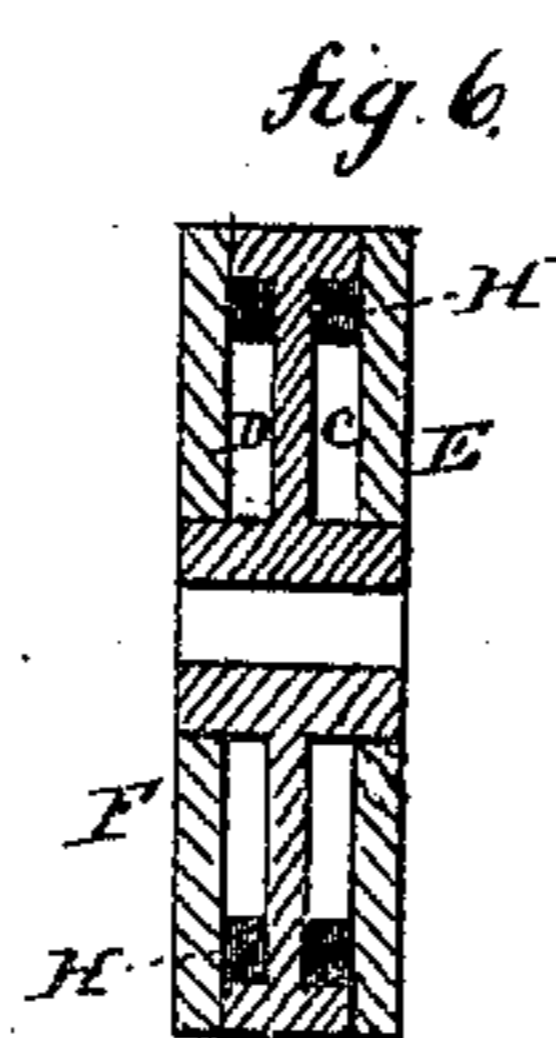
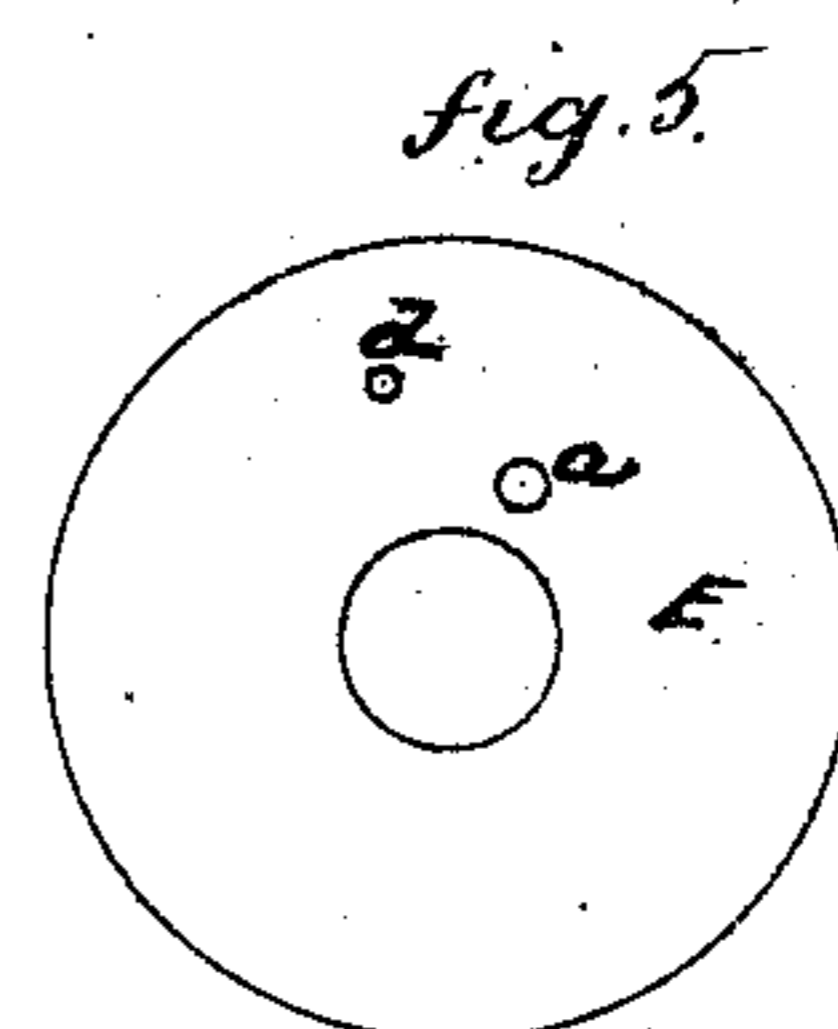
