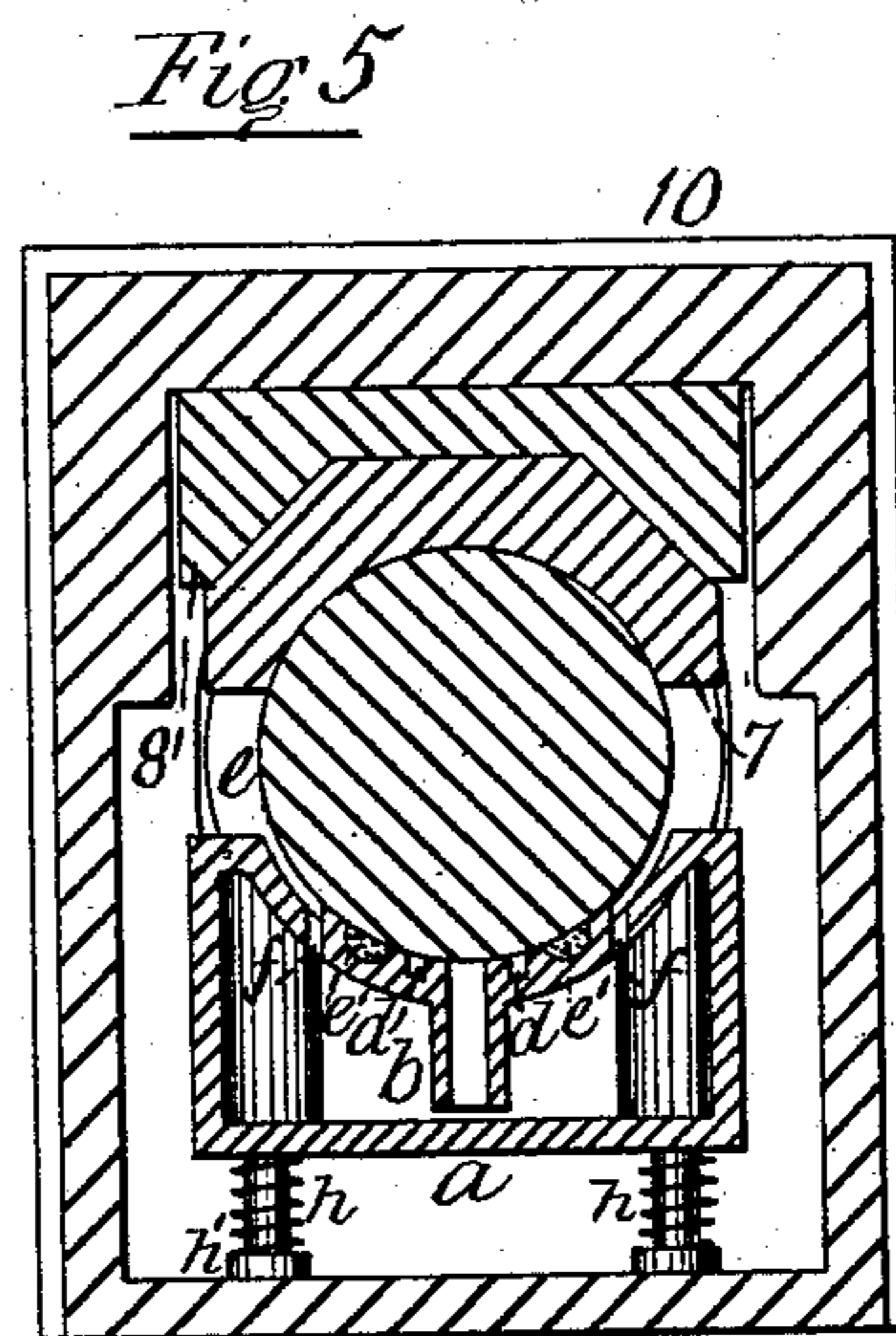
