Sept. 1, 1925. 1,552,314

L. KOHL

MECHANICAL TOY

Filed Dec. 19, 1924 4 Sheets-Sheet 1

Fig. 1

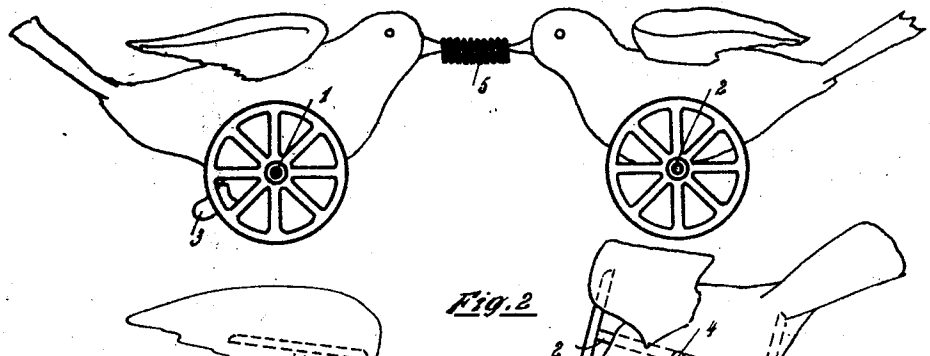


Fig. 2

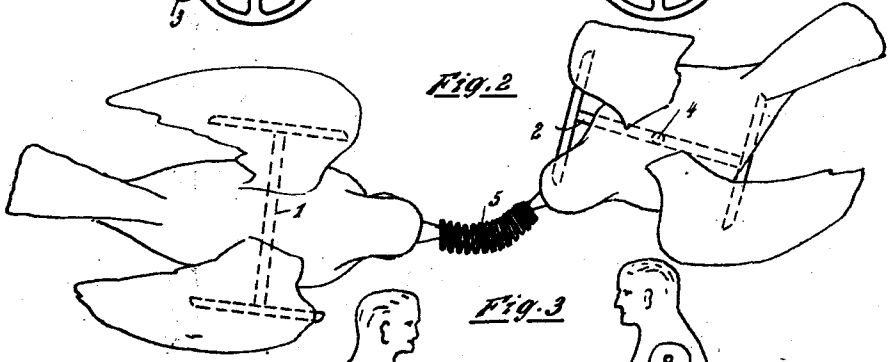
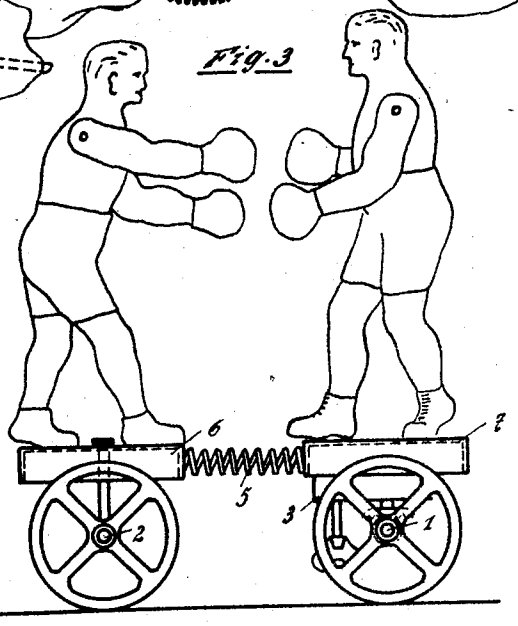


Fig. 3



Witnesses:

Inventor:

