Mar. 6, 1923. 1,447,598

H. MÜLLER

TOY

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Fig. 1

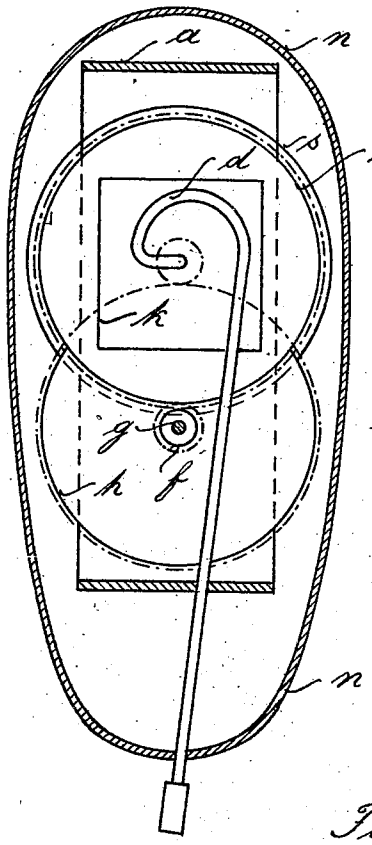


Fig. 2.

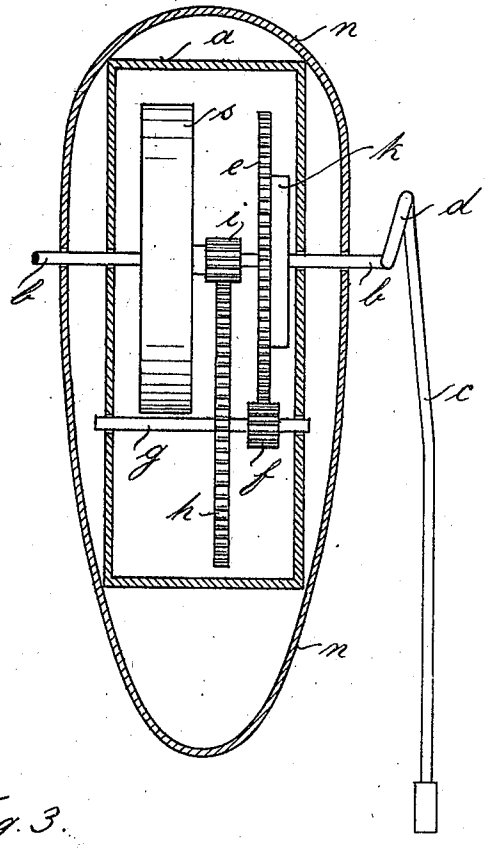
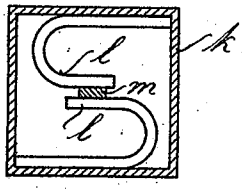


Fig. 3.



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Fig. 4.

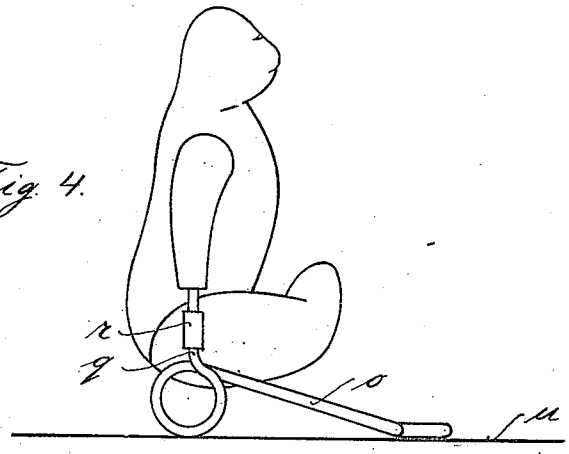


Fig. 7.

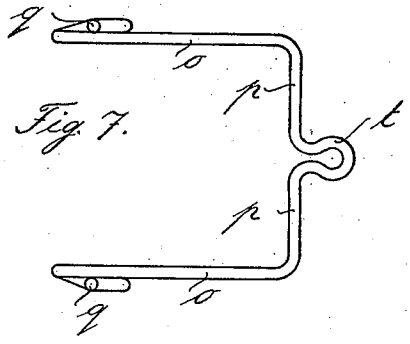


Fig. 5.

