No. 652,785. Patented July 3, 1900.

H. M. KEITH.

LUBRICATOR FOR WINDMILLS.

(Application filed Oct. 14, 1899.)

(No Model.)

Fig. 1.

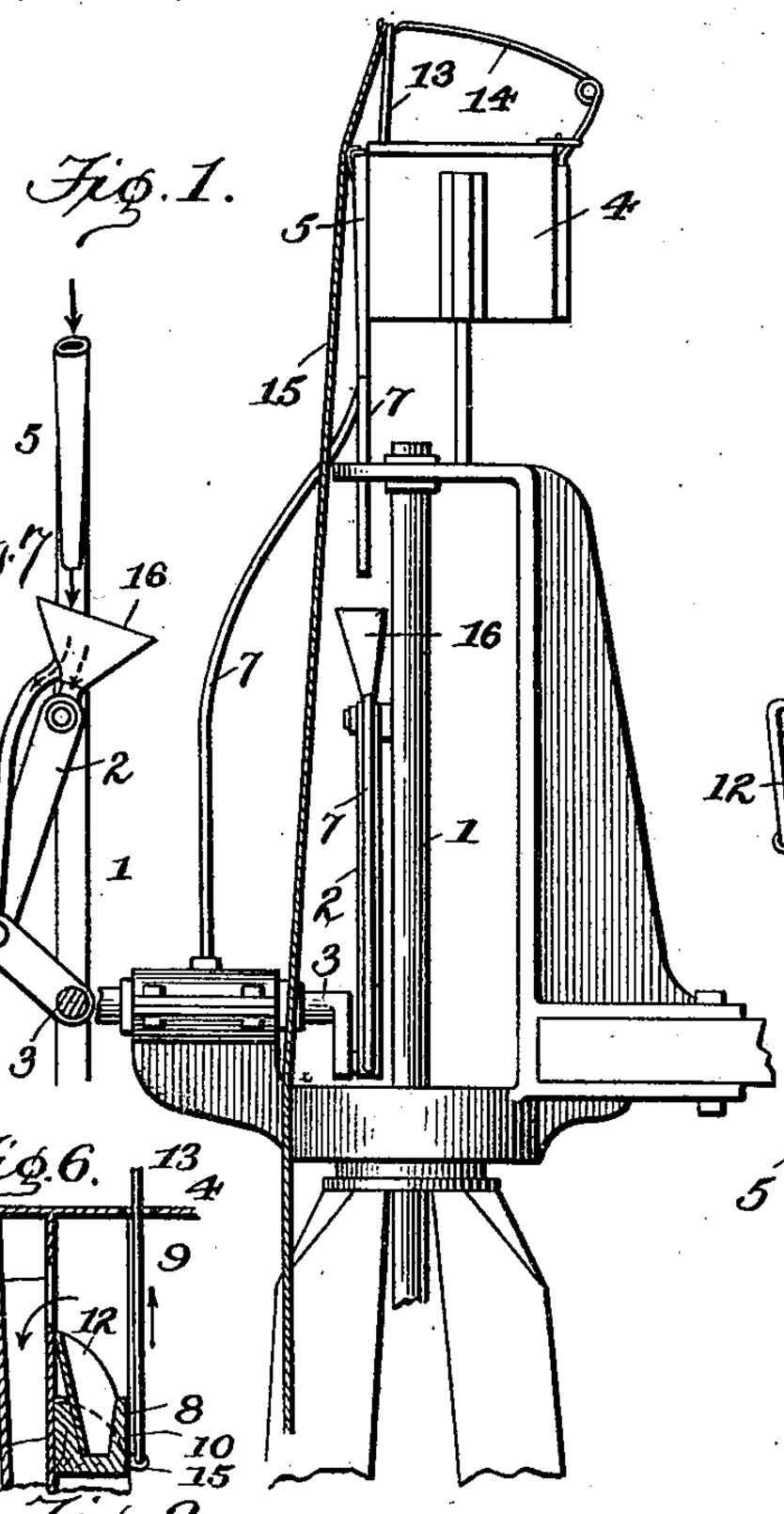


Fig. 2.

