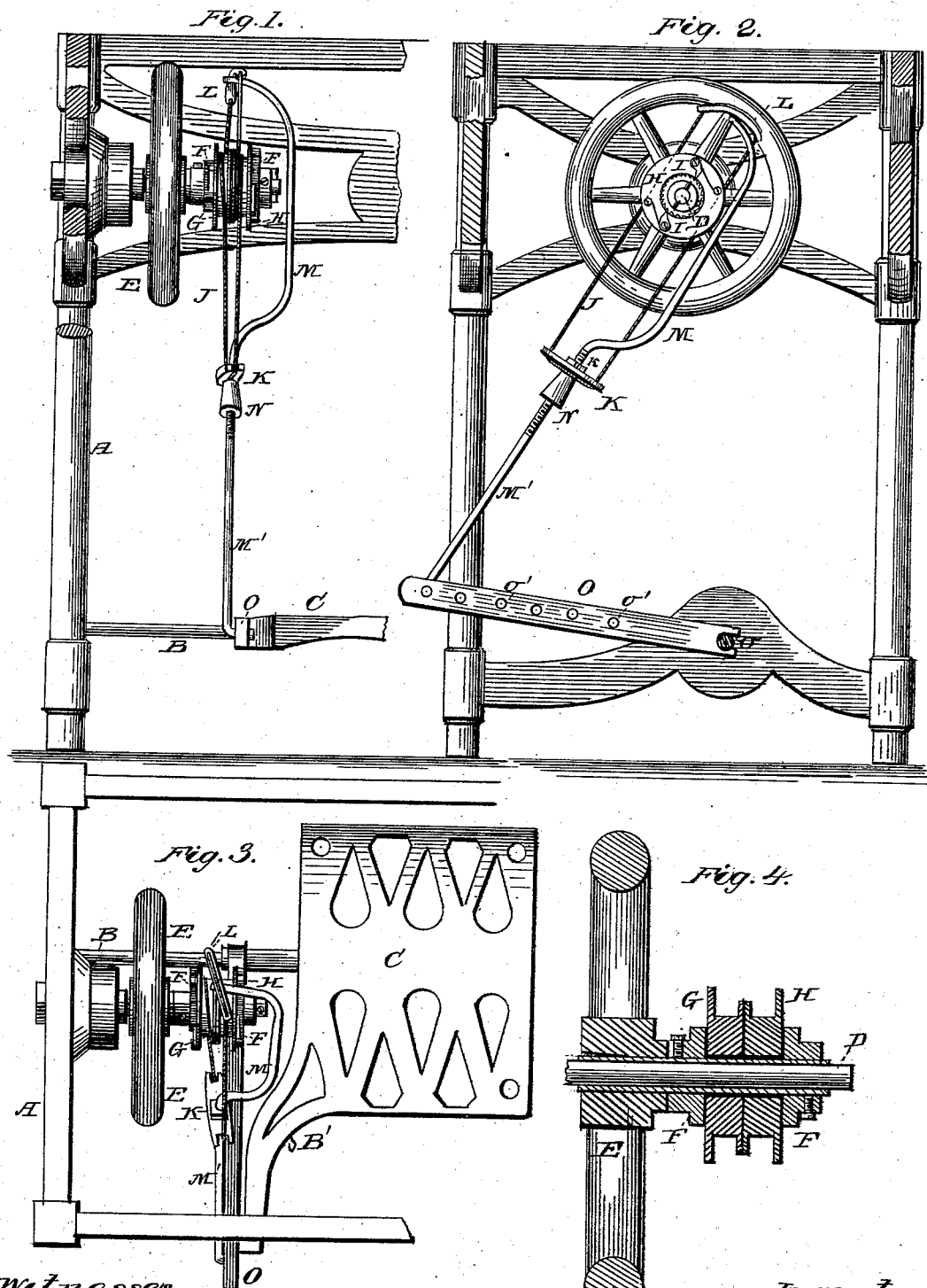


R. GRAY.
 Device for Converting Motion.
 No. 214,503. Patented April 22, 1879.



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

IMPROVEMENT IN DEVICES FOR CONVERTING MOTION.

Specification forming part of Letters Patent No. **214,503**, dated April 22, 1879; application filed
March 25, 1879.

To all whom it may concern:

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

Figure 1 is a front elevation with a portion of the frame broken away. Fig. 2 is a side elevation with a portion of the frame broken away. Fig. 3 is a top view. Fig. 4 is a detail sectional view.

