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Patented Aug. 26, 1902.

W. F. PFLUEGER.

COUPLING MECHANISM FOR WINDMILLS AND PUMPS.

(Application filed Jan. 24, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

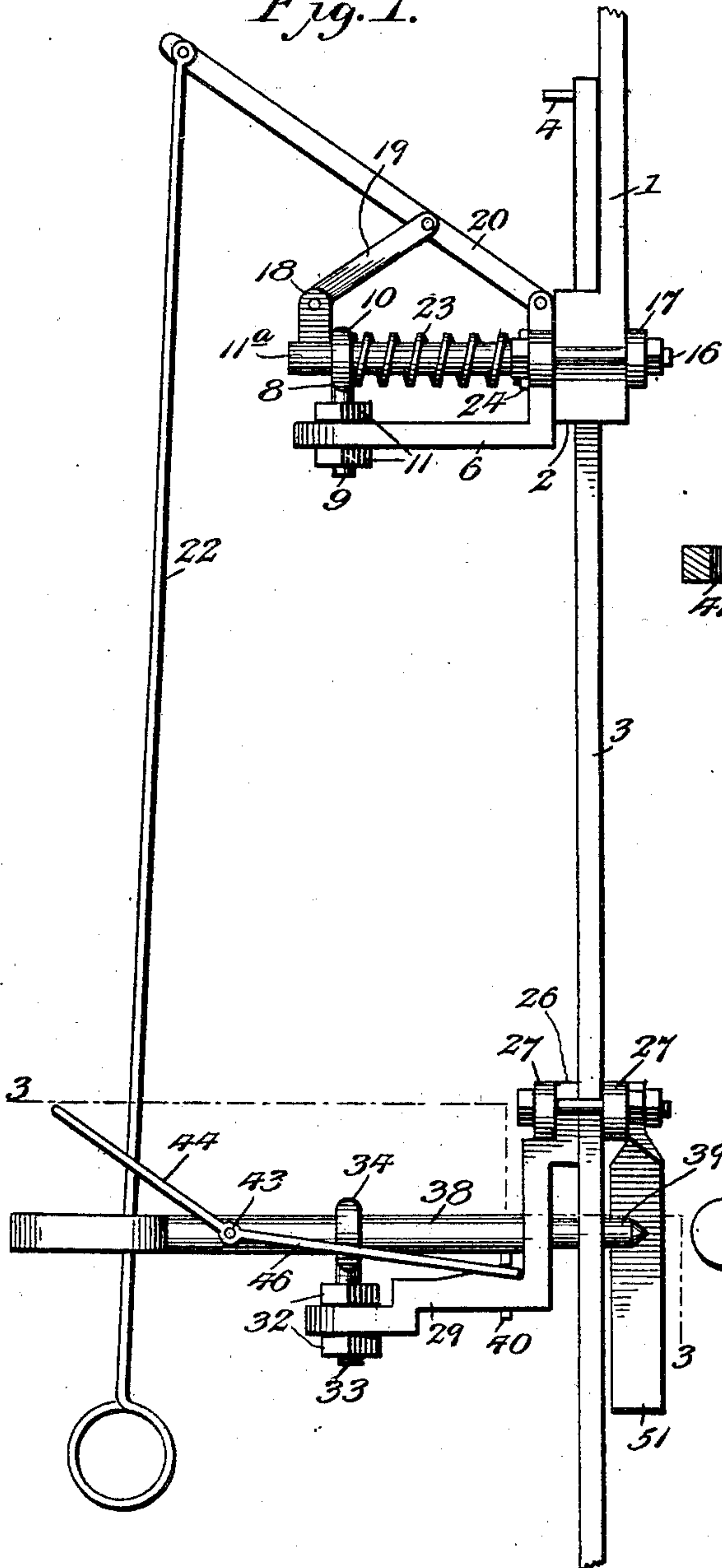


Fig. 2.