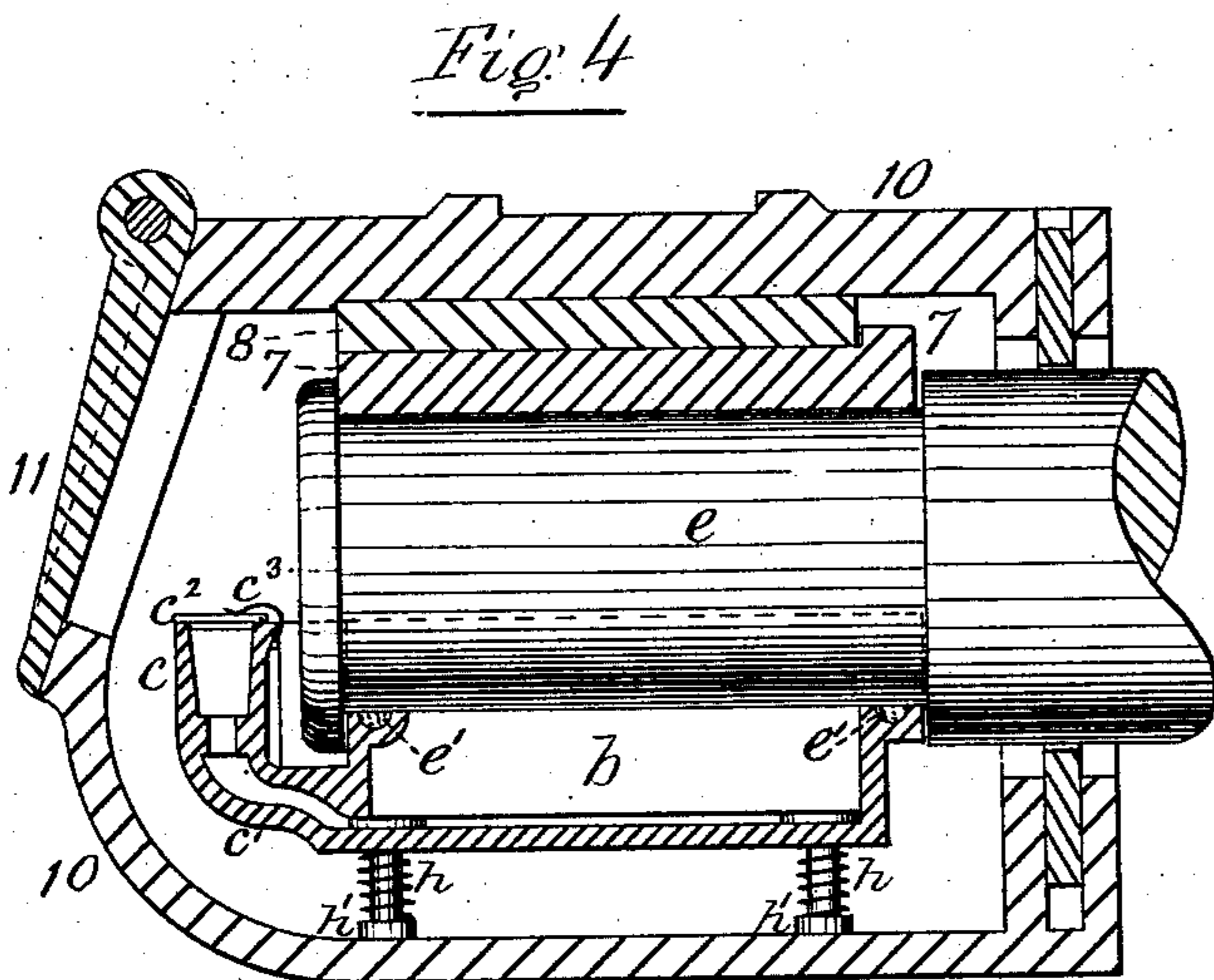
