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Cook et al.

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[54] **TOY FIGURE WITH MECHANISM FOR BLOWING AIR**

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Related U.S. Application Data

[63] Continuation of Ser. No. 744,849, July 15, 1968, abandoned.

[52] **U.S. Cl.**.....**46/116,** 46/118
[51] **Int. Cl.**.....**A63h 13/00**
[58] **Field of Search**.....46/9, 90, 116, 118, 243

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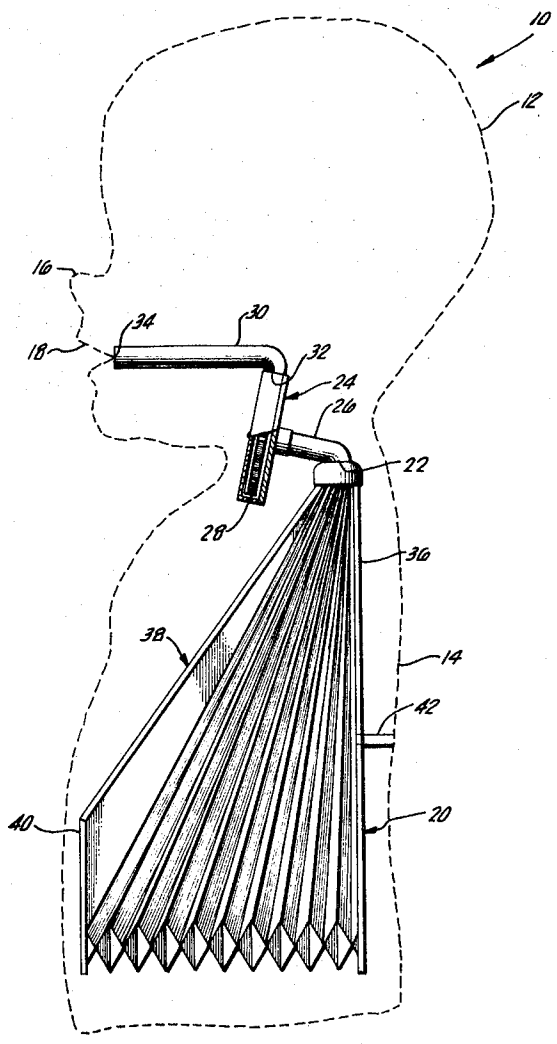
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[57] **ABSTRACT**

A toy doll capable of producing a stream of air from the doll's mouth. In mechanical embodiments the doll is squeezed, has its arm cranked, or a wind coil spring is used to operate a bellows, turn a fan and the like. In electrical embodiments a small power source and an electric motor are located in the doll and these are used to operate a fan, bellows, and the like to produce the airstream.