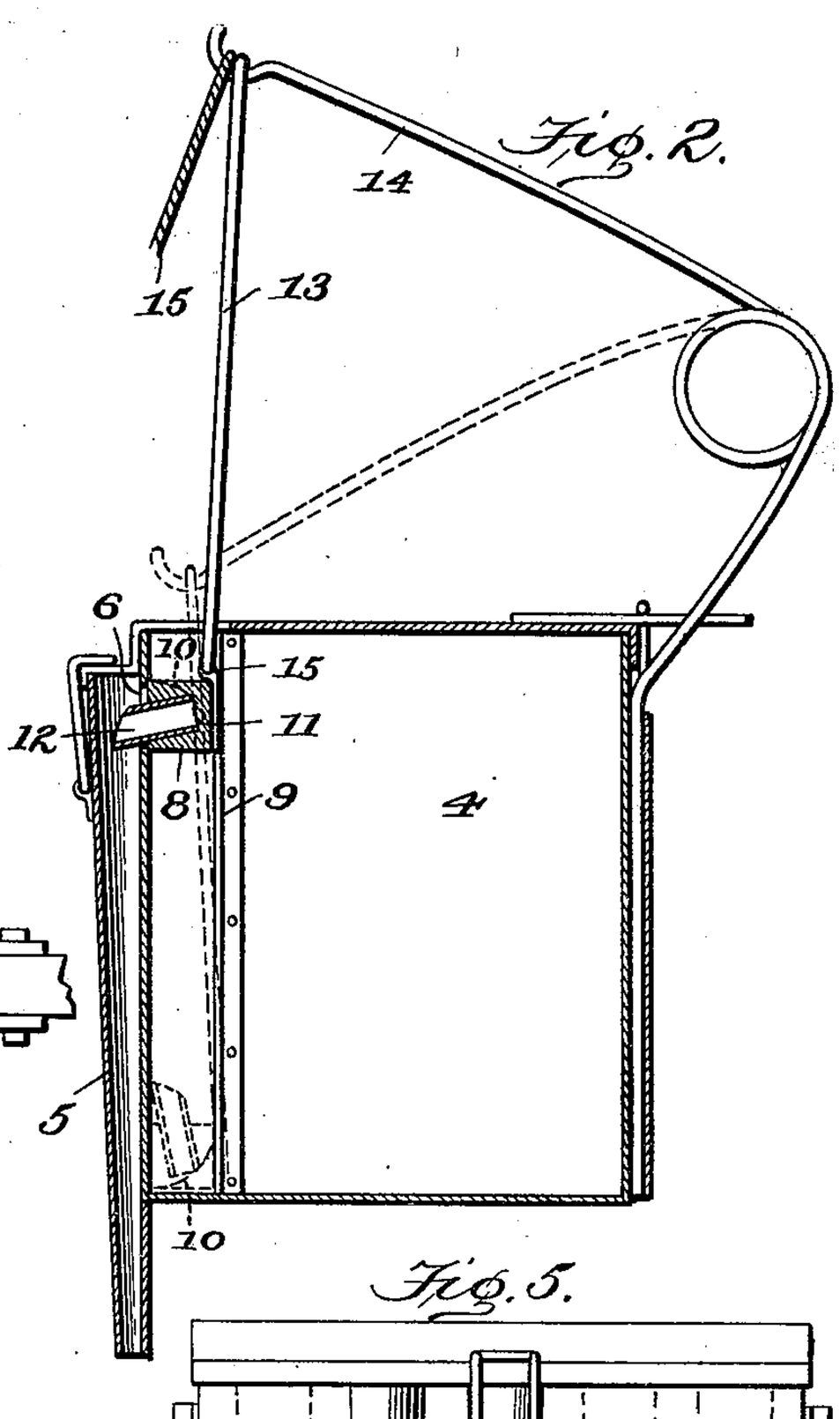


Fig. 7.

Fig. 6.

Fig. 3.

