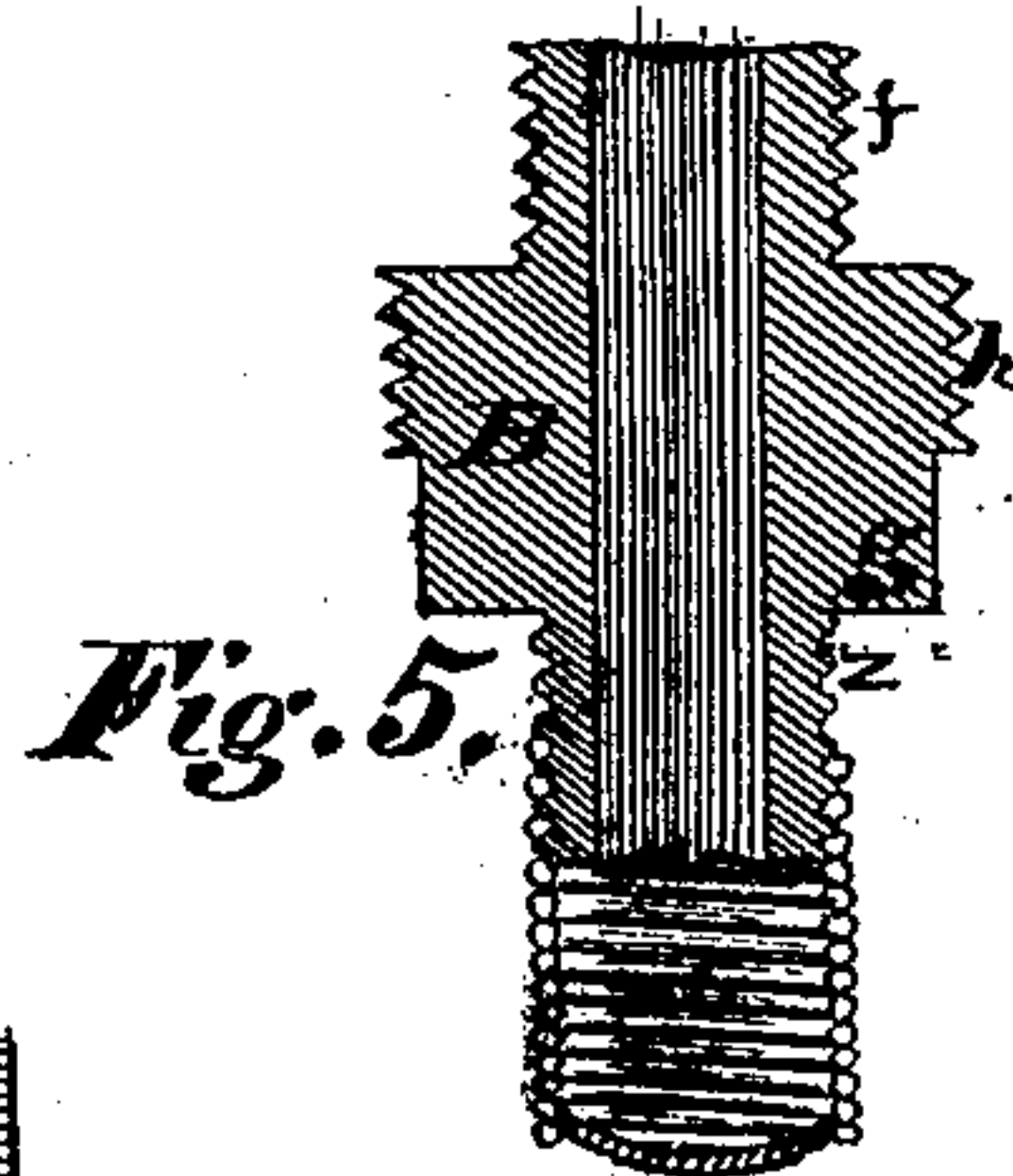
