

UNITED STATES PATENT OFFICE.

DAVID RUDOMIN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO DAVID LEVY, OF SAME PLACE.

POWER-TRANSMITTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 624,381, dated May 2, 1899.

Application filed July 27, 1898. Serial No. 687,036. (No model.)

To all whom it may concern:

Be it known that I, DAVID RUDOMIN, a subject of the Emperor of Russia, residing at New York, in the county and State of New York, have invented new and useful Improvements in Power-Transmitting Mechanism, of which the following is a specification.

By means of this invention power can be transmitted as required, for example, in driving sewing-machines, lathes, and the like; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of the device. Fig. 2 is a front elevation of Fig. 1. Figs. 3 and 4 show modifications.

In the drawings is shown a support or frame portion or legs 1 of a mechanism—as, for example, a sewing-machine. A shaft is shown at 2 and can be rocked, as presently explained. At 3 is shown loosely mounted or swinging on this shaft a pedal, comprising the arms 4 and 5, telescoping or loosely connected. A spring 6 connects the sections 4 and 5. This pedal has a roller 7 running on track or fixed rail 8. The levers 9 and 10, Fig. 2, are respectively fulcrumed at opposite points or at the front and rear portions of the track, the lever 9 being shown fulcrumed at 11 and lever 10 at 12. The pedal arm or section 4 carries branch 13, supporting fulcrum 14 of lever 15 16, pivoted or connected at 17 to section 5. The operator pressing his foot on the pedal-lever arm 16 to swing the pedal will at the same time depress section 5 or roller 7 onto track 8 and levers 9 10. The operator starting from the position shown in Fig. 1 and swinging the pedal backward or toward fulcrum 12 will depress lever 10 while lever 9 rises, and on the return of the pedal the lever 9 is depressed while lever 10 rises. The spring or weight 6 can be made to cause the roller 7 to press on levers 9 10. The lever 9 is linked at 18 to arm 19, keyed or fixed to rock-shaft 2, and lever 10 is linked at 20 to arm 21, also fixed to this rock-shaft. As lever 9 rises and lever 10 dips, the shaft 2 rocks in one direction, while the return movement of the levers is accompanied by a return swing of the shaft. The return of shaft 2 can be aided or effected by suitable

means, as a return-spring 22, Fig. 2, which spring can be connected directly to shaft 2 or connected to a shaft 23, connected by pinion 24 and segment or arm 25 with such shaft 2.

Fixed to shaft 2 so as to rock therewith is an arm 26, to which are hitched or secured two springs 27 and 27^a. The arms 28 and 29 are fixed to shaft 2 or to arm 26, so that these three arms all oscillate together. The arm 28 carries a rim or segment 30 and the arm 29 two rims 31 and 32. To rim 30 is fixed one end of chain 33, which passes about ratchet 34. The other end portion of this chain 33 is guided loosely about rim 31 and is secured to the springs 27. To rim 31 is fixed one end of a second chain 35, also passing about ratchet 34. The other end portion of chain 35 is guided loosely about rim 32 and is secured to the spring 27^a. The ratchet 34 is shown in Fig. 2 as a double ratchet or in two sections, but both these sections have their teeth face or incline in the same direction.

Supposing arm 28 swings down while arm 29 rises, arm 26 at the same time swinging forward or dipping toward point 11, the rim 30 now carries one shank of the chain or loop 33 toward ratchet 34, while the spring 27, engaging this chain, is caused to draw on or take up the slack of such chain, so that the latter slips or moves idly about ratchet-wheel 34. At the same time the rim 31 draws up one shank of chain 35, so as to cause this last-named chain to engage and rotate ratchet 34. The other end portion of this chain 35, passing loosely about rim 32, as noticed, is yielding by reason of its spring connection 27^a. On the return or drop of arm 29 the rim 31 slackens chain 35, which has its slack taken up by its spring 27, so that this chain 35 now slips about ratchet 34. The rise of arm 28 with rim 30 at the same time actuates chain 33, so as to cause the latter to engage or rotate ratchet 34. It is thus seen that at each reciprocation of shaft 2 either chain 33 or 35 engages ratchet 34, so as to drive the latter in one direction. This ratchet 34 can actuate a pulley 36 in suitable way either by the pulley being directly keyed or connected to the ratchet or by other suitable connection, as a belt or gears 37 and 38.

Of course the device can be modified. The

chains 33 35 could be oscillated by other means—as, for example, by being led about pulley 39, Fig. 3, on shaft 40 and oscillated by arm or crank 41, engaged by arm 42, keyed to pivot 43, carrying pedal 4'. By reciprocating pedal 4' the pulley 39 is oscillated to actuate the chains back and forth. The rollers 7' could be made to run on tracks, (not shown,) as understood, to obtain easy motion.