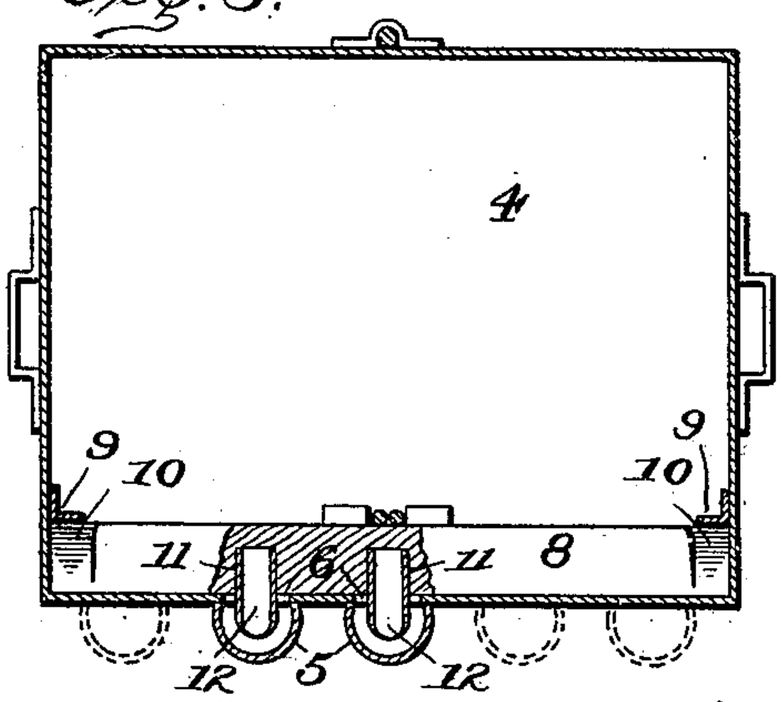


Fig. 5.

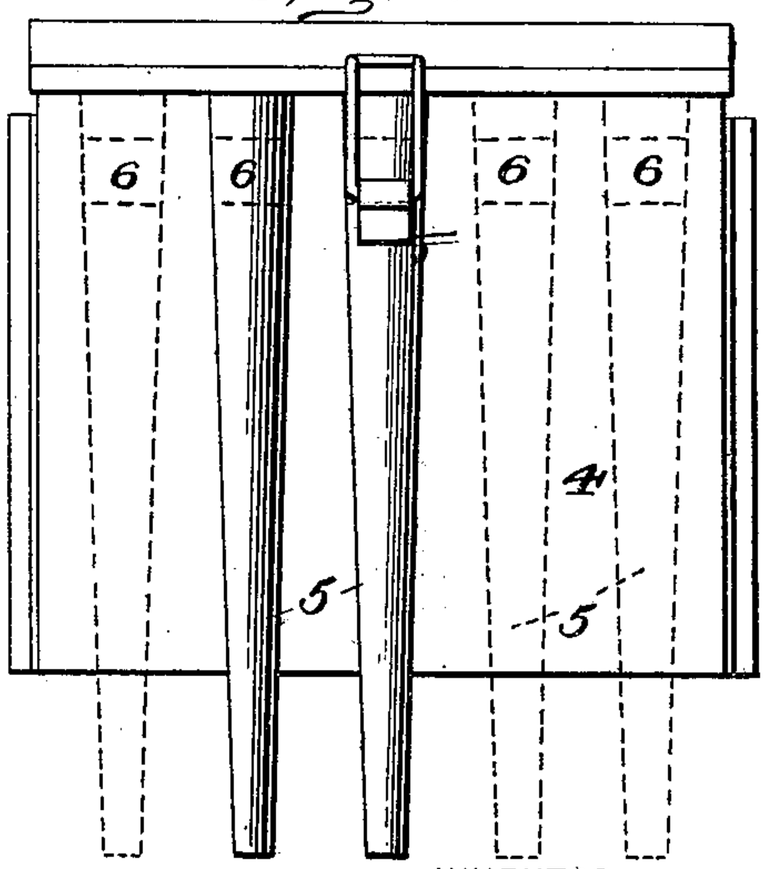
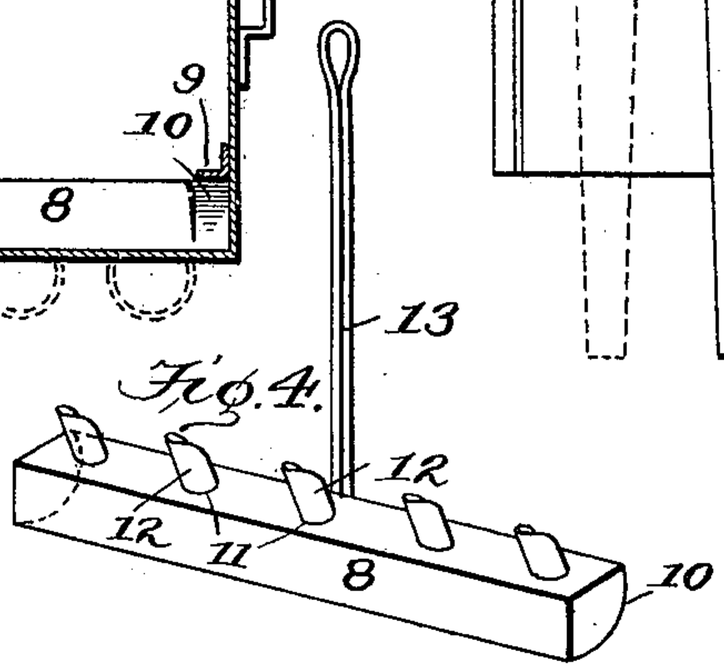


Fig. 4.