2 Claims, 4 Drawing Figures



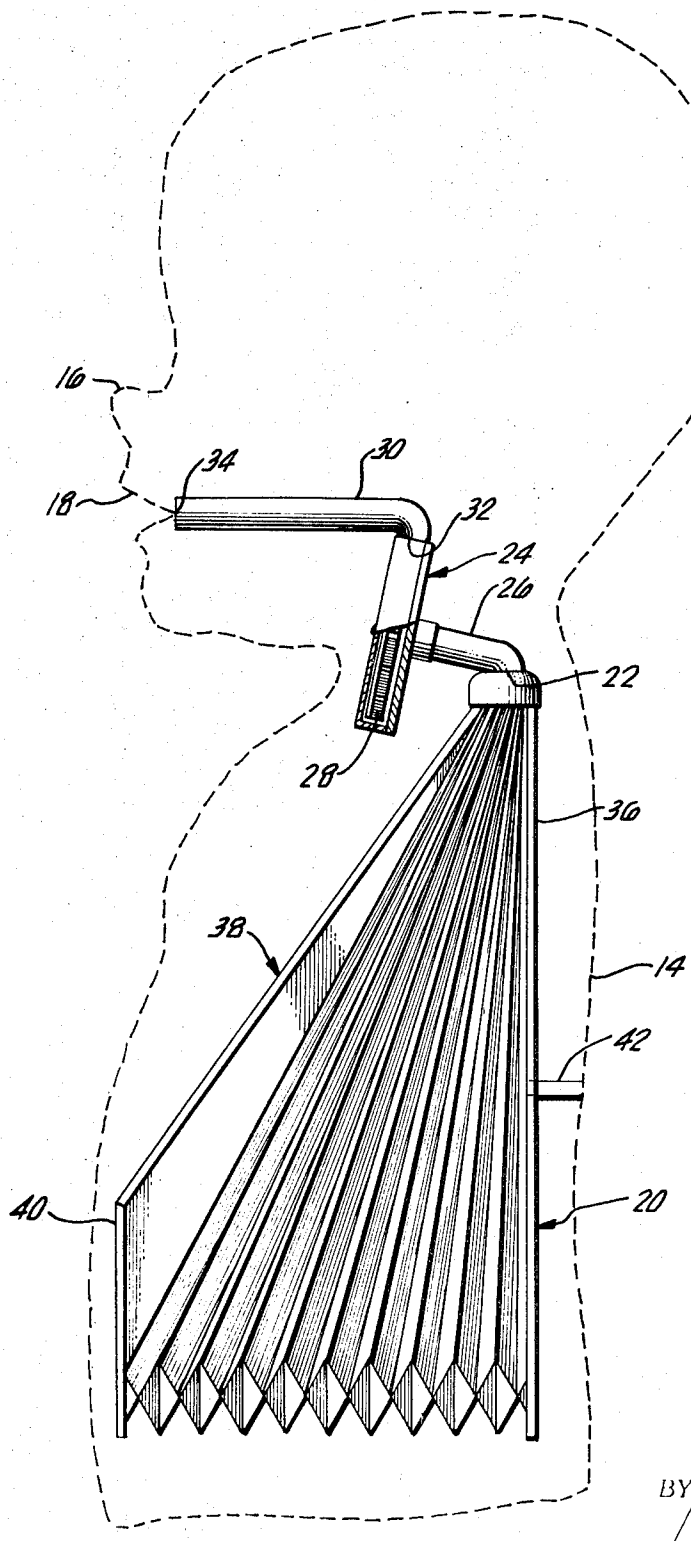


FIG. 1

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