

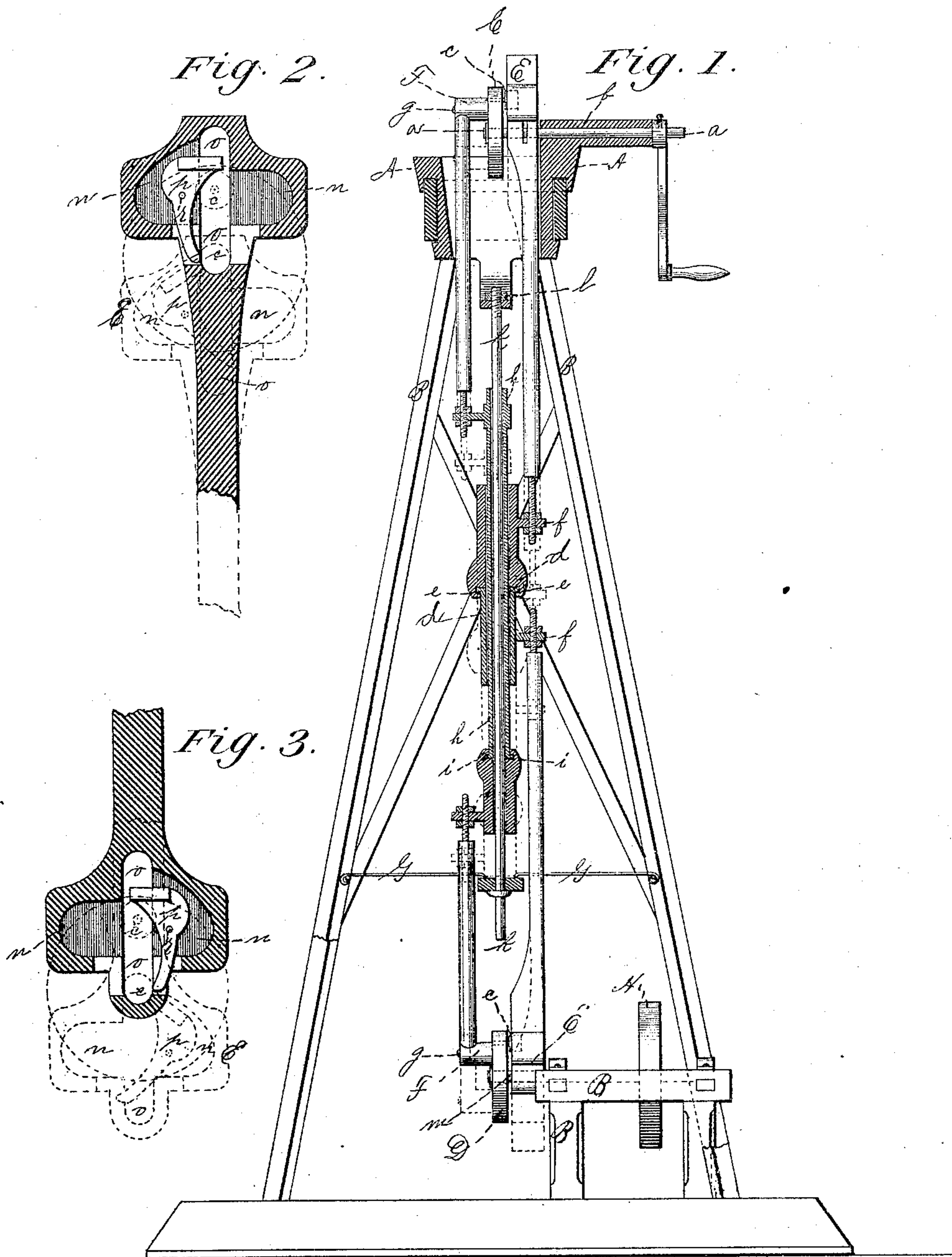
(Model.)

O. L. BLACKMAN.

Rotary Attachment for Windmill, &c.

No. 232,875.

Patented Oct. 5, 1880.



Witnesses:
Lewis B. Beebe
Geo. S. Allen

Inventor:
O. L. Blackman

UNITED STATES PATENT OFFICE.

OTIS L. BLACKMAN, OF EVANSVILLE, WISCONSIN.

ROTARY ATTACHMENT FOR WINDMILLS, &c.

SPECIFICATION forming part of Letters Patent No. 232,875, dated October 5, 1880.

Application filed May 19, 1880. (Model.)

To all whom it may concern:

Be it known that I, OTIS L. BLACKMAN, of Evansville, Wisconsin, have invented a new and useful Rotary Attachment for Windmills, Water-Wheels, and other Powers where it is desired to produce a rotary motion by means of a driving pitman-shaft working either in a vertical or a horizontal position.

