June 26, 1928. 1,674,943

S. I. BERGER

MECHANICAL FIGURE TOY

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Fig. 1.

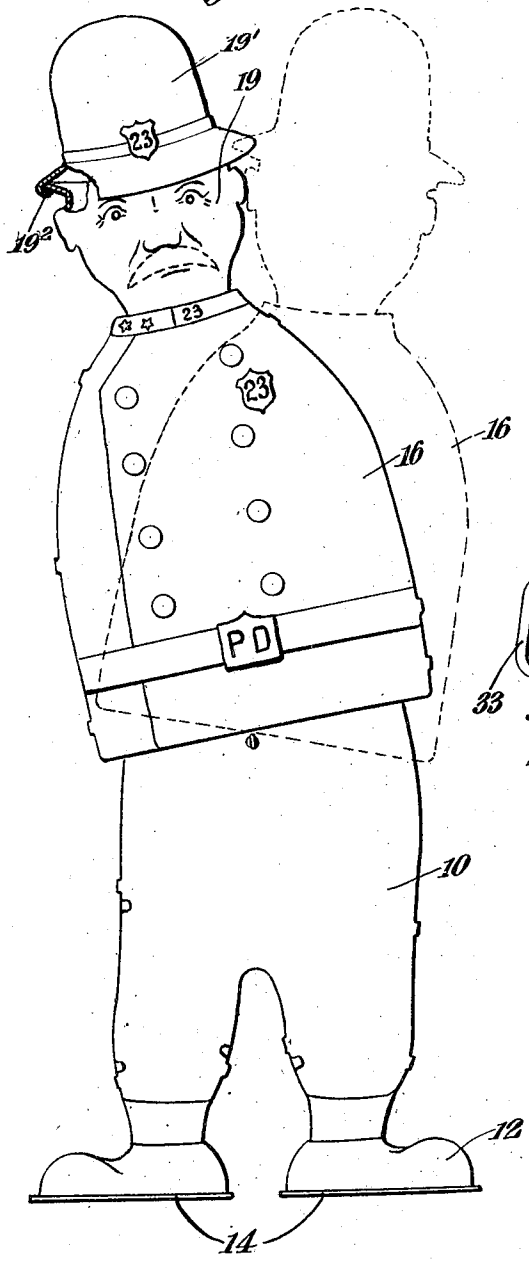
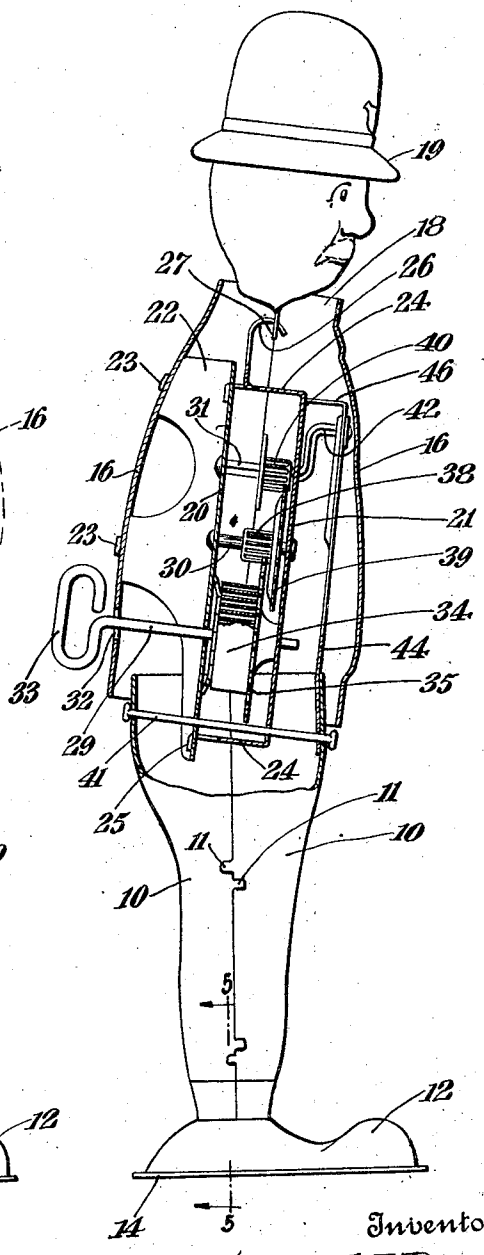


Fig. 2.



