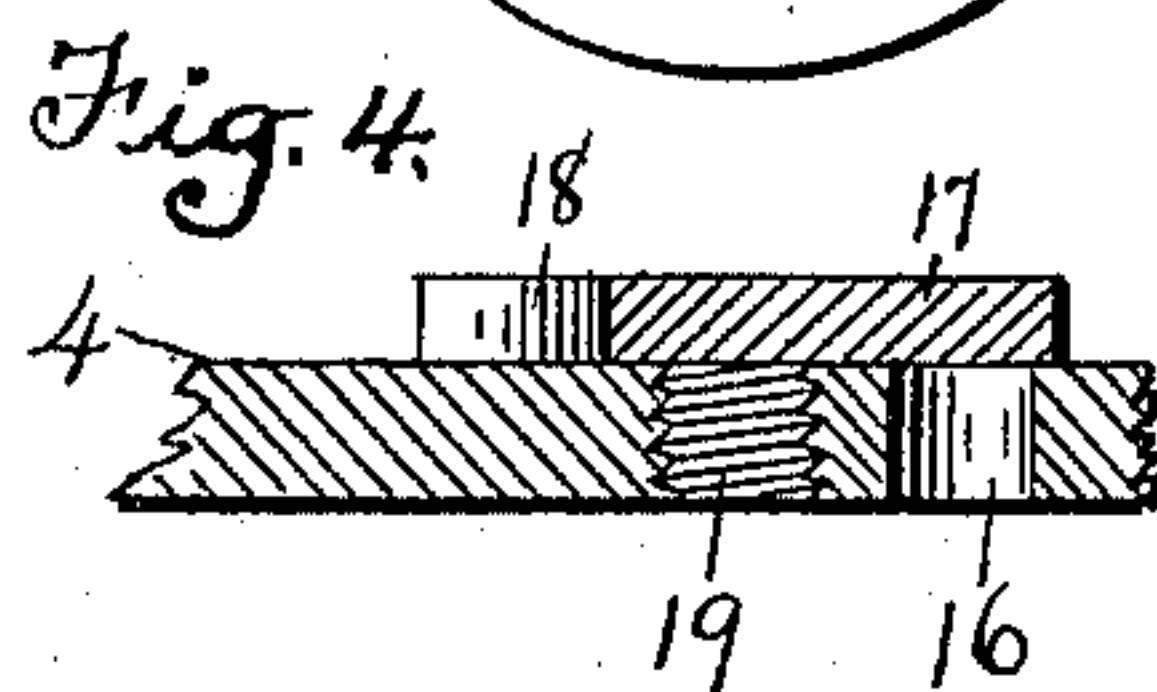
