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Goldfarb et al.

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[54] **DOLL WITH PNEUMATIC MEANS FOR RECIPROCALLY MOVING EYES**

[76] Inventors: **Adolph E. Goldfarb,** 4614 Monarca Dr., Tarzana, Calif. 91356; **Erwin Benkoe,** 17965 Medley Dr., Encino, Calif. 91316

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[52] **U.S. Cl.** ..... **46/44;** 46/135 R

[51] **Int. Cl.** **A63h 3/40;** A63h 29/16

[58] **Field of Search** ..... 46/44, 135 R, 118, 167; 40/106.32

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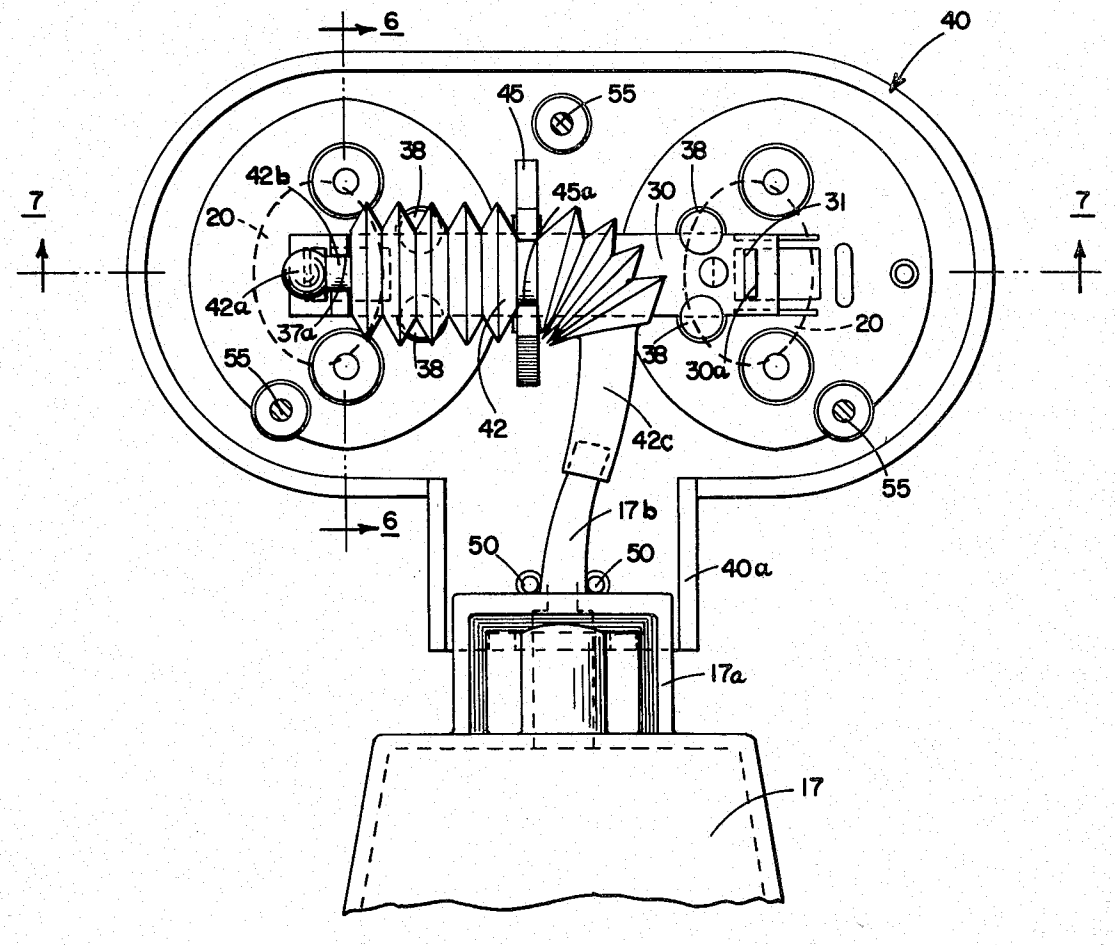
Primary Examiner—F. Barry Shay

Attorney, Agent, or Firm—Robert M. Ashen

[57] **ABSTRACT**

A doll has an air bladder mounted therein which can be squeezed to pneumatically actuate a bellows. The bellows is mechanically coupled to a slider mechanism which is reciprocally driven as the bladder is squeezed and released. Movable doll eyes are coupled to the slider mechanism and thus are moved back and forth with each squeezing and releasing of the bladder.

