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PATENTED JAN. 24, 1905.

W. P. BRETT.

AUTOMATICALLY LUBRICATED PITMAN FOR WINDMILLS.

APPLICATION FILED JAN. 26, 1901.

2 SHEETS—SHEET 1.

Fig. 1.

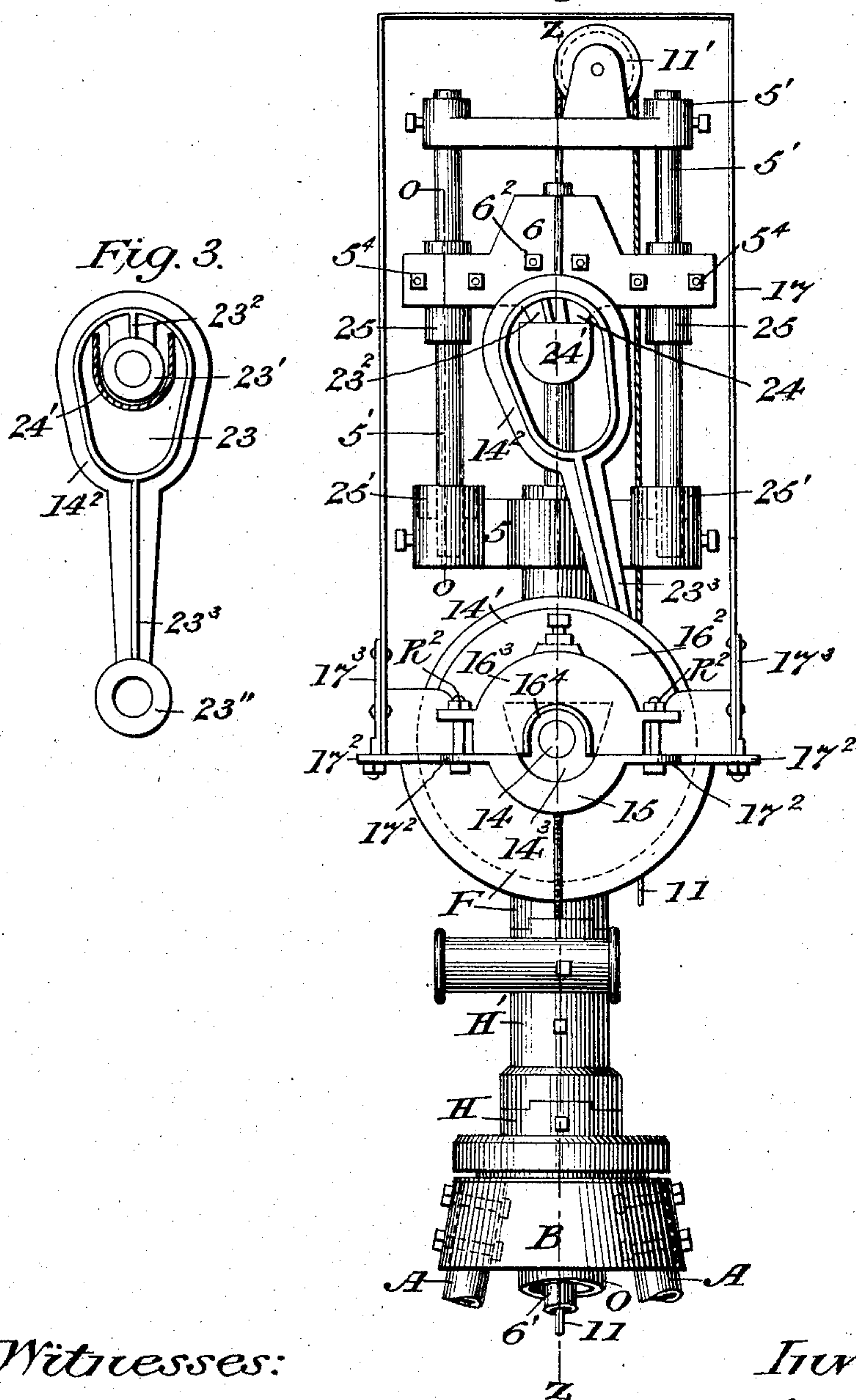
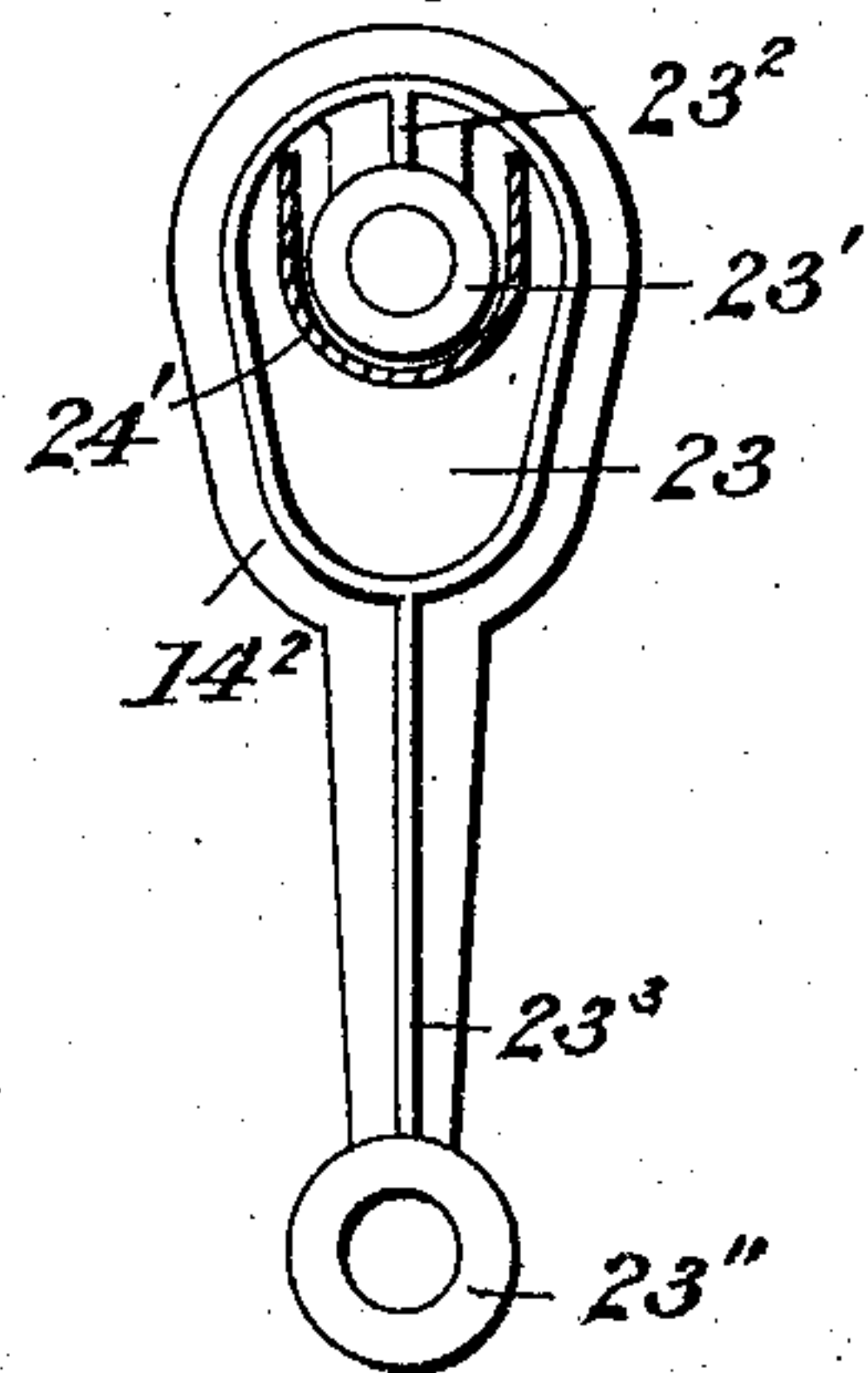


Fig. 3.