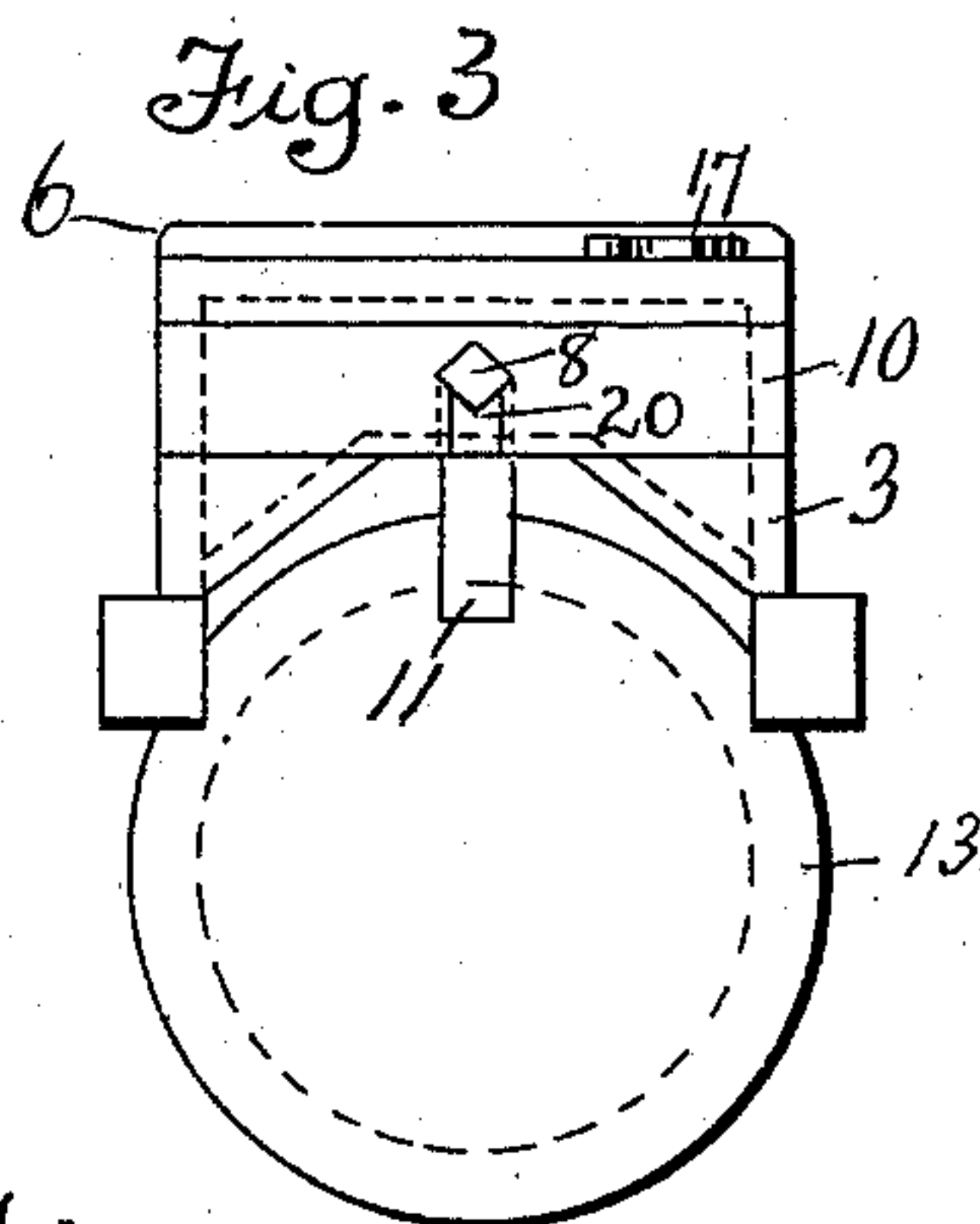
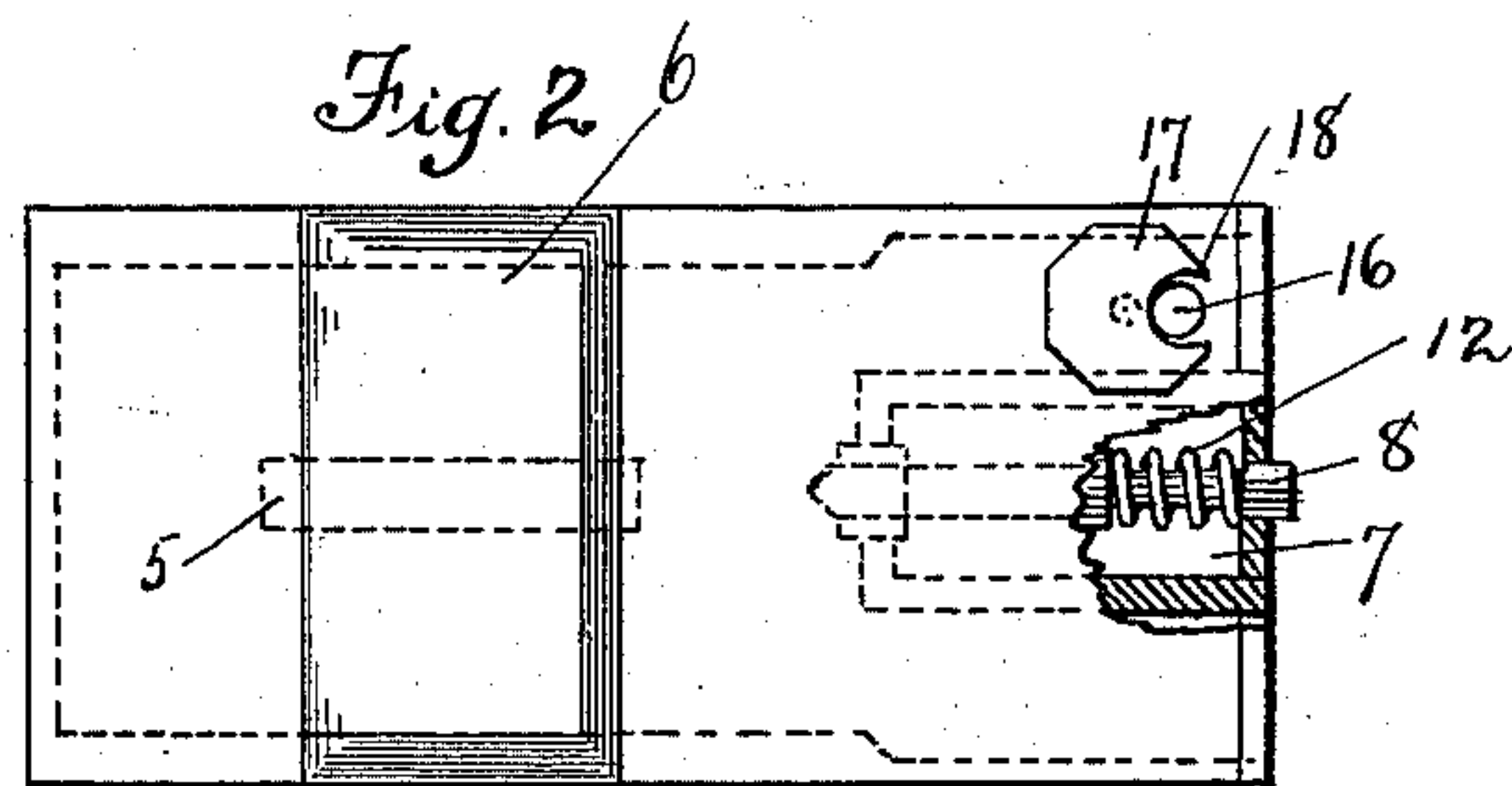
