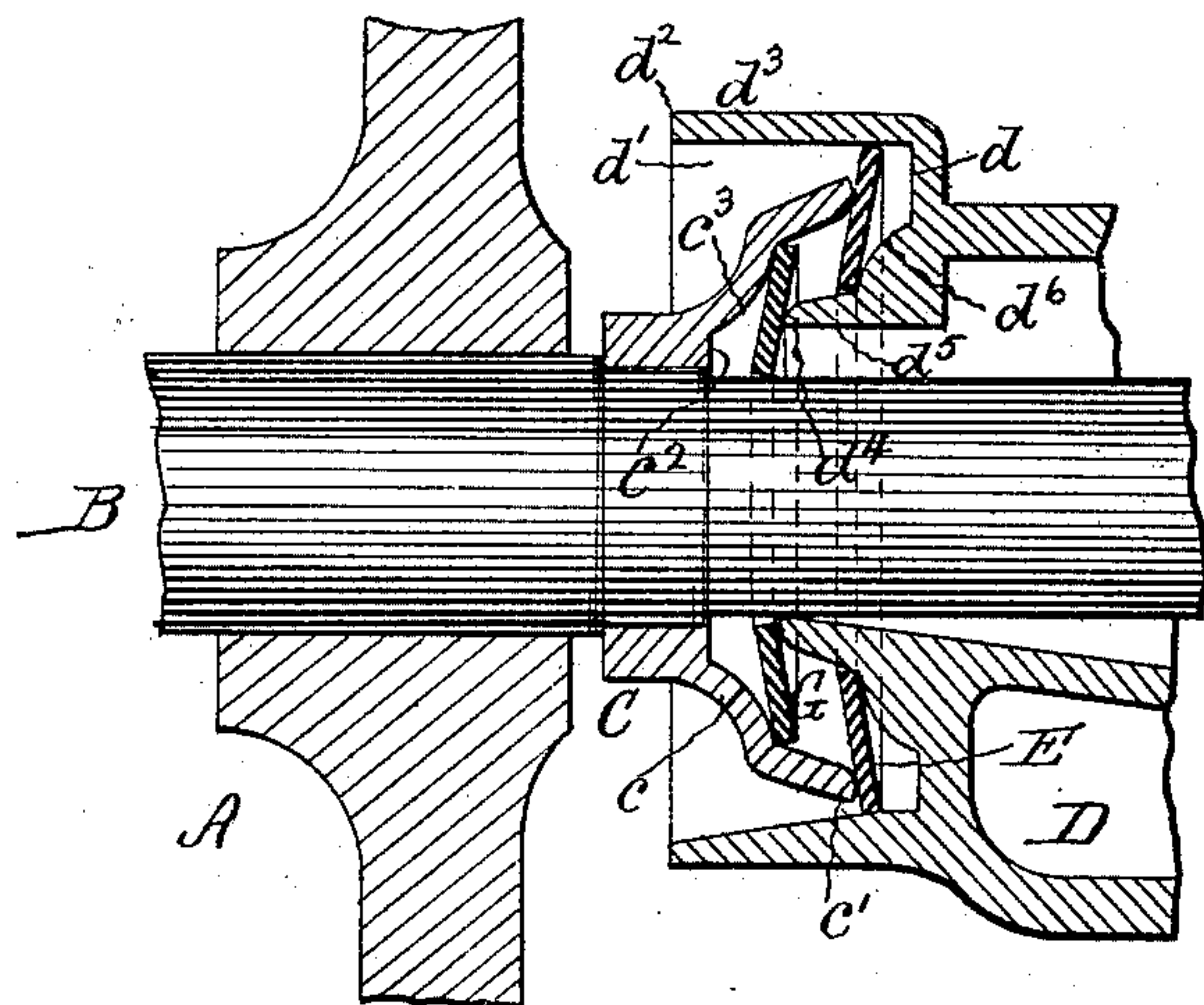


Fig. 1

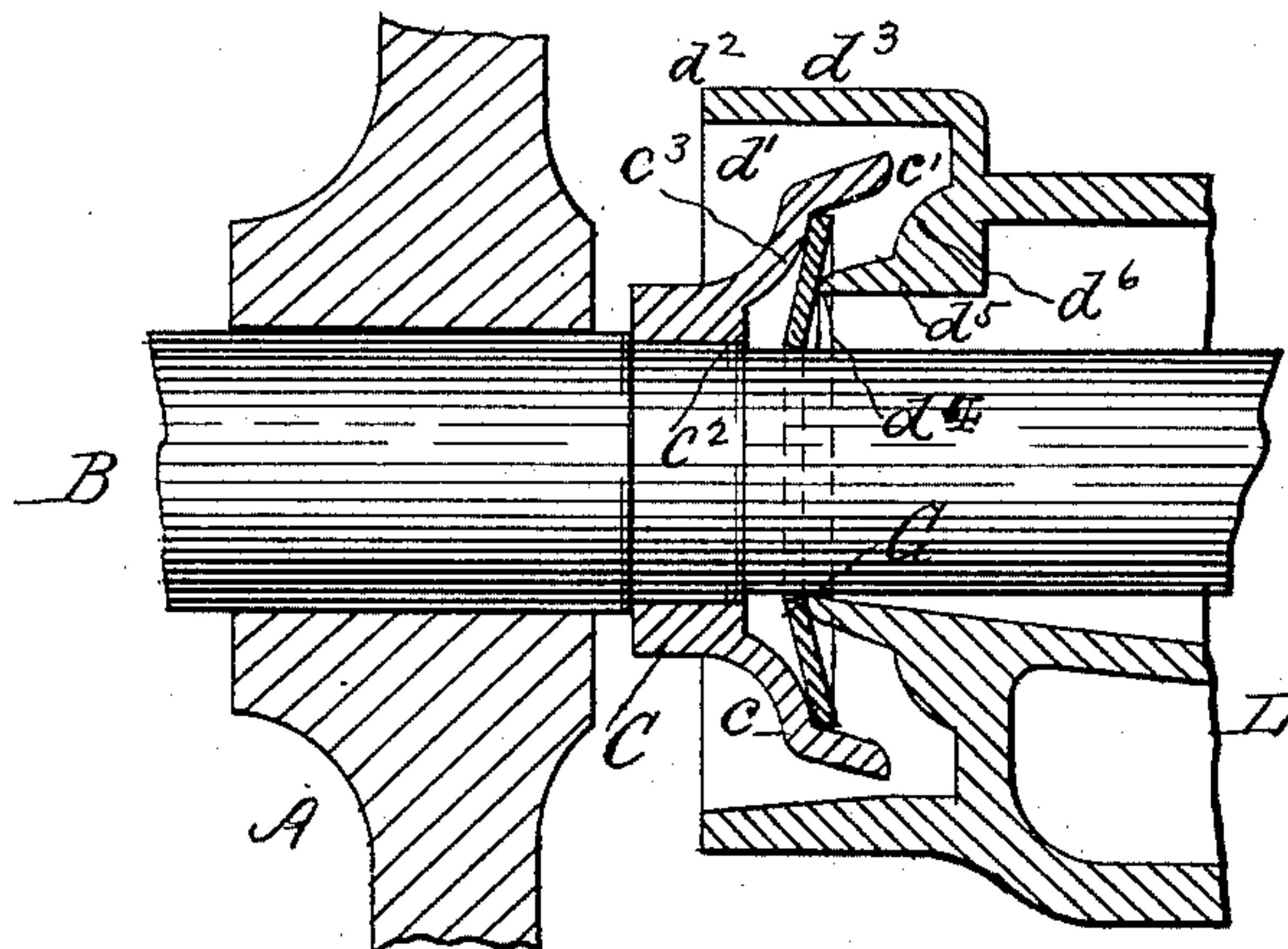


Fig. 2

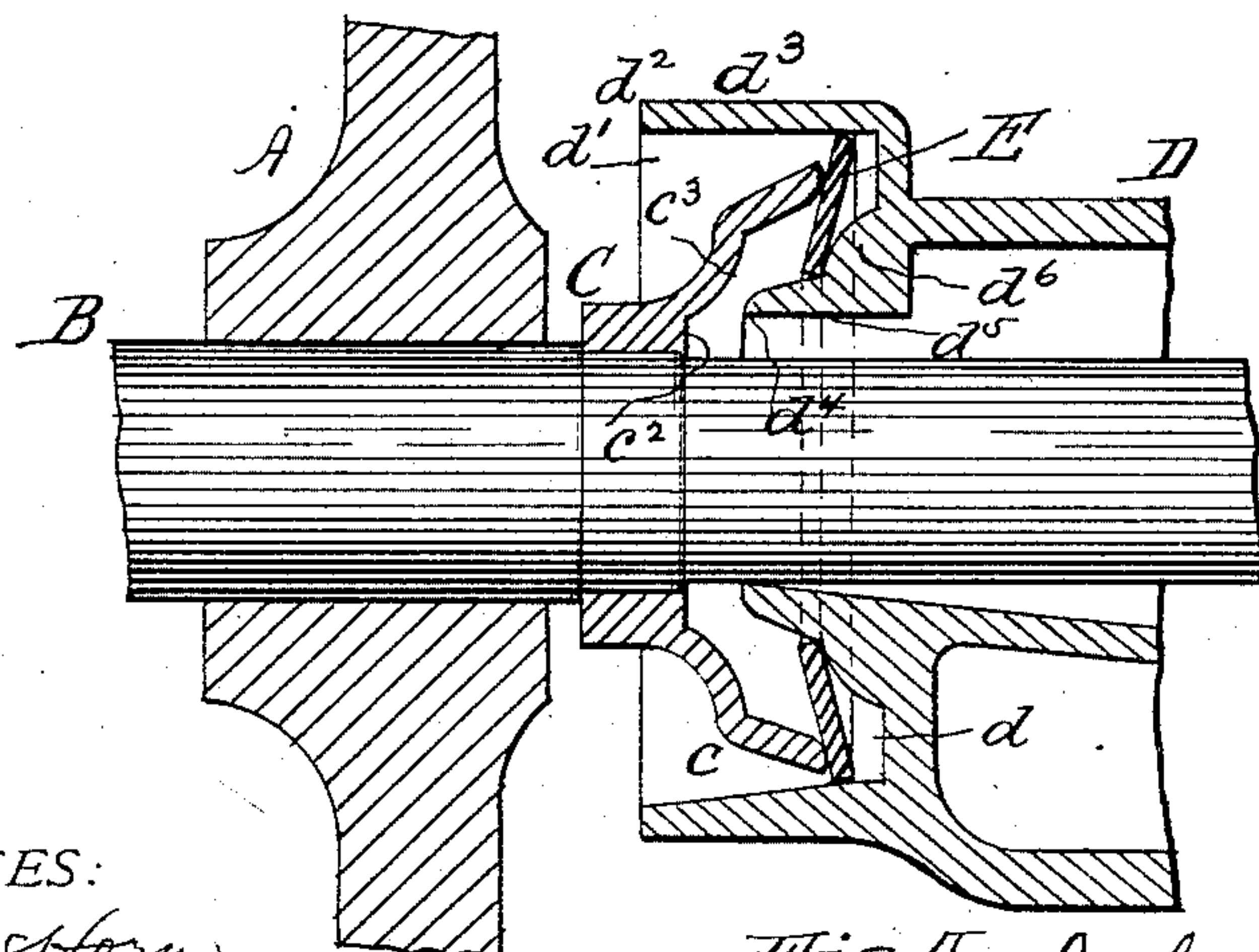


Fig. 3

WITNESSES:
Wm Staufer
M. W. Walker

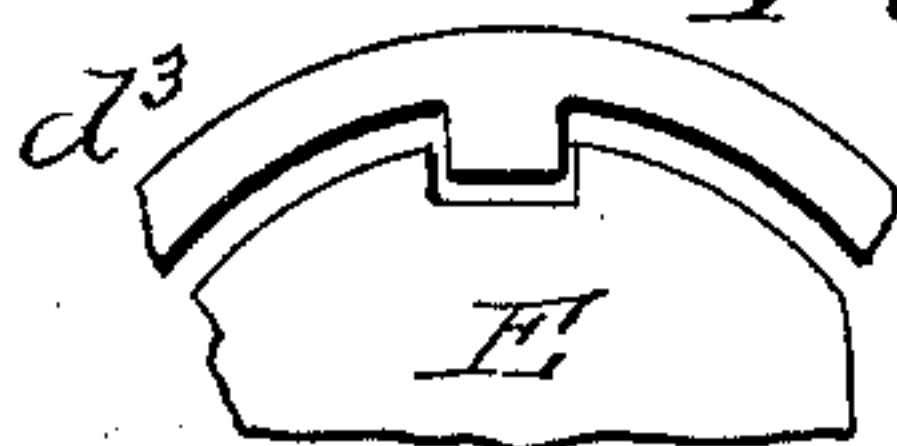


Fig. 4. John A. Brill

By S. J. Van Stavoren
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

DUST-SHIELD FOR CAR-AXLE BOXES.

SPECIFICATION forming part of Letters Patent No. 418,439, dated December 31, 1889.

Application filed October 2, 1888. Serial No. 286,959. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BRILL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dust-Shields for Car-Axle Boxes, of which the following is a specification.

My invention has relation to that form of dust-shields for car-axle boxes comprising an annular chamber in the rear wall of the axle-box, which chamber has an open rear end, separate annular