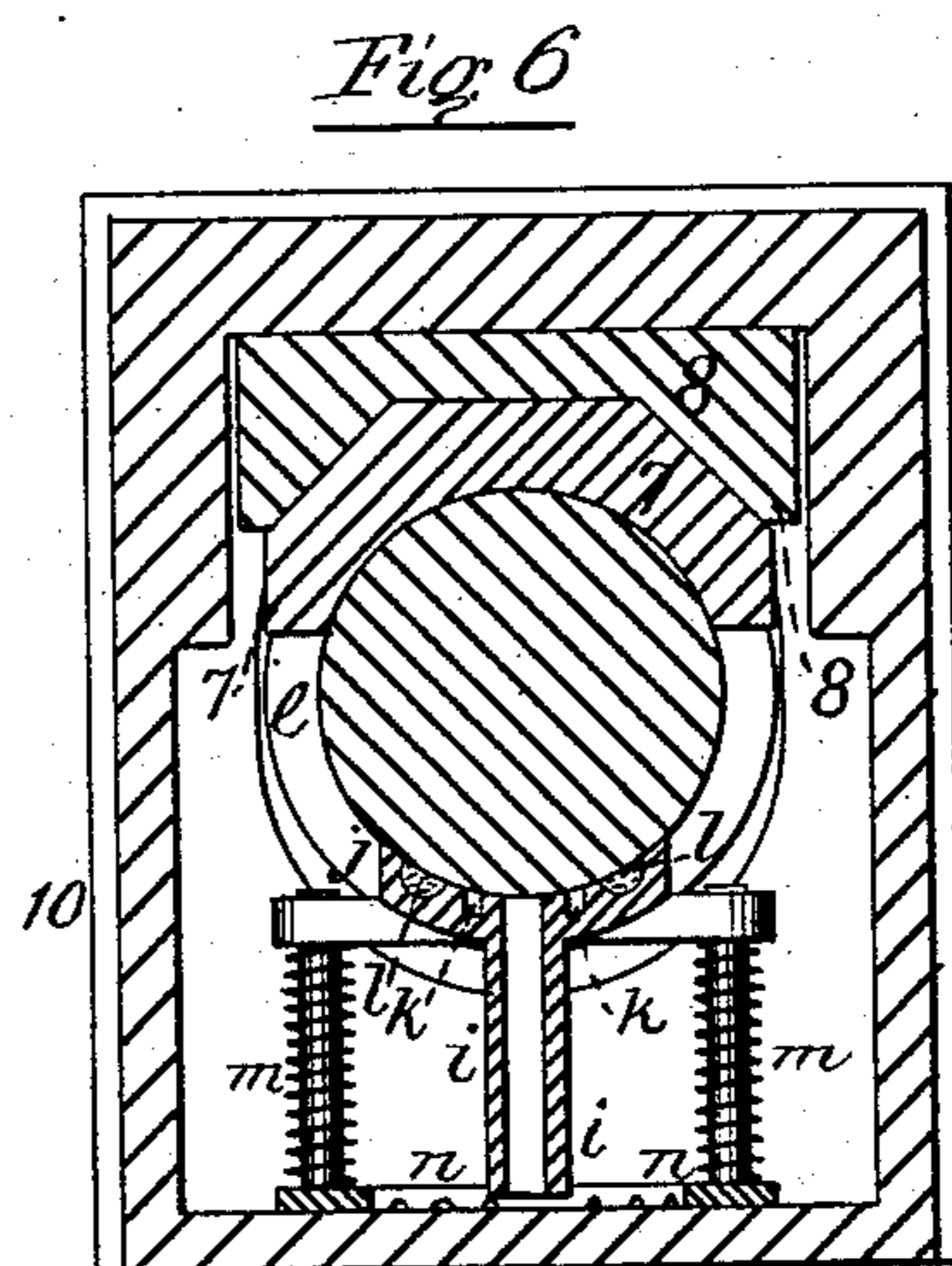
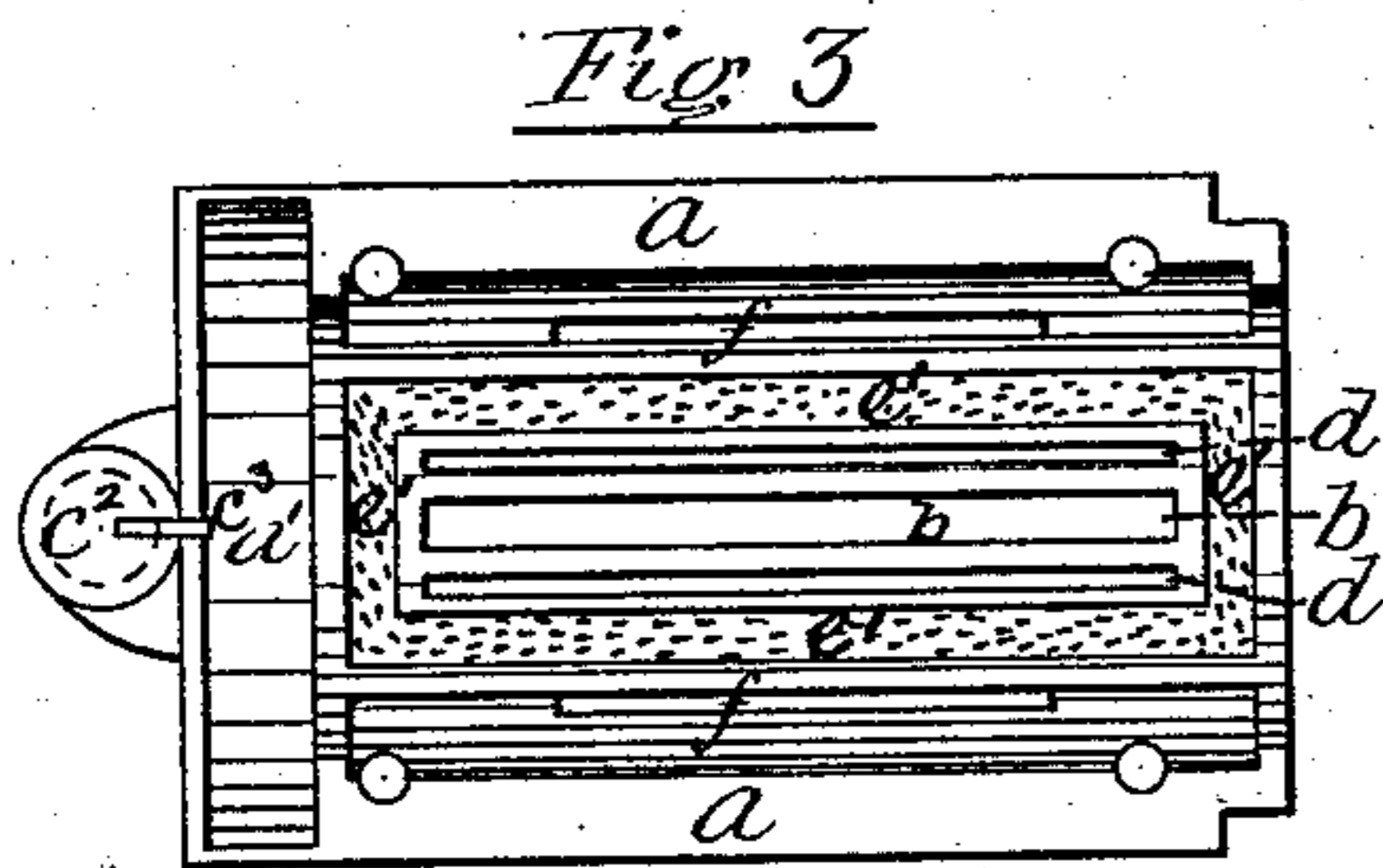