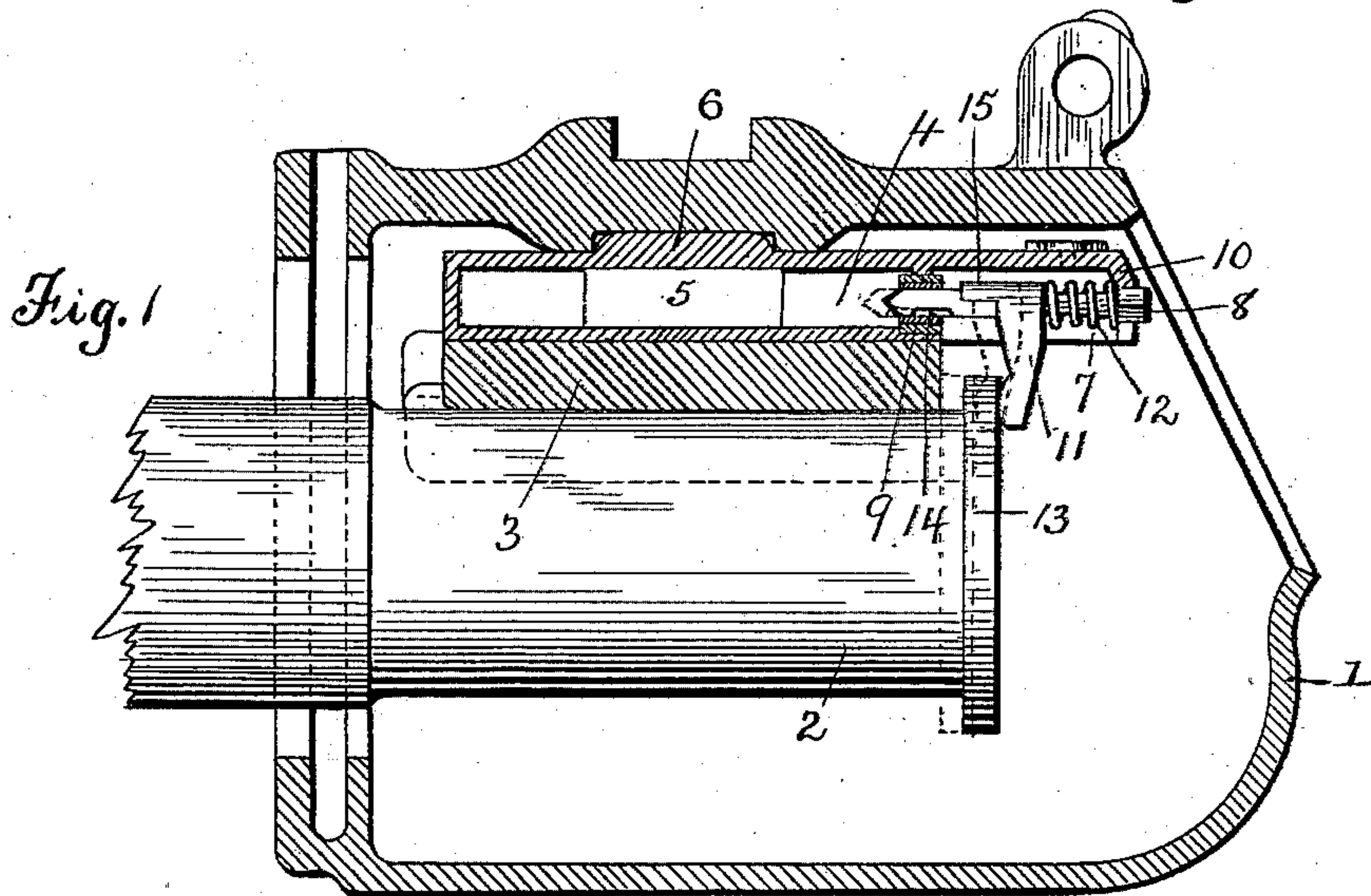


