June 24, 1969 J. W. RYAN ET AL 3,451,160

FLUID-ACTUATED ANIMATED FIGURE TOY

Filed Jan. 23, 1967

Fig. 1

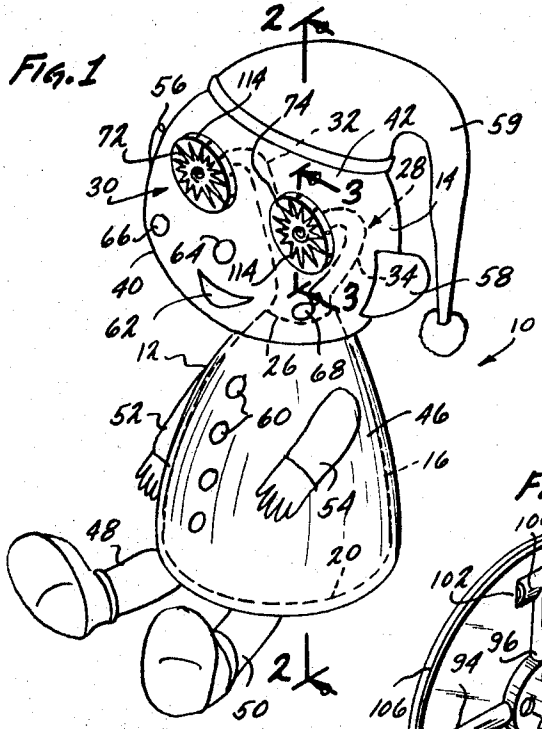


Fig. 2

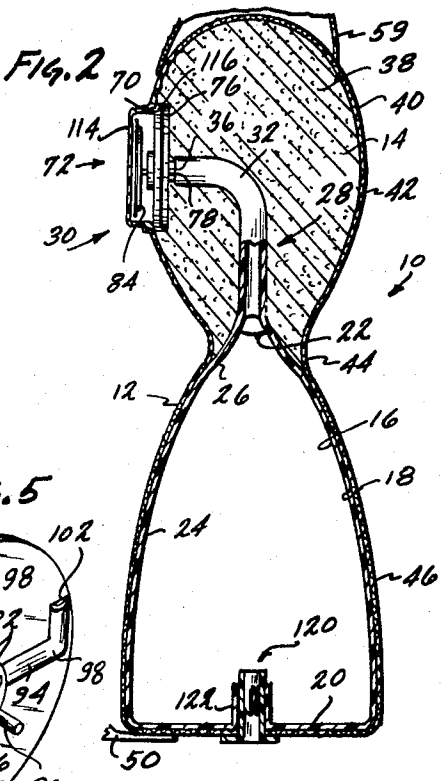


Fig. 5

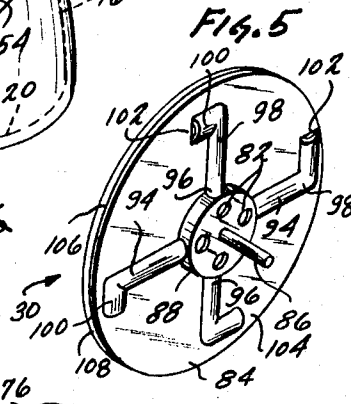


Fig. 4

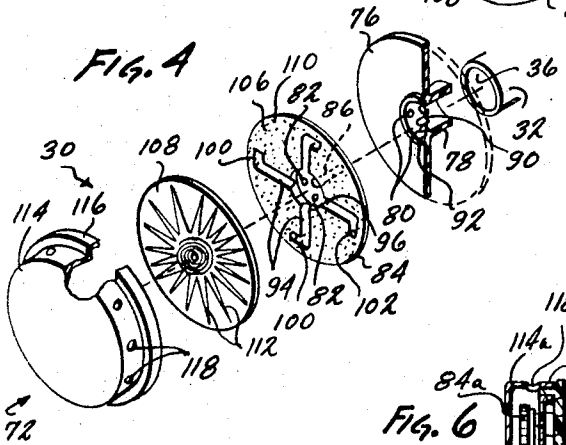


Fig. 3

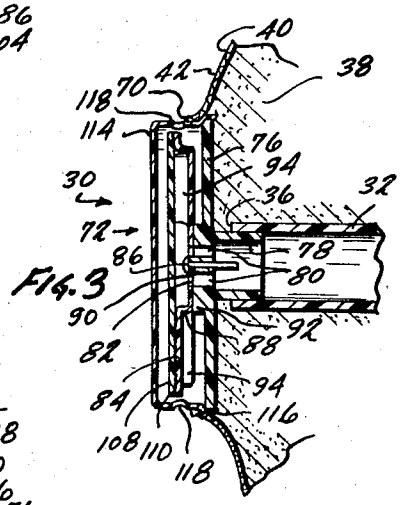


Fig. 6

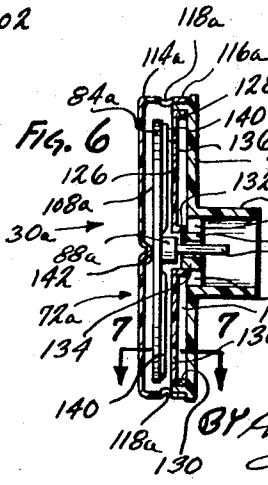
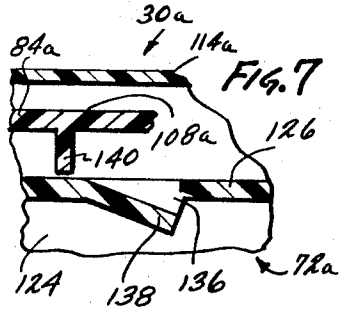


Fig. 7



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FLUID-ACTUATED ANIMATED FIGURE TOY

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U.S. Cl. 46—135 7 Claims

ABSTRACT OF THE DISCLOSURE

The body of a plush-type figure toy is made from a hollow, compressible member provided with bifurcated conduits leading into the head of the toy and having outlets positioned adjacent the toy's eyes. The head is made from a suitable stuffing material and the head and the body are covered with a cover member to which legs and arms may be attached. The outlets are attached to rotatably mounted disks having reaction jets provided thereon in fluid communication with the compressible body so that the disks will rotate when the body is compressed. The disks simulate eyes which may be suitably decorated to enhance their appearance when they are rotated.

BACKGROUND OF THE INVENTION

The background of the invention is set forth in two parts, as follows:

Field of the invention

The present invention pertains generally to the field of pneumatic toys and more particularly, to fluid-actuated, animated figure toys having an animatable feature including a rotatable member which is rotated by discharging a pressurized fluid through reaction jets.

Description of the prior art

Prior art patents disclosing fluid-actuated animated figure toys include United States Patents Nos. 691,266; 2,526,619 and 2,803,089. While generally satisfactory, the toys disclosed in these patents do have certain disadvantages.

One disadvantage with the toy disclosed in Patent No. 691,266 resides in the fact that the pump employed for supplying fluid to the fluid-actuated portion of the toy distracts from the overall appearance of the toy and is comparatively expensive to manufacture.

This disadvantage was overcome, to a large extent, in the toys disclosed in Patents Nos. 2,526,619 and 2,083,089 by providing a hollow, compressive member for supplying the fluid. However, these toys are subject to the disadvantage that some of the animatable features are actuated through mechanical linkages which are likely to become damaged when subjected to rough handling by child users of the toys.

