

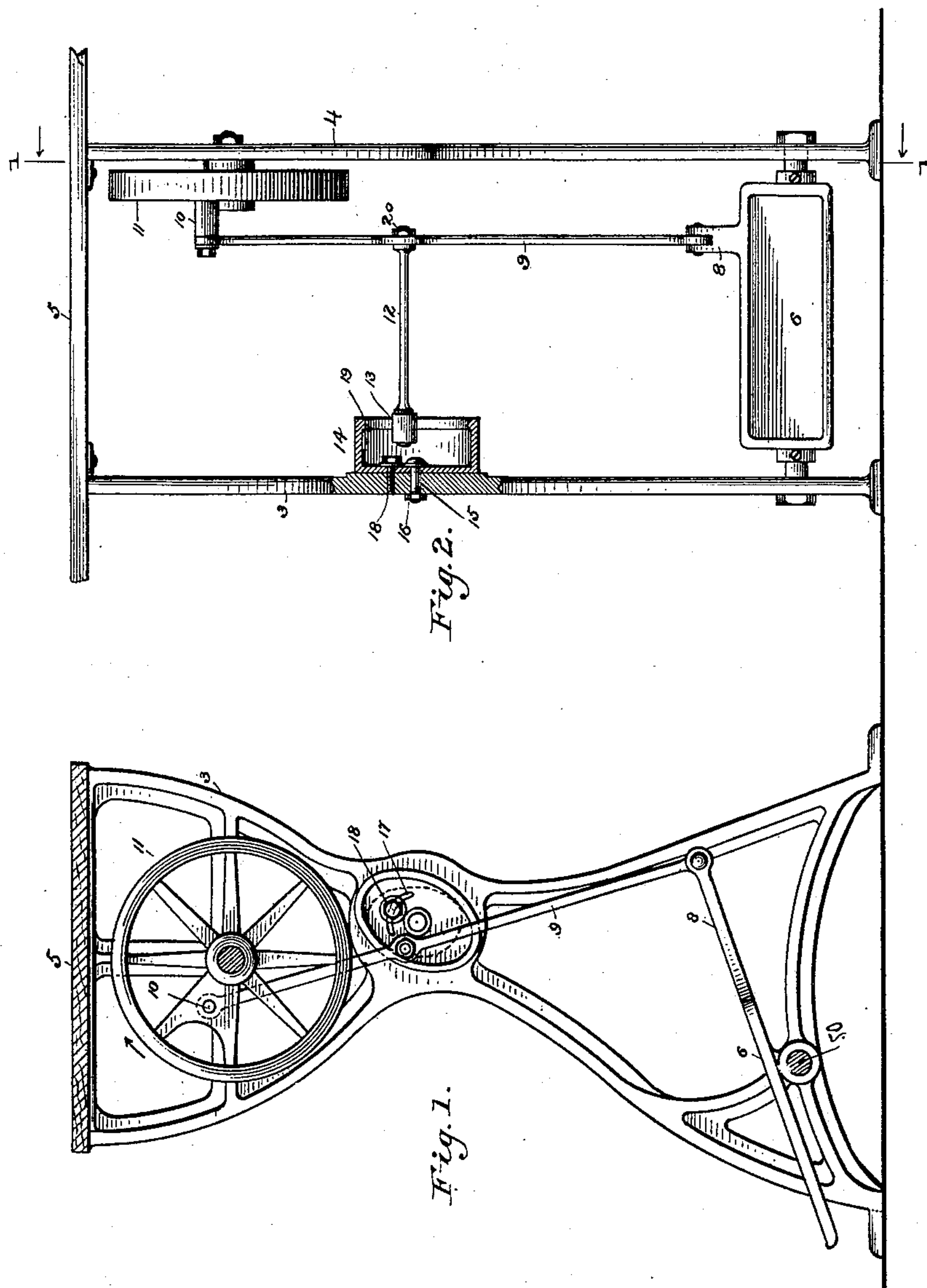
(No Model.)

R. WATT.

MEANS FOR PREVENTING DEAD CENTERING.

No. 435,267.

Patented Aug. 26, 1890.



Witnesses

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UNITED STATES PATENT OFFICE.

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MEANS FOR PREVENTING DEAD-CENTERING.

SPECIFICATION forming part of Letters Patent No. 435,267, dated August 26, 1890.

Application filed March 12, 1890. Serial No. 343,624. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WATT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Means for Preventing Dead-Centering; 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.

My invention relates to certain new and useful improvements in means for preventing dead-centering; and it consists in the arrangement and construction of parts hereinafter described, and particularly pointed out in the claims forming a part of this specification.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a sectional view of one embodiment thereof, taken on a plane indicated by the line 1 1 of Fig. 2; and Fig. 2 represents a front elevation of the same, partly in section.

