(Model.)

R. GRAY.

Device for Converting Motion.

No. 227,244. Patented May 4, 1880.

Fig. 1.

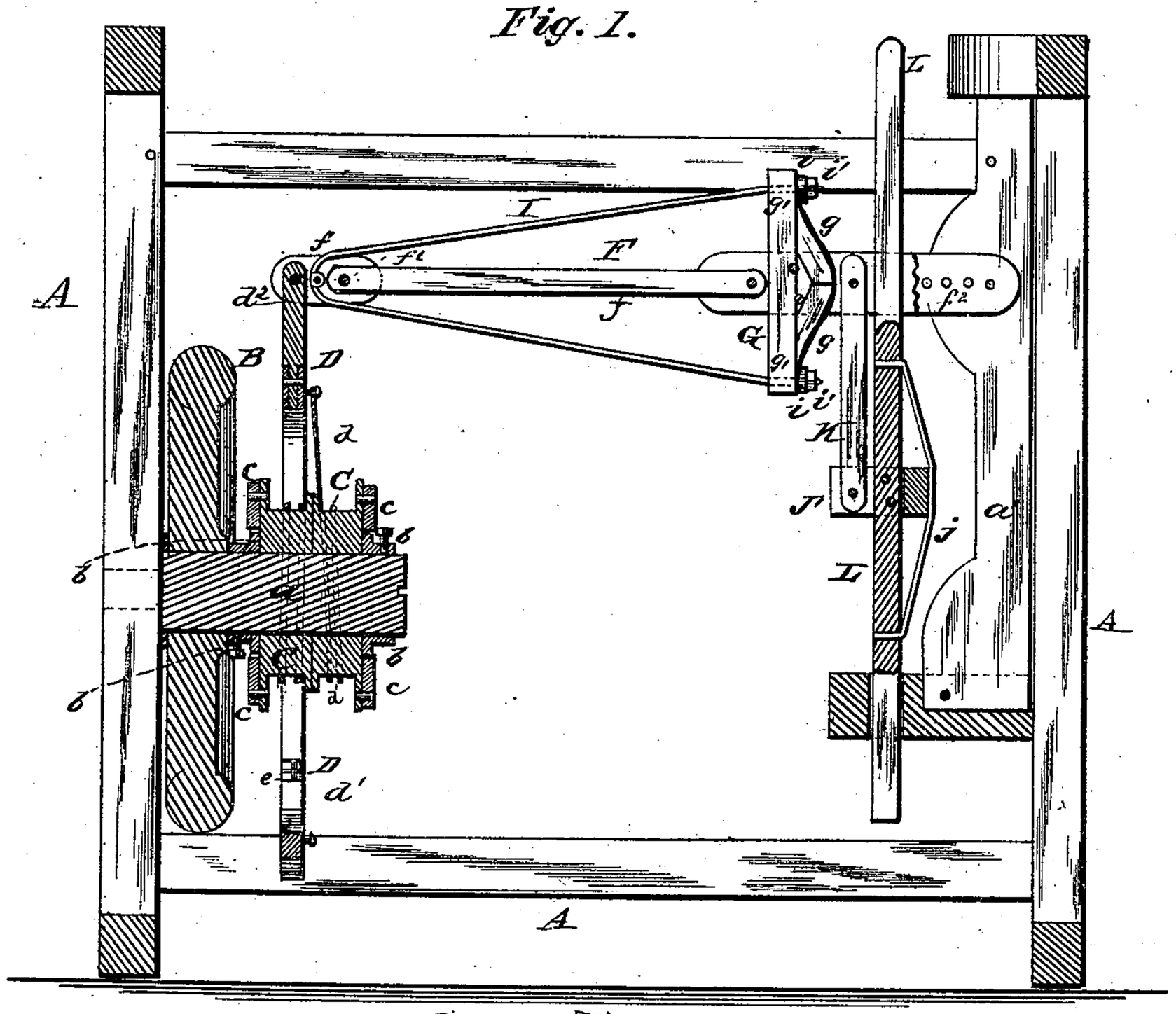
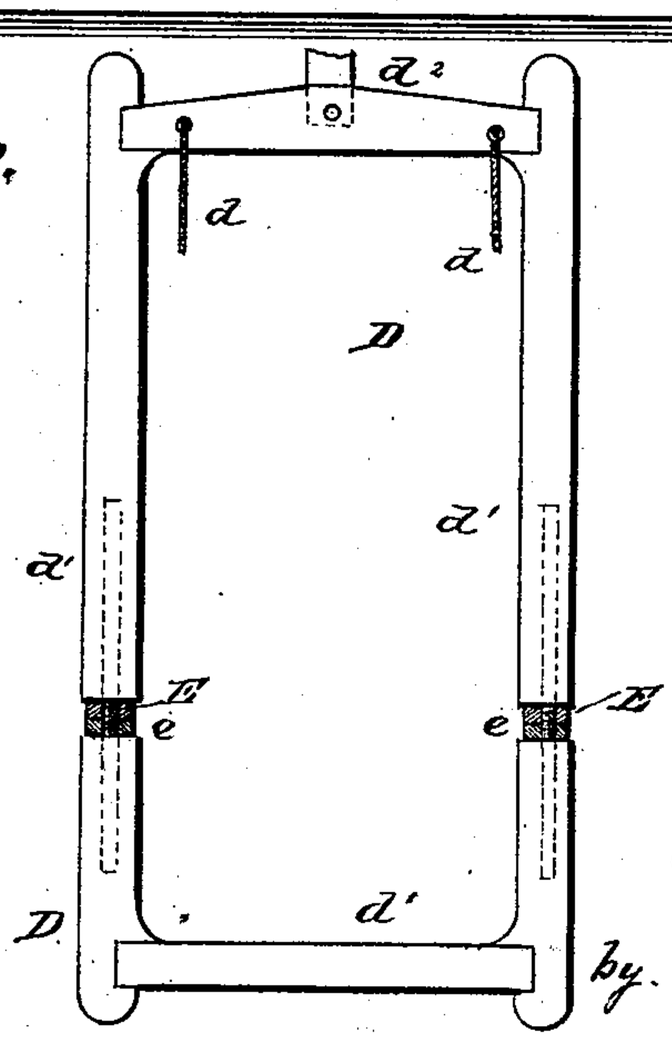