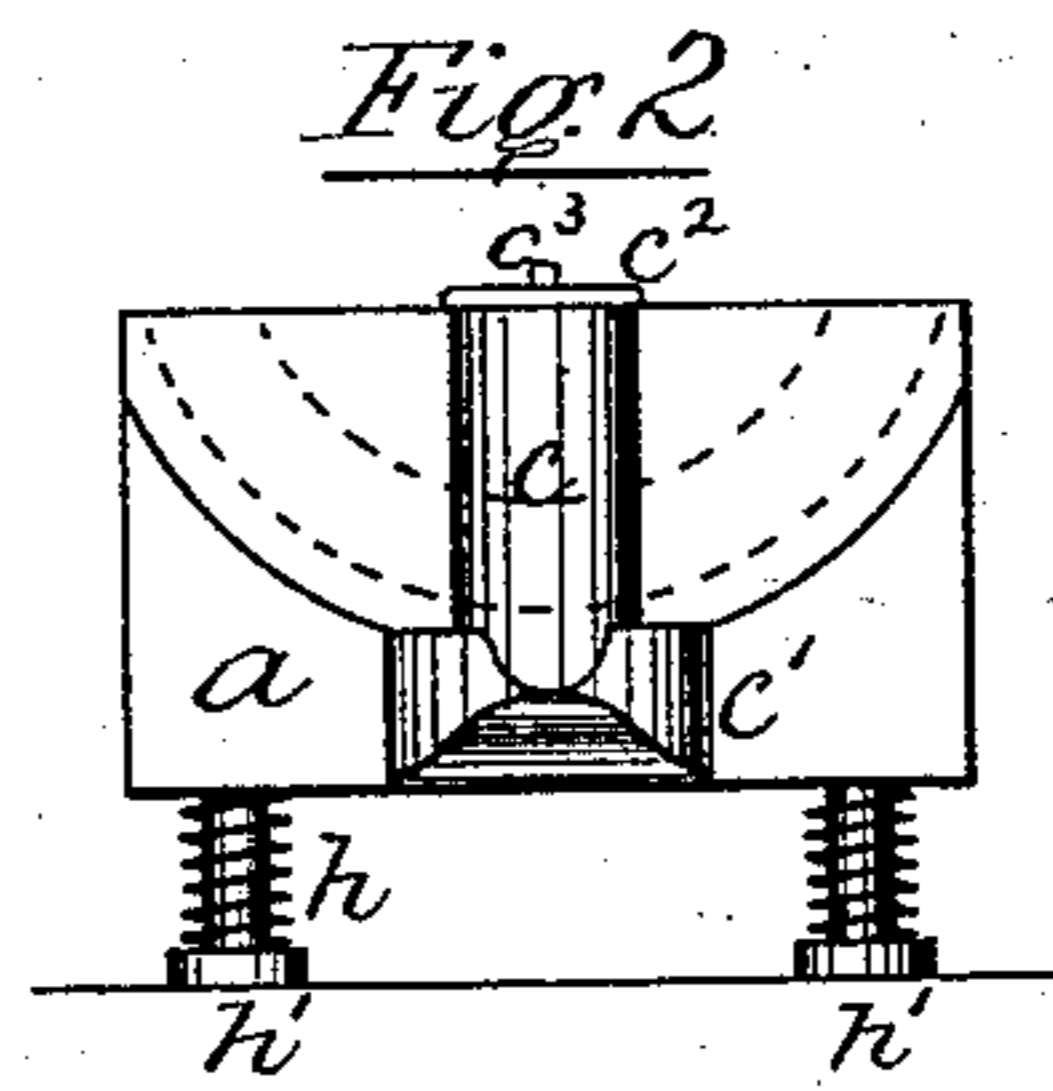
