

No. 774,939.

PATENTED NOV. 15, 1904.

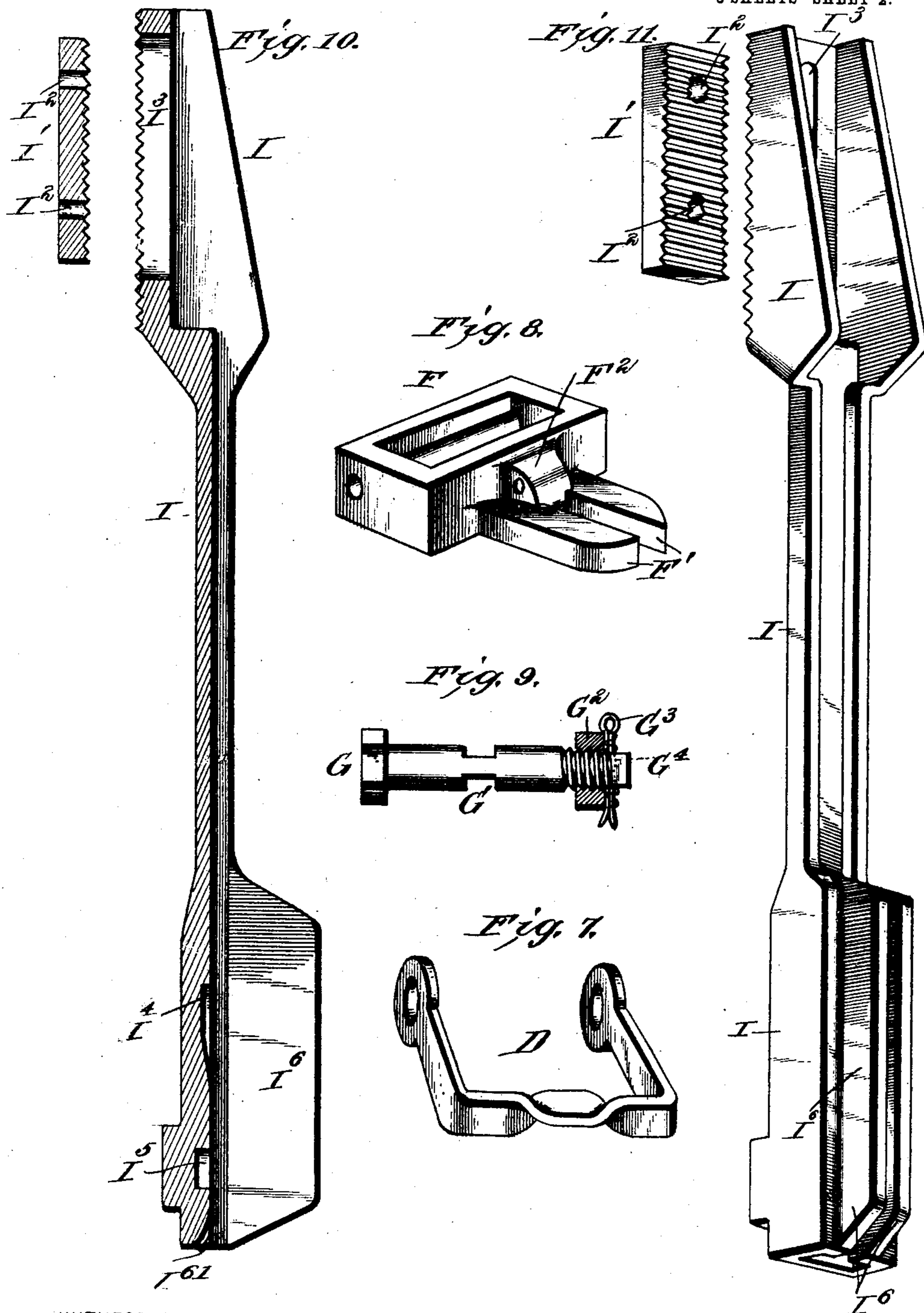
C. W. DECKER.

