(No Model.)

C. W. CORLISS.

MEANS FOR CONVERTING MOTION.

No. 360,856. Patented Apr. 12, 1887.

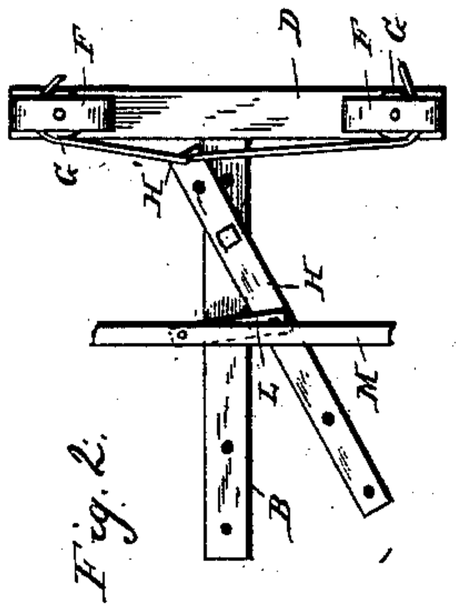
Fig. 2.

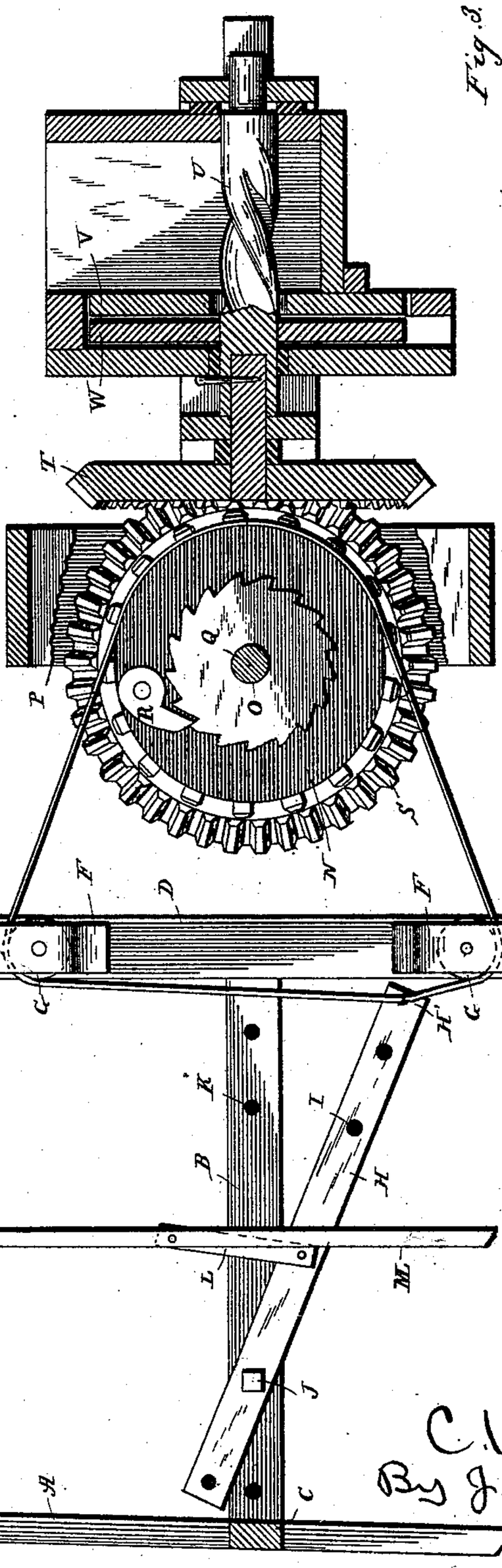
Fig. 1.

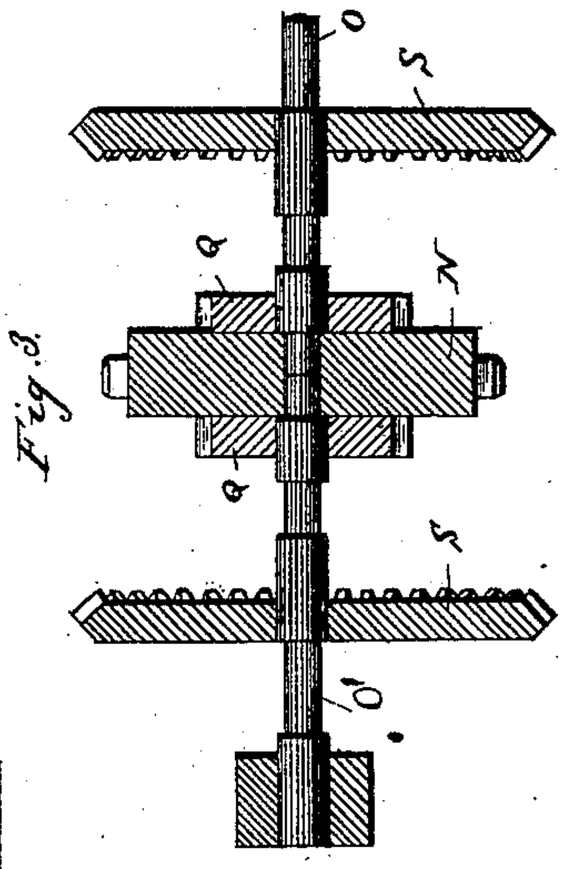
Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES W. CORLISS, OF FERGUS FALLS, MINNESOTA.

