

April 11, 1939.

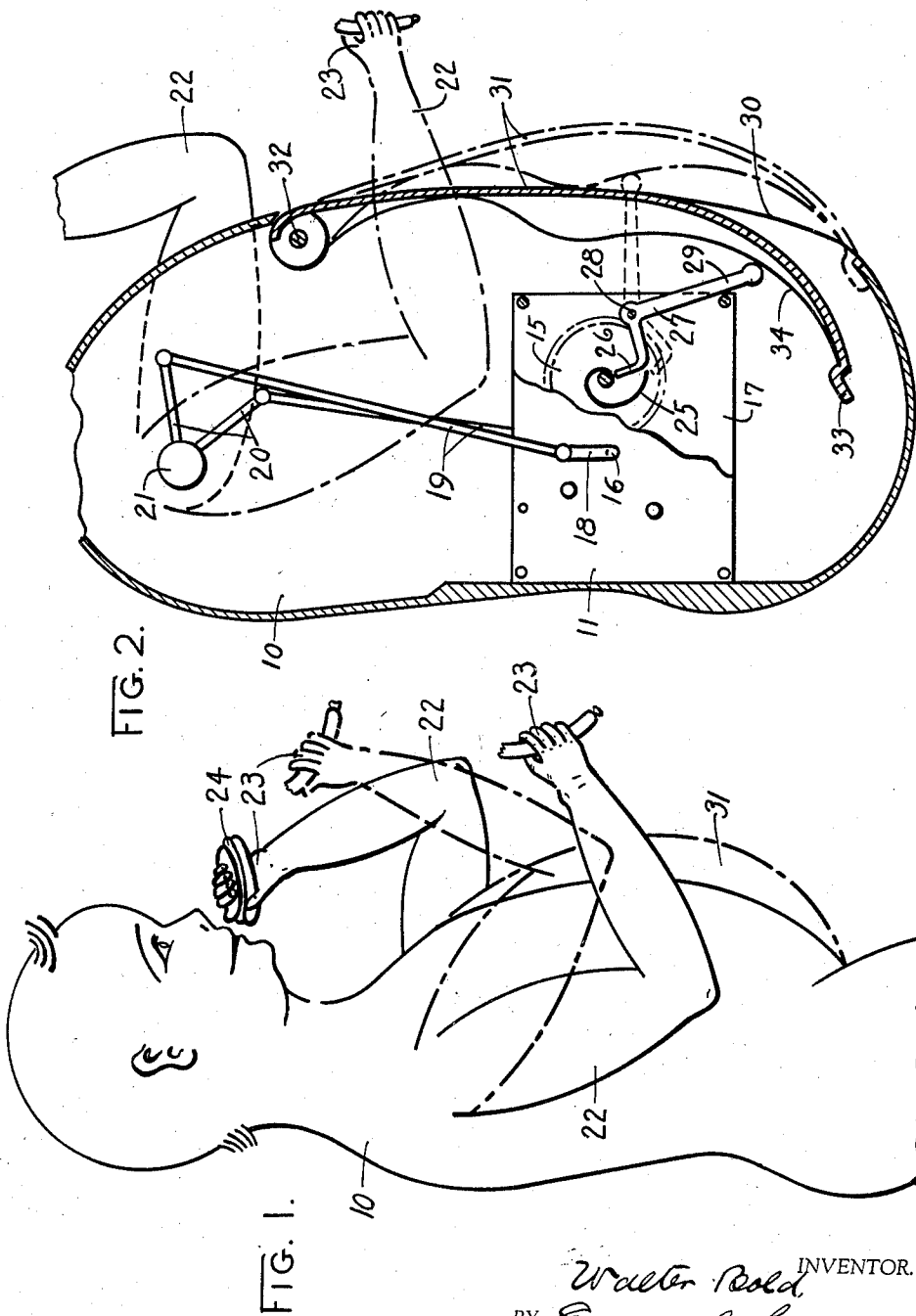
W. BOLD

2,154,121

MECHANICAL TOY

Filed March 8, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

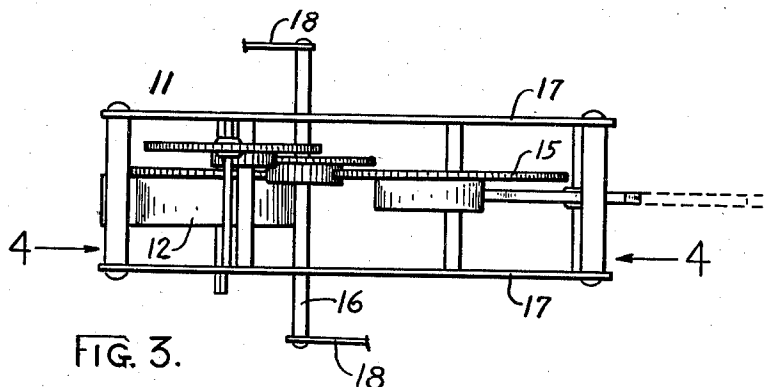


FIG. 3.