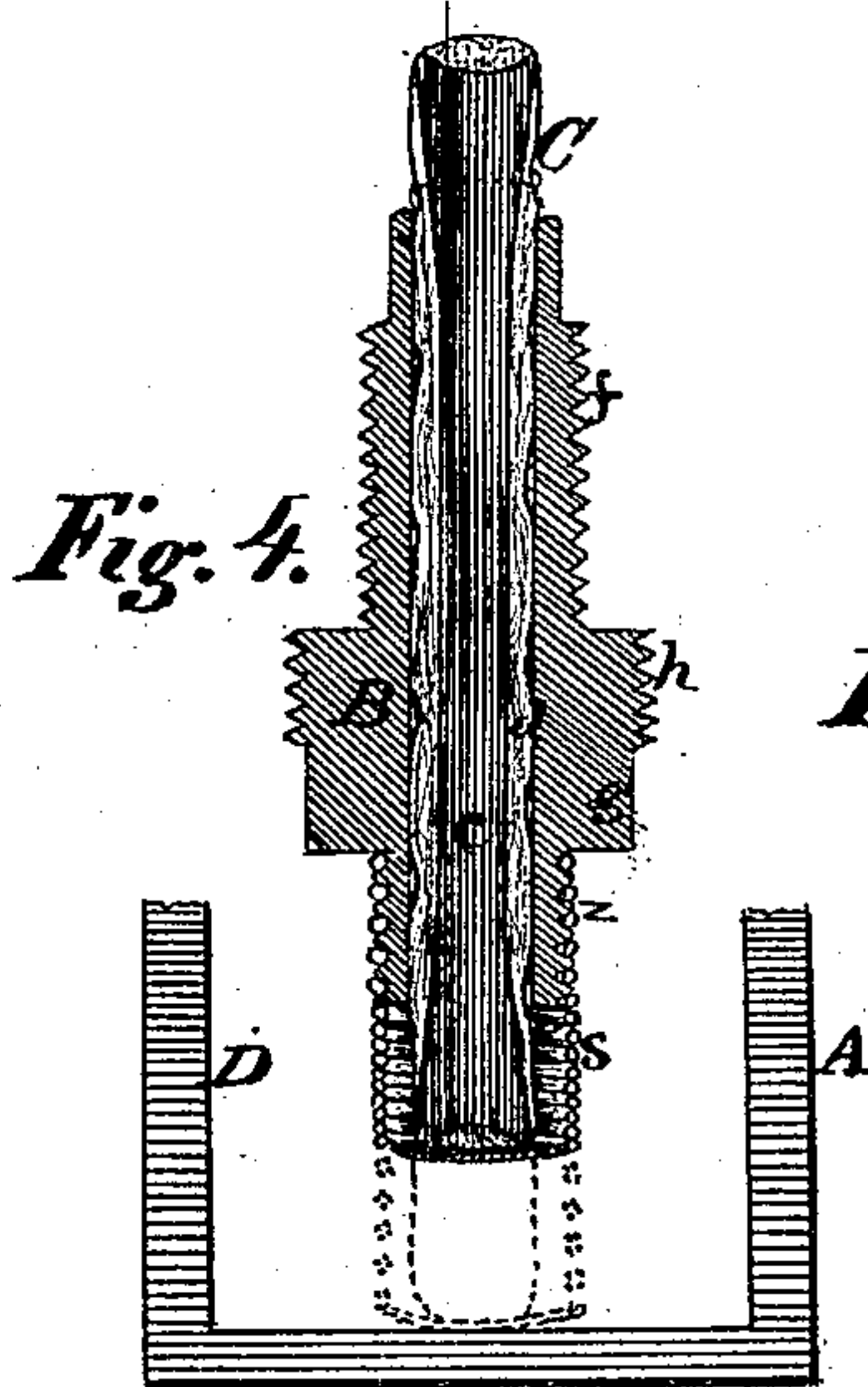