Inventor

Samuel I. Berger

By his Attorneys

Dean, Fairbanks, Obrieght & Hirsch

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Fig. 3.

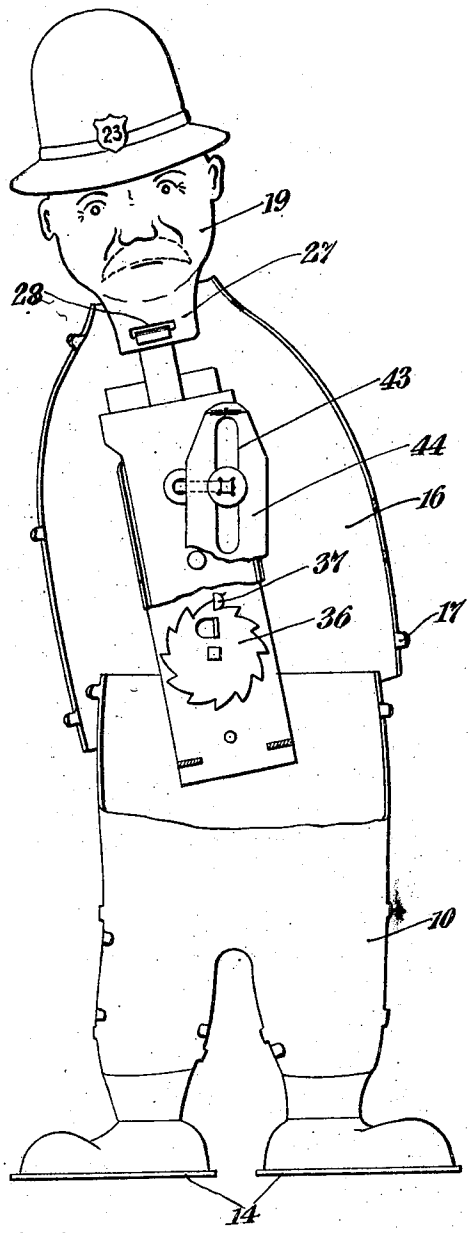


Fig. 4.

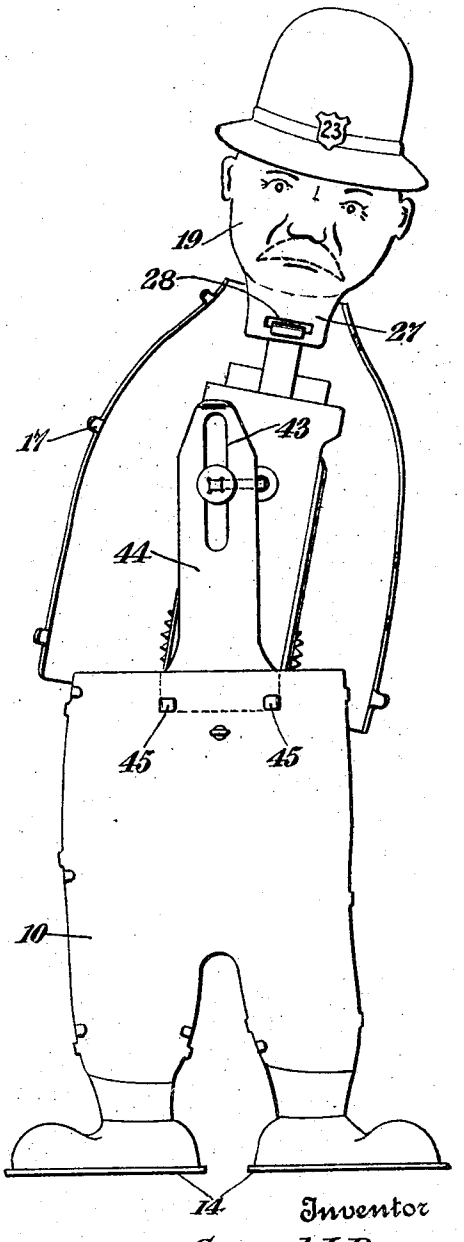
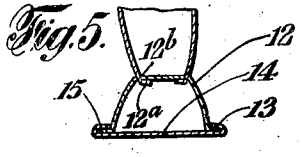


Fig. 5.



Inventor

Samuel I. Berger

By his Attorneys

Dean, Fairbank, Obright & Hirsch

Patented June 26, 1928. 1,674,943

UNITED STATES PATENT OFFICE.

