H. T. LOGAN.

TOY.

APPLICATION FILED NOV. 1, 1913.

**1,150,440.**

Patented Aug. 17, 1915.

Fig. 1.

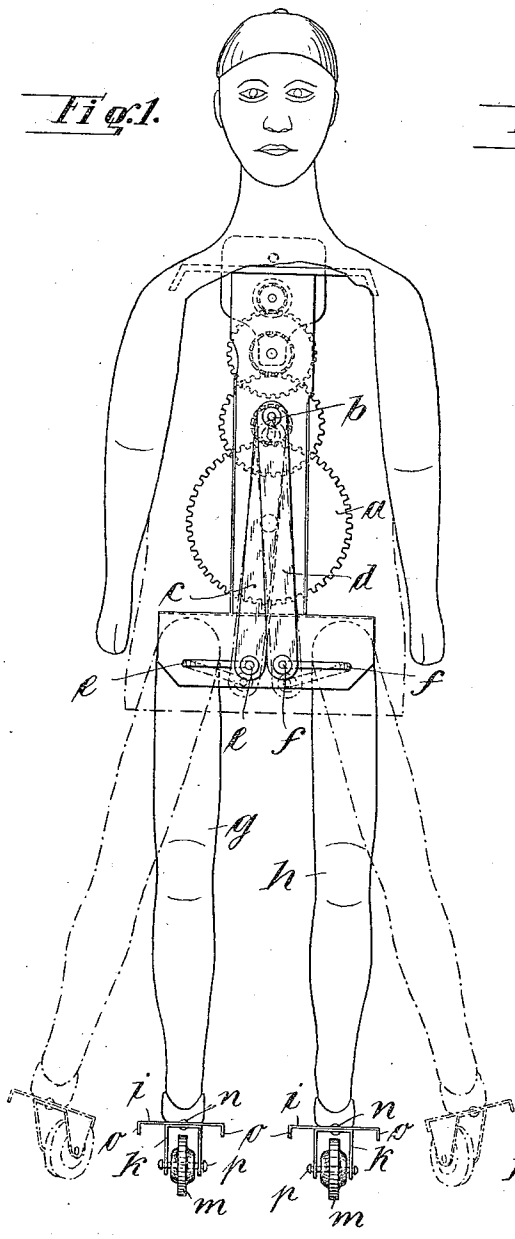
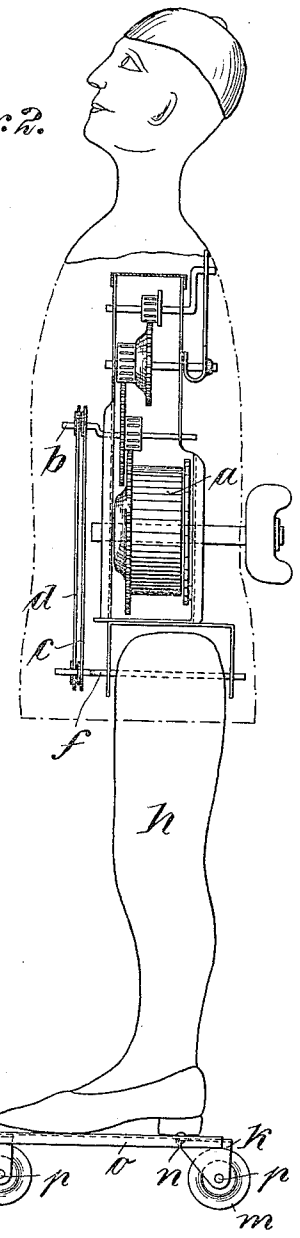



Fig. 2.




Witnesses:

John C. Sanders

Albert F. Heuman

Inventor:

Humphrey Thomas Logan

By Wm Wallace White

Atty

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

HUMPHREY THOMAS LOGAN, OF LONDON, ENGLAND, ASSIGNOR TO THE FIRM OF ERNST PAUL LEHMANN, OF BRANDENBURG-ON-THE-HAVEL, GERMANY.

## TOY.

1,150,440. Specification of Letters Patent. Patented Aug. 17, 1915.

Application filed November 1, 1913. Serial No. 798,677.

*To all whom it may concern:*

Be it known that I, HUMPHREY THOMAS LOGAN, a subject of the King of England, residing at No. 5 Selwood Place, Onslow Gardens, London, S. W., England, have invented certain new and useful Improvements in Toys, of which the following is a specification.

This invention relates to a toy and has particular reference to a method of producing a skating or gliding movement.

According to this invention the skating or gliding movement is produced by means of wheel-casters attached to the supporting means of the toy, such as the feet of a toy-figure. These casters are prevented by means of stops from having more than a certain amount of movement about their vertical axes. If, therefore, lateral force be applied to a caster, the resultant movement will be in a forward direction, dependent upon the angle at which its deflection about its vertical axis has been stopped. Consequently, then, by a combination of two or more of such casters attached to the supports of the toy, such as the feet of a doll or toy-figure, the legs of which are made to spread apart and approach each other alternately, the feathering action of the casters will produce a forward or backward movement of the toy, as the case may be.

