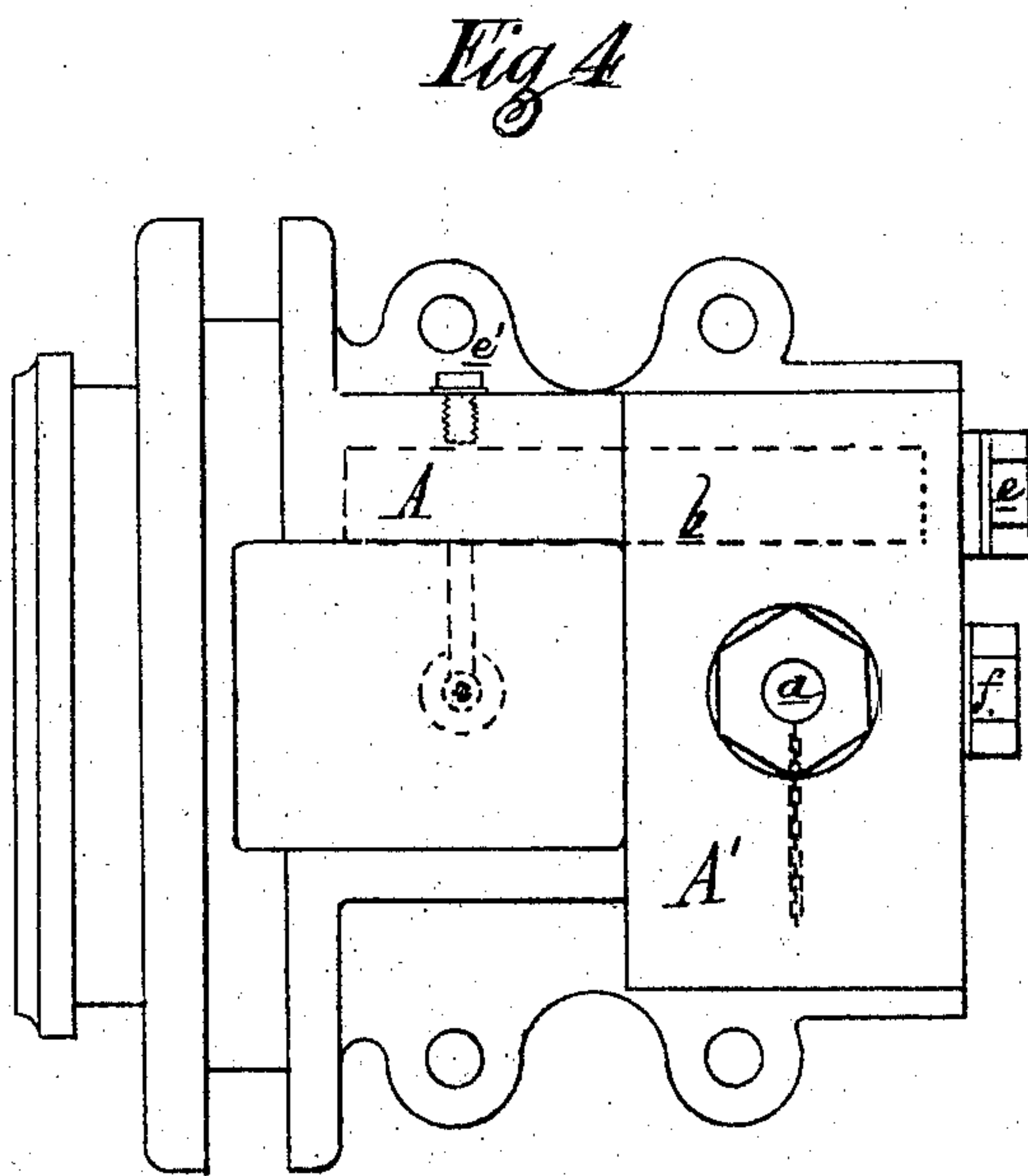
