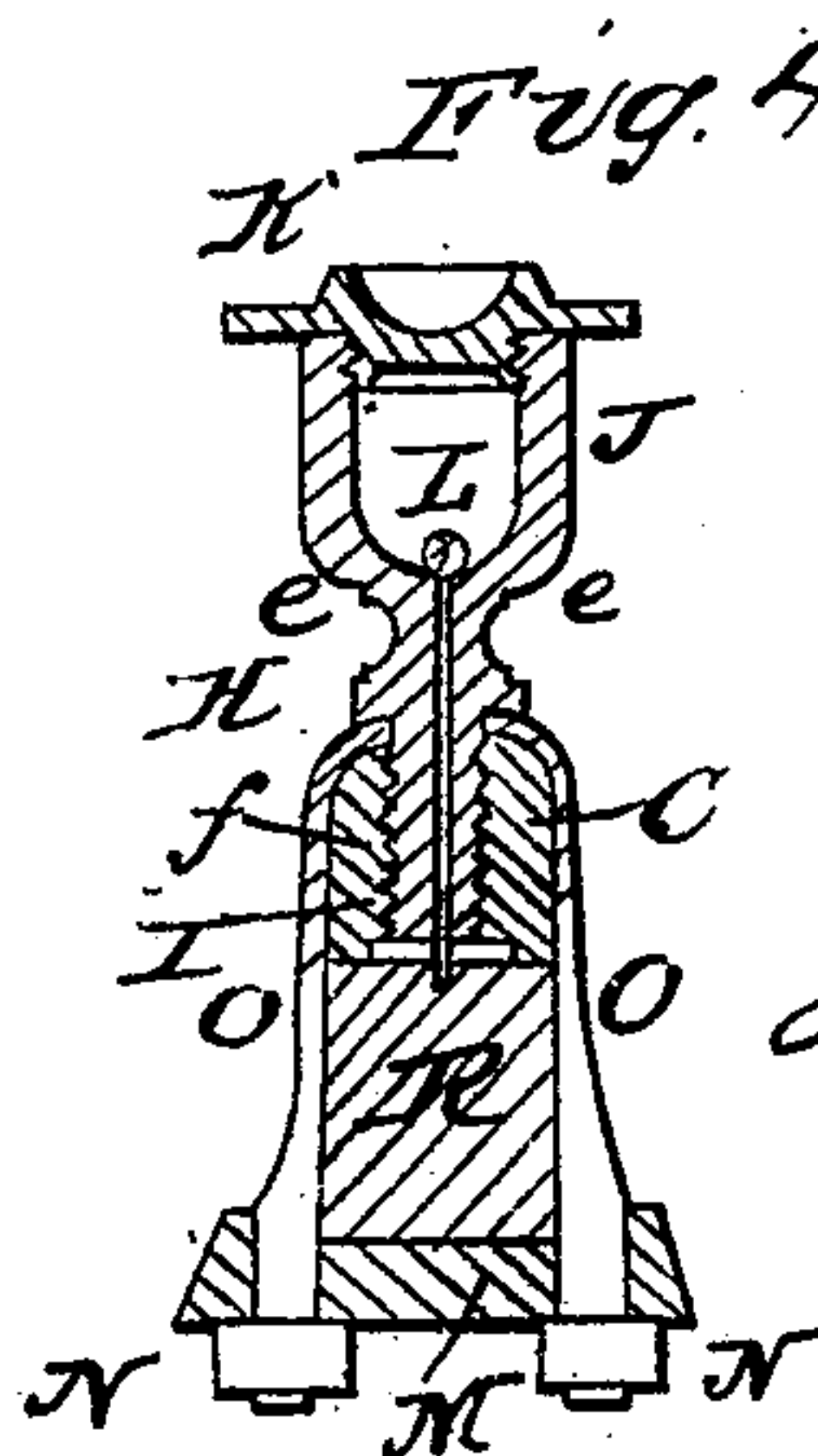