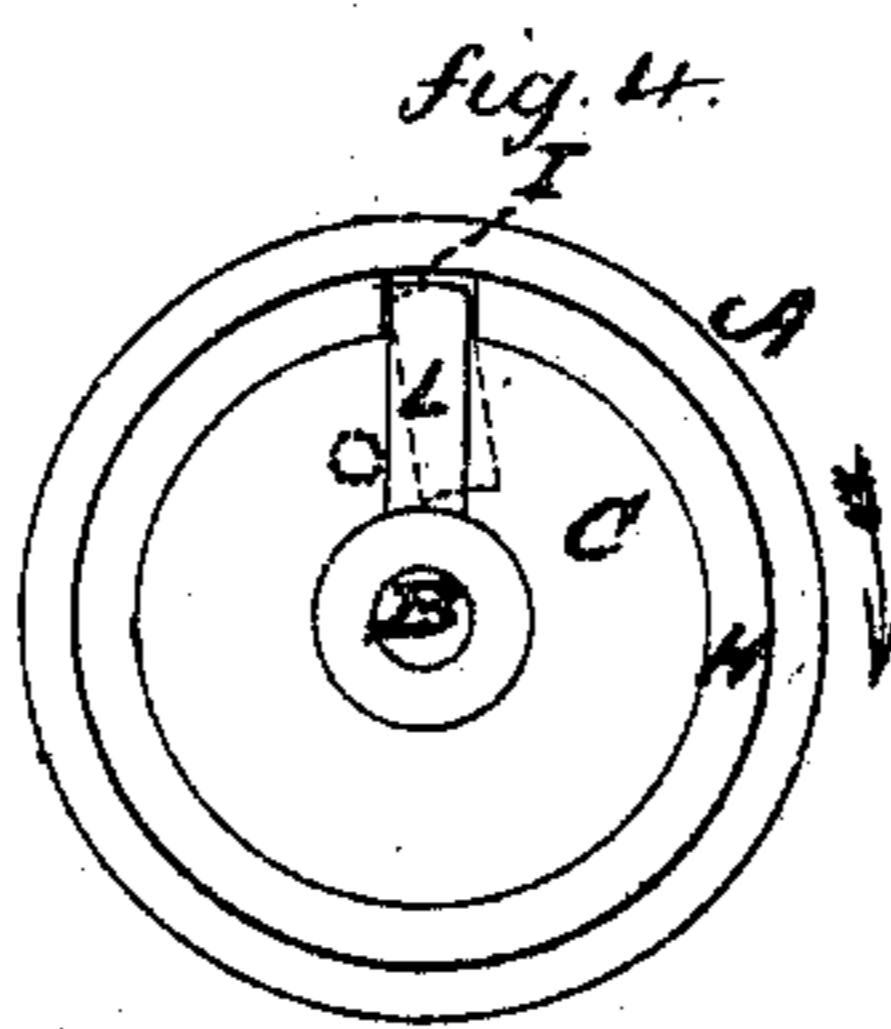