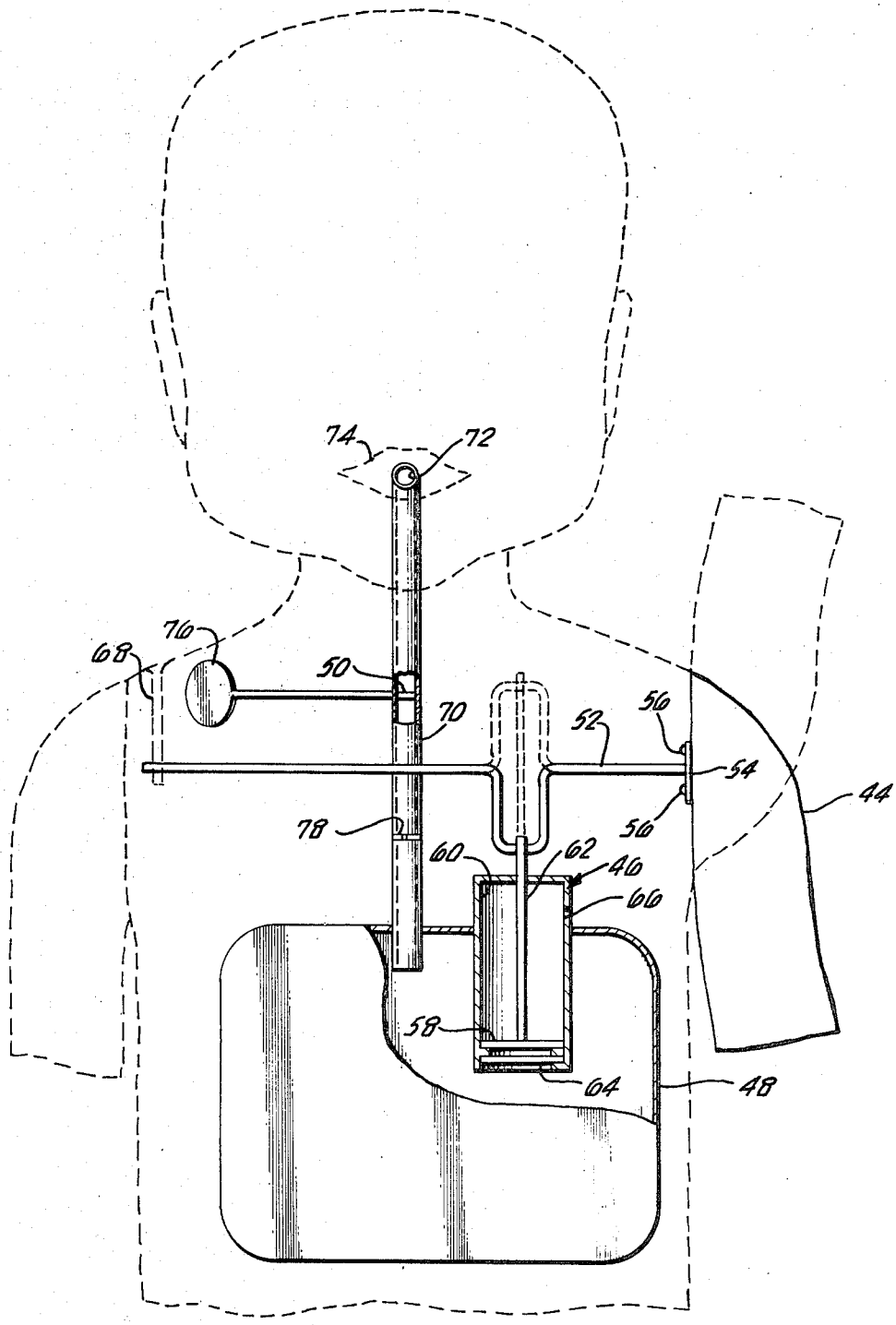
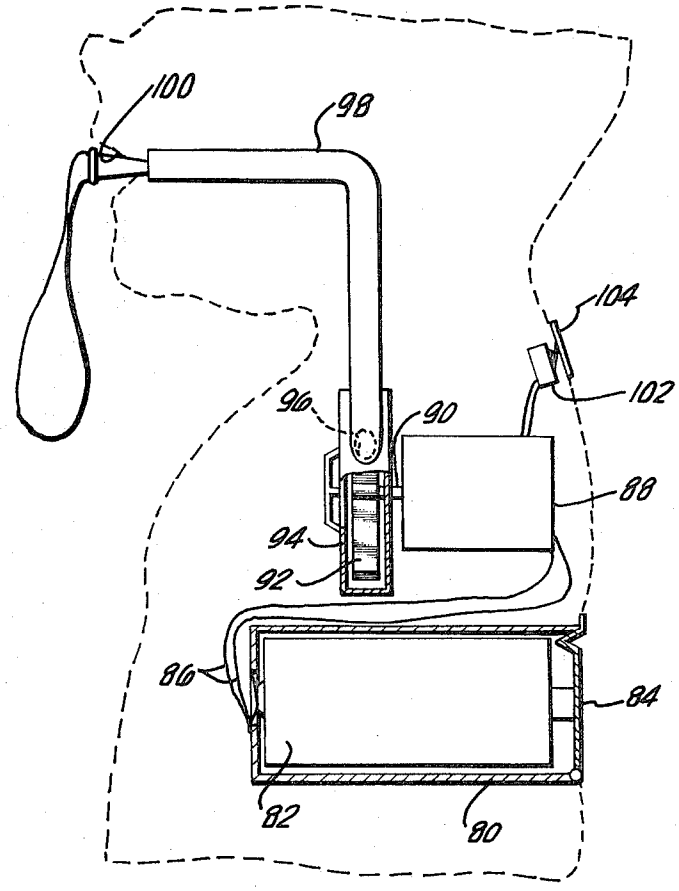


