

W. F. BARNES.
Converting Motions.

No. 146,636.

Patented Jan. 20, 1874.

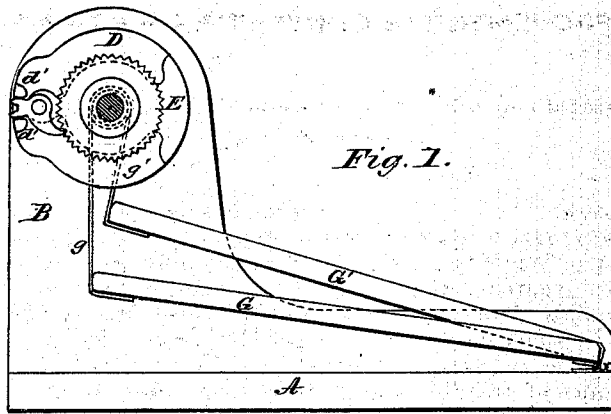


Fig. 1.

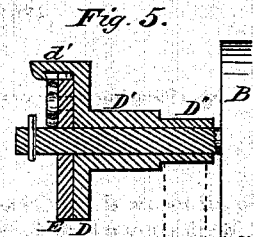


Fig. 5.

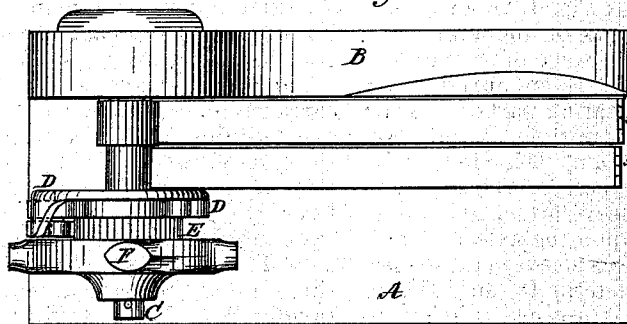


Fig. 2.

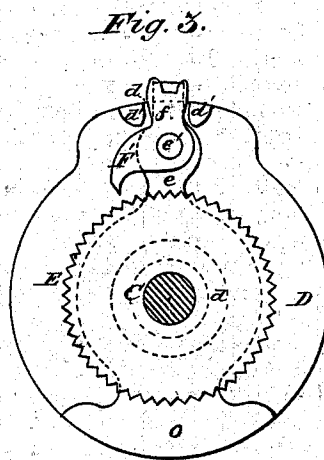


Fig. 3.

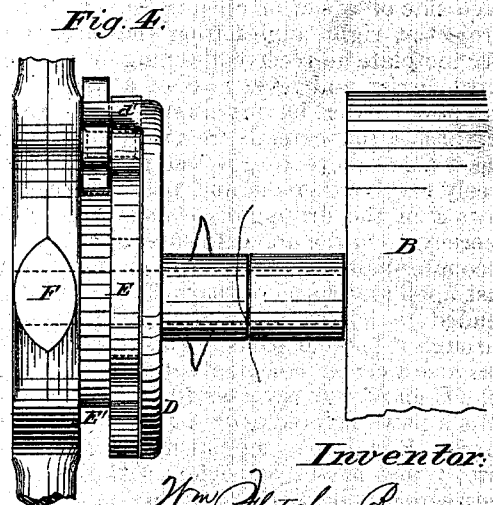


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM F. BARNES, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN CONVERTING MOTIONS.

Specification forming part of Letters Patent No. 146,636, dated January 20, 1874; application filed December 27, 1873.

To all whom it may concern:

Be it known that I, WILLIAM F. BARNES, of Rockford, in the county of Winnebago, in the State of Illinois, have invented certain Improvements in Mechanical Movements, of which the following is a specification:

My invention consists in imparting a revolving motion by means of treadles and a pawl or pawls, as will be fully hereinafter described.

In the drawings, Figure 1 represents a side view; Fig. 2, a top view; Fig. 4, an end view; Fig. 3, a front view of some of the details, and Fig. 5 a sectional view of some of the parts.

