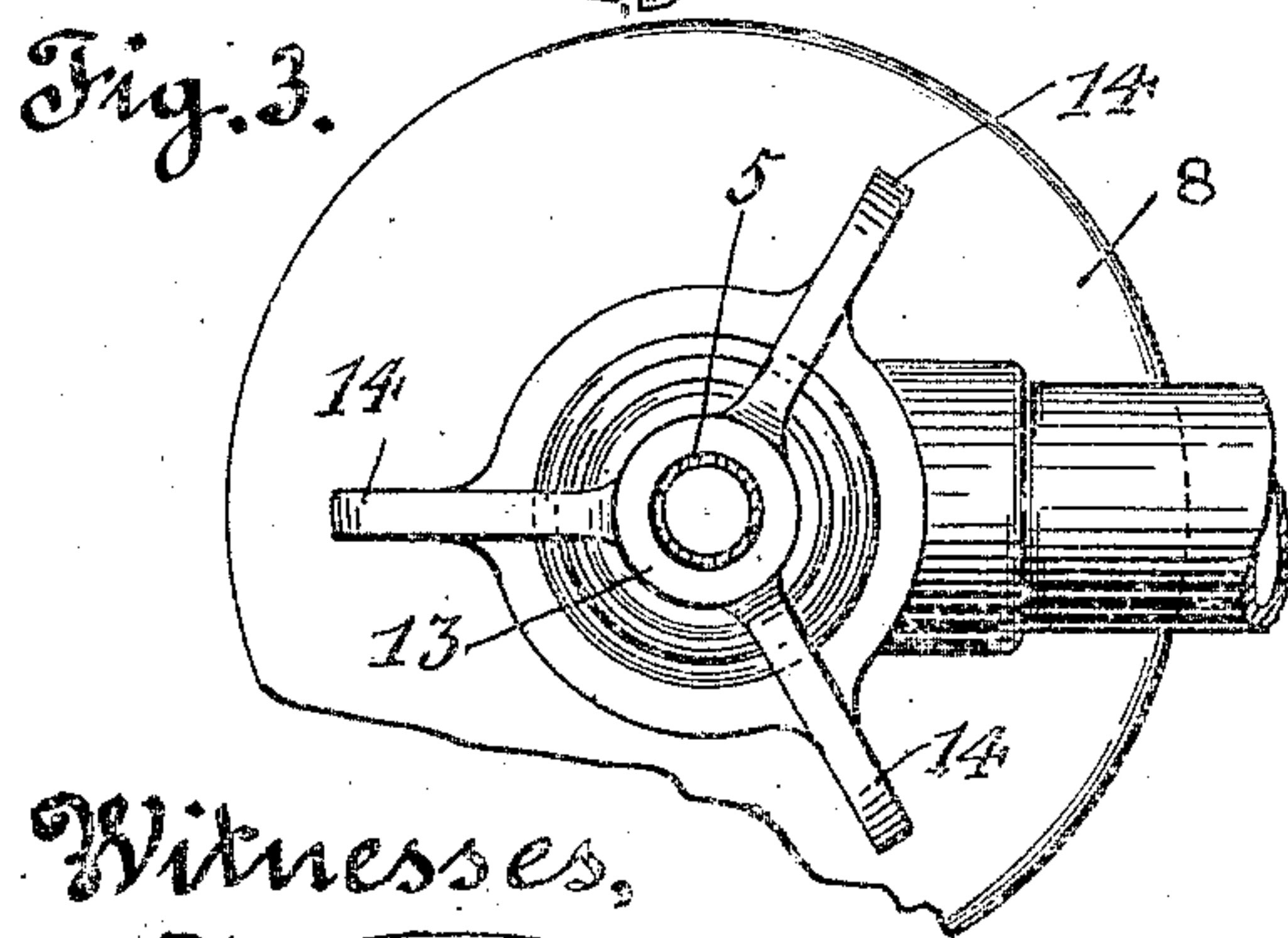
