

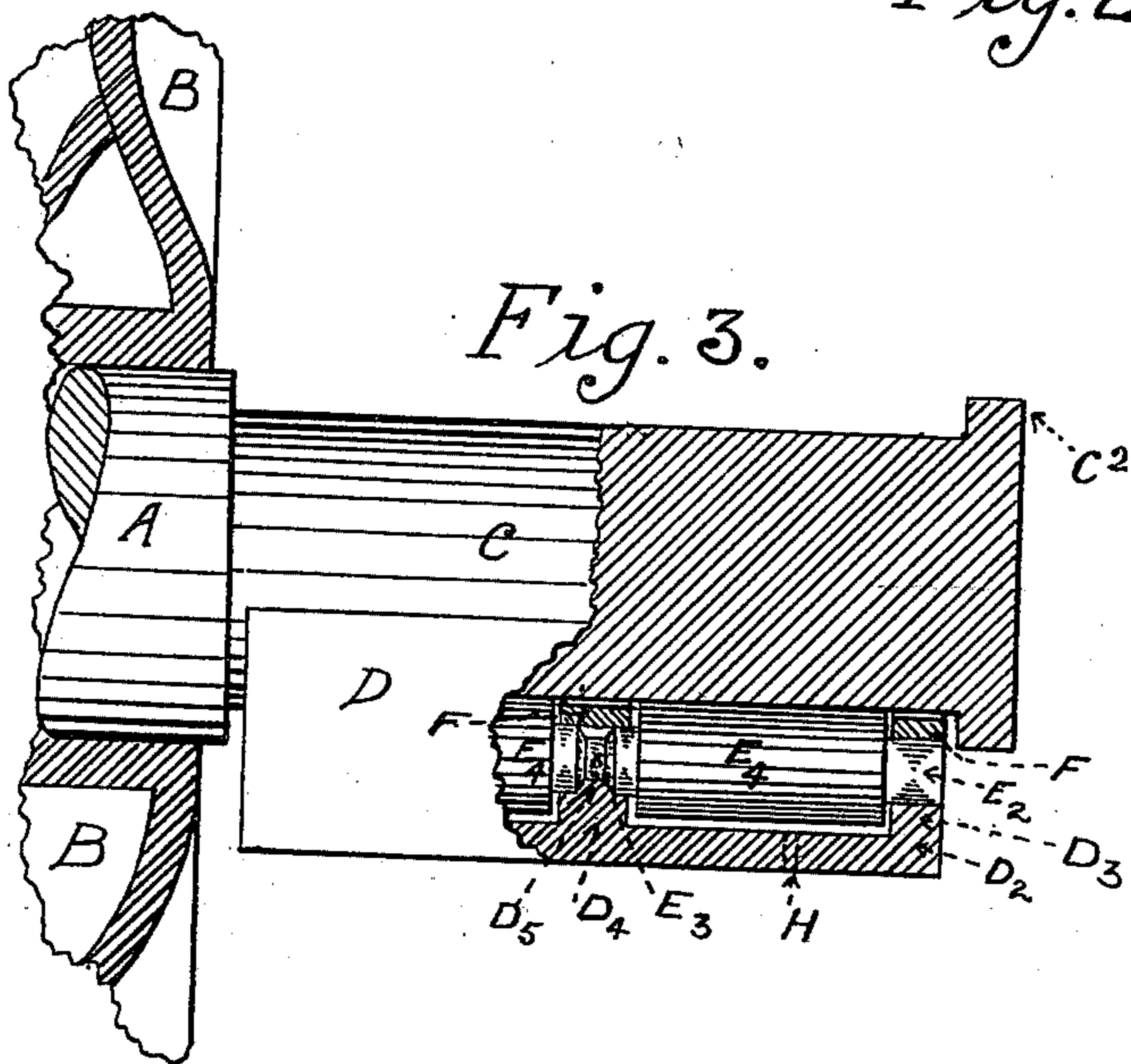
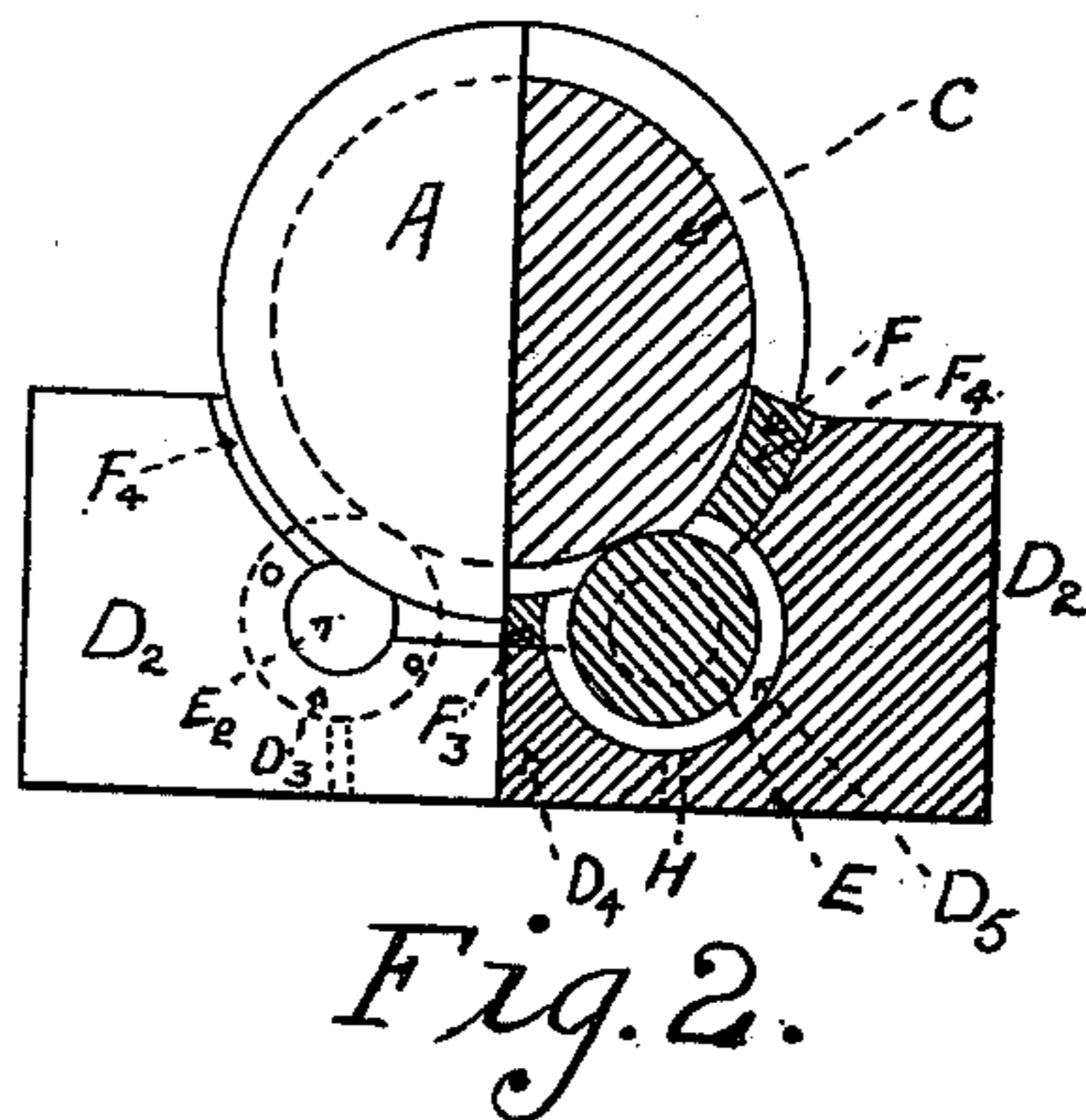
