

1,058,544.

S. E. BURKE.
WINDMILL LUBRICATOR.
APPLICATION FILED FEB. 19, 1912.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.

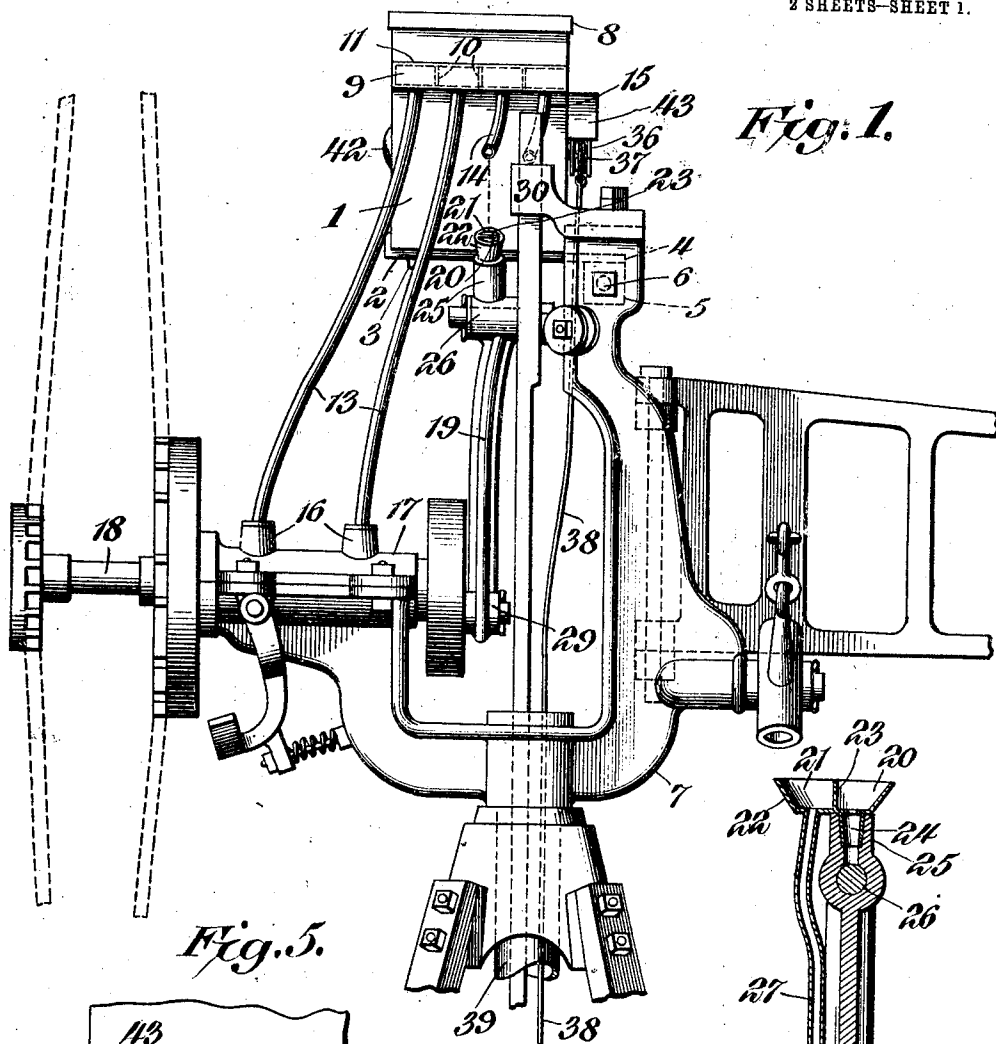


Fig. 1.

Fig. 5.

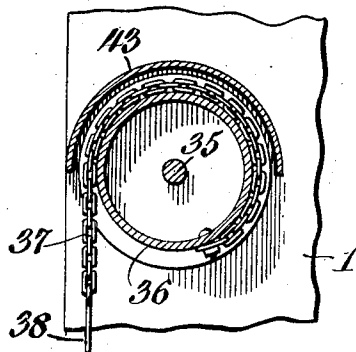
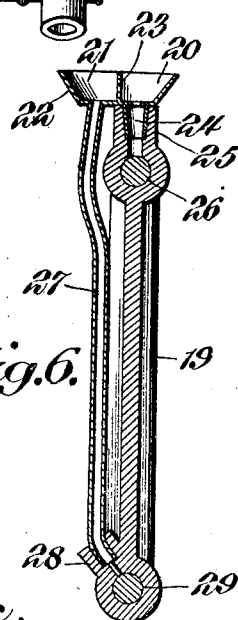


Fig. 6.