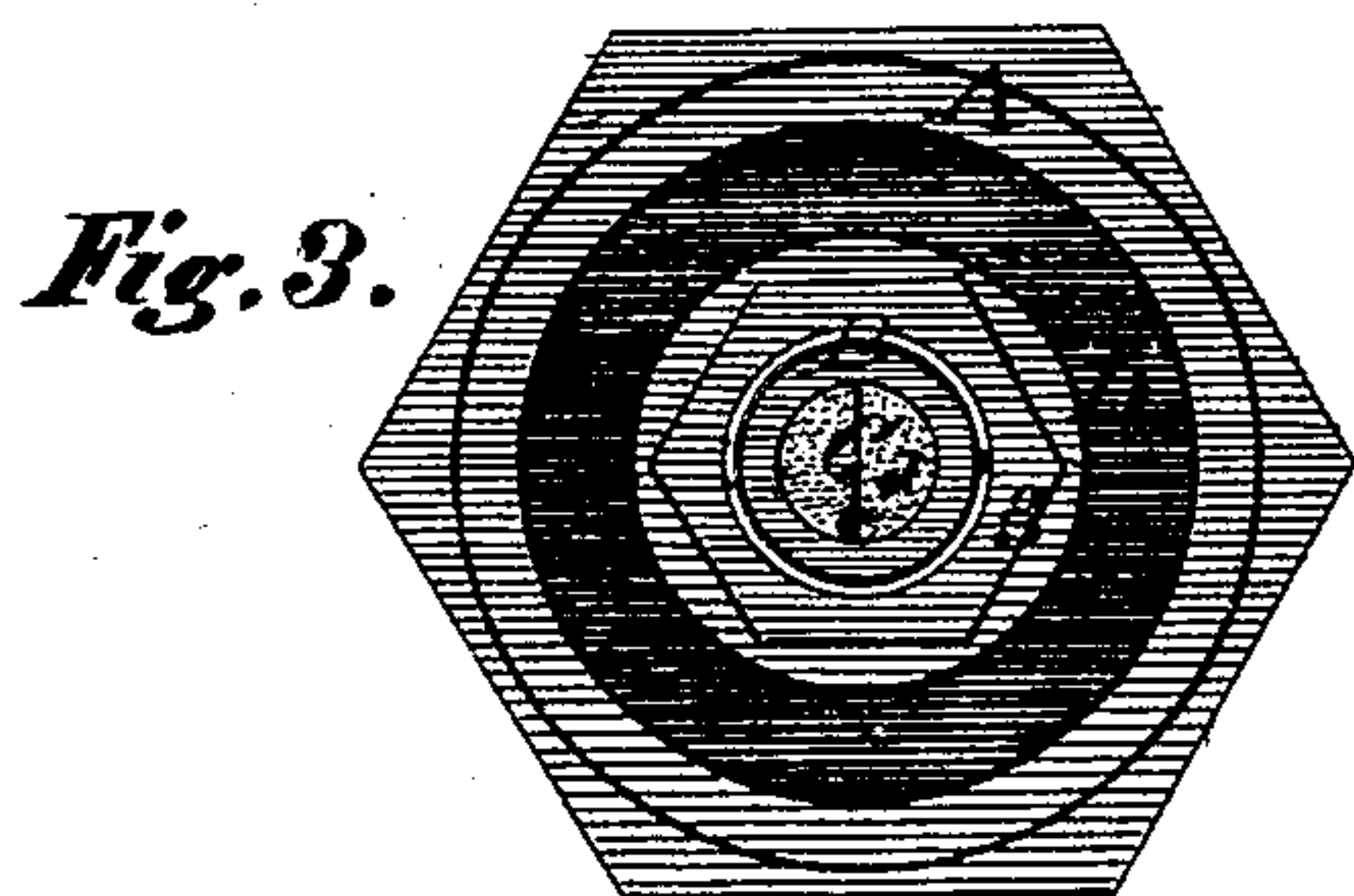