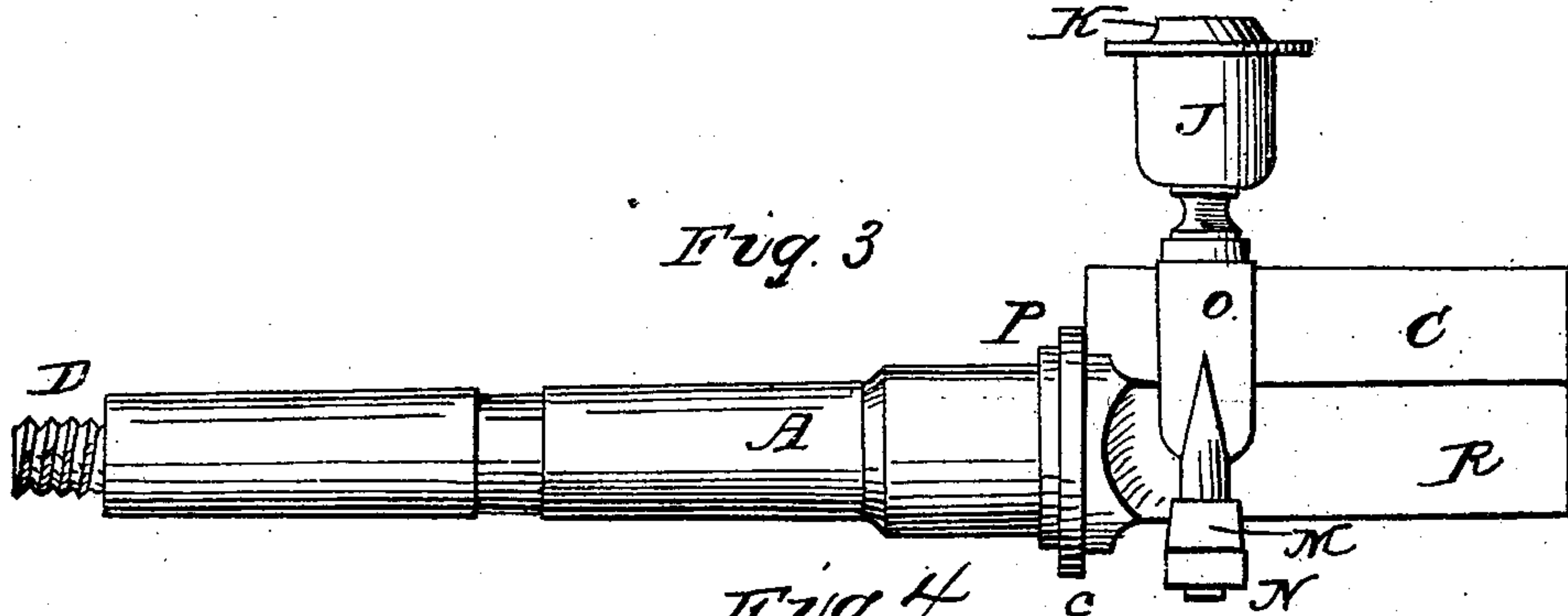
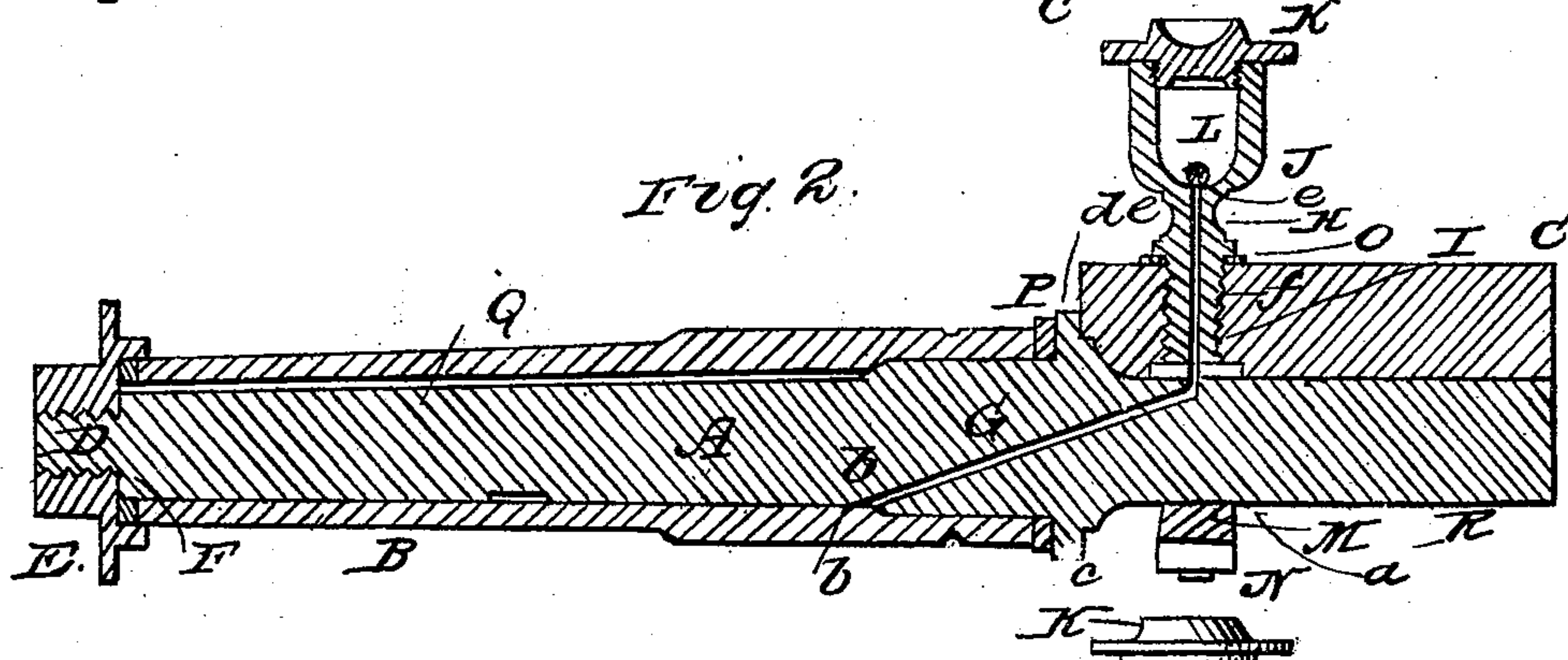