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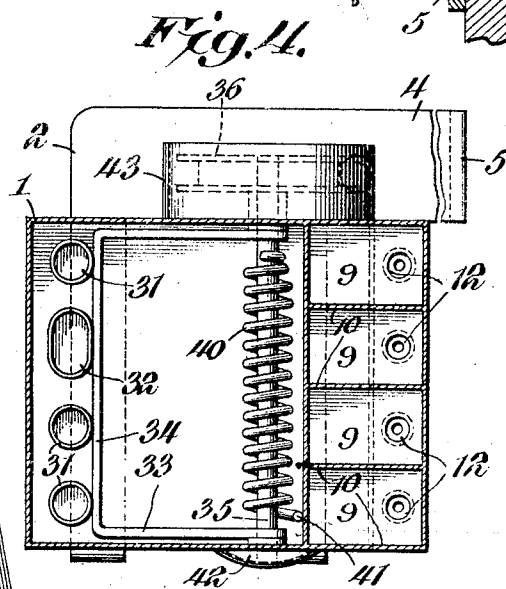
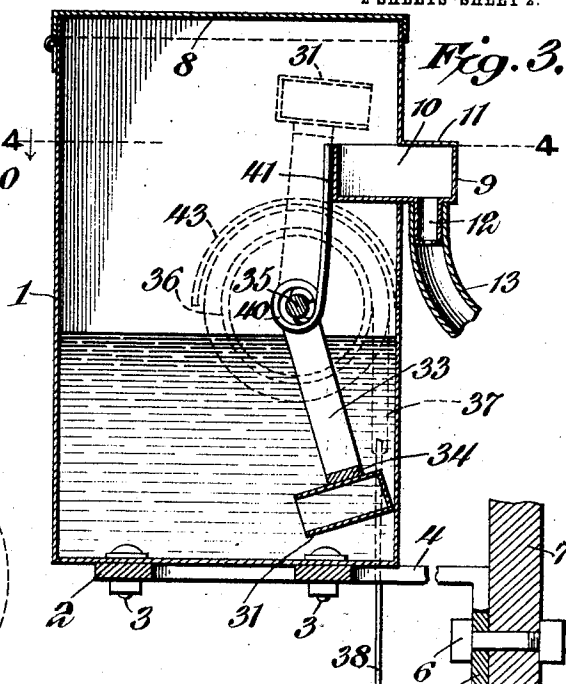
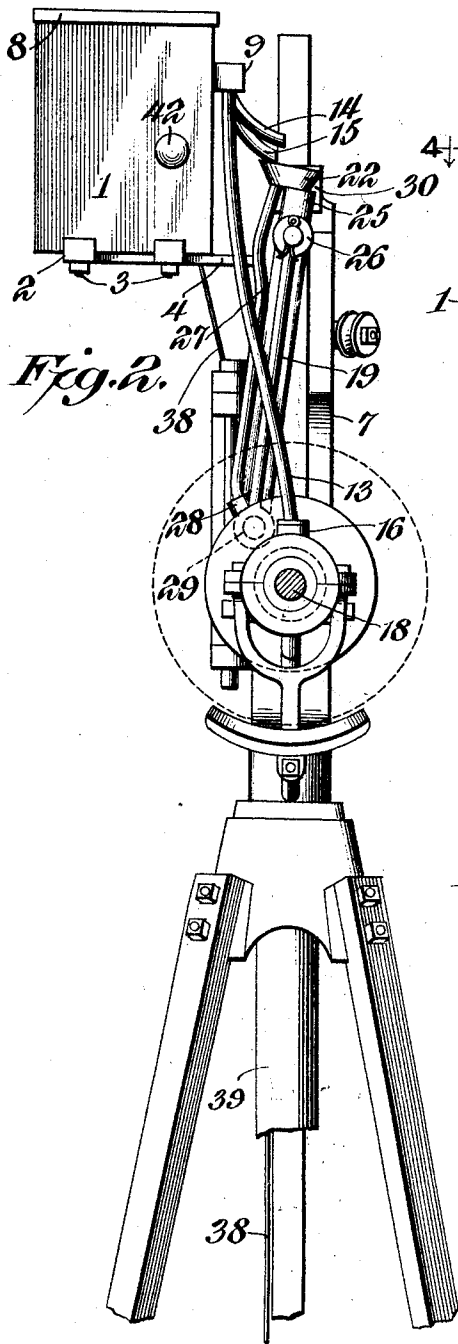
ATTORNEY

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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

STEPHEN E. BURKE, OF HAMILTON, INDIANA, ASSIGNOR OF ONE-HALF TO RUFUS M. ISENHART, OF EDON, OHIO.

WINDMILL-LUBRICATOR.

1,058,544.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed February 19, 1912. Serial No. 678,519.

To all whom it may concern:

Be it known that I, STEPHEN E. BURKE, a citizen of the United States, residing at Hamilton, in the county of Steuben and State of Indiana, have invented a new and useful Windmill-Lubricator, of which the following is a specification.