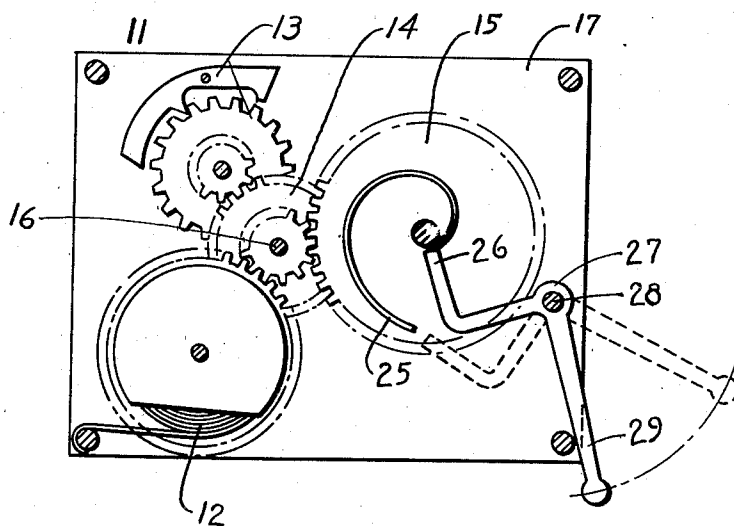


FIG. 4.

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UNITED STATES PATENT OFFICE

2,154,121

MECHANICAL TOY

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8 Claims. (Cl. 46-141)

My invention comprises the representation of a living figure provided with means for simulating feeding and the resultant extension of the abdomen to indicate the filling of the stomach to repletion.

The preferable embodiment of my invention is in the form of a human figure or doll, the arms of which are arranged for alternate movement towards and away from the mouth as in taking alternate bites from food carried in either hand, such as hamburger or "hot dog" sandwiches, and a movable abdominal front wall arranged to be alternately extended to indicate repletion and then retracted preparatory for a subsequent extension.

The movements of the arms and hands toward and away from the mouth are relatively rapid, while the extension of the stomach is relatively slow. The retraction of the stomach after the completion of an extension movement is preferably rapid.

In the practical embodiment of my invention which I illustrate in the accompanying drawings, the figure is that of a doll and the arms are arranged to swing on an axis coincident with the location of the arm sockets of a human being, the arms being bent so that as they are swung upwardly the hands are brought to the mouth of the doll, one arm being elevated as the other drops.

To provide for such motion I mount in the interior of the doll a spring motor or other suitable source of rotary motion and by suitable means such as crank and link connections I impart the desired motion to the arms.

The abdominal front wall of the figure is arranged for alternate expansion and retraction, and this I preferably accomplish by providing such wall with a movable section, as for instance a plate hinged at one edge, preferably its top edge. The motor is provided with means arranged for contact with the movable section and to alternately swing the latter forwardly and allow it to move rearwardly into its retracted position.

This alternate forward and rearward movement of the movable section is preferably accomplished by means of a bell crank lever, one of the arms of which is in contact with a cam track rotated by the motor while the other arm is in contact with the movable wall section.

In the accompanying drawings, which are intended to illustrate a practical embodiment of the principles of my invention:

Fig. 1 is a broken side elevation of the doll;

Fig. 2 is a vertical section of the same showing in full lines an arm raised and the abdominal wall retracted and in dotted lines the arm lowered and the wall extended, one of the side plates of the motor being partially broken away for the sake of clearness;

Fig. 3 is an enlarged plan view of the motor and the arm operating cranks;

Fig. 4 is an enlarged side view of the motor with the adjacent side plate removed.

Referring to the drawings, 10 represents a hollow doll body or other representation of a living animal. The same may be made of any suitable material which will provide the necessary strength and lightness.

Within the body cavity of the doll 10 is mounted a suitable stored power motor 11 which is wound up in the usual manner from without as by a key, not shown.

The motor is driven by a spring 12 and the operation is controlled by a governor or an escapement 13. 14 represents a gear driven by the spring at relatively high speed and 15 represents a larger gear driven at relatively low speed. In practice I have used a speed ratio for said gears of eight to one.

16 represents the shaft upon which the gear 14 is mounted, which shaft is prolonged beyond the side plate 17 of the motor and has its ends provided with cranks 18 which are opposed as for instance at 180°. The ends of said cranks are connected by the links 19 with the cranks 20 at the inner ends of the aligned twin rock shafts 21 which are horizontally journaled in the shoulder portion of the doll and have their outer ends protruding at the arm sockets. The cranks 20 are arranged angularly to each other, as for instance, at an angle of 90°.

The arms 22 have their shoulder ends fixed on the protruding ends of the shafts 21, so that when the shafts rock in alternate directions the arms are accordingly raised and lowered.