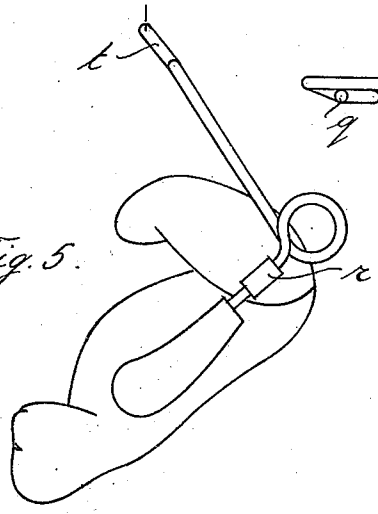
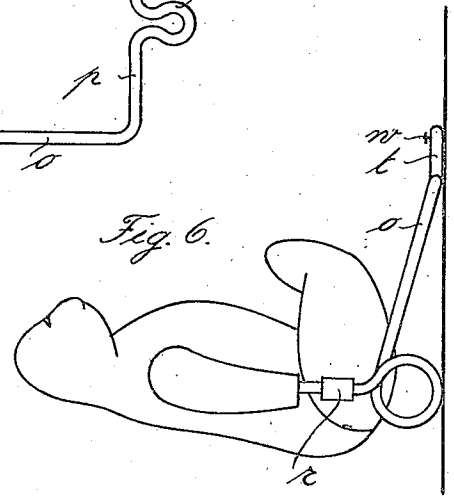


Fig. 6.



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UNITED STATES PATENT OFFICE.

HEINRICH MÜLLER, OF NUREMBERG, GERMANY.

TOY.

Application filed October 11, 1920. Serial No. 416,276.

To all whom it may concern:

Be it known that I, HEINRICH MÜLLER, a citizen of the German Republic, residing at Nuremberg, Germany, have invented certain new and useful Improvements in Toys, of which the following is a specification.

This invention relates to toys and more particularly to that class of toys which consists of a figure the body of which is adapted to swing around an axle which connects the upper ends of the arms so that the body can swing around between the arms.

The object of the invention is, to improve the construction of toys of this type in such a manner that the body can swing round several times in either direction on the slightest touch.

In order to properly explain the invention it will be hereinafter fully described and illustrated in the accompanying drawing in which:—

Figs. 1 and 2 show the casing which represents the body of a toy-figure in two vertical sections taken at right angles the one to the other.

Fig. 3 represents a constructional detail.

Figs. 4, 5 and 6 are elevations which show a toy figure in connection with the support in different positions.

Fig. 7 is a plan view of the support.

The casing *n* which represents the body of the toy figure and which is preferably covered with a fabric, contains the frame *a* in which the axle *b* is mounted. The ends of this axle *b* are bent to form the arms *c* of the toy figure, the part *d* of the arms *c* close to the ends of the axle *b* being wound in spiral shape representing the shoulders of the toy figure. A large toothed wheel *e* keyed upon the axle *b* is connected with a coupling device adapted to be released automatically and which will be more fully described hereafter. The toothed wheel *e* meshes with a pinion *f* keyed upon an axle *g*. Upon the axle *g* a large toothed wheel *h* is mounted which is in gear with a pinion *i* loosely mounted upon the axle *b* and connected with the fly wheel *s* which is also loosely mounted upon said axle *b*.

The coupling device is constructed as follows:—In a casing *k*, fixed to the toothed wheel *e* (Fig. 3) two bow-shaped springs *l* are located, whose outer ends are fixed to the wall of the casing, the inner ends bearing upon a flattened part *m* of the axle *b*. When the driving gear is slightly started by means of the arm *c* the casing *k* and the toothed wheel *e* are drawn along through the intermediary of the springs *l*. When the start is too strong or when the arms or the body of the toy figure are suddenly stopped the springs *l* yield under the pressure of the flattened part *m* whereby the coupling is released to become effective again as soon as the excess of power ceases. In this manner it is prevented that the driving gear is damaged through careless treatment which could otherwise happen easily on account of the long lever arms.

The special shaped windings *d* of the shoulder parts of the arms *c* which are strongly elastic, serve for the same purpose as the automatic coupling. In this manner a soft start is ensured and the automatic coupling *l*, *m* is not submitted to considerable stress. Through the spiral shaped windings *d* it becomes unnecessary to provide separate shoulder pieces. It is further much easier to cover the spiral shaped windings with fabric than the usual shoulder pieces of sheet metal or the like.

The fly wheel *s* of the toy can be revolved either through turning the arms in maintaining the body of the toy figure or through exerting a push upon the body of the toy figure whilst the arms remain at rest. When the toy is placed upon a table or upon the floor after the fly wheel has been started through turning the arms, the body of the toy figure turns somersaults as the arms are longer than the body.