SAMUEL I. BERGER, OF NEWARK, NEW JERSEY.

MECHANICAL FIGURE TOY.

Application filed July 6, 1925. Serial No. 41,473.

This invention relates to improvements in motor operated figure toys, particularly to a standing toy enclosing an oscillating motor and self-propelled by the momentum or jarring imparted thereto by the bodily movement of the motor.

Preferably the toy includes a stationary leg portion, and a body portion housing the motor. The motor is fixed within the body portion and pivotally connected to the leg portion for limited oscillating movement. The body portion thus oscillates as the motor sways and transmits the momentum and jar of the motor to the legs, slightly tilting the leg section without upsetting it so that the toy will shift about under the influence of the swaying motor driven body section.

Among the objects of the invention are to provide a toy of grotesque and amusing action which can be manufactured with comparative economy, which is of simple construction and unlikely to get out of order under the ordinary rough usage to which it is subjected.

One feature of the invention is the novel manner of mounting the head of the figure so that it is free to shake and wobble as the figure sways and shifts about under the influence of the motor.

Another feature is the novel construction by which I minimize the friction between the motor and the extension of the leg section which limits the oscillating movement of the motor thereby assuring movement of the figure for a comparatively long time for one motor winding.

Another feature is an inexpensive yet effective construction of feet or shoe portions of the toy. These feet are preferably formed by crimping the edges of spacious flat sole plates over the lower edges of convex shoe or foot portions.

The invention may be more fully understood from the following description in connection with the accompanying drawings in which

Fig. 1 is a view in front elevation of a toy embodying the invention, the dotted lines indicating the opposite extreme position to which the body section may be swung by the motor, part being shown in section,

Fig. 2 is a view in longitudinal section, through the body of the toy,

Fig. 3 is a view in front elevation with the front body section removed and part of the front leg section broken away to expose the motor, parts of the motor being also broken away and omitted for the sake of clearness.

Fig. 4 is a view similar to Fig. 3 showing the motor entirely in elevation, and

Fig. 5 is a sectional detail on the line 5—5 of Fig. 2,

The leg section of the toy is formed of a pair of complementary metallic stampings 10, 10 having overlapping securing tongues 11, at their engaging edges. The legs terminate at their lower ends in tubular ankle portions carrying tongues 12^a locking in openings 12^b near an end of elongated general convex shoe portions 12. The bottom edges of the shoe portions form outwardly turned flanges 13 (Fig. 5). Spacious flat sole plates 14 have their edges turned up and crimped over the outwardly extending flanges 13 on the shoe portions so that the sole plates are firmly connected to the shoes and so that the figure rests upon the relatively large flat supporting feet and is not easily tipped over.

The body section includes a pair of complementary metallic stampings 16, 16, having their mating edges secured by tongues 17. The body section is appreciably larger at its lower end than the top of the leg section, whereby the top of the leg section is encircled by the lower edge of the body section, there being ample space between these overlapping sections to permit lateral tilting movement of the body. The body sections 10 cooperatively provide a neck opening 18 at the top of the body in which a head portion 19 is mounted for free pivotal movement as will be later described.

The head 19 is formed of a single cup-shaped stamping, the hat 19′ of a second substantially identical stamping. The head section is then specially formed to provide the nose, ears and other protuberances. The rim of the hat is connected to the head in a rigid structure by crimping as at 19^2 thereabout. The construction set forth is simple in that it requires but two identical stampings readily crimped together and it eliminates the need for tangs and provides a construction devoid of longitudinal seams that are frequently conspicuous and ungainly and also obviates the likelihood of the child cutting its hand on a protruding sharp edge.

The motor mechanism is mounted between

a pair of parallel motor frame plates 20, 21. Frame plate 20 carries spacer flanges 22 of skeleton form which interlock with the rear body section as by tongues 23. The other frame plate 21 includes end flanges 24, spacing the plates apart and locked by tongues 25 to the frame plate 20. The upper flange 24 is provided with an integral struck out hook-shaped extension 26. A tongue 27 depending from the head is slotted as at 28 to engage the hook 26 and the slot is of sufficient size to permit the head to sway or pivot forwardly and backwardly as well as laterally. This pivoting or rolling movement of the head is limited only by the walls of the neck opening 18.