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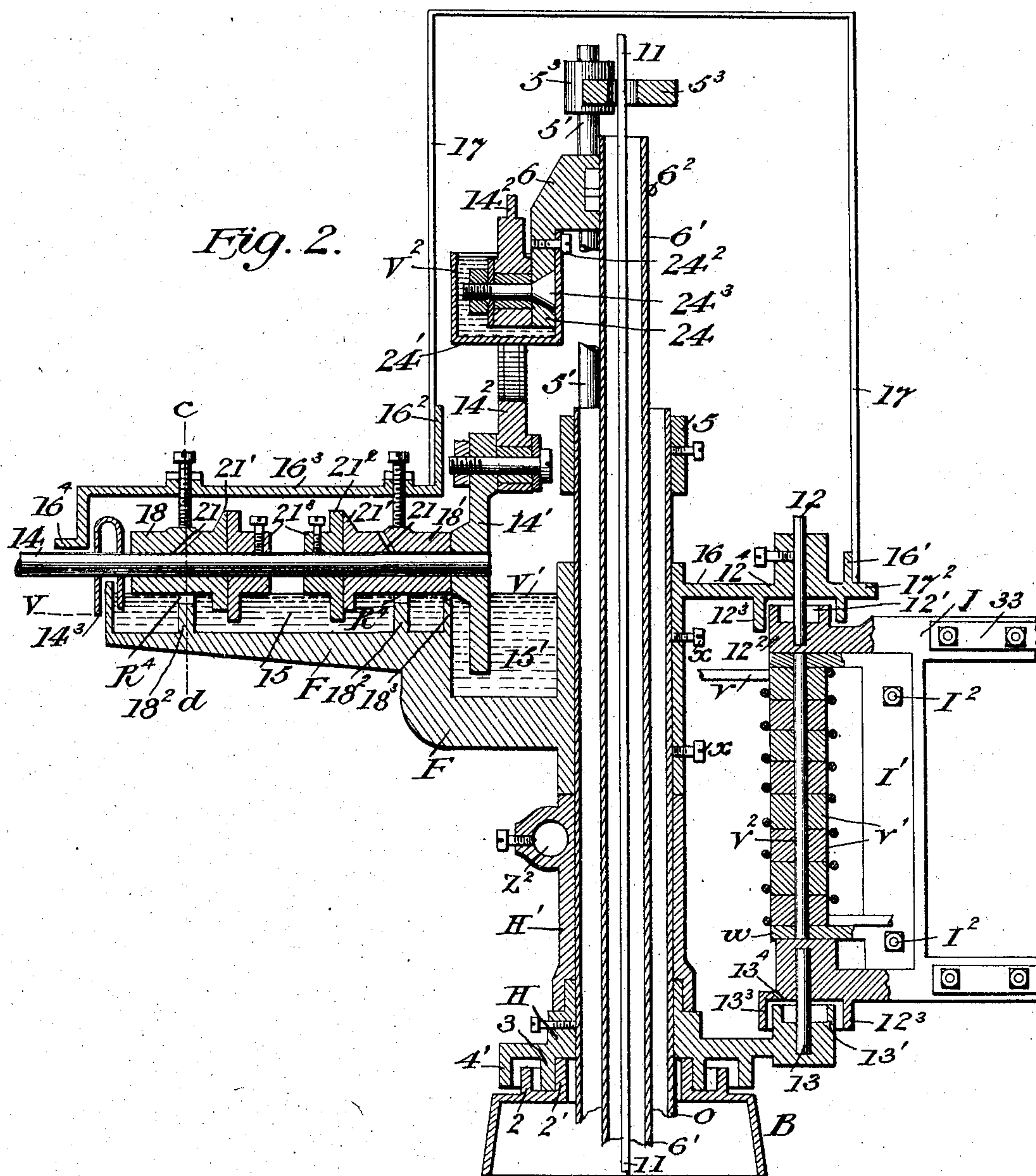
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM P. BRETT, OF DECATUR, ILLINOIS.

AUTOMATICALLY-LUBRICATED PITMAN FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 780,932, dated January 24, 1905.

Original application filed October 14, 1895, Serial No. 565,607. Divided and this application filed January 26, 1901. Serial No. 44,945.