In view of the foregoing factors and conditions characteristic of fluid-actuated, animated figure toys, it is a primary object of the present invention to provide a new and useful fluid-actuated, animated figure toy not subject to the disadvantages enumerated above and having an animatable feature especially designed for movement by a fluid under pressure efficiently, safely and expeditiously.

Another object of the present invention is to provide a figure toy of the type described which includes an animatable feature having a rotary member which is provided with radially-extending, reaction jets through which a pressurized fluid may be discharged for imparting rotation to the rotary member.

Still another object of the present invention is to provide a figure toy of the type described which includes a hollow, compressible body portion which is covered with a suitable cover member carrying arms and legs of the rag-doll type and which serves as an air pump for supplying fluid under pressure to an animatable feature.

SUMMARY OF THE INVENTION

According to the present invention, a fluid-actuated, animated figure toy is provided in the form of a plush doll having a compressible body portion forming an air pump for supplying fluid under pressure to an animatable feature including a pair of rotary members which simulate eyes for the figure toy and which have radially-extending, reaction jets through which fluid under pressure from the compressible body portion may be discharged for imparting rotation to the rotary members. The simulated eyes may be suitably decorated to enhance their appearance during rotation thereof. The rotary members are connected to the compressible body portion by conduit means which may be mounted in the head of the toy. The head is preferably made from a suitable stuffing commonly used in plush dolls. The head and the body portion are covered with a cover member to which rag-doll type arms and legs may be attached. The body portion comprises air pump means for supplying air under pressure to the rotary members when the body of the doll is squeezed or otherwise compressed.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings, in which like reference characters refer to like elements in the several views:

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a perspective view of a fluid-actuated, animated figure toy constituting a presently preferred embodiment of the invention;

