

(No Model.)

G. W. BOWEN.
LUBRICATOR.

No. 585,736.

Patented July 6, 1897.

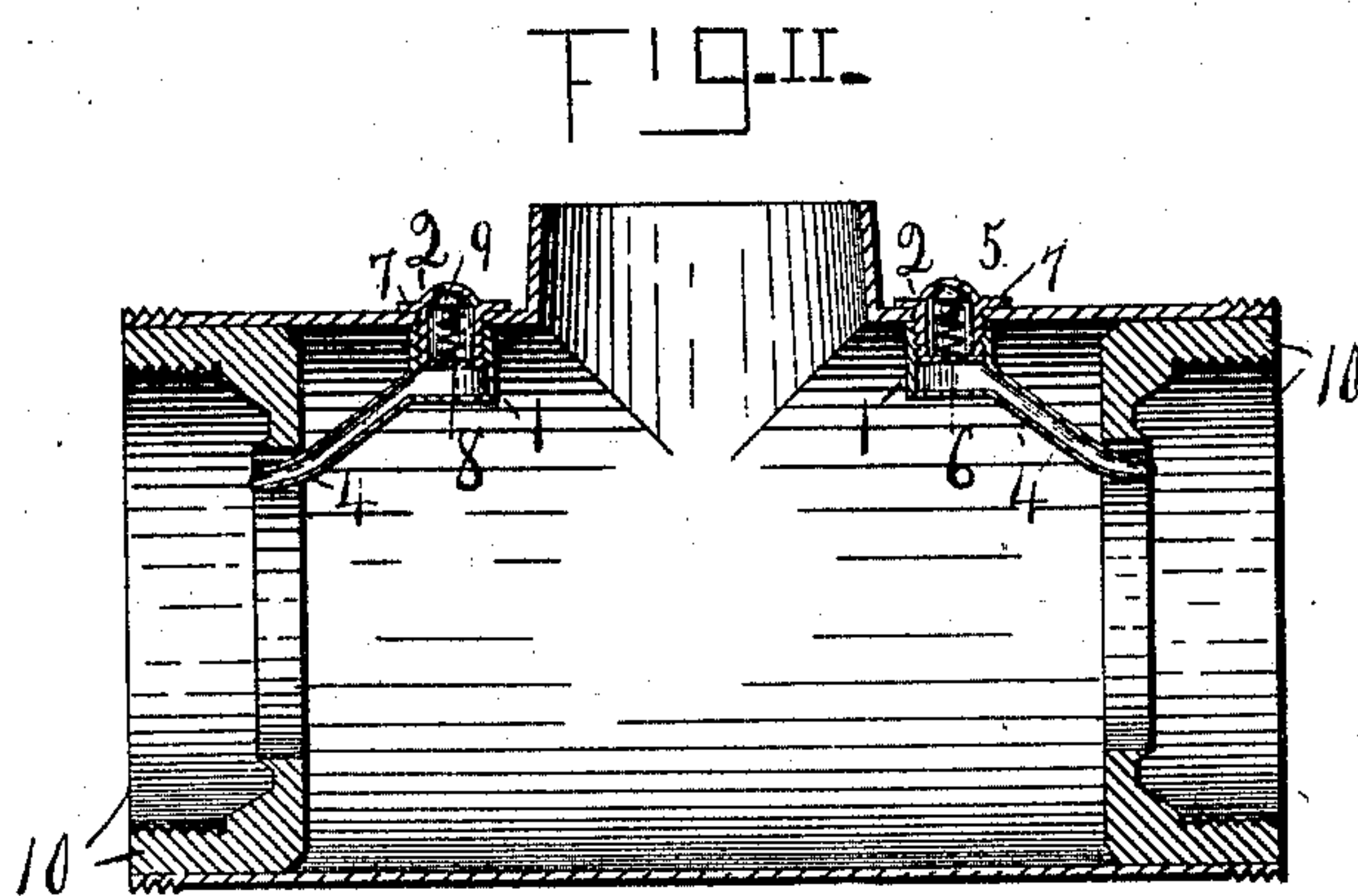