WINDMILL PUMP COUPLING.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

3 SHEETS—SHEET 2



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INVENTOR:

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ATTORNEYS.

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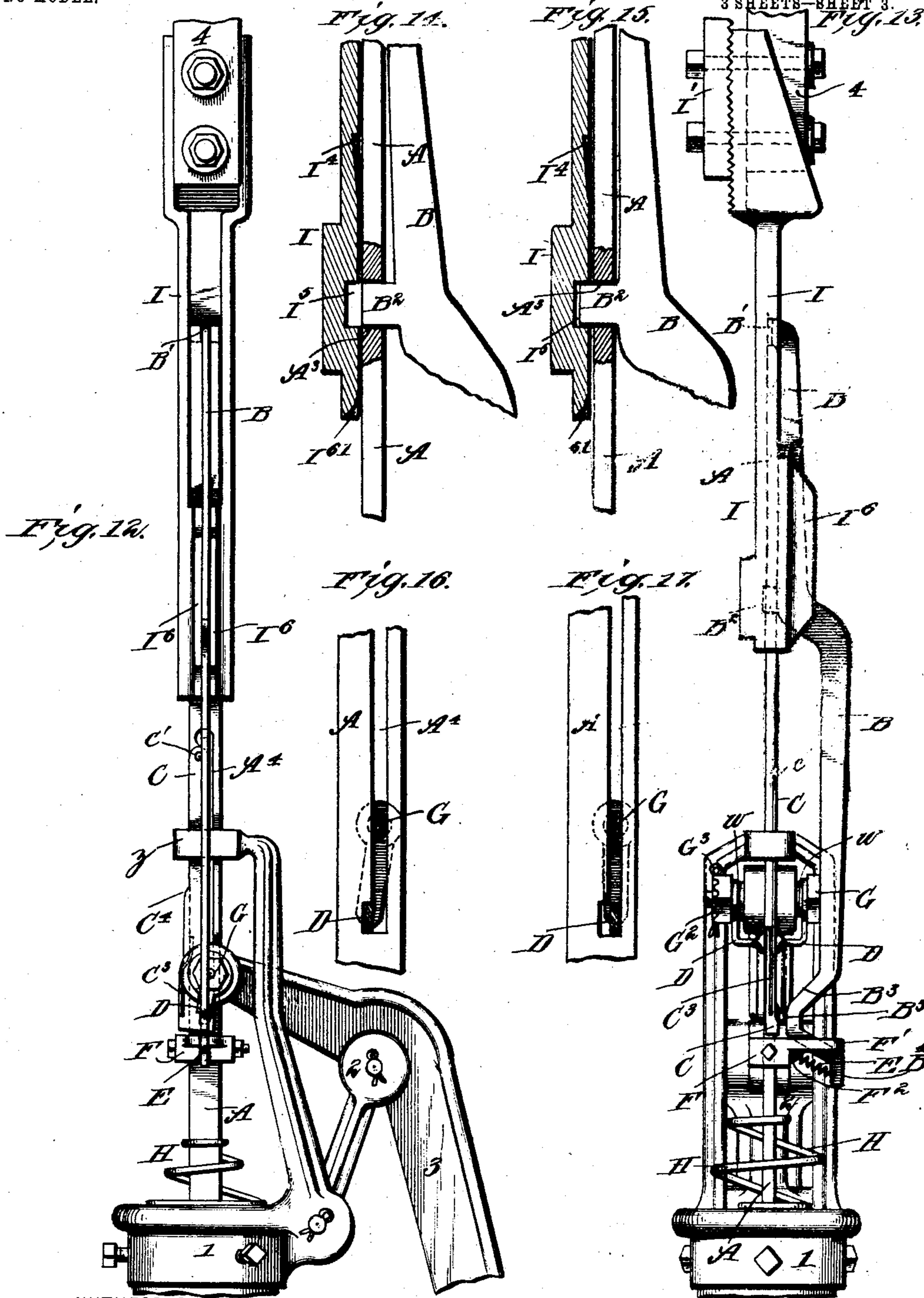
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UNITED STATES PATENT OFFICE.