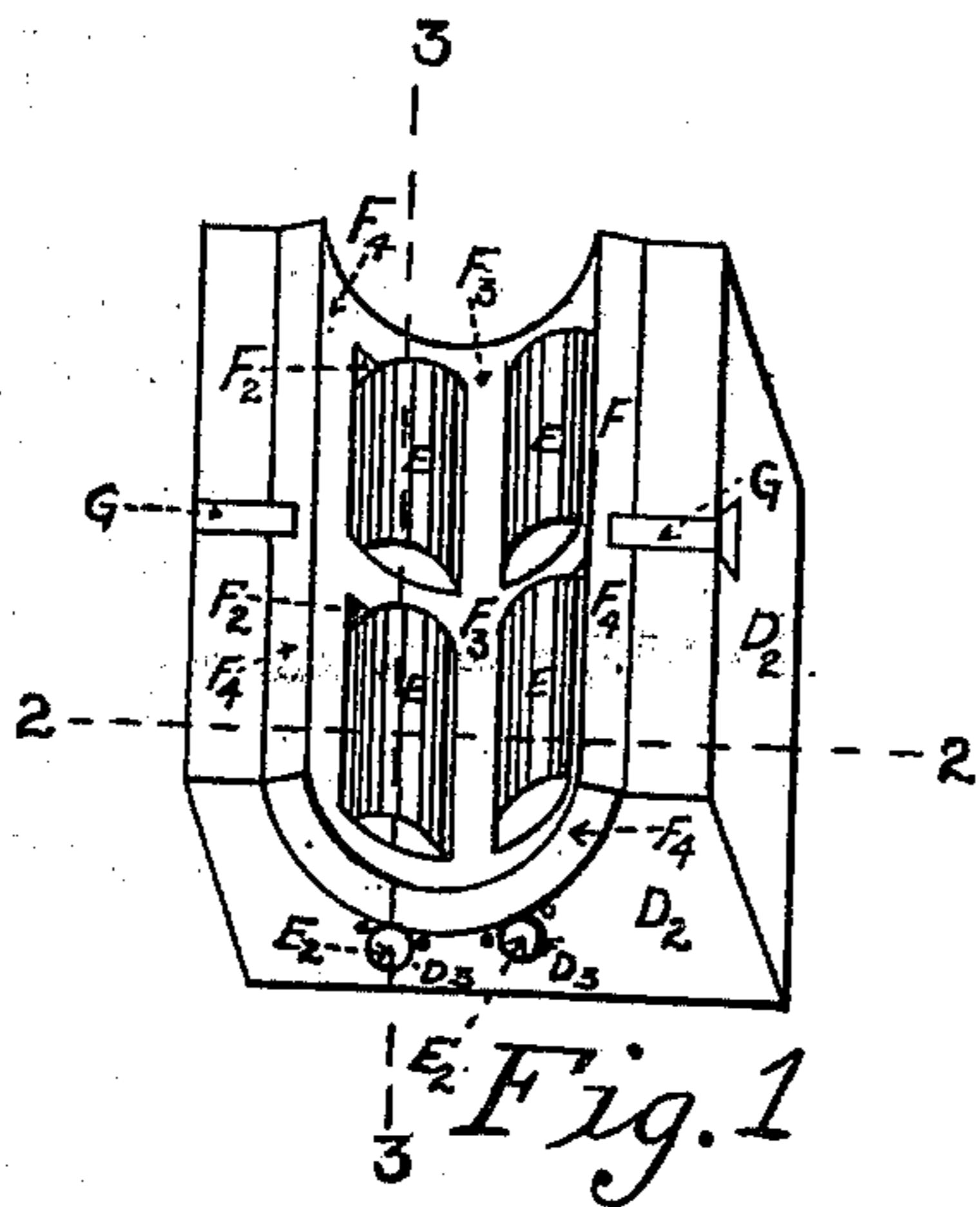
No. 669,478