To all whom it may concern:

Be it known that I, WILLIAM P. BRETT, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented a new and useful Improvement in Windmill-Pitmen and Means for Their Automatic Lubrication, of which the following is a specification.

This application is a division of application Serial No. 565,607 for windmills, filed by me October 14, 1895, and relates to means for the automatic lubrication of the pitman in that class of windmills known as the "vertical" or "upright" wheel windmill, in which the pitman operates in either a vertical position or at an incline from the vertical; and the objects of my improvement are, first, to reduce friction; second, to dispense with the necessity of frequently climbing the tower to oil the windmill, and, third, to provide means whereby there is no waste of oil by its dripping away from the oil-receptacles as it lubricates the journals or bearings that are arranged to operate therein. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a windmill with the wheel removed and shows the pitman in an angular position; Fig. 2, a vertical section on line *z z*, Fig. 1; and Fig. 3 a front view of the pitman and in vertical section shows the oil-receptacle 24'.

Similar characters refer to similar parts throughout the several views.

Referring to Figs. 1 and 2, the casting F constitutes the principal part of the main frame of the windmill and is provided with the crank oil-reservoir 15'. The crank-shaft 14 is carried by this frame, and the crank 14' is so mounted thereon as to revolve partially within the oil-reservoir in such manner as to dip the wrist-pin secured thereto in the oil contained therein when the wheel is in motion. 14² (shown in all three figures) is the pitman and when in a vertical or inclined position, as shown in Figs. 3 and 1, is provided with the downwardly-projected portion 23² at its upper part, with the wrist-pin or pivotal bearing 23' formed at the lower extremity thereof, the other wrist-pin or pivotal

bearing 23'' being formed at the lower extremity of the pitman. Thus it is seen that both wrist-pin bearings of the pitman are formed at the lower extremity of downwardly-projected portions thereof. For the purpose of giving greater strength to this part of the pitman it is divided and made to pass upward on opposite sides of the upper wrist-pin bearing and uniting above at a point from which the downwardly-projected portion 23² extends. This division of the body part of the pitman forms a large opening through it, which may be made as large as desired to accommodate any size or shape of oil-receptacle into which the downwardly-projected wrist-pin bearing is adapted to operate. The most essential distinguishing feature of this pitman is its downwardly-projected portions with wrist-pin or pivotal bearings at the lower extremities thereof, whereby said bearings are adapted to be operatively projected into oil-receptacles during the operation of the wind-mill, and this feature can be made applicable to many modified forms of pitman-body parts and oil-receptacles without departing from the spirit of this invention. One of the wrist-pin bearings of this pitman is eccentrically pivoted to the crank or rotatable member of the windmill 14', and the other is pivoted to a wrist-pin 24³, which is carried by the reciprocating part and is surrounded by a reservoir or oil-receptacle 24', that is mounted to move therewith. 6 is a cross-head or reciprocating part of the windmill and is mounted to slide on posts 5', and 24 is a downwardly-projected portion of it to which the wrist-pin 24³ is secured, and 24' is the oil-receptacle, carried by said reciprocating part and is so mounted as to surround the wrist-pin 24³ and the part to which it is anchored.

The "vertical-wheel windmill" as they have been made for many years have been divided into two classes, one of which is the windmill designed for operating a double-acting pump in which the center line of the wheel-shaft and the center line of the reciprocating wrist-pin and pump-rod are in approximately the same vertical plane. The other class is the one in which the wheel-shaft is mounted to one side of the vertical plane of

the center line of the reciprocating parts, so as to give the pitman connected thereto a more direct pull on the working stroke of the single-acting pump, and by some builders of windmills the wheel is mounted to one side, so that it acts in the capacity of a side vane as a regulator for the speed of the mill, and this pitman and means for its automatic lubrication are as applicable to the one class as the other. In my drawings I have shown a direct-stroke windmill; but it will be readily seen that the mechanism here illustrated and described is as applicable to the geared mill as to the direct-stroke type.