CARL WASHBURN DECKER, OF CHARLES CITY, IOWA, ASSIGNOR OF
TWO-THIRDS TO FRANK E. HIRSCH AND GEORGE W. VON BERG,
OF CHARLES CITY, IOWA.

WINDMILL-PUMP COUPLING.

SPECIFICATION forming part of Letters Patent No. 774,939, dated November 15, 1904.

Application filed July 8, 1903. Serial No. 164,718. (No model.)

To all whom it may concern:

Be it known that I, CARL WASHBURN DECKER, of Charles City, in the county of Floyd and State of Iowa, have invented a new and useful Improvement in Windmill-Pump Couplings, of which the following is a specification.

My invention is in the nature of a device designed to be attached to any ordinary windmill-pump, its object being to provide a convenient and efficient means of coupling the hand-lever of the pump to the pump-rod, at the same time uncoupling the windmill-rod from the pump-rod, and vice versa. The means for attaining this object are embodied in a simple and compact device which is attached to a special form of windmill-rod, all the apparatus for coupling and uncoupling being contained in this pump-rod with its attachments. It is intended that the device shall be made practical and extremely convenient in that this pump-rod may be placed in the pump, replacing the original pump-rod, and after attaching the device as hereinafter described the apparatus is ready to be used.

In the accompanying drawings, Figure 1 is a front view of the special pump-rod with its attachments. Fig. 2 is a side view of the same. Fig. 3 is a front view of the rod without its attachments; Fig. 4, a side view of the same. Fig. 5 is a perspective view of the upper coupling-arm. Fig. 6 is a perspective view of the lower coupling-arm. Fig. 7 is a perspective view of a clevis-shaped loop or stirrup which is hung upon the pintle-pin of the hand-lever and coöperates with the lower coupling-lever shown in Fig. 6 to couple the hand-lever to the pump-rod. Fig. 8 is an enlarged perspective view of the buffer to be attached to the pump-rod, which buffer also serves as a guide for the upper coupling-arm and a means for attaching this coupling-arm to the pump-rod through a spring. Fig. 9 is a side view of a special form of pintle-pin and nut for the upper end of the hand-lever, said pin also serving as a means for suspending the stirrup shown in Fig. 7. Fig. 10 is a vertical longitudinal section of the windmill-rod slide. Fig.

11 is a perspective view of this slide. Fig. 12 is a side view of the entire device in position on an ordinary windmill-pump. Fig. 13 is a front view of the same. Figs. 14 and 15 are vertical longitudinal sections through the lower portion of the windmill-rod slide, the pump-rod, and upper coupling-lever, showing the device in position when uncoupled and coupled, respectively. Figs. 16 and 17 are detail views of a portion of the lower parts of the pump-rod and coupling-stirrup, showing the device as coupled and uncoupled, respectively.

Referring to the drawings, Figs. 3 and 4, this special pump-rod is made to conform in general outline to the shape of the ordinary pump-rod. At its upper end it has a special form of mortise A' and A'' . This mortise is formed by a rabbet on one side of a slot in the middle to receive a cross-head B' , the upper end of the upper coupling-arm B , as shown in Fig. 5. The pump-rod has also an oblong opening at A^3 , constructed to receive the lug B^2 of the upper coupling-arm B .

The above-mentioned opening A^3 of this pump-rod corresponds in position to the position of the upper round hole in the ordinary windmill pump-rod. At A^4 in the pump-rod there is constructed a slot extending from a point A^5 upwardly. The point A^5 corresponds in position to the position of the lower round opening in the ordinary windmill pump-rod. The slot extends upward to such a distance that when the rod is in position in the pump the pin of the hand-lever may pass through this slot and allow the upper end of the hand-lever to be at a position just below the guide of the pump-head when the rod A is at its lowest point of stroke while being carried by the windmill-rod slide.

A^5 is a lateral enlargement of the slot A^4 at its lower extremity, so designed that the middle portion of the stirrup D when held against the side X of this enlargement will couple the hand-lever to the pump-rod.