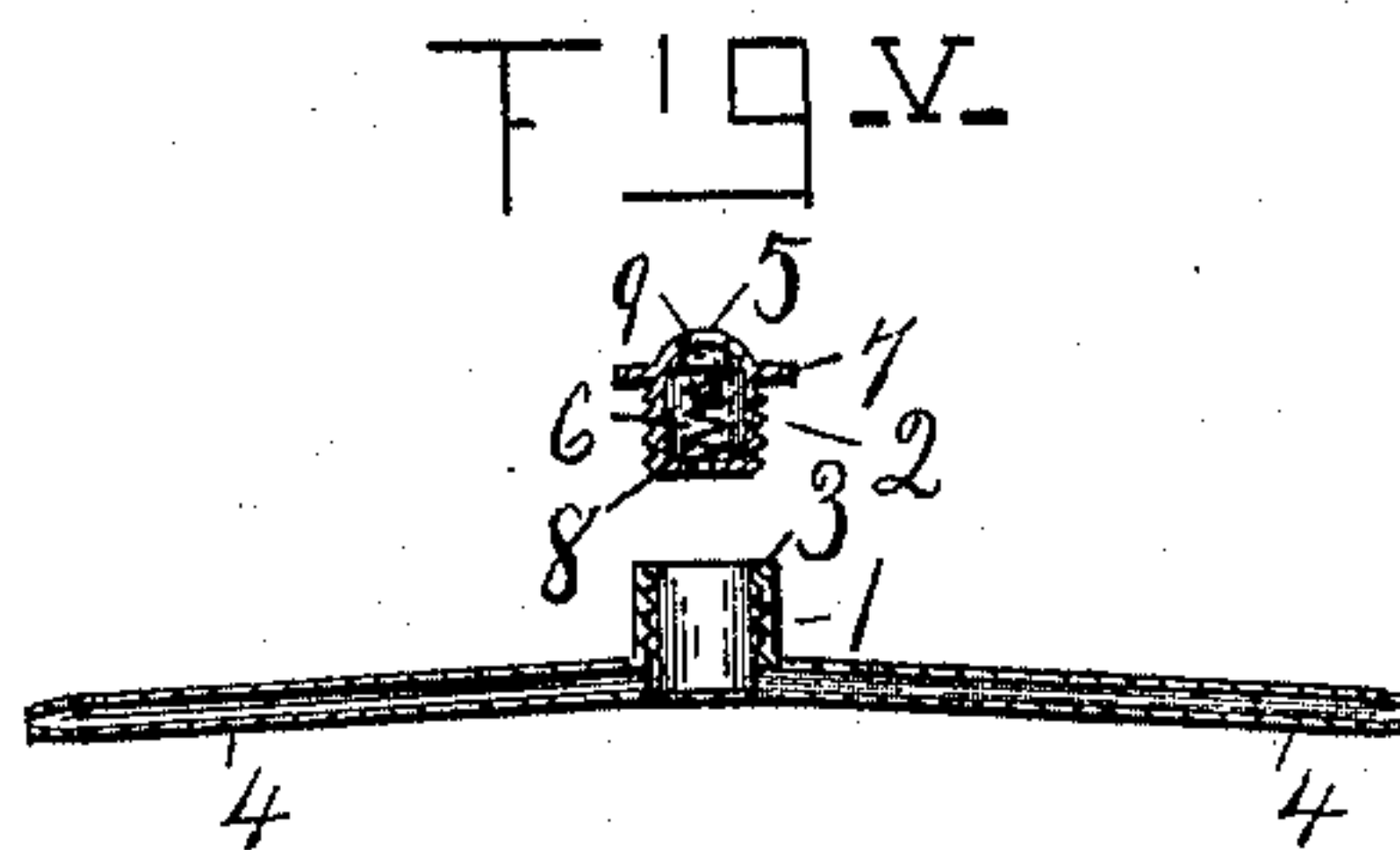