It is to be understood, that the actual form of the casters and the method of stopping their angular movement about their vertical axes may be varied to suit convenience without departing from the spirit of this invention.

In carrying my invention into practice, I prefer to construct a doll or toy-figure and attach casters to the feet of said figure. Mechanism, such as a spring-barrel and driving-gear is carried in the body of the figure, and by means of said driving-gear the legs of the figure are caused alternately to spread apart laterally and approach each other, thereby causing the casters to be deflected alternately to one side and the other of the central line of the foot to which the caster is attached. This movement of the caster about its vertical axis is limited by a stop, which may preferably be formed by a downwardly bent edge of the skate.

In order to make my invention perfectly comprehensible, I have illustrated the same in the accompanying drawings, in which:

Figure 1 is a front-elevation, and Fig. 2 a side-elevation of a toy-skater, the body-portion being shown broken away to disclose the mechanism located inside. In Fig. 1 the legs of the toy-figure are shown in their normal position, the legs, when in their separated position, being indicated by broken lines.

The mechanism employed to impart to the feet of the figure an alternately spreading and approaching movement, may vary, as the particular construction of such driving mechanism is not essential to the object to be attained. In the construction illustrated in the drawings, as an example, a spring-barrel $a$ is located in the body-portion of the figure. The spring-barrel is adapted to impart rotary motion, through a train of wheels, to a crank-shaft $b$, on the crank of which two connecting rods $c$, $d$, are mounted, the lower ends of which, respectively, engage the bent portion of rods $e$, $f$, which form the journals of the legs $g$, $h$, of the figure, the said legs being rigidly mounted on or formed integral with said rods $e$, $f$. It will be seen, that the crank-portion of the shaft $b$, while turning, will alternately move the connecting-rods $c$, $d$, up and down, thereby alternately moving the legs $g$, $h$, laterally and retracting the same.

Attached to a plate $i$ below each foot of the toy-figure, there are casters, the wheels $m$ of which are adapted to turn on axle-pins $p$, carried by the yoke $k$. The yoke $k$, itself, is adapted to turn on a vertical pin $n$ riveted to the foot-plate $i$. The lateral edges $o$ of the foot-plate $i$ are bent downward to limit the deflections of the yoke $k$ to either side. In practice the angular movement of the yoke should not exceed 90°.

It will be easily understood, that, as the legs $g$, $h$, of the toy-figure are separated or moved toward each other, the yokes $k$ will be deflected from their central or normal position, owing to the frictional resistance of the supporting surface. The wheels $m$ carried by the yokes $k$, on being swept along in the movement of deflection, will be turned around on their horizontal axles $p$ by the resistance of the supporting surface, and

owing to the rotary movement of said wheels *m*, the toy will move on in a forward direction. As long as the angular movements of the yokes *k* of the left and right feet of the figure are of equal extent, the forward movement of the figure will be in a straight line, because the steering effect of the wheels on the left foot is counteracted by that of the wheels on the right foot, the resultant line of movement being an intermediate straight line. In practice, however, the resistance offered by the supporting surface to the angular movement of the yoke to either side will not be exactly the same, and owing to such irregularities in resistance the steering effect of the caster-wheels on the right and left feet may vary and thereby the line of movement may become irregular. Such unforeseen irregularities in the motion of the toy will, however, only serve to render the play more amusing, as it will appear as if the toy-figure had a will of its own, and that the irregular movements were due to volition on the part of the toy-figure. In some cases it may even be found preferable to provide means for intentionally causing irregularities in the motion of the traveling toy. Such means, for instance, could be obtained by causing the yokes *k* of one foot to have a limit of angular movement different from that of the yokes of the other foot, or one leg might be made to have a smaller lateral movement than the other leg, the movement of one leg might even be reduced to such an extent as to make the leg stationary.

In the example illustrated by the drawings, each foot of the toy-figure is supported by two casters. One of these, however, might be found sufficient to obtain the results hereinbefore described, the other caster serving as an additional support for maintaining the upright position of the toy. A further means of creating an irregular direction of motion of the toy might consist in securing the skates below the feet of the figure in an oblique position with relation to the central line of each foot. By locating the vertical pivot *n* of each caster at the rear of the caster instead of at the front thereof, as shown, the toy-figure could be made to run backward instead of in a forward direction.

I claim as my invention:

1. In a toy, the combination, with the means for supporting the body of the toy, of means for alternately causing the said supports to recede from and approach each other, casters attached to the said supports, yokes pivoted to said supports to carry said casters, said yokes being adapted to turn in either direction under control of the reciprocating movements of the supports, and stops for limiting the angular position of said yokes.

2. In a toy, the combination, with the means for supporting the body of the toy, of a spring-barrel carried by the toy, a train of wheels for transmitting motion from the spring-barrel to a crank-shaft, connecting-rods mounted on said crank-shaft for causing the said supports to move away from and toward each other, yokes pivoted to the said supports, casters carried by said yokes and means for limiting the angle of deflection of said casters.

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

HUMPHREY THOMAS LOGAN.

Witnesses:

O. J. WORTH,

W. E. ROGERS.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**