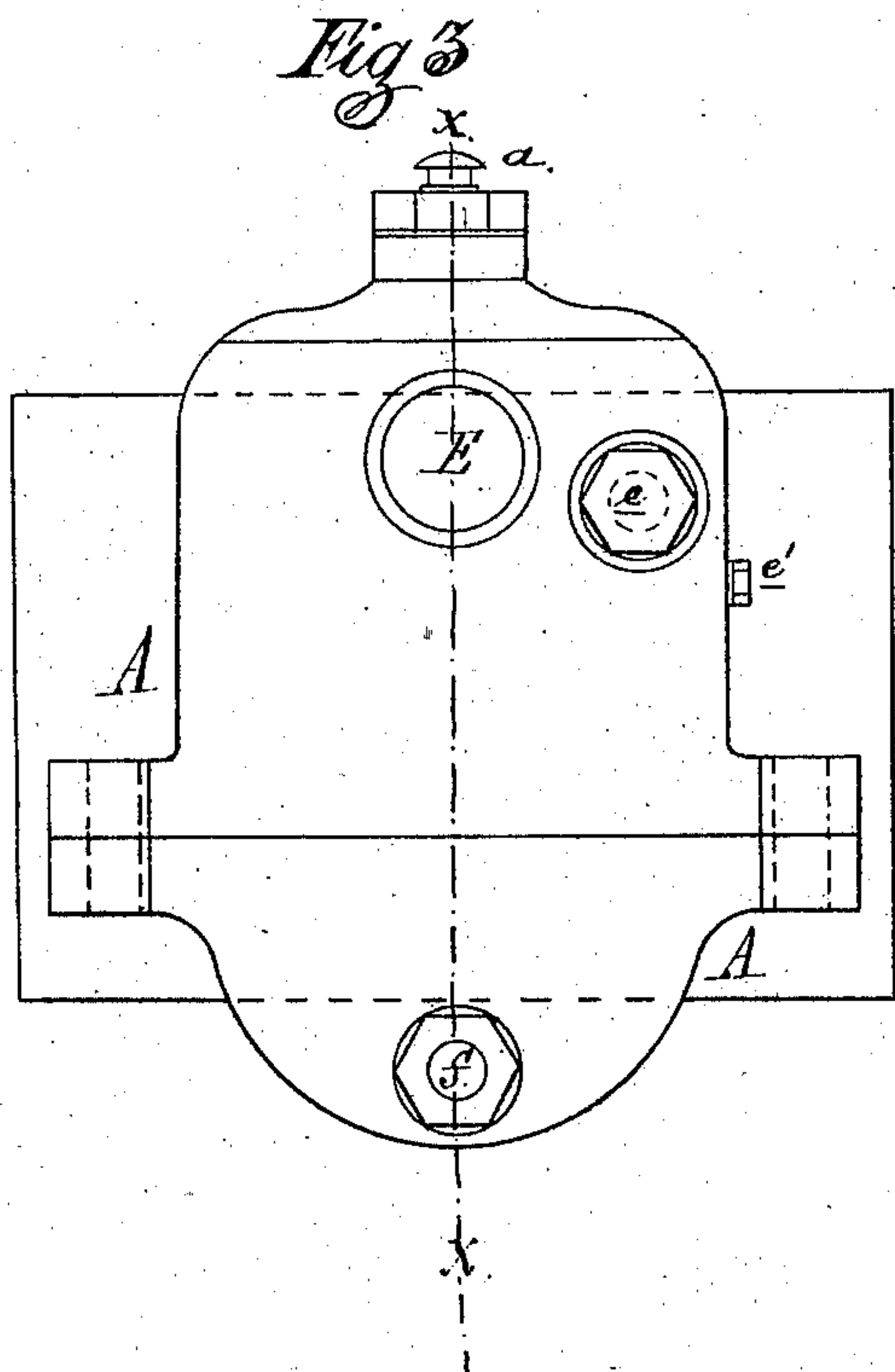