11 Claims, 8 Drawing Figures



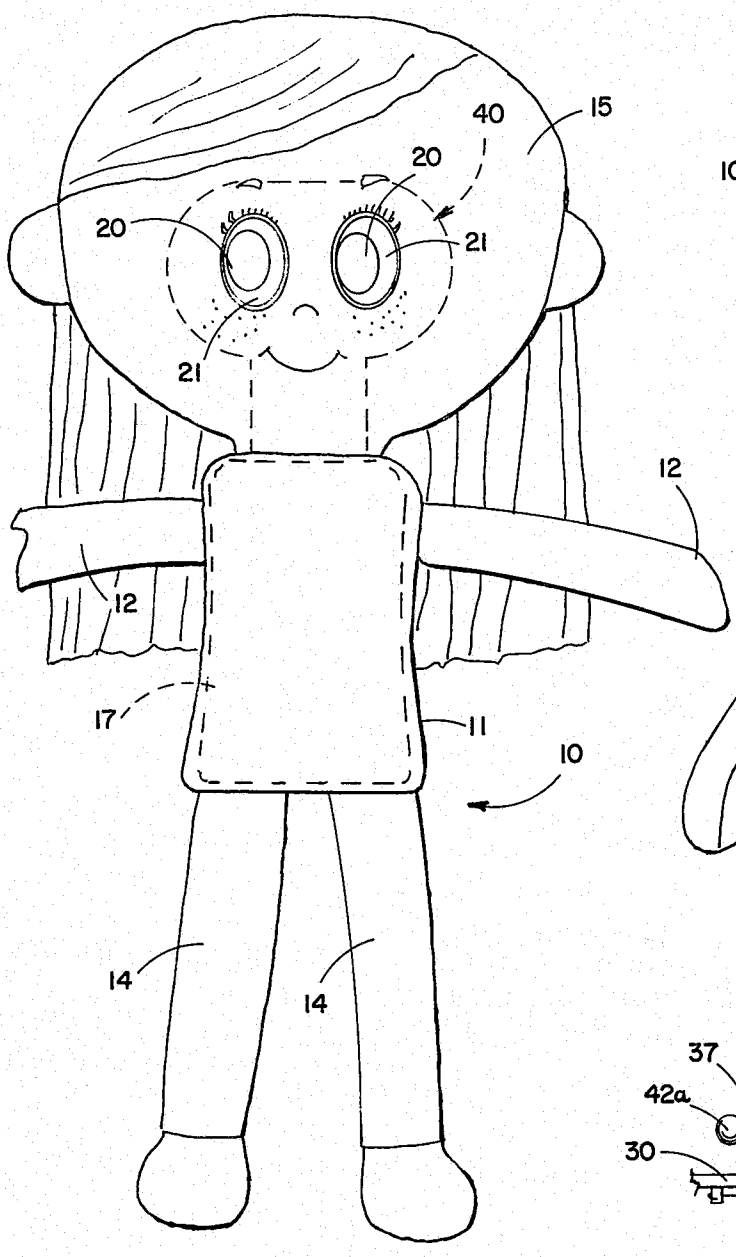


FIG. 1

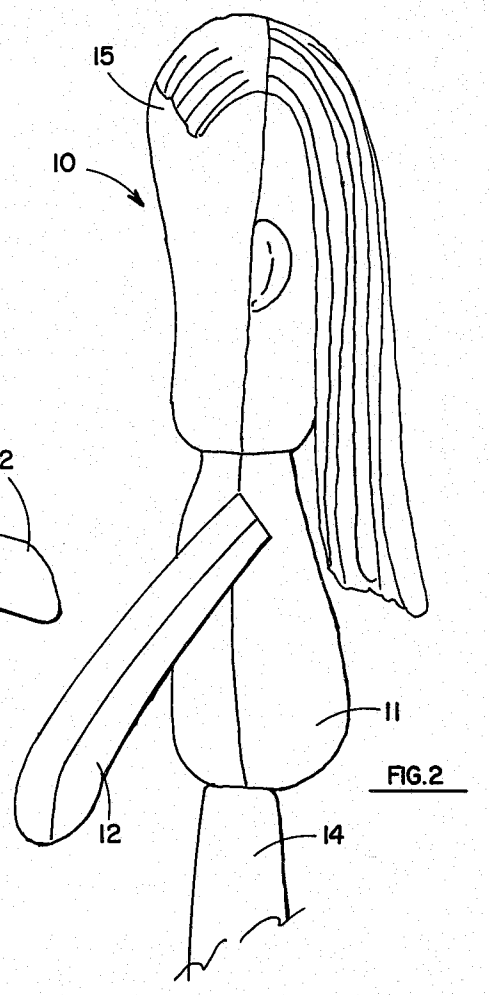


FIG. 2

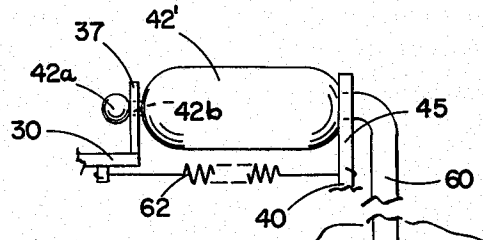
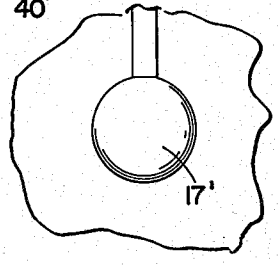