The invention relates to improvements in wind-mill lubricators.

The object of the present invention is to improve the construction of windmill lubricators, and to provide a simple, efficient and durable device of inexpensive construction, adapted to be readily applied to a windmill, and capable of being operated from the ground and of enabling the bearings of the windmill to be supplied with an accurately measured predetermined quantity of oil.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a side elevation of a lubricator, constructed in accordance with this invention and shown applied to a windmill. Fig. 2 is an end elevation of the same, partly in section. Fig. 3 is an enlarged vertical sectional view of the windmill lubricator. Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 3. Fig. 5 is an enlarged detail sectional view illustrating the arrangement of the grooved pulley and the flexible connection for rotating the same. Fig. 6 is a detail sectional view, illustrating the construction for lubricating the upper and lower bearings of the pitman.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a lubricant tank or reservoir, mounted upon and supported by a horizontal bracket 2 and secured to the same by bolts 3, or other suitable fastening devices, which pierce the bottom of the tank

or reservoir and the supporting bracket. The supporting bracket, which may be of any preferred construction, is provided at its inner side with an L-shaped attaching arm 4, having a depending portion 5 fitted against and secured by bolts 6 to the upper portion of the rotary frame or turn table 7 of a windmill. The tank or reservoir 1, which is preferably provided with a hinged cover 8, is equipped with a horizontal series of approximately rectangular troughs 9, extending through the front wall of the tank or reservoir at the upper portion thereof, and projecting interiorly and exteriorly of the same. The troughs, which have common front and rear walls, are separated by vertical partitions 10, and they are closed at the top exteriorly of the tank or reservoir by a horizontal top wall 11. The exterior projecting portions of the troughs are provided at their bottoms with depending nipples 12, which are connected with the upper ends of pipes or tubes 13, 14 and 15, adapted to conduct oil to the various bearings of the windmill. The device may be equipped with any desired number of troughs and tubes or pipes to adapt it to the character or type of windmill to be lubricated. The pipes or tubes 13 extend from their respective troughs to oil cups or passages 16 for lubricating the bearing 17 of the shaft 18 of the windmill.

The tube or pipe 14, which is short, terminates above the pitman 19 of the windmill, and it is adapted to deliver oil into two separate compartments 20 and 21 of a substantially elliptical or oblong pan or receptacle 22. The pan or receptacle 22, which is carried by the pitman in the up and down movements thereof, has a central transverse partition 23, and is provided at the bottom of the compartment 20 with a short depending downwardly tapered pipe or nipple 24 to fit in an upper oil cup or passage 25 of the pitman to supply lubricant to the upper bearing 26 thereof. A relatively long pipe or tube 27 extends from the bottom of the other compartment 21 of the oil pan or receptacle to the oil cup 28 of the lower bearing 29. The oil pan or receptacle is oscillated and is shifted with respect to the pipe or tube 14 by the pitman of the windmill, and on the up-stroke the compartment 20 of the pan or receptacle 22 is arranged directly beneath the pipe or tube 14,

while on the down-stroke, the other compartment 21 is located beneath the pipe or tube 14. By the particular construction and arrangement of the oil pan or receptacle, the upper and lower bearings of the pitman are supplied with clean oil, when a supply of oil is conveyed to the troughs by the means hereinafter described, which would not be the case were all the oil caused to pass through the upper bearing of the pitman, as the lower bearing would then be but poorly lubricated with oil containing much of the dirt accumulated in the upper bearing. The pipe or tube 15, which is also relatively short, extends from its respective trough to the guide 30 in which slides the upper end of the pump rod.

Oil is conveyed to the inner portions of the troughs 12, which are open at the top, by means of a series of conveyer buckets 31 and 32, carried by an oscillatory frame 33, composed of spaced parallel sides and a connecting portion 34 to which the buckets are rigidly secured. The sides of the frame 33 are arranged at the inner faces of the sides of the tank or reservoir, and they are fixed to a horizontal shaft 35, piercing the sides of the frame and the side walls of the tank or reservoir and extended beyond the same at one side thereof. The grooved pulley 36 is mounted on the outer extended portion of the horizontal shaft and receives a chain 37, or other flexible connection secured at one end to the periphery of the pulley 36 at the bottom of the groove and connected at its other end to a wire 38, passing through a central vertical tube 39 of the windmill and extending to the lower portion of the tower so as to be within easy reach from the ground. The conveyer buckets are open at one end and closed at the other; the buckets 31 are preferably cylindrical, and the other bucket 32, which is of elliptical form, is designed to hold twice the quantity of oil as the buckets 31 for supplying the trough to which the pipe 14 is connected, so that each of the bearings of the pitman will receive the same amount of oil as the other bearings of the windmill. The oscillatory frame is maintained at the limit of its downward movement by a coiled spring 40, disposed on the horizontal shaft and connected at one end to the same and having its other end 41 extended and secured to the adjacent end trough, but the end 41 may be secured to any other fixed portion of the device. When the pulley is rotated by the operating wire to rotate the shaft, the spring is placed under tension and will return the conveyer buckets to their initial position.