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HORACE M. KEITH, OF COMMERCE, MICHIGAN.

LUBRICATOR FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 652,785, dated July 3, 1900.

Application filed October 14, 1899. Serial No. 733,621. (No model.)

To all whom it may concern:

Be it known that I, HORACE M. KEITH, a citizen of the United States, residing at Commerce, in the county of Oakland and State of Michigan, have invented certain new and useful Improvements in Lubricators for Windmills, of which the following is a specification.

Towers of windmills are constructed for climbing as a means for reaching the bearings of the working parts to oil them, and my improvements are directed to novel means whereby this may be effected from the ground by a single rope controlling means for lubricating all the bearings, and the particular matters of my improvement will be pointed out in the claims concluding this specification, in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the tower of a windmill having my improved oiler applied thereto. Fig. 2 is a vertical section of an oil-tank surmounting the tower, having conducting-tubes and a vertically-slidable and rockable bar of cups or cells in the position it occupies within the tank to empty the cups. Fig. 3 is a horizontal section of the oil-tank, showing the oil-feeding cup-bar and the relation of the cups or cells to the tank-openings and the tubes when the cups are in the position to empty the oil. Fig. 4 shows the oil-feeding cup-bar. Fig. 5 shows the conducting-tubes on the oil-tank. Fig. 6 is a detail showing the cup-bar in the position it occupies in being raised to deliver the oil into the conducting-tubes through the tank-openings, and Fig. 7 shows the oil-tube connection with the crank-pin.

In the drawings I have shown so much of the head of a windmill as revolves about and upon the wear-plate of the tower; but my oiling device can be applied to any windmill.

The pump-rod 1 is connected by a pitman-rod 2 to the crank-shaft 3 of the windmill, and the bearings of these parts are sufficient to illustrate the application of my cup-bar oil-feeder.

An oil-tank 4 is supported and braced upon the head above the bearings of the working parts. It may hold one or more gallons of oil and may be of any suitable construction, preferably of rectangular form. On one of its outer vertical sides the tank has a number of tubes or ducts 5, which open at their upper ends into the tank by wall-openings 6. The lower ends of these tubes connect by tubes 7 with the bearings of the working parts, so that oil delivered into the tank-tubes will pass to and lubricate the bearings.

The provision for delivering the oil into the tubes is a horizontal bar 8, containing cups and arranged to slide vertically in guideways 9 and to be rocked on the inner wall of the tank. This bar is preferably of wood, because of its cheapness and lightness, and of square cross-section, so that it has a flat side slidable upon the wall of the tank. At its ends 10 it is rounded at one corner, Fig. 4, of the square, which may be called the "rear lower angle," so as to permit it to be rocked a quarter of a circle in its guideways. The cups or cells are formed by transverse bores 11, preferably obliquely to the square, and have short spouts 12, so that when the bar is depressed and immersed in the oil the spouts stand up and the cells or cups are filled, as in Fig. 6. The inclination at which the spouts are set will cause their ends to rest against the tank-wall to prevent the bar from rocking, so that the bar must rise with the spouts so standing to retain the oil. When, however, the feed-bar is caused to slide up in its guideways to bring the scoop-shaped ends of the spouts in the tank-wall openings 6, it is caused to rock or turn toward the wall, and thereby project the spouts through the said wall-openings, so as to pour the contents of the cups or cells into the conducting-tubes.

It is to allow the cup-bar to so rock that its ends are rounded; but the function of these rounded ends is only rendered possible when the spout ends are moved into the wall-openings and the force to raise the bar is exerted at a point thereon to cause it to rock. This rocking movement is prevented as the cup-bar is being pulled up, and the cup-spouts are caused to retain their upright position by reason of the flat side of the bar and the ends of the spouts being held in contact with the inner wall of the tank. Referring to Fig. 3, it is seen how the cup-bar retains its upright position on its way up by the lifting action of the rope, as seen in Fig. 6, which constantly tends to cause the bar to turn toward the wall to cause its spouts to dip outward. As the spouts

