

No. 698,771.

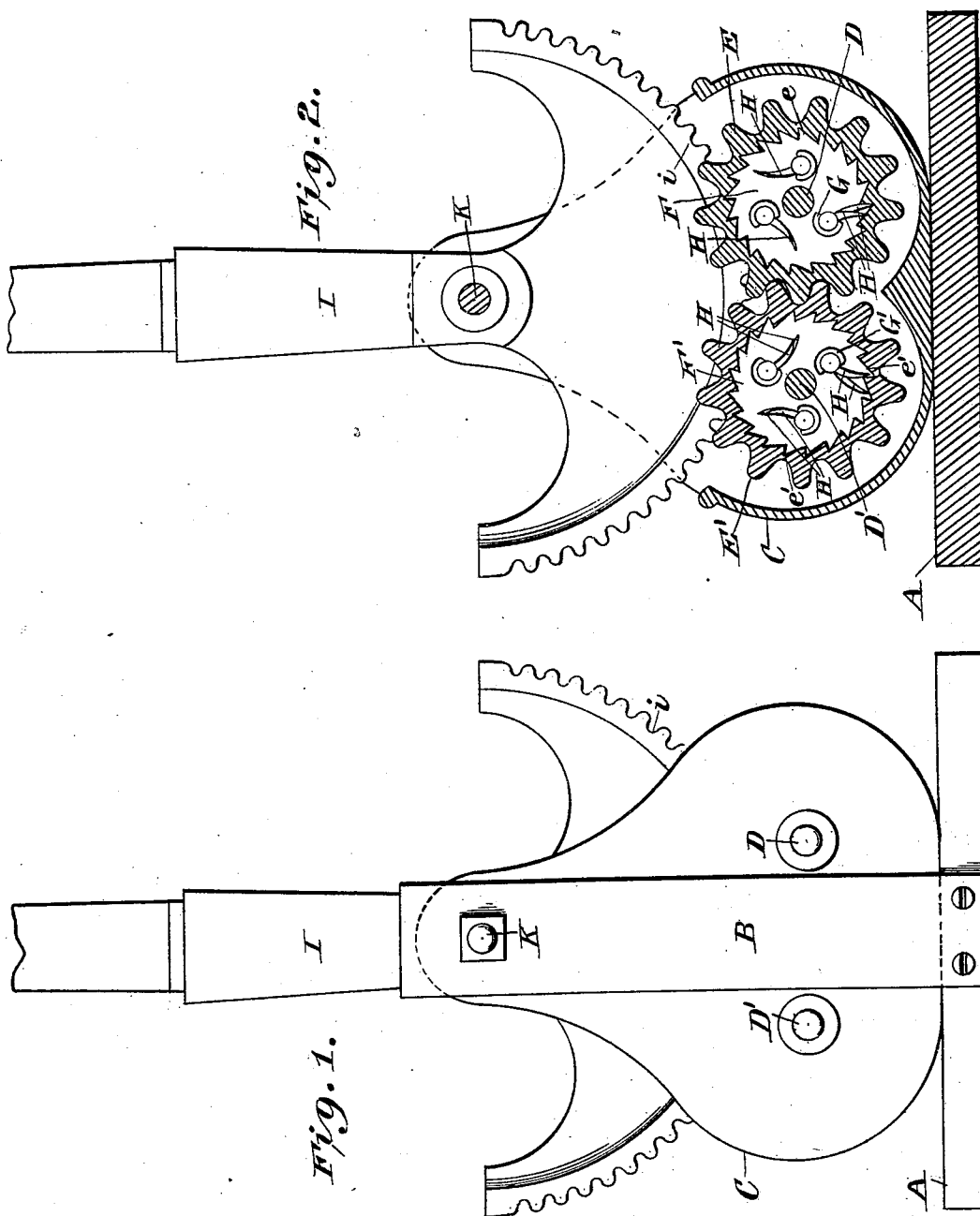
Patented Apr. 29, 1902.

M. B. WELLER.
WINDLASS.

(Application filed Apr. 24, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

Jos. H. Blackwood
J. H. Anderson, Jr.

Inventor
Mack B. Weller
by A. A. Garrison
Attorney

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WINDLASS.

(Application filed Apr. 24, 1901.)

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2 Sheets—Sheet 2.

Fig. 3.