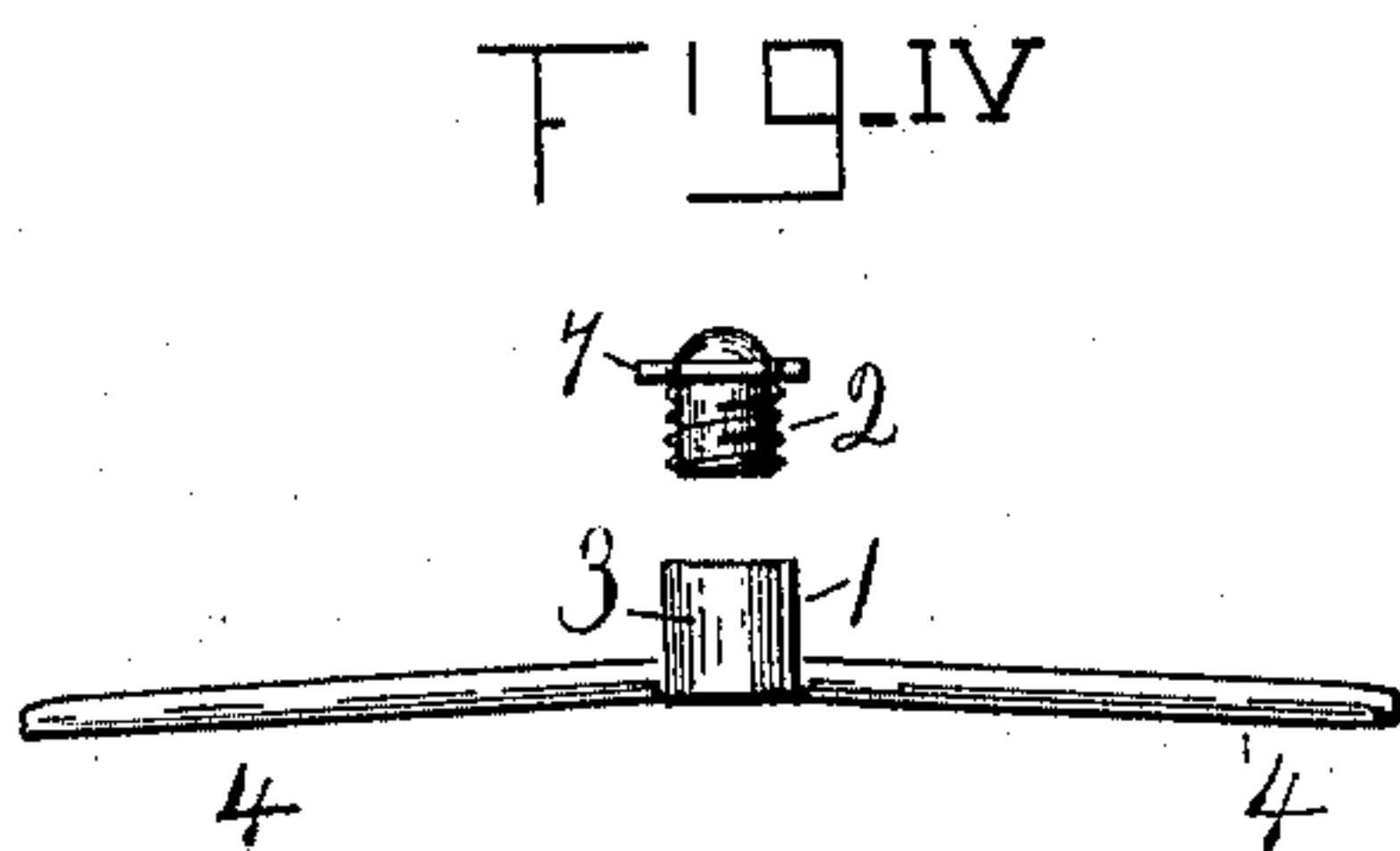
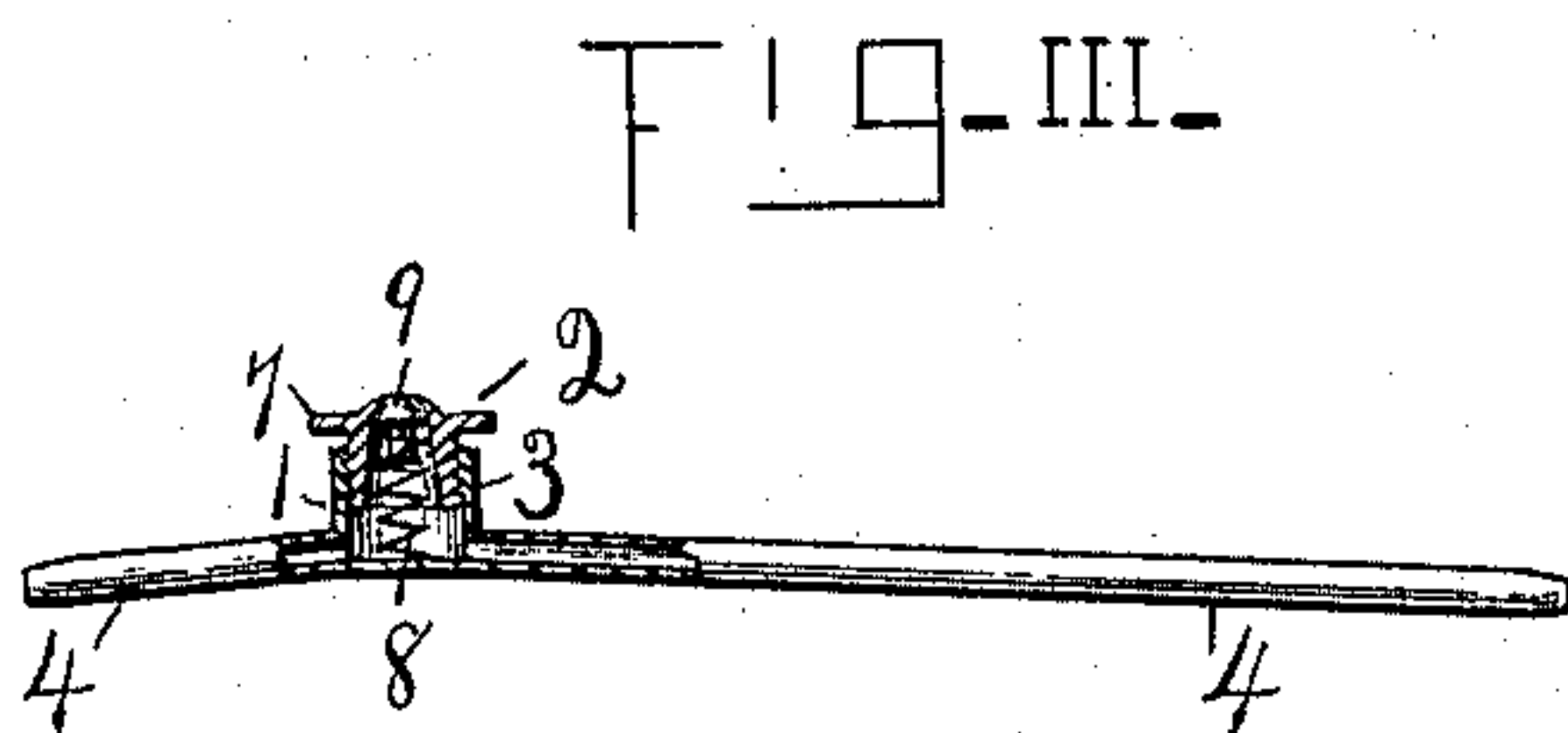