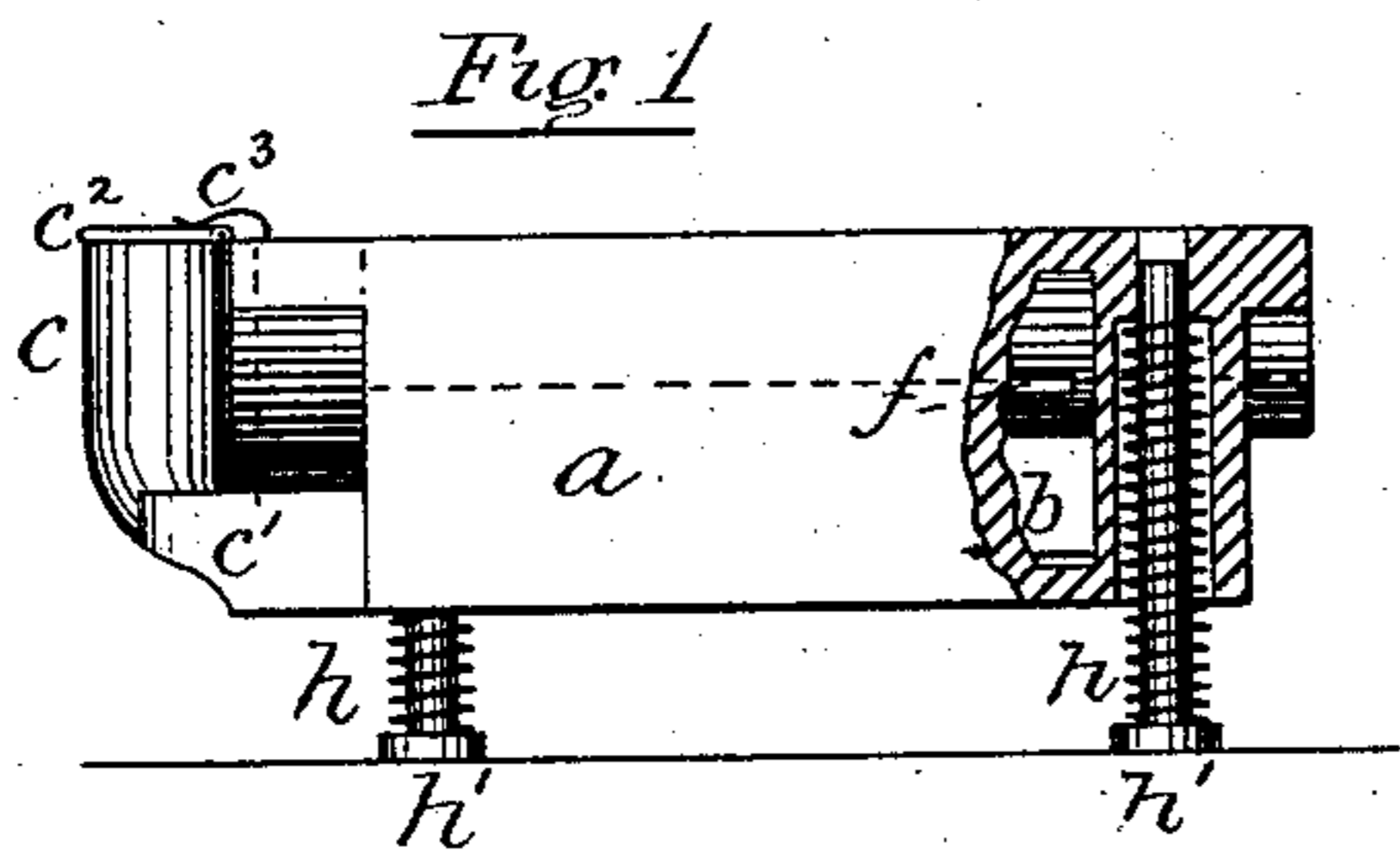