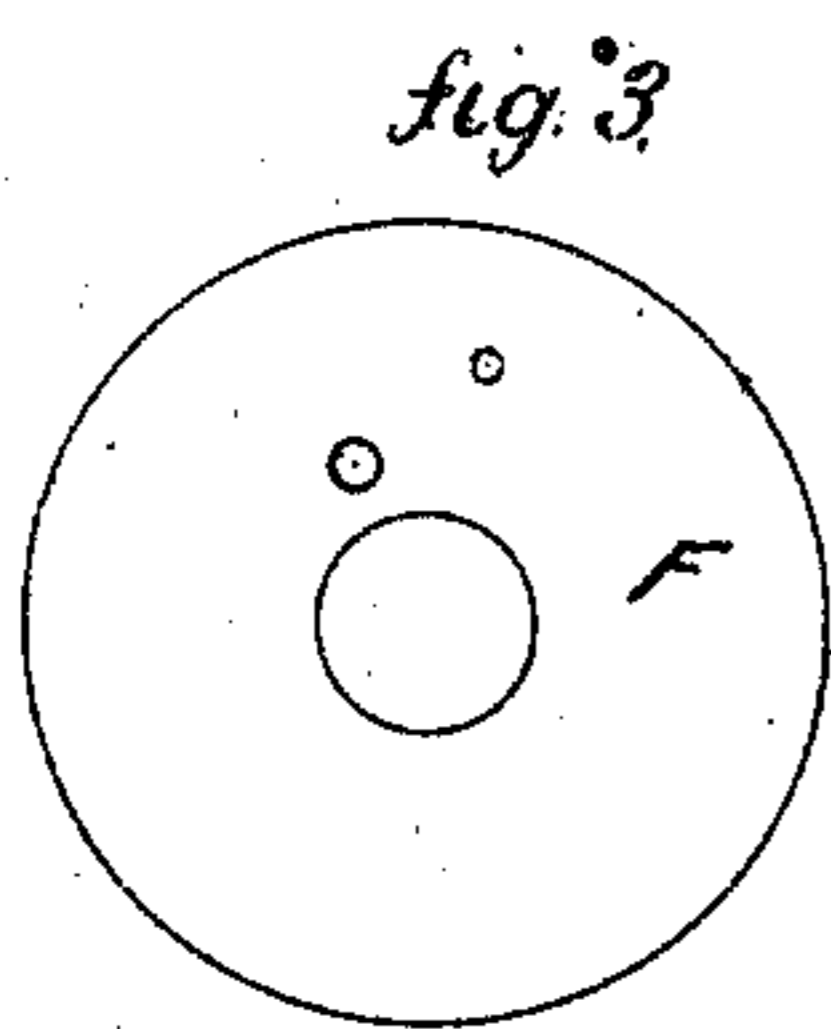
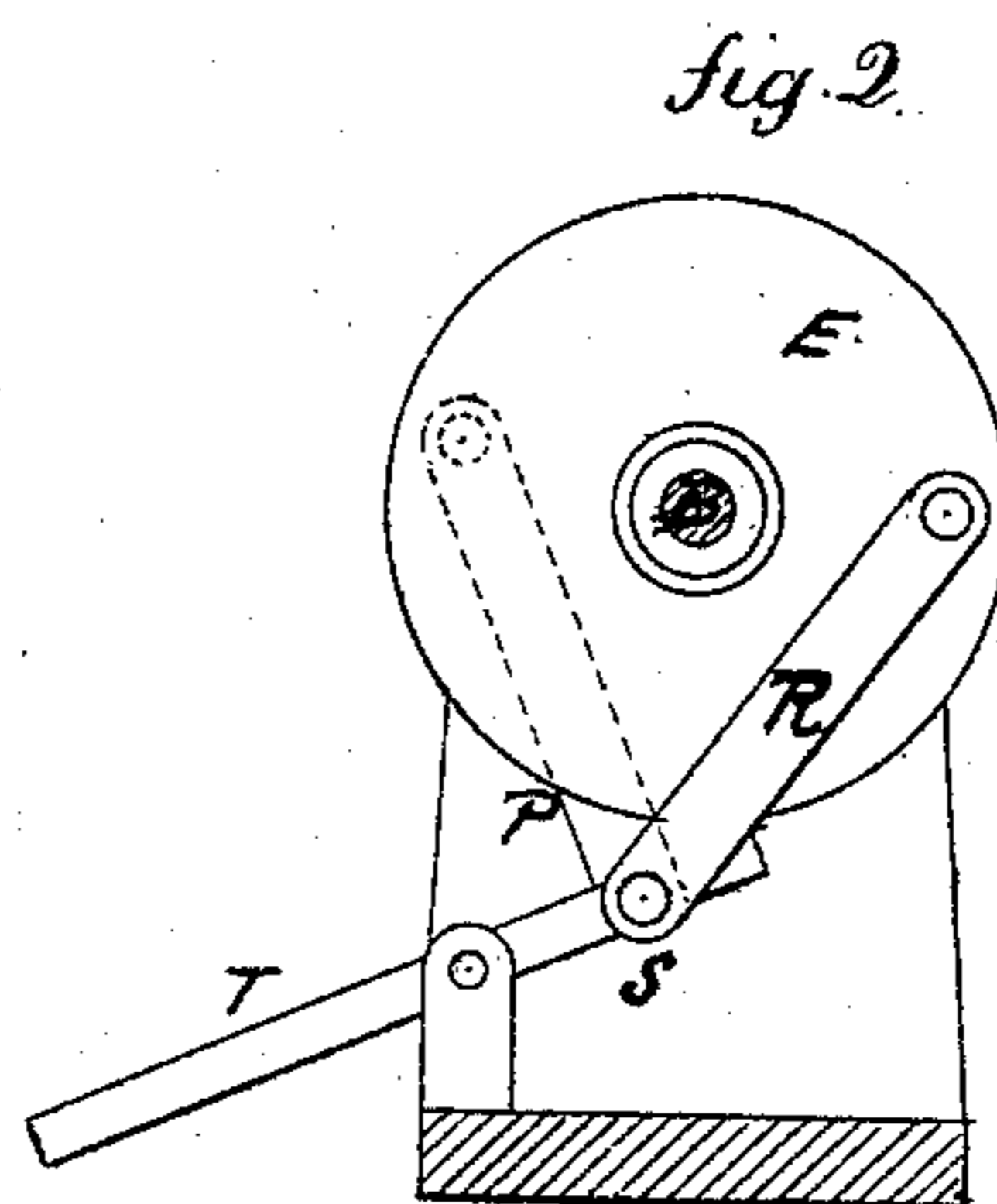