Sept. 1, 1925. 1,552,314

L. KOHL

MECHANICAL TOY

Filed Dec. 19, 1924 4 Sheets-Sheet 2

Fig. 4

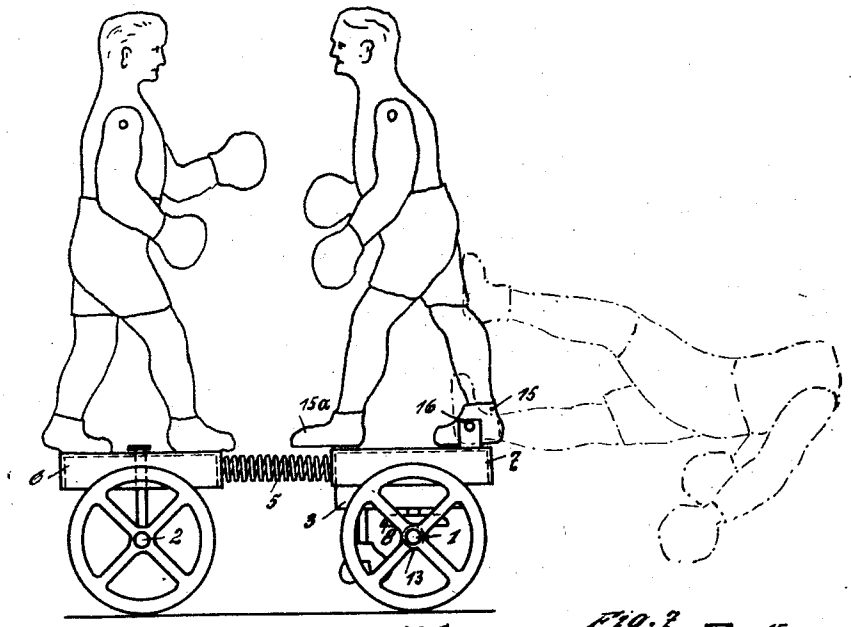


Fig. 7

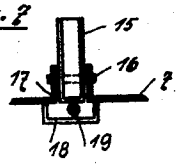


Fig. 5

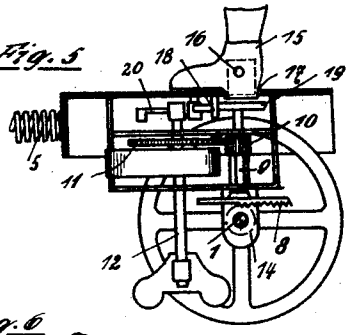
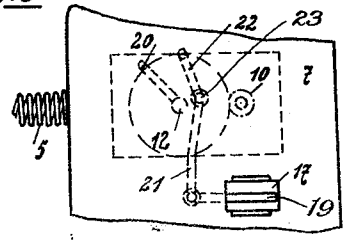


Fig. 6



Witnesses:

Inventor:

Leonhard Kohl

Sept. 1, 1925. 1,552,314

L. KOHL

MECHANICAL TOY

Filed Dec. 19, 1924 4 Sheets-Sheet 3

Fig. 8

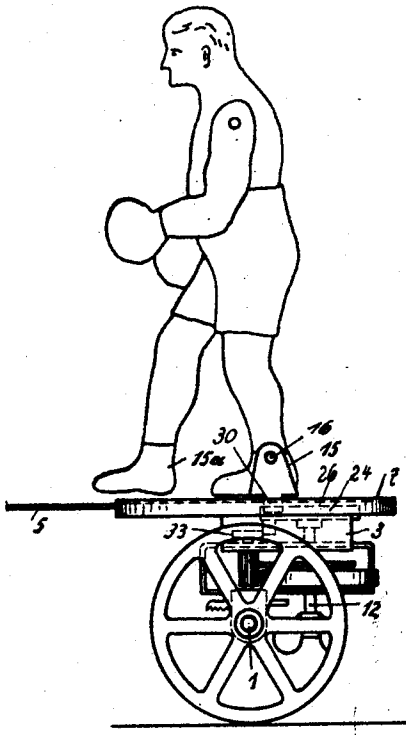


Fig. 9

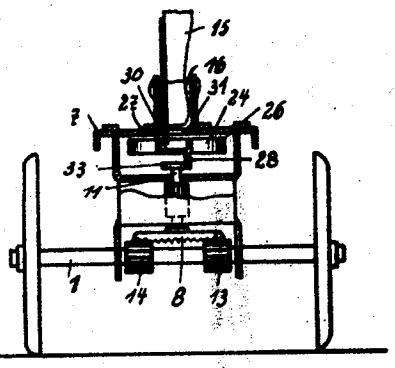
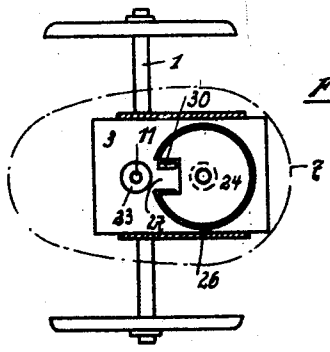


Fig. 10



Witnesses:

Inventor:

Leonhard Kohl

Sept. 1, 1925. 1,552,314

L. KOHL

MECHANICAL TOY

Filed Dec. 19, 1924 4 Sheets-Sheet 4

Fig. 11

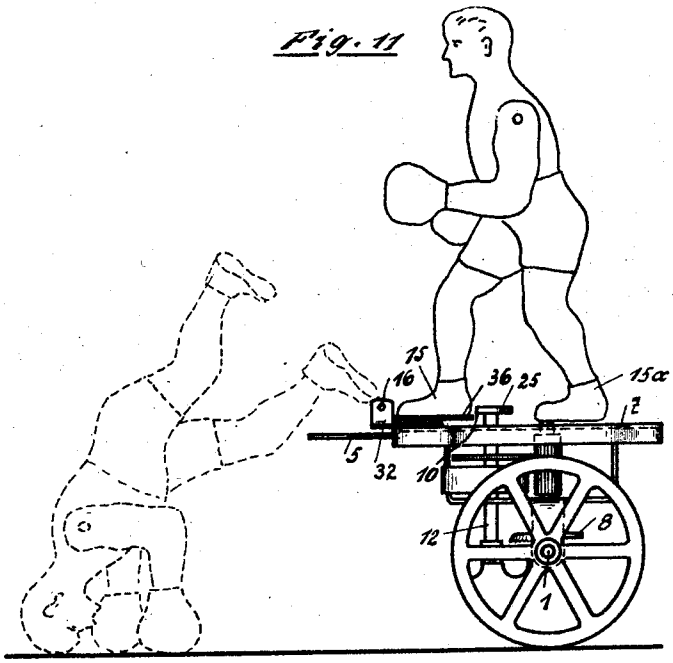
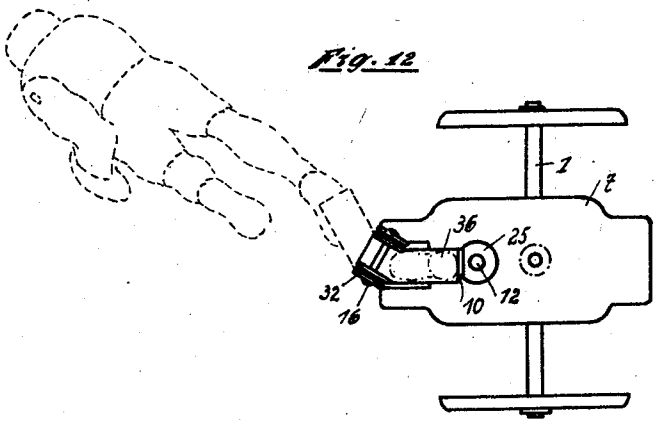


Fig. 12



Witnesses:

Inventor:

Ludwig Kohl

Patented Sept. 1, 1925. 1,552,314

UNITED STATES PATENT OFFICE.

LEONHARD KOHL, OF NUREMBERG, GERMANY, ASSIGNOR OF ONE-HALF TO GEBR. EINFALT, G. M. B. H., OF NUREMBERG, GERMANY, A CORPORATION OF GERMANY.

MECHANICAL TOY.

Application filed December 19, 1924. Serial No. 756,960.

To all whom it may concern:

Be it known that I, LEONHARD KOHL, a citizen of Germany, residing at Nuremberg, Bavaria, Germany, have invented certain new and useful Improvements in a Mechanical Toy, of which the following is a specification.

The present invention relates to a mechanical toy having opposed combatant figures.

The object of the present invention is to provide a simple, practical and efficient mechanical toy of strong, durable and comparatively inexpensive construction equipped with two wheeled sections or members yieldably connected by a spring or similar flexible elastic connection, and each section having a single wheeled axle to permit oscillatory movements of the sections simultaneously with reciprocating movements imparted to the sections by reversing driving mechanism mounted on one of the sections or members of the mechanical toy. It is also an object of the invention to pivotally mount the axle of the other section or member to permit a turning movement of the axle for changing the direction of the mechanical toy to cause the same in its reciprocations to move in differential directions.

It is also an object of the present invention to equip a mechanical toy of this character with figures representing boxers and having arms pivoted to the bodies of the figures at the shoulders of the same and adapted to swing in the reciprocating and oscillating movements of the sections or members of the mechanical toy and thereby give the impression of one figure striking at the other and in this manner affording a representation of a boxing match.