The toy figure is preferably mounted in a support *o*, *p* as shown in Figs. 4 to 6. This support is made of wire and consists essentially of the two arms *o*, *o* and the cross piece *p*. The free ends *q* of the arms *o* are upwardly directed. The arms *c* of the body of the toy figure have sleeves *r* designed to be telescoped upon the ends *q* of the arms *o*. An eye *t* is provided at the middle of the cross piece *p*.

The toy figure can be placed upon a table *u* with the aid of the support, as shown in Fig. 4. It could further be suspended to a nail *w* in the wall by means of a cord *v* (Fig. 5).

When the toy figure is used in connection with the support, the fly wheel is revolved through pushing the body of the toy figure in one or in the other direction. The toy figure will then turn somersaults in the same direction for rather a long time owing to the

action of the fly wheel. This effect is obtained essentially through the fact that the fly wheel is mounted upon the axle *b*, as owing to this arrangement of the toy, the comparatively heavy fly wheel needs not be raised when the body turns around the axle.

With toys of a similar type a spring is usually required; this spring unwinds rapidly as its size is limited and as it must be very strong for making the body swing round, so that the somersaults are generally executed slowly. A spring has further the defect that it cannot be wound up by little children. When a spring is used as driving means the body can turn in one direction only. In contradistinction to this arrangement, the toy constructed according to this invention, can be put in movement without any auxiliary means by a slight push so that it makes a certain number of somersaults.

The use of a fly wheel as such is not claimed to be novel but the invention consists in the special arrangement of the fly wheel in toys of the type described. If a fly wheel operated drive is arranged at a convenient place of the hollow casing of the toy figure the heavy fly wheel has to be raised intermittently when the body of the figure swings round, whereby so much power is used that the toy stops after a few somersaults. This is avoided, according to the invention, through arranging the fly wheel coaxially with the revolving shaft. As shown in the drawing the fly wheel is mounted upon this shaft, the invention being however not limited to this construction as the effect aimed at is obtained through the fact that no raising of the fly wheel is required when the body of the toy figure is turning round. Any arrangement of the fly wheel is therefore claimed as novel according to which the point of gravity of the fly wheel is situated in the direction of the said axle or in proximity of the same.

I claim:—

1. An improved toy figure of the type in which the body swings around an axle comprising in combination with a hollow body, an axle mounted in said hollow body, arms which are longer than said body fixed to the outer ends of said axle, a fly wheel loosely mounted on said axle having its point of gravity situated in the direction of said axle, means for transmitting the movement of the fly wheel upon said axle and an elastic coupling inserted between said transmission means and said axle.

2. An improved toy figure of the type in which the body swings around an axle comprising in combination with a hollow body, an axle mounted in said hollow body, arms which are longer than said body fixed to the outer ends of said axle, a fly wheel loosely mounted on said axle having its point of gravity situated in proximity of the direction of said axle, means for transmitting the movement of the fly wheel upon said axle and an elastic coupling inserted between said transmission means and said axle.

3. An improved toy figure of the type in which the body swings around an axle comprising in combination with a hollow body, an axle mounted in said hollow body, arms which are longer than said body fixed to the outer ends of said axle, shoulder pieces consisting of spiral shaped windings of said arms, a fly wheel loosely mounted on said axle having its point of gravity situated in the direction of said axle, means for transmitting the movement of the fly wheel upon said axle and an elastic coupling inserted between said transmission means and said axle.

4. An improved toy figure of the type in which the body swings around an axle comprising in combination with a hollow body, an axle mounted in said hollow body, a flattened part of said axle, arms which are longer than said body fixed to the outer ends of said axle, shoulder pieces consisting of spiral shaped windings of said arms, a fly wheel loosely mounted on said axle having its point of gravity situated in the direction of said axle, a frame in said body in which said axle and fly wheel are mounted, an auxiliary axle journalled in the walls of said frame parallel with said axle, a large toothed wheel loosely mounted upon said axle, a pinion keyed upon said auxiliary axle meshing with the large toothed wheel, a large toothed wheel keyed upon said auxiliary axle, a pinion loosely mounted upon said main axle and connected with said fly wheel, a casing fixed to the large toothed wheel and covering said flattened part of the axle, and bow shaped springs fixed in said casing so that their ends bear from above and from below upon said flattened part of the axle to form an elastic coupling between said axle and the transmission gear for the fly wheel.

In testimony whereof I affix my signature in presence of two witnesses.

HEINRICH MÜLLER.

Witnesses:
W. HAVEMANN,
JOH. GY. KOHMMÜNCH.