FIG 3

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FIG 2



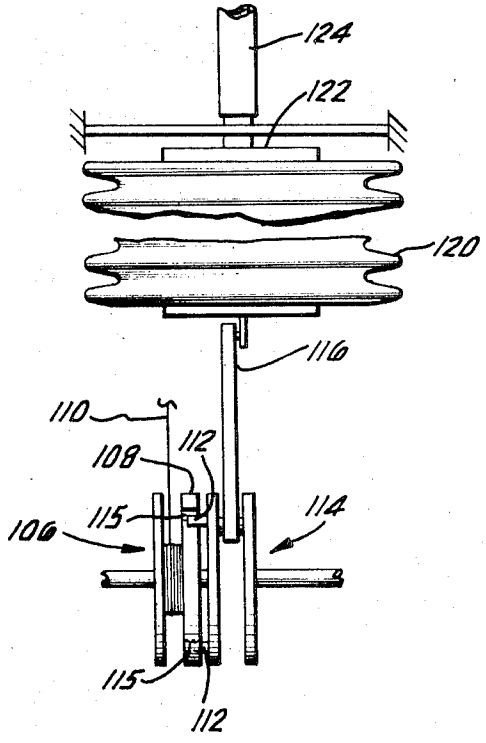


FIG 4

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TOY FIGURE WITH MECHANISM FOR BLOWING AIR

This application is a continuation of Ser. No. 744,849 filed July 15, 1968, now abandoned.

BACKGROUND OF THE INVENTION

The present invention relates to toy dolls and in particular to dolls capable of producing an airstream issuing from the doll's mouth.

In the toy doll field the emphasis is on dolls capable of performing lifelike actions. To this end dolls have been introduced in the recent past which "walk," "cry," "talk," and perform other such actions. In the present instance, the invention is one which "blows" air from its mouth and it is contemplated that the generation of such an airstream can be accomplished in a number of different ways.

A doll having the capability of the doll of the present invention can be used to perform a number of actions as, for example, blowing bubbles and "playing" wind-operated musical instruments such as flutes, whistles and harmonicas. In addition, the doll can be caused to drive a toy pinwheel, blow out birthday candles, inflate a balloon and blow air through a straw into a glass of water and the like. Other uses for such a doll are limited only by the imagination of the child using it.

SUMMARY OF THE INVENTION

The present invention provides a toy doll having a head, facial features on the head including a mouth and a trunk. It comprises fluid pressure generating means located within the doll and an outlet orifice from the pressure generating means for transmitting fluid pressure generated within the generating means to a conduit communicating between the outlet orifice and an opening in the doll's head corresponding to the location of the doll's mouth. Activating means are incorporated in the doll for causing the pressure generating means to produce a flow of fluid from the doll's mouth whereby the doll can be caused to perform actions such as playing wind-operated musical instruments, inflating a balloon, blowing bubbles and the like.

It is contemplated that the generation of air from the doll's mouth can be accomplished by both mechanical and electrical means. Within each of said categories there are several embodiments as, for example, in the mechanical versions a squeeze bottle or bellows can be provided within a deformable trunk. In such embodiments the child squeezes the doll tending to collapse the squeeze bottle or bellows and thereby causing air to be blown through an outlet orifice and a tube communicating between the orifice and the doll's mouth. By positioning a wind-operated musical instrument or whistle in the doll's mouth the stream of air can be directed into the instrument to produce a musical sound.

In other mechanical embodiments the doll is provided with an arm which serves as a crank and the child is required to "pump" the arm to turn a fan, operate a pump or compress a bellows within the doll. In still another embodiment mechanical force can be transmitted to the interior of the doll's body by means of a pull string wound on a rewinding pulley which is linked to a fan, bellows, etc. for generating pressure.

In the electrical embodiments it is contemplated that a small electric motor can be located in the doll's trunk and electrical power generating means, such as a battery pack, can be connected thereto by means of a microswitch. The motor is mechanically linked to fluid pressure generating means such as a rotatable fan or compressible bellows and when the switch is closed the turning of the motor operates the pressure generating means causing a stream of air to be communicated to the doll's mouth and to issue therefrom.

Depending upon the function to be performed by the doll, accessory adapters may be provided which are to be located in the doll's mouth so that the accessory can be used more efficiently. Among other instances where adapters are contemplated are when musical instruments are provided or when it is desired to inflate balloons.