(No Model.)

M. MACMAHON.
CAR AXLE LUBRICATOR.

No. 281,538.

Patented July 17, 1883.



Witnesses
G. D. Williams
C. G. Baker.

Michael MacMahon
Inventor
per Alfred Hedrick
att'y.

UNITED STATES PATENT OFFICE.

MICHAEL MACMAHON, OF BROOKLYN, N. Y., ASSIGNOR OF FIVE-EIGHTHS TO
SAMUEL VAN NESS AND DANIEL SULLIVAN, BOTH OF SAME PLACE.

CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 281,538, dated July 17, 1883.

Application filed October 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MACMAHON, of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Journal-Lubricators, of which the following is a specification.

This invention relates to lubricators, more particularly to that class adapted to supply oil to large bearings, as railway axle-journals, and has for its object to reduce the quantity of oil used to a minimum by insuring a constant supply to the bearing in quantity just sufficient for the purpose, and in proportion to the surface speed, by means of a device of simple construction, requiring no waste or other absorbing material to convey the oil to the journal, thus saving considerable in expense over the present system.

My lubricating device embodies the application of the principle by which fluids are raised by means of a moving smooth surface in contact with the mouth of a tube whose lower end dips therein. In applying this principle to rotating bearings a tube is arranged with its lower end placed in an oil-reservoir, and provided at its upper end with a cylindrical concave surface fitted truly to the journal, with a groove formed around the opening of the tube, in which is placed a suitable packing to insure as nearly as possible an air-tight joint between the journal and tube. The oil is raised in the tube by the action of the moving surface of the journal, and coming in contact with the under side of the journal adheres thereto, and is carried around to the bearing. The packing around the opening of the tube prevents an excess of oil being carried around with the journal, some of which excess of oil is retained in the space formed by the packing, and longitudinal slots are provided adjacent to the tube-opening to hold the oil which is taken up by the journal when it first commences to rotate slowly, so that should the axle remain at rest for any length of time its journal and bearings are thoroughly lubricated before the axle completes a full revolution.

In applying my invention to car-axle journals and bearings, I propose in some cases to make an independent box adapted to be placed in the ordinary journal-box provided with the

suction-tube, which extends the length of the journal, the bearing-surface, and packing and spout for placing the oil therein. Longitudinal openings are made in the top of the box, outside the packing, to admit air to the interior and to allow excess of oil to flow back into the reservoir. The box is supported on springs to cause the mouth of the tube and packing to be held by continuous pressure against the journal. The car-journal box may in some cases be the oil-reservoir, my lubricator then consisting simply of a tube provided with bearing-surface and packing to fit the journal, and upheld by means of springs or their equivalents.