FIG. 8



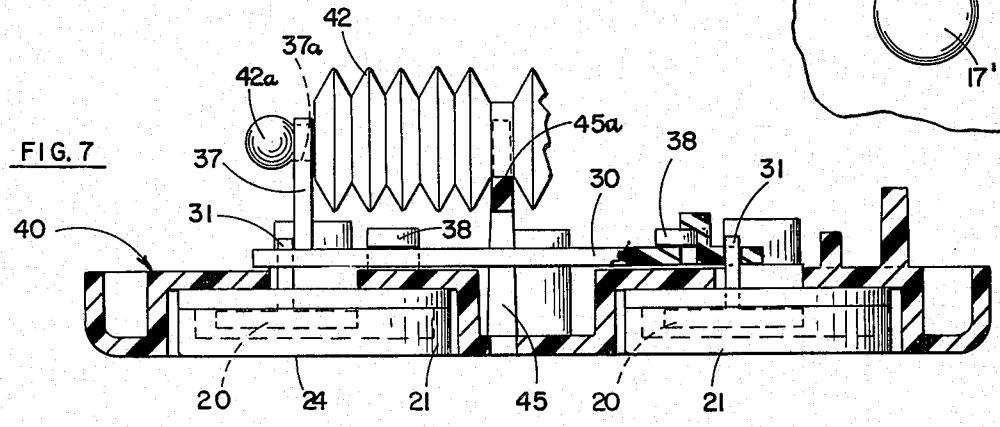


FIG. 7

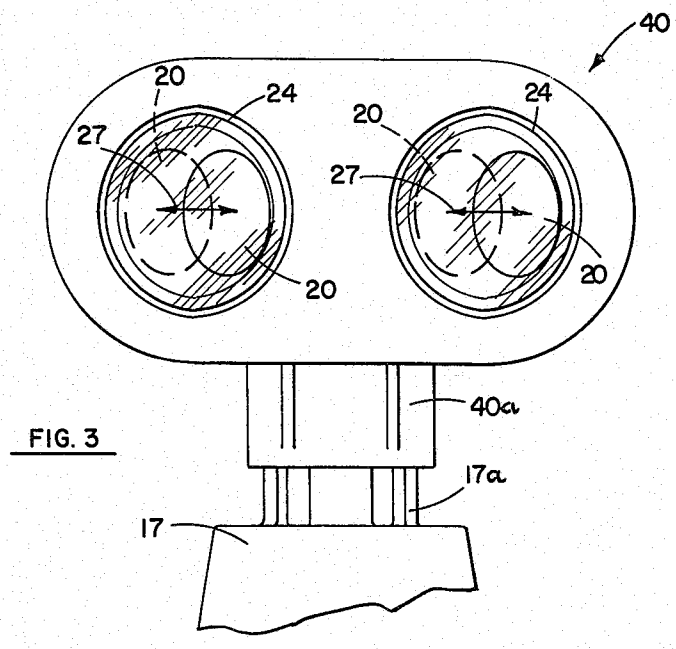


FIG. 3

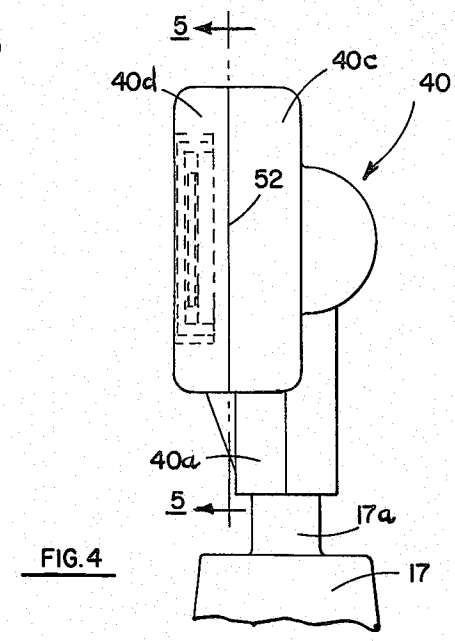


FIG. 4

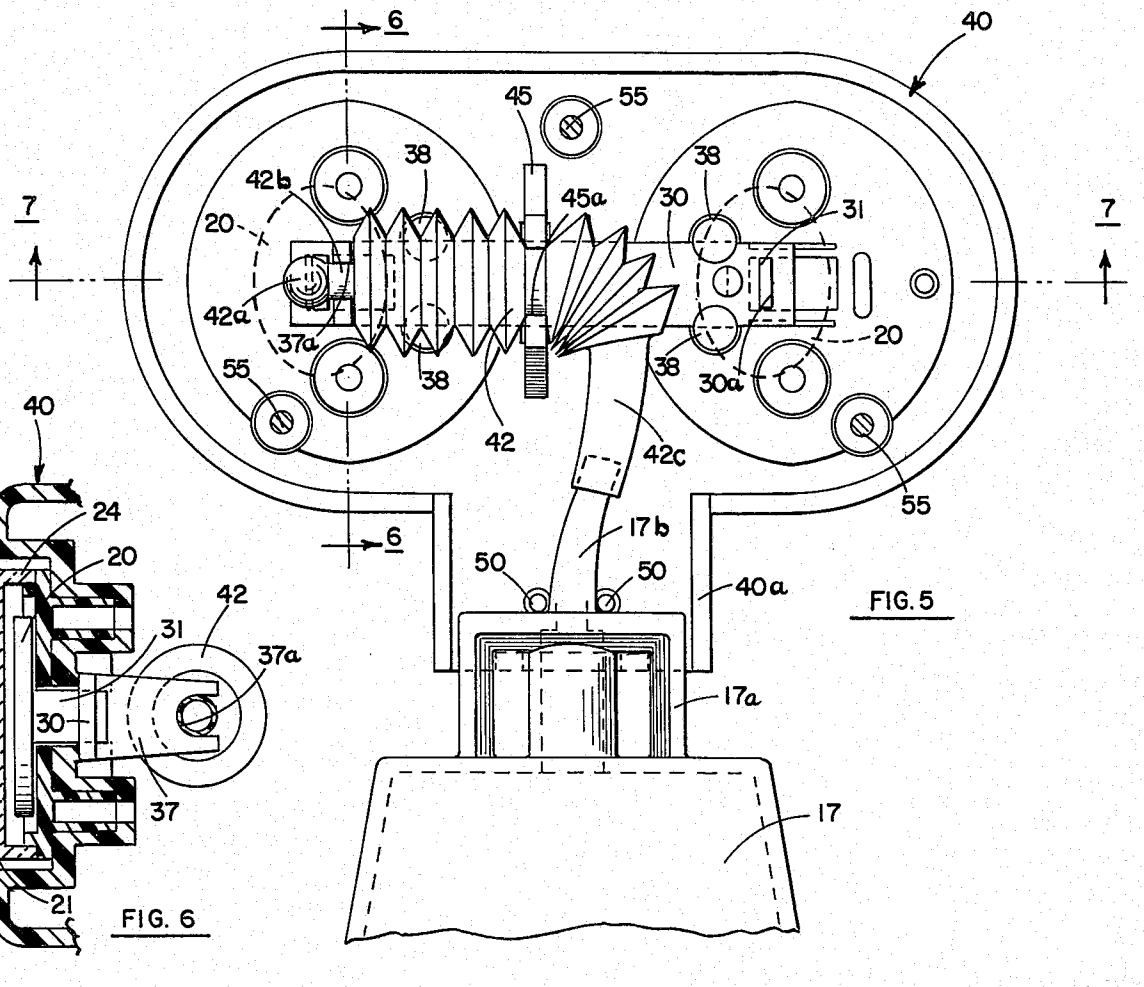


FIG. 5

FIG. 6

DOLL WITH PNEUMATIC MEANS FOR RECIPROCALLY MOVING EYES

This invention relates to a doll having movable eyes, and more particularly to a doll in which the eyes are reciprocally moved in response to manual actuation of a pneumatic drive mechanism.

Animated dolls which respond to an actuation by the child have a particular appeal, as they give the child a chance to manipulate the doll to produce a response which provides extra play value and interest. Dolls with movable eyes have particular fascination for children in that they tend to convey interesting and amusing expressions. The installation of movable eye mechanisms of the prior art in soft dolls often presents a problem in view of the lack of rigid structure in such dolls for anchoring components of these