E. C. HOPPING.

MECHANICAL MOVEMENT.

No. 189,738. Patented April 17, 1877.

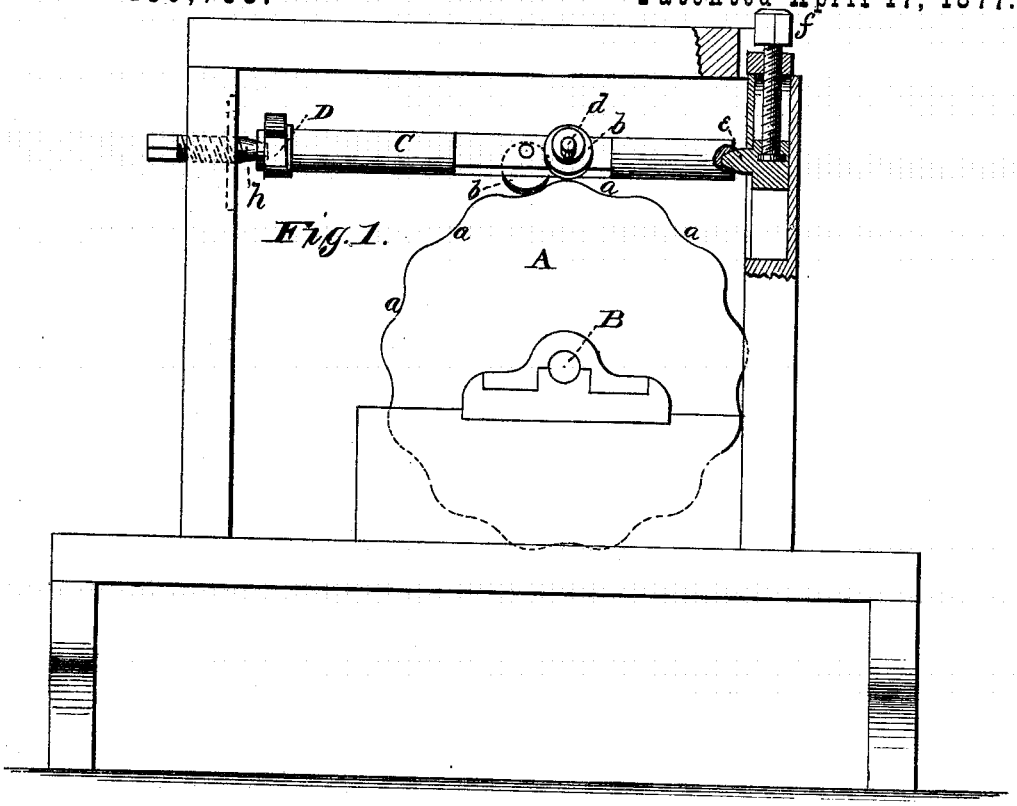
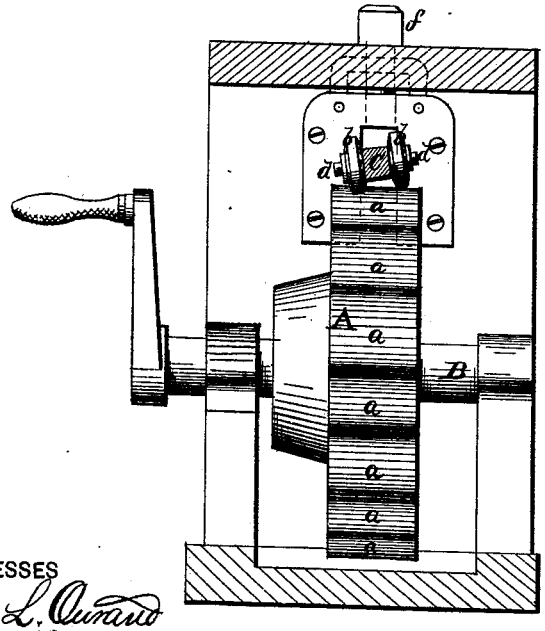


Fig. 1.

Fig. 2.



WITNESSES

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Fig. 1.

