(No Model.)

A. W. BUSH.

TREADLE POWER.

No. 289,216. Patented Nov. 27, 1883.

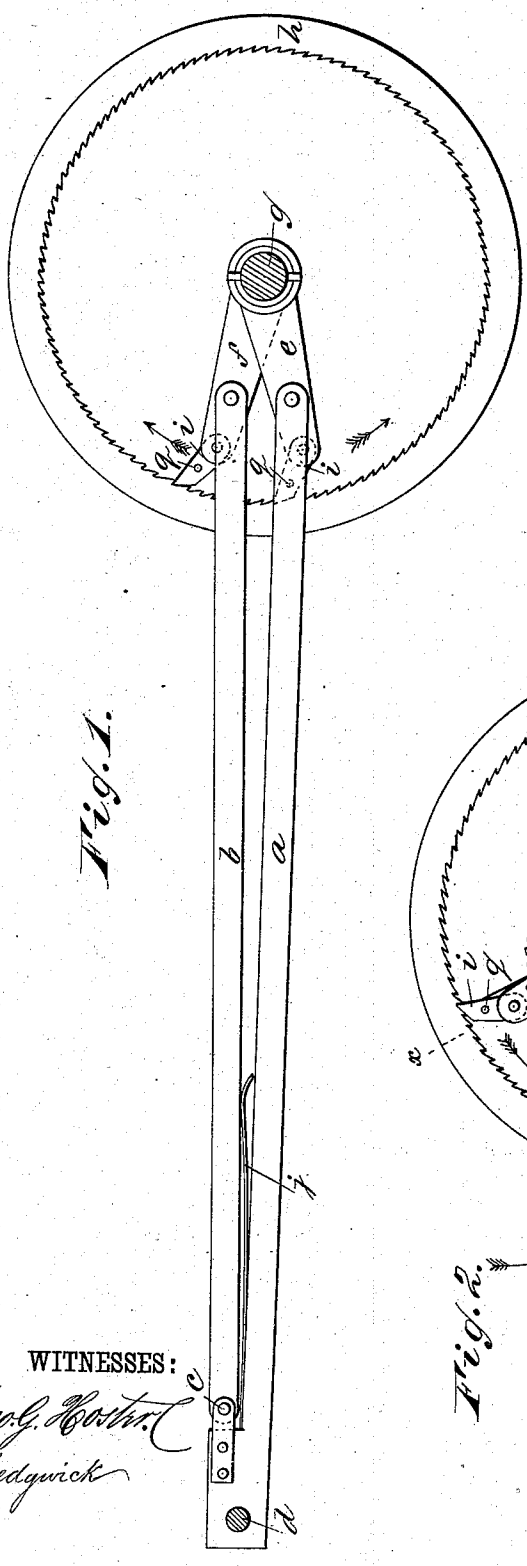


Fig. 1.

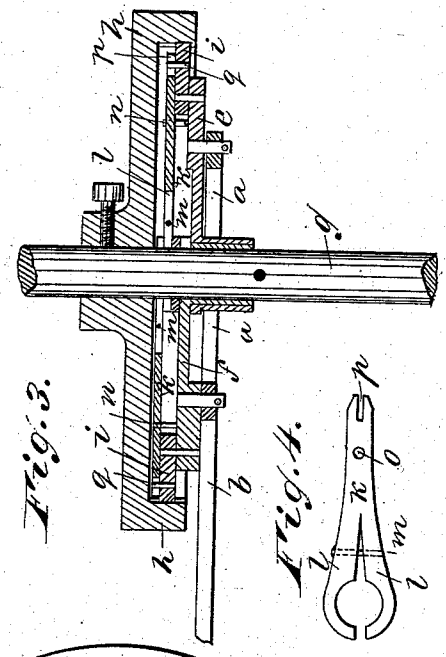


Fig. 3.

Fig. 4.

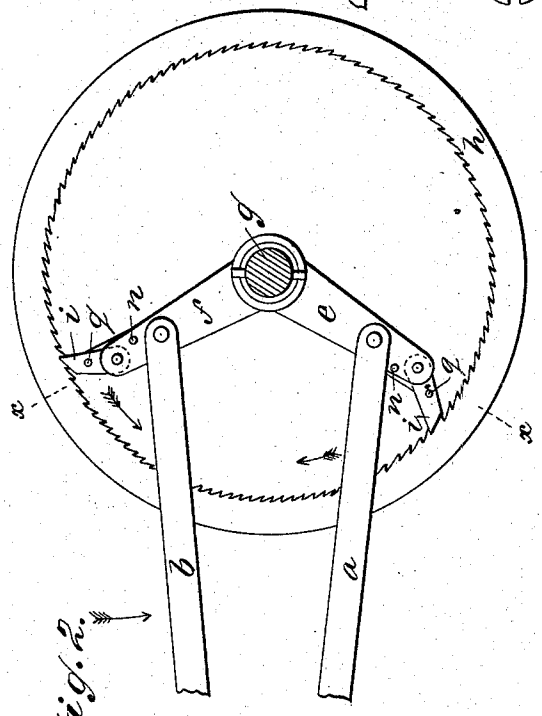


Fig. 2.