mechanisms. Also, many dolls of the prior art having moving eyes tend to be overly complicated and expensive in their construction. Further, some of these devices are easily breakable or are constructed in such a manner as to present a hazard of injury, particularly to young children. The doll of this invention has none of such shortcomings of the prior art in that it provides a movable eye mechanism of simple and economical construction which does not require anchor points and thus is suitable for a soft doll, and which has a construction which lends itself to reliable operation. Further, the doll of this invention is constructed so that there are no loose or sharp parts that could be swallowed by the child or could otherwise cause injury.

It is therefore an object of this invention to provide an improved doll with movable eyes of simple and economic construction which is particularly suitable for use in soft dolls.

It is a further object of this invention to provide a doll with movable eyes which is of safe construction for use by small children.

It is still a further object of this invention to provide a doll with movable eyes which has a relatively reliable and trouble free mechanism.

Other objects of the invention will become apparent as the description proceeds in connection with the accompanying drawings, of which:

FIG. 1 is a front elevational view of one embodiment of the invention;

FIG. 2 is a side elevational view of the embodiment shown in FIG. 1;

FIG. 3 is an enlarged front elevational view illustrating the eye mechanism of the illustrative embodiment;

FIG. 4 is an end elevational view of the eye mechanism of FIG. 3;

FIG. 5 is a further enlarged cross sectional view taken along the plane indicated by 5—5 in FIG. 4;

FIG. 6 is a cross sectional view taken along the plane indicated by 6—6 in FIG. 5;

FIG. 7 is a cross sectional view taken along the plane indicated by 7—7 in FIG. 5; and

FIG. 8 is a front elevational view of another embodiment of the invention.