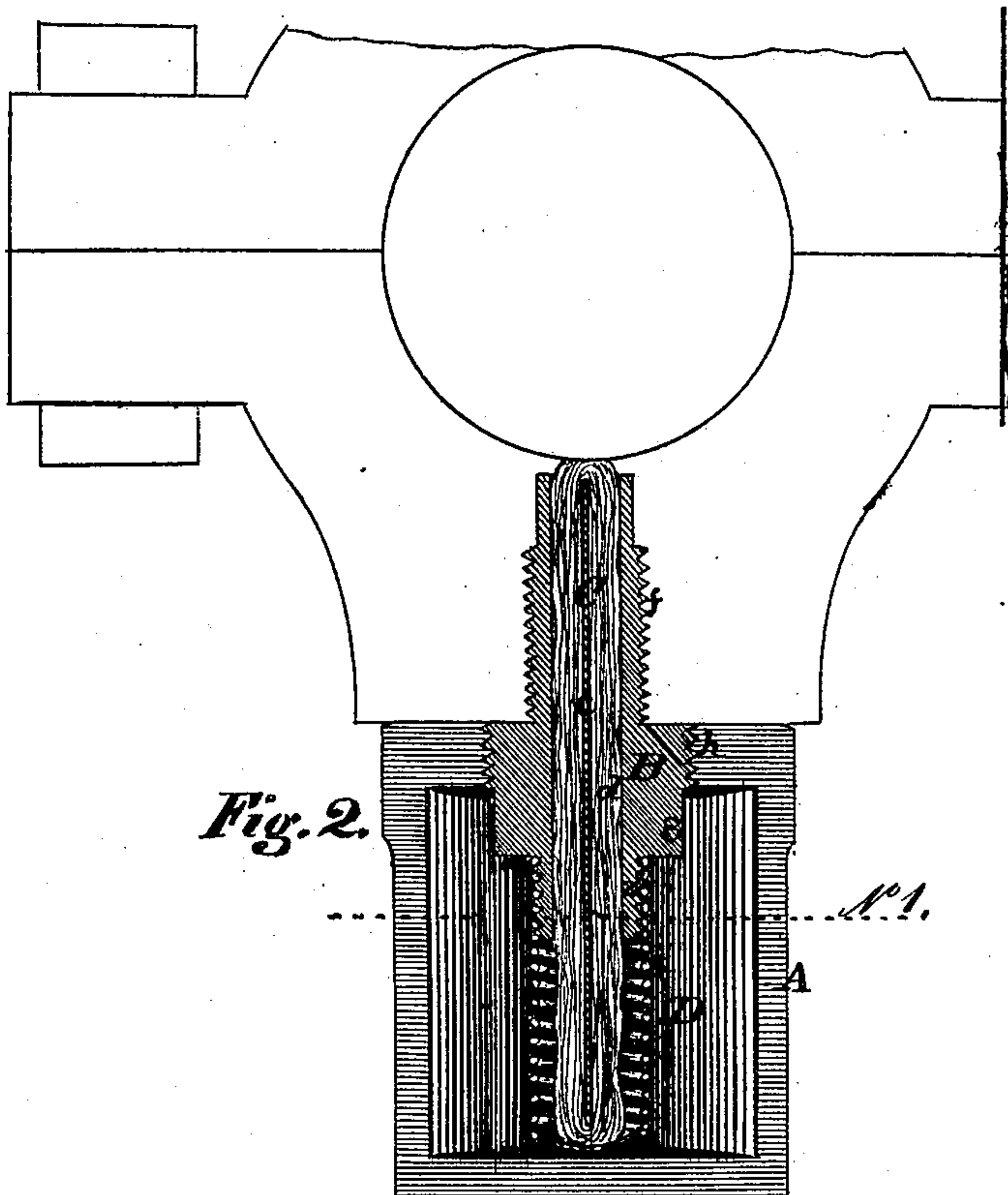