A^6 is a recess in the pump-rod on its side shown in Fig. 4 and extending from the front edge y to the slot A^4 .

A⁷ is a notch in the edge *y* of the pump-rod.

A⁸ is a half-round depression in the side of the pump-rod opposite to the side shown in Fig. 4, which depression is located at a short distance below the lower end of slot A⁴ and is intended to provide a means for attaching the buffer F by means of a bolt and nut to said pump-rod.

The lower end of B, as shown in Fig. 5, has an inclined plane at B³, which is used to move this lower end B out from the rod A by means of the stirrup D, throwing B out of connection with the windmill-rod slide, as described later. The extreme lower end of B is bent in a direction opposite to the bend B³ and has a hole B⁴, serving as a means for attaching the spring E. (Shown in Figs. 1 and 2.)

The lower coupling-arm C, Fig. 6, has at its upper end a round hole C', providing a means of pivotally attaching it to the pump-rod by means of a small set-screw C⁵. At its lower end the arm C has a hook C². At C³ there is an upward extension of this lower end of arm C in a direction parallel therewith. This extension is designed to rest on pump-rod A at A⁷ and constitutes a spring to force arm C away from the edge *y* of the pump-rod.

F, Fig. 8, is the buffer, which when attached to pump-rod A, if the rod is allowed to drop, rests on the spring H, mounted on the pump-head. The buffer F has at F' two arms extending in a direction at right angles to the pump-rod A, as shown in Figs. 1 and 2, serving as a guide for the lower end of arm B. At F² there is a small shoulder, with a hole adapted to receive the end of the spring E, the other end of which is attached to arm B at B⁴.

G, Fig. 9, is a pin adapted to fit loosely in any ordinary pump-handle, having at G' a notch on each side. This portion G' of pin G is intended to rest in the slot A⁴ in pump-rod A. This pin has a special nut G² and a split key G³, adapted to pass through the hole G⁴ in the pin and engage the depressions in the rim of nut G², allowing a limited adjustment of position of nut G² on pin G sufficient to adjust pin G and stirrup D to differences in the width of the upper end of different hand-levers.

Referring to Fig. 10, I' is a grooved plate, whose grooves are adapted to engage corresponding grooves on the surface of the windmill-rod slide I. These grooves are in a direction at right angles to the greatest length of the piece. At I² there are holes adapted to receive bolts which pass through a slot I³ in slide I and then through the lower end of the windmill-rod. These bolts, with suitable nuts, connect the parts I' and I firmly to the mill-rod; but if the nuts on bolts are loosened sufficiently to allow the grooves on I' and I to be

disengaged the part I may be raised or lowered a considerable distance by reason of the slot I³, after which the nuts may be again tightened to reconnect the parts.

At I⁴ in slide I there is a beveled mortise, which is adapted to engage the lug B² in arm B. At I⁵ there is a recess, also adapted to engage the lug B² just mentioned. As shown in Fig. 11, the part I is channeled longitudinally to slide on the rod A and has at its lower end two parallel outwardly-projecting lips I⁶, serving to keep arm B in position when the apparatus is in use.

