

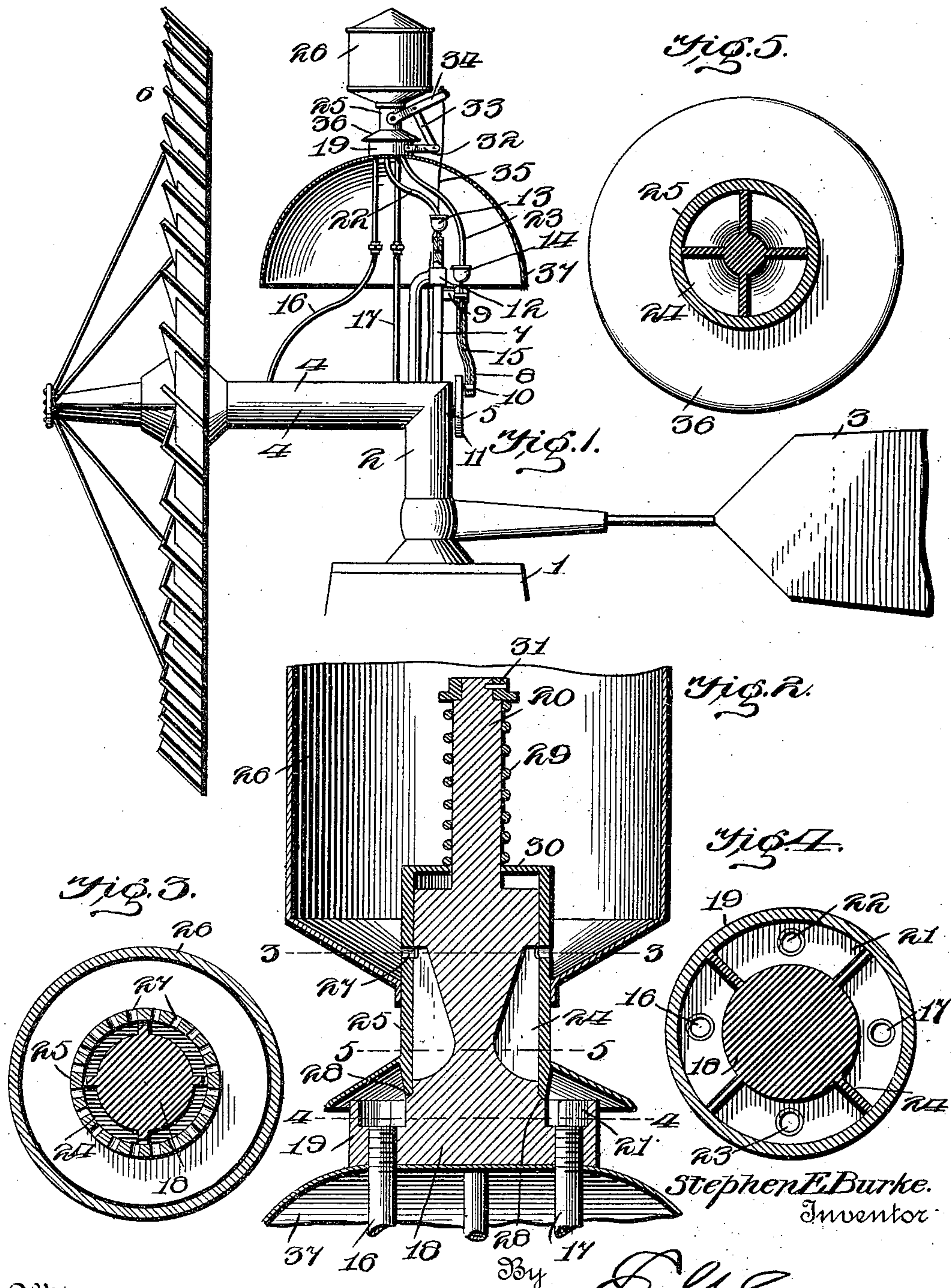
No. 667,615.

Patented Feb. 5, 1901.

S. E. BURKE.
DEVICE FOR OILING WINDMILLS.

(Application filed Oct. 13, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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DEVICE FOR OILING WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 667,615, dated February 5, 1901.

Application filed October 13, 1900. Serial No. 33,003. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN E. BURKE, a citizen of the United States, residing at Edon, in the county of Williams and State of Ohio, have invented a new and useful Device for Oiling Windmills, of which the following is a specification.

My present invention relates to improvements in oiling devices for windmills, and has for its object the production of a simple and efficient agroupment of elements whereby oil-chambers in communication with a series of oil-delivery pipes may be supplied with a predetermined quantity of oil from a common reservoir.

Various objects subordinate to that stated will appear hereinafter as the necessity for their accomplishment is developed in the succeeding description, taken in connection with the accompanying drawings, in which I have illustrated a preferred embodiment of my invention.

