E. Matteson,

Converting Motion.

No. 48,294. Patented June 20, 1865.

Fig. 1

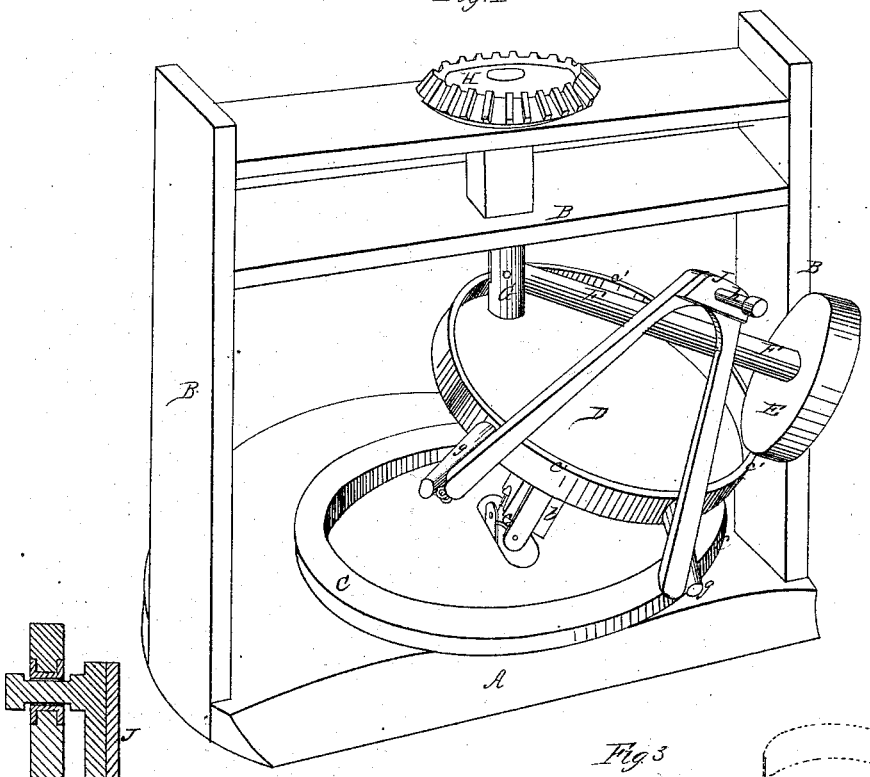


Fig 3

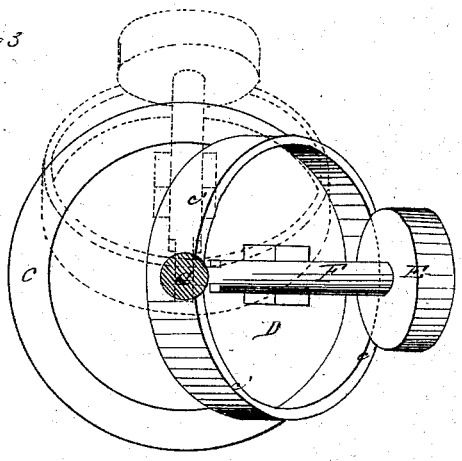
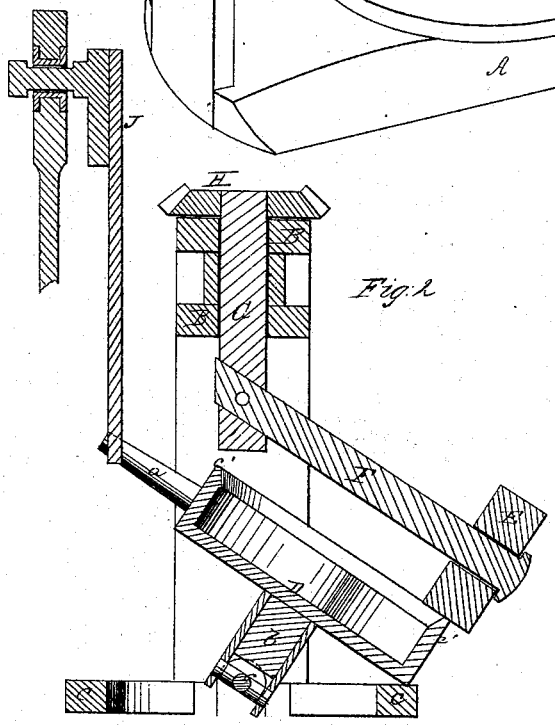


Fig 2



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UNITED STATES PATENT OFFICE.