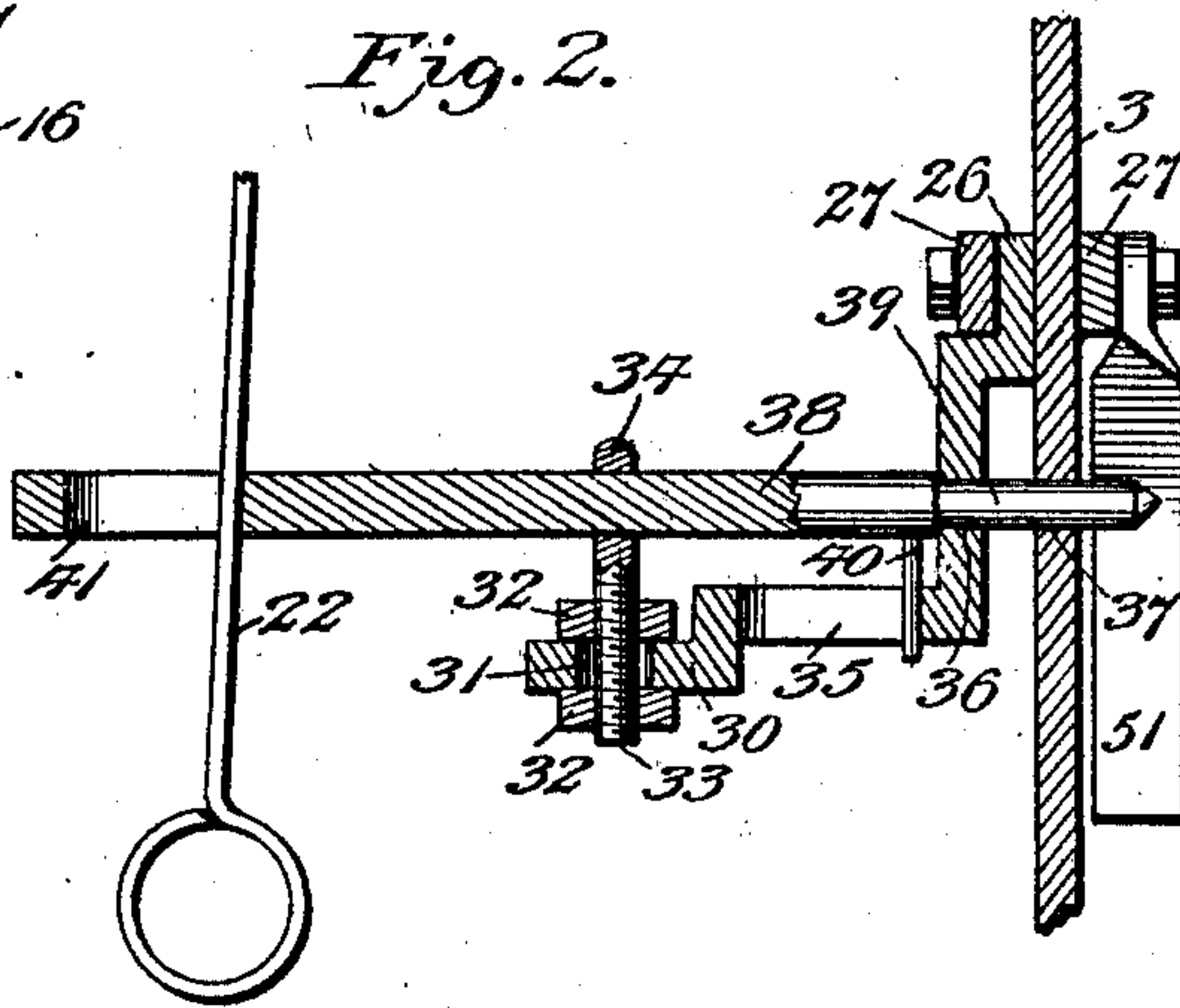
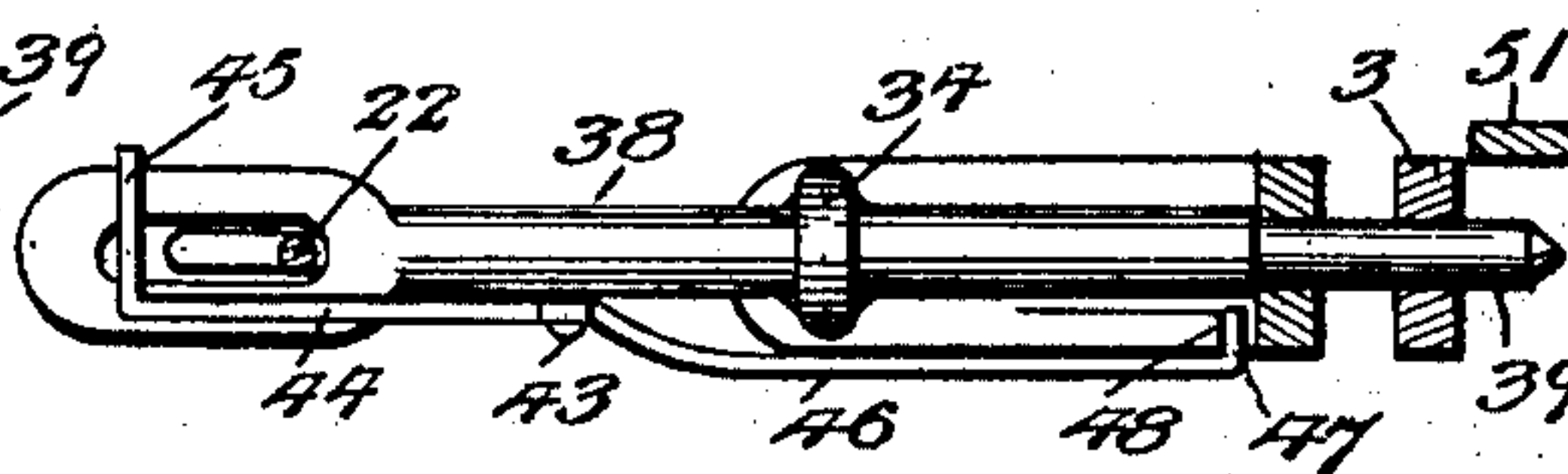


