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DOLL HAVING MOVABLE HEAD AND GRAVITY ACTUATED SOUNDING MEANS

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2 Sheets-Sheet 1

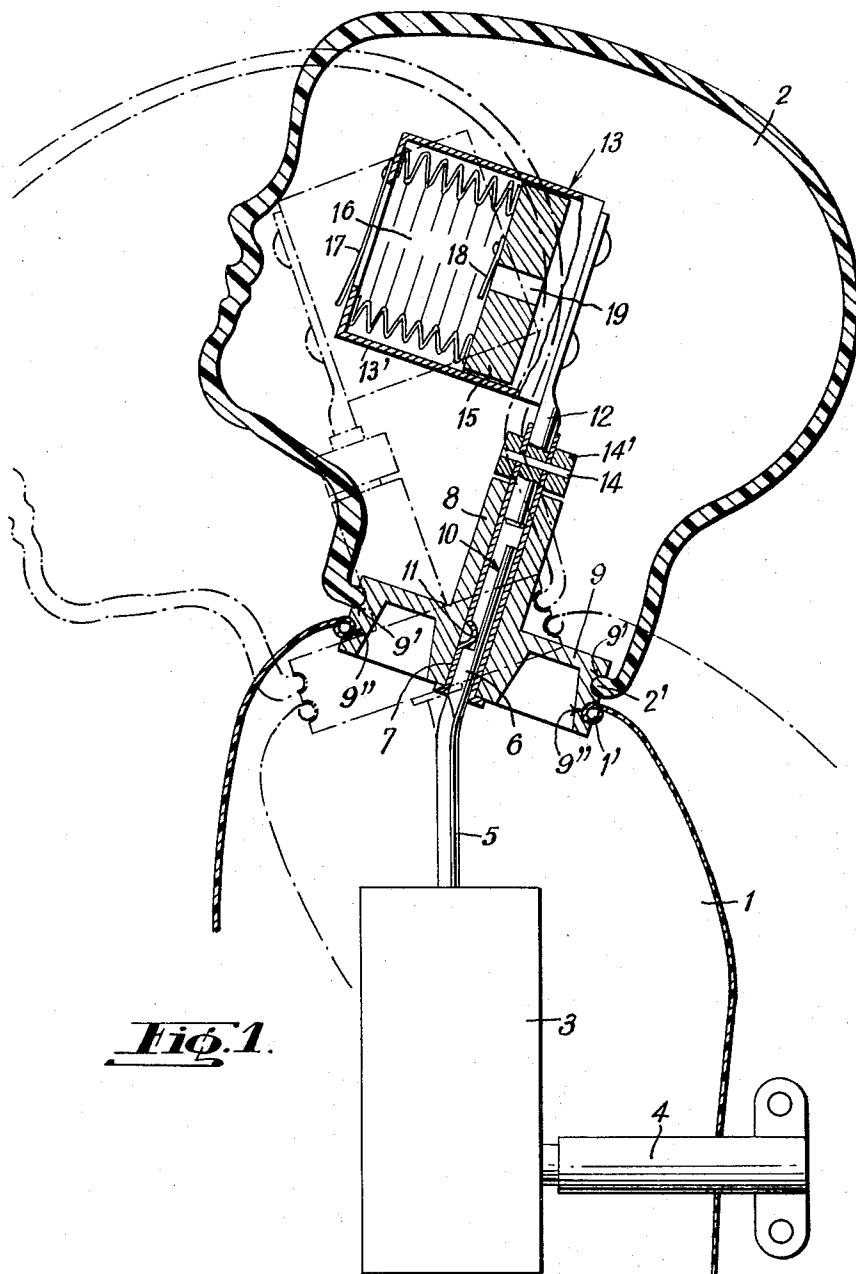


Fig. 1.

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Fig. 2.

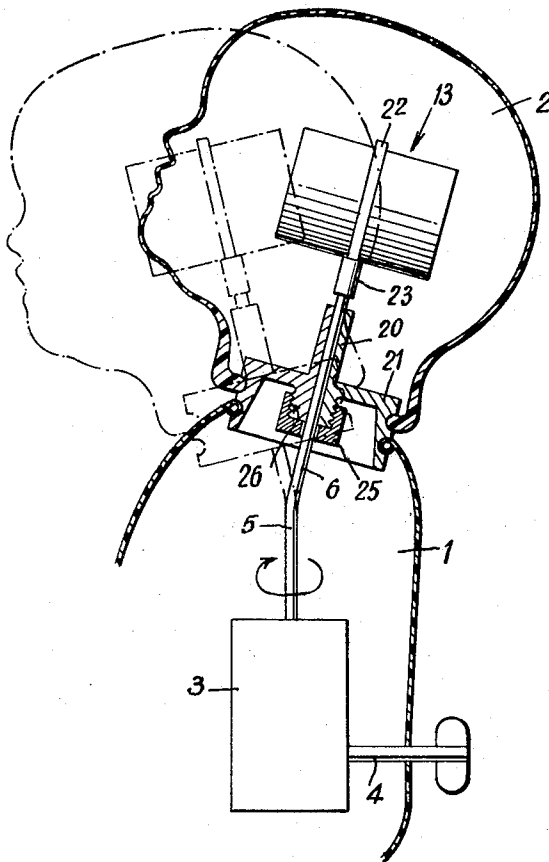
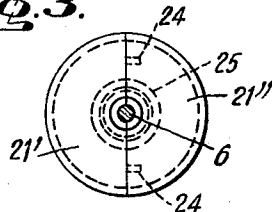