(No Model.)

J. H. COLLINS.
LUBRICATOR.

No. 544,960.

Patented Aug. 20, 1895.



Witnesses
Thos. E. Robertson
W. E. Clelandaniel

Inventor
James H. Collins
By T. J. W. Robertson
Attorney

UNITED STATES PATENT OFFICE.

JAMES H. COLLINS, OF HARRISBURG, PENNSYLVANIA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 544,960, dated August 20, 1895.

Application filed May 18, 1895. Serial No. 549,805. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. COLLINS, a citizen of the United States, residing at Harrisburg, in the county of Dauphin, State of Pennsylvania, have invented a certain new and useful Improvement in Lubricators, of which the following is a specification, reference being had to the accompanying drawings.

This improvement is intended to provide a lubricator mainly designed for use on cars and locomotives, although it may be used for other purposes, that will constantly feed the lubricating material to the bearing when the journal is in motion, but will shut off the feed when it is at rest.

To this end the invention consists in the construction hereinafter described and then definitely claimed at the end hereof.

In the accompanying drawings, Figure 1 is a vertical central longitudinal section of a journal-box provided with my improvement. Fig. 2 is a plan of the oil-box thereof detached, partly broken away. Fig. 3 is an end view of the journal, the bearing, and the oil-box and its attachments. Fig. 4 is a detail in vertical section of a screw-cap for closing the oil-can.

Referring now to the details of the drawings by figures, 1 represents the journal-box, 2 the journal, and 3 the bearing, all of which may be of the ordinary or any approved form. Above the bearing is the oil-box 4, having a stiffening-bridge 5 between its top and bottom, and a rocker 6. This oil-box has a recess 7, (see Fig. 2,) in which is set a piston 8, one end of which is round and works through a stuffing box or passage 9 in the inner end of the recess 7, and its other end is square and works through a correspondingly-shaped hole in the overhanging outer wall 10 of said recess 7. Cast with or firmly secured on this piston 8 is a depending arm 11, between which and the outer wall 10 of the recess 7 is a spring 12, which always tends to keep said arm in contact with the flange 13 of the journal 2. The inner end of the piston has a small port 14, into which oil from the box enters when the piston is in the position shown in dotted lines, and which runs out upon the journal when the piston is in the position shown in full lines. The inner end of the piston thus becomes a valve to govern the emission of the oil. At the top of the piston 8 is a shoulder 15, which

by coming in contact with the stuffing-box 9 will prevent the too free movement of the piston in case the wear of the bearing allows unusual play of the journal.