In operation the crank end of the pitman is lubricated by being dipped in the oil in the crank oil-reservoir at each revolution of the crank and the reciprocating end is lubricated by the bearing thereof being immersed in the oil in the reservoir that is mounted to move with the reciprocating part of the windmill, and as the motion of these parts of the windmill is very slow there will be no loss of oil by splashing from the receptacles containing it, and as both of the pivotal connections of the pitman operate in or directly above the oil-reservoirs it is readily seen that there can be no loss or waste of oil by its dripping therefrom.

Having thus described my invention and a mode of its operation, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination a pitman provided with a downwardly-projecting portion near its upper end with means for a pivotal connection to be made near the extremity of said portion, and an oil-receptacle so mounted that said extremity is operatively projected therein during the operation of the windmill.

2. As a means for the automatic lubrication of a windmill-pitman, the combination of a pitman provided with a downwardly-projected portion at its upper part with a wrist-pin bearing formed at the lower part of said downward projection, and an oil-receptacle so mounted that said bearing may be operatively projected therein during the operation of the windmill.

3. As a means for an automatically-lubricated pitman for windmills, a pitman provided with means for pivotal connections to be made at the lower part of downwardly-projected portions thereof, said pitman being so formed that when it is vertically arranged there is a large hole or opening through the body part thereof extending from near the upper end downwardly and having one of said projections with its means for a pivotal connection projecting downwardly from that part of the pitman above said opening, and the other projecting downwardly from that part below the opening and forming the lower end of said pitman.

4. As a means for the automatic lubrication of a windmill-pitman, the combination of a substantially vertically arranged pitman provided with a downwardly-projecting portion at

its upper part, and with means for pivotal connections to be made, one at the extremity of said portion and the other at the lower end of said pitman, and an oil-receptacle so mounted that said extremity with its pivotal connection is operatively projected in the lubricant contained therein during the operation of the windmill.

5. As a means for the automatic lubrication of a windmill-pitman, the combination of a pitman arranged to oscillate so that the line of the direction of its applied force moves substantially within a vertical plane which stands practically at right angles to the center line of the bearings of the rotatable member imparting said oscillatory motion thereto, and provided with a downwardly-projecting portion near its upper end, and with wrist-pin bearings, one of which is formed near the extremity of said portion and the other near the lower end of the pitman, and an oil-receptacle so mounted that said extremity with its wrist-pin bearing is operatively projected into the lubricant contained therein during the operation of the windmill.

6. In combination a reciprocating part provided with means for a pivotal connection to be made within a lubricant-receptacle that is mounted to move in connection therewith, and a pitman provided with a downwardly-projecting portion near its upper end and adapted to be operatively attached, near the extremity of said portion, to the pivotal means in said receptacle.

7. In combination a reciprocating part provided with means for a pivotal connection to be made within an oil-receptacle that is mounted to move in connection therewith, and a pitman arranged to oscillate so that the line of the direction of its applied force moves substantially within a vertical plane and provided with a downwardly-projecting part near its upper end and adapted to be operatively attached near the extremity of said projecting part to the pivotal means in said receptacle.

8. In combination for the automatic lubrication of a windmill-pitman, a reciprocating part provided with a downwardly-projecting portion with a wrist-pin secured thereto, an oil-receptacle surrounding said wrist-pin and mounted to move in connection therewith, and a pitman provided with a downwardly-projecting portion near its upper end with a wrist-pin bearing formed at the extremity thereof and adapted to be operatively journaled on said wrist-pin.

9. As a means for the automatic lubrication of a windmill-pitman, the combination of the reciprocating mechanism provided with a downwardly-projecting portion with a wrist-pin secured near the extremity of said portion, a pitman provided with a wrist-pin bearing formed near the extremity of a downwardly-extended projection at the upper part thereof, and a wrist-pin oil-reservoir whereby said

wrist-pin and wrist-pin bearing are automatically lubricated during the operation of the windmill.

10. In combination the reciprocating mechanism of a windmill provided with a wrist-pin anchored at the lower part of a downwardly-projected portion thereof, a substantially vertically-arranged pitman provided with a wrist-pin bearing formed at the lower part of a downwardly-projected portion near the upper end thereof, and a wrist-pin oil-receptacle carried by said mechanism whereby said wrist-pin is continuously lubricated.

