(No Model.)

J. F. FULLER & C. H. KNOWLTON.

FOOT POWER MACHINE.

No. 274,185. Patented Mar. 20, 1883.

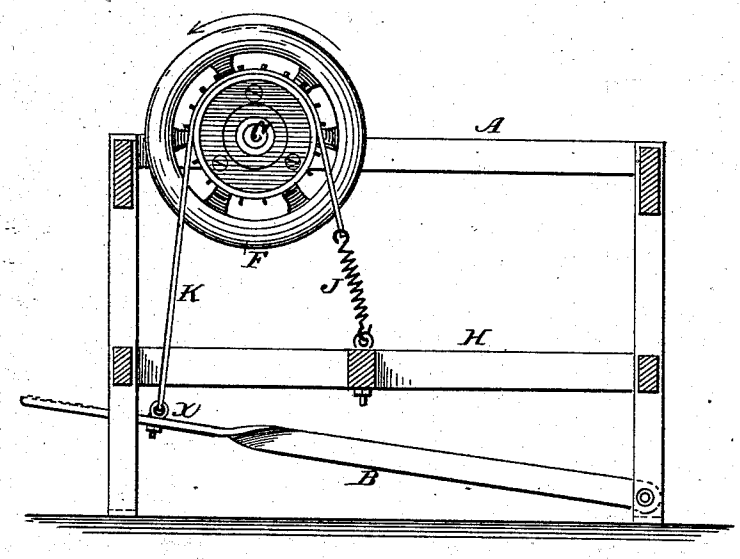


Fig. 1

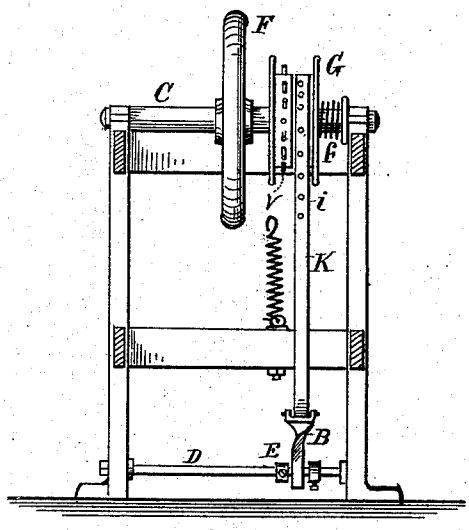


Fig. 2.

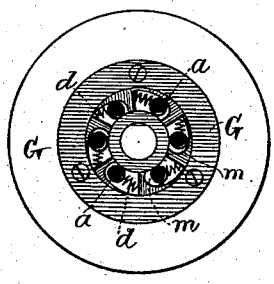


Fig. 3.

Witnesses:
Harry E Pennock
L J. White

Inventors:
Joseph F. Fuller.
Charles H. Knowlton.
Per C. C. Shaw.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH F. FULLER AND CHARLES H. KNOWLTON, OF LOWELL, MASS.

FOOT-POWER MACHINE.

SPECIFICATION forming part of Letters Patent No. 274,185, dated March 20, 1883.

Application filed January 15, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH F. FULLER and CHARLES H. KNOWLTON, of Lowell, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Foot-Power Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional side elevation; Fig. 2, a front view; and Fig. 3, a sectional view, showing the clutch.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates more especially to that class of foot-power machines in which the reciprocating movements of the treadle are converted into rotary motion; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a cheaper, simpler, and more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the frame, B the treadle, and C the shaft. The treadle is pivoted on the horizontally-arranged rod D, disposed in the lower rear part of the frame, being rendered laterally adjustable thereon by the collets and screws E. The shaft is journaled horizontally in suitable bearings in the upper part of the frame, in parallelism with the rod D, and carries the balance or fly wheel F and clutch-pulley G. The clutch is bored centrally to receive the shaft C, the bore having at its sides a series of tangential grooves of chambers *m*, provided with rollers *a* and springs *d*, the springs acting expansively to force the rollers down into contact with the shaft, where they will wedge or jam between the sides of the chambers and the shaft as the shaft is moved to turn the wheel F forward, and be released or thrown back into the chambers at each reverse movement of the clutch, in a manner which will be readily obvious without a more explicit description.

Attached to the bar H of the frame A there is a stout coiled spring, J, and passing over the clutch G there is a strap, K, one end of the strap being secured at *x* to the treadle B and the other to the spring J, which acts contractively to elevate the treadle, as shown in Fig. 1. The face of the clutch is a little more than twice the width of the strap, and projecting radially from its periphery there are a series of short pins, *v*, which are designed to pass through a corresponding series of holes, *i*, in the strap K. In Fig. 1 the strap is represented as applied to that section of the clutch which is provided with the pins, and in Fig. 2 as in use on the smooth portion of the pulley.

When great power and a low speed are required, the treadle is moved on the rod by means of the collets E, and secured to bring the strap into position for use with the pins, as shown in Fig. 1; but when small power and high speed are requisite the belt is arranged as shown in Fig. 2, being overlapped and having its inner end secured to the face of the pulley by a screw or in any other suitable manner.

In Fig. 2 a spring, *f*, is represented as arranged around the shaft C, one end of the spring being secured in the end of the pulley and the other to the shaft-box, the torsional action of the spring operating to draw up the treadle, a spring of this character being used when the belt is lapped around the pulley, as shown in Fig. 2.

Instead of the strap K, we sometimes make use of a chain where great power and low speed is required, the pins *v* passing through the links of the chain, which is attached to the spring J in the same manner represented for the strap in Fig. 1; but for the smooth part of the pulley, and when high speed is required, the strap is preferable.

We are aware that a clutch having the interior construction described is not new; also, that perforated belts are old, and therefore do not claim the same when in and of themselves

considered; but we are not aware that a foot-power machine has heretofore been constructed having a clutch-pulley with a double face, or one part of its periphery provided with pins for use with a perforated strap, the other being smooth for an overlapping belt or strap, in combination with a laterally-adjustable treadle and a retracting spring or springs, whereby the machine is adapted to be run at great speed with small power, or low speed with greater power, as described.

Having thus explained our invention, what we claim is—

1. The improved foot-power machine described, the same consisting of the frame A, clutch G, shaft C, wheel F, spring J, strap K, treadle B, and spring *f*, constructed, combined, and arranged to operate substantially as set forth.

2. In a foot-power machine substantially such as described, the clutch G, provided with the rollers *a*, springs *d*, chambers *m*, and pins *v*, in combination with the shaft C and operative mechanism, substantially as specified.

3. In a foot-power machine substantially such as described, the laterally-adjustable treadle B, provided with a chain or perforated strap, in combination with a clutch-pulley and retracting-spring, the pulley being arranged on the driving-shaft, and provided on its periphery with a series of radially-arranged pins or projections for engaging the strap or chain, substantially as set forth.

4. In a foot-power machine substantially such as described, a pulley disposed on the main driving-shaft, and adapted to be used with a strap lapping said pulley, and having one end secured thereto, or with a chain or perforated strap passing over the same, whereby the machine may be run at a high or low speed, substantially such as described.

JOSEPH F. FULLER.
CHARLES H. KNOWLTON.

Witnesses:
H. E. REMICK,
L. J. WHITE.