Referring now to FIGS. 1 and 2, an illustrative embodiment 10 of the doll has a torso portion 11, arm portions 12, leg portions 14, and a head portion 15, all of which preferably are soft and may comprise a cloth or plastic skin stuffed with foam rubber, cotton or the like. Torso portion 11 has a compressible pneumatic bladder 17 therein which forms part of the actuation system

for animated eye portions 20. Eyes 20 may be in the form of buttons which are mounted in eye socket portions 21 for reciprocal motion, to be explained further on in the specification. Eye socket portions 21 are covered by transparent plastic covers 24 as best seen in FIGS. 3 and 6.

Referring now to FIGS. 3–7, one embodiment of the eye moving mechanism is illustrated. The eyes are formed by a pair of flat buttons 20 which are moved in reciprocating fashion as indicated by arrows 27 in FIG. 3, between an "extended" position indicated by the numeral 20 and an "at rest" position indicated by the broken lines. The buttons are slidably driven by movable means in the form of a slider bar 30, the buttons having tabs 31 extending from the back surfaces thereof which fit into slots 30*a* formed in the slider bar. Slider bar 30 is slidably supported for reciprocal motion in casing 40 by means of two pairs of grooved post members 38 which may be integrally formed with casing 40 or otherwise fixedly attached thereto. Slider bar 30 has a bracket 37 fixedly attached thereto which extends upwardly from a surface of the bar near one end thereof. Bracket 37 has a groove 37*a* formed therein. The movable means need not linearly reciprocate as shown, but it may follow other cyclical motion such as pivotal motion or cam-defined irregular repeating motion. Similarly, the eyes may have other than linearly reciprocating motion.

A resilient bellows member 42 is mounted on bracket 45 which is fixedly attached to casing 40 and extends upwardly therefrom. The bellows is supported in a U-shaped support 45*a* formed in the bracket. Bellows 42 has a bulb portion 42*a* formed on one end thereof, this bulb being connected to the main portion of the bellows by a neck portion 42*b*. Bellows neck portion 42*b* fits into slot 37*a* of bracket 37.

Air bladder or bottle 17, which may be made of flexible material such as rubber or plastic, is connected to casing 40 for flexible movement relative thereto by means of a connector neck portion 17*a*, this portion being removably fitted into a mating neck portion 40*a* of casing 40. Air bladder 17 has a nozzle 17*b* extending therefrom, this nozzle being retained between post members 50 which may be integrally formed with casing 40. Bellows 42 has a nozzle 42*c* on one end thereof which fits over nozzle 17*b* to provide fluid communication between air bladder 17 and the bellows. Casing 40 may be formed in two pieces, 40*c* and 40*d*, which are joined together along a plane indicated by line 52 in FIG. 4. Casing 40 may be of plastic with the two pieces 40*c* and 40*d* being joined together by suitable means such as screws or plastic pins 55 (FIG. 3) or solvent welding.

Bellows 42 as noted before is of resilient material and in its unactuated state, i.e., in the absence of any pressure being applied to air bladder 17, maintains the eyes 20 in the at rest position shown by broken lines in FIG. 3. When air bladder 17 is compressed, air pressure therefrom is transferred to the bellows, expanding the bellows to drive slider bar 30 (the bellows being shown in this expanded position in FIGS. 5 and 7). Thus it can be seen by repetitively squeezing and releasing air bladder 17 that slider bar can be reciprocally driven to cause eyes 20 to move in like fashion.

As already noted, the mechanism described above is particularly suitable for use with soft dolls which do not generally afford anchoring structure for mechanical

type actuators of the prior art. Further, this pneumatic drive facilitates doll flexibility in view of the fact that the driving connections between the air bladder 17 and the bellows comprises flexible air lines and connector pieces.