In said drawings, Figure 1 is a general view illustrating the application of my oiling device to windmills. Fig. 2 is a central vertical section, on a somewhat enlarged scale, through the oiling device. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a similar view on the line 4 4 of Fig. 2, and Fig. 5 is still another view on the line 5 5 of Fig. 2.

Referring to the numerals employed to designate corresponding parts throughout the several views, 1 indicates a fragment of a windmill-tower; 2, the pump-rod housing; 3, the tail-vane, and 4 the horizontal housing for the shaft 5 of a wind-wheel 6. As usual in this class of devices motion is communicated to the pump-rod 7 from the shaft 5 through the medium of a pitman 8, connected at its upper end to a wrist-pin 9, projecting from the pump-rod 7 and at its lower end to the wrist-pin 10 of a crank-wheel 11, mounted upon the rear end of a wheel-shaft. The upper end of the pump-rod 7 is guided in a bearing-box 12, carried by a bracket upstanding from the housing 4. Mounted upon the upper ends of the pump-rod 7 and pitman 8 are a pair of oil-cups 13 and 14, the former discharging into oil-ducts which lead the oil exterior of the pump-rod for the lubrication of the box 12 and the latter discharging around

the wrist 9 and into a longitudinal oil-duct 15 in the pitman 8, said duct being provided for the conveyance of oil to the wrist pin 10, whereby the oil-cup 14 serves to lubricate the wrist connection at each end of the pitman. The extended bearing provided for the shaft 5 within the housing 4 is designed to be lubricated through a pair of upstanding oil-pipes 16 and 17, the upper ends of which are disposed a considerable distance above the horizontal plane of the oil-cup 13 when the pump-rod is at the highest limit of its stroke, and at such elevation these oil-pipes constitute a support for an oil-distributing head 18, preferably of cylindrical form and provided with an enlarged base 19 at its lower end and with a reduced upstanding stem 20, extending from its upper extremity.

The base 19 is provided in its upper side with a series of oil-chambers 21, communicating with the upper ends of the pipes 16 and 17, screwed to the base, and with pendent oil-pipes 22 and 23, likewise screwed to the base and having their lower ends arranged above the oil-cups 13 and 14 for the purpose of supplying oil thereto from the chambers 21, it being observed that each of the several oil-pipes is arranged in communication with a separate distributing-chamber of the distributing-head.

In order to supply each distributing-chamber with a predetermined quantity of oil, the head 18 is provided with a series of measuring-chambers 24, each of which is arranged opposite a distributing-chamber 21, into which under certain conditions it is designed to discharge its contents. The flow of oil into and out of the measuring-chambers is controlled by what may be termed a "valve-sleeve" 25, surrounding the head above the chambers 24 and carrying an oil tank or reservoir 26, from which in one position of the valve-sleeve the oil is discharged into the measuring-chambers 24 through a series of openings 27, which pierce the sleeve 25 in a plane which presents them immediately below the upper wall of the chambers 24 when the valve-sleeve is in its entirely-depressed position, as indicated in Fig. 2 of the drawings. In this position of its sleeve its lower edge will be seated upon an annular seat 28, formed upon the face of the head 18 immediately above the

chambers 21, the egress of oil from the chambers 24 being thus prevented and communication being established between said chambers and the reservoir for the purpose of re-
 5 charging the measuring-chambers preparatory to supplying the distributing-chambers 21.

The position of the parts just described is that normally assumed during the distribution of oil from the distributing-chambers to the various bearings of the windmill or other mechanism designed to be lubricated, and for the purpose of maintaining this relation of the parts a spiral or other form of spring
 15 29 is interposed between the upper end or head 30 of the valve-sleeve 25 and a nut 31, located upon the upper end of the stem 20. The spring 29 is thus caused to exert a constant pressure tending to depress or seat the
 20 valve-sleeve 25, and this pressure is augmented by the weight of the reservoir 26 and the contents thereof.

Supposing now that the oil-supply in the distributing-chambers 21 is exhausted, it is
 25 evident that some means must be provided for elevating the sleeve 25 for the purpose of permitting the oil from the measuring-chambers 24 to flow into and replenish the supply of the distributing-chambers. I therefore
 30 provide a bracket 32, outstanding from the base of the head and pivotally supporting a fulcrum-arm 33, upon the upper end of which is fulcrumed an operating-lever 34, pivotally
 35 connected to the sleeve 25 and designed to be actuated through the medium of a flexible piece 35, extending downwardly to within easy reach of an operator standing upon the ground or upon the lower platform of the windmill. In order to prevent the flexible
 40 piece or cable 35 from becoming entangled in the operative parts of the mill as the latter swings around to bring the wheel into the wind, I lead said cable through the pump-rod housing 2, which constitutes the swivel-
 45 mounting for the head of the mill, or that portion thereof which supports the wheel. The distributing-chambers 21 are preferably protected from the weather by an annular shield 36, extending from the sleeve 25, and
 50 the oil-cups and adjacent parts of the mechanism are similarly protected by a substantially semispherical hood 37, secured to the under side of the head 18.