Fig. 3.



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DOLL HAVING MOVABLE HEAD AND GRAVITY ACTUATED SOUNDING MEANS

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9 Claims. (Cl. 46—118)

The present invention has for object a toy having the shape of a living being, in particular a doll or an animal, comprising a mechanism mounted inside the body. The toy according to the invention is characterized in that it includes a sound device imitating a cry of a living being and actuated by the said mechanism, this sound device being provided with a counterweight operating by gravity on at least one bellows actuating a reed which emits a sound when the said counterweight is rocked by the mechanism so as to press the bellows.

The doll according to the invention is characterized in that said mechanism includes a crankshaft, the crank portion of which extends into the head of the doll, and in that the sound device is attached to the free end of this shaft inside the head.

The accompanying drawing illustrates, by way of example, an embodiment of the doll to which the present invention is directed, together with a variant.

FIGURE 1 is a sectional side view with parts in cross section.

FIGURE 2 is a view similar to FIGURE 1, on a smaller scale, of a modification.

FIGURE 3 is a plan view of a detail of FIGURE 2.

The doll illustrated in FIGURES 1 and 2 comprises a mechanism assembled inside a body 1 to impart an oscillating movement to the head 2 of the doll as will be described hereinafter. This mechanism includes a spring motor 3 with a winding key 4 and a crankshaft 5, the crank portion 6 of which is inserted into a tube 7 freely turning in hub 8 of a disk 9 integral with the head 2 and secured to the casing of the body 1 of the doll.

For this purpose, disk 9, for example of wood, plastic or metal, is provided with a groove 9' wherein portion 2' of head 2 corresponding to the neck is held and a groove 9'' wherein a rim 1' of the body casing 1 is secured.

The end of the crank portion 6 of shaft 5 has a flat part 10 engaging a projection 11 of tube 7 in such a way that this crank end becomes fixed with this tube 7. A rod 12 supporting a sound device 13 is fastened into the end of tube 7 by means of a pin 14 going through a holding collar 14'. This arrangement has the advantage of allowing for the replacement of motor 3, should it be defective for instance, and of facilitating assembly at the time the doll is manufactured.

Sound device 13 comprises a counterweight 15 in a cylindrical casing 13' and, by gravity, works a bellows 16 actuating a reed 17, a shutter 18 being mounted on counterweight 15 to control the passage of air through a duct 19 communicating with the inside of the bellows.

The operation of the described embodiment is as follows:

When motor 3 has been wound, crankshaft 5 is caused to rotate, and crank portion 6 describes a cone in space, thus imparting an oscillating movement to head 2. After shaft 5 has rotated 180°, crank portion 6 is in the position shown by dot-dash lines, the head then being inclined towards the left.

During the rotation movement of the crank end of shaft 5, cylindrical casing 13' of sound device 13 turns and counterweight 15 works bellows 16 by gravity, that

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is, every time it is above the bellows it compresses it. The air of the bellows makes reed 17 vibrate which then emits a sound, for instance the cry "mama" of a baby. Counterweight 15 stretches out bellows 16, i.e. fills it with air through duct 19 and shutter 18 each time said counterweight is below the flattened bellows. The sound device emits a noise for each revolution of shaft 5, the counterweight having been moved back and forth in casing 13'.

In the variant illustrated in FIGURES 2 and 3, crank portion 6 of shaft 5 passes through bearing 20 of securing disc 21 and, at its free end, carries sound device 13. Casing 13', of this device is held by means of a flange 22 attached to the end of crankshaft 5 by a sleeve 23.

Disk 21 is in two portions 21' and 21'' of semi-circular shape which are held, with respect to each other, by centering pins 24 (see FIGURE 3) and fastened together by a screw 25 screwed upon a threading 26 of the hub of disk 21. This arrangement facilitates the assembly or dismantling of sound device 13 inside head 2.

The operation of the variant described is the same as that of the embodiment shown in FIGURE 1.

Although a doll having a spring motor has been described, an electric motor could also be used.

Moreover, instead of having the head nod, the described doll could have another movable part. The doll might also comprise only stationary parts, with the mechanism assembled inside the body then serving merely to operate the sound device.