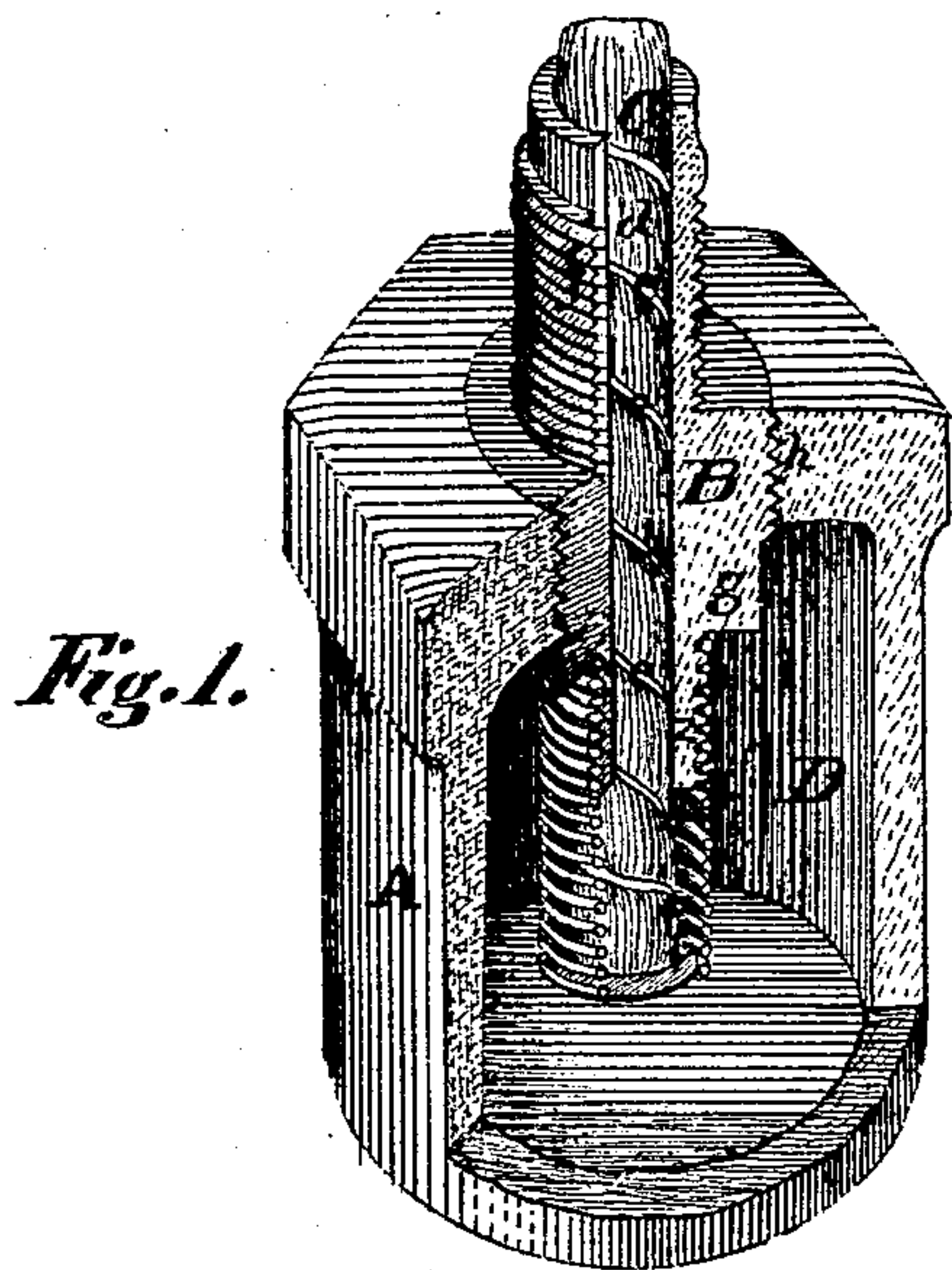