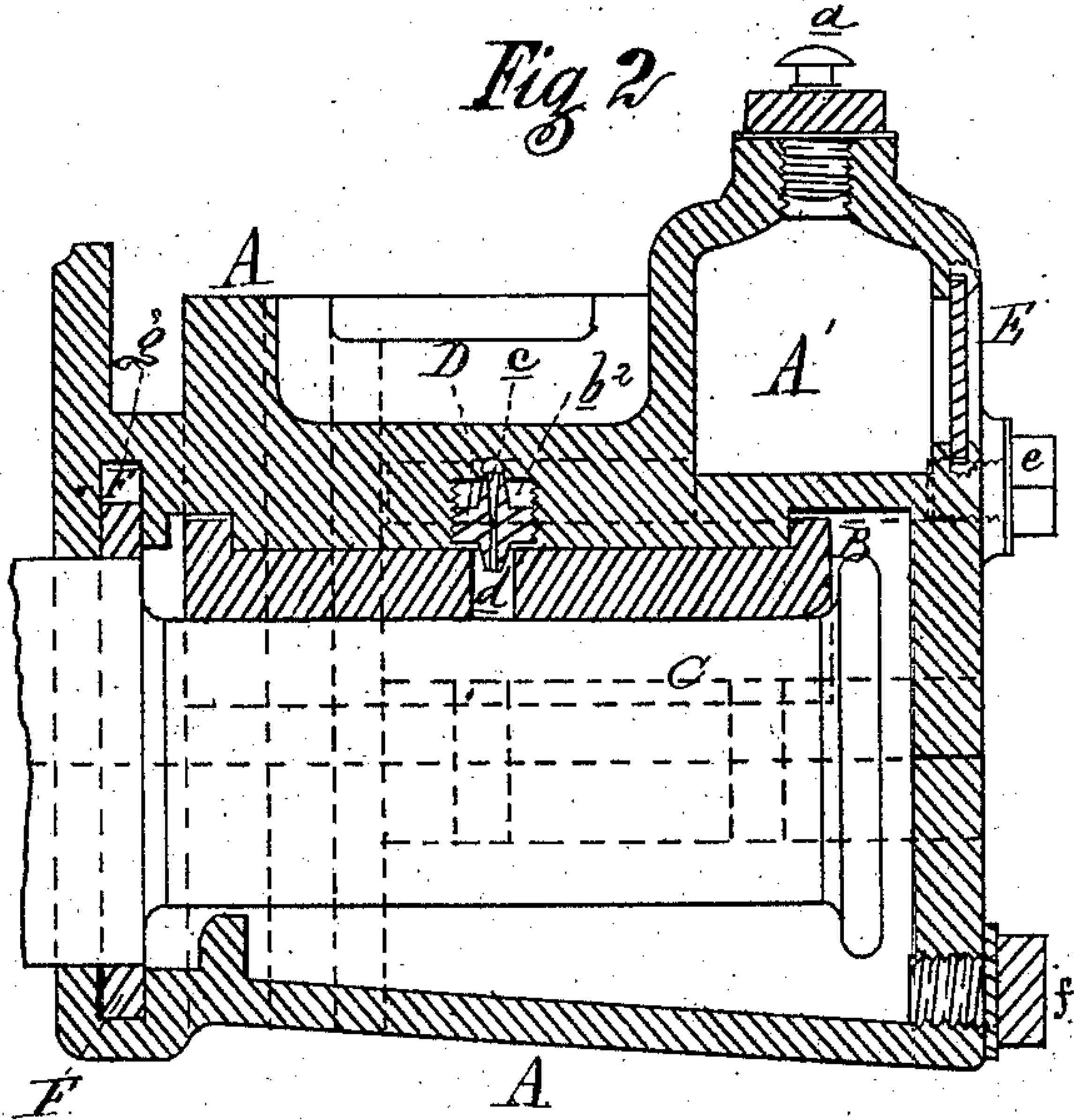