Another object of the invention is to pivotally mount one of the figures on the section or member of the mechanical toy and confining the pivotally mounted figure in an upright position during a portion of the operation of the toy and release the figure after a series of reciprocations and oscillations of the sections or members and permit the pivoted figure to tilt and swing downwardly and thereby give the impression of one figure being knocked down by the other figure.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

Figure 1 is a side elevation of a mechanical toy constructed in accordance with this invention and equipped with figures in the form of birds connected at the bills by an elastic flexible connection.

Fig. 2 is a plan view of the same, the elastic connection being flexed to arrange one of the sections or members of the mechanical toy in an angle to the other.

Fig. 3 is a side elevation of a mechanical top equipped with figures in the form of two boxers, the sections or members being provided with platforms and connected thereat by a flexible elastic connection.

Fig. 4 is a side elevation of a mechanical toy having two figures in the form of boxers, one of the figures being pivoted and shown tilted backwardly in dotted lines.

Fig. 5 is a detail vertical sectional view through the sectional member having a pivoted figure the latter being broken away.

Fig. 6 is a detail view illustrating the construction for locking the pivoted figure in an upright position.

Fig. 7 is a detail view illustrating the manner of mounting and locking the pivoted figure.

Fig. 8 is a side elevation of a portion of a mechanical toy illustrating another form of locking mechanism.

Fig. 9 is a transverse sectional view of the same, the pivoted figure being broken away.

Fig. 10 is a horizontal sectional view illustrating the construction for retaining the pivoted figure in an upright position.

Fig. 11 is a side elevation of one member of a mechanical toy, the pivoted figure being arranged to swing forwardly and being shown in dotted lines at the limit of its forward and downward pivotal movement.

Fig. 12 is a plan view of the same.

Referring particularly to Figs. 1 and 2 of the drawings, 1 and 2 designate two axles provided with supporting wheels and hav-

ing mounted on them the figures of two birds. The figure upon the axle 1 is fitted with a reversing driving mechanism which is located within the figure while the other figure is pivoted to the axle 2 by a vertical pivot 4 which permits the axle to swing horizontally about the pivot 4 for changing the direction of the mechanical toy as clearly indicated in Fig. 2 of the drawing. The bird figures are connected at their bills by a flexible or elastic connecting member preferably consisting of a spiral spring 5 and it will be seen that when the mechanical toy is actuated by the spring of the reversing driving mechanism the mechanical toy will be reciprocated over a supporting surface and the figures which are mounted upon the axles of the two sections of the mechanical toy will have an oscillatory movement as well as a reciprocating movement. By this construction the mechanical toy will afford an imitation of two birds contending for a worm. A spiral spring may be in the form of a worm or present the appearance of a worm and the movements of the figures will be exceedingly droll and afford a great amount of amusement. In addition to the reciprocating and rocking movements of the bird, the toy is also adapted to turn laterally on the pivot 4 of the axle 2 and there will be a constant change in the direction of the mechanical toy with its reciprocating and oscillating movements.

In Fig. 3 of the drawings there is illustrated another form of the invention which is similar in construction to that illustrated in Figs. 1 and 2 with the exception that the axles are equipped with platforms 6 and 7 upon which are fixedly mounted two figures of human shape representing two boxers. The flexible connecting member 5 consists of a spiral spring and is connected to the platforms at the front thereof. The arms of the opposed figures are pivotally secured to the shoulders of the body portions of the figures and the arms of both figures swing during the reciprocating and oscillating movements of the figures. The swinging movements of the arms of the figures during the reciprocation and oscillation of the latter present the appearance of the figures striking at each other similar to the contestants of a boxing match.

In Figs. 4 to 7 of the accompanying drawings is illustrated a mechanical toy equipped with two figures in the form of boxers, one of the figures being mounted to be tipped backwardly as illustrated in dotted lines in Fig. 4 of the drawings. The pivoted figure is located in an upright position during a portion of the operation of the mechanical toy and is released by the reversing driving mechanism after a predetermined period of operation of the mechanical toy and caused to tilt rearwardly by the continued movement of the toy under the action of the reversing driving mechanism. This tilting of the figure rearwardly will enhance the effect of the exhibition of the boxing match as will be readily understood.

