Jan. 4, 1927. 1,613,408

L. P. PEREW

MECHANICAL TOY

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Fig. 1.

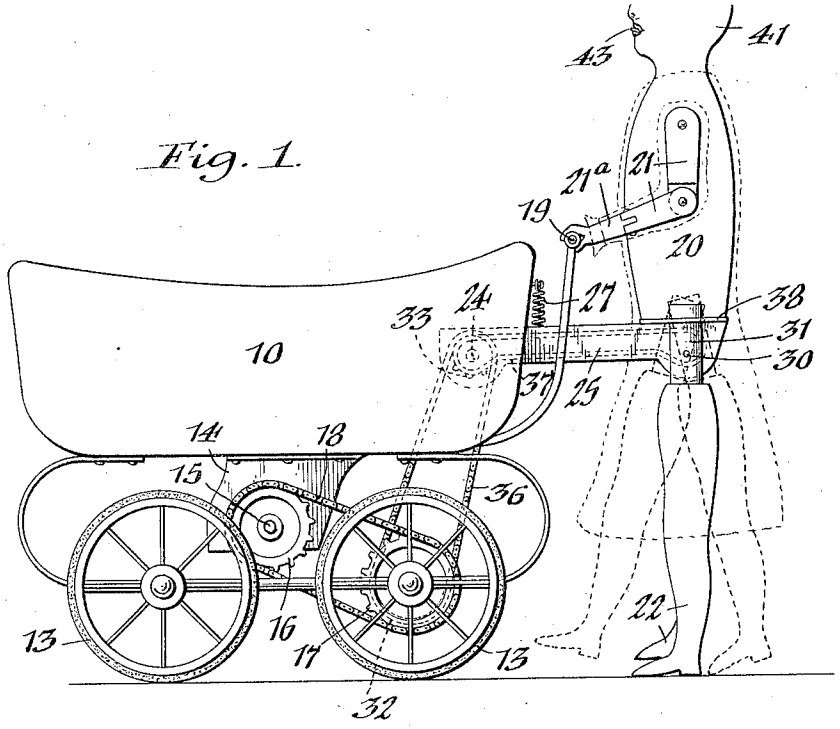
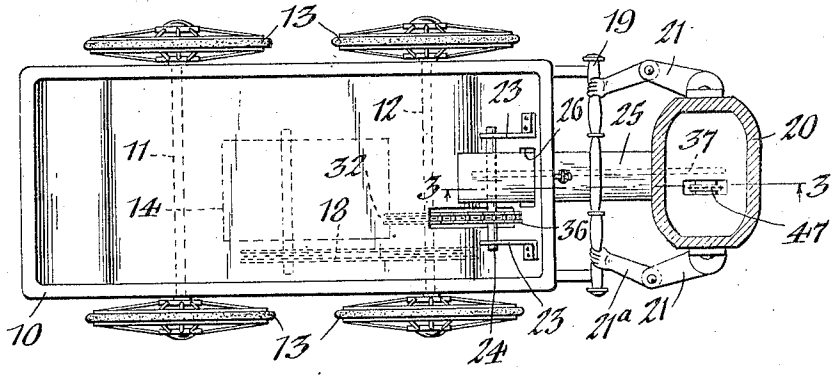



Fig. 2.




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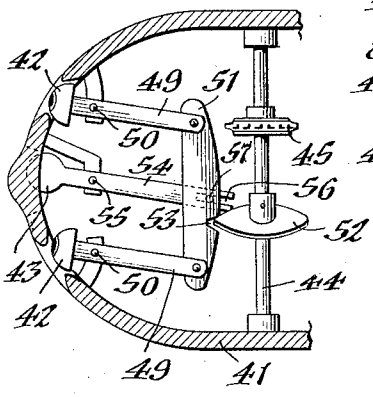
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Fig. 8.



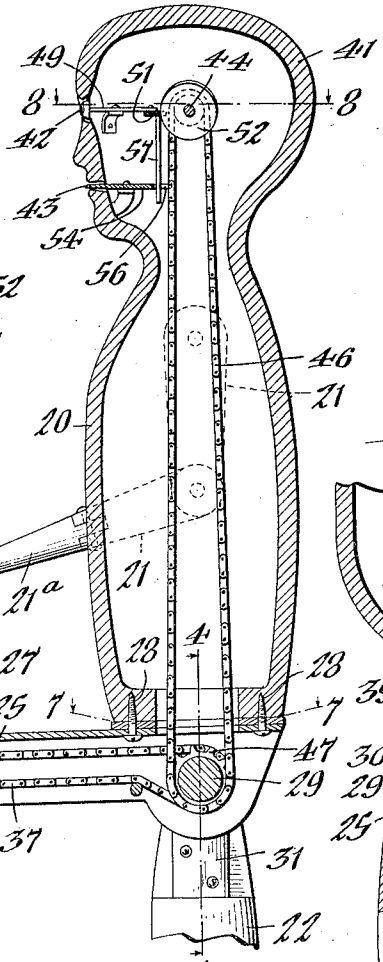




Fig. 3.

