

T. J. MORTON.

Improvement in Apparatus for Converting Reciprocating into Rotary Motion.

No. 128,240.

Patented June 25, 1872.

Fig. 1.

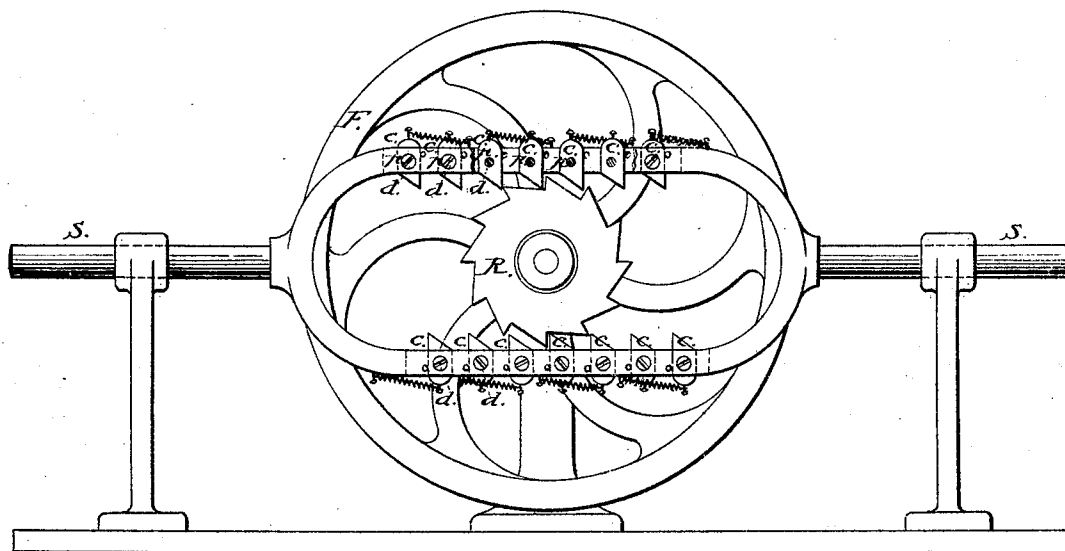
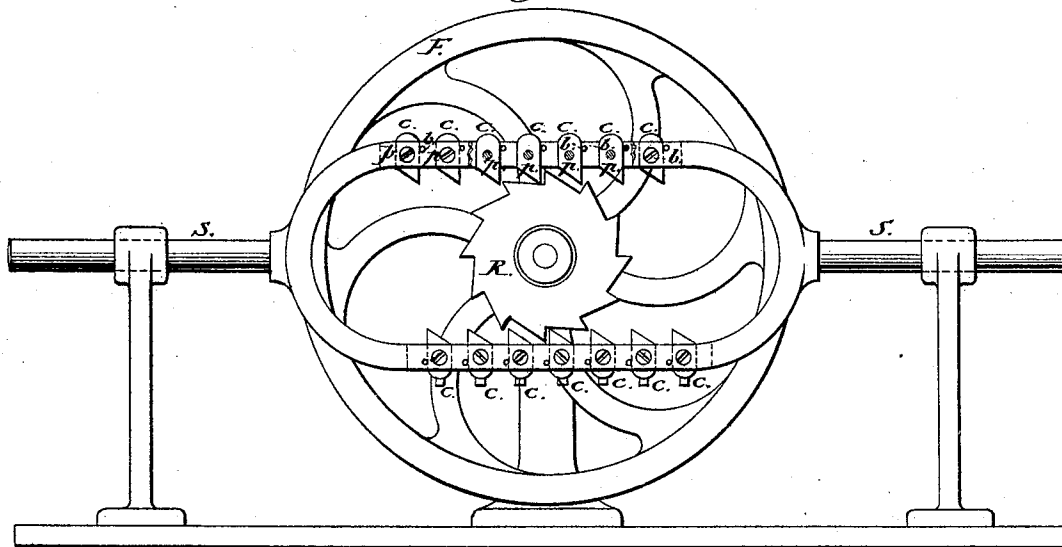


Fig. 2.



Witnesses.
Edw. W. Down

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UNITED STATES PATENT OFFICE.

THOMAS JOYES MORTON, OF RACINE, WISCONSIN.

IMPROVEMENT IN APPARATUS FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.

Specification forming part of Letters Patent No. 128,240, dated June 25, 1872.

To all whom it may concern:

Beit known that I, THOMAS JOYES MORTON, of Racine, in the county of Racine and State of Wisconsin, have invented a new and useful Improvement on the Crank. 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 drawing making a part of this specification, in which—

Figure No. 2 is a view of the improvement, showing its practical application.

F F is a fly-wheel; S, piston-rod or shaft; R, a ratchet-wheel, upon which *eee*, movable gravitating cogs, act; P P P are pivots, holding the cogs against two bars. *b b b* are bolts through the same two bars, against which the cogs rest when they turn the machinery. When the shaft is driven to the right the cogs on the upside part of the shaft act upon the teeth of the ratchet-wheel successively, and, the cogs being in number equal to half the teeth on the ratchet-wheel, turn this wheel half way round. While the shaft is moving to the right and the cogs on the top part of the shaft are turning the machinery, the cogs on the lower part of the shaft—each successively—turns upon its pivot, and allows the teeth of the ratchet-wheel to pass, and each cog immediately, by its own weight, falls into its proper position on escaping the teeth of the ratchet-wheel, so that when the shaft starts back the cogs on the lower part of the shaft are resting against the bolts *b b b*, ready to act upon the teeth of the ratchet-wheel, the same as the cogs on the upside of the shaft when the shaft was driven to the right; and the cogs on the lower side of the shaft being also equal in number to half the teeth of the ratchet-wheel, the backward movement of the shaft causes the wheel to make a complete revolution.

Fig. No. 1 shows the cogs working by springs instead of gravitation.

The purpose of this improvement is to save the power lost in all machinery where the crank is now used, which loss of power is estimated and known to be one-half.

I claim that this improvement, applied to a steam-engine, will double its present power without the fly-wheel; and, with the fly-wheel, I claim that it very nearly trebles the power. The power being double only half the fuel will be required. I further claim that it can be readily applied to all kinds of engines, stationary, locomotive, &c. I also claim that it can be applied to sewing-machines, lathes, grindstones, and all machinery whatsoever run by crank, in all of which the power will be doubled.

I do not claim pawls which are applied to movable plates on a rectilinear reciprocating frame in combination with two ratchet-wheels for converting right-line motion into rotary.

I employ pawls, which are pivoted directly to a rectilinear reciprocating frame, so as to be adjustable on their pivots independently of the motion of the frame, and which are held in position either by gravity or by springs applied to them. I do not employ sliding plates nor double ratchet-wheels, but pivot the pawls directly to the rectilinear reciprocating frame *s*, and use in combination therewith a single ratchet-wheel.

I claim—

Pawls *c*, when they are each separately self-adjusting and are pivoted between the parallel bars of a yoked rectilinear reciprocating frame, *s*, and provided with stops *b*, which latter, with the pivots of the pawls, have a bearing on each side of the pawls, in combination with the single ratchet-wheel R, for the purpose of converting rectilinear motion into continuous rotary motion, as herein shown and described.

THOMAS JOYES MORTON.

Witnesses:

WM. J. MORTON,
WM. Q. MORTON.