The method of applying my devices is as follows: Referring to Figs. 12 and 13, the numerals 1, 2, and 3 represent the pump-head, lever-support, and hand-lever, respectively, of an ordinary windmill-pump, and 4 is the windmill-rod of an ordinary pumping-windmill. If now it is desired to place in position the attachments described, the pump-rod originally in the pump having been removed by uncoupling below the pump-head and sliding up out of guide *z*, the rod accompanying this device is passed through the guide *z* from above and through the buffer F and spring H and then through the lower guide in the pump-head. My rod is then coupled below pump-head to the piston-rod of the pump. The lower coupling-arm C is next, by means of the set-screw C⁵, attached to the pump-rod A at A⁹. Rod A now being forced down to its lowest position, the pintle-pin G is passed through one arm of stirrup D, D having first been passed through the slot A⁴ in the pump-rod, so that one arm is on each side of the rod. Pin G is then passed on through the hole in left side of the upper end of hand-lever, said hand-lever having been first brought into position embracing the pump-rod. The pin G is passed on through the slot A⁴ in the pump-rod and through the hole in the opposite side of upper end of hand-lever and through hole in other arm of the stirrup D. The nut G² and the pin G³ may now be placed in position, the pin G holding the hand-lever in position embracing pump-rod A and also the stirrup D in position embracing the hand-lever, with its lower middle part passing through slot A⁴ in the rod A just below the upper end of hand-lever. By means of washers *w*, placed between stirrup D and the upper end of the hand-lever on either side, as in Fig. 13, the parts D and G can be made to accommodate different sizes of hand-lever. The pump-rod A being in position, the cross-head B' of upper coupling-arm B is made to engage rod A at A' and A², and lug B² is passed into the hole A³ of said rod. The arm B now being in position attached to rod A, the spring E, by means of the holes F² in buffer F and B⁴ in arm B, is attached to said parts F and B. Slide I is now attached to the windmill-rod 4 by means of plate I', with its bolts and nuts, first having been passed down over the up-

per end of rod A, embracing A and the two flat surfaces of B. It will be noticed from the above that only a wrench and screw-driver are required to attach this device to the pump, making it extremely convenient.

Operation: The operation of the device is as follows: In Fig. 12 the hand-lever of the pump is shown in a position somewhat below the upper limit of stroke of its upper end, the lower couplings C and D being coupled to the pump-rod A and the upper coupling B being uncoupled from the slide I, as shown in Figs. 16 and 14, respectively. If now the hand-lever be moved so that its upper end moves still farther upward, it will carry with it the parts G and D and by means of them the pump-rod A. As the upper end of hand-lever approaches the guide z the shoulder of C at C^4 (see Figs. 6 and 12) will come in contact with the inner surface of the guide z and the lower end of C will be forced toward the back edge of rod A, carrying lower part of stirrup D from the side x , Fig. 4, of lower part of slot A^4 at A^5 to the opposite side or edge of the slot. The relative position of the parts are now shown in Fig. 17, with stirrup D uncoupled from rod A, which latter is now free to either remain stationary or drop by its weight and that of the water in the pump, so that if the hand-lever is moved still farther in the same direction stirrup D, the arm of which has pressed out the arm B at B^5 , moves up and out of contact with the point B^5 , allowing coupling-arm B to move toward rod A from the tension of spring E, causing the lug B^2 to pass through the hole A^3 in rod A and engage the mortise I^5 in slide I if I^5 registers with B^2 . If I is at such a position that I^5 does not register with B^2 , arm B being acted upon by spring E tends to force lug B^2 through opening A^3 in rod A and engage I^5 in I as soon as I reaches such a position that I^5 does register with B^2 .

In the construction of slide I it is formed with a beveled lower end at I^{61} . The object of this is to allow this slide I to slide down over the lug B^2 of arm B when B^2 extends through A^3 and projects from the surface of rod A without damage or jar to the lug B^2 . If the adjustment of length of stroke of the windmill-rod and the position of the slide on the rod is such that when the pump-rod is released by the hand-lever at highest point of stroke of pump-rod the lug B^2 is left at a point higher than the highest point reached by recess I^5 in I, the beveled recess I^4 will engage lug B^2 of arm B as slide I moves downward, forcing rod A, by means of arm B, down to a point where B^2 is below the highest point reached by recess I^5 , so that B^2 must register with and engage I^5 upon the next upward stroke of slide I when moved by the windmill-rod. If now, the hand-lever being uncoupled from the pump-rod A, it is desired to couple the hand-lever to rod A and uncou-

ple the windmill-rod, the lower end of the hand-lever is raised and the upper end is thereby lowered. The arm of stirrup D which is on the side next to arm B (as soon as upper end of hand-lever is carried far enough downward) engages the inclined surface B^3 of arm B, and a continuance of this motion causes the lower end of arm B to be forced away from rod A, causing lug B^2 to be withdrawn from recess I^5 in slide I, thus uncoupling the windmill-rod from rod A. A continuance of this motion of the upper end of hand-lever causes stirrup D to move downward in slot A^4 until the inclined face of the hook C^2 at the lower end of lower coupling-arm C is reached, when arm C will be forced toward back edge of rod A until stirrup D registers with the opposite notched side A^5 , when stirrup D, by means of the spring C^3 pressing on the front edge of rod A, will cause stirrup D to engage the notch A^5 , so that the hand-lever is now coupled to the pump-rod A. This coupling cannot fail to be made, as rod A, if free to move, must be prevented from dropping too far by the buffer F and the spring H.