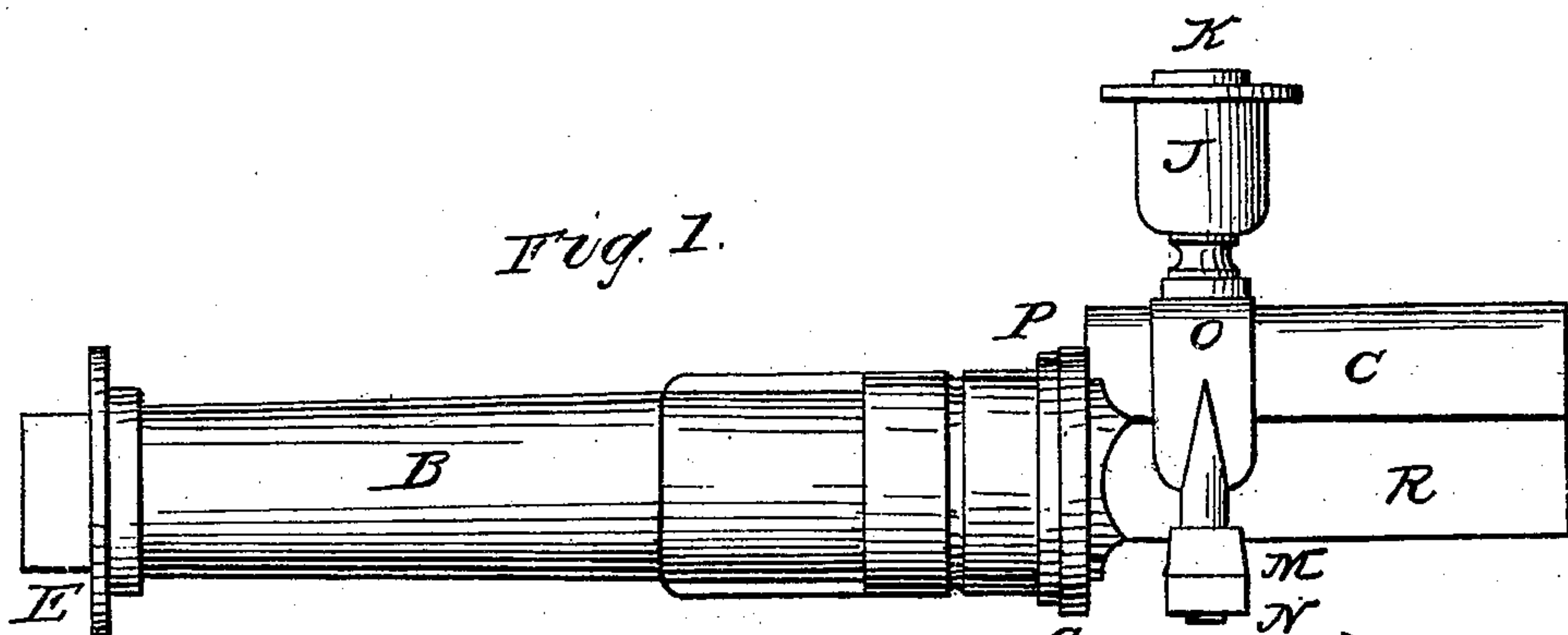