Similar numerals of reference indicate similar parts in both views.

For purposes of illustration I have shown my invention as applied to a foot-treadle mechanism of a familiar type adapted to be used for operating light machinery, such as sewing-machines and the like. It will be evident, however, that the invention may be embodied in power-driven machines for heavier work, and I do not therefore restrict myself to its employment with the particular motive mechanism shown, which constitutes but one of its embodiments in practice.

Referring to the drawings, 3 4 indicate the supporting-standards of a foot-treadle mechanism connected at top by the table 5 and strengthened and braced in the usual manner to form a substantial frame-work or mounting for the operative parts.

Upon the cross-shaft 50 is mounted the oscillatory foot-treadle 6, having a rearward projection 8, pivotally connected to the swinging driving-rod or pitman 9, eccentrically connected by means of the crank-pin 10 to the band-wheel 11, mounted upon the standard 4.

The parts described constitute an ordinary type of foot-treadle mechanism. To prevent

dead-centering in this and similar mechanisms, I combine therewith an attachment of my invention whereby latent energy is stored up during the oscillation of the driving-rod, which energy is exerted to throw the driving-rod past the line of dead-center. My preferred manner of effecting this result is to connect to the driving-rod 9 a bar or rod 12, of springy or resilient material, provided at its free end with a friction-roller 13, as shown. This friction-roller passes within a hollow casting 14, connected by a bolt 15 and nut 16 to the standard 3, and is provided with a circular slot 17 and set-screw 18, whereby it may be adjusted and fixed rigidly to the standard. The casting is also provided with a rim or flange 19, serving as a surface of contact for the friction-roller, as will hereinafter more fully appear.

The operation of my invention will be apparent. Thus during the oscillation of the driving-rod the point of attachment 20 of the spring-bar 12 describes a regular geometric curve whose longer axis is in the line of dead-center. The outer end of the spring-bar 12 and the friction-roller 13 would, if unrestrained, describe a like curve. I so arrange the adjustment of the casting, however, that the friction-roller 13 will come in contact with a portion of the rim 19 just in front of the dead-center line, so that in order to pass the surface of contact the friction-roller will be deflected out of the regular curve it would describe if unobstructed. This deflection causes the spring bar or rod 12 to bend at its outer end, thereby storing up energy in said bar or rod. The friction-roller passes the surface of contact just before the dead-center line is reached, (on the upward and on the downward stroke of the driving-rod,) and as a consequence its sudden release from restraint enables the stored-up energy in the deflected spring bar or rod to come into action. The effect is to throw the driving-rod forward with a force dependent upon the amount of such stored energy, thereby carrying it past the dead-center line. It is evident that the amount of deflection of the spring bar or rod will depend upon the adjustment of the casting 13, which can be regulated so as to bring the restraining guide-surfaces of the rim 19 to

a greater or less distance within the path of movement of the friction-roller, according as it is desired to store up a greater or less amount of energy in the spring bar or rod.

- 5 For convenience I provide the casting with a single continuous rim; but it is not essential so to do, inasmuch as only portions of said rim are actually employed as the restraining guide-surfaces. In some instances, 10 also, I may dispense with the employment of a friction-roller and permit the free end of the spring bar or rod to come directly in contact with the restraining guide-surfaces, although it will be found preferable to employ 15 such friction-roller to lessen the work imposed upon the operator and to insure the greatest regularity of movement.

Having thus described my invention, what I claim is—

- 20 1. In a device for overcoming dead-centers, the combination, with the driving-rod, of a spring bar or rod connected at one end thereto and a restraining-guide whose acting surfaces are interposed in the path of movement 25 of the free end of said spring bar or rod and in advance of the dead-center line, substantially as described.

2. In a device for overcoming dead-centers,

the combination, with the driving-rod, of a spring bar or rod connected at one end thereto and having at its free end a friction-roller, 30 and a restraining-guide whose acting-surfaces are interposed in the path of movement of the said friction-roller and in advance of the dead-center line, substantially as described. 35

3. In a device for overcoming dead-centers, the combination, with the driving-rod 9, of a spring bar or rod 12, connected thereto and having at its free end the friction-roller 13, 40 and the hollow casting 14, having a guide-rim 19, substantially as described.

4. In a device for overcoming dead-centers, the combination, with the driving-rod 9, of a spring bar or rod 12, connected thereto and having at its free end the friction-roller 13, 45 and the hollow casting 14, having a guide-rim 19, a central pivot for said casting, and means for adjusting said casting about said pivot, substantially as described.

In testimony whereof I affix my signature in 50 presence of two witnesses.

ROBERT WATT.

Witnesses:

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