At one corner of the oil-box is a filling-aperture 16, which is covered by a cap 17, having a notch 18 at one side and a screw-threaded shank 19 screwing into a hole in the top of the oil-box, and its threads are so arranged that when the cap is screwed down tightly the solid part of the cap is over the filling-aperture. When in operation the oil-box is filled by first turning the cap 17 into the position shown in Fig. 2, next pouring in the oil, and then the cap is turned round until it is tight, which will bring the solid part of the cap over the filling-hole, as shown in Fig. 4, and thus effectually stop the opening. When the car is in motion, its swaying will cause the flange 13 to push against the arm 11 and move out the piston to the position shown in full lines in Fig. 1, and thus allow the oil that has entered the port 14 to drop upon the journal, and thus lubricate the same. When the car sways in the opposite direction, the spring 12 will force the piston inward to the position shown in dotted lines and oil will enter the port 14, ready to fall upon the journal when the car sways back again. From this it will be seen that the faster the car runs the more oil will drop on the journal, and as there is no motion of the piston when the car is standing still the flow of oil ceases entirely at this time. It will be noticed that the part of the piston 8 covered by the spring 12 is smaller than the part in the wall 10 and that there is a slot 20 (see Fig. 3) underneath the piston. This is to allow of the insertion or removal of the piston. On drawing out the piston and compressing the spring the small part of the piston will be in the wall 10, and it can then be turned one-quarter of a revolution, so as to bring the sides of the piston in a vertical position, when it will drop down through the slot 20, as the diameter of the piston is of course less when taken between the sides than when taken from corner to corner.

In adopting this lubricator no change whatever is necessary in the box, the bearing, or the journal, as all that is necessary to do is to remove the steel plates or wedges usually employed and set the oil-box in their place, and

as the oil-box is cast integral it can be made very cheaply.

As shown in the drawings, the piston is so arranged as to drop the oil on the outer end of the bearing, but the piston may be made long enough to pass through to the other end of the oil-box and drop the oil on the inner end or into a duct in the bottom of the oil-box and in the "brass" at any intermediate point.

I am aware that it has been proposed to work a pump by pressure of the flange of the axle as the axle and box move in opposite directions with relation to each other, as may be seen in the United States Patent No. 451,195, and that a ball-valve has been used which, when shaken off its seat by the motion of the car, would allow oil to pass from an oil-box to the axle, as shown in the United States Patent No. 44,407, and make no claim to either of these inventions, as I consider mine essentially different from either of them, inasmuch as the motion of the valve is positive and there is no possibility of a positively-moving valve failing to operate, while with a valve that is operated solely by shaking there is a liability of its sticking and thus failing to operate or of something getting under it and allowing all the lubricant to run out at once. The pump of Patent No. 451,195 is dependent upon the action of ball-valves, and the failure of these to act will prevent the action of the pump, while my positively-moving valve is bound to act.

What I claim as new is—

1. The combination in a journal box and

with a bearing therein, of an oil-box having a passage leading therefrom, a valve working in said passage and arranged to act as a stopper to prevent oil passing out of said oil-box when the journal is stationary, and means for positively moving said valve in its seat when the journal is in motion, substantially as described.

2. The combination with a journal and a bearing therefor, of an oil-box having a passage leading therefrom, a valve working in said passage and provided with a port alternately communicating with both ends of said passage, an arm depending from the piston operated in one direction by the pressure of the journal, and a spring pressing the piston in the opposite direction, substantially as described.

3. The combination with a journal and a bearing therefor, of the oil-box 4, having a recess 7 and a passage leading from the oil-box, a piston-valve 8 provided with port 14 working in said passage and recess and having an arm 11 bearing against the end of the journal, and a spring 12 for keeping the arm in contact with the bearing, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 17th day of May, 1895.

JAMES H. COLLINS.

Witnesses:

FREDERICK M. OTT,
J. M. SMALL.