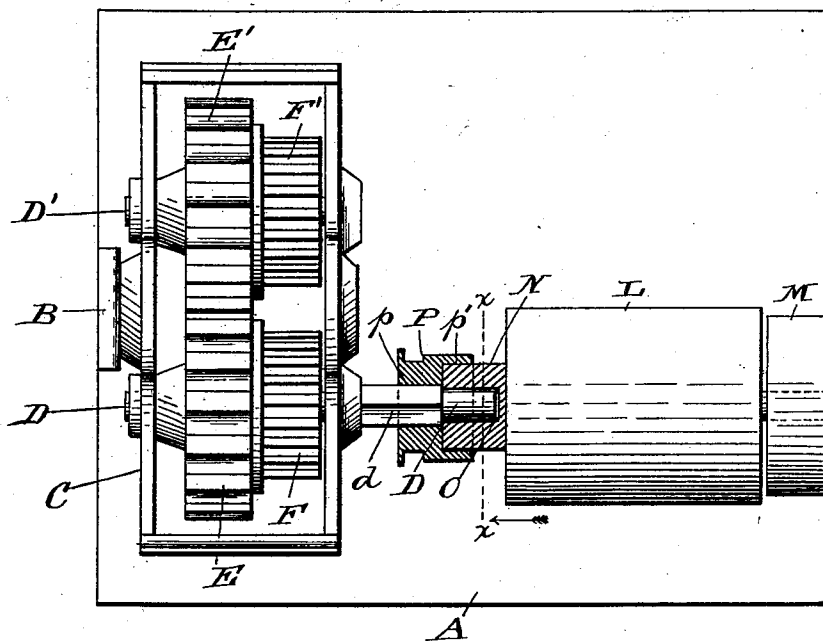


Fig. 4.

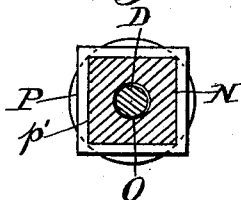


Fig. 5.

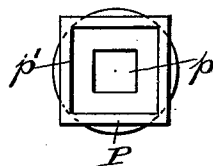
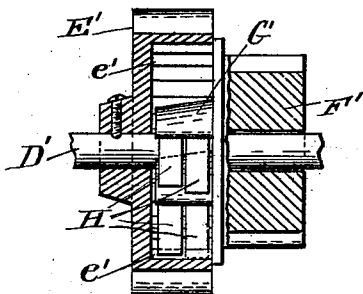


Fig. 6.



Witnesses

Joseph Blackwood
 Randolph Jr.

Inventor
 Mack P. Weller
 by A. A. Gornick
 Attorney

UNITED STATES PATENT OFFICE.

MACK B. WELLER, OF LOUISVILLE, KENTUCKY.

WINDLASS.

SPECIFICATION forming part of Letters Patent No. 698,771, dated April 29, 1902.

Application filed April 24, 1901. Serial No. 57,308. (No model.)

To all whom it may concern:

Be it known that I, MACK B. WELLER, of the city of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Windlasses, of which the following is a specification.

The object of my invention is to provide a windlass that is simple in operation and that is operated by a reciprocating motion of a rocking-lever.

Another object of my invention is to provide for an instantaneous engagement of a ratchet by providing a series of pawls of varying length that successively engage the teeth of said ratchet.

Referring to the drawings, Figure 1 is a side view in elevation of my device; Fig. 2, a side view, partly in section; Fig. 3, a top plan view, partly in section, with segmental rocking-lever removed; Fig. 4, section on line *xx* of Fig. 3 looking in direction of arrow; Fig. 5, end view of ring; Fig. 6, a cross-section of one set of gear-wheels.

In the drawings, in which like letters of reference represent like parts throughout the several views, A represents the base of my device, B an upright therefrom, and C a casing resting on the base A. D D' represent shafts mounted in said casing C.

E E' are gear-wheels rigidly mounted on the shafts D D', respectively, the teeth of said gear-wheels being in engagement, and F F' are gear-wheels loosely mounted on the same shafts. The gear-wheels E E' are hollowed out from the side toward the gear-wheels F F' and have ratchets *e e'* on their inner annular faces, the engaging faces of the ratchets *e e'* being oppositely disposed.