ELISHA MATTESON, OF SOUTH BROOKLYN, NEW YORK.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **48,294**, dated June 20, 1865.

To all whom it may concern:

Be it known that I, ELISHA MATTESON, of South Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Mechanical Movement; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a vertical cross-section through the same, and Fig. 3 is a horizontal section representing the circular inclined plane and driving-roller in two positions.

Similar letters of reference indicate corresponding parts in the three figures.

The object of this invention is to take advantage of the momentum of a great weight for the purpose of accumulating power and transmitting it to machinery by the employment of a contrivance which will occupy very little space.

The nature of my invention consists in combining with a circular or continuous inclined plane a traveling roller of considerable weight and communicating motion to the inclined plane in such manner that the weight will be constantly descending, and the power and motion thus obtained can be transmitted to machinery of various descriptions, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents a solid foundation, upon which is erected a frame, B.

C is a circular ring, which is elevated slightly above the horizontal foundation A, so as to form a path for a circular disk, D, and also a support for the circumferential edge of this disk. The disk D is supported at its outer edge upon the horizontal ring C and at its center by means of a post, *b*, which is attached to the base A in the center of the ring C by means of a gimbal or universal joint, *c*. The post *b* is considerably longer than the height of the ring C above its base, and consequently the disk D will be inclined more or less, according to the length of its central supporting-post.

A narrow flange or rim, *c'*, projects up perpendicularly from the surface of the disk D at or near its circumference, and serves as a support for a cylinder or roller, E, which is applied so as to turn freely upon a shaft, F, that is connected in any suitable manner to a vertical driving-shaft, G, as shown clearly in the drawings. This driving-shaft is located directly over the center of the base-ring or circular way C, and is provided on its upper end with a bevel-wheel, H, or some other contrivance by which motion can be communicated to machinery.

Two levers, *g g'*, project out from the flange *c'* of the inclined disk suitable distances, and have a forked pitman, J, attached to their extremities by suitable jointed connections. The upper end of the pitman has a wrist-pin, *h*, applied to it to receive the piston-rod of an engine, as represented in Fig. 2.

The object of employing two levers, *g g'*, is to enable me to give a tilting or rocking movement to the disk D, at the same time keeping this disk always in an inclined plane. To give the required movements to this disk B, the pitman J receives a reciprocating motion, and the levers *g g'* are alternately elevated and depressed. This disk constitutes a continuous inclined plane for the weight E, and this weight being retained by its shaft F upon the flange of said disk, it will revolve around the vertical axis of the shaft G and roll upon the flange *c'* toward the lowest point of the inclined plane, which point is constantly changing and preceding the rolling weight.

The disk D, as well as the arms *g g'*, serve as levers of the second kind to lift the weight E and keep it in motion, and as the fulcrum of the levers is at the point where the disk D impinges upon the base-ring C, the weight E will always be near this point, and consequently the leverage will be very great, and very little power will be required with a disk of proper size to keep the weight E in motion and the shaft G rotating. The disk D may be oscillated either to the right or to the left by reversing the motion of the pitman J.

By means of the mechanical movement which I have above described I am enabled to employ a small engine to obtain considerable power, and to take advantage of the momentum of a great weight for equalizing the motion of the machinery which is driven by it.

It will also be seen that the resistance to be overcome in moving the weight E is nearly, if not quite, equal at all times; hence there will

be no "dead-points" to overcome, as in ordinary crank-motions, by the prime mover, as are found in the crank-motion. The momentum which the rolling weight acquires will cause the entire machine to work very smoothly and with very little friction.

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

1. The employment of an inclined disk, D and C′, in conjunction with a rolling weight, E, which is connected to a driving-shaft in such manner that a rotary motion will be communicated to this shaft by oscillating said disk, substantially as described.

2. The application of arms *g g′* and a pitman, J, to the inclined disk D, substantially as described.

3. The combination of the flanged inclined disk D, roller E, shafts F G, and a contrivance applied to said disk for oscillating it, substantially as described.

4. Supporting the inclined disk D upon a gimbal-joint at its center and upon a base-ring or its equivalent at or near its circumference, in combination with a rolling pendent weight, substantially as described.

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