A is the base or bed; B, an upright that gives support to the operating parts. C is an axle, firmly fixed in the upright B, and projects horizontally therefrom. D is a loose driving disk or plate, having a center eye to fit upon the axle C, and has a sleeve attached thereto, that fits and revolves upon the axle, and with the plate or disk D. This sleeve is in two sections of different diameters, D' and D'', to which sections flexible straps are attached to give motion to the driving-plate D. The disk D is a circle, with a projection or jaw, *d'*, upon each side of a slot or opening, *d*, which jaws project at right angles from the face of the driving-plate to receive the tang or arm of a pawl-carrier and lever part of a pawl. E is the pawl-carrier, having an upwardly-projecting arm, *e*, that extends from the center, which has a hole or eye to go over the axle C and freely revolve thereon, and pass between the jaws *d'* of the driving-plate and be revolved thereby. On the opposite side to the arm *e* is a counter-balance, *o*. E' is a toothed wheel, fast upon any wheel or part, F, that it is intended to impart a revolving motion to, or through it to other parts. This toothed wheel has also a center hole or eye, that fits upon the axle C and freely revolves thereon or around. F' is a pawl, pivoted at *e'* to arm *e* of the pawl-carrier E, and has an outwardly-projecting arm, *f*, that passes, coincident with the arm *e*, between the projecting driving-jaws *d'* of the driving-plate D. The arm *e* of the pawl-carrier D fits loosely in the slot *d* between the jaws *d'*, while arm *f* of the pawl F' fits closely

between said jaws *d'*. G and G' are treadles, pivoted at *x x* to the base A, while at their vibrating ends are attached flexible straps or chains *g* and *g'*, that go around the sleeve D' and D'' of the driving-plate D, and firmly attached thereto. Strap or chain *g* goes from the treadle G up to and around section D' of the sleeve, while strap *g'* goes from treadle G' up to section D'' on the opposite side of the axle, and so that, when treadle G is forced down, it will revolve the driving-plate in one direction, and by releasing the weight or power from that treadle and transferring it to treadle G', it will reverse the revolution of the driving-plate D, and, as the arm *e* of the pawl-carrier is loose in the jaws of the driving-plate, and vibrates slightly between said jaws, while the arm of the pawl fits closely between the jaws, and weight is applied to treadle G and forces it down, the driving-plate is not acted upon until after the jaws *d'* have forced the pawl F' in contact with the toothed wheel E', when, by the continued forcing down of the treadle G and the driving-jaw against the pawl-carrier arm *e*, the pawl, being engaged with the teeth of wheel E, will rotate it, and continue to rotate it until the length of the flexible strap *g* is drawn from the sleeve of section D'. While this operation is being accomplished, the strap *g'* on treadle G' has been wound around section D'', and, as weight is applied to treadle G', it acts in a reverse manner to release the pawl from engaging the teeth on the wheel, and hold it out of contact until its limit is reached, when the pawl can be again forced in contact to engage the toothed wheel and rotate it, using no weights or springs to actuate any part or to keep the parts from contact.

It is obvious that the revolution of the wheel F is intermittent; but by duplicating the parts, so that when the pawl is carried out of its hold with the teeth on one side of the toothed wheel, another pawl will engage the teeth on the opposite side of the wheel, and thus convert the intermittent motion into a continuous revolving motion.

In the place of working the movement by foot, a revolving shaft having cams upon it

to alternately bear down the treadles can be used to successfully operate the movement.

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

1. The combination of the treadles G and G' and their straps with the driving-plate D, having jaws *d'*, pawl-carrier E, pivoted pawl F', and toothed wheel E', constructed and operating substantially as and for the purpose described.

2. The combination of the revolving driving-plate D, having projecting jaws *d'*, arm *e* of pawl-carrier E, and pawl F', having the close-fitting arm *f*, substantially as and for the purpose described.

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Witnesses:

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