The operation of my device is as follows:
 55 Assuming the parts to be in the position indicated in Figs. 1 and 2 of the drawings and that the distributing-chambers 21 have been emptied of their contents by the flow of oil through the several oil-pipes, the attendant
 60 pulls upon the cord or cable 35, depressing the outer end of the lever 34 and raising the valve-sleeve 25 against the resistance of the spring 23 and the imposed weight of the reservoir and its contents. As the valve-sleeve
 65 is elevated the openings 27 will be raised above the measuring-chambers 24 to cut off communication between the latter and the

reservoir. At the same time the lower edge of the sleeve will be elevated above the lower edges of the measuring-chambers to establish
 70 communication between them and the distributing-chambers 21, which latter are in this manner supplied with a quantity of oil determined by the size of the measuring-chambers. The distributing-chambers hav-
 75 ing been replenished the cable 35 is released to permit the reseating of the valve-sleeve 25 under the impulse of the spring 29 and the weight of the reservoir and oil, which latter again flows through the openings 27 and re-
 80 fills the measuring-chambers 24 for a repetition of the operation just described.

The advantages accruing from the employment of an oil or lubricating device constructed in accordance with my invention are many,
 85 principal among which is that it makes provision for the oiling of the mill for an extended period, even for years, without necessity for refilling the reservoir.

From the foregoing it will be observed that
 90 I have produced a simple, ingenious, and efficient oiling device for windmills or other forms of machinery; but while the present embodiment of my invention appears at this time to be preferable, I wish to reserve the
 95 right to effect such changes, modifications, and variations as may fall properly within the scope of the protection prayed.

What I claim is—

1. In a device of the character described,
 100 the combination with a distributing-head provided with a distributing-chamber, and with a measuring-chamber arranged to discharge therein, of a source of oil-supply, oil-delivering pipes supporting the distributing-
 105 head, and means for effecting the flow of oil alternately into the measuring-chamber from the source of supply and into the distributing-chamber from the measuring-chamber.

2. In a device of the character described,
 110 the combination with a distributing-head provided with a distributing-chamber and with a measuring-chamber arranged to discharge therein, of a source of oil-supply; and means for permitting the oil to flow alter-
 115 nately into the measuring-chambers from the source of supply and into the distributing-chambers from the measuring-chamber.

3. In a device of the character described,
 120 the combination with a distributing-head provided with distributing-chambers and measuring-chambers, of a reservoir, and a valve controlling both the supply of oil to the measuring-chambers and the delivery of
 125 oil from said chambers to the distributing-chambers.

4. In a device of the character described,
 the combination with a chambered distributing-head, of a valve controlling the flow of oil to said head, and a reservoir carried by
 130 and movable with the valve.

5. In a device of the character described,
 the combination with a distributing-head provided with distributing-chambers and

measuring-chambers, of a valve controlling the flow of oil to both of said chambers, and a reservoir carried by and movable with the valve.

5 6. In a device of the character described, the combination with a distributing-head provided with distributing-chambers and measuring-chambers, of a movable valve-sleeve surrounding the head and controlling the supply of oil to all of the chambers, and means for supplying oil to the measuring-chambers through the valve-sleeve.

7. In a device of the character described, the combination with a distributing-head provided with measuring-chambers and having an extended base provided with distributing-chambers, of a valve-sleeve surrounding the head above the base, means for normally retaining the valve-sleeve in its depressed position, and means for supplying oil to the measuring-chambers in the normal position of the valve-sleeve.

8. In a device of the character described, the combination with a distributing-head provided with measuring-chambers and having an extended base provided with distributing-chambers, of a valve-sleeve surrounding the head above the base and provided with openings permitting the ingress of oil to the measuring-chambers, and a reservoir carried by and movable with the valve-sleeve and designed to supply oil through the openings therein.

9. In a device of the character described, the combination with a distributing-head provided with measuring-chambers and having an extended base provided with distrib-

uting-chambers, of a valve-sleeve surrounding the head and provided with openings disposed opposite the measuring-chambers in the normal position of the sleeve, a reservoir arranged to supply oil to the measuring-chambers, and a shield extending from the valve-sleeve and serving to cover and protect the distributing-chambers.

10. In a device of the character described, the combination with a distributing-head provided with measuring-chambers and an extended base formed with distributing-chambers, of a stem upstanding from the upper end of the head, a valve-sleeve surrounding the head and provided with openings located opposite the distributing-chambers in the normal position of the valve, a spring surrounding the stem and bearing against the valve-sleeve, and a reservoir carried by and movable with the valve-sleeve.

11. In a device of the character described, the combination with a distributing-head provided with an extended chambered base and having a hood and a stem located at its opposite extremities, of a valve-sleeve surrounding the head and provided with a shield extending over the base and with openings leading into the head, a reservoir carried by and movable with the sleeve, and means for elevating the valve-sleeve.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

STEPHEN E. BURKE.

Witnesses:

E. ENTERLINE,
J. G. TONER.