W. A. TROST.

DOLL.

APPLICATION FILED APR. 15, 1915.

1,193,947.

Patented Aug. 8, 1916.

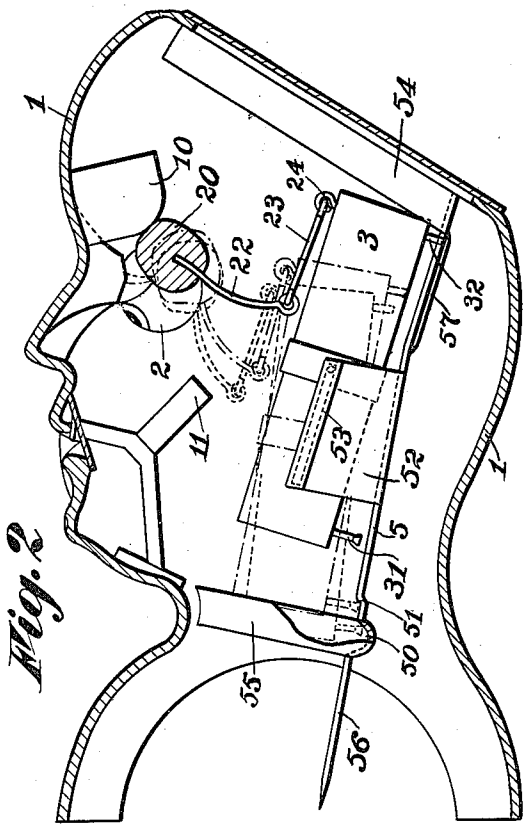


Fig. 2.

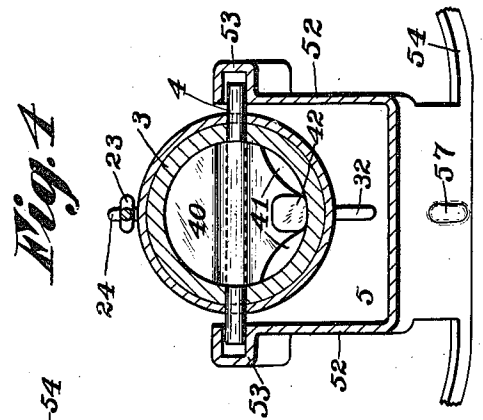


Fig. 4.

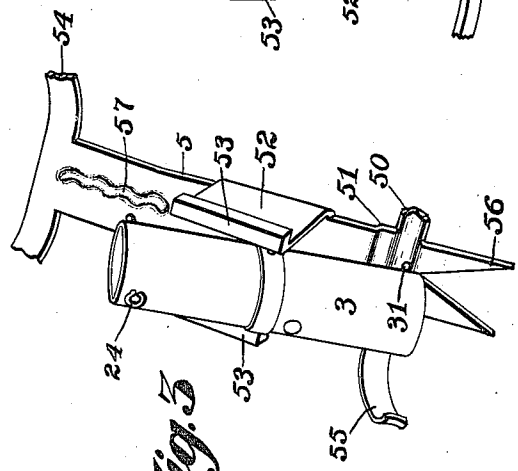


Fig. 5.

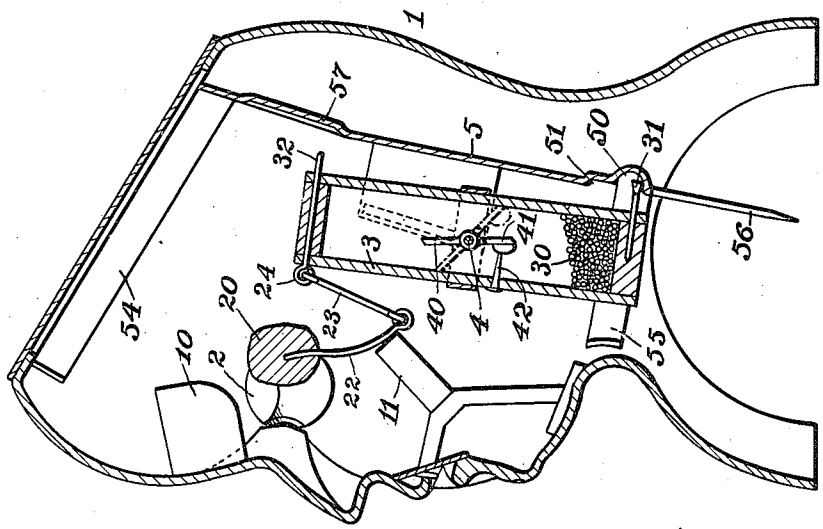


Fig. 1.

Inventor

William A. Trost.

By Adams & Reynolds.

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM A. TROST, OF SEATTLE, WASHINGTON.

DOLL.

1,193,947. Specification of Letters Patent. Patented Aug. 8, 1916.

Application filed April 15, 1915. Serial No. 21,495.

To all whom it may concern:

Be it known that I, WILLIAM A. TROST, a citizen of the United States of America, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Dolls, of which the following is a specification.

My invention relates to an improvement in dolls whereby the opening and closing movement of the eyes is controlled so as to produce a gradual closing movement simulating the natural sleepiness of a child.