Fig. 3.



Witnesses

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2 Sheets—Sheet 2.

Fig. 4.

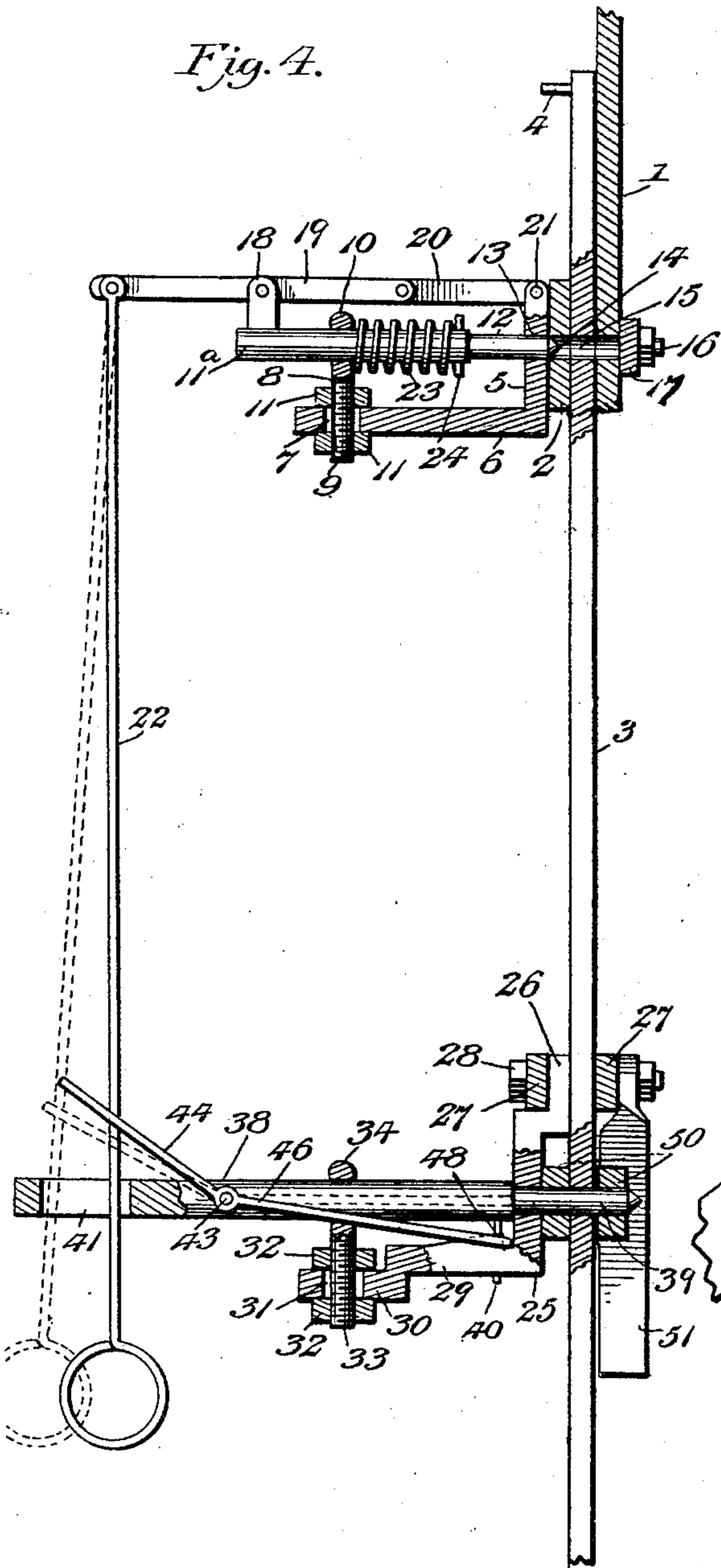
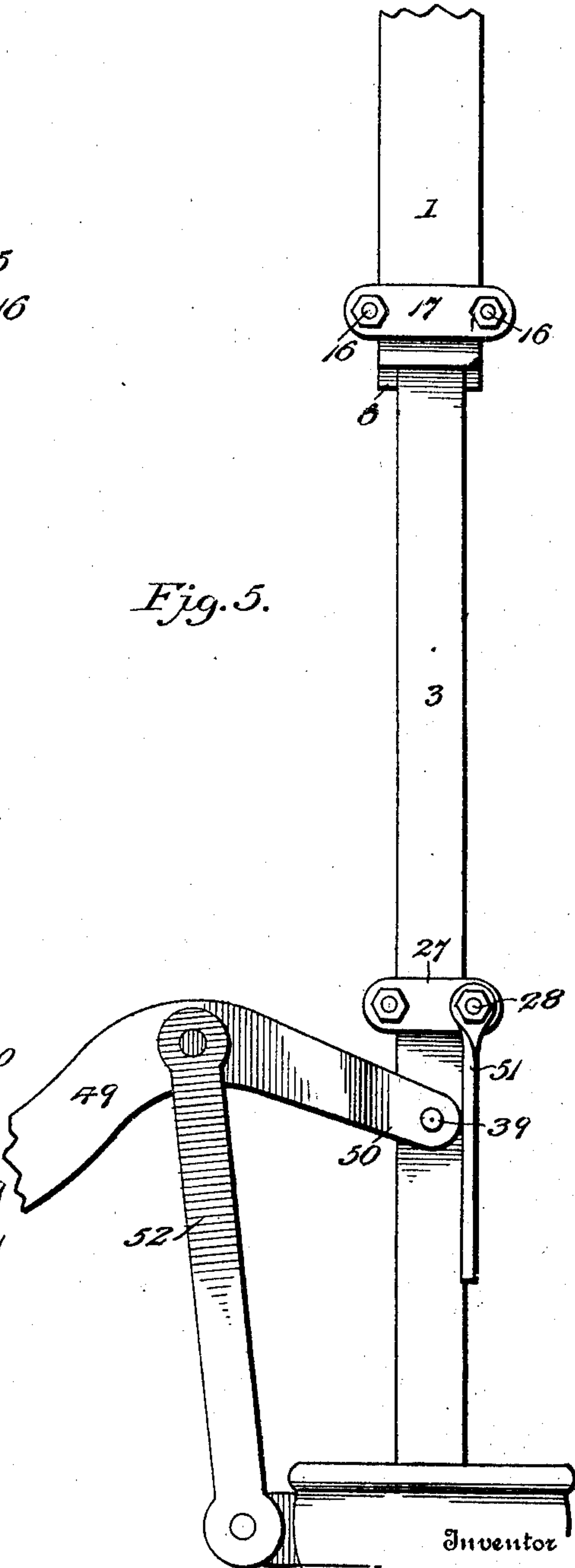