Patented Mar. 5, 1901.

M. H. DEVORE.  
JOURNAL BEARING.

(Application filed July 16, 1900.)

(No Model.)



WITNESSES:

Charles F. Spiegel.  
R. Smith.

INVENTOR.

Morris H. Devore

BY

Wm. Hubbell Fisher  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

MORRIS H. DEVORE, OF ST. LOUIS, MISSOURI.

## JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 669,478, dated March 5, 1901.

Application filed July 16, 1900. Serial No. 23,712. (No model.)

*To all whom it may concern:*

Be it known that I, MORRIS H. DEVORE, a citizen of the United States, and a resident of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Journal-Bearings for Railroad-Axles, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

My invention is applicable to the journals of railroad-cars, street-cars, and various descriptions of vehicles running on rails, and it is also applicable to road-vehicles, as wagons, automobiles, &c.

Inasmuch as a description of my invention in connection with and as applied to a railroad-axle will sufficiently illustrate my invention, I will proceed to describe it in connection with such application.

In the accompanying drawings, making a part of this application and to which reference is hereby made, Figure 1 is a view in perspective of the underside of a journal-box, illustrating my invention and for convenience of inspection shown upside down. Fig. 2 is a view, partly in elevation and partly in section, the section being taken transversely and vertically in the plane of the dotted line 2 2 of Fig. 1. Fig. 3 is a view, partly in section and partly in elevation, the section being a longitudinal one taken in the plane of the dotted line 3 3 of Fig. 1.