FIGURE 2 is an enlarged, cross-sectional view taken along line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged, partial cross-sectional view taken along line 3—3 of FIGURE 1;

FIGURE 4 is a reduced, exploded perspective view of the portion of the figure toy shown in FIGURE 3;

FIGURE 5 is an enlarged perspective view looking in from the back of a rotary member shown in FIGURES 3 and 4;

FIGURE 6 is a cross-sectional view of a modified form of the portion of the figure toy shown in FIGURE 3; and

FIGURE 7 is an enlarged, partial cross-sectional view taken along line 7—7 of FIGURE 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring again to the drawings, and more particularly to FIGURES 1–5, a fluid-actuated, animated figure toy constituting a first embodiment of the present invention, generally designated 10, includes a body 12 and a head 14.

The body 12 includes a hollow, compressible body portion 16 constituting a pump means for supplying a fluid under pressure to actuate an animatable feature, to be hereinafter described in detail. The body portion 16 may be made by a suitable molding process from suitable flexible materials, such as rubber or polyvinyl chloride, and includes an encompassing side wall 18, a closed bottom wall 20 and an open top 22. The bottom wall 20 may be circular in shape and defines the major diameter

of the body portion **16**. The side wall **18** has a rapidly diminishing diameter from an intermediate portion **24** thereof to the open top **22** forming a neck **26** for the figure toy **10**.

The top **10** also includes conduit means **28** placing the body portion **16** in fluid communication with an animatable feature **30** affixed to the head **14** for actuation by fluid under pressure from the body portion **16**. The conduit means **28** may be formed integrally with the body portion **16** and includes a pair of conduits **32, 34** each extending through the head **14** and having an outlet **36** connected to the animatable feature **30**.

The head **14** may be given a suitable shape by well-known, rag-doll stuffing material **38** which is covered by a cover member **40** having a unitary, head-covering portion **42**, a neck-covering portion **44** and a body-covering portion **46**. The appearance of the figure toy **10** may be enhanced by attaching a pair of legs **48, 50**, a pair of arms **52, 54**, a pair of ears **56, 58** and a stocking cap **59** to the cover member **40**. Additionally, simulated buttons **60**, a mouth **62**, a nose **64** and a pair of cheeks **66, 68** may be painted on the cover member **40**.

The cover member **40** is provided with a pair of apertures, like the one shown at **70** in FIGURE 2, for receiving the animatable feature **30** which comprises a pair of simulated eyes **72, 74** each including a circular base plate **76** provided with an inlet nipple **78** connected to an associated conduit **32, 34**. Each base plate **76** is also provided with a plurality of apertures **80** for permitting the flow of fluid from the nipple **78** through a plurality of like apertures **82** provided in a rotatable member **84** rotatably connected to an associated base plate **76** by a shaft **86** extending from a rear hub **88** carried by an associated member **84**. Each shaft **86** is journaled in an associated bushing **90** provided on an associated base plate **76** having an annular land **92** forming a thrust bearing with an assiciated hub **88**. Each rotatable member **84** is also provided with a plurality of radially-extending channels **94** each having a first end **96** in fluid communication with associated apertures **82** and a second end **98** communicating with jet orifice means **100** extending at right angles to an associated channel **94** and each having an outlet **102** formed in the rear face **104** of an associated member **84**, at the end of orifice means **100**. Each member **84** also includes a front face **106** in which an associated hub **88**, channels **94** and jet orifices **100** are formed by displacing the material forming member **48** rearwardly past an associated rear face **104** leaving an open, fluid-conducting network on front face **106**. This open network may be closed by a disk **108** secured to an associated front face **106** by a suitable adhesive **110**. Each disk **108** may be suitably decorated by an indicia **112** enhancing the appearance of toy **10** when the members **84** are rotated by fluid under pressure supplied from body portion **16**.

Each rotatable member **84** and associated disk **108** may be protected by a transparent cover **114** having an annular flange **116** engaging an associated base plate **76** behind an associated aperture **70** in cover member **40**. Fluid issuing from the orifices **102** may be exhausted from an associated cover **114** through a plurality of apertures **118** provided therein.

The play value of the toy **10** may be increased by providing a reed-type noisemaker **120** in the bottom wall **20** of body portion **16**. The noisemaker **120** may be retained in position in bottom wall **20** by an upstanding, hollow cylindrical boss **122** formed on the bottom wall **20** during the molding operation.

In use, the body portion **16** becomes filled with air flowing through apertures **118**, jet orifices **102**, channels **94**, apertures **82** and **80**, nipple **78**, and associated conduit **32, 34**, and open top **22**. This air may be pressurized by compressing body portion **16**. Some pressurized air then flows through noisemaker **120**; however, the majority of the pressurized air flows back through open top **22**, conduits **32, 34**, associated nipples **78**, apertures **80** and **82**, channels **94** and jet orifices **102**. The discharge of air under pressure through jet orifices **102** creates a reaction causing an associated member **84** to rotate on its shaft **86**.

