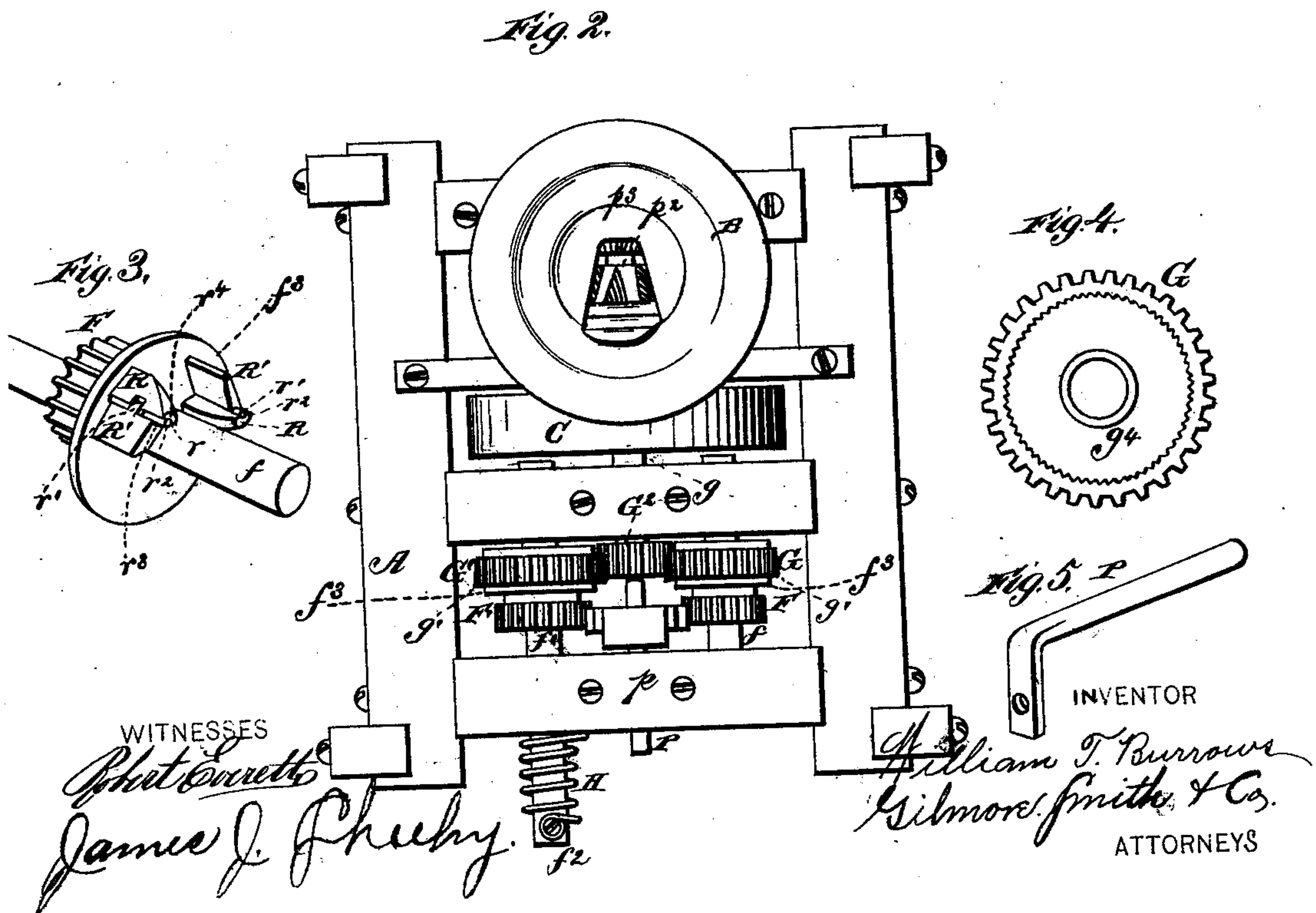
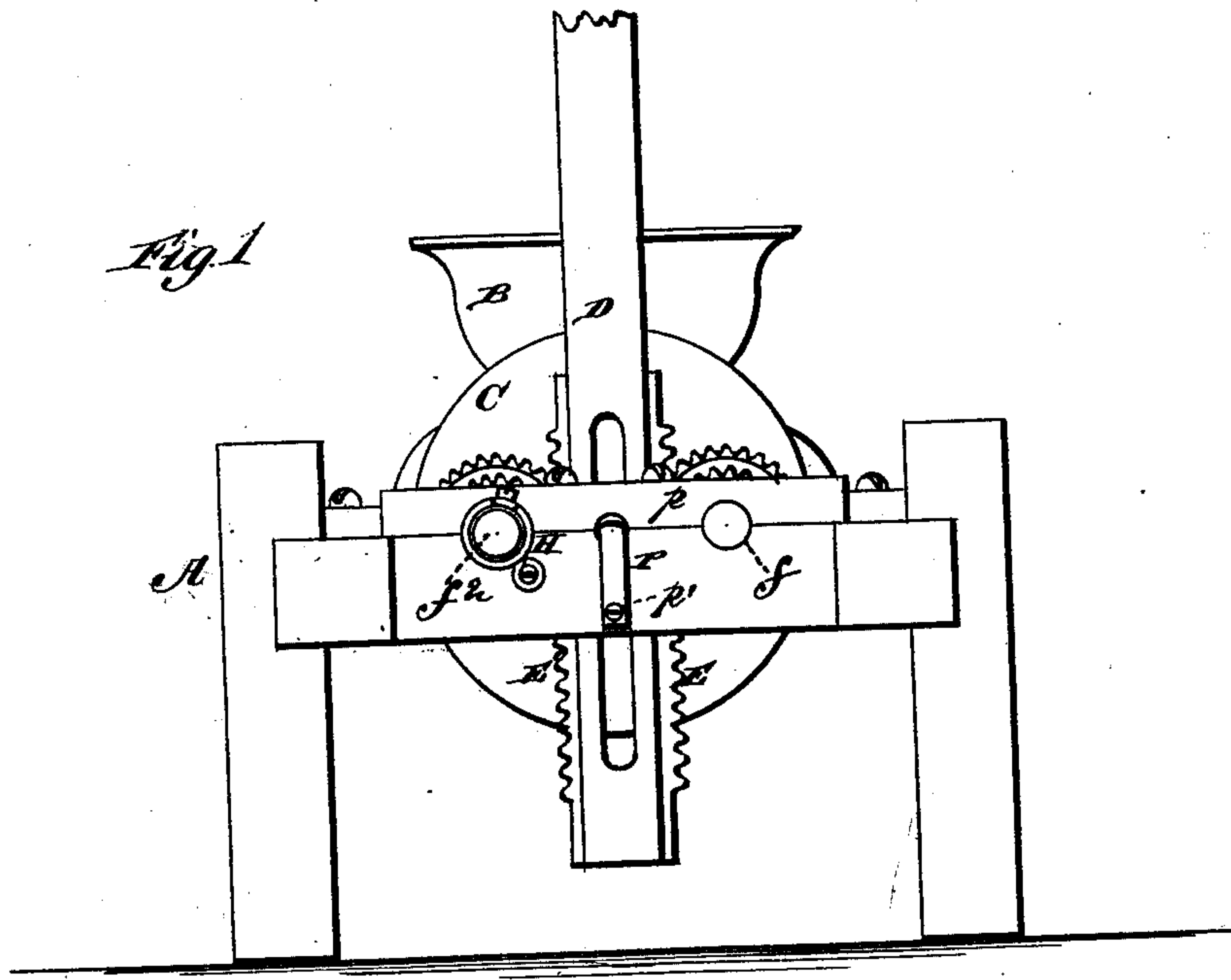