Fig. 5.



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COUPLING MECHANISM FOR WINDMILLS AND PUMPS.

SPECIFICATION forming part of Letters Patent No. 707,718, dated August 26, 1902.

Application filed January 24, 1902. Serial No. 91,124. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. PFLUEGER, a citizen of the United States, residing at Altona, in the county of Wayne and State of Nebraska, have invented new and useful Improvements in Coupling Mechanism for Windmills and Pumps, of which the following is a specification.

This invention relates to a pump and windmill rod coupler including means for establishing a connection with a pump-rod or similar pump-operating device; and the purpose of the same is to provide simple and effective means whereby a connection may be had between a windmill and a pump direct for actuation of the latter by the windmill or the mill may be thrown out of operative relation to the pump and the latter actuated by hand without disturbing or detaching the improved devices, which are of such nature as to be readily operated in setting up the connection between the pump and the windmill.

A further object of the present improvement is to have the parts so constructed and arranged that they will not become easily detached and lost, as in many of the present similar constructions or analogous devices.

A further object of the invention is to provide mechanism for disposition between the operating members of a windmill and pump of such simple nature that it can be easily and quickly applied in operative position.

With these and other objects and advantages in view the invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the coupling mechanism embodying the features of the invention. Fig. 2 is an enlarged longitudinal vertical section of the lower coupler of the improved mechanism. Fig. 3 is a horizontal section on the line 3-3, Fig. 1. Fig. 4 is a side elevation of the mechanism, partly in section. Fig. 5 is a rear elevation of the mechanism shown applied to the upper part of a pump.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates the depending windmill rod or bar, which in the present in-