DESCRIPTION OF THE DRAWINGS:

These and other features of the invention will be better understood by reference to the following figures in which:

FIG. 1 is a profile view of a doll in phantom showing one embodiment of a mechanism for producing a stream of air issuing from the doll's mouth;

FIG. 2 is a profile view of another embodiment showing a doll in phantom wherein the airstream is produced by utilizing an electric motor to drive a pressure generating means;

FIG. 3 is a frontal view of another mechanical embodiment of the present invention utilizing an arm crank and a pump filled air reservoir; and

FIG. 4 is still another mechanical embodiment utilizing a pull string, rewinding pulley and slip clutch.

Referring to FIG. 1, the outline of a doll **10** is shown having a head **12** and a trunk **14** on which the head is mounted. Head **12** is provided with facial features such as a nose **16** and a mouth **18** and located within the trunk **14** is a compressible bellows **20** having an outlet orifice **22**. A conduit **26** is connected between orifice **22** and a fan chamber **24** for communicating pressure generated within the bellows to the axially driven fan to produce rotation of fan rotor **28**. Rotation of the rotor produces a stream of air flowing through a second conduit **30** communicating between an outlet **32** from the fan and an orifice **34** opening into the face of the doll and positioned at the rear of mouth **18**.

In this embodiment the trunk of the doll is made of a deformable material, preferably the soft skin like plastic material conventionally used in the manufacture of many dolls. Positioned at the front and rear of bellows **20** are panels **36** and **38**. Panel **38** is hinged at the top of bellows adjacent outlet orifice **22** and is angled such that a surface **40** is oriented generally parallel to the front of the doll. By grasping the doll about its waist and pressing on its front, surface **40** is moved toward panel **36** compressing the bellows and producing a fluid flow through orifice **22** and conduit **26** causing fan rotor **28** to rotate. Fluid flow generated by the fan is then caused to issue from the outlet orifice **34** at the doll's mouth. The conventional resilient construction of the bellows allows the bellows to return to the shape shown in FIG. 1 upon release of pressure on surface **40** and during this return stroke air is drawn into the bellows chamber by a breather tube **42** preparatory to the next stroke.

The provision of an axially driven fan 24 is optional and is provided for the purpose of allowing the child using the doll to squeeze the bellows once or twice to cause the fan to rotate and, due to its inertia, continue rotation while the child turns its attention to the accessory to be used with the doll. For example, the child can then reach for a wand having a ring on one end which can be dipped in a bubble making solution and held in front of the doll's mouth to cause the doll to blow bubbles. Likewise the child can pick up a toy pinwheel fan and hold it in front of the doll's mouth to be blown or hold a musical instrument against the mouth and lips to cause a musical sound to be generated. As substitutes for a deformable trunk and bellows, it is contemplated that driving power for rotor 28 can also be obtained by using a key operated wind-up spring or rubber band. As substitutes for a bellows, a deformable container conforming to the interior contours of the doll can also be used.

An electrically powered embodiment of the invention is shown in FIG. 2. In that figure a hollow casing 80 suitable for receiving one or more dry cell batteries 82 is located in the trunk of a doll and is provided with a hinged lid 84 for inserting and removing the batteries. A pair of wires 86 connect battery 82 in an electric circuit to a small DC electric motor 88. A shaft 90 of motor 88 is connected to a rotatable fan 92. Fan 92, similar to rotating fans used in hair dryers and small blowers, is mounted in a housing 94 and communicates with an outlet orifice 96 which is connected by means of a conduit 98 to the mouth 100 of the doll. A microswitch 102 mounted on the back of the doll can be operated by slight finger pressure on button 104. Operation of switch 102 completes the electric circuit between motor 88 and battery 82 to produce rotation of the fan and causes a flow of air to be expelled from the mouth of the doll. Accessories such as described above are then positioned adjacent the mouth of the doll to bring the air flow to bear thereon. As a substitute for a fan, miniature blowers and compressors positioned in a suitable housing are also contemplated.

A third embodiment of the toy doll of the present invention is shown in FIG. 3 in a front elevational view. In this embodiment a doll's arm 44 is used as a crank to operate a pump 46 to force air into a reservoir 48 for storage until released by a key-operated valve 50. Arm 44 is secured to a shaft or axle 52 by means of a disc 54 mounted on the shaft and secured to arm 44 by suitable fastening means 56.