The arms are bent upwardly at the elbow and the hands 23 are shown grasping food, such as for instance the hamburger sandwiches 24.

Thus as the motor operates the hands are alternately raised and alternately lowered relative to the mouth of the doll, thus simulating the taking of alternate bites of the sandwiches.

The larger gear 15 has fixed to one of its faces the eccentrically disposed cam track 25 which is arranged to be engaged by the inner and shorter arm 26 of a bell crank lever 27 which is pivoted at its axis on a transversely disposed shaft 28 mounted in the side plates 17 of the

motor. 29 represents the outer or larger arm of the lever 27.

30 represents a relatively large opening in the front abdominal wall of the doll, in which is mounted a movable section or shutter 31. In practice I have mounted said section 31 by hinging it at its upper edge as at 32. The lower edge of the section is preferably off-set at 33 to engage from within the lower edge of the opening 30 when the movable section is extended.

The inner surface of the section 31 is preferably provided with a vertically disposed curved contact strip 34 with which the extremity of the arm 29 of the lever 27 is in contact.

The section or shutter 31 is preferably outwardly convexed.

It is evident that as the gear 15 revolves the cam track will pick up the one arm of the bell crank lever 27 and swing the same counterclockwise in Fig. 2 from its position shown in full lines to its position shown in dotted lines, thus swinging the plate 30 from its retracted position shown in full lines in said figure to its extended position shown in dotted lines. When the cam track runs off the end of the lever the lever will drop back into its full line position, allowing the plate 30 to retract.

When the doll is clothed with a dress or shirt and trousers, the gradual extension of the abdominal wall beneath the garments renders the toy very attractive and amusing, especially to children.

I claim:

1. In a toy representing a living creature and provided with a hollow body, the combination of a motor supported by the body, means operated by the motor for simulating the supplying of food to the mouth of the toy, and lever means operated by the motor in timed relation to the first mentioned means to cause the abdomen of the body to alternately expand to simulate repletion and to be retracted.

2. In a toy representing a living creature and provided with a hollow body, the combination of a motor supported by the body, means operated by the motor for simulating the supplying of food to the mouth of the toy, a movable section in the abdominal wall of the body, and lever means operated by the motor in timed relation to the first mentioned means for alternately causing the section to alternately be extended to simulate repletion and to be retracted.

3. In a toy representing a human being and provided with a hollow body, the combination of a motor supported in the body, a pair of arms pivotally mounted adjacent the shoulders of the body, means operatively connecting the arms and the motor to cause the arms to be alternately raised and lowered to simulate the carrying of food to the mouth, and lever means operated by the motor in timed relation to the first mentioned means to alternately cause the wall of the abdominal cavity to be extended to simulate repletion and to be retracted.

4. In a toy representing a human being and

provided with a hollow body, the combination of a motor supported in the body, a pair of arms pivotally mounted adjacent the shoulders of the body, means operatively connecting the arms and the motor to cause the arms to be alternately raised and lowered to simulate the carrying of food to the mouth, a movable section in the abdominal wall of the body, and lever means operated by the motor in timed relation to the first mentioned means to alternately cause the movable section to be extended outwardly to simulate repletion and to be retracted.

5. In a toy representing a human being and provided with a hollow body, the combination of a motor supported in the body, a pair of arms pivotally mounted adjacent the shoulders of the body, means operatively connecting the arms and the motor to cause the arms to be alternately raised and lowered to simulate the carrying of food to the mouth, and means operated by the motor to alternately cause the wall of the abdominal cavity to be extended to simulate repletion and to be retracted, the last named means having relatively slow motion whereby the feeding movements are repeated during a single extension movement.

6. In a toy representing a human being and provided with a hollow body, the combination of a motor supported in the body, a pair of arms pivotally mounted adjacent the shoulders, link and crank connections between the arms and the motor whereby the arms are alternately raised and lowered to simulate carrying food to the mouth, said connections being arranged for alternate relative movements, and means operated by the motor for the extension of the abdominal wall of the body to represent repletion and for the retraction of the same, said means being actuated in timed relation with the movements of the arms.

7. In a toy representing a living creature and provided with a hollow body, the combination of a motor supported by said body, an arm pivotally mounted on the body, operative connection between the motor and the arm whereby the latter is alternately raised and lowered, a movable section in the abdominal wall of the body, and operative connection comprising a bell-crank-lever between said wall section and the motor whereby said wall section is alternately extended and retracted in timed relation with the movements of the arm.

8. In a toy representing a living creature and provided with a hollow body, the combination of a motor supported by said body, an arm pivotally mounted on the body, operative connection between the motor and the arm whereby the latter is alternately raised and lowered, a movable section in the abdominal wall of the body, a cam rotated by the motor, and lever-connection between the cam and said movable wall section whereby the latter is alternately extended and retracted in timed relation with the movements of the arm.

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