Referring now to FIGURES 6 and 7, a modified animatable feature **30*a*** may be inserted in each aperture **70** in place of the animatable features **30**. The animatable feature **30*a*** comprises a simulated eye **72*a*** including a circular base plate **76*a*** provided with an inlet nipple **78*a*** connectible to an associated conduit **32**. The base plate **76*a*** is also provided with a plurality of apertures **80*a*** for permitting the flow of fluid from the nipple **78*a*** into a chamber **124** formed between the base plate **76*a*** and a circular front plate **126**. The plate **126** includes an outer annular flange **128** which nests in an outer annular flange **130** provided on plate **76*a*** and an inner annular flange **132** encompassing an inner annular flange **134** on base plate **76*a***. The plate **126** is provided with a plurality of apertures **136** formed therein by striking a portion **138** of plate **126** inwardly into chamber **124**. The fluid in chamber **124** flows through apertures **136** and along portions **138** into engagement with associated, radially-extending vanes **140** provided on a rotatable member **84*a*** rotatably connected to base plate **76*a*** by a shaft **86*a*** extending from a rear hub **88*a*** carried by rotatable member **84*a***. The shaft **86*a*** is journalled in the inner flange **134** of base plate **76*a*** in fluid communication with nipple **78*a*** so that fluid flowing therethrough minimizes drag on shaft **86*a*** and rotatable member **84*a*** by producing an air-bearing effect thereon. The rotatable member **84*a*** includes a front face **108*a*** which may be decorated with indicia like those shown at **112** in FIGURE 4 for disc **108**.

The rotatable member **84*a*** may be protected by a transparent cover **114*a*** having an annular flange **116*a*** engaging flange **130** on base plate **76*a***. Fluid issuing from the apertures **136** may be exhausted from cover **114*a*** through a plurality of apertures **118*a*** provided therein. The cover **114*a*** is provided with a protuberance **142** which engages member **84*a*** to prevent dislodgement thereof when it is moved by fluid under pressure flowing through conduit **78*a***.

While the particular fluid-actuated, animated figure toys herein shown and described in detail are fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that they are merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

What is claimed is:

1. A fluid-actuated figure toy having a body and a head:

said body comprising a hollow compressible member for supplying fluid under pressure upon compression of said member;

fluid actuated animatable feature means on said head in fluid communication with said compressible member for receiving pressurized fluid therefrom upon compression thereof, said animatable feature means including a rotary member rotatably mounted on a fixed axis and having radially-extending reaction means responsive to flow of said pressurized fluid to cause said rotatable member to rotate; and

conduit means for conducting pressurized fluid from said compressible member to said reaction means

2. A toy as stated in claim **1** wherein said rotary member comprises at least one simulated eye for said toy.

3. A figure toy as stated in claim **1** wherein said animatable feature means includes a circular base plate having a nipple provided thereon to receive fluid from said conduit means, said rotary member being journalled on said base plate, said reaction means having tangentially directed reaction-jet means in fluid communication with said nipple, said reaction-jet means being carried by said rotary member for imparting rotation thereto upon flow of fluid under pressure therethrough.

4. A figure toy as stated in claim 1 wherein said reaction means comprises a plurality of vanes on said rotary member, and means for directing said fluid against said vanes.

5. A figure toy as stated in claim 1 wherein said head is a rag-doll type head having stuffing defining the shape thereof, said body including a closed bottom wall forming the major diameter thereof, an encompassing side wall forming a reduced-diameter portion, an open top at the end of said body portion which is remote from said bottom wall, said open top extending into said stuffing and forming a neck for said toy, and wherein said conduit means is connected to said open top and is imbedded in said stuffing.

6. A figure toy as stated in claim 4 wherein said animatable feature means includes a circular base plate having an opening therethrough in fluid communication with said conduit means and a front plate forming a chamber with said base plate, said rotary member being journalled on said base plate adjacent said chamber, said

directing means being struck from said front plate and extending into said chamber.

7. A figure toy as stated in claim 6 wherein said animatable feature means comprises a pair of said rotary members defining simulated eyes for said figure toy.

References Cited

UNITED STATES PATENTS

875,954	1/1908	Rovech	46—158
2,496,152	1/1950	Dourak	46—135
2,526,619	10/1950	Gamache	46—120
2,566,995	9/1951	Rose	46—169

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U.S. Cl. X.R.

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