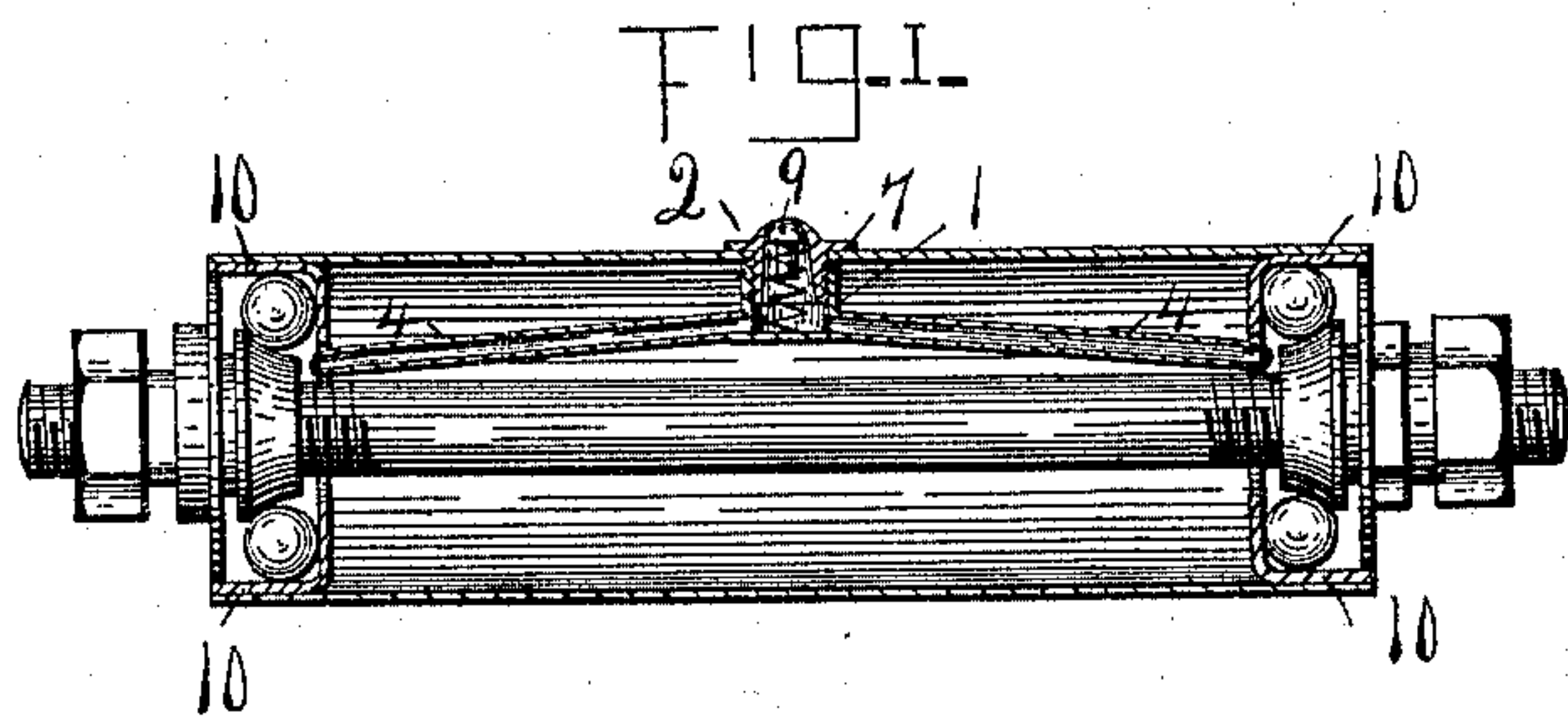