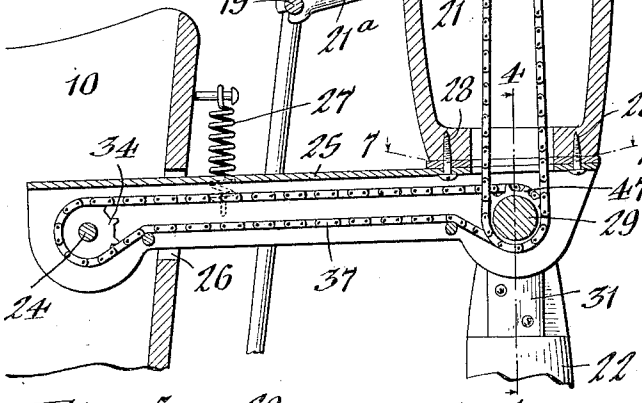



Fig. 4.

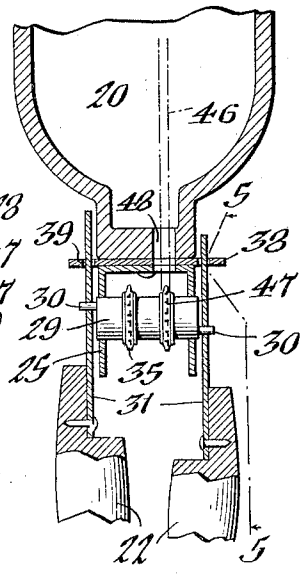



Fig. 5.

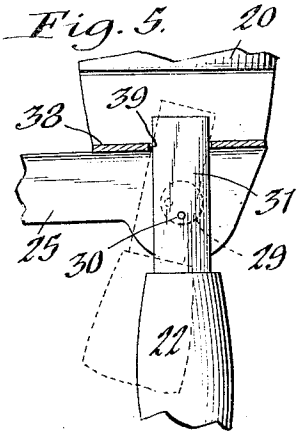



Fig. 6.

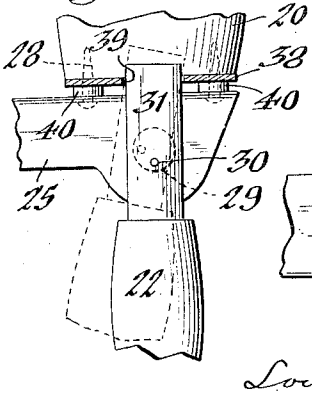
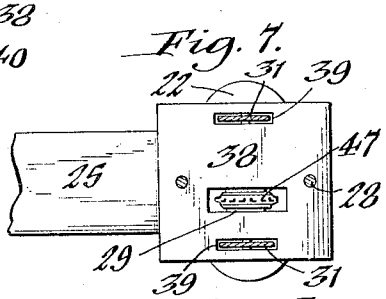



Fig. 7.




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Patented Jan. 4, 1927. 1,613,408

# UNITED STATES PATENT OFFICE.

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## MECHANICAL TOY.

Application filed November 24, 1924. Serial No. 751,725.

This invention relates to improvements in mechanical toys and has for its chief object to provide a self-propelled toy which is constructed and organized to simulate a walking figure pushing a baby carriage or buggy.

Another object is to provide novel means for supporting the body of the figure from the carriage, and also for connecting the legs of the figure with its body and the driving mechanism of the carriage in such a way that a natural walking movement is transmitted to the figure as the carriage is propelled.

A further object of the invention is to provide simple and inexpensive means for mounting the legs on the body of the figure with a view of effecting the ready adjustment of the length of the step.

A still further object is the provision of means for effecting the rolling of the eyes and tongue of the figure during the walking movement thereof.

In the accompanying drawings:—Figure 1 is a side elevation of the toy embodying my improvements. Figure 2 is a top plan view thereof, partly in section. Figure 3 is an enlarged fragmentary, vertical longitudinal section thereof taken in the plane of line 3—3, Fig. 2. Figure 4 is a transverse vertical section on line 4—4, Fig. 3. Figure 5 is a vertical section on line 5—5, Fig. 4. Figure 6 is a view similar to Fig. 5 showing the legs adjusted for a shorter step. Figure 7 is a horizontal section on line 7—7, Fig. 3. Figure 8 is an enlarged horizontal section on line 8—8, Fig. 3.