stance has a socket 2 formed at its lower extremity to serve as a receptive means for a vertically-movable pump-rod 3, the latter having a stop-pin 4 or analogous device at its upper end to limit the downward movement thereof. The upper coupler comprises an L-shaped support 5, secured to the socket 2 and having a horizontal member 6 with a slot 7 adjacent its free extremity. Rising through the said slot 7 is a guide 8, having a screw-threaded shank 9 and an upper guide-eye 10, the said shank passing through nuts 11, disposed against the upper and lower sides of the horizontal member of the L-shaped support and vertically adjustable, as well as laterally shiftable, to accommodate different conditions and to compensate for wear and adjustment of the part engaging the eye 10. The nuts 11 inclose the slot 7, and by loosening the nuts the guide 8 can be shifted laterally and will be held in its adjusted position by tightening said nuts against the opposite side of the member 6. To vary the vertical adjustment of the guide, it is revolved in opposite directions to raise and lower the same without loosening the nuts. It will be understood that the eyes 10 and 34 and their shanks are not adjusted while the bolts 11^a and 38 are respectively therein, the adjustment of said eyes being effected previous to the assembly of the bolts in relation thereto. In the eye 10 a horizontally-disposed slide-bolt 11^a is movably mounted and has a reduced extremity 12 to engage openings 13, 14, and 15, respectively formed in the vertical member of the L-shaped support, the socket 2, and the pump-rod 3 when the said openings in the several parts coincide. The L-shaped support 5 is held in fixed position in relation to the socket 2 by opposite bolts 16, passing through the opposite extremities of a clip-bar 17, disposed against the side of the socket opposite that on which the vertical member of the support 5 has bearing, said bolt also passing through the vertical member. The slide-bolt 11^a operates in a plane intermediate of the positions of the bolts 16, and on the end thereof opposite the reduced extremity 12 is an upstanding ear 18, to which the outer end of a link-bar 19 is movably attached. The inner end of said link-bar is movably secured to an intermediate portion of an operating-lever 20, having its inner end pivotally con-

nected to the ear 21, rising from the upper
 edge of the vertical member of the L-shaped
 support 5, the said lever 20 being elongated
 and having a pull-rod 22 movably secured to
 5 the outer end thereof. The pull-rod depends
 a distance proportionate to the dimensions of
 the remaining parts of the device. To ren-
 der the bolt 11^a automatic in its locking op-
 eration, a helical spring 23 surrounds the same
 10 and is located between the eye 10 and a cross
 stop-pin 24 in said bolt, so that when the lat-
 ter is retracted from a locking position or
 pulled outwardly to withdraw the reduced ex-
 tremity 12 from the opening 15 in the pump-
 15 rod 3 said outward movement or retraction is
 pursued against the resistance of the spring
 23, and when said bolt is so withdrawn or re-
 tracted the lever 20 and link 19 become par-
 allel in a horizontal plane, and the three ful-
 20 crum-points provided in the ears 18 and 21
 and at the point where the link is attached to
 the lever will be disposed in longitudinal
 alinement, and the said lever by reason of
 such disposition will remain locked until re-
 25 leased. The withdrawal or retraction of the
 bolt is obtained by pulling downwardly on
 the pull-rod 22, and a release of the lever 20
 from a locked position will result when the
 said pull-rod is pushed upwardly, as clearly
 30 shown by Fig. 1. This upper coupler may in
 some instances be used alone or independ-
 ently of the mechanism which will be here-
 inafter explained; but it is preferred that it
 be employed in connection with the lower
 35 coupler or auxiliary, which coöperates with
 the piston-rod and operating handle or le-
 ver of a pump. This auxiliary or lower
 coupler comprises a supporting-frame 25 of
 substantially L-shaped form and having the
 40 upper end of its vertical member attached,
 through the medium of an angular extremity
 26, to the lower extremity of the pump-rod 3
 by clip-bars 27, bearing against opposite sides
 of the pump-rod 3 and held in clamped posi-
 45 tion by bolts 28, passed through the opposite
 terminals of said clip-bars. By the provision
 of the angular extremity 26 the frame 25 is
 suspended from the coupling-bar and pro-
 jected to form a space between the vertical
 50 member of the frame and the adjacent por-
 tion of the bar. The horizontal member 29
 of the frame 25 has its outer extremity
 stepped, as at 30, and in said stepped ex-
 tremity a slot 31 is formed, and against the
 55 upper and lower terminals of the slot nuts 32
 are applied and engaged by a screw-threaded
 shank 33, having an upper terminal eye 34
 in all respects similar to the shank 9, having
 the guide-eye 10, heretofore referred to. The
 60 nuts 32 are similar to the nuts 11, and the
 slot 31 permits the shank 33 to be shifted lat-
 erally or longitudinally of the stepped ex-
 tremity 30 to vary the position of said shank
 33 and eye 34 for purposes similar to the ad-
 65 justment of the shank 9 and eye 10. The
 shank 33 and eye 34 are also vertically ad-
 justable in relation to the nuts 32, so as to