W. B. HOWE.  
SELF ACTING LUBRICATOR.

No. 103,617.

Patented May 31, 1870.



Witnesses. { Alex. Selkirk  
Chas. Selkirk.

Inventor.  
W. B. Howe  
per Alex. Selkirk  
Attorney for Applicant.



# United States Patent Office.

WILLIAM B. HOWE, OF TROY, NEW YORK.

*Letters Patent No. 103,617, dated May 31, 1870.*

## IMPROVEMENT IN SELF-ACTING 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, WILLIAM B. HOWE, of the city of Troy, State of New York, have invented certain new and useful Improvements in Lubricators; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of the lubricator with parts broken away, illustrating the improvements.

Figure 2 is a vertical lateral section through the lubricator, and illustrates a mode of attachment of the same with the parts to which it is to be applied.

Figure 3 is a vertical view of a section at line No. 1 in fig. 2.

Figure 4 is a side elevation of a section of the improvements embodied in this invention, and illustrates the action of some of the parts of this invention.

Figure 5 is a side elevation of the wick-tube and pressing-spring, (taken at right angles to section shown in fig. 4,) and illustrates the mode of their connection and adjustment.

One part of my invention relates to a wick which combines in its construction a thin and narrow stiff strip of metal or wood, with ordinary wick-yarn or other similar fibrous material, which will be capable of maintaining an upright position, and afford a capillary means for the passage of oil from end to end of the same, the object of this part of my invention being to secure a constant and definite stretch of length of wick from the oil-chamber to the point of intended contact with the shaft to be fed, when in any position, and conduct oil to the said shaft.

Another part of my invention relates to the combination of a stiffened wick with a tube in such a manner as will preserve the wick in a fixed location, so that the said wick will communicate directly from the oil-cup to the shaft, journal, or bearing, which it is intended to lubricate, under every circumstance of position in which the whole device may be placed, the object of this part of the invention being to secure a steady and reliable flow of oil from its chamber of supply, as demanded by the parts to be lubricated, when in motion or operation.

Another part of my invention relates to a combination of a spring furnished with a floor, with a wick-tube which will be capable of forcing the wick in constant contact with the parts to be lubricated, and will be capable of adjustment, the object being the maintenance of a constant contact of the feeding end of the stiff wick with the shaft, in all its stages or progress of wear.

Another part of my invention relates to the combination of a squared flange or shoulder, and two sets

of screw-threads with the wick-tube in such a manner as to make the said wick-tube capable of being the means of connecting the parts of the lubricator together, and all with the parts to be oiled, the object being the securing a sure closing of the oil-chamber, and a close and direct connection in any desired line of direction of the lubricator with the bearing, shaft, or other part to be connected with or applied to.

To enable others skilled in the art to make and use my invention, I will proceed to describe it in reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings—

A represents the oil-cup, which I prefer to make of metal. The said cup is provided with a nut-shaped flange top, *a*, figs. 1, 2, and 3, by which the cup can be screwed tight home to its place.

B is a metal tube which communicates from the interior of the cup A to without the same, and receives the stiffened wick C, through which the oil will flow from the oil-chamber to the part to be lubricated.

The said wick C consists of a narrow thin strip *c* of metal or wood, covered in its longitudinal direction with ordinary wick-yarn *d*, or with other equivalent fibrous material, as shown in figs. 2, 3, and 4, and the whole is bound by the coils *e*, fig. 1. The said wick being thus constructed, is rendered stiff by the narrow thin strip *c* so as to be capable of maintaining its length of stretch when in any position or line of direction, and at the same time afford an unobstructed capillary means for the movement or flow of oil throughout its entire length, while, by the infolding coils *e*, the wick-yarn *d* and its strip *c* are held in necessary union to preserve the desired length of stretch of length after the wick-yarn *d* infolding over the ends of the strip *c* have become worn away.

I am aware that wicks with metal rods or tubular strips have been used in combination with wick-yarn in lubricators, but such wicks were constructed to form a wick-siphon, and not as my wick is constructed, or for the same purpose, nor can the same direct results be secured with such siphon-wicks as can be secured by my stiffened wick.

The wick-tube B (I prefer to make of iron or steel) is furnished with a screw-cut portion *f*, by which the whole apparatus is to be attached and secured to the bearing, loose pulley, or other article, as shown in fig. 2, to which it is to feed oil; the said tube B is also furnished with a squared flange or shoulder, *g*, and is capable of receiving and holding on a wrench, and to be used when the tube is to be attached for lubricating, as intended.

A second screw-thread *h* is also cut on the said tube B, between the screw-thread *f* and the squared flange *g*, which screw-thread corresponds with the



screw-thread cut in the opening in the cup A, and is intended to close the said cup, and at the same time (by means of the tube B) connect it (the cup) to the bearing, or its equivalent, to be supplied with oil.

I also cut on the said tube B, a third screw-thread  $x$  below the squared shoulder  $g$ , which is to receive a portion of a spiral spring, S, and admit of its being adjusted vertically, as shown in figs. 4 and 5, so as to secure a proper tension of the said spring, as may be required. The said spring S is provided with a bottom or floor Z, on which the lower end of the stiffened wick is to stand. By the said spring S, with its bottom Z, the wick C is pressed upward, so that its upper end will be held in constant contact with the shaft it is to lubricate, as in fig. 2.