Fig. 2.



WITNESSES

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RICHARD GRAY, OF BLOOMINGTON, ILLINOIS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JEFFERSON DUNN, OF SAME PLACE.

DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 227,244, dated May 4, 1880.

Application filed March 30, 1880. (Model.)

To all whom it may concern:

Be it known that I, RICHARD GRAY, of Bloomington, in the county of McLean, and in the State of Illinois, have invented certain new and useful Improvements in Devices for Converting Motion; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, and in which—

Figure 1 is a vertical sectional view. Fig. 2 is a vertical section through the frame D.

This invention relates to certain new and useful improvements in the class of devices especially designed for converting a reciprocating rectilinear motion into a continuous rotary motion, and more particularly to the class employing a rectangular frame with a cord or band running around loose pulleys having pawls and mounted on a band-wheel shaft having fixed ratchet-wheels, with which said pawls engage for giving a continuous rotary motion to a band-wheel.

The object of my invention is to apply the above-described mechanism to wind-wheels, whereby the rectangular frame is operated through the pitman thereof; and to this end the invention consists in a novel construction of rectangular frame for tightening the cord or band, and thereby increasing the stroke of the pitman.

It further consists in a novel means for securing elasticity in the walking-beam connecting the rectangular frame with the pitman of the wind-wheel, for imparting a more uniform motion to the band-wheel shaft while relieving the strain on all parts of the machinery during sudden gusts of wind.

It finally consists in a novel means for connecting the walking-beam to the pitman of the wind-wheel and preventing it from springing, all as will be hereinafter fully described, and specifically pointed out in the claims.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

Referring to the accompanying drawings, like letters of reference indicate like parts in all the figures.