The object of my invention is to overcome the "dead-center" always found in a crank motion operated by a rod or pitman-shaft. I attain this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical view of the entire machine. Fig. 2 is a detailed side view of the double-slotted lever-head and lever at the top of the machine, and Fig. 3 is a view of a similar lever-head and lever at the bottom of the machine.

Similar letters refer to similar parts throughout the several views.

In Fig. 1 the revolving table A A and the standards B B B B constitute the frame-work supporting the whole machinery.

a a is a shaft connecting the machine to the power and resting in the long box b, which is fastened to the top of the revolving table A A. C is the rotating wheel fastened securely to shaft a a. D is the rotated wheel at the bottom of the machine. c c are small wrist-pin wheels fastened to the rear of wheels C and D. E E are double-slotted lever-heads working on the wrist-pin wheels c c, and forming the ends of a connecting-rod, of which rod the swiveled hollow rod d d forms the middle. e e is the swivel in the connecting-rod, which allows the top of the rod to revolve while the bottom remains stationary. f f are the points at which the ends E E are securely fastened to hollow rod d d. g g are wrist-pins fastened in the faces of wheels C and D, respectively. F F are the ends of rod working on the wrist-pins g g. These ends are connected by swiveled hollow rod h h, which passes through hollow rod d d. i i is a swivel in the hollow rod h h, and allows the top of the rod to revolve while the bottom remains stationary. k k is a shipping-rod fastened at the bottom to spider G G, and, passing through the hollow rod h h, is connected at the top to the bottom of the

revolving table A A by the swivel l, thereby keeping the hollow rods d d and h h in vertical position.

The swivels e e, i i, and l allow the whole top of the machine, supported by the revolving table A A, to revolve in either direction while the bottom remains stationary. m is a shaft connecting the rotated wheel D with the machinery to be driven. (Represented in Fig. 1 by the wheel H.) n n and o o are slots in the lever-heads E E. p is a ratchet-shaped lever fastened in the slot n n by the pin r, and is worked back and forth across the slot o o by shafts a and m, and prevents the top of lever-heads E E from dropping on the wrist-pin wheels c c.

Power applied to shaft a is carried to the wheel C, and, through the wrist-pin g, is transmitted to rod F F, and by it to the wheel D just before the wrist-pin g arrives at the points known in mechanics as the "dead center." The wrist-pin wheels c c strike, alternately, the top of the slot n n, Fig. 3, taking the power from the rod F F, and, being connected to the wrist-pin g g by the wheels C and D, push said wrist-pin g g by the dead-center, when they again resume their work.

I am aware that prior to my invention rotary powers with two rods have been in use. Therefore I do not especially claim the two-rod attachment; but

I do claim as my invention—

1. The combination of the device of the double-slotted lever-head E E, Figs. 2 and 3, by placing slotted head E, Fig. 2, on shaft a, between and in rear of rotary wheel C and end of long box b, and slotted head E, Fig. 3, on shaft m, between and in rear of reciprocating wheel D and end of shaft-box, and by aid of wrist-pin wheel c c to work double-slotted lever-heads, and, acting in conjunction with rods F F, connected to rotary wheel C and reciprocating wheel D by wrist-pin g g, producing a reciprocal rotary motion corresponding to the rotary power applied, substantially as shown, for the purpose specified.

2. The combination of the device of swiveling the two rods from a common center by the hollow rod d d, swiveled in the center e e, to which the slotted heads E E are connected at f f, and the hollow rod h h, passing through

the hollow of the swiveled rod *dd* and swiveled at *i i*, connecting the rod F F, attached to rotary wheel C, reciprocating wheel D, attached to shaft *a a* and *m* by wrist-pin *g g*, the rod and swivel stayed and supported in a vertical position by the hollow rod *k k*, fastened by spider G G to frame-work B B and bottom of turn-table at swivel *l*, and allowing the shipping-rod to pass unobstructed through center of shifting-pipe, thereby allowing the rotary power to revolve and ship in or out the wind while the reciprocating machinery remains stationary, substantially as set forth.

3. The combination of the wheel *c c* and the levers *p p*, to change a vertical or a horizontal to a perfectly reciprocating rotary motion, substantially as described.

4. The combination of the lever-heads E E, the levers *p p*, and the wrist-pin wheel *c c*, for overcoming a mechanical dead-center in a crank rotary motion, substantially as set forth.

OTIS L. BLACKMAN.

Witnesses:

W. S. MORGAN,
B. H. STANDISH.