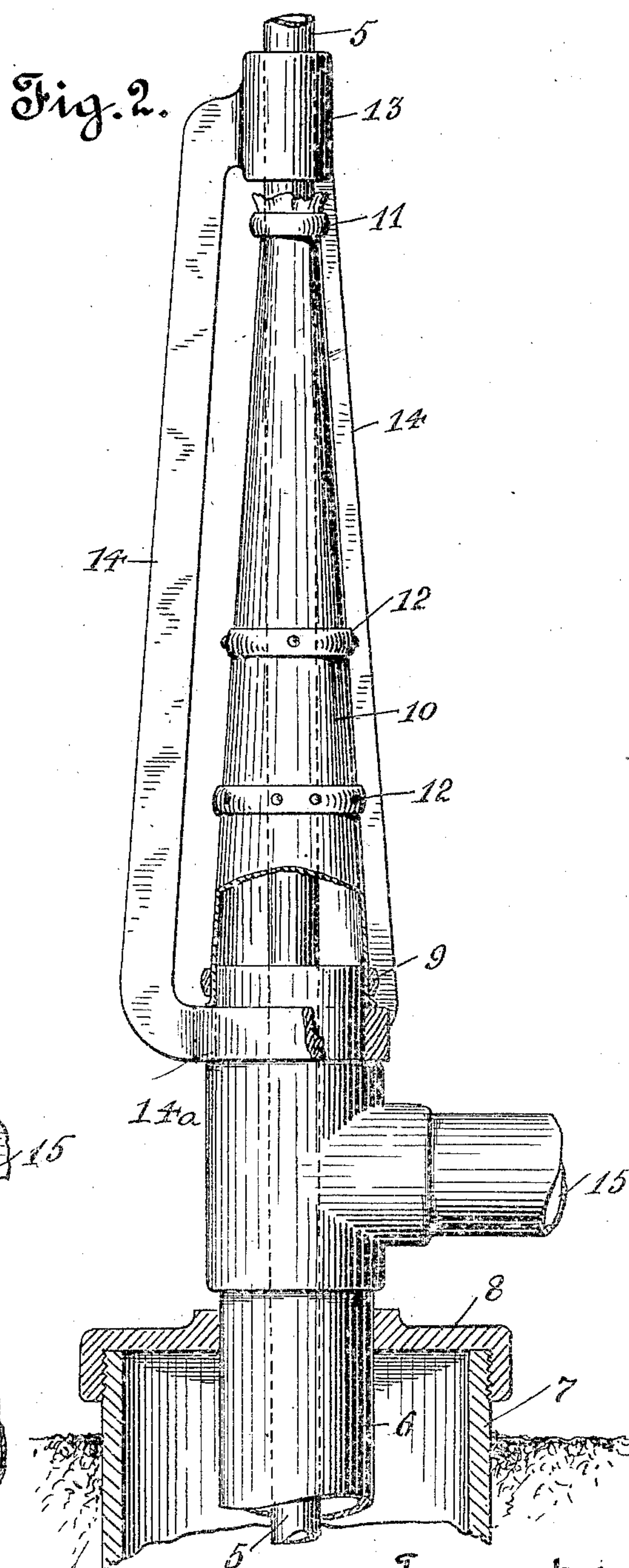
