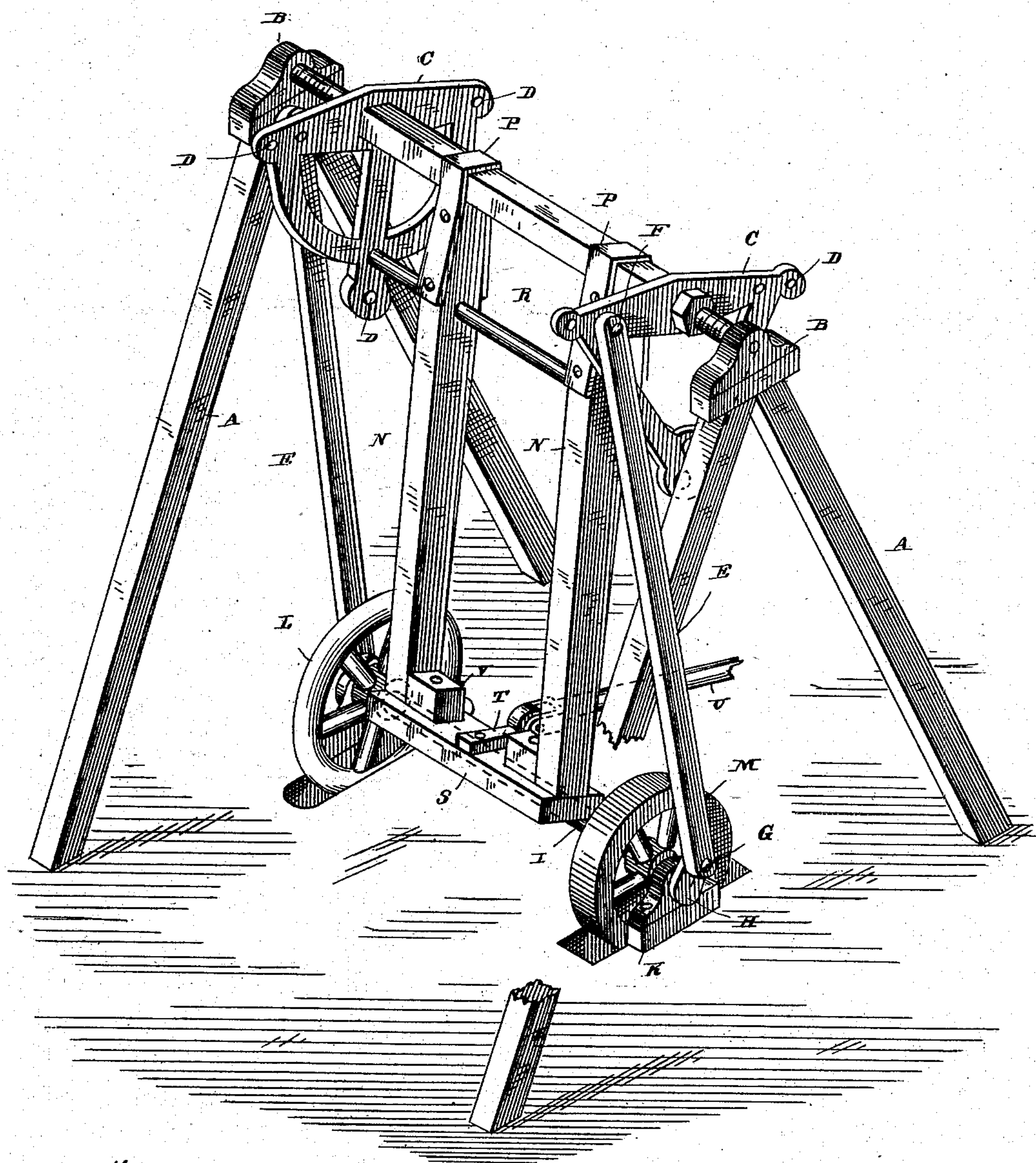


(Model.)

L. D. GOODWIN.  
TRANSMITTING MOTION.

No. 273,982.

Patented Mar. 13, 1883.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

LOUIS D. GOODWIN, OF MANCHESTER, NEW HAMPSHIRE.

## TRANSMITTING MOTION.

SPECIFICATION forming part of Letters Patent No. 273,932, dated March 13, 1883.