The object of my invention is to produce this natural character of the eye movement in going to sleep thus making the same more attractive to a child.

The scope of my invention will be defined by the claims terminating this specification.

In the accompanying drawings I have shown my invention embodied in the form of construction which is now most preferred by me. I am however aware that modifications of this structure may be employed which will secure substantially the same results. I do not therefore, desire to be understood as limiting my invention to the specific structure illustrated.

Figure 1 is a vertical sectional elevation through a doll's head, from front to rear, showing my invention applied thereto. Fig. 2 is a similar section showing the doll's head in recumbent position and the parts in the position corresponding therewith. Fig. 3 shows in perspective the principal parts of my novel invention. Fig. 4 is a transverse section through the weight container taken on the line of its transverse pivotal support.

The common construction of dolls which simulate waking and sleeping, is such that the eyes open and close upon placing the doll in erect or recumbent position, this action being sudden and taking place immediately upon placing the doll in corresponding position. A child in going to sleep gradually becomes drowsy and closes its eyes by degrees, the complete closing of the eyes following some time after lying down.

It is a principal object of my invention to delay the time of closing the eyes upon placing the doll in a recumbent position and also to make the closing action slow and gradual. The mechanism herein illustrated by which this is accomplished, is as follows: In the drawings I have illustrated merely the part of a doll's head which is usually made of glass or similar material, without making any effort to show the body or the hair, such heads as usually constructed are hollow and have an opening in the top which is covered by the fabric upon which the hair is secured. The eyes and the method of mounting shown is that which is most generally used, the eyes 2 being mounted upon the ends of a bar 20, the whole being pivoted upon a horizontal axis. To the connecting portion 20 an arm is commonly secured and the opening and closing movement of the eyes is secured by a weight carried by the end of such rod.

The above construction is or may be employed by me in carrying out my invention, except that the weight upon the end of the rod is omitted. The rod 22 is also preferably extended in a slightly different direction. Stops 10 and 11 are also provided, to limit the movement, these being analogous to those employed in the old movement.

As a substitute for the weights employed in the old movement, I provide a container 3 which is mounted to have movement within the doll's head in a general direction of the axis of the body. The container 3 which acts as the weight by which the eyes are controlled, is mounted to move upon guides having an inclination to the horizontal when the doll is in recumbent position. This inclination is not sufficient to cause movement of the container unless it is agitated, as would be done by a child attempting to rock the doll to sleep.

In the construction shown the container is provided with a pivot axis 4 located at approximately the middle of its length. The ends of this axis project and are supported in guides 53 formed in the upper edges of upturned wings 52 which form an integral part of the metal frame 5. The position of these guideways 53 would be such that they would have a slight inclination with the horizontal when the doll is in recumbent po-

sition. This inclination would not be sufficient to cause a free sliding movement of the axis 4 down the ways without agitation of the doll, such for instance, as would be produced by rocking the same; or in some other equivalent manner resistance should be provided against the movement of the container in the direction which would close the eyes, whereby this movement would be a slow and gradual movement.

Within the container is provided a granular or finely divided weight mass 30, herein shown as shot, which will roll toward whichever end of the container is lowermost. Within the container is also placed a valve or hinged partition 40, this being hinged upon the pivot axis 4 to have a limited swing. A stop 42 may be used to limit the swing in one direction, while contact with the sides limits the swing in the other direction.

The side of the partition or gate 40 which is lowermost when the doll is in recumbent position, is cut away as shown at 41, or otherwise made discontinuous so as to provide restricted openings through which the shot may gradually flow. The size of these openings and the size of the shot should be so proportioned that the shot will be liable to bridge in the openings and thus entirely stop the flow, until the bridge is broken by the shaking of the doll. In this way the closing of the doll's eyes will not occur by simply laying the doll down, but only after sufficient shaking to produce a movement such as will break the bridge and cause the shot to flow to the other end.

The position of the parts when the eyes are open is shown in Fig. 1. This position is one in which a pin 31 which projects downward upon the end which is downward in this position of the doll, will, when the doll is placed in recumbent position, fall into a groove 50, formed in the frame and will act as a catch to retard the movement of the container toward its opposite position.

The first result of the flow of shot toward the opposite end of the container, is to tilt it so as to raise the end which carries the pin 31, so as to lift this pin out of the groove 50. A second catch 51 may be provided adjacent to the groove 50, by making a slight crimp in the metal. This catch may me made to engage the pin 31 to additionally retard the downward sliding movement of the container 3. In this condition the container is supported by its pivot axis in what is, in this position, the upper end of the inclined guideways 53. The opposite end of the container has a downwardly projecting pin 32 which contacts with the frame and which enters a sinuous groove 57 which is formed in this end of the frame. The friction of the pivot axis in its guides together with the friction produced by the pin 32 in the groove 57, will be sufficient to prevent downward sliding movement of the container, except as this is assisted by a slight shaking movement, such as would be produced by rocking the doll.