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UNITED STATES PATENT OFFICE.

ARTHUR W. BUSH, OF BOULDER, COLORADO, ASSIGNOR OF ONE-HALF TO GEORGE S. GIBSON, ISAAC L. BOND, AND FRANK J. WHITNEY, ALL OF SAME PLACE.

TREADLE-POWER.

SPECIFICATION forming part of Letters Patent No. 289,216, dated November 27, 1883.

Application filed May 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. BUSH, of Boulder, county of Boulder, Colorado, have invented a new and Improved Treadle-Power, of which the following is a full, clear, and exact description.

My invention consists of a branching or double connecting-rod and a pair of reversely-acting pawl-arms in connection with the internal surface of a wheel-rim, either plain or toothed, whereby, with a spring between the two parts of the connecting-rod, one pawl is made to go backward with relation to the rim of the wheel to the point of its re-engagement while the other pawl is driving forward to its point of release, and so that each pawl begins to drive when the other releases, so that the dead-centers of the crank are avoided, and the stroke of the treadle may be varied at the will of the operator, all as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved gear for converting the treadle or other vibratory or reciprocating motion into rotary motion, the pawls being in the extreme position of a stroke of the treadle or connecting-rod. Fig. 2 is a side elevation of the same gear, representing the connecting-rod approaching the extreme opposite point of Fig. 1. Fig. 3 is a section of Fig. 2 on line *x x*, and Fig. 4 is a detail of one of the friction-arms.

I use either a branched connecting-rod, *a b*, jointed together at *c*, or a double rod or two rods connecting the same to the treadle at *d*, for being operated by said treadle, and connect rod or branch to a separate pawl-arm, *e* or *f*, swinging from the shaft *g*, on which is a wheel having a rim, *h*, upon the inside of which the said pawl-arms act by click-pawls *i*, and between the two branches or parts of the connecting-rod I arrange a spring, *j*, that insures the reverse action of the pawl-arms with relation to the wheel-rim. When the connecting-rod reverses at the extreme of the downstroke, in case the treadle is worked to the extreme of the range, so that with both the click-pawls set to turn in the same direction, I have a connecting-rod for a treadle that drives in both directions alike and changes the stroke at any length desired. For causing the bite of the click-pawls on the forward stroke and the release on the back stroke, I use friction-arms *k*, made to grip the shaft *g* with the requisite pressure by spring-arms *l* and a tightening-screw, *m*, which have a little forward and backward play with relation to the pawl-arms *e f*, limited by the stud-pins *n*, which are permanently fixed in the pawl-arms, but project into holes *o* in the friction-arms of suitable size to allow the requisite play of said friction-arms, and said arms are connected with the click-pawls by a slot, *p*, in the end and a stud-pin, *q*, in the pawls, so that when the pawl-arms go back on the shaft the friction-arms will fall behind by their friction on the shaft, and swing and hold the click-pawls out of the teeth or off from the surface of the rim *h*, and when the pawl-arms reverse, the resistance of the friction-arms will instantly throw the pawls out and cause them to engage the rim. This contrivance will prevent the pawl from making a rattling noise when the rim *h* is toothed, and it will materially lessen the wear of the pawls on the rim that occurs when springs are used.

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

1. The combination, with a wheel-rim, its shaft, and reversely-working pawl-arms *e f*, provided with pawls *i*, of a double or two-part treadle connecting-rod, *a b*, and spring *j*, arranged between the branches or parts of said connecting-rod, substantially as herein shown and described.

2. The combination of friction-arms *k* with the shaft *g*, pawl-arms, and click-pawls, substantially as described.

3. The friction-arms *k*, in combination with the pawl-arms and click-pawls, and being connected with the pawl-arms with limited lateral play, and connected with the pawls suitably for swinging them by the said lateral play with relation to said pawl-arms, substantially as described.

ARTHUR W. BUSH.

Witnesses:
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