When the operating wire is pulled, the conveyer buckets are carried upward through the oil and after being filled are moved upwardly and forwardly in an arc-

uate path and are partially inverted, as illustrated in dotted lines in Fig. 3 of the drawings, to discharge their contents into the series of troughs from which the oil flows through the pipes or tubes 13, 14 and 15 to the various bearings to be lubricated. As soon as the operating wire is released, the coiled spring swings the oscillatory frame and the conveyer buckets downward from the position shown in dotted lines in Fig. 3 of the drawings to that shown in full lines in the said figure. Owing to the location of the inwardly projecting troughs and the arrangement of the transverse pivot shaft at a point below and slightly in rear of the vertical plane of the inner wall of the troughs, the buckets swing through approximately one half of a revolution to carry them from the bottom of the trough to their discharging position, and they project over the troughs before the conveyer reaches an upright position, thereby insuring a proper supply of lubricant to the troughs. Oil may be supplied to the reservoir until the latter is filled up to about the plane of the horizontal shaft without danger of any leakage or loss of oil. The bearing at one end of the shaft is covered by a cap 42, and a curved guard or housing 43 is secured to the opposite wall of the reservoir and extends around the upper half of the grooved pulley to protect the same.

What is claimed is:—

1. A lubricator of the class described comprising a reservoir having a closed top and provided with a trough spaced below the top and projecting from the inner face of one of the walls of the reservoir, a pipe extending from the trough for conveying the lubricant to the bearing to be lubricated, a horizontal shaft located below and slightly in rear of the vertical plane of the inner wall of the trough, a conveyer pivoted by the shaft and being of a size to extend from the shaft to a point above the trough, said conveyer including a rigidly mounted bucket arranged to swing upwardly through approximately one half of a revolution from the lower portion of the reservoir to a point above the trough and arranged in a position to discharge its contents into the trough when the conveyer is in an upright position.

2. A lubricator of the class described comprising a reservoir having a closed top and provided with a trough spaced below the top and extending through one of the walls of the reservoir and projecting into the same from the inner face of such wall and having an outer portion arranged exteriorly of the reservoir, the outer portion being covered and the inner portion being open at the top, a pipe extending from the outer portion of the trough for conveying the lubricant to the bearing to be lubricated, a horizontal shaft located below and slightly in rear of

the vertical plane of the inner wall of the trough, a conveyer operating wholly within the reservoir and pivoted by the shaft and being of a size to extend from the said shaft 5 to a point above the trough, said conveyer including a rigidly mounted bucket arranged to swing upwardly through approximately one half of a revolution from the lower portion of the reservoir to a point 10 above the trough to discharge its contents into the same, and means for operating the conveyer.

3. A lubricator of the class described comprising a reservoir having a closed top and 15 provided with a plurality of troughs spaced below the top of the reservoir and extending through one of the walls of the same and projecting into the reservoir from the inner face of such wall and having outer 20 portions arranged exteriorly of the reservoir, the outer portions being covered and the inner portions being open at the top, a horizontal shaft extending across the reservoir and located below and slightly in rear 25 of the vertical plane of the inner end walls of the trough, an oscillatory frame pivoted by the shaft and composed of spaced sides of a length to extend from the shaft to a point above the troughs, and a connecting 30 portion rigid with the sides, a plurality of conveyer buckets rigidly mounted in a fixed position on the transverse connecting portion of the frame, the latter being arranged to swing upwardly through approximately 35 one half of a revolution to carry the buckets from the lower portion of the reservoir to a

point above the troughs, a coiled spring disposed on the shaft between the sides of the frame and connected at one end with the shaft and having its other end secured to the 40 fixed portion of the lubricator, and operating means connected with the shaft for rotating the same against the action of the spring to swing the buckets upwardly, said buckets being returned to their initial position 45 by the action of the spring.

4. In a lubricator of the class described, the combination with a windmill including an upright pitman having upper and lower bearings, of a reservoir, a pipe extending 50 from the reservoir and terminating above the pitman, and an oil pan mounted upon the upper end of the pitman and having a partition forming two separate compartments, the oscillatory movement of the pitman 55 operating to carry the said compartments alternately beneath the said pipe, said oil pan being also provided with relatively long and short pipes, the short pipe being connected with the upper bearing and one 60 of the compartments and the long pipe extending from the other compartment to and communicating with the lower bearing of the pitman.

In testimony that I claim the foregoing 65 as my own, I have hereto affixed my signature in the presence of two witnesses.

STEPHEN E. BURKE.

Witnesses:

JOHN F. RENNER,
LEWELL HAGERTY.