rings within said chamber, and a flanged collar secured to the axle and having its flange projecting into said chamber for effecting an impingement of the annular rings against the axle-box or against the flanged collar, a type of which is shown, described, and claimed in United States Letters Patent granted to George M. Brill September 27, 1887, No. 370,722. In said patented device the annular dust-rings are maintained in sealing contact with the collar and with the axle-box by means of spring-plates, and while they effectually accomplish the purpose for which they are used, yet they are objectionable for the reason that the springs either lose their elasticity in time or are apt to break under pressure of end-thrust of the axle, necessitating replacement, besides which said spring-plates are more or less expensive.

My invention has for its object to avoid these described objections or to provide a dust-shield of the form indicated, which is inexpensive to make and maintain; and to this end I dispense with the spring-plates used in said patented device and so configure the flange on the collar secured to the axle, and also the shield-bearing surfaces on the open-end recess or chamber in the end of the axle-box that the said collar-flange directly impinges against the shields under all conditions of service to effectually seal the opening in the rear end of the axle-box.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter described in the specification, and pointed out in the claims, reference being had to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of part of a car-wheel, axle, and axle-box therefor,

showing a dust-shield for the axle box embodying my improvements, said shield comprising in its construction two separate annular rings for contact with the flange of the collar on the axle and with the axle-box. Figs. 2 and 3 are like views showing a single ring or shield between said collar-flange and axle-box, said ring or shield being shown in different positions in the different figures; and Fig. 4 is an elevation of part of the rear end of the axle-box, showing details.

A represents part of a car-wheel; B, the axle, having secured thereto in front of the wheel, but separate therefrom, a collar C, which is preferably shrunk upon the axle in the well-known way. Said collar on its front side is provided with a flange *c*, which preferably flares outwardly, or is more or less dish-shaped, as shown, and has on its interior surface, between its outer edge *c'* and the front side *c²* of the collar, an annular inclined ledge or step *c³*, for a purpose hereinafter described.