J. KILLEFER.  
Axle Lubricator.

No. 102,408.

Patented April 26, 1870.



witnesses  
G. W. Ruff.  
And. Chaffin

Inventor  
John Killefer  
by J. O. Ruff.



# United States Patent Office.

JOHN KILLEFER, OF WEST RICHFIELD, OHIO.

Letters Patent No. 102,408, dated April 26, 1870.

## IMPROVED CARRIAGE-AXLE LUBRICATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN KILLEFER, of West Richfield, Summit county, Ohio, have invented certain new and useful Improvements in the Mode of Lubricating Carriage-Axles; and that the following is a full, clear, and exact description of my invention.

### *Nature and Objects of Invention.*

The first part of my invention relates to the combination with a carriage-axle of an oil-cup, having the bottom of its interior cavity formed in the shape of a flattened hemisphere, and provided with a round ball-valve, of a diameter considerably greater than that of the oil-passage in the neck of the oil-cup; said ball-valve being actuated by the vibrations of the carriage-axle, so as to act as a rolling-valve, thus allowing the oil to pass to the spindle when the carriage is in motion, but preventing any oil from leaving the oil-cup when the carriage is still, which prevents any waste of the oil, and obviates the danger of flooding the spindle and causing drippings at its ends.

The second part of my invention relates to the combination of the oil-cup with the axle-clip and wooden part of the axle, whereby I obtain a screw-bearing for the shank of the oil-cup in a metallic collar, which surrounds and unites the two parts of the axle, thus securing a much stronger attachment for the oil-cup than would be obtained by simply screwing it into the wooden part of the axle.

The third part of my invention relates to the arrangement of a leather or other equivalent washer in a cavity in the wooden part of the axle, and around the lower end of the hole for the shank of the oil-cup, said washer being arranged in said cavity before the wooden part is placed on the iron axle, whereby I obtain an oil-tight connection between the oil-passage in the neck of the oil-cup and the oil-channel in the iron axle, without the necessity of tapping a hole in the iron axle, to receive the shank of the oil-cup, as has heretofore been the practice, and which materially weakened the strength of the iron axle, by cutting out metal at a point liable to receive the most severe strains.

### *Description of Accompanying Drawings.*

Figure 1 is an elevation of a portion of the carriage-axle embodying my invention.

Figure 2 is a longitudinal section of the same.

Figure 3 is an elevation of the same, with hub-box removed.

Figure 4 is a transverse section of the same, taken through the centre of the oil-cup.

### *General Description.*

The iron axle R is of an ordinary form, and has the

spindle A formed at its end, with the intervening spindle-collar c and the threaded end D, for the nut E, which holds the hub-box B on the spindle.

The oil-channel G, by which the oil is conveyed to the spindle from the oil-cup, is drilled from the point b on the bearing-face of the spindle A to the point a, on the top of the iron axle R, and back of the spindle-collar c, as shown in fig. 2.

The wooden part C of the axle is fitted on the iron axle R, where it is held by the clip O, which passes through the cross-bar M, and is held by the nuts N N.

The hole f, for the shank of the oil-cup J, is bored in the wooden part C, so as to bring the center of the oil-cup directly over the end a of the oil-channel in the iron axle, and a hole is drilled in the clip O, to correspond with that in the wooden part C, as shown.

