No. 709,435. Patented Sept. 16, 1902.

G. P. CLARK & G. H. DAVIS.

FOOT POWER DEVICE.

(Application filed Apr. 2, 1900.)

(No Model.)

Fig. 1.

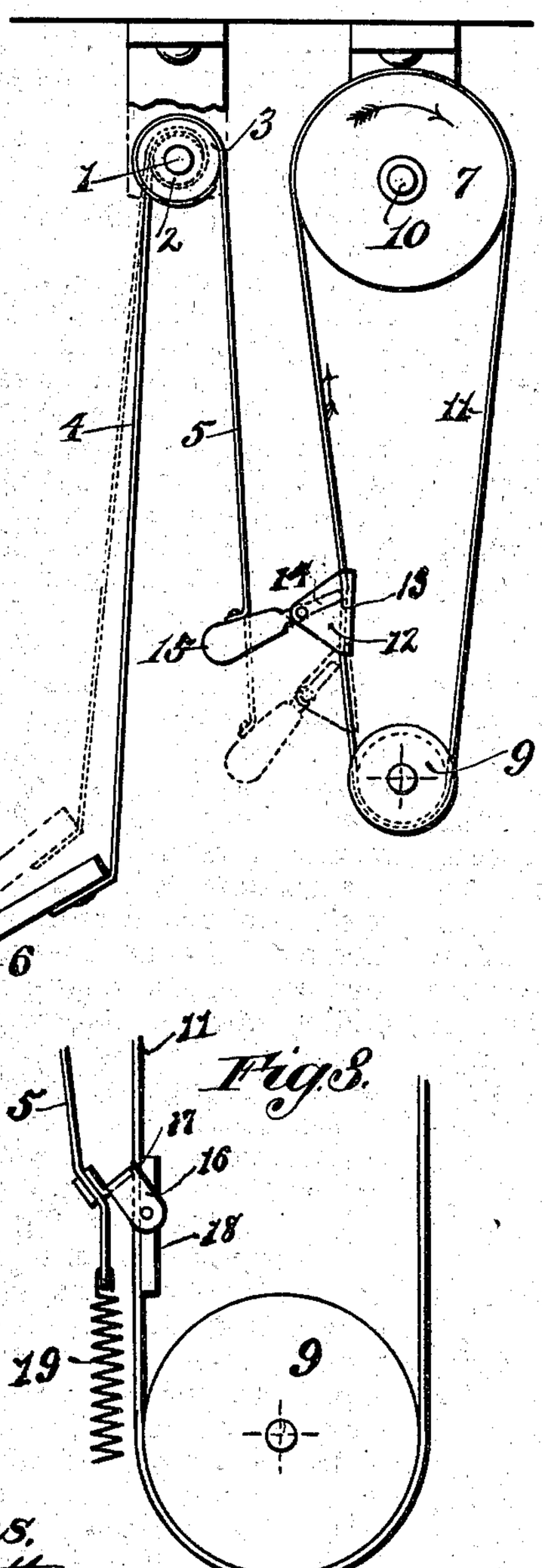

Fig. 2.