W. T. BURROWS.
Mechanism for Converting Reciprocating into Rotary
Motion.

No. 221,775.

Patented Nov. 18, 1879.



UNITED STATES PATENT OFFICE.

WILLIAM T. BURROWS, OF NASHUA, IOWA.

IMPROVEMENT IN MECHANISMS FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.

Specification forming part of Letters Patent No. **221,775**, dated November 18, 1879; application filed May 3, 1879.

To all whom it may concern:

Be it known that I, WILLIAM T. BURROWS of Nashua, in the county of Chickasaw and State of Iowa, have invented certain new and useful Improvements in Mechanism for Converting Reciprocating into Rotary Motion; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an end elevation of a machine embodying the improvements in my invention. Fig. 2 is a plan view of the machine. Fig. 3 is a perspective detail view, and Figs. 4 and 5 are detail views.

This invention relates to mechanism for converting reciprocating into rotary motion; and it consists in the improvements in the construction of the same hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, A designates the frame of the machine; C, the fly-wheel, and D the reciprocating rod, of a windmill or other power. E E' are racks attached to the rod D. F F' are pinions rigidly attached to the shafts $f f'$ and operated by the racks E E'. The pinions F F' have flanges or disks f^3 of the right diameter to set into the overhung rims of the spur-wheels G G'. These disks are provided with lugs upon their sides, which form the pawl-seats hereinafter described.

G G' are the driving gear-wheels, which work freely on the shafts $f f'$ and mesh with the driving-pinion G², located on the shaft g . The peripheries of these spur-wheels are overhung upon the webs g^4 , as shown, and provided with teeth upon their outer and inner sides.

The shaft f' is extended, as shown at f^2 , and a spiral spring, H, is placed thereon, one end of which is attached to the frame A and the other to the shaft f' .

Before engaging the racks and pinions there should be a strain placed on the spring H by turning the shaft f^2 .

The spring H is uncoiled upon the shaft f^2 before placing the upper part of the racks E E' in contact with the pinions F F', so that as the racks are carried up the spring H is coiled tightly upon the shaft f^2 , thus storing power for the return of the racks E E'.

The advantage arising from this construction is owing to the liability of the pump-rod to bend in its downward stroke, and besides the spring tends to shorten the rest at the dead-center.

The lugs R are drilled, the drills passing through the disks of the pinions, then the lugs are cut away, one-half having one-half of the hole exposed. A hinge-seat, r , is then cut, and the pawl R' is inserted in the position shown, the pawl having been drilled and cut away in a similar manner, saving the hinge part r' .

The rod r^2 is inserted in the position shown, thus forming a light easy-working hinge, provided with a continuous backing in the rod r^2 working in the concaves $r^3 r^4$ of lugs and pawls.

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

1. In a device for converting reciprocating into rotary motion, the shaft g , provided with the pinion G², in combination with the loose pinions G G' on the shafts $f f'$, and the fixed pinions F F', having disks f^3 , on the same shafts, the spring H upon the extension f^2 , the pawls and ratchets, and the racks E E', as and for the purposes set forth.

2. The pawl provided with the hinge-stem r' , concave r^3 , in combination with a lug having a concave, r^4 , and hinge-seat r , and the rod r^2 , substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WM. T. BURROWS.

Witnesses:

W. A. EASTMAN,
L. M. TUCKER, M. D.