P. M. CUMMINGS.

Mechanical Movement.

No. 162,462. Patented April 27, 1875.

Fig. 1.

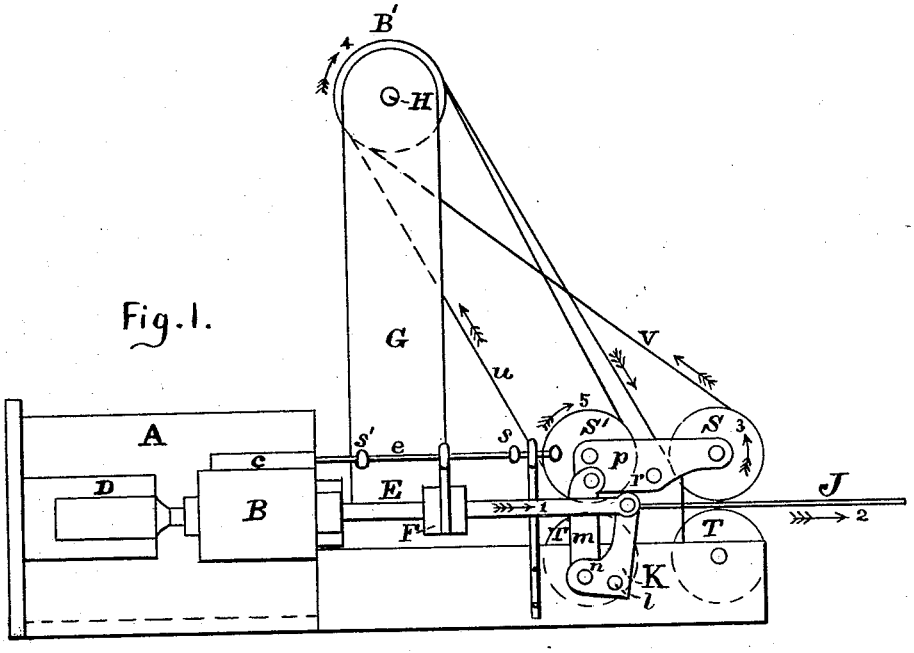
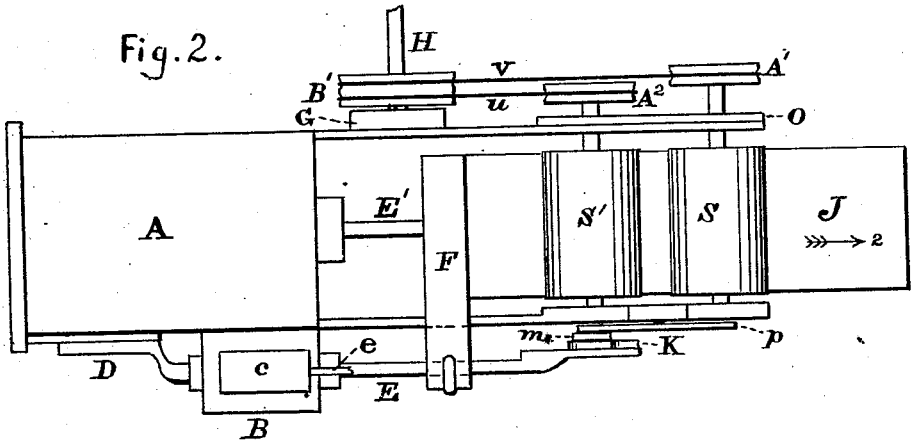


Fig. 2.



Witnesses:

H. A. Daniels,

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Inventor:

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By W. Burris Atty.

UNITED STATES PATENT OFFICE.

PERLEY M. CUMMINGS, OF LYONS CITY, IOWA.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **162,462**, dated April 27, 1875; application filed January 19, 1875.

To all whom it may concern:

Be it known that I, PERLEY M. CUMMINGS, of Lyons City, in the county of Clinton and State of Iowa, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation. Fig. 2 is a top view.

My invention consists of an improved mechanical movement for the application of steam or other power without the use of a crank by means of the combination and adjustment of a friction-plate and friction-rollers, and their operating devices, for the purpose of increasing the effective force, as hereinafter more fully described, and as shown in the drawings.

A represents the main cylinder of a steam-engine, and B a small steam-cylinder attached to the side of cylinder A. *c* is a steam-chest on the top of cylinder B, and D is a steam-chest on the side of cylinder A. E E′ are piston-rods to the cylinders. *e* is a cut-off rod to operate the valve in chest *c*. F is a cross-head to piston E′, connecting with piston E and cut-off rod *e*. G is a standard to carry a driving-shaft, H. J is a friction-plate attached to the cross-head F, and arranged between friction-rollers. K is a rocking lever pivoted on a pin, *l*, and connecting with bar *m* by a pivotal pin, *n*. P is a rocking plate pivoted on pin *r*. S S′ are friction-rollers, having their bearings at one end in a fixed plate, O, and at the other end in rocking plate P. T T′ are friction-rollers, having fixed bearings, to hold in place the friction-plate J. *u v* are belts, arranged on pulleys or drums A^1 A^2 on rollers S S′, and extending over a drum, B′, on shaft H. *s s′* are adjustable stops on rod *e*, to adjust the cut-off.

The cylinders and all the connecting devices being properly adjusted, and the steam introduced, the piston-rod E is moved in the direction indicated by arrow 1, working the valve in steam-chest D, and rocking the lever K backward, which, by means of the connecting-bar *m* and the rocking plate P, raises the roller S′ and depresses the roller S, bringing it in contact with the friction-plate J, and, by the steam in cylinder A, the friction-plate is moved in the same direction, as indicated by arrow 2, revolving roller S in the direction indicated by arrow 3, and, by means of belt *v* crossed, imparts motion to the driving-shaft H in the direction indicated by arrow 4; and the reverse motion of piston E raises roller S, freeing it from the friction-plate, and depresses roller S′ upon the plate, and the reverse motion of piston E′, reversing the motion of the friction-plate, revolves the roller S′ in the direction of arrow 5, and, by means of the belt *u*, conveys the power to the shaft H in the same direction as roller S and belt *v*.

The power thus applied always operates at right angles to the resistance, giving increased effective force over the method of applying the power by the use of the ordinary crank; and by means of the cylinder B and its piston E, and the connecting bars and plates, as described, the rollers may be readily held upon the friction-plate with any required degree of pressure to prevent the rollers from slipping upon the plate.

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

1. In combination with cylinders A B, pistons E E′, friction-plate J, and friction-rollers S S′, the rocking devices, consisting of bar K, connecting-bar *m*, and plate P, substantially as and for the purposes described.

2. In combination with cylinders A B, pistons E E′, friction-plate J, rollers S S′, and rocking devices K, *m*, and P, the drums or pulleys A^1 A^2, substantially as and for the purposes described.

In testimony that I claim the foregoing as my own invention, I affix my signature in presence of two witnesses.

PERLEY M. CUMMINGS.

Witnesses:

WM. W. SANBORN,

J. C. ROOT.