Similar characters of reference indicate corresponding parts throughout the several views.

The baby carriage or buggy which forms a part of the improved toy preferably comprises a body 10 having front and rear axles 11, 12 on which the wheels 13 are mounted to turn therewith. The rear axle of the buggy constitutes the driving shaft thereof, motion being transmitted to the same from a suitable spring motor 14 or other source of power mounted on the underside of the carriage body. As shown in Fig. 1, the motor shaft 15 carries a sprocket 16 and the rear axle 12 carries a similar sprocket 17, a chain 18 passing around these sprockets for transmitting motion from the spring motor to the carriage. At its rear end the latter is provided with the customary handle bar 19.

Located or positioned at the rear end of the carriage behing the handle bar thereof is an ambulatory figure, which, in the example shown, is preferably in the form of a doll including a body 20, jointed arm sections 21, and legs 22. This figure is suspended from the carriage in such a manner that as the latter is propelled through the medium of its spring motor 14, motion is transmitted to the legs 22 of said figure to give the appearance that it is pushing the baby carriage. The preferred mechanism for so suspending the figure from the carriage is preferably constructed as follows:—

Mounted on brackets 23, 23 secured to the rear end of the carriage is a transverse shaft 24 upon which a supporting arm 25, preferably of hollow or inverted U-shaped form, is pivoted to swing in a vertical plane, said arm extending rearwardly from the carriage and passing through an opening 26 in the rear wall thereof, as shown in Fig. 3. A suspension spring 27 normally serves to resist downward-swinging movement of the supporting arm. The body 10 of the figure is mounted on the free end of the supporting arm, being secured thereto by screws 28 or other appropriate fastenings. Journaled in the rear end of the supporting arm is a transverse shaft 29 from the opposite ends of which extend crank-pins 30, 30 to which the upper attaching plates 31 of the legs 22 are pivoted so that as this shaft is rotated, the legs are alternately raised and lowered. The driving connection from the propelling axle 12 of the carriage to the crank-pin shaft 29 consists of sprocket wheels, 32, 33, 34, 35, and corresponding sprocket chains 36, 37. As shown in Figs. 1 and 2, the sprocket 32 is mounted on the driving axle of the carriage, the sprockets 33, 34 are mounted on the transverse shaft 24, while the sprocket 35 is mounted on the crank-pin shaft 29, the chain 36 passing around the sprocket wheels 32, 33 and the chain 37 around the sprocket wheels 34, 35 and completely housed within the supporting arm 25. Through the medium of this

drive mechanism, the motion imparted to the carriage axle 12 from the spring motor 14 is transmitted to the crank-pin shaft 29, thereby imparting an oscillatory movement to the legs 22.

For the purpose of governing or regulating the step-like movement of the legs 22 of the figure, a fulcrum plate 38 is provided which is fastened to the underside of the figure body 10 by the screws 28, the same being interposed between the body and the opposing face of the supporting arm 25. Those portions of the leg-attaching plates 31 above their point of pivotal connection with the corresponding crank-pins 30 extend through and are guided for vertical sliding movement in longitudinal slots or openings 39 formed in the opposite sides of the fulcrum plate 38. As shown in Figs. 5, 6 and 7, the plate-slots 39 are substantially in vertical axial alinement with the crank-pin shaft 29 and are just long enough to receive their companion plates 31, so that during the rotation of said shaft, the legs are not only raised and lowered but are at the same time thrown alternately forward and backward. During this movement, the ends of the slots form bearing or fulcrum points for the leg-plates. Said slots also prevent lateral displacement of the legs.

The fore and aft swinging movement of the legs or the length of the steps is regulated by a vertical adjustment of the fulcrum plate 38 toward and from the axis of the crank-pin shaft. The nearer this plate is to the axis of said shaft, the greater the swinging stroke of the leg, while the farther away the slotted-plate is from the crank-pin shaft, the shorter the leg stroke. In Figs. 1, 3, 4 and 5, the parts are set for a maximum stroke of the legs, while in Fig. 6, a somewhat shorter stroke is shown. To this end, washers or suitable spacers 40 may be interposed between the upper side of the supporting arm and the opposing face of the slotted plate 38, thereby bringing the latter a greater distance from the axis of the crank-pin shaft and accordingly shortening the step.

The legs are of the proper length to normally come in contact with the ground, that is, when one foot is on the ground, the other is off, as in natural walking. The suspension spring 27 practically counterbalances the weight of the figure and during the stepping stroke imparted to the legs, the body 10 is caused to spring up and down more or less in response to the feet coming in contact with and leaving the ground.

As shown in Figs. 1 and 3, the wrist sections $21^a$ of the arms 21 are pivotally connected with the handle-bar 19 of the carriage.