The doll described has the advantage of requiring little force to drive its movable members and of being particularly simply constructed.

What I claim is:

1. An animated doll comprising a body, a head movably mounted on said body, actuating means within said body and operatively connected to said head for imparting a complex motion to said head with respect to said body, said actuating means including a motor in said body having a drive shaft terminating in an angularly offset shaft extension projecting into said head and coupled thereto, said shaft extension serving as the generatrix of conical surface about which the central axis of said head moves during successive animating cycles and in response to rotation of said drive shaft, and a crying mechanism disposed within said head and operatively connected to said shaft extension for emitting a crying sound in response to said complex motion of said head, said crying mechanism including a cylindrical housing mounted on said shaft extension with its longitudinal axis substantially at right angles thereto, means including a weighted piston slidably mounted within said housing for defining an air chamber, and sounding means carried by said housing for emitting said crying sound in response to movement of said piston under the influence of gravity through an actuating stroke to decrease the volume of said air chamber.

2. A doll according to claim 1 wherein said body has a flexible casing and said actuating means has a part attached to said flexible casing so that the rotation of said drive shaft simultaneously causes the head to oscillate and said crying mechanism to turn.

3. A doll according to claim 2 wherein said part comprises a disk to which the head of the doll, together with the flexible casing of the body thereof, is secured, a central boss integral with said disk having a hole, a tube rotating freely in said hole and said drive shaft being fixed to said tube.

4. A doll according to claim 2 wherein said part comprises a disk in two portions of semi-circular shape, centering pins holding said portions aligned and means co-operating with the hub of said disk to maintain said portions together, said hub forming a bearing for said drive shaft.

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5. The combination of a crying mechanism with an animated doll including a body, a head movably mounted on said body for a complex motion having components of rotation and flexion, and actuating means within said body and including an angularly offset shaft extension operatively connected to said head for imparting said complex motion to said head during successive animating cycles, said crying mechanism being disposed within said head and being operatively connected to said shaft extension for emitting a crying sound in response to said complex motion of said head, said crying mechanism including a housing rigidly mounted on said shaft extension with its longitudinal axis substantially at right angles thereto, a weighted piston mounted within said housing for longitudinal sliding movement and cooperating therewith in a starting position to define an air chamber, and sounding means on said piston for emitting said crying sound in response to movement of said piston under the influence of gravity through an actuating stroke to decrease the volume of said air chamber, said piston moving through said actuating stroke during one part of each animating cycle and being restored to said starting position in another part of each animating cycle.

6. The combination of a crying mechanism with an animated doll including a body, a head movably mounted on said body for a complex motion having components of rotation and flexion, and actuating means within said body and operatively connected to said head for imparting said complex motion to said head, said actuating means including a motor in said body having a drive shaft terminating in an angularly offset shaft extension projecting into said head and coupled thereto, said shaft extension serving as the generatrix of conical surface about which a central axis of said head moves during successive animating cycles and in response to rotation of said drive shaft, said crying mechanism being disposed within said head and being operatively connected to said shaft extension for emitting a crying sound in response to said complex motion of said head, said crying mechanism including a cylindrical housing mounted on said shaft extension with its longitudinal axis substantially at right angles thereto, a weighted piston slidably mounted within said housing and cooperating therewith in a starting position to define an air chamber, and sounding means on said piston for emitting said crying sound in response to movement of said piston under the influence of gravity through an actuating stroke to decrease the volume of said air chamber, said piston moving through said actuating stroke during one part of each animating cycle and being restored to said starting position during another part of each animating cycle.

7. The combination according to claim 6 wherein said

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piston is formed with an air passageway in communication with said air chamber and the atmosphere and said sounding means includes a vibrating reed mounted within said air passageway.

8. The combination according to claim 6 including means engaging said piston for damping the movement thereof during said actuating stroke such that two discrete crying intervals occurring in rapid succession as said piston moves through said actuating stroke.

9. An animated doll comprising a body, a head movably mounted on said body, actuating means within said body and operatively connected to said head for imparting a complex motion to said head with respect to said body, said actuating means including a motor in said body having a drive shaft terminating in an angularly offset shaft extension projecting into said head and coupled thereto, said shaft extension serving as the generatrix of conical surface about which the central axis of said head moves during successive animating cycles and in response to rotation of said drive shaft, and a crying mechanism disposed within said head and operatively connected to said shaft extension for emitting a crying sound in response to said complex motion of said head, said crying mechanism including a cylindrical housing mounted on said shaft extension with its longitudinal axis substantially at right angles thereto, a weighted piston slidably mounted within said housing and cooperating therewith in a starting position to define an air chamber, and sounding means on said piston for emitting said crying sound in response to movement of said piston under the influence of gravity through an actuating stroke to decrease the volume of said air chamber.

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