Referring now to FIG. 8, another embodiment of the invention is illustrated. In this embodiment, slider bar 30 is maintained in its at-rest position, i.e., with eyes 20 retained in an "at rest" position at or near one end of travel of the slider bar, by means of spring 62. This spring is attached at one end to the bar and at the other end to casing 40. Bladder 17' is formed by an air bulb which may be mounted in the torso, arm, leg, or head portion of the doll. Flexible air line 60 interconnects air bulb 17' and balloon member 42'. Balloon member 42' has a ball 42*a* which is joined to the balloon by a neck portion 42*b* and is connected to slider bar 30 by means of bracket 37 in the same general manner as described for the previous embodiment. Balloon member 42' is supported in casing 40 by means of bracket 45, also in the same general manner as previously described. In this embodiment, spring 62 maintains eyes 20 in their at-rest position, and they are reciprocally driven by the repetitive actuation of bulb 17' to expand balloon 42' to drive slider 30 against the spring action of spring 62.

Thus, the device of the invention provides a simple and economical device for moving the eyes of a doll, this device being particularly suitable for use in soft dolls wherein structural supports for mechanical type actuators of the prior art are not generally available.

While the invention has been described and illustrated in detail, it is to be clearly understood that this is intended by way of illustration and example only and is not to be taken by way of limitation, the spirit and scope of this invention being limited only by the terms of the following claims.

We claim:

1. In a doll having at least a torso portion and a head portion with movable eyes mounted therein, actuating means including gas driven means for cyclically moving said eyes comprising:

movable means mounted for cyclical motion in said head portion, the eyes being coupled to said movable means so that they will move cyclically incident to said motion of the movable means;

means for resiliently holding said movable means and said eyes in an at rest position and for moving said movable means and said eyes;

said means for moving and holding including gas expandable means coupled to said movable means, to move said movable means from the at rest position when said gas expandable means is is expanded;

bladder means filled with gas and adapted to be manually compressed; and

means for providing fluid communication between said bladder means and said gas expandable means,

said movable means comprising a slider bar mounted for reciprocating sliding motion to move the eyes reciprocally, said slider bar including a bracket mounted thereon, said bracket having a slot formed therein, said expandable means having a bulb portion formed on one end thereof and a neck portion adjacent to said bulb portion, said neck portion being fitted into said slot,

whereby when said bladder means is compressed and released, the gas expandable means expands and contracts and said movable means is caused to move cyclically.

2. The doll of claim 1 wherein said gas expandable means and said means for resiliently holding said movable means comprise a bellows.

3. The doll of claim 1 wherein said gas expandable means comprises a balloon.

4. The doll of claim 2 wherein said bladder means comprises a pliable bottle mounted in the doll torso portion.

5. The doll of claim 1 wherein said bladder means comprises an air bulb.

6. The doll of claim 3 wherein said means for resiliently holding said movable means comprises a spring.

7. The doll of claim 4 further including a casing mounted in the head portion for housing said eyes, said movable means and said bellows, said casing having a flexible connector neck portion, said bottle having a flexible connector neck portion for mating with said casing connector neck portion.

8. The doll of claim 1 wherein said eyes are comprised by flat buttons having tabs extending therefrom, said bar having slots therein into which said tabs are fitted.

9. A doll having at least a torso portion and a head portion with movable eyes mounted in said head portion, the improvement comprising pneumatic actuating means in said doll for reciprocally moving said eyes including:

a slider bar mounted for reciprocating slidable motion in said head portion, the eyes being coupled to the slider bar for motion therewith,

a resilient bellows coupled to said slider bar, said bellows resiliently holding the eyes in a predetermined at-rest position, said bellows having a bulb portion formed on one end thereof and a neck portion adjacent to said bulb portion, there being a bracket mounted on the slider bar and having a slot formed therein, said neck portion being fitted into said slot,

a pliable air bottle adapted to be manually compressed, and

means for providing fluid communication between the bellows and the air bottle,

whereby when the air bottle is compressed and released, the bellows expands and contracts to reciprocally drive the slider bar and eyes.

10. The doll of claim 9 further including a casing mounted in the head portion for housing the eyes, bar and bellows, said casing having a flexible connector neck portion, said bottle having a flexible connector neck portion for mating engagement with said casing connector neck portion to removably hold said casing and bottle together.

11. The doll of claim 9 wherein said eyes are comprised by flat buttons having tabs extending therefrom, said bar having slots therein into which said tabs are fitted.

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