The head 41 of the figure is preferably provided with eyes 42 and a tongue 43. These parts are connected with the motion-transmitting means of the figure-legs 22, so that when the toy is in motion, the eyes are rolled from side to side and the tongue is moved laterally from one corner of the mouth to the other. For this purpose, reference being had particularly to Figs. 3 and 8, a transverse shaft 44 is suitably supported in the head of the figure and carries a sprocket wheel 45 which is connected by a sprocket chain 46 with a similar sprocket wheel 47 mounted on the crank-pin shaft 29, said chain passing through alining openings 48 formed in the figure-body 10, the supporting arm 25 and the slotted-plate 38. The eyes 42 are carried by horizontally movable levers 49 fulcrumed at 50, and have their outer ends pivotally connected to a tie-bar 51. A spiral disk or cam 52 fixed on the shaft 44 engages a notch 53 in the opposing edge of the tie-bar, so that when the shaft is turned, a reciprocating motion is transmitted to the tie bar, thereby rolling the eyes simultaneously in opposite directions.

The tongue 43 is formed at the front end of a horizontally-swinging lever 54 fulcrumed at 55 and provided at its inner end with a longitudinal slot 56. The tie-bar 51 carries a depending coupling pin or post 57 which engages the tongue-lever slot 56 and shifts the tongue-lever in one direction or the other in response to the movement of the tie-bar.

The operation of the improved toy is as follows:

When the motor is started, motion is transmitted to the rear driving axle 12 of the carriage, which in turn transmits motion to the crank-pin shaft 29 for imparting a step-like movement to the legs 22 of the figure, giving the appearance that the latter is pushing the baby carriage. At the same time the eyes 42 are rolled from side to side through the medium of the spiral cam 52 and associated parts, and the tongue 43 is likewise moved laterally simultaneously with the movement of the eyes from one corner of the mouth to the other.

I claim as my invention:

1. A mechanical toy of the character described, comprising a wheeled carriage, a support projecting from one end of the carriage, a figure having a body rising from said support, a rotatable member journaled in said support and operatively connected to one of the carriage axles to turn therewith, legs eccentrically-pivoted on said rotatable member between their upper and lower ends, and a fulcrum plate attached to said support above said rotatable member and having longitudinal slots for receiving the upper portions of said legs, the ends of said slots forming bearing points for such upper leg-portions.

2. A mechanical toy of the character described, comprising a wheeled carriage, a

shaft journaled in the carriage, a support fulcrumed on said shaft and projecting from one end of the carriage, a figure having a body rising from said support, a shaft journaled in the outer end of said support and having crank-pins at its opposite ends, legs pivotally mounted on said crank-pins, sprocket wheels mounted on said first- and second-named shafts and on one of the carriage-axles, and chains passing around said sprocket wheels.

3. A mechanical toy of the character described, comprising a wheeled carriage, a support projecting from one end of the carriage, a figure having a body rising from said support, a rotatable member journaled in said support and operatively connected to one of the carriage-axles to turn therewith, legs eccentrically mounted on said rotatable member, and leg-guiding means applied to said support above the rotatable member and adjustable toward and from the axis thereof, said leg-guiding means being arranged to slidably receive only those portions of the legs projecting above their point of connection with the rotatable member.

4. A mechanical toy of the character described, comprising a wheeled-carriage, a support projecting from one end of the carriage, a figure having a body rising from said support, a rotatable member journaled in said support and operatively connected to one of the carriage-axles to turn therewith, a leg guiding member applied to said support above the rotatable member and having leg-receiving slots therein, and legs eccentrically mounted on said rotatable member, the upper portions of the legs engaging the slots in said guiding member, and the ends of said slots forming fulcrum points for said upper leg portions.

5. A mechanical toy of the character described, comprising a wheeled carriage, a support projecting from one end of the carriage, a figure having a body rising from said support, the body including a head having eyes and a tongue, a rotatable member journaled in said support and operatively connected to one of the carriage-axles to turn therewith, means located within said figure-body and connected with the rotatable member for actuating said eyes and said tongue, said means including a shaft, a reciprocating member connected with the eyes and the tongue, and a cam on said shaft in engagement with said reciprocating member.

6. An ambulatory figure, comprising a body, a shaft arranged transversely thereof and having crank-pins at its opposite ends, a horizontal leg-guiding member attached to said body above said shaft and having longitudinal slots in its opposite sides in substantially axial alinement with said shaft, and legs pivotally mounted on said crank-pins, the upper portions of said legs above their point of connection with the crank-pins being slidable vertically in the slots of said guiding member, and the ends of said slots forming fulcrum points for said upper leg-portions.

LOUIS PHILIP PEREW.