FIG. VI.

WITNESSES:
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UNITED STATES PATENT OFFICE.

GEORGE W. BOWEN, OF AUBURN, NEW YORK.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 585,736, dated July 6, 1897.

Application filed October 19, 1896. Serial No. 609,277. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BOWEN, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented a new and useful Oiler; and I do hereby declare that the following, in connection with the accompanying drawings, is a full, clear, and exact description of the invention.

What I have invented is a new and improved lubricating device or oiler for bicycles and other vehicles and machines through which all the oil is conducted directly to the bearings.

My oiler is particularly adapted for use in connection with the tubular hubs and crank-hangers of bicycles, as here shown; but it may be used in other machines where it is desirable to apply the oil from a point on the exterior at some distance from the bearings.

My oiler consists, essentially, of two members or cups, the inner inclosed entirely within the hub, from which tubes lead directly to the bearings, the outer adapted to be inserted through a perforation in the hub, so as to engage with the inner member, and provided with an outer opening, normally closed by a spring-valve, through which oil is introduced.

My invention will be better understood by reference to the accompanying drawings, in which the same reference-numerals refer to corresponding parts in all the views.

Figure I is a longitudinal section of a tubular hub fitted with my oiler, the axle, cones, and balls being shown as well as the cups. Fig. II is a similar section of a crank-hanger without the shaft, cones, and balls. Fig. III is a view, partly in section, of one form of my oiler particularly adapted to be used in the crank-hanger. Figs. IV and V are views, respectively in elevation and in section, of oilers adapted to be used in hubs, the parts being separated. Fig. VI is a top plan view of the oiler.

The oiler is composed of the two members or cups 1 and 2, the cup 1 being arranged entirely within the hub, consisting of the cup proper or cylinder 3, having an interior screw-thread and one or more fine tubes 4 4 leading to the bearing-surfaces of the ball races 10 10. The outer oil-cup 2 is exteriorly screw-threaded to engage with thread on inner member and has an outer opening 5, an inner opening 6, a flange 7 near its outer end, flat-

tened to fit the wrench, and in its interior a spring 8 and valve 9 for closing the outer opening. A perforation is made in the side of the hub-tube just large enough to receive the lower threaded part of the outer cup 2, and the inner member being introduced into the tube the outer is fitted to it through the perforation and screwed home, by which the wall of the hub is clamped between the flange and the edge of the inner cup and the whole oiler held firmly in position. The tubes 4 4 are of sufficient length to extend outwardly just within the ball-races, so that their ends are as close as possible to the bearing-surfaces. These tubes may be of equal length, as shown in Figs. IV and V, which is the form naturally used in a hub, or of unequal length, as shown in Fig. III, which is adapted to be used in a crank-hanger, where the oiler is naturally attached on one side of the upright tube.

The oiler may be made with a single tube leading to one bearing; but I prefer to make it with two tubes for applying oil simultaneously to both bearings.

A steel ball may be used for the valve; but I prefer to make the valve in the form here shown, having a head for closing the outer hole and a stem fitted to the spiral spring. This holds its position better and is less liable to break than the ball.

The lubricating device may be made of the form shown in Figs. I and III, the outer cup having a large opening below and the spring bearing against the interior of the inner cup; but I prefer the form shown in Figs. II, IV, and V, with the spring confined wholly within outer cup.

The advantages of my oiler are that the oil may be introduced from one point directly to both bearings in a positive clean manner and without the possibility of escape. Originally oil was introduced through one or two holes or oil-cups onto the shaft or axle or into the interior of the hub or crank-hanger and left to find its way to the bearings. Later the axle or shaft was inclosed in a small inner tube and the oil introduced from the exterior of the hub through an oil-cup to the interior of the inner tube. In this case the whole axle was smeared with oil, which was neither neat nor economical. My invention does away with this inner tube, and with it the minimum of oil is used, for every drop of oil

introduced into the oiler finds its way to the bearings.

Having thus fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. An oiler composed of inner and outer cups, the inner having fine tubes leading to the bearings, to which the oil is to be applied, and the outer adapted to be screwed into the inner, and having an exterior opening through which oil may be introduced, and a valve and spring for normally closing said opening.