In Figs. 2 and 3 there is shown an axle, it being understood that the working position of the combination is inverted.

I will now proceed to describe my invention in detail.

A indicates the axle, of any desired size. Upon this axle are located the car-wheels B in suitable manner. Upon the journal C of the axle is located an antifriction-box D of my invention. This box D has a back or main frame D<sup>2</sup> and a secondary inner separable portion or frame F. The main frame D<sup>2</sup> has recesses for the reception of antifriction-rollers E and these rotate upon and with axle-journals, as E<sup>2</sup> E<sup>2</sup> and E<sup>3</sup>. The end journals E<sup>2</sup> are preferably of larger diameter than the middle journals E<sup>3</sup>. These journals and the rollers E are preferably one, so far as their

operation is concerned. The main frame D<sup>2</sup> has end bearings D<sup>3</sup> for the journal E<sup>2</sup> and bearing D<sup>4</sup> for the journal E<sup>3</sup>. The secondary or inner separable frame F fits closely within the main frame D<sup>2</sup> of the box and has openings F<sup>2</sup> therein, through each of which projects one of the rollers E. The concave curvature of the separable inner frame F corresponds in general to that of the journal C of axle A. This frame F is arranged to rest, preferably, as follows, viz: at its center F<sup>3</sup> by the same being projected upward, substantially as shown, and at its side F<sup>4</sup>, which engages the inner sides of the frame D<sup>2</sup> of the box. Those parts of the inner frame which come opposite to the journals E<sup>2</sup> E<sup>3</sup> heretofore mentioned are respectively shaped so as to come close to those journals and in conjunction with the main frame D<sup>2</sup> hold the rollers E and their journals securely in place. Additional provision for preventing the rollers E from sliding longitudinally is provided in the ridge D<sup>5</sup>, which engages the annular groove E<sup>4</sup> in the journal E<sup>3</sup>.

The inner frame F is held in position by suitable means, a preferred description of which is a dovetail piece or catch G, which engages the edge of the main frame D<sup>2</sup> and the inner frame F, substantially as shown.

The box is arranged to rest upon the journal C and is kept in position by preferred means, and in the present instance on one end by a car-wheel B and at the other end by an annular flange C<sup>2</sup> at the end of the journal C. The box is provided with suitable means for enabling the antifriction-rollers E to be lubricated and likewise the journal C of the axle. One description of such device consists of the openings H in the top of the box and extending down directly to and over the rollers E, as shown. When the box is in position on the journal, the rollers E bear upon the journal, and it is they which in turn support the car or vehicle body. There is an immense advantage in locating them within the frame F. Heretofore, so far as I am aware, antifriction-rollers have been located upon a journal and not in position in a frame, as F. This frame constitutes the rollers, holds them in proper position, gives security to the movement, and at the same time the rollers are protected from injury. The wear

and tear also upon the rollers and upon the box is greatly reduced.

In the application of my invention to the journals of railroad-cars and the like I make provision for what is known as the "lateral thrust," allowing the rollers sufficient play longitudinally to accommodate themselves to the necessary slip of the boxes upon the journals in making curves upon the road.

10 The number of rollers may be increased around a given circle and also the number of rollers may be increased longitudinally—that is, there may be three or more upon the same axle  $E^2$   $E^3$  or upon the same axial line.

15 In special instances that feature of my invention which relates to the roller projecting through the inner frame and journal, substantially as shown between the frames  $D^2$  and  $F$ , there may be one set of rollers instead  
20 of two or more.

The rollers constitute important antifric-  
tion devices of great value and reduce the  
friction between the journals and wheels and  
the journal-bearings to a minimum. Thus  
25 higher speed can be obtained and the wear  
of the journal-bearing is diminished. Con-  
sequently the duration of this portion of the  
running-gear is prolonged.

My invention is simple in construction,  
30 economical of manufacture, and easy of appli-  
cation. It is not likely to get out of order.

What I claim as new and of my invention,  
and desire to secure by Letters Patent, is—

1. An antifriction-box to be used with a  
35 journal and consisting of an outer frame  $D^2$ ,  
and antifriction-rollers  $E$  provided with jour-  
nals as  $E^2$ ,  $E^3$ , box having recesses for the roll-  
ers  $E$  and bearings  $D^3$ ,  $D^4$ , for the journals  
 $E^2$ ,  $E^3$ , and inner separable frame  $F$ , fitting  
40 within the said frame  $D^2$ , and having an in-  
ner curvature adapted to receive the journal  
upon which the box is to rest, the inner frame  
having openings  $F^2$  through which project  
rollers  $E$  for impingement against the jour-  
45 nal, and also having sides  $F^4$  adapted to en-  
gage the box  $D$ , substantially as and for the  
purposes specified.