The motor includes driving shaft 29, countershaft 30 and driven shaft 31, arranged in substantially horizontal position one above the other and each having bearings in the frame plates 20, 21. Driving shaft 29 extends through an opening 32 in the rear of the body section and is looped to form a winding handle or key 33. Between the frame plates, this shaft carries a convolute torsional spring 34 one end of which is connected to the shaft and the other end of which is connected to a driving gear 35. Suitable pawl and ratchet mechanism 36 and 37 (Fig. 3) prevent retrograde unwinding of the spring 34. Driving gear 35 engages a pinion 38 on the countershaft integral with a gear 39 which drives a pinion 40 on the driven shaft 31. Pinion 38, gear 39 and pinion 40 thus provide a train of speed increasing mechanism for transmitting motive power to the driven shaft 31.

The motor and consequently the entire body section is pivotally supported upon a rod 41 passing transversely through the upper end of the leg sections 10 and the motor tilts about this rod as a center. The connections which effect rigid tilting of the motor include a crank arm 42 integral with the forward end of shaft 31. This crank arm works in a slot 43 in the upper end of a vertical arm 44 secured as at 45 to the leg section and projecting upwardly therefrom into the body.

It will be noted that the upright 44 is integral at its upper end with an inwardly turned extension 46 adapted to ride over the face of the motor frame plate 21 as the motor oscillates. Member 46 acts as a spacer to prevent undue friction either upon the crank shaft or the motor frame plate. The operation of the toy may be outlined briefly as follows:

The crank shaft connection between the motor and the upright induces a relative oscillation between the body and leg sections of the toy, this oscillation taking place about the rod 41 as a center. Inasmuch as the entire weight of the toy rests upon the leg portion, which is therefore relatively stationary, the oscillatory movement will appear in swaying of the body. Such oscillation is however, rather violent. Since the leg portion is not fixed to a support and is rather light, the jars transmitted thereto through the upright will cause the legs to tilt and effect shifting of the figure on its feet. The wide flat sole plates prevent the toy from being actually upset by the motor, but the device is so proportioned that there will be the necessary tilting back and forth on the sole plates to effect teetering of the toy and consequent shifting about on a supporting surface. As heretofore noted, the head will sway forward, backward and laterally during the operation.

It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well suited to meet the requirements of practical use.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A toy of the class described, including a leg section adapted to stand upon a suitable supporting surface, a body section pivotally connected to the leg section, a motor housed within the body section constructed and arranged to effect oscillation thereof relative to the leg section, frame plates secured to the body section and mounting the motor and an upwardly extending hook integral with one of the plates, a head for the figure loosely connected to the hook, said body section having a neck opening therein of diameter substantially larger than that of the contiguous part of the head, whereby in operation the head will sway in the neck opening.

2. A toy including a body section and a leg section pivotally connected together, the leg section being formed of complementary metallic stampings, the lower end of said section being bifurcated and terminating in a pair of hollow substantially cylindrical ankle portions, elongated shoe portions having openings therein into which the ankle portions are fitted and flat sole plates having their edges turned up and crimped over the lower edges of the shoe portions whereby to provide substantial supporting surfaces upon which the toy may stand.

3. In a toy of the class described, a leg

section and a body section pivotally connected together, a motor housed within the body section and including a pair of frame plates, a spring motor mounted between said frame plates, a vertical upright secured to the front of the leg portion and projecting upwardly into the body portion, said upright having a vertical slot therein, the motor mechanism including a crank working in said slot whereby to cause and limit relative pivotal movement of the leg section and body section, said upright having at its upper end, a right angular extension constituting a spacer, the edge of which is adapted to contact with one of the motor plates whereby to prevent undue friction between the motor mechanism and the upright.

4. In a toy, a leg section bifurcated at its lower end and terminating in a pair of elongated convex shoe portions, flanges at the lower edges of the shoe portions, substantially oval sole plates of greater length and width than the shoe portions, the edges of said sole plates being turned over and crimped to the flanges.

5. In a figure toy of the class described, a head member bearing a hat, said head member formed of a cup-shaped stamping, said hat member of a cup-shaped stamping, the rim of one of said members being of diameter larger than and crimped about the edge of the other.

6. In a figure toy of the class described, in combination, a pair of substantially cup-shaped stampings, one constituting a head, the other a hat therefor, said head being specially stamped to form features thereon and having an out-turned rim, said hat member having an outturned rim extending beyond and crimped over the rim of said head member to form a uniform structure devoid of longitudinal seams.

Signed at New York City in the county of New York and State of New York this 2nd day of July, A. D. 1925.

SAMUEL I. BERGER.