The reversing driving mechanism consists of a toothed segment 8 which is fixed to a vertical shaft 9 arranged perpendicular to the axle 1 and located centrally above the same and connected with gearing consisting of a pinion 10 and a gear wheel 11. The gear wheel 11 is mounted on a vertical winding shaft 12 to which is connected a suitable spring for actuating the mechanical toy in its reciprocating movement. The vertical winding shaft is provided at its lower end with means for rotating and the rotation of the winding shaft by the spring of the reversing driving mechanism actuates the shaft 9 and rotates the toothed segment 8 which alternately meshes with pinions 13 and 14 mounted on the axle 1 at opposite sides of the toothed segment. This construction will rotate the axle 1 alternately in opposite directions. No claim is made to the particular construction of the reversing driving mechanism which may, of course, be varied in construction as designed.

The boxing figure upon the platform 7 is pivoted at one foot 15 by means of a bolt 16 and a heel of the foot 15 projects downwardly through a recess 17 in the platform 7. The other foot 15[a] of the pivoted figure rests upon the platform at the front thereof. This construction permits the pivoted figure to swing rearwardly at the slightest shaking of the mechanical toy, when the locking means for holding the pivoted figure in an upright position is withdrawn from engagement with the said pivoted figure. The pivoted foot 15 is located above the guide 18 arranged beneath the platform at the recess 17 and receiving a guiding and slidably locking rod 19. The slidable locking rod is pivoted to one arm 21 of a lever composed of the said arm 21 and the arm 22. The lever is pivoted intermediate of its ends on a vertical pivot 23 located in rear of the winding shaft 12 which is provided with an arm 20 arranged in the plane of the said lever and adapted when the spring of the reversing driving mechanism is wound up to engage the arm 21 and move the locking rod 19 rearwardly beneath the projecting heel of the foot 15 to maintain the figure in an upright position by engaging it with the heel as clearly illustrated in Fig. 5 of the drawing. When the spring of the toy runs down sufficiently to carry the arm 20 of the shaft 12 from the arm 21 of the said lever to the other arm 22 thereof, the arm 22 will be moved rear-

wardly and will withdraw the locking rod from beneath the projecting heel of the foot 15 and release the pivoted figure which will be caused to fall by the continued reciprocation of the toy.

If the toy be wound up and placed upon a supporting surface and allowed to run it will be moved in the reciprocating manner by the spring driving mechanism. The figures will be caused to swing on the axles in simulation of boxing and before the spring is entirely run down the arm 22 of the lever will be actuated by the projecting arm 20 of the winding shaft and the locking piece 19 will be moved forwardly out of engagement with the projecting heel of the pivoted figure and the continued reciprocation of the toy will cause the pivoted figure to swing rearwardly and the toy will present the appearance of one figure being apparently knocked down by the other figure.

In Figs. 8 to 12 inclusive of the drawings is illustrated one of the sections of a mechanical toy similar in general construction to that illustrated in Figs. 4 to 7 inclusive but equipped with a locking device of a different construction from that shown in Figs. 4 to 7 inclusive for retaining the pivoted figure in an upright position. The locking device of the present form of the invention is designed for the purpose of enabling the pivoted figure to remain longer in an upright position and to continue in such upright position until the spring of the toy is practically run down. In the form of the invention shown in Figs. 8 to 10 inclusive, the pivoted figure is designed to tilt rearwardly and the locking device for holding the figure in an upright position consists of a disk 24 mounted on the winding shaft 12. This disk 24 engages with the pivoted leg or foot of the figure for holding it in an upright position during the winding up of the spring mechanism and also during the entire running down of the latter or any other predetermined period of the operation of the toy. After the pivoted foot is released by the said disk 24 the figure will tip and thereby illustrate the end of the contest and present the appearance of one figure being knocked down by the other.

The disk 24 carries a projecting arm 26 having a recess 27, and a stop piece 28 located at the left hand side of the recess 27 extends downwardly below the disk 24. The boxing figure which is mounted on the pivot 16 is provided at its pivoted foot with a depending tongue 30 extending downwardly through an opening 31 of the platform and terminating adjacent the disk 24 and within the rim thereof. The rim forms a stop for the tongue and confines the tongue and maintains the pivoted boxing figure in an upright position until the recess 27 by the rotation of the disk 24 is carried to the tongue for releasing the same as clearly illustrated in Fig. 10 of the drawing. With this construction the winding shaft 12 can be rotated one revolution for winding the spring mechanism until the stop piece 28 of the disk 24 bears against the other side of the collar 33 fixed on the driving shaft 11. Thereby releasing the driving mechanism the disk 24 again rotates until the stop piece 28 again engages the collar 33. When the stop piece 28 is in engagement with the collar 33 the recess 27 is at the front and in position to release the depending tongue of the pivoted foot for allowing the pivoted figure to tilt rearwardly.

