

(No Model.)

J. B. KIBLER.
ELECTRICAL WALKING TOY.

No. 455,545.

Patented July 7, 1891.

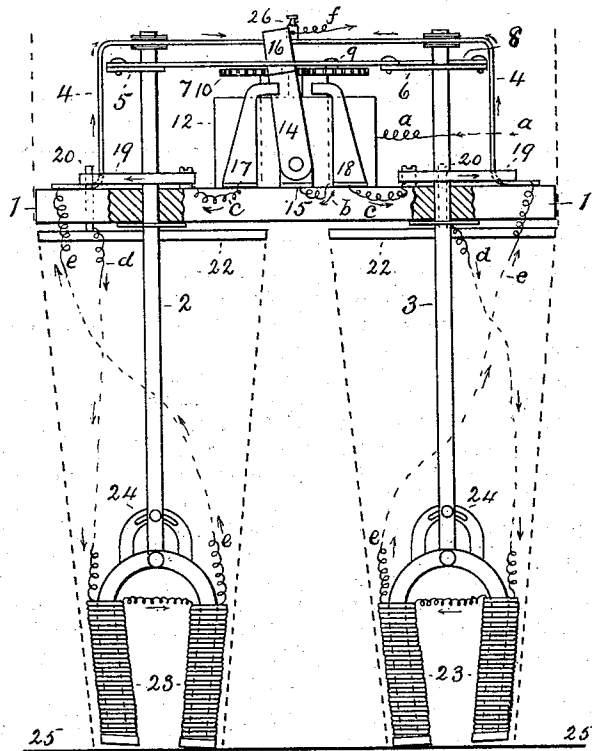
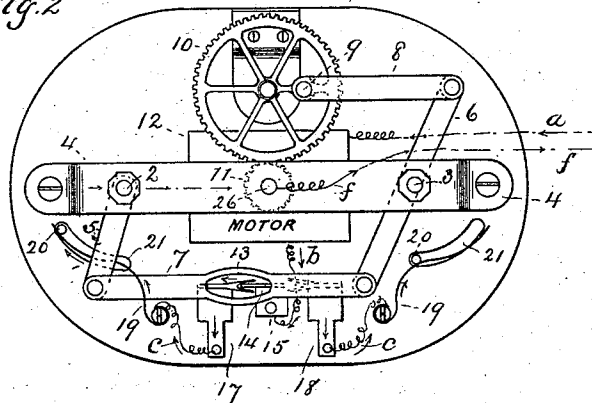


Fig. 1

Fig. 2



Witnesses

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ELECTRICAL WALKING TOY.

SPECIFICATION forming part of Letters Patent No. 455,545, dated July 7, 1891.

Application filed March 17, 1891. Serial No. 385,340. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. KIBLER, a citizen of the United States, residing at Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Electrical Walking Toys, of which the following is a specification.

My invention relates to electrically-operated devices for causing a toy or automaton to walk on two legs in resemblance to the human walk.

The object of my invention is the production of an apparatus capable of being propelled step by step on its pivotal extremities and at the same time being able to maintain its equilibrium. This object I accomplish by means of the devices illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the operative portions of the apparatus, and Fig. 2 is a plan view of the same.

In said drawings, 1 designates a platform or horizontal frame, preferably of some non-conducting substance, such as wood, for the support of and upon or to which are connected the operative devices of the apparatus.

2 and 3 respectively designate vertical shafts passing through the platform 1 and extending both above and below. The shafts pass loosely through the platform, so that the latter and the devices connected to it may swing about either shaft as a pivot.

On the upper face of the platform is secured a bridge 4, in which the upper ends of the shafts 2 and 3 have bearings. On each of the shafts 2 and 3 is rigidly secured a lever-arm, that attached to the former shaft being designated by 5, and that attached to the latter by 6. To the forward free ends of these two lever-arms is pivoted a connecting-bar 7, and to the rear end of the lever 6 is pivoted an arm 8, which is connected to a pin 9, eccentrically placed on a gear-wheel 10, whereby upon the rotation of the wheel 10 a crank movement is imparted to the arm 8.

In mesh with the gear-wheel 10 is a pinion 11, to which rotary motion is given by means of a motor 12, which may be electrically operated, as indicated in the drawings, or by clock-work or other means, as desired. In the drawings the location only of the motor is indicated, and its construction is not shown for

the reason that it may be of any known or desired form or character, and of itself constitutes no part of the present invention. It will be apparent that upon the rotation of the wheel 10 movement will be given to the crank-arm 8, which will impart a reciprocatory motion to the bar 7 by reason of the connection of the latter with the lever-arms 5 and 6.