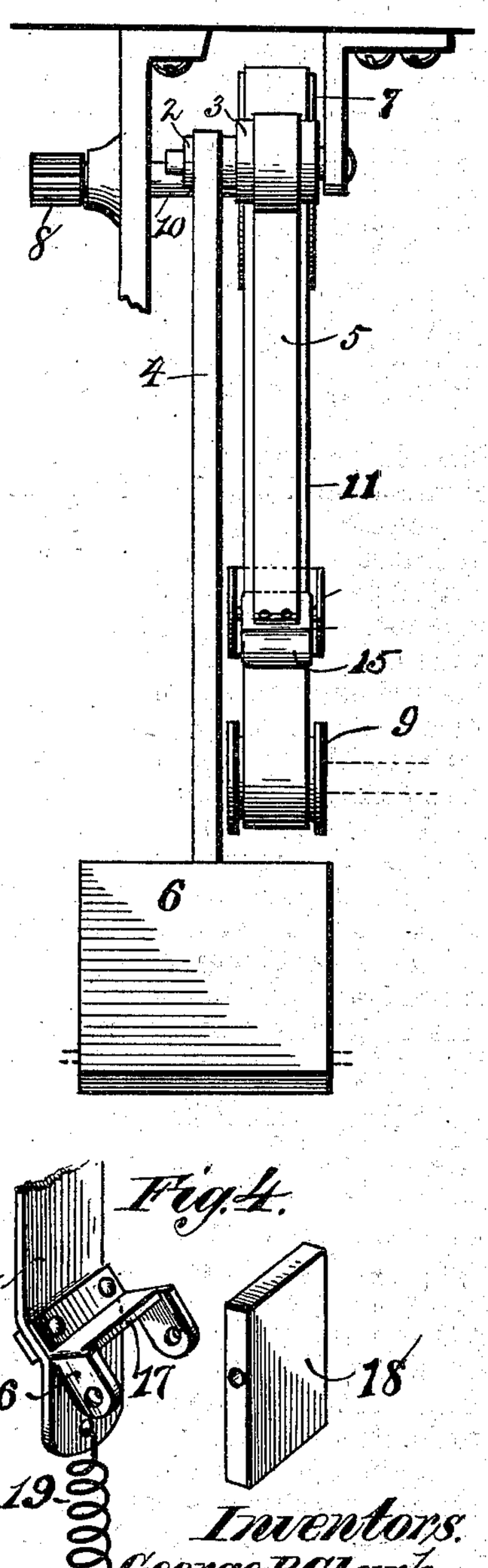

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE P. CLARK AND GEORGE HOWLETT DAVIS, OF NEW YORK, N. Y.

FOOT-POWER DEVICE.

SPECIFICATION forming part of Letters Patent No. 709,435, dated September 16, 1902.

Application filed April 2, 1900. Serial No. 11,111. (No model.)

To all whom it may concern:

Be it known that we, GEORGE P. CLARK and GEORGE HOWLETT DAVIS, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Foot-Power Devices; and we 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 pedal driving mechanism, and has for its object to provide improved and simple mechanism adapted to be operated by the feet, by means of which the alternate reciprocating or oscillating movement of the feet is converted into continuous rotary movement.

The primary object of the invention is to furnish a cheap, simple, and effective means for driving the operative parts of a self-playing musical instrument; but it will be obvious that the device may be employed for furnishing power for various different purposes.

To this end our invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a view in side elevation of our improved driving mechanism. Fig. 2 is a view in front elevation thereof. Fig. 3 is a detail view illustrating a modified form of clutch, and Fig. 4 is a detail perspective view showing the parts of the clutch illustrated in Fig. 3 separated.

In many different forms of self-playing musical instruments known on the market as "automatons" a pulley 7 is employed, through the medium of a pinion 8, for propelling a music-sheet which controls the music-playing apparatus, and a second pulley 9 is employed for driving a drum which actuates the music-playing devices, and we have shown our present invention adapted to such an arrangement; but it will be evident that it could be employed for many other purposes.

Referring to the drawings, the numeral 1 indicates a shaft, which may be journaled in any suitable fixed support, and has fixed thereon two pulleys 2 and 3, the pulley 2 being a relatively small one and the pulley 3 a relatively large one.