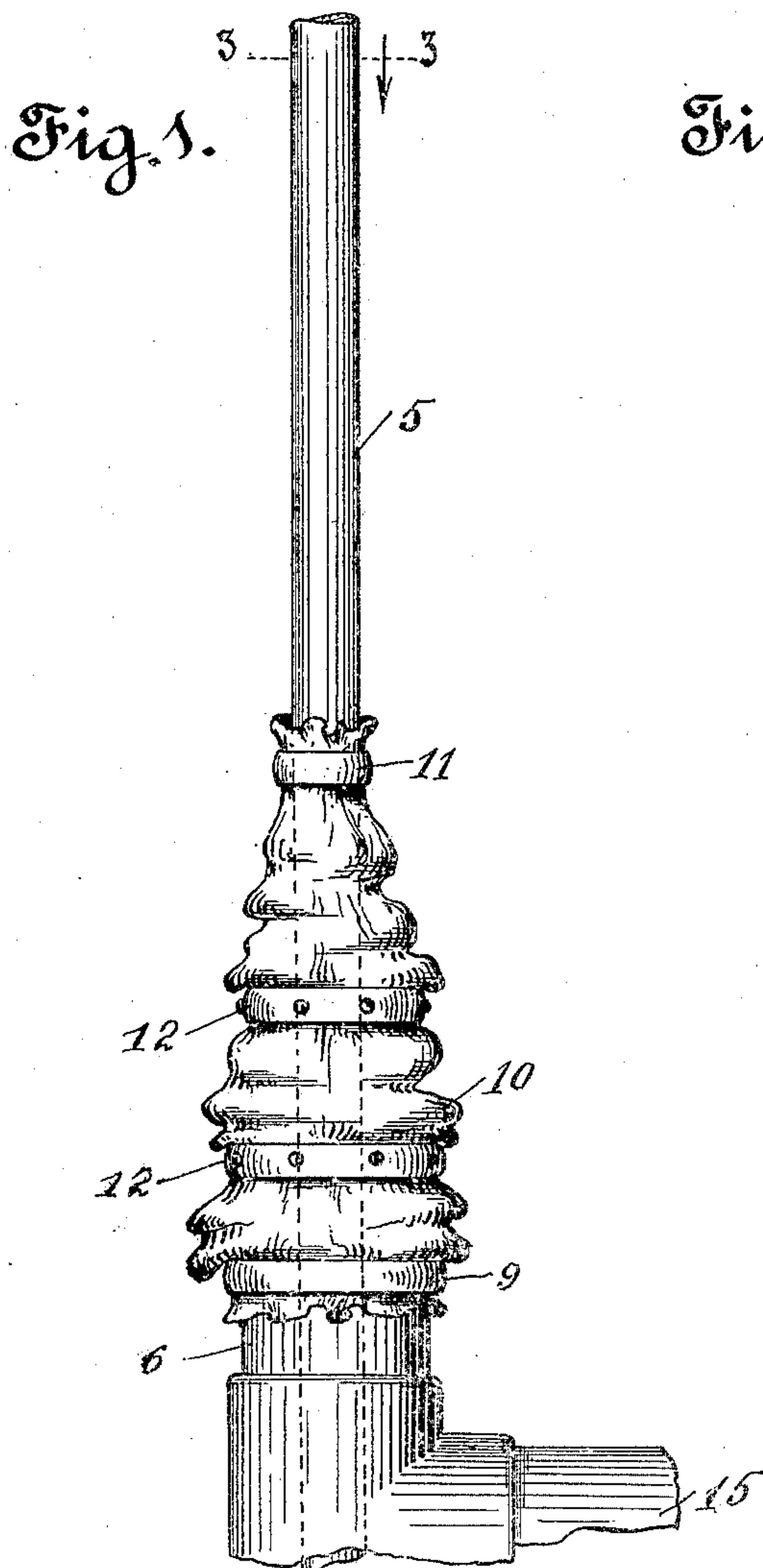