Upon raising and lowering the arm 44 between the phantom position and the solid position shown in the drawing, shaft 52 is rotated between its solid and phantom positions shown in the drawing causing a piston head 58 located in pump cylinder 60 to reciprocate within the cylinder as a shaft 62 secured between piston 58 and axle 52 is raised and lowered. On each down stroke a one way flap valve 64 is operated admitting air to reservoir 48. On each return stroke the pressure within the reservoir causes valve 64 to seat thereby sealing the chamber. Air is admitted to cylinder 60 by means of breather hole 66. The normal construction of the doll permits the ingress of air into the trunk of the doll through such locations as where the head and appendages are affixed to the trunk. Where necessary a breather hole through the trunk of the doll can be provided for supplying a greater supply of air.

Axle 52 is held in position by means of support 68 located at the end of the axle opposite the arm crank. A conduit 70 passes through a wall of reservoir 48 in an air-tight manner to communicate with the interior of the reservoir. Conduit 70 extends from the interior of reservoir 48 to an orifice 72 located in the mouth 74 of the doll. Valve 50 is operated by key 76 when it is desired to release pressure from reservoir 48. After the child has cranked the arm 44 of the doll a sufficient number of times to build up pressure in the reservoir, valve 50 is operated to release air stored under pressure in the reservoir. A pinhole leak 78 provided in conduit 70 controls the rate of escape of air from the reservoir to provide that air is expelled through orifice 72 over a relatively extended time period to operate the accessory being used with the doll. Release of air at a controlled rate and the controllable valve allows air to be held or expelled to enhance the realistic effect of the doll actually "puffing" or blowing and permits use of the air-blowing feature for an extended number of seconds to maximize enjoyment of the toy and minimize the necessity for constantly replenishing the pressurized supply in reservoir 48.

Other methods of generating pressure for producing a fluid flow at the mouth of the doll also contemplated include use of a small pressurized cylinder and suitable valving, a liquid reservoir and gas releasing pellets and a miniature steam pressure generating unit.

The embodiment shown in FIG. 4 illustrates a mechanical embodiment of the invention utilizing a rewinding pulley 106 and a slip clutch means 108 operated by a pull string 110. Clutch 108 is operatively by means of pins 112 to a crank 114 which is in turn linked by a connecting rod 116 to a cylindrical bellows 120. An outlet orifice 122 communicates with a conduit 124 which leads to the orifice located in the doll's mouth (not shown).

In operation the child using the doll unwinds the pulley by pulling on a draw ring (not shown) tied to the end of the pull string. A rewind spring (not shown) located interiorly of pulley 106 is thereby compressed until the pull string is withdrawn to its full length. Rotation in this direction permits clutch 108 to freewheel. Upon release of the pull string the rewind spring produces rotation in the opposite direction. The pins 112 engage crank 114 producing rotation and reciprocal motion of connecting rod 116 thereby pumping the bellows and causing a pulsating stream of air to issue from orifice 122 through conduit 124. By weighting the pulley and crank assembly and providing a suitable linkage between the rewind spring and the shaft on which the pulley is mounted an inertial effect can be created such that after one or two "pumps" of the pull string the mechanism will freewheel for a certain amount of time after the pull string is released. As before, this permits the child to pick up and manipulate other accessories to be used with the doll.

We claim:

1. In the combination of a doll and an operative doll accessory, a doll trunk and a doll head mounted on the trunk, said doll head being formed with the mouth having an opening therein extending into the head, fluid pressure generating means including a bellows located within the doll trunk, a conduit extending between said doll head opening and said pressure generating means

and being coupled to each in a fluid tight relationship, a rotatable fanlike member interposed along said conduit between said doll head opening and said pressure generating means serving to produce a continuing stream of fluid flowing towards the opening during non-operating intervals of the pressure generating means, said operative accessory including a fitting mounted on the doll head in a fluid transmitting connection with said opening in the doll head, said accessory having its major portions disposed exclusively exterior of the doll and being formed to receive the stream of fluid as it is generated within the doll serving to perform an operative function which occurs exterior of the doll.

2. The combination as in claim 1 wherein activating means are provided in the doll cooperateable with said fluid pressure generating means for causing the same to generate fluid pressure, said activating means including an electric motor.

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