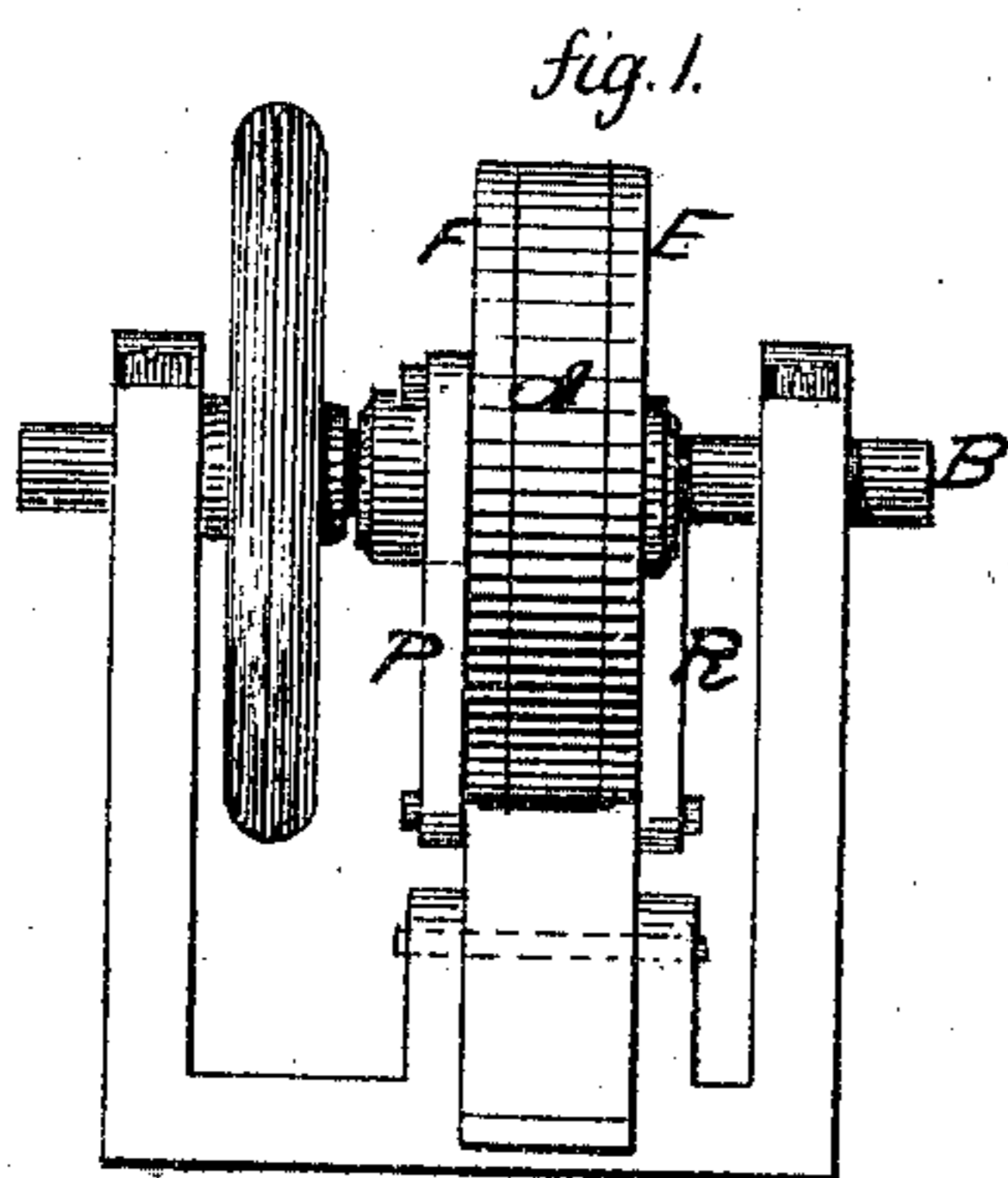


