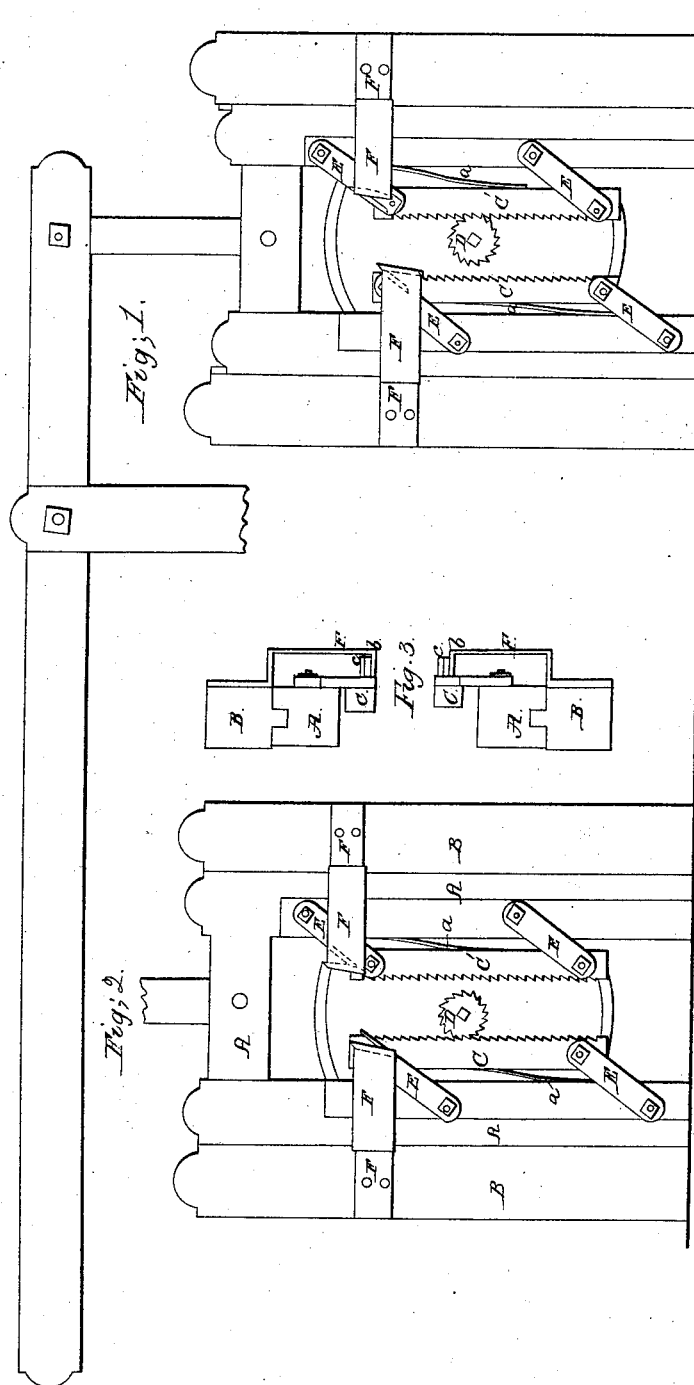


*C. A. Watson,*  
*Converting Motion.*  
*N<sup>o</sup> 864.* *Patented Aug 1, 1838.*



# UNITED STATES PATENT OFFICE.

CHARLES A. WATSON, OF GREEN RIVER, KENTUCKY.

## MODE OF CONVERTING A RECIPROCATING INTO A ROTARY MOTION.

Specification of Letters Patent No. 864, dated August 1, 1838.

*To all whom it may concern:*

Be it known that I, CHARLES A. WATSON, of Green River, in the county of Henderson and State of Kentucky, have invented a new and improved mode of converting a rectilinear reciprocating motion into a continuous rotary motion by a new and improved mode of arranging a double rack and ratchet-wheel, in virtue of which arrangement the racks engage with and disengage from the ratchet-wheel in a more perfect and advantageous manner than by any of the plans heretofore adopted; and I do hereby declare that the following is a full and exact description thereof.

In each of the figures 1 and 2 in the drawing, the same view is given of the operative parts of the machinery, the main difference between them being the representing opposite racks being engaged with the ratchet wheel.

A, A, A, is a sliding frame, traversing up and down between B, B, the stationary cheeks.

C, C, are two racks, or ratchets, having teeth upon them, resembling in form the teeth of a common saw, the direction of said teeth being on one rack, the reverse of the direction on the other.

D, is a wheel having ratchet teeth on its periphery; which wheel is fixed upon the fly wheel shaft, or other shaft to which a rotary motion is to be communicated.

The racks C, C, are connected to the side pieces of the slide frame by the joint pieces E, E, which turn at either end on the connecting pins.

There are springs *a, a*, attached to the cheeks of the sliding frame, with their opposite ends bearing against the back edges of the racks, so as to throw them into contact with the ratchet wheel D, when not held back by means to be presently described.

F, F are guide plates, which are attached to the cheeks B, B; their office is to remove the racks, alternately, off from the ratchet-wheel, while the opposite rack is engaged with the teeth thereof. The inner ends of

these plates are bent round, as shown at *b, b*, Fig. 3, which shows a horizontal section through them, the sliding frame, and stationary cheeks. Upon each of the ratchets C, C, is affixed firmly a plate, or stud of metal *c, c*. This plate rises vertically from the racks, its face forming a right angle with the faces of the racks, but their line of junction is oblique to a line drawn lengthwise of the racks. Their situation upon the racks is such that at the termination of each vibration of the sliding frame, their lower edges in the ascending and their upper edges in the descending stroke, will just clear the upper and lower edges of the guide plates F, F.

In Fig. 2, the sliding frame is represented as ascending the rack *c*, being engaged with the wheel D, and the plate or stud *c* on the outside of the bend *b*, of the guide plate, while the corresponding stud on the rack C', is on the inner side of the bend *b*, its oblique direction drawing it off from the wheel D, and forcing back the spring *a*. The plates, or studs *c, c*, pass alternately on the opposite sides of the bend *a*, of the guide plates F, F, accordingly as they are to be engaged with, or disengage from the wheel D. The guide plates F, F, are made adjustable in order that the studs *c, c*, may operate correctly.

Fig. 3, is a horizontal section through the plates F.

I do not claim to be the first to apply a double rack, and a toothed wheel for the purpose of converting a rectilineal into a rotary motion; but

What I do claim as my invention and wish to secure by Letters Patent is—

The manner in which the racks are engaged with, and disengaged from the ratchet wheel by the combined operation of the springs, joint pieces, guide plates, and studs, substantially in the manner described.

CHAS. A. WATSON.

Witnesses:

W. THOMPSON,  
LINTON THORN.