It will be noticed from the above-described operation of the device that it is impossible for the windmill-rod and hand-lever to be coupled to the pump-rod at the same time, as from the construction of the parts one coupling is entirely disconnected from the pump-rod before the other coupling is connected to the pump-rod, and vice versa. This obviates accidents to the device and to those using it, which is a valuable feature.

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

1. In a windmill-pump coupling, the combination of a pump-rod having at its upper end a rabbet A' and slot A^2 and a locking-opening A^3 below, the upper coupling-arm B having a cross-head B' at its upper end fitting the slot and rabbet at the upper end of the pump-rod and a locking-lug B^2 adapted to engage the opening A^3 , the windmill-slide having locking-recess I^5 also adapted to be engaged by said lug, a hand-lever and means for enabling it to operate upon the upper coupling-arm, substantially as shown and described.

2. In a windmill-pump coupling, the pump-rod having a longitudinal slot A^4 with lateral enlargement or locking-seat A^5 at the bottom, a recessed side A^6 and a notch A^7 ; in combination with the lower coupling-arm C pivoted at its upper end to said rod in the recessed side and having an inclined edge C^4 and at its lower end a hook C^2 , a spring for giving lateral movement to the arm about its pivot, a hand-lever with pintle-pin, a stirrup hung upon said pin and sliding in the slot A^4 of the pump-rod and adapted to engage the locking-seat A^5 to connect the hand-lever to the pump-rod, substantially as shown and described.

3. In a windmill-pump coupling, the upper coupling-arm B having a swinging connection for the pump-rod at its upper end, a lug B² near the middle and a curved lower end B³B⁵; 5
in combination with the pump-rod, the windmill-rod slide, a spring for pressing said arm toward the pump-rod, a lower coupling for the pump-rod, a hand-lever, and means for operating said arm by the hand-lever, substantially as shown and described. 10

4. In a windmill-pump coupling, the combination of the pump-rod having a transverse bolt-seat A⁸, a buffer F having a hole through it to receive the pump-rod and also a bolt-hole 15
and two laterally-projecting guide-lugs, a bolt connecting the buffer to the pump-rod, a supporting-spring for the buffer mounted on the pump-head, an upper coupling-arm for the windmill-rod having its lower end guided between the lugs of the buffer and a spring connecting the lower end of said arm to the buffer, 20
substantially as shown and described.

5. In a windmill-pump coupling the combination with the pump-rod and the windmill-rod; of an intermediate connecting-slide having a take-up adjustment at its upper end, a longitudinal channel for the pump-rod, a locking-

seat I⁵, a notch I⁴, an inclined end I⁶¹ and guide-flanges I⁶ I⁶, an upper coupling-arm arranged between said flanges, and means for operating 30
it substantially as shown and described.

6. In a windmill-pump coupling, the combination of a slide for the windmill-rod, a slotted pump-rod, and an upper coupling-arm having a locking-lug, the pump-rod being between the said slide and locking-arm and the 35
lug of the coupling-arm being arranged to pass through the pump-rod and into the windmill-rod slide to couple these parts together, substantially as described. 40

7. In a windmill-pump coupling, the combination of a hand-lever having a forked end, a pintle-pin with notches G', and serrated and adjustable nut G², the stirrup D hung upon said pin, a pump-rod having a longitudinal slot 45
with locking-seat, the notches G' of the pintle-pin fitting the edges of the slot of the pump-rod and the stirrup being arranged to play in said slot, substantially as and for the purpose described.

CARL WASHBURN DECKER.

Witnesses:

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