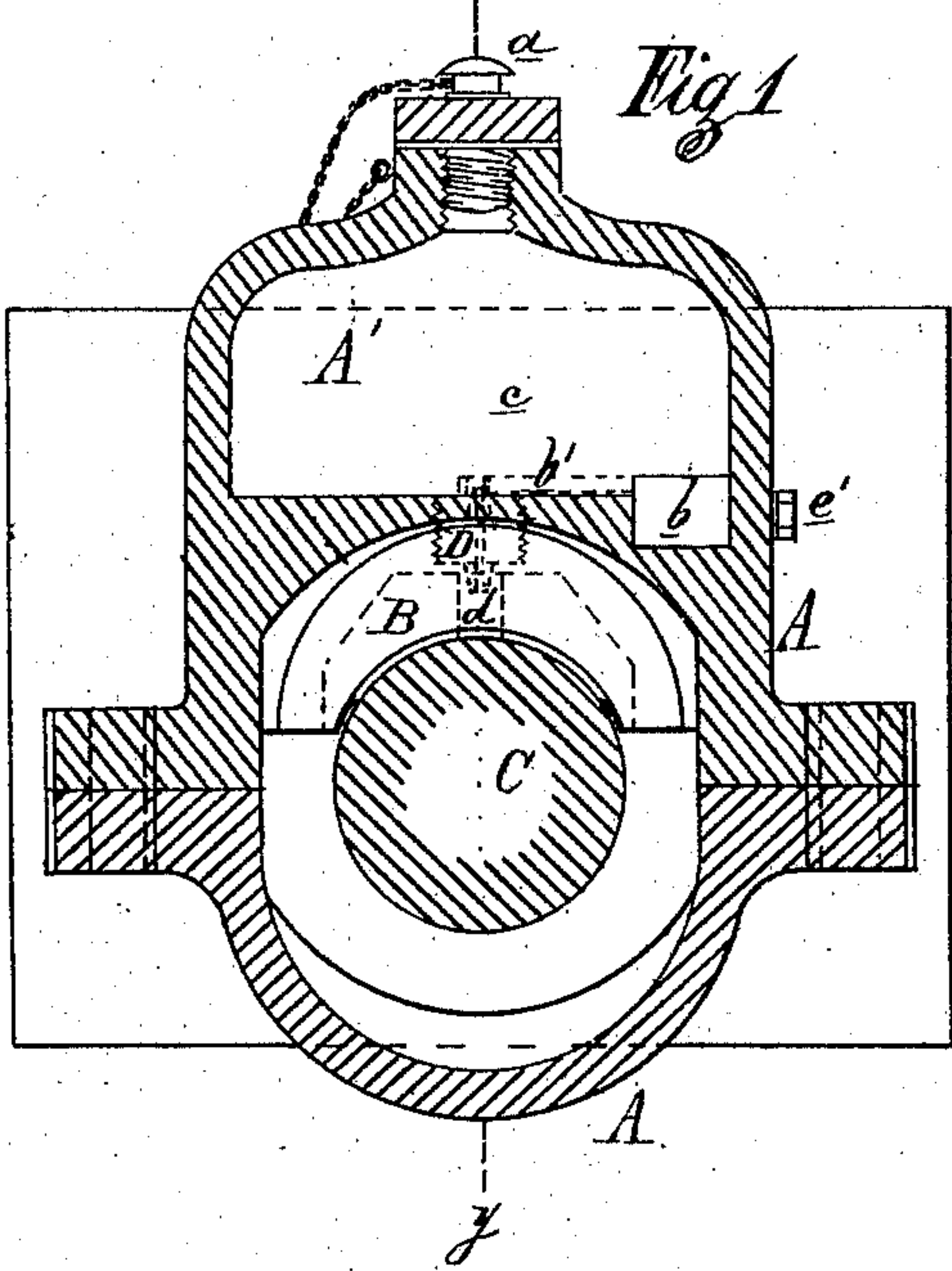