G G' are casings formed on the gear-wheels F F', in which are loosely mounted pawls H, a multiplicity of pawls of varying length being provided for each casing. The purpose of providing a multiplicity of pawls of varying length is to insure instantaneous engagement of the pawls H with the ratchets *e e'*.

I represents a rocking-lever having a segmental rack *i*, mounted on a shaft K in the casing C, the teeth of which engage the teeth of the gear-wheels F F'.

L represents the windlass-drum, mounted at one side to an upright M and at the other

end having a square projection N with a socket O therein. The shaft D is adapted to fit loosely in said socket and has a portion of its length outside the casing C enlarged and squared, as at *d*.

P is a ring having a square aperture *p* to fit over the part *d* and having a square socket *p'*, adapted to fit over the projection N. The purpose of the ring P is to throw the windlass L in or out of engagement with the shaft D at will.

The operation is as follows: By imparting a reciprocating motion to the rocking-lever I an intermittent rotary motion is imparted to the gear-wheels F F'. In moving the rocker in one direction the pawls H on the gear-wheel F engage the teeth of the ratchet *e*, thus imparting a rotary motion to the shaft D, while the gear-wheels F' and E' act as idle pulleys. When the rocker is moved in the opposite direction, the pawls on the gear-wheel F' engage the teeth of the ratchet *e'*, thus imparting a rotary motion to the gear-wheel E' and an opposite motion to the gear-wheel E and shaft D, the gear-wheel F acting as a loose pulley. By this peculiar arrangement of parts it will be readily seen that the shaft D is made to constantly rotate in the same direction intermittently, getting its power through the gear-wheels F and E and the gear-wheels F', E', and E, and that the gear-wheel E constantly rotates in the same direction as the shaft D and the gear-wheel E' opposite thereto. By means of the ring P, above described, the drum L of the windlass is maintained in engagement with the shaft D and rotates in the same direction therewith when it is desired to wind a rope or cable thereon, or if it is desired to unwind the rope or cable the ring P is slid along the part *d* until the socket *p'* is out of engagement with the projection N, when it will be seen that the drum will turn loosely in the upright M and on the shaft D.

Having thus described my invention, what I claim is—

1. In a device for converting motion, an oscillating rack, gear-wheels meshing therewith, casings on one side of each of said gear-wheels, a multiplicity of pawls of varying length mounted in each casing, the pawls on each gear-wheel swinging in the same direc-

tion but oppositely disposed as compared to the pawls on the other gear-wheel, wheels hollowed out from the side next to said pawls, ratchets on the annular surface of said hollowed-out portions, and means to cause a simultaneous rotation of said hollowed-out wheels, substantially as shown and described.

2. In a windlass, a drum connected to a shaft, a gear-wheel fixedly mounted on said shaft, a gear-wheel meshing with said gear-wheel fixedly mounted on another shaft, said gear-wheels hollowed out, oppositely-disposed ratchets on the annular faces of said hollowed-out portions, a gear-wheel mounted loosely on each of said shafts, pawls mounted on said gear-wheels arranged in a multiplicity of series of varying lengths, and a rocking segmental rack meshing with said gear-wheels, substantially as shown and described.

3. In a windlass, a drum mounted at one end to an upright, a square projection on the other end of the drum having a socket therein, a shaft having one end in said socket, said shaft being square for a portion of its length, a ring with a square aperture adapted to slide longitudinally on said shaft, a square socket on one side of said ring adapted to fit over said square projection, a gear-wheel fixedly mounted on said shaft, a gear-

wheel meshing with said gear-wheel fixedly mounted on another shaft, an annular ratchet on the interior of each of said gear-wheels, non-meshing gear-wheels mounted loosely on each of said shafts, carrying pawls adapted to engage said annular ratchets and a rocking segmental rack meshing with said non-meshing gear-wheels, substantially as shown and described.

4. In a device for converting motion, gear-wheels meshing with an oscillating rack, casings on one side of each of said gear-wheels, a multiplicity of pawls of varying length mounted in each casing, the pawls on each gear-wheel swinging in the same direction but oppositely disposed as compared to the pawls on the other gear-wheel, gear-wheels keyed to separate shafts and meshing with each other, said gear-wheels being hollowed out from the side next to said pawls, and ratchets on the annular surface of said hollowed-out portions, substantially as shown and described.

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

MACK B. WELLER.

Witnesses:

SAMUEL S. BLITZ,

SIDNEY J. BLANKENBAKER.