This invention relates to improvements in the class of devices adapted for converting a reciprocating rectilinear motion into a continuous rotary motion, and more especially to the class adapted to be applied to the treadles of sewing, knitting, or other machines requiring light treadle-power, the object of my invention being to simplify the construction and operation of such devices, and at the same time permit of their application without altering the construction of such machines; and to this end the invention consists in the general construction and combination of parts, all as will be hereinafter fully described, and specifically pointed out in the claims.

In the drawings, A represents an upright frame, in the lower part of which a stationary shaft, B, is mounted, and upon which a treadle, C, is journaled in the usual manner. D represents the usual stud-shaft, upon which the band-wheel E is mounted, and upon the hub of said wheel are rigidly secured two ratchet-wheels, F F, and between said ratchet-wheels upon the wheel-hub are mounted the loose pulleys G H, each pulley being provided on its outer side with two pawls, I I, arranged to engage with the ratchet-wheels F. J represents an endless cord or band passing under and thence over the pulley G, and over and thence under the pulley H, and thence through and over the outer sides of the slotted and perforated plates or rods K L.

The above-described arrangement of the endless cord or band around the pulleys is for the purpose (when said cord or band is moved) to turn the pulleys in opposite direc-

tions, one being turned forward as the other is turned backward, which motions of said pulleys, through the medium of the pawls, cause the ratchet-wheels to act alternately to impart a continuous forward rotary motion to the band-wheel.

Heretofore in this class of devices as applied to the treadles of sewing-machines a rectangular frame has been employed, through which the cord or band passes in connection with an auxiliary cross rod or bar, to which the ends of the cord or band are connected, adapted to be adjusted on the treadle-rod for regulating the tension of said cord or band. This frame has, however, been found to be objectionable, for the reason that in its movements it comes in contact with the braces or fixed parts of some classes of machines, thus requiring changes in the construction of such machines in order to successfully apply the frame thereto.

In order to overcome the above-described objections, a curved or bent rod or bar, M, is employed, having pivoted, respectively, to its lower and upper ends the slotted and perforated plates or rods K L, through which the endless band or cord passes. The lower end of the rod or bar M is connected to the treadle-rod or pitman M' by a screw-coupling, N, the ends of said rods M M' being provided with screw-threads, by which they are screwed into said coupling, it having a little soft metal dropped therein, so that the ends of the rods will jam against the soft metal and produce sufficient friction to retain the rod M in any desired position it may be turned or placed. The curve or bend in the rod M is sufficient to permit of its being turned around the end of the stud-shaft, bringing it therefore in front or on either side thereof, which movement permits said rod or bar being so turned as not to interfere with the braces or fixed parts of the machines, thus permitting its ready application to such machines without changing their construction; also, by the use of the endless cord or band and the pivoted plates or rods K L, through and over, which the cord or band passes, it is always free to adapt itself to the pulleys without requiring any nice adjustment, as is the case with the use of the rectangular frame above referred to.

K represents a thumb-nut arranged on the

treadle-rod or pitman, above the slotted plate or rod K, for the purpose of tightening the cord or band in case it becomes loose.

O represents a lever provided with a slot, o, in one end, by which it can be pivoted to the treadle-shaft without removing the shaft upon which it is mounted from the machine. The other end of said lever O is connected to an extension, B', of the treadle. This lever is provided with a series of holes, o', into which the lower end of the treadle-rod or pitman is fulcrumed, the object of said holes being for the purpose of changing the fulcrum of the pitman or treadle-rod, whereby an increased or decreased rotary motion may be given to the band-wheel or shaft without changing the sweep or velocity of the treadle.

I am aware that a similar pivoted lever used in connection with the treadle and crank movement in sewing and other machines, for the purpose of changing the velocity of the rotary motion of the band-wheel or shaft, is old; but in such arrangement it is absolutely necessary to change the sweep of the treadle, and such I desire to be distinctly understood as not claiming as my invention; but,

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

1. In devices for converting reciprocating rectilinear motion into continuous rotary motion, a pivoted lever provided with a series of holes, whereby an increased or decreased rotary motion may be produced by changing the fulcrum of the pitman or treadle-rod without changing the sweep or velocity of the treadle, substantially as specified.

2. In devices for changing reciprocating rectilinear motion into continuous rotary motion, the combination, with the pulleys, pawls, ratchet-wheels, and cord or band, of a pivoted, curved, or bent rod, M, provided with the pivoted, slotted, and perforated rods or plates K L, substantially as and for the purpose herein shown and described.

3. The combination, with the treadle, band-wheel or shaft provided with the ratchet-wheels and pulleys having pawls, and the cord or band, of intermediate connecting mechanism, consisting of the pivoted, curved, or bent rod or bar M, provided with the pivoted plates K L, treadle-rod M', and screw-coupling N, substantially as and for the purpose herein shown and described.

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Witnesses:

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