In the drawings, A represents a suitable frame, having secured in one of the uprights thereof the usual stud-shaft *a*, upon which the band-wheel B is mounted, the shaft of said wheel being provided with two fixed ratchet-wheels, *b b*, between which, upon said shaft, are mounted the loose pulleys C C, each being provided on its outer side with two spring-pawls, *c c*, for engaging with said ratchet-wheels.

D represents a rectangular frame, having a cord or band, *d*, passing around the loose pulleys C C in such manner as to turn said pulleys in opposite directions as the frame D is reciprocated, the motion of said pulleys, through the medium of the pawls and ratchet-wheels, imparting a continuous forward rotary motion to the band-wheel.

The rectangular frame D is formed in two sections, *d' d'*, connected by screw-rods E E, having nuts *e e* arranged thereon, whereby, in turning said nuts, the frame can be lengthened, as desired, for tightening the cord or band *d*, and through the medium of which a greater stroke can be given to the pitman of the wind-wheel.

F represents a sectional walking-beam, the section *f* being pivoted to an upright bar, d^2, of the frame D, and having a series of adjusting-holes, f^2, for the purpose of regulating the sweep thereof, and consequently the velocity of motion of the band-wheel.

The section *f'* of the walking-beam is pivoted to the upright *a'*, and is provided near its front end with an upright bar, G, braced by the inclined bars *g g*.

I represents a rod passing loosely through holes *g' g'* at the ends of the bar G, and around a pivot in the section *f* of the walking-beam, the end of the rod I being provided with springs *i i* and nuts *i' i'*, for a purpose hereinafter referred to.

J represents a lever pivoted at one end to the section *f'* of the walking-beam, and its other end connected to the other section, *f*, of the walking-beam.

The object of the above-described arrangement of parts is to secure elasticity in the walking-beam, whereby a more uniform motion is imparted to the band-wheel shaft, while

greatly relieving the strain on all parts of the machinery during sudden gusts of wind.

The degree of elasticity of the walking-beam can be varied by turning the nuts *i i* more or less tightly against the springs.

The pitman L of the wind-wheel is connected to the section *f'* of the walking-beam as follows: A pair of clamps, J', projecting from each side of the pitman, are bolted thereto, as shown in Fig. 1, and a rod, *j*, passes over one end of the clamps, and is secured at its ends to the pitman, thus forming a truss for preventing the pitman from springing, and the clamps are connected at their other end to the section *f'* of the walking-beam by the pivoted lever K.

The operation of my improved device is as follows: The pitman of the wind-wheel being raised and lowered vibrates the walking-beam, which, in turn, reciprocates or raises and lowers the frame D, thus communicating a continuous rotary motion to the band-wheel shaft through the medium of the cord or band, loose pulleys, and pawls and ratchet-wheels, as before described.

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

1. In a device for converting motion, the combination, with the pitman L, walking-beam F, cord or band *d*, band-wheel shaft, and intermediate connecting mechanism, of the rectangular frame D, formed in two sections and connected by the screw-rods E E, having the nuts *e e*, substantially as and for the purpose herein shown and described.

2. In a device for converting motion, the combination, with the pitman L and frame D, of the intermediate connecting walking-beam, F, composed of the sections *f f'*, transverse bar or upright G, rod I, and pivoted lever J, substantially as and for the purpose herein shown and described.

3. In a device for converting motion, the combination, with the pitman L and frame D, of the walking-beam F, composed of the sections *f f'*, transverse bar or upright G, rod I, passing through said bar or upright and having the nuts and springs *i i'*, and the pivoted lever J, the several parts constructed and arranged, relatively to each other, substantially as and for the purpose herein shown and described.

4. In a device for converting motion, the combination, with the walking-beam F and pitman L, of the intermediate connecting mechanism, consisting of the clamps J' J', truss-rod *j*, and pivoted lever K, substantially as and for the purpose herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of March, 1880.

RICHARD GRAY.

Witnesses:
THOS. SLADE,
H. E. HADLEY.