C. Howard,

Converting Motion.

No. 9185. Patented Aug. 10, 1852.

Fig. 1.

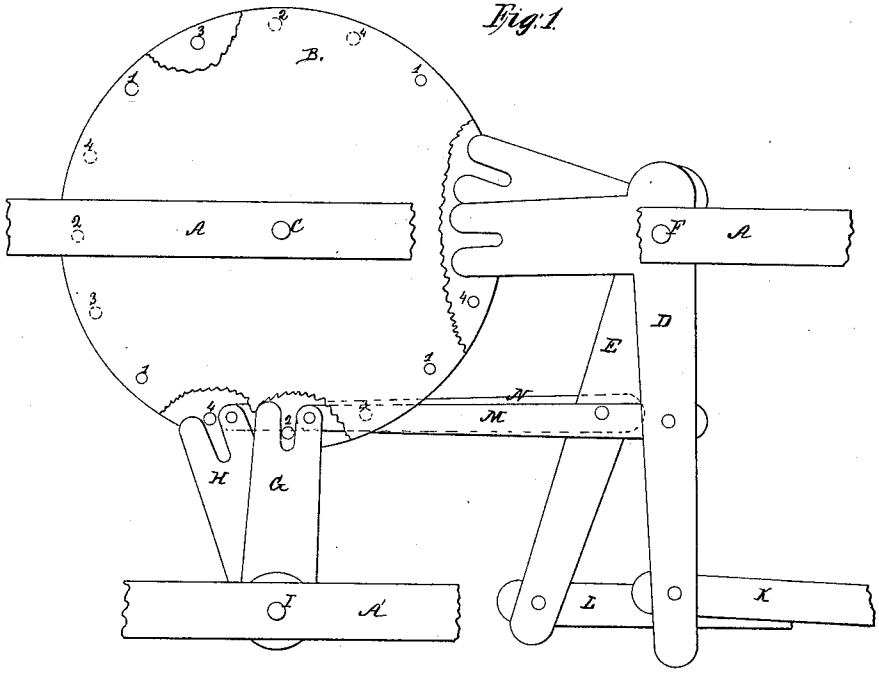
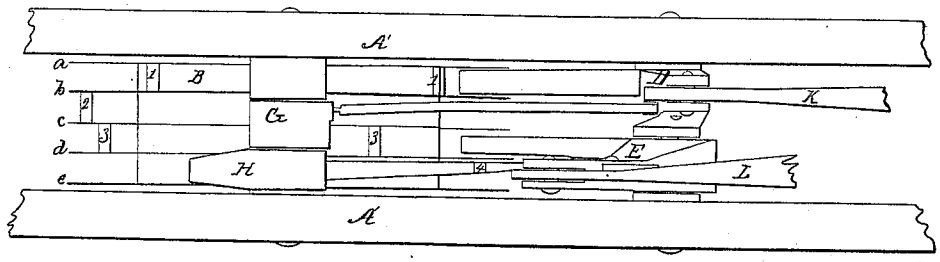


Fig. 2.



UNITED STATES PATENT OFFICE.

CHARLES HOWARD, OF ALTON, ILLINOIS.

METHOD OF CONVERTING RECIPROCATING INTO ROTARY MOTION.

Specification of Letters Patent No. 9,185, dated August 10, 1852.

To all whom it may concern:

Be it known that I, CHARLES HOWARD, of Alton, in the county of Madison and State of Illinois, have invented a new and useful Apparatus for Converting a Reciprocating Into a Rotary Motion or Converting a Rotary Into a Reciprocating Motion; and I do hereby declare that the same is described and represented in the following specification and accompanying drawings.

The nature of my invention consists in a wheel with a series of projections upon its periphery, or, pins upon its side which are alternately acted upon by the forked ends of several levers which are put in motion by some rectilinear mover as the piston of a steam engine etc. Or if it is desirable to convert a rotary into a rectilinear motion the wheel may be turned by some power which wheel will act upon the levers and produce said motion.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation referring to the drawings in which the same letters indicate like parts in both the figures.

Figure 1 is a side elevation, Fig. 2 is a representation of the bottom of my apparatus.

A A′ are beams which support the axis of the wheel and the fulcra of the levers. B a wheel made of five plates *a b c d e* fastened to the shaft *c* which is to be turned by said wheel.

Between the plates which constitute the wheel B there are four rows of pins with four in each row fastened to the plates near their periphery in the position represented in the drawing. The pins marked 1 1 1 1 are between the first and second plates or *a*, *b*, the pins 2 2 2 2 between *b* and *c*, those marked 3 3 3 3 between *c* and *d*, those marked 4 4 4 4 are between *d* and *e*. These pins are acted upon by the forked ends of the levers D and E which levers vibrate on the pin F which passes through them and through the beam A; and also by the levers G and H which vibrate upon the pin I in the beam A′. The levers D and E are intended to be operated by the pitmen from the pistons of two steam cylinders which pitmen K and L are represented as broken off. The levers D and E are connected to the levers G and H by the connecting rods M and N (as represented in the drawing) so as to be operated at the same time.

The several rows of pins numbered 1, 2, 3, 4, are placed in such positions that if they extended through the wheel they would form a row in a circle at equal distances from each other; and they are so arranged that while the lever D is acting upon 1 the lever G connected to it is moving in the opposite direction so as to act upon 2 when it enters the fork of G which will propel the wheel while the lever D is moving in the opposite direction. The levers E H act upon the pins 3 and 4 in the manner described for D and G and the pins 3 and 4 are placed equidistant from 1 and 2 or half way between them so that the four levers may act in succession and the 2d or H will begin to act before the 1st or D lets go or ceases to act and the third G begins to act before H ceases and the fourth E begins to act before G ceases and the 1st D begins to act again before E ceases so that the wheel B is constantly acted upon and propelled by one or more of the levers so that the power acting upon it is continual and uninterrupted.

If a reciprocating motion is required turn the shaft C and propel the wheel B, and the pins will act upon the levers and vibrate them producing a reciprocating motion.

I contemplate using rollers upon the pins 1 2 3 4 to lessen the friction between the pins and the forks of the levers.

What I claim as my invention and desire to secure by Letters Patent is:

An apparatus substantially such as is herein described for converting a reciprocating motion into a rotary one; or converting a rotary into a reciprocating motion, consisting of the wheel B levers E D G H and connecting rods M and N or their equivalents for the purposes specified.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

CHAS. HOWARD.

Witnesses:
E. G. DENNIS,
I. DENNIS. Jr.