11. In combination the reciprocating mechanism of a windmill provided with a wrist-pin anchored at the lower part of a downwardly-projected portion thereof, a pitman arranged to oscillate with its center line substantially within a vertical plane and provided with a wrist-pin bearing formed at the lower part of a downwardly-projecting portion at the upper part thereof and adapted to operate on said wrist-pin, and an oil-receptacle secured to said portion of said mechanism and surrounding it with said wrist-pin and the wrist-pin bearing operating thereon.

12. In combination a rotatable member and a reciprocating part, mounted one above the other, a pitman eccentrically pivoted to said member near one end, and pivotally connected to said reciprocating part near the other end, a downward projection at the upper end of said pitman, provided at its extremity with one of said pivot-bearings, and an oil-receptacle surrounding said extremity and mounted to move in connection therewith.

13. As a means for the automatic lubrication of a windmill-pitman, the combination of a rotatable member having an eccentrically-positioned wrist-pin and a reciprocating part carrying another wrist-pin, and mounted one in a higher position than the other, a pitman having wrist-pin bearings adapted to operate upon said wrist-pins, one of which is formed near the lower end thereof and the other at the lower part of a downward projection near its upper end, and oil-receptacles so mounted that said bearings are adapted to be operatively projected into the lubricant contained therein during the operation of the windmill.

14. In combination for the automatic lubrication of a windmill-pitman, a vertically-movable member provided with a downwardly-projecting portion with a wrist-pin secured thereto, an oil-receptacle surrounding said wrist-pin and mounted to move therewith, and a substantially vertically-arranged pitman provided with a downwardly-projecting portion near its upper end with a wrist-pin bearing formed at the lower extremity thereof and journaled on said wrist-pin.

15. As a means for the automatic lubrication of a windmill-pitman, in combination a rotatable member and a reciprocating part, mounted one above the other, a pitman eccen-

trically pivoted to said member near one end, and pivotally connected to said reciprocating part near the other end, a downward projection integral with the upper end of said pitman, provided at its extremity with one of said pivot-bearings, and oil-receptacles so mounted that each of the said pivot-bearings is adapted to operatively contact with the lubricant in its respective receptacle during the operation of the windmill.

16. In combination a main frame carrying an oil-receptacle, a rotatable member and a reciprocating part mounted one in a horizontal plane above the horizontal plane of the other and so that said member is adapted to rotate partially within said receptacle, a pitman eccentrically pivoted to said member near one end and pivotally connected to said reciprocating part near the other end, a downward projection at the upper part of said pitman provided at its extremity with one of said pivot-bearings, and an oil-receptacle surrounding said extremity and mounted to move in connection therewith.

17. In combination the main frame of a windmill provided with an oil-reservoir, a rotatable member so mounted as to operate partially within said reservoir and having an eccentrically-positioned wrist-pin, a reciprocating part carrying another oil-reservoir which surrounds another wrist-pin which is mounted to move therewith, and a pitman provided with wrist-pin bearings, one of which is formed at the lower part of a downwardly-projecting portion near the upper end thereof and the other at its lower extremity, and adapted to operate on said wrist-pins.

18. In combination for the automatic lubrication of a windmill-pitman, the main frame of a windmill provided with an oil-receptacle, a rotatable member with a wrist-pin eccentrically secured thereto and so mounted as to operate partially within said oil-receptacle, a reciprocating part carrying another oil-receptacle which surrounds another wrist-pin which is mounted to move therewith, and a pitman provided with wrist-pin bearings, formed at the lower extremity of downwardly-projecting portions thereof, and journaled upon said wrist-pins substantially as and for the purpose set forth.

19. In combination the main frame of a windmill provided with an oil-receptacle, a rotatable member having an eccentrically-positioned means for a pivotal connection to be made therewith and so mounted that during its rotation the part so pivoted thereto is made to intermittently contact with the lubricant contained in said receptacle, a reciprocating part carrying an oil-receptacle with means therein for another pivotal connection to be made, and a pitman provided with a downwardly-projecting portion at the upper part and arranged to oscillate so that the line of the direction of its applied force moves

substantially within a vertical plane and being attached near the extremity of said portion to one of said pivotal means and near its lower end attached to the other.