The container 3 is connected with the eyes to actuate them by a link 23 which is secured to an eye 24 carried by the container and to the end of the arm 22. When the doll is changed from a recumbent to an upright position, the shot will move without interference to the opposite end of the container, for the reason that the gate or valve 40 will swing freely in this direction and offer no resistance to the passage of the shot. The fact that the inclination of the guideways 53, approach nearly to the vertical in this position, insures that the weight of the container is ample to quickly overcome all resistance to its movement. In consequence the opening movement of the eye occurs quickly and without delay, as occurs when a child wakes up.

To secure the device in place I provide the inner end of the frame with a pin or pins, as 56, which penetrate or engage the body of the doll and in addition, provide arms 55 which may be bent so as to engage the inner wall of the neck, and other arms 54 which may be made to engage the inner surface of the head just inside the opening therein.

Having thus described my invention what I claim as new, and desire to secure by Letters Patent of the United States of America, is:

1. The combination with a doll's head having eyes movable into open and closed position, of an eye opening and closing mechanism comprising a weight mass actuatively connected to the eye, said mass being positioned to move bodily by gravity to close the eyes when the doll is in recumbent position, and frictional means acting to restrain said motion.

2. The combination with a doll's head having eyes movable into open and closed position, of an eye opening and closing mechanism comprising a weight mass actuatively connected to the eye, said mass being positioned to move bodily by gravity when the doll is in recumbent position, self-contained means acting to restrain said mass, and additional frictional means acting to restrain said motion.

3. The combination with a doll's head having eyes movable into open and closed position, of an eye opening and closing mechanism comprising a weight mass actuatively connected to the eye, said mass being positioned to move bodily by gravity to close

the eyes when the doll is in recumbent position, and frictional means acting to restrain said motion, said means being active throughout the eye-closing movement.

4. The combination with a doll's head having eyes movable into open and closed position, of an eye opening and closing mechanism comprising a weight mass actuatively connected to the eye, said mass being positioned to move bodily by gravity to close the eyes when the doll is in recumbent position, frictional means acting to restrain said motion, said means being active throughout the eye-closing movement, and a catch acting to hold said mass in eye-open position, said catch being releasable by agitation of the doll when in recumbent position.

5. The combination with a doll's head having eyes movable into open and closed position, of an eye opening and closing mechanism comprising a weight mass actuatively connected to the eye, said mass being positioned to move bodily by gravity to close the eyes when the doll is in recumbent position, and frictional means acting to restrain said motion, said means being active throughout the eye-closing movement, a catch acting to hold said mass in eye-open position, a supplementary catch adapted to hold the mass in partly-eye-closed position, said catches being releasable by continuous agitation of the doll when in recumbent position.

6. A means for actuating eye-opening and closing means in a doll, comprising a container having actuative connection with the eye opening and closing mechanism, a finely divided weight mass within said container, and means limiting the movement of said weight mass in one direction to a trickling action.

7. An eye actuating means for dolls comprising a tubular container, means connecting said container with the eyes to actuate them, a finely divided weight mass within and movable from one end to the other end of said container, and a gate in said container limiting the flow section available for the passage of said weight mass.

8. A means for actuating eye-opening and closing means in a doll, comprising a weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of the weight along the guiding support without agitation, and means for producing a frictional resistance to make the eye-closing movement gradual.

9. A means for actuating eye-opening and closing means in a doll, comprising a weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of the weight along the guiding support without agitation, a catch for holding said mechanism in eye-open position, said catch being releasable by continued agitation of the doll when in recumbent position.

10. A means for actuating eye-opening and closing means in a doll, comprising a weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of the weight along the guiding support without agitation, a catch for holding said mechanism in eye-open position, a supplementary catch adapted to hold the mechanism in partly-eye-closed position, both said catches being releasable by continued agitation of the doll when in recumbent position.

11. A means for actuating eye-opening and closing means in a doll, comprising a tiltable weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of said weight along the guiding support without agitation, a pin secured in one end of said weight, and a catch positioned to engage said pin to hold the mechanism in eye-open position, said pin being releasable from the catch by the tilting of said weight, caused by continued agitation when the doll is in recumbent position.

12. A means for actuating eye-opening and closing means in a doll, comprising a tiltable weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of said weight along the guiding support without agitation, a pin secured in one end of said weight, and a catch positioned to engage said pin to hold the mechanism in eye-open position, and an auxiliary catch engageable by said pin to hold the eyes in partly-closed position, said pin being releasable from both said catches by the tilting of said weight caused by continued agitation when the doll is in recumbent position.

13. A means for actuating eye-opening and closing means in a doll, comprising a tiltable weight and a guiding support therefor extending in a direction which is moderately inclined to the horizontal when the doll is in recumbent position, said inclination being insufficient to induce the transfer of said weight along the guiding support without agitation, a pin secured in one end

of said weight, and a catch positioned to engage said pin to hold the mechanism in eye-open position, said pin being releasable from the catch by the tilting of said weight, caused by continued agitation when the doll is in recumbent position, a pin in the other end of said weight, and a sinuous groove engageable by said latter pin after the weight has been tilted to retard the operation of the mechanism.

Signed at Seattle, Washington this 10th day of April 1915.

WM. A. TROST.