2. In a lubricating device for bicycle and similar bearings, the combination of an inner member threaded on its interior and having fine tubes leading therefrom to the bearings, and an outer member screw-threaded to fit said inner member, and having perforations through which the oil may be introduced, normally closed by a spring-valve, and an outer flange for clamping the oiler in position against the wall of the hub to which it is attached.

3. A lubricating device for bicycle hubs and crank-hangers, consisting of an inner cup threaded on its interior and provided with tubes leading from its base to the bearings, an outer cup having an inner opening communicating with said inner cup, and a spring-valve for normally closing the outer opening, through which oil is introduced, said outer cup being also provided with a thread engaging with the thread of the inner cup, and a flange bearing against the shell of the hub and clamping the whole oiler securely in position.

4. For use in bicycles and other machines, a lubricating device composed of two members, an inner and an outer, fitting one within the other, secured together and provided with a tube or tubes for conducting the oil directly to the bearings, and a spring-valve for normally closing the opening through which oil may be introduced into the lubricating device and into said tubes.

5. A lubricating device for bicycle hubs and crank-hangers, composed of two members, fitting one within the other, one outwardly extending provided with an opening through which the oil is introduced, said opening being normally closed by a spring-valve, and the other or inner member provided with elongated tubes for conducting the oil simultaneously and directly to both bearings.

6. In combination, a tubular hub having ball-races at both ends and a perforation midway between, a lubricating device composed of inner and outer cups, the outer arranged to be inserted through said perforation and to engage with the inner, so as to clamp between them the wall of the hub, tubes leading from the inner cup to the ball-races, and a valve and spring arranged within said lubricating device for normally closing the opening in the outer cup through which the oil is introduced into the inner.

7. In combination a tubular bicycle-hub

having ball-races arranged at both ends, and a perforation midway between the ends; a lubricating device composed of inner and outer cups, the inner arranged wholly within the hub-tube and provided with fine tubes for conducting the oil to the bearing-surfaces of the ball-races; the outer arranged partially without the hub-tube and screw-threaded to engage with a thread on the inner cup, and having an outwardly-extending flange whereby the hub-wall is clamped between the flange and the edge of the inner cup; and a spring-valve for closing the oil-hole through the outer end of the outer cup.

8. In combination, a tubular bicycle hub or crank-hanger having ball-races arranged at both ends, and a perforation midway between; an oiler composed of inner and outer cups correspondingly screw-threaded, and the outer provided with an outwardly-extending angular flange, whereby the outer is screwed into the inner, and the wall of the hub-tube clamped between the two cups, holding the oiler firmly in position, and having openings whereby the oil may be introduced into said inner cup, and containing in its interior a valve and spring for normally closing the outer of said openings, and the inner cup provided at its base with inclined tubes for conducting the oil directly to the bearing-surfaces of the ball-races.

9. The combination in a tubular hub fitted at both ends with ball-races and having a single perforation through its side wall midway between its ends, of an oiling device composed of an inner cup arranged wholly within the tube and an outer cup lying partly without said tube when the parts are assembled, the inner cup being slightly larger in diameter than said perforation and screw-threaded on its interior to receive the outer cup and having inclined tubes leading from its base to the bearings, and the outer cup through which oil is introduced into the inner adapted to be inserted through said perforation, and having a screw-thread on its interior to engage with said inner cup, and an outwardly-extending flange between which and the edge of said inner cup the wall of the tube is clamped and the oiling device secured in position, said outer oil-cup being provided with openings in both ends, the inner opening communicating with said inner cup, and the outer with the exterior of the hub, and arranged in the interior of said outer cup a spring and a valve having a head for closing said outer opening and a stem fitted to said spring.

In witness whereof I have hereunto set my hand, in the presence of two attesting witnesses, at Chicago, in the county of Cook, in the State of Illinois, this 10th day of October, 1896.

GEORGE W. BOWEN.

Witnesses:

H. CHAMBERS,
F. ROGERS.