20. In combination the main frame provided with an oil-receptacle, a rotatable member provided with eccentrically-positioned means for a pivotal connection to the pitman, a reciprocating part also provided with means for its pivotal connection to said pitman, a pitman arranged to oscillate so that the line of the direction of its applied force moves substantially within a vertical plane and provided with a downwardly-projecting portion at its upper part and being adapted to be operatively attached, near the extremity of said portion, to one of said pivotal means and near its lower end to the other, and a lubricant-receptacle surrounding the pitman pivotal connection with said reciprocating part and mounted to move in connection therewith.

21. In combination for the automatic lubrication of a windmill-pitman, a main frame carrying an oil-receptacle, a rotatable member mounted partially above said receptacle and provided with eccentrically-positioned means for its pivotal connection to the pitman, a reciprocating part also provided with means for its pivotal connection to said pitman, a pitman provided with a downwardly-projecting portion near its upper end and suitable means adapting it to be operatively attached, near the extremity of said portion, to one of said pivotal means and near its lower end to the other, and a lubricant-receptacle so mounted that said pitman pivotal connection with said reciprocating part is automatically lubricated during the operation of the windmill.

22. As a means for the automatic lubrication of a windmill-pitman, in combination a vertically-movable member provided with a downwardly-projected portion with a wrist-pin and a wrist-pin oil-reservoir secured thereto, and a substantially vertically-arranged pitman provided with a downwardly-projected portion near its upper end with a wrist-pin bearing formed at the lower extremity of said downwardly-projected portion and journaled on said wrist-pin.

23. As a means for the automatic lubrication of a windmill-pitman, in combination a rotatable member and a substantially vertically-movable part, mounted one above the other, a pitman eccentrically pivoted to said member near one end and pivotally connected to said vertically-movable part near the other end, a downward projection near the upper end of said pitman, provided near its extremity with one of said pivot-bearings, and an oil-receptacle surrounding said extremity and mounted to move in connection therewith.

24. As a means for the automatic lubrication of a windmill-pitman, in combination a rotatable member and a vertically-movable

part, mounted one above the other, a pitman eccentrically pivoted to said member near one end, and pivotally connected to said vertically-movable part near the other end, a downward projection at the upper end of said pitman provided at its extremity with one of said pivot-bearings, and oil-receptacles so arranged that said pivot-bearings are adapted to be operatively projected therein during the operation of the windmill.

25. As a means for the automatic lubrication of a windmill-pitman, in combination a pitman provided with downwardly-projecting parts near the extremities of which are arranged means for pivotal connections to be made, and oil-receptacles so arranged that said extremities with their pivotal connections are adapted to be operatively projected into the lubricant contained therein during the operation of the windmill.

26. As a means for the automatic lubrication of a windmill-pitman, in combination a pitman provided with means for pivotal connections to be made at the lower extremity of downwardly-projecting parts thereof, and oil-receptacles so arranged respectively in such relation to said extremities that the uppermost one is adapted to be continuously and the lower one intermittently projected into the lubricant contained therein during the operation of the windmill.

27. As a means for the automatic lubrication of a windmill-pitman, in combination a rotatable member and a reciprocating part, mounted one above the other, a pitman eccentrically pivoted to said member near one end, and pivotally connected to said reciprocating part near the other end, a downward projection forming a part of the upper portion of said pitman and provided at its extremity with one of said pivot-bearings, and means for storing lubricant, said lubricant being so disposed that said pivot-bearings are adapted to operatively contact therewith during the rotation of said member.

28. As a means for the automatic lubrication of a windmill-pitman, in combination a rotatable member and a reciprocating part, mounted one above the other, a pitman eccentrically pivoted to said member near one end, and pivotally connected to said reciprocating part near the other end, a downward projection forming a part of the upper portion of said pitman and provided at its extremity with one of said pivot-bearings, and means for storing lubricant, said means for storing the lubricant being so disposed that each of the said pivot-bearings is adapted to operatively contact with its respective part of said stored lubricant during the rotation of said member.

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Witnesses:

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