Application filed February 1, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, LOUIS D. GOODWIN, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Devices for Transmitting Motion and Increasing the Power of Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved machine or apparatus for converting motion; and it has for its object to increase the power derived from any motor, as more fully hereinafter specified. This object I attain by the means illustrated in the accompanying drawing, in which is represented a perspective view of my apparatus, a portion of the frame of which is broken away in order to better show the working part.

The letter A designates an angular frame, having mounted on its upper ends the journal-boxes B, which form bearings for a transverse rock-shaft, which may be square, polygonal, or other shape in cross-section. To the said rock-shaft, near each end, are secured the metallic segments C, or other equivalent devices, which are provided with apertures D, preferably screw-threaded, by means of which the connecting-rods for operating machinery may be attached to them. In the present instance two of such rods (indicated by the letter E) are employed, which are loosely connected to said segments by means of the wrist-pins F. The said rods at their lower ends are connected to the wrist-pins G on the cranks H of the shaft I, which is journaled in pillow-blocks K, suitably supported. The said shaft has mounted upon it a fly-wheel, L, and driving-wheel M, for the purposes hereinafter specified.

The letter N indicates two parallel bars, secured to the rock-shaft by means of the metallic straps P, or in any other convenient manner, and the said bars are braced by means of a transverse bar, R, secured at its ends to the segments above mentioned.

To the lower ends of the bars N is secured a cross-beam, S, and to the said beam is secured a connection, T, which has loosely con-

nected to it a pitman, U, which receives a reciprocating motion from any suitable motor. The cross-beam S may be provided with weights V, to enable the oscillating bars, by the momentum imparted by the motor, to carry the wrist-pins on the cranks of the shaft I beyond the dead-center, thus aiding in securing a uniformity of motion and in making the machine yield a greater amount of power, this result arising from the well-known fact that a heavily-weighted pendulum will require more power to halt it in its oscillation than one less heavily weighted.

The amount or degree of power exerted by my improved apparatus over and in excess of the amount received from the operating motion is regulated to a more or less extent by changing the distance between the center of the rock-shaft and the point of attachment of the connecting bars or rods to the segment. This change, which is equivalent to a change of the length of the shorter arm of a lever, necessarily effects or causes a change in the length of the swing or travel of the oscillating bars. When the connecting-rods are secured at their upper ends to the segments, at a point to either side of the rock-shaft, the shaft I will be found to make but one revolution during the travel of the oscillating bars from a vertical position to one extreme of the arc of their oscillation to the other extreme of said arc, and back again to a vertical position; but when the connecting bars or rods (which are shorter or longer, as the case may be, than those above alluded to) are secured at their upper ends to the segments or their equivalents, at a point either above or below the center of the rock-shaft, the shaft I will be found to make a revolution during the travel of the oscillating bars through one-half only of the arc of their oscillation, or, in other words, during their travel from a vertical position to one extreme of said arc and back again to a vertical line.

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

1. In a machine for converting and increasing power, the combination, with one or more oscillating bars, of a revolving shaft, and means for connecting the said bars and shaft,



whereby the oscillating motion of the former is converted into rotary motion and transmitted to the latter in increased degree, substantially as specified.

5 2. In a machine for converting and increasing power, the combination, with one or more oscillating bars having means which constitute a shorter arm extending from said bars, of a revolving shaft and connecting-rods, where-  
10 by the oscillating motion of the said bars is converted into rotary motion and transmitted to the shaft in an increased degree, substantially as specified.

15 3. The combination, in a machine for transmitting and increasing power received from a suitable motor to various machinery, of a rock-shaft journaled in bearings mounted upon a suitable frame, the segments mounted on said

shaft, the oscillating bars attached to said rock-shaft, and provided with a cross-beam at their lower ends, which may be connected to the pit-  
20 man of a suitable motor, and the connecting-rods, connecting with the cranks of a driving-shaft, the whole arranged to operate substantially as specified.

25 4. The combination, with the oscillating bars secured to the rock-shaft, of the weights adapted to be attached to the cross-beam to the lower ends of said bars, substantially as and for the purposes specified.

30 In testimony whereof I affix my signature in presence of two witnesses.

LOUIS DAVID GOODWIN.

Witnesses:

FRED. G. HALL,

F. D. RIOUX.