The cup A may be made of any suitable form; is provided with a chamber, D, which is to hold the oil to be used.

This lubricator can be applied to advantage to most bearings or loose pulleys, eccentrics, connecting-rods, to cranks of engines, and many other parts of machinery or their adjuncts which are to be lubricated, and is intended to be attached to or near the lower side of any of the same.

The manner of applying this invention to its intended place is as follows:

The bearing or hub, or eccentric strap, or other equivalent piece, with which this lubricator is to be used, is bored and tapped with a screw-thread on its lower side, that will correspond with the screw-thread  $f$  of the wick-tube B; when the wick C is placed within the said tube B, the said screw-thread end  $f$  is then screwed into the same, as in fig. 2; this can be readily effected by the application of any suitable wrench working on the squared flange  $g$  of the said tube B when screwed tight home; the chamber D of the cup A is filled with oil and brought with its open screw-threaded hole upward, so as to receive the screw-thread  $h$  cut on the portion of the tube B immediately below the squared flange  $g$  of the said tube, when a wrench applied to the squared flange  $m$  of the cup A, will enable the person to tightly screw the said cup A to its seat above (or on its packing) on the lower side of the bearing (or equivalent) to be lubricated. If desired, the cup A can have made in its top surface an annular groove furnished with a screw-thread to receive a corresponding thread made with the tube B.

The manner in which this invention operates in its several parts is as follows:

The wick C, stiffened by the piece  $c$ , will sustain considerable pressure, and is prevented from bending to either side by reason of the tube surrounding it; and, when the tube is screwed up in its place in the bearing, or its equivalent, as in fig. 2, the wick, which is considerable longer than the tube, as shown in fig. 4, will be pressed down, as in figs. 1 and 2, and in

dotted lines in fig. 4, so that its lower end will nearly touch the bottom of the chamber D, and being thus pressed down, the lower end of the wick standing on the spring floor Z, will operate on the spring S, and stretch the same, as shown in fig. 2, so that the oil will flow to the wick from the chamber D through the spaces between the coils of the said spring, and by capillary attraction will rise upward through the wick-yarn  $d$ , and, aided by the continual licking of the shaft in contact with the upper end of the wick, the flow of oil will be constant while the shaft is revolving.

When, by the constant friction of the shaft on the end of the wick, the said wick grows shorter, the elasticity of the spring will carry up the wick and keep it in the desired contact. When the wick is new, the spring S can be lengthened or thrown down on the lower end of the tube B, by unscrewing the said spring from the screw-thread  $x$ , to a suitable distance, as in fig. 5, and, when the wick has become worn somewhat, the spring can be shortened by screwing up the same on the said thread  $x$ , as in fig. 4.

This lubricator is inexpensive, and can be readily attached to places where other lubricators will not operate or cannot be applied, and can be used with great advantage and economy on locomotives, marine engines, stationary engines, and other machines, as well as to ordinary bearings or hangers for shafting. And the oil passed from the chamber D through the wick to the shaft, crank-pin, eccentric, or other part of a machine, will be only what should be used for lubricating, for no impurities can pass up through the wick. The ends of the wick can be changed when one has become too much worn, and the whole wick can be replaced at but a small cost.

Having described my invention,

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

1. In a lubricator, the perpendicular wick C, stiffened as described, in combination with the tube B, when the said tube communicates directly from the oil-chamber D to the shaft to be lubricated, substantially as and for the purpose set forth.

2. In a lubricator, the spring S with its floor Z, in combination with the wick-tube B, substantially as described, for the purpose set forth.

3. In a lubricator, the combination of the cup A, and wick-tube B, with a stiffened wick, C, supported by a spring, S, and floor Z, and all arranged substantially for the purpose set forth.

In testimony whereof I have, on this 19th day of May, 1869, hereto affixed my name in the presence of two witnesses, to wit:

W. B. HOWE.

Witnesses:

THOMAS G. WHITE,  
JAMES H. DAVIS, JR.