have the parts engaging therewith free to op-
 erate without undue wear or frictional bind.
 The adjustment of the screw-shanks 33 is also 70
 essentially important in applying the im-
 proved mechanism to different pump struc-
 tures and to accommodate a variation in the
 elevation or position of the frames 6 and 25 75
 in relation to the parts of the pump and wind-
 mill, as it is obvious that the clip-bars 17 and
 27 may have to be shifted, as the openings
 therein for the operating parts or bolts of the
 improved mechanism in certain makes of 80
 windmills or coupling-bars may be at differ-
 ent elevations. The greater portion of the
 supporting-frame 25 is formed with a longi-
 tudinal slot 35, and through the vertical mem-
 ber of said support is an opening 36, which
 is adapted to be alined with an opening 37 in 85
 the lower extremity of the pump-rod 3. In
 the guide-eye 34 a bolt 38 is disposed and
 has an inner reduced extremity 39 for en-
 gagement with the openings 36 and 37, the
 said bolt 38 being free to slide, and to main- 90
 tain the same in a positive position it is pro-
 vided with an elongated guide-pin 40, de-
 pending through the slot 35 and preventing
 the bolt from having rotative movement.
 The outer end of the bolt 38 is flattened or 95
 otherwise constructed to produce an elon-
 gated guide-eye 41, through which the pull-
 rod 22 extends, the lower terminal of the said
 pull-rod being in the form of a ring or loop
 for convenience in operating the same. By 100
 means of the pin 40 moving in the slot 35
 and preventing the bolt from having rotative
 movement the eye 41 will always be held in
 a horizontal position, so as to avoid binding
 or bending the pull-rod 22, which loosely 105
 passes therethrough. To prevent the bolt 38
 from becoming accidentally disengaged or
 uncoupled when in coupling position, a gravi-
 tating retaining-catch 43 is fulcrumed there-
 to and has an outer upwardly-projecting ex- 110
 tremity 44, with an angular terminal 45, which
 extends above the eye 41 outside of the pull-rod
 22. The catch 43 also comprises an inwardly-
 extending straight leg 46, with an inner hooked
 terminal 47, which is adapted to drop behind 115
 a shoulder 48 on the horizontal member 29 of
 the supporting-frame 25, said shoulder being
 located at one side of the slot 35, and the up-
 per edge portion of the horizontal member ad-
 120 jacent to said shoulder inclines upwardly to
 the latter, so that the hooked terminal 47 will
 gradually move upwardly over the incline
 and fall upon the shoulder when the bolt 38 is
 pushed into coupling position. It will be seen
 that as long as the hooked terminal 47 of the 125
 catch is behind the shoulder 48 it will be im-
 possible for the bolt 38 to be drawn outwardly
 until the outer angular extremity is depressed.
 This depression of the outer angular extrem-
 ity 45 of the catch ensues when the pull-rod 22 130
 is drawn downwardly and moves outwardly
 in the eye 41, as shown by dotted lines in
 Fig. 4. In pulling downwardly on the rod 22
 it is inclined outwardly to cause sufficient

friction bearing thereof on the angular terminal 45 of the catch 43 to pull the outer extremity thereof downwardly and release or throw up the inner hooked terminal 47 of said catch from behind the shoulder 48. The elevation of the inner hooked terminal of the catch to release it from the shoulder 48 is effected when it is desired to disengage the inner extremity 39 of the bolt 38 from the pump-handle or analogous device and the lower extremity of the pump-rod 3, the said bolt 39 being drawn outwardly for release of the catch by a continual outward pressure exerted on the eye 41. When the upper coupler is disengaged from the pump-rod, the pull-rod 22 is drawn downwardly through the eye 41 in a vertical plane, as shown by full lines in Fig. 4.