To describe my invention more particularly, I will now refer to the accompanying drawings, in which Figure 1 is a side elevation, showing the independent box form of my lubricator, partly in section. Fig. 2 is a front end view of the same. Fig. 3 is a plan view. Fig. 4 is a longitudinal section, showing the application of the same to a car-journal box. Fig. 5 is a transverse section of Fig. 4; and Fig. 6 is a transverse section of a journal-box provided with a lubricator constructed according to the modifications above suggested.

The box *a*, with the oil suction tube *b*, is preferably made of one piece of cast metal, as shown. The tube *b* is formed by two thin parallel walls, which extend the length of the box, connected to its top and ends only, leaving a space at the bottom for the oil in the box to enter the tube. At the front end of the box is formed a recess, *a'*, for the reception of the flange or collar on the end of the journal *e* and the oil which may fall from this part of the journal. Immediately in front of this recess *a'* is the filling-spout *c*, connected to the interior of the box by the passage *c'*, located under the recess *a'*. This spout is provided with a hinged cover, *c''*, and a spring, *c'''*, is so arranged as to hold the cover down over the opening of the spout. The upper surface of the box *a* is worked out true to fit the journal *e*, and on either side of the opening of the tube *b* is formed the longitudinal grooves *d d*, in which some of the oil is retained after being drawn up the tube by the movement of the journal, so that the journal, after being at rest for some

time, is supplied with oil as soon as it commences to move. The groove *e'*, which entirely surrounds the opening of the tube *b*, and the grooves are filled with a suitable packing, the object of which is to insure an air-tight joint between the journal and tube. This packing may be dispensed with in some cases. Beyond the packing in the groove *e'* the upper surface of the box is made larger than the journal, and in these parts are formed the slots or openings *f f*, (see Fig. 5,) which admit air to the interior of the box to allow the oil to be freely drawn up the tube by the action of the smooth surface of the journal moving over the opening of the tube *b*. These openings *f f* also provide means for the return to the box of all oil not utilized by the journal, so that no loss of oil can occur, thus reducing the quantity used to what is actually necessary to properly lubricate the journal.

My lubricator, constructed as above described, is adapted to be placed in railway journal-boxes of ordinary construction, as shown in Figs. 4 and 5, in which 10 represents the journal-box, 11 the journal-box lid, 7 the journal-bearing, and 8 the journal-bearing key.

It will be observed that the filling-spout *c* of the lubricator is easily accessible through the opening of the journal-box covered by the lid 11.

To insure a perfect contact between the journal *e* and upper surface of the box *a*, and to compensate for wear, supporting-springs are placed under the box in any suitable manner, or equivalent devices employed to hold the box up with a steady, continuous pressure against the journal. In the drawings the box is shown supported on springs *h h*, which surround the guide-bolts *h' h'*, and are placed in chambered holes cast in the box. The heads of the bolts *h' h'* rest on the bottom of the journal-box 10.

Special journal-boxes may be made to be used with the lubricating suction-tube, the box itself forming the oil-reservoir, and some kinds of journal-boxes now in use may be thus

employed. For such I propose to make simply a flat tube, *i*, having a head, *j*, adapted to fit the journal, and provided with the oil-grooves *k k* and packing-grooves *l l*, as shown at Fig. 6

The springs *m m* surround bolts secured in the frame *n*, and hold the device against the journal by bearing against the under side of the ears projecting from the head *j* of the tube *i*. The guide-bolts for the springs *m m* may be secured in the bottom of the journal-box 10, if desired.

It is obvious that the principle embraced in the lubricator above described may be applied to all kinds of journals, and reciprocating as well as rotating bearings, by slight immaterial modifications and changes in the mechanical construction of the device.

What I claim, and desire to secure by Letters Patent, is—

1. A lubricator consisting of a tube constructed and applied, substantially in the manner set forth, to fit at its upper end against the moving part of the bearing, so as to be in permanent contact therewith, and having its lower end located in an oil-reservoir.

2. The lubricating-box *a*, provided with the suction-tube *b*, oil-grooves *d d*, packing-grooves *e e*, and filling-spout *c*, in combination with supporting-springs *h h*, the journal-box 10, and axle *e*, substantially as and for the purpose set forth.

3. A lubricator consisting of a tube adapted to fit against the journal, and having oil-grooves adjacent to the tube-opening, in combination with an oil-reservoir to supply oil to the lower end of the tube, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand, at New York, county and State of New York, this 13th day of October, A. D. 1882.

M. MACMAHON.

Witnesses:

SAML. VAN NESS,
DANIEL SULLIVAN.