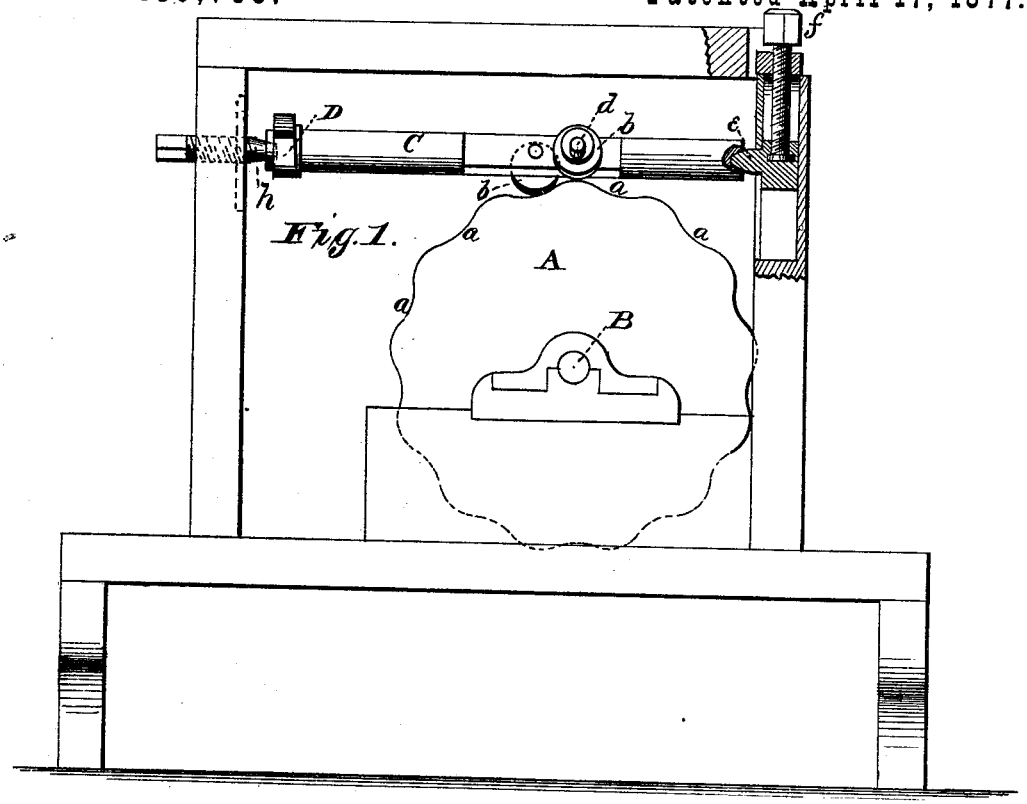
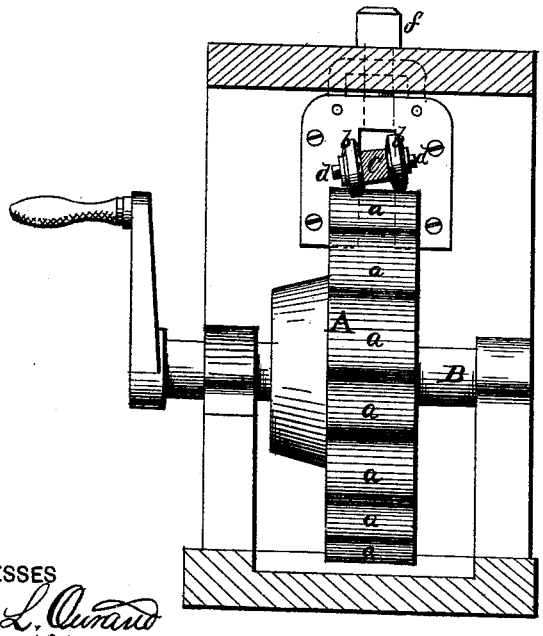


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

EUGENE C. HOPPING, OF MADISON, NEW JERSEY, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO EUGENE A. ELY, OF SAME PLACE.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **189,738**, dated April 17, 1877; application filed February 8, 1877.

To all whom it may concern:

Be it known that I, EUGENE C. HOPPING, of Madison, in the county of Morris, and in the State of New Jersey, have invented certain new and useful Improvements in Mechanical Movements; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to mechanical movements for converting rotary motion into reciprocating motion; and the nature of my invention consists in two rollers, placed one forward of the other, on opposite sides of a rock-shaft or lever-fulcrum, in combination with a single corrugated wheel, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is an end view of the same.

A represents a disk or wheel of any suitable dimensions mounted upon a rotating shaft, B, and having its periphery formed with a series of equidistant corrugations, *a a*, extending across the face of the wheel and entirely around the same.

C represents a rocking-shaft, provided on opposite sides with two rollers, *b b*, mounted upon studs *d d* projecting from the shaft, and one roller is as much forward of the other roller as one-half the distance between the highest points of two adjoining corrugations of the wheel A; or, in other words, so that when one roller rides over the highest point the other roller will be at the lowest point of the adjoining corrugation.

D is an arm projecting from the shaft C to be connected with the machinery to be driven.

One end of the rocking-shaft C has its bearing on a center, *e*, projecting from a slide, *f*, which is adjusted in grooves in the framework E by means of a screw, *h*, while the other end of the shaft has its bearing on a screw-center, *k*, as shown.

By these means the rocking-shaft C can be properly adjusted, so as to bring the rollers *b b* in the exact relation they should occupy with regard to the corrugated wheel A.

When the main shaft B and wheel A are in motion the rollers *b b* are caused alternately to rise and fall for each corrugation on the wheel A, thereby causing the shaft C to rock back and forth on the centers *e k*, and give the arm or lever D a reciprocating motion.

I am aware that mechanical movements having one double or two single cam-wheels operating upon rollers set directly opposite each other on a rocking-shaft are not new; hence I do not claim such here as being my invention. In such cases there are two sets of corrugations, making double the number of points of junction to the concaves for the rollers to pass over, which makes the distance between the points of junction only one-half of what it is in my invention, and hence the rollers can only be one-half the size. Furthermore, the friction of passing the points of junction is double on the two-cam machine what it is on my one-cam machine, as the rollers have to pass, in my invention, but one-half of the points of junction that the rollers in the two-cam machine do to produce the same number of motions.

In my machine the points of junction of the concaves can be made rounded, more like the centers of the concaves, thereby making the reaction of the lever not so sudden as it must be in a two-cam machine, where the points of junction are of necessity made sharp.

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

In a mechanical movement for converting rotary motion into reciprocating motion, two rollers, placed one forward of the other, on opposite sides of a rock-shaft or lever-fulcrum, in combination with a wheel having its periphery formed with a single set of corrugations, all substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of February, 1877.

EUGENE C. HOPPING.

Witnesses:

J. M. MASON,

A. C. RATHBUN.