The pump-handle or analogous device 49 has an inner bifurcated extremity or terminal 50, with alined apertures in the opposite members thereof, said inner bifurcated extremity being caused to embrace the lower extremity of the pump-rod, as clearly shown by Figs. 4 and 5. The said inner bifurcated extremity of the pump-handle or analogous device 49 is moved upwardly over the pump-rod 3 until the apertures in said extremity aline with the openings 36 and 37, respectively formed in the vertical member of the frame 25 and the lower extremity of the pump-rod, the one member of the inner bifurcated extremity 50 being located in the space between the vertical member of the frame 25 and the adjacent portion of the pump-rod. When the inner extremity of the pump-handle or analogous device 49 is so disposed, the inner extremity 39 of the bolt 38 is pushed through the said inner bifurcated extremity of the pump-handle, and the latter is thus connected to the pump-rod. To assist in guiding the inner bifurcated extremity of the pump-handle from the lower extremity of the pump-rod, a depending flat guide-bar 51 is used and is held at its upper end by one of the bolts 28, and in applying the pump-handle the one side of the inner bifurcated extremity 50 bears against the said guide-bar 51, and the apertures in said extremity 50 will be thereby caused to more accurately aline with the openings 36 and 37. The pump-handle or analogous device 49 is held in relation to the pump by a fulcrum-bar 52, as clearly shown by Fig. 5.

When the upper coupler has the inner extremity 12 of its bolt 11^a projected through the opening 15 of the pump-rod, the windmill mechanism when in motion will actuate the said coupling-bar and operate the pump, and at such time the bolt 38 of the lower coupler is drawn outwardly to disengage the pump-handle or analogous device for manually actuating a pump. When there is no wind or motive power or when the windmill is at a standstill, the bolt 11^a of the upper coupler is operated to disengage the pump-rod from the windmill mechanism and the pump-handle

or analogous device 49 is connected up to the said rod, so that the pump may be manually operated, and during such manual operation the pump-rod 3 freely reciprocates through the socket 2.

The improved device can be readily applied in operative position and in view of the dual coupling features will prove a valuable acquisition to the art to which it pertains.

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

1. In a coupling mechanism of the class set forth, the combination of a windmill reciprocating bar having a socket, a pump-rod slidably engaging said socket, a spring-actuated coupling-bolt for connecting the said rod, and a loosely-depending pull-rod and lever mechanism connected to and adapted for withdrawing the bolt into uncoupling position.

2. In a coupling mechanism of the class set forth, the combination of a windmill reciprocating element, a pump-rod arranged in operative relation to said element, a spring-actuated bolt for detachably connecting the said pump-rod and element, a lever-and-link mechanism for withdrawing the said bolt, a pull-rod attached to said latter mechanism, a lower coupling-bolt slidably engaging the lower extremity of the pump-rod and through a part of which the said pull-rod depends, and a pump-operating element also engaging the said lower coupling-bolt.

3. In a coupling mechanism of the class set forth, the combination with a reciprocating element, of a supporting-frame secured thereto and having an adjustable guide-eye, and a bolt movable through the said eye, a part of the frame and the reciprocating element.

4. In a coupling mechanism of the class set forth, the combination with a reciprocating element, of a supporting-frame secured to said element and having a horizontal member with a slot therein, a guide-eye held on the said member, and a sliding bolt engaging the eye and having a pin extending into the slot, the one extremity of the bolt passing through the frame and the reciprocating element and the opposite extremity serving as guiding means for a part of adjacent mechanism.

5. In a coupling mechanism of the class set forth, the combination with a supporting element, of a supporting-frame having a guide-eye thereon, a bolt slidably mounted in said eye and a portion of the frame, a part of the frame being formed with an upward incline leading to a catch-shoulder, and a catch device having an angular extremity to ride over the said incline and engage the shoulder.

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

WILLIAM F. PFLUEGER.

Witnesses:

HENRY PFLUEGER, Jr.,
ADOLPH PFLUEGER.