In practice the pulleys 2 and 3 may be conveniently made in the form of one pulley having two parts of unequal diameters; but for the sake of clearness we have referred herein to the pulley as being two separate pulleys. Fixed to the small pulley 2 is one end of a strap 4, the other end of which is attached to a foot-pedal 6, and fixed to the large pulley 3 is one end of a strap 5, the straps 4 and 5 being wound about the respective pulleys in opposite directions, as shown in Fig. 1. It will be evident that the movement of the pedal 6 will impart a relatively large movement to the strap 5. The pulley 7 is fixed on a shaft 10, journaled in any suitable fixed support, and is connected to the pulley 9 by an endless belt 11. Attached to the free end of the strap 5 is a clutch constructed as follows: The numeral 12 indicates a U-shaped member straddling the belt 11 and having a flat portion 13, which is adapted to engage one side of said driving-belt. Pivoted intermediate its ends, between the ends of the member 12, is a tongue or pawl 14, the inner end of which is adapted to engage the other side of the driving-belt 11 and bind the latter into engagement with the flat portion 13 of the member 12. The free or outer end of the tongue or pawl is weighted, as at 15, and the end of the strap 5 is attached to said weight, as shown in Fig. 1.

The operation of the device constructed as above described is as follows: Normally the weight 15 operates to elevate the inner end of the tongue or pawl 14 and throw it out of engagement with the driving-belt 11. When, however, the pedal 6 is depressed, the strap 5 is drawn upward and raises the weighted end of the pawl or tongue and causes its inner end to impinge the driving-belt and bind it against the flat face 13 of the clutch member 12. The strap 5 as it is wound about the pulley 3 raises the clutch, and as the latter grips the driving-belt in the manner described it moves the driving-belt with it. When the pedal reaches the end of its downward move-

ment and the pressure of the foot or feet is removed therefrom, the weight 15 throws the pawl or tongue 12 out of engagement with the driving-belt and causes the clutch to descend, which then slips idly over the driving-belt. The downward movement of the clutch winds up the strap 4 about its pulley 2 and raises the pedal 6.

In the modified construction shown in Figs. 3 and 4 the clutch comprises a U-shaped member 16, which straddles the driving-belt 11 and is provided with a straight edge 17, which engages one side of the driving-belt, and between the ends of said U-shaped clutch member is pivoted a flat plate 18, which is adapted to engage the other side of said driving-belt. The U-shaped clutch member 16 is clamped or otherwise suitably attached to the strap 5 near the free end of the latter, and to the extremity of said strap is connected one end of a coiled spring 19, the other end of which is secured to any suitable fixture below the end of the strap. In this form of the device the spring normally operates to hold the gripping edge 17 of the clutch out of engagement with the driving-belt 11; but when the strap 5 is drawn upward by the pedal mechanism said gripping edge is forced into engagement with the driving-belt and grips the latter between said edge and the plate 18, thus causing the driving-belt to move upward with the clutch. When pressure is removed from the pedal the spring causes the clutch to release the belt and draws the clutch down idly over the belt.

In the arrangement shown in Figs. 1 and 2 a weight is employed to release the clutch and move it downward, while in the arrangement shown in Figs. 3 and 4 a spring is employed for the same purpose.

Having described our invention, what we claim is—

1. In a device for transmitting motion the combination with a strap or belt, of a clutching member arranged to act upon one side thereof, a second clutching member pivotally connected to the first-named member and having a gripping edge arranged to act upon the opposite side of the strap or belt, means normally acting upon the pivoted gripping member to throw the gripping edge thereof out of contact with the strap or belt and to move the clutch idly over the belt, and means for lifting the outer end of the pivoted gripping member to cause its gripping edge to grip the strap or belt and impart a lifting action thereto to advance the same.

2. In a device for transmitting motion, the combination with a belt to be driven, of a treadle having a strap secured thereto at one end, a loose pulley to which the other end of said strap is secured, a second strap secured to said loose pulley, and a clutch device secured to said second strap, said clutch device comprising a member disposed on one side of the belt, a clutching member pivotally connected to the first-named member and having a gripping edge arranged to act upon the belt opposite said first-named member, and means normally acting upon said pivoted member to throw the gripping edge thereof out of contact with the belt and to move the clutch idly over the belt, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE P. CLARK.
GEORGE HOWLETT DAVIS.

Witnesses:
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LOUIS SILVESTEIN.