10 In Fig. 4 the pedal 4' is shown fixed to shaft 2, which when rocked will reciprocate arms 26'', 28'', and 29'' with rims 30'' and 31'', so that the chain 33'' is drawn back and forth by the rim 30'' and spring 27'', respectively. 15 Said chain 33'' when moving in one direction takes hold of the ratchet and when moving in the opposite direction slips over the ratchet to leave the latter free to keep rotating in but one direction.

20 The swinging pedal moving back and forth operates easily and can be driven by one foot, giving the other a chance to rest. The ratchet-wheel 34 can be set with its teeth inclining in one direction or another, as rotation in one or 25 another direction is required. The arms 28 and 29 could also be transposed, as required, for reversing direction. In case the pulley 36 should be required to turn in one or another direction the ratchet 34, with parts 28 30 and 29, could be set or reversed, as required.

What I claim as new, and desire to secure by Letters Patent, is—

1. A power-transmitting mechanism comprising reciprocating chains, ratchet-wheels 35 over which the chains slip when moving in one direction and with which the chains engage when moving in the return direction, and a pulley actuated by the ratchet-wheels substantially as described.

40 2. A rock-shaft, rimmed arms actuated by the shaft, a ratchet, a chain led about the ratchet and having one end secured to a rim and the other end loosely led about another rim, a spring made to engage such 45 loose chain end, and an arm actuated by the rock-shaft and to which the spring is connected substantially as described.

3. A power-transmitting mechanism comprising a shaft, a pedal made to rock the 50 shaft, three arms reciprocated by the shaft, a chain secured to one of the arms and extended loosely to the other arm, a spring connected to the third arm and to the chain, and a ratchet engaged by the chain substantially 55 as described.

4. A power-transmitting mechanism comprising a shaft, a pedal, levers actuated by the pedal, arms linked to the levers and secured to the shaft, chains reciprocated by 60 the shaft, and a ratchet engaged by the chains substantially as described.

5. A power-transmitting mechanism comprising a shaft, a pedal, a track for the pedal, levers respectively fulcrumed at opposite 65 points of the track and actuated by the pedal, arms linked to the levers, chains reciprocated

by the arms, and a ratchet engaged by the chains substantially as described.

6. A power-transmitting mechanism comprising a shaft, a pedal, a track for the pedal, 70 levers respectively fulcrumed at opposite points of the track and actuated by the pedal, arms linked to the levers, chains reciprocated by the arms, a ratchet engaged by the chains, said pedal having a roller made to travel on 75 the track and levers, and a foot-lever made to force the roller toward such oppositely-fulcrumed levers substantially as described.

7. The combination with three swinging arms, of two springs connected to one of the 80 arms, two driving-chains having their ends respectively connected to one of the remaining arms and to the springs, and guided about one of such remaining arms, and a ratchet actuated by the chains substantially as de- 85 scribed.

8. The combination with three swinging arms of two springs connected to one of the arms and extended toward one of the remain- 90 ing arms, a chain connected to said second arm and to one of the springs, and a second chain connected to another one of the springs and to the third arm substantially as described.

9. The combination with three swinging 95 arms, of a single rim on one of the arms, two rims on another of the arms, two springs secured to the remaining arm and extended to the double-rimmed arm, chains having an end portion respectively secured to a rim and 100 another end portion guided about another rim and secured to one of the springs, and a ratchet engaged by the chain substantially as described.

10. A pedal made to oscillate or to swing 105 backward and forward, chains reciprocated by the pedal, ratchet-wheels over which the chains slip in one direction and with which they engage when moving in the opposite di- 110 rection, and a pulley actuated by the ratchet substantially as described.

11. An oscillating pedal, a track for the pedal, a rock-shaft actuated by the pedal, chains actuated by the rock-shaft, and a ratchet-wheel actuated by the chain substan- 115 tially as described.

12. An oscillating pedal comprising two sec- 120 tions, a track on which one of said sections is adapted to travel, means for pressing one of said sections into contact with the track, levers actuated by said pedal-section, a rock-shaft actuated by said levers, and a ratchet or pulley actuated from the rock-shaft, sub- 125 stantially as described.

In testimony whereof I have hereunto set 125 my hand in the presence of two subscribing witnesses.

DAVID RUDOMIN.

Witnesses:

W. C. HAUFF,
CHAS. E. POENSGEN.