MEANS FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 360,856, dated April 12, 1887.

Application filed January 7, 1887. Serial No. 223,655. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. CORLISS, a citizen of the United States, residing at Fergus Falls, in the county of Otter Tail and State of Minnesota, have invented certain new and useful Improvements in Means for Converting Motion and Power; 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 certain new and useful improvements in mechanism for converting reciprocating into continuous rotary motion, and is designed with special reference to use in conjunction with wind-engines and grinding-mills, though not limited to these in its practical application.

In the accompanying drawings, forming a part of this specification, and on which similar letters of reference indicate the same or corresponding features, Figure 1 represents a partial side and sectional view of a wind-engine frame, showing my improvement applied thereto and a like illustration of a grinding-mill and the gears which transmit the motion thereto. Fig. 2 represents a side elevation of a motion-converter, showing a change in the position of the converting-lever; Fig. 3, an axial sectional view of the independent shafts, the bevel gear-wheels, the belt or chain wheel, and the ratchets and pawls.

The letter A designates a fragment of the tower or trestle of a wind-engine, of any of the known forms to which my improved motion-converter is shown secured, the pivot-beam B of which is secured at one end to one of the cross-beams C of the tower, and the roller-beam D of which is secured between the cross-beams E of the tower. To the beam D is secured bearing-plates F, and between these plates and the said beam are mounted band-guiding rollers or pulleys G.

The letter H designates the converting-lever of the motion-converter, the same consisting of a beam, either of wood or iron, provided with a number of pivot-holes, I, by means of which it is pivotally connected by a pivot pin or bolt, J, to one or the other of the pivot-holes K in the pivot-beam B. This beam is connected through the link L with a pitman, M, operated by the wind-engine in the usual way, whereby as the pitman reciprocates the lever H is given an up-and-down motion on its pivotal pin. To the end H′ of said lever is connected a belt or chain, which passes over the pulleys G and around a pulley or sprocket-wheel N, which receives a reciprocating rotary motion as the lever is oscillated up and down. This sprocket-wheel is loosely mounted on the shafts O and O′, having bearings in the uprights P, the shafts carrying, respectively, rigidly-connected ratchets Q, one at either side of the sprocket-wheel N. The teeth of these ratchets are of course in opposite directions, and to the wheel N are pivoted two pawls which engage with the respective ratchets Q.

It will be observed that when the wheel N revolves in one direction, due to the downward stroke of the operating-lever H, it will revolve one of the shafts in one direction, and that when it revolves in the other direction, due to the upward stroke of the lever H, it will revolve the other shaft in the opposite direction to the direction of the rotation of the first shaft. Each of these shafts carries a rigidly-mounted beveled gear-wheel, S, which respectively meshes with a bevel gear-wheel, T, mounted upon the shaft to which it is desired to transmit continuous rotary motion—in the present instance the shaft of a grinding-mill. The gear-wheel T, it will be observed, receives rotary motion from first one and then the other of the shafts O and O′.

The letter U designates the worm which feeds the material in the mill to and between the grinding-heads V and W; but this forms no part of my invention.

By reason of the different positions of the pivot-holes I with respect to the point of connection between the link L and the lever H, the length of the stroke of the end H′ of said lever, and the power it will exert in proportion to the power exerted upon it by the wind-engine, will be changed, the stroke of the end H′ being increased and the power decreased as the pin J is placed nearer the connection between the link L and the beam H, and vice versa.

In Fig. 2 I have illustrated the lever H as pivoted between its connection with the belt or chain and the link L.

By means of these various adjustments of the pivotal point of the lever H and the proportion of the power expended by to that exerted upon the lever H may be almost indefinitely varied to suit the size of the wind-engine and the resistance of the mechanism which is being operated.

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

1. In a motion-converter, the combination, with a pivoted lever and guiding-rollers, of a belt, a wheel over which the same passes, independently-mounted shafts, and a clutch-connection between the said shafts and the said wheel.

2. In a motion-converter, the combination, with the pivoted lever, a power-pitman pivotally connected therewith, and guiding-rollers, of a belt connected with said lever, a wheel over which the belt passes, provided with oppositely-disposed pawls, two independently-mounted shafts, each carrying a ratchet with which the pawls respectively engage, and a beveled gear-wheel mounted upon each of said shafts, and a like gear-wheel mounted upon another shaft and meshing with both of said gear-wheels.

3. In a motion-converter, the combination, with a beam and guiding-rollers mounted thereon, a lever pivoted to said beam and pivotally connected with the pitman of a wind-engine, and a belt connected with said lever and passing over said pulleys, of a wheel mounted upon the ends of two independent shafts and carrying pawls at opposite sides, ratchets engaged by said pawls and carried by the respective shafts, beveled gear-wheels carried by said shafts, and a like beveled gear-wheel meshing with said gear-wheels and mounted upon a mill-shaft.

4. In a motion converter, the combination, with a pivot-beam and a roller-beam carrying two guiding-rollers, of an operating-lever, the pivot-beam and the said lever having a number of pivot-holes, a pivot pin or bolt, and a link connecting said lever with the engine-pitman.

5. In a motion-converter, the combination, with two independently-mounted shafts, each carrying a beveled gear-wheel and a ratchet, of a sprocket-wheel mounted loosely upon said shafts and carrying pawls which engage with the respective ratchets, and a third gear-wheel meshing with said two gear-wheels and mounted upon another shaft.

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

CHARLES W. CORLISS.

Witnesses:
LOUIS H. SHARP,
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