D represents the axle-box, having in its rear end *d* the usual axle-opening and the annular chamber *d'*, with open end toward the wheel. The edge *d²* of the outer flange or wall *d³* of chamber *d'* overhangs the edge *d⁴* of the inner flange or wall *d⁵* of said chamber, for a purpose set forth in said patent. At the corner bounded by the inner flange *d⁵* and the rear end *d* of the box is an annular fillet *d⁶*, the surface of which may be of an outwardly-curved configuration, as shown, or otherwise shaped to form an inclined step or bearing-surface against which impinges the annular ring or shield E, of red fiber or other flexible material, which is supported on the inner flange or wall *d⁵* of the chamber *d*. Surrounding the axle and contiguous to the edge *d⁴* of flange *d⁵* is another flexible shield or ring G, similar in all respects to shield or ring E, if desired. These rings or shields, as shown, are of different diameters, one supported on the axle and the other on the axle-box and are parallel to each other preferably. They and the collar C are relatively arranged to one another, so that the edge *c'* of the collar-flange *c* impinges against the shield E to press it against the inclined step or ledge *d⁶*, to seal the joints between said collar-flange, ring, and step, and the inclined step or ledge *c³* on the collar-flange *c* impinges against the

ring or shield G, to press it against the edge d^4 of the box-flange d^5 , to seal the joints between said collar-flange, shield G, and axle-box, and thereby provide double-sealed joints
 5 for excluding dust from the axle-opening in box D.

As the shields E and G are flexible, they yield readily to pressure against them, and as one of the bearing or contact surfaces for
 10 each ring is inclined the sealing-contact between them and the collar and axle-box flanges is duly maintained. The flange edge d^4 is preferably made rounding, or is brought to an approximating feather-edge, to effect a bet-
 15 ter sealing-contact between it and shield G.

The rings or shields E and G may be prevented from turning by means of lugs or projections, located either on the collar-flange or
 20 on the axle-box, engaging with recesses in the periphery of the rings or shields, or such result may be otherwise provided for as desired or is required, as indicated in Fig. 4, and fully shown and described in the patent aforesaid.

25 In some cases where only one ring or shield is necessary or required the ring or shield G may alone be used, as shown in Fig. 2, or the ring or shield E may correspondingly be employed, as indicated in Fig. 3.

30 I am aware that a car-axle-box shield in which the axle-box has in its rear end an annular chamber with open end toward the wheel, and said chamber having an inclined step or ledge against which a ring or shield
 35 is pressed by a flanged collar, is old; but the same differs from my invention in that the flanged collar is either secured to the wheel or forms an integral part thereof, and as this location or securement of the flange-col-
 40 lar is open to many disadvantages, which are fully set forth in said patent, I distinctly disclaim the same; but

What I claim is—

45 1. A car-axle box having in its rear end an annular chamber with rear open end, an in-

clined annular bearing-surface in said chamber, a flexible ring impinging against such bearing-surface, and a flange-collar C, se-
 50 cured to the axle and entering said chamber and impinging against said flexible ring, substantially as set forth.

2. A car-axle box D, having in its rear end the inner and outer annular flanges d^3 d^5 , in-
 55 clined ledge or step d^6 , ring or shield E on flange d^5 , in combination with axle B, collar C, secured to the axle and having flange c , provided with inclined step c^3 , and ring or
 shield G on the axle, substantially as set forth.

3. The combination of a car-axle box pro-
 60 vided with rear-end annular flanges d^3 d^5 and inclined step or bearing-surface d^6 , shield or ring E on flange d^5 , axle B, shield or ring G on said axle contiguous to the edge d^4 of
 flange d^5 , and collar C, secured to said axle and having flange c and step or ledge c^3
 65 within the flange for contact with said rings or shields respectively, substantially as set forth.

4. The combination of an axle-box having
 70 an open rear end, an annular support terminating in an inclined step or ledge, a ring or shield on said support contiguous to said step or ledge, an axle, a flanged collar thereon
 for contact with said shield, an annular in-
 75 clined step or ledge within the collar-flange, and a ring or shield on said axle between the collar-flange step or edge and the axle-box.

5. A car-axle box having in its rear end two rings or shields E and G, and an inclined
 80 step or ledge d^6 for ring E, in combination with an axle having collar C with flange c , and step or ledge c^3 , for contact with shields E and G, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. BRILL.

Witnesses:

S. J. VAN STAVOREN,
 H. RANDALL.