By omitting the stop piece 28 the spring mechanism will run longer without interruption and a longer operation of the toy may be obtained. When the recess 27 is carried to the front of the section in position for releasing the tongue 30 the pivoted figure may tilt rearwardly and further movement of the mechanical toy will be checked by the engagement of the pivoted figure with the supporting surface. The pivoted figure may then be returned to an erect position and a toy permitted to operate until the disk 24 completes another revolution and the pivoted figure caused to tilt rearwardly and stop the toy. This operation will be continued until the spring of the reversing driving mechanism is entirely run down.

In Figs. 11 and 12 of the accompanying drawings is illustrated a form of the invention in which the pivoted figure is arranged to tilt forwardly towards the fixed figure or at an angle as illustrated in Fig. 12 of the drawings. In this form of the invention a disk 25 having a small section or segment cut away is fixed to the winding shaft which is extended through the platform so as to project above the upper surface of the same. The disk 25 is located above the platform and it is arranged to engage the heel of the pivoted foot 15 to prevent a figure from tilting forwardly when however, by the revolution of the winding shaft the cut away portion of the disk 32 is carried to a projecting plate 36 the figure will be released and permitted to tilt forwardly. The plate 36 supports the foot 15 and is suitably secured to the same and is pivoted at 16. The uncut periphery of the disk 25 is adapted to overlap the rear projecting end of the plate 36 and thereby confine the figure in an upright position until the figure is released by the cut away portion of the disk.

What is claimed is:

1. A mechanical toy of the class described, including two wheeled sections with figures, a flexible member connecting the two sections and a reversing spring mechanism carried by one of the sections for propelling the same.

2. A mechanical toy of the class described,

including two wheeled sections having figures, each section provided with an axle and having supporting wheels, and tiltable on its axle, a flexible member connecting the sections and a reversing spring driving mechanism carried by one of the sections for propelling the same.

3. A mechanical toy of the class described including two wheeled sections having figures, each section provided with an axle and supporting wheels, one of the axles being pivoted to turn horizontally for changing the direction of the toy, a flexible member connecting the sections and a reversing spring driving mechanism connected with the other axle for propelling the toy.

4. A mechanical toy of the class described, including two sections each comprising a platform, axle and supporting wheels, one of the axles being pivoted, a spring connecting the platforms, reversing spring driving mechanism connected with the other axle and carried by the section having the same for propelling the toy and figures supported by the platforms.

5. A mechanical toy including two wheeled sections, a flexible member connecting the sections opposed figures mounted on the sections, one of the figures being pivoted, reversing spring driving mechanism mounted on the section having a pivoted figure for propelling the toy and means for locking the pivoted figure in an upright position and for automatically releasing the same to cause an automatic tilting of the figure.

6. A mechanical toy including two wheeled sections, a flexible member connecting the sections opposed figures mounted on the sections, one of the figures being pivoted, reversing spring driving mechanism mounted on the section having a pivoted figure for propelling the toy, a locking device for retaining the pivoted figure in an upright position and means operated by the driving mechanism for automatically releasing the pivoted figure from the locking device.

7. A mechanical toy of the class described including two wheeled sections provided with opposed figures, the figure on one of the sections being pivoted at the foot, a flexible member connecting the sections a reversing spring driving mechanism mounted on the section having a pivoted figure for propelling the toy, a locking device arranged to engage the foot of the pivoted figure for maintaining the figure in an upright position and means connected with the reversing spring driving mechanism for moving the locking device out of engagement with the foot of the figure to permit the pivoted figure to swing on its pivot.

8. A mechanical toy comprising two wheeled sections each provided with an axle and supporting wheels, one of the axles being pivoted for changing the direction of a mechanical toy and each section being adapted to oscillate on its axle, a flexible member connecting the two sections, figures carried by the sections, the figure of one of the sections being pivoted at the foot, reversing spring driving mechanism carried by the section having the pivoted figure connected with the axle of such section for propelling the toy, a locking device for engaging the pivoted portion of the figure for maintaining the latter in an upright position and means for connecting the locking device with the driving mechanism for automatically releasing the pivoted figure.

In testimony whereof I affix my signature.

LEONHARD KOHL.