At the middle of the bar 7 is a slot 13, through which extends in a vertical direction a strip of metal 14, which is pivoted at its lower end to a support 15, and whose upper end 16 is of non-conducting material, such pivoted strip being utilized for switching the current upon the reciprocation of the bar 7. At the sides of such switch and in line with the movement of the arm 7 are contacts 17 and 18, respectively, which may be of any desired form or construction.

Adjacent to the shafts 2 and 3 are spring devices 19, serving as connections for conducting the electric current to the magnets hereinafter to be described.

In co-operation with each of the spring devices 19 is a pin 20, extending through a slot 21 in the platform 1. These pins are carried by plates 22, secured to the shafts 2 and 3, respectively.

The lower end of each of the shafts 2 and 3 is connected to an electro magnet 23, preferably of horseshoe form, with the poles lowermost. These magnets may be connected to their respective shafts by a pivoting device 24, by means of which their inclination to the shafts may be adjusted, so that the faces of their poles may be given a desired inclination to the axes of the shafts. These magnets are designed to co-operate with a metallic base 25, and the inclination given the faces of their poles should be such that when either of the two magnets is energized and the faces of the poles of its two legs are brought to contact with the base 25 both faces of the legs of the other magnet will be free from the base. By this arrangement the energized magnet 23 becomes fixed to the base, and its shaft 2 or 3, as the case may be, is thus held rigidly, while the other magnet, together with the supporting-shaft and the platform and the devices connected thereto, is free to swing on the fixed shaft as a pivot, and the motor 12 serves to swing the free leg and upper por-

tions of the apparatus on the fixed shaft as a center and causes the free leg to move a step in advance. In making such movement and upon its completion the switch 14 is moved from one of the contacts 17 or 18 to the other, and the current is thus switched from the fixed to the advanced leg, which in turn becomes fixed and the pivot for the movement of the other leg.

The electrical connections and the courses of the currents are indicated in the drawings by arrow-heads, and are as follows: The incoming current enters through the wire *a* to the motor, thence by wire *b* to the switching device 14 15. Contact being made by the switch-lever 14 with either of the devices 17 or 18, the current passes thence by the wire *c* to the spring device 19, through that to the pin 20, and thence by the wire *d* to one of the coils of the appropriate magnet 23, and returns by the wire *e* to the bridge 4, on which is a binding-post 26, and thence by the wire *f* to the source. Obviously the wire *e* may be connected to the shaft 2 or 3, which may be in electrical contact with the bridge 4 and insulated from other portions of the device.

In operation, the current being admitted to the motor, the lever devices 5 to 9 are at once actuated by means of the gear-wheel 10, the bar 7 serving to throw the switch-lever 14 to contact with one or the other of the devices 17 and 18, thereby establishing a circuit with one or the other of the magnets 23. Thereupon the energized magnet is drawn to the base 25 and the apparatus is thus tilted sufficiently to lift its other leg from the base 25, and the next crank movement of the arm 8 serves to swing the entire apparatus on the shaft of the fixed magnet as a pivot, and in so doing switches the current from the fixed to the moving magnet, thereby causing the former to release its hold upon the base and the latter to be attracted to it and in turn become the pivotal support. In this way with each crank movement and shifting of the switch the device is swung upon its opposite pivotal shaft and the electric current is broken and established in conformity with the changed position of the legs of the apparatus. Thus the apparatus as a whole is made to progress step by step upon its two extremities in resemblance to the walking of two-legged animals.

The form of casing with which the apparatus may be clothed is wholly immaterial to the invention; but for the purposes of a toy or automaton for amusement it would be desirable to inclose it in a covering shaped or clothed in resemblance of a human figure.

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

1. In an apparatus adapted for automatic progression, a motor, pedal extremities pivotally connected to a common support and arranged to be alternately advanced by means of the motor, electro-magnets carried thereby, electric connections and means for switching a current, and a base with which such magnets co-operate, substantially as set forth.

2. In an automaton, a motor, a supporting platform or frame, vertical shafts having bearings therein, electro-magnets carried by the shafts, lever devices operated by the motor for turning the apparatus on either shaft as a pivot, and suitable electric connections, including switching devices, for seasonably shifting the electrical current from one magnet to the other, substantially as set forth.

3. In an electric walking device having two legs, a motor mounted thereon for moving the legs alternately and electro-magnets carried by the legs and arranged with the faces of their poles on planes converging downward, in combination with a base with which such magnets co-operate, substantially as set forth.

4. In a walking device, a motor, a crank and lever devices oscillated or reciprocated thereby, two legs, each arranged to be swung about the other as a pivot by the lever devices, and electro-magnets and connections, including switching devices, for alternately holding the legs in fixed position, substantially as set forth.

5. In a walking toy having electro-magnets for holding the extremities alternately in fixed position, a motor and lever devices for advancing the free member, and electric connections and switching devices controlled by said lever devices for energizing the magnets in alternation, substantially as and for the purpose set forth.

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Witnesses:

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