The cavity d is formed in the wooden part C around the lower end of the hole f, and in this cavity is fitted the washer I, as shown in figs. 2 and 4, so that, when the wooden part C is placed on the iron axle R, the washer I is secured in the proper position to serve as a packing between the shank of the oil-cup J and the iron axle R.

A hole is formed in the center of the washer I, to allow of the passage of the oil in the oil-cup to the oil-channel in the iron axle, as shown in figs. 2 and 4.

The form of the cavity d and washer I is not material, but they are conveniently made of a circular form, the cavity d being made by boring a hole of a diameter of from a quarter to a half-inch greater than that of the hole f, and of a depth equal to the thickness of the washer I, and the washer I being simply a round leather or rubber washer, made to fit closely in the hole d.

A thread is cut on the shank of the oil-cup J, and a corresponding thread is cut in the hole f in the clip O and wooden part C, so that, by screwing the shank of the oil-cup into the hole f, it is firmly secured in position, and its end is brought down onto the washer I, so as to compress said washer between the end of the oil-cup shank and the iron axle, thus making an oil-tight joint between the oil-cup and iron axle.

The bottom of the interior cavity of the oil-cup has the form of a flattened hemisphere, the central portion e e being nearly flat, but having a slight slope from all sides toward the oil-passage H, which is a small hole drilled through the neck of the oil-cup, and with square edges at its upper end, instead of being reamed out at said upper end in a funnel shape.

The ball-valve L is simply a round metal ball, of a diameter from two to three times as great as that of the oil-passage H, so that, when said ball sits over the upper end of said oil-passage, it closes it completely, but does not sink down into said passage to any extent, from



which it is seen that a slight vibration of the axle will be sufficient to cause it to roll from its seat onto the nearly flat surface *ee* in the oil-cup.

The oil cup *J* is provided with a screw-cover, *K*, which is readily unscrewed and removed, when the oil-cup requires refilling.

The groove *Q* is cut along the upper side of the spindle *A*, to receive the accumulation of the dirt gathering in the hub-box *B*, and the washers *F* and *P* are placed on the spindle *A*, to keep dirt and dust from working in onto the spindle, as well as to prevent the oil from working out.

From the foregoing description, it will be evident that when the carriage is in motion, the vibrations and jarrings to which the axle *A R* is subjected will keep the ball *L* rolling about on the surface *ee*, thus allowing the oil to pass down through the hole *H* and oil-channel *G* to the spindle *A*, and insuring the proper lubrication of the same, but that, as soon as the carriage is stopped, the axle *A R* is free from vibration, the slight incline of the surface *ee* will cause the ball *L* to roll onto the hole *H*, thus closing the passage from the oil-cup and preventing the oil from running out and flooding the spindle *A*.

*Claim.*

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

1. The combination with the carriage-axle *A R* of the oil-cup *J*, provided with the ball *L*, and having the bottom of its interior cavity formed in the shape

of a flattened hemisphere, the several parts being so constructed and arranged as that the vibrations of the carriage-axle shall cause the said ball to act as a rolling-valve regulating the passage of the oil from the oil-cup to the spindle, substantially as is herein specified.

2. The combination of the iron axle *R*, wooden part *O*, axle-clip *O*, and oil-cup *J*, the shank of said oil-cup passing through the clip *O* and wooden part *O*, and the several parts being arranged substantially as and for the purpose specified.

3. The arrangement of the washer *I* in the cavity *d*, at the lower end of the hole *f* in the wooden part *O* of the axle, for the purpose of insuring an oil-tight connection between the iron axle *R* and oil-cup *J*, whenever said oil-cup is screwed into its proper position, substantially as herein specified.

4. The combination of the iron axle *A R*, provided with an oil-channel, *G*, extending from a point, *b*, on the bearing-face of the spindle *A*, to a point, *a*, on the upper face of the axle *R*, and behind the spindle collar *c*, wooden part *O*, axle-clip *O*, and oil-cup *J*, provided with the rolling ball-valve *L*, the several parts being constructed, arranged, and operating substantially as and for the purpose specified.

As evidence of the foregoing I have hereunto set my hand in presence of two witnesses, this 24th day of January, 1870.

JOHN KILLEFER.

Witnesses:

EGBERT COOLEY,  
WM. KILHEFFER.