on their way up reach their respective openings their ends have no support to resist the turning of the bar and it is caused to rock, and the spouts are thereby turned down into the openings, as seen in Fig. 2. In Figs. 3 and 4 both ends of the cup-bar are shown as rounded to allow it to rock while being held in position by the guideways. In the construction shown the normal position of the cup-bar is at its highest when delivering the oil, and it is operated by a vertical rod 13, jointed to and rising mediately of the bar and passing through an opening in the top of the tank, and which rod is connected to a rod-spring 14, secured to and rising from the tank, so as to constantly pull the cup-bar upward. To fill the cups or cells, a cord or chain 15, connected to the upper end of the rod or spring and extending to the ground, is pulled, which pulls or forces down the cup-bar to immerse its cups, and releasing the pull of the rope the cup-bar is automatically lifted and automatically rocked or turned to place its spouts into and through the wall-openings to pour out the oil. It is the lifting function of the spring, the provision of wall-openings, and the capacity of the cup-bar to rock that give the automatic delivery of the oil from the tank to the bearings, and for this purpose the spring may be of any suitable kind and arrangement. Any other lifting means may be employed, and the normal position of the cup-bar may be at the limit of its descent, as it is evident that in these particulars my invention is not limited to the construction shown.

It is important to note that the cup-spouts when projecting into the wall-openings incline downward and so are held by the action of the spring and are rocked back to the position in which they are caused to slide down against the tank-walls when the ground-rope is pulled. The tank-wall openings are arranged in horizontal line and the pouring-spouts are arranged in coincident relation, so that when the spouts enter said wall-openings they are held in pouring positions. It is important also to note that the lifting-rod is hinged or jointed to that side of the cup-bar at 15, Fig. 6, opposite to its wall-bearing side, so that it is the lifting action of the rod that causes the bar to be rocked or turned to project its spouts into the wall-openings and the pulling down of the rod that causes the bar to be rocked back to withdraw its spouts from the openings. The jointing of the rod to the cup-bar at that side away from the spouts gives an eccentric action upon the bar to cause it to turn, while the rounding of one of the angles of the bar at its ends allows it to turn only a quarter of a circle back and forth.

In Fig. 7 is seen a funnel on the crank-connecting pitman-rod to receive the oil from the conducting-tube 5 during the vibration of the said rod.

I claim—

1. For lubricating the bearing parts of windmills and in combination with a fixed oil-containing tank having guides on its inner walls and openings near its top, a bar arranged horizontally to slide vertically in guideways on the inner wall of the tank provided with spouted cups or cells in coincident relation to the wall-openings, a rope having suitable connection with said cup-bar and tank, for immersing the bar to fill its cups, means for lifting said cup-bar, means for rocking the bar against the wall to cause the spouts to project into said openings, and conducting-tubes extending from said openings.

2. A lubricating device consisting of a fixed tank for containing oil having wall-openings and conducting-tubes, a bar arranged horizontally and vertically slidable within the tank upon its wall provided with spouted cups or cells in vertical alinement with said openings, means for sliding said bar on the wall, and means whereby said bar is caused to rock or turn to carry its spouts into said openings.

3. For lubricating bearings and in combination with a fixed tank for containing oil, having openings near its top, a bar slidable in vertical guides on said tank, having spouted cups or cells disposed in vertical alinement with the wall-openings, their ends bearing upon the tank-wall, means for immersing the cups, means for lifting said bar and means whereby said bar is caused to rock to tilt the spouts into said wall-openings.

4. For lubricating bearings and in combination with a fixed tank for containing oil having openings in its upper wall, a bar slidable in vertical guides on the wall of the tank, having spouted cups or cells, disposed in vertical alinement with said openings, each end of said bar rounded at the lower rear angle, a rod jointed to said bar in a manner to cause it to rock, a spring constantly exerting a force to lift the bar, and a rope connected to pull down said rod for the purpose stated.

5. For lubricating bearings and in combination with a fixed tank having openings near the top in its wall, and vertical guides on the inner side of said wall, a bar slidable in said guides and having cups or cells in vertical alinement with said wall-openings, means for lifting said bar to empty its cups and means for conducting the oil to the bearings.

6. In a lubricator, the combination with a fixed oil-containing tank, having openings near the top in its wall, a horizontal bar having spouted cups or cells, the spouts standing obliquely to the bar and in vertical alinement with said wall-openings, means for immersing said bar, means for lifting said bar and means whereby it is caused to automatically rock to tilt said spouts at the limit of its ascent.

7. For lubricating the bearing parts of windmills and in combination with a fixed tank for containing oil, having openings near the top in its walls, tubes fixed thereon extending from said openings and vertical guides,

of a bar having spouted cups or cells in vertical alinement with said wall-openings, a rod jointed to said bar in a manner to lift it with its spouts pressed against said wall and for rocking said bar, means for lifting the bar, means for immersing the bar, and tubes leading from the tank-tubes to the bearings.

In testimony whereof I affix my signature in presence of two witnesses.

HORACE M. KEITH.

Witnesses:
ALBERT L. PIPER,
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