

United States Patent Office.

AUGUSTUS ECKERT, OF TRENTON, OHIO.

Letters Patent No. 108,340, dated October 18, 1870.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

The Schedule referred to in these Letters Patent and making part of the same

To whom it may concern:

Be it known that I, AUGUSTUS ECKERT, of Trenton, in the county of Butler and State of Ohio, have invented a new and useful Mechanical Movement; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my movement applied as a substitute for a double or two-throw crank.

Figure 2 is a perspective view of the same as applied in lieu of a single crank; and

Figure 3 is a detached view of one of the drums in fig. 1.

Like letters indicate like parts in each figure.

The nature of this invention relates to the application of a new mechanical movement for converting reciprocatory into rotary motion; and

It consists in the novel and peculiar arrangement on the shaft to be rotated of certain ratchets, loose drums, pawls, and springs, operated by proper levers or treadles for the purpose named, as more fully hereinafter set forth.

In the drawing—

A, fig. 1, represents a suitable upright frame, in the lower part of which is journaled the shaft B to be rotated.

In fig. 2 the frame is inclined and supported by proper braces.

C is a drum, rotating on the shaft in fig. 2.

D is a ratchet rigidly secured to the shaft near the inner end of the drum; in fig. 1 two of these ratchets and drums are shown.

E is a spur-wheel secured to the shaft, whereby motion is communicated to such mechanism as it may be intended to operate.

a in fig. 2 is a pawl, pivoted at its inner end in a longitudinal slot in the drum, with its outer overhanging and engaging with the ratchet on the shaft; a light rubber or other spring (not shown) is placed under it, to throw it out of the ratchet.

b is a cord, one end of which is secured to the under fore part of the drum, and the other is carried back over it, not pressing on the pawl, and attached to a spiral spring, F, attached to a stud in the rear, so that it will draw or rotate the drum to the rear, or exert a light strain on it in that direction.

c is a chain or cord secured to and carried around the drum in a direction opposite that of the cord b, and has its other end attached to a treadle-lever, G, the spiral spring exerting a sufficient force to ro-

tate the drum on its shaft, and thus carry up the treadle.

Now, if the treadle be depressed, the chain c presses the pawl a into engagement with the ratchet, when the shaft will be rotated.

As soon, in the rotation of the shaft and drum, as the pawl has rotated out of contact with the chain, it will disengage itself from the ratchet, leaving the shaft free to rotate from the momentum imparted to it; and, on the completion of the downward movement of the treadle, the pressure is removed, so that the spiral spring will rotate backward the drum, drawing up the treadle until a stop-pin (not shown) on the drum is arrested by a stop on the inner side of the frame, or the treadle strikes the drum.

In figs. 1 and 3 the pawls a' are pivoted to the ends of the drums, and over which projects a pin, e, from each.

With this pin a light spring, f, secured to the drum, engages and lifts it from the ratchet.

The chain c passes over this pin on its way to the treadle, which, when depressed, forces the pin e against the face of the drum, causing the pawl to engage with the ratchet, and thereby rotate the shaft.

In this movement the cord b' is not attached to a spring to reverse the movement of the drum, as in the single one, but is led up over a pulley, H, at the top of the frame and secured in like manner to the other drum, so that, as one lever or treadle is depressed, compelling its pawl to rotate the shaft, the other is being reversed and drawn up, to continue the work on the other side.

When required, hand-levers may be used to operate the movement in place of treadles.

The wide range of its application to the production of rotary motion, in place of the crank, will readily be perceived, while the following are some of the advantages to be derived from its use:

First, the movement can always be set in motion by pressing on the treadle, as there is no dead-point in it.

Second, a machine operated by it will always start in the right direction, and cannot be reversed by accident.

Third, it has as much power or leverage at the starting-point as at any other time, the propelling force being applied at the same distance from the shaft at all times during the downward movement of the treadle.

Fourth, the momentum of the shaft is not checked by having to carry up the treadle and connections at each rotation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the shaft B and frame A, the fixed ratchet D, loose drum C, pawl *a*, cord *b*, spring F, chain *c*, and treadle-lever G, as and for the purpose set forth.

2. The arrangement of the shaft B and frame A, the fixed ratchets D, loose drums C, pawls *a'*, pro-

vided with pins *e*, the springs *f*, chains or cords *c*, treadle-levers G, reversing-cord *b'*, and pulley H, as and for the purpose set forth.

AUGUSTUS ECKERT.

Witnesses:

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