L. R. BULA.  
CAR AXLE-BOX.

No. 184,140.

Patented Nov. 7, 1876.



Attest.  
Edward Barthel.  
Theo. S. Day.

L. R. Bula Inventor.  
By Atty  
Thos. S. Sprague



# UNITED STATES PATENT OFFICE

LUIS ROUVIÈRE BULA, OF BARCELONA, SPAIN, ASSIGNOR OF ONE-HALF HIS RIGHT TO FREDERICK HERMAN SCHEUCH, OF LA FAYETTE, IND.

## IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. 184,140, dated November 7, 1876; application filed July 18, 1876.

*To all whom it may concern:*

Be it known that I, LUIS ROUVIÈRE BULA, of Barcelona, in the province of Catalonia and Kingdom of Spain, have invented an Improvement in Axle-Boxes, of which the following is a specification:

Letters Patent for this invention were issued to me in Spain on the 1st of February, 1876, and in France on the 27th January, 1876, and in Belgium on the 15th December, 1875.

The object I have in view is the construction of an axle-box with an oil-chamber in the upper part, which can be hermetically sealed to exclude from its contents the pressure of the atmosphere, dust, and extraneous substances, and with a means for feeding the lubricant to the bearing in volume proportionate to the speed of rotation of the journal; and it consists in the combination of the closed oil-chamber, peculiar oil-passages, and screw-plug for cleaning the said passages.

Figure 1 is a cross-section of the box at *x x*. Fig. 2 is a longitudinal vertical section at *y y*. Fig. 3 is an elevation of the front end. Fig. 4 is a plan or top view.

In the drawing, A represents a car-axle box, made in two parts, an upper and a lower one, flanged and bolted together at the sides. B is the "brass," and C is the journal of the axle. A' is an oil-chamber, cored in the top and front end of the upper part of the box, with an opening in the top for filling it with oil, after which it is hermetically closed by a screw-plug, *a*. *b* is a passage, longitudinally cored in the box from the lower part of the oil-chamber, its rear end being intersected by a lateral passage, *b*<sup>1</sup>, on a higher plane, terminating at a point above the brass, where it intersects a larger vertical recess, *b*<sup>2</sup>. The latter is screw-threaded to receive a nut, D, having a conical central spindle, *e*, on its upper side, which serves as a valve when screwed up into the end of the channel *b*<sup>1</sup>. There is a similar spindle at the under side of the nut, which serves as a nozzle to direct the downflow of the oil through a hole, *d*, drilled through the brass to the journal.

If the chamber and passages be full of oil, the brass resting upon the journal, and the box upon the latter, there can be no atmospheric pressure in the latter, while it will also be evident that the oil will be non-accessible to dust and extraneous matters. In the ro-

tation of the journal, a film of the oil lying on it at the bottom of the aperture *d* will be carried around it, continually exposing to the oil in said aperture a fresh surface, not bare of oil, but in a condition to receive and carry away an additional quantity of the lubricant, and in this way the journal is kept lubricated, the lubricant spreading over its entire surface, unless the journal be of considerable length, in which case it will require two or more lubricating valve-nuts.

By screwing upward the nut, the outflow of the oil from the passage *b*<sup>1</sup> may be diminished, and in this way the consumption may be governed.

If the regulation is not essential, the nut and valve may be omitted and a stationary nozzle may be used in place of it, to supply oil in a fixed or unchangeable volume.

In order to observe the state or condition of the chamber A', the latter is made with an opening in the front end, closed by a glass plate, E, cemented in position.

The passage *b* is made larger and deeper than the passage *b*<sup>1</sup>, so as to collect any sediment or impurities in the oil, and prevent them from passing to the bearing. Access is had to these passages for cleaning them, through holes tapped in the front and side of the box, and closed by the screw-plugs *e e'* respectively.

The bottom of the box forms a chamber that is inclined to the front, and collects the drippings and waste oil dropping from the bearing, and which can be drawn off by removing a screw-plug, *f*, tapped in the face of the box at the bottom of said chamber.

To exclude dust from the interior of the box the axle is provided with a packing-collar, F, of rubber, leather, felt, or other material, which is received in a groove, *g*, cast in the neck of the box, in which groove it is inserted when the two parts of the box are bolted together.

What I claim as my invention is—

The combination in the axle-box A, of the closed oil-chamber A', the large and small passages *b b*<sup>1</sup>, the passage *b*<sup>2</sup>, and the screw-plugs *e e'*, substantially as described and shown.

LUIS ROUVIÈRE BULA.

Witnesses:

C. H. MONTGOMERY,  
C. BATSCH.