# PETER FERGUSON & FRANCIS G. BATES.

## Improvement in Mechanical Movement.

No. 120,955.

Patented Nov. 14, 1871.



Witnesses

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By their Atty.

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# UNITED STATES PATENT OFFICE.

PETER FERGUSON, OF NEW HAVEN, CONNECTICUT, AND FRANCIS G. BATES,  
OF SPRINGFIELD, MASSACHUSETTS.

## IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. 120,955, dated November 14, 1871.

*To all whom it may concern:*

Be it known that we, PETER FERGUSON, of the city and county of New Haven and State of Connecticut, and FRANCIS G. BATES, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new Improvement in Mechanical Movement; and we do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents in—

Fig. 1, a front view; Fig. 2, a side view, the post or bearing removed to facilitate the illustration; Fig. 3, an inside view of one of the plates; Fig. 4, an inside view of the cylinder; Fig. 5, an inside view of the other plate; and in Fig. 6, a vertical transverse section.

This invention relates to a mechanical device the object of which is to convert reciprocating into rotary motion; and it consists in a cylinder firmly fixed to the shaft to be revolved, constructed with chambers upon opposite sides, in each of which is arranged a cut ring fitted so that when free it will lie loosely in the cylinder, but when spread will fill the cylinder so as to bind hard upon the surface, and this cylinder provided with a head upon each side independent of each other, with a device for actuating a lever upon their respective sides, one in one direction and the other in the other, so that a movement imparted to the two heads in one direction will turn one head free, the other expanding the ring on its side to cause the cylinder to turn correspondingly, and on the return movement the other head engages upon each side, leaving that first actuated free to return, thus, by a back-and-forth reciprocating movement, imparting a rotary motion to the cylinder.

A is the cylinder, firmly attached to a shaft, B. The cylinder is provided with two chambers, C D, upon opposite sides, and each closed by a head, E F. Within each of the cylinders in the chamber is arranged a ring, H, of a diameter corresponding to the internal diameter of the cylinder, but so as to lie loosely therein,

and, if necessary, to remain stationary while the cylinder revolves. Each of these rings is divided as at I, Fig. 4, forming a space into which a lever, L, is set, fitting closely therein.

To spread the ring to fill the cylinder it is only necessary to turn the lever, as denoted in broken lines, Fig. 4, and this is done by a stud, *a*, upon the inside of the head E, as seen in Fig. 5, which, when on the cylinder, stands in the position denoted in broken lines, Fig. 4. Therefore, by turning the head E in the direction denoted by the arrow, Fig. 4, the stud *a* forces the lower end of the lever forward and expands the ring to fill the cylinder, creating a sufficient friction to cause the cylinder to turn with the head. When the power which so turned the head is released to allow the head to return, another stud on the same head strikes the opposite side of the lever close up to the ring, which causes the ring to return with the head, but imparting no power to the cylinder. On the return the other head F, on the opposite side, engages the ring upon that side in like manner.

The two heads E F are connected by rods P R to a common connection, S, here represented as to the treadle T. Therefore, as the inner end of the treadle is pressed downward one head engages the ring, the other being free, and as the treadle ascends the other treadle engages the cylinder, the first being free; and thus a continuous rotary motion is given to the cylinder and the shaft to which it is connected.

We have represented the invention as applied to a treadle similar to that employed in sewing-machines. We do this as a convenient way of illustration, but do not confine our invention to such a construction, as any device for imparting a reciprocating movement may be attached to both heads of the cylinder in similar manner, as, for instance, a piston, and other devices, to which those familiar with mechanics will readily see the applicability.

We do not wish to be understood as broadly claiming a loose ring and lever to clutch upon a cylinder, as such we are aware is not new; but

We claim as our invention—

The cylinder A fixed upon the shaft B, pro-

vided upon its interior with the two cut rings H and their lever L, and combined with the heads E F, each actuating the lever upon its cylinder, and combined with a reciprocating device to impart a movement to the said heads when the said heads are arranged so that a movement in one direction engages one of the

rings and the other head the other ring in the opposite direction, substantially as described.

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