J. F. DURHAM.
PUMP FOR WELLS.
APPLICATION FILED APR. 17, 1909.

958,862.

Patented May 24, 1910.



Witnesses,
H. Montwerde.
m. a. Palmer

Inventor,
John F. Durham,
By *Harold Shaw.*
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN F. DURHAM, OF McKITTRICK, CALIFORNIA.

PUMP FOR WELLS.

958,862.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed April 17, 1909. Serial No. 490,541.

To all whom it may concern:

Be it known that I, JOHN F. DURHAM, a citizen of the United States, residing at McKittrick, in the county of Kern and State of California, have invented new and useful Improvements in Pumps for Wells, of which the following is a specification.

My invention has relation more particularly to pumps used in pumping oil wells, and consists essentially in making a flexible connection between the plunger rod of the pump and the pump casing, and it is one of the objects of my invention to dispense with a packing box at the upper end of the pump casing which in oil wells is rapidly destroyed by reason of the sand or gritty substances contained in the oil. This I accomplish by means of the device described herein and shown in the accompanying drawing, in which:—

Figure 1— is a side view of the top of the pump (parts broken away) with my flexible connection in place thereon, the plunger being shown at the limit of its down stroke. Fig. 2— is a vertical central section in which the plunger is at the top of the stroke. Fig. 3— is a plan view of the same looking downwardly from the point marked 3—3 in Fig. 1.

In the drawings, 5 is the plunger rod, 6 is the pump casing, and 7 is the well casing with the cap 8 thereon. Secured to the top of the well casing in rigid liquid tight connection therewith, as at 9, is the flexible cone-shaped canvas 10, and secured at the upper end as at 11 to the plunger rod 5. This flexible cone-shaped connection, the lower end of which has an air tight connection with the top of the pump casing and the upper end having an air tight connection with the plunger rod, is reinforced by the rings 12. The plunger rod works in a bearing 13 held in its proper position by the supporting arms 14 above the pump and above the point 11 on the plunger rod on its up stroke, the purpose of which is to hold the plunger rod in alinement with the pump casing in its movement up and down. The lower ends of the arms 14 are integral with a base-ring 14^a which seats on the end of the casing. Upon the up stroke of the plunger, as shown in Fig. 2,

the canvas extension or connection 10 will be cone-shaped, and upon the down stroke of the plunger the canvas will be in its collapsed position as shown in Fig. 1.

In drilling oil wells the well casing 7 follows the drilling operation downwardly until oil in paying quantities is reached, when perforations are made therein for the passage therinto of oil, after which the pump (not shown) is placed in the well casing 6 and the well casing is affixed to the cap 8, which forms a connection between the well and pump casing in the usual manner. At the top of the well casing is the discharge port 15, out of which the oil is ejected on the up stroke of the plunger of the pump. It becomes necessary to prevent the crude oil from being thrown out on the up stroke, and to compel it to pass through the discharge port 15, that there should be a closure at the top of the pump casing. The usual means heretofore employed was a stuffing box through which the plunger reciprocated disposed on the top of the pump casing above the discharge port, but the gritty substances carried by the crude oil operate to wear out the bearing at this point and cause the oil to leak or squirt out, requiring constant renewal and more or less loss of oil and inconvenience, but by the flexible cone-shaped connection attached as in the manner shown and described herein, the top of the pump casing is closed, except at the discharge port, preventing any loss of oil, and at the same time permits the vertical reciprocation of the plunger without any packing ring or stuffing box, doing away with the wear occasioned thereto by operating the pump.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In combination a pump casing, a plunger rod mounted therein, a cone shaped member formed of fabric secured to said rod and casing, reinforcing means secured to said cone shaped member, means to secure the cone shaped member to the pump casing and rod, and a bearing for said rod secured to said casing.

2. In combination a pump casing, a plunger rod mounted therein, a flexible liquid tight cone shaped member secured to the up-

per portion of said casing and to said plunger rod, a plurality of metal rings secured to said cone shaped member at intervals between its top and bottom, means to secure
5 said cone shaped member to the pump casing and plunger rod, and a bearing for said rod secured to said casing.

In witness that I claim the foregoing I have hereunto subscribed my name this 6th day of April, 1909.

JOHN F. DURHAM.

Witnesses:

EDMUND A. STRAUSE,
MYRTLE A. PALMER.