2. An antifriction-box to be used with a  
journal and consisting of an outer frame  $D^2$ ,  
50 and antifriction-rollers  $E$  provided with jour-  
nals as  $E^2$ ,  $E^3$ , box having recesses for the roll-  
ers  $E$  and bearings  $D^3$ ,  $D^4$ , for the journals  
 $E^2$ ,  $E^3$ , and inner separable frame  $F$ , fitting  
within the said frame  $D^2$ , and having an in-  
55 ner curvature adapted to receive the journal  
upon which the box is to rest, the inner frame  
having openings  $F^2$  through which project  
rollers  $E$  for impingement against the jour-  
nal, and also having sides  $F^4$  adapted to engage  
60 the box  $D$ , and central projection  $F^3$  adapted  
to rest against the top of the box  $D$ , substan-  
tially as and for the purposes specified.

3. An antifriction-box to be used with a

journal and consisting of an outer frame  $D^2$ ,  
and antifriction-rollers  $E$  provided with jour- 65  
nals as  $E^2$ ,  $E^3$ , box having recesses for the roll-  
ers  $E$  and bearings  $D^3$ ,  $D^4$ , for the journals  
 $E^2$ ,  $E^3$ , and inner separable frame  $F$ , fitting  
within the said frame  $D^2$ , and having an in-  
ner curvature adapted to receive the journal 70  
upon which the box is to rest, the inner frame  
having openings  $F^2$  through which project  
rollers  $E$  for impingement against the jour-  
nal, and also having sides  $F^4$  adapted to en-  
75 gage the box  $D$ , and central projection  $F^3$   
adapted to rest against the top of the box  $D$ ,  
and a dovetailed catch  $G$ , for engaging the  
frame  $D^2$  and the inner frame  $F$ , substantially  
as and for the purposes specified.

4. An antifriction-box to be used with a 80  
journal and consisting of an outer frame  $D^2$ ,  
and antifriction-rollers  $E$  provided with jour-  
nals as  $E^2$ ,  $E^3$ , box having recesses for the  
rollers  $E$  and bearings  $D^3$ ,  $D^4$ , for the jour- 85  
nals  $E^2$ ,  $E^3$ , and inner separable frame  $F$ , fit-  
ting within the said frame  $D^2$ , and having an  
inner curvature adapted to receive the jour-  
nal upon which the box is to rest, the inner  
frame having openings  $F^2$  through which pro- 90  
ject rollers  $E$  for impingement against the  
journal, and also having sides  $F^4$  adapted to  
engage the box  $D$ , and central projection  
 $F^3$  adapted to rest against the top of the  
box  $D$ , and means for engaging and holding 95  
the box  $D$  in position, there being openings  
 $H$  in the back of the box directly over the  
rollers for lubricating the latter, substantially  
as and for the purposes specified.

5. The combination of the axle and a box  
having main frame  $D^2$ , containing rollers  $E$ , 100  
having journals  $E^2$ ,  $E^3$ , the box having bear-  
ings  $D^3$ ,  $D^4$ , for the journals  $E^2$ ,  $E^3$ , and inner  
separable frame  $F$  adapted to be within and  
suitably engage the frame  $D^2$ , and having 105  
openings  $F^2$  through which the rollers  $E$  pro-  
ject and bear upon the journal, and having  
concave bearing for close conjunction with  
the journals  $E^2$ ,  $E^3$ , and means for holding the  
box  $D$  and the frame  $F$  together, substantially 110  
as and for the purposes specified.

6. In combination with a journal, box hav-  
ing outer frame  $D^2$ , and rollers as  $E$ , each  
having end bearings, and inner frame  $F$   
adapted to engage the outer frame  $D^2$ , hav- 115  
ing openings in it through which the rollers  
project and bear upon the journal, means for  
holding the first frame to the second, the  
frame  $F$  being provided with suitable con-  
cavities forming supplemental bearings for  
holding the journals of the rollers in position, 120  
substantially as and for the purposes speci-  
fied.

MORRIS H. DEVORE.

Witnesses:

E. R. CHAPPELL,  
N. J. WOLLARD.