Aug. 10, 1926. 1,595,407

J. A. JONES

FIGURE WHEELED TOY

Filed Nov. 6, 1922 2 Sheets-Sheet 1

FIG. 1

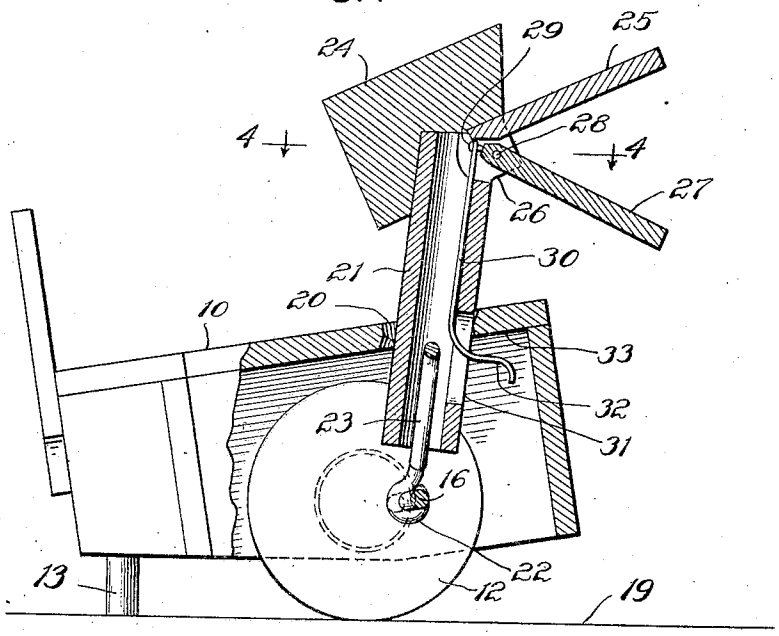
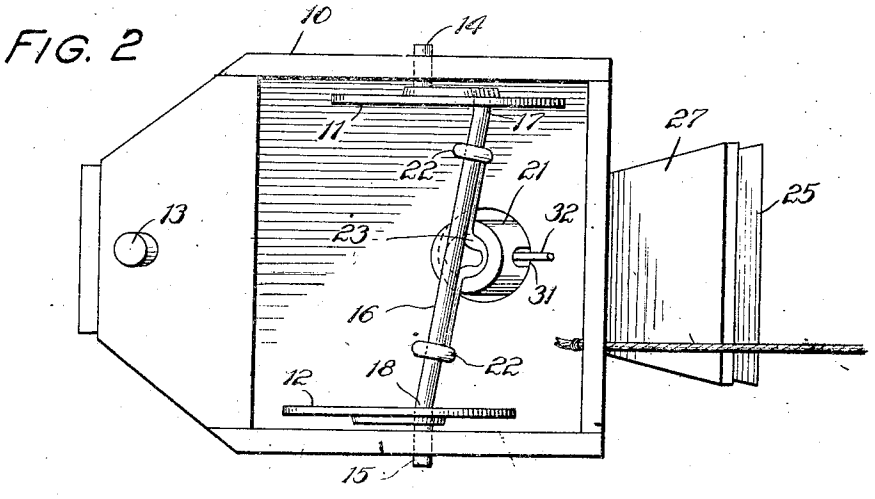


FIG. 2



Inventor
John A. Jones
By Casper L. Redfield Atty

Aug. 10, 1926. 1,595,407

J. A. JONES

FIGURE WHEELED TOY

Filed Nov. 6, 1922 2 Sheets-Sheet 2

FIG. 3

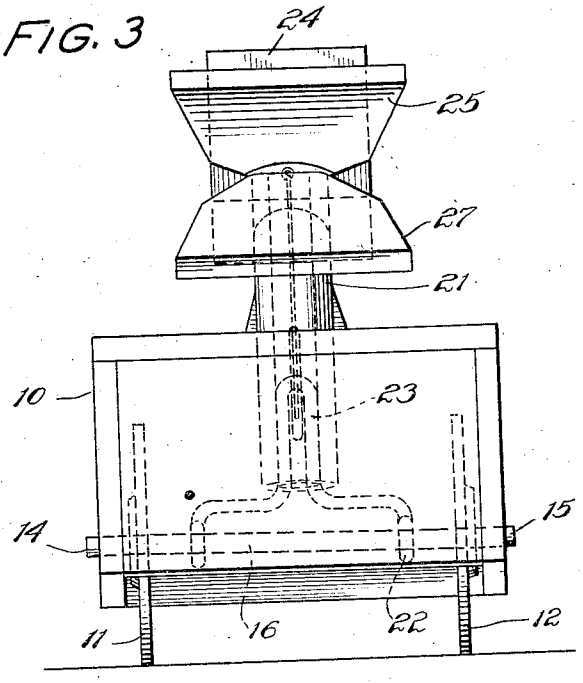
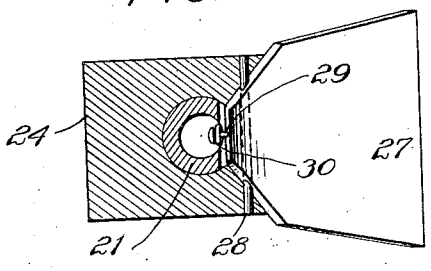


FIG. 4



Inventor
John A. Jones

By Casper L. Redfield Atty

Patented Aug. 10, 1926. 1,595,407

UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF CHICAGO, ILLINOIS.

FIGURE WHEELED TOY.

Application filed November 6, 1922. Serial No. 599,184.

My invention relates to a mechanical toy which will imitate the movements of some animal when said toy is caused to travel over a surface. In the present case the animal illustrated is a duck on wheels, the device being so constructed that the body has that waddling motion which is characteristic of the walk of a duck.

In the accompanying drawings—

Fig. 1 is a side elevation partly in section;

Fig. 2 is a bottom view;

Fig. 3 is a front elevation; and

Fig. 4 is a section on line 4—4 of Fig. 1.

The body 10 is in the form of a box and is mounted upon wheels 11 and 12. These wheels are inside of the box adjacent to the opposite sides thereof and near one end. On the central line near the other end is a pin 13. The wheels and this pin form a tripod for supporting the toy, the main weight being on the wheels.

The connection between the body and the wheels is thru pins 14 and 15 eccentrically placed in the outer faces of the wheels. These pins are so placed that their prolonged axes coincide, and these axes form the imaginary axis on which the wheels turn when the body is held stationary. Calling these wheels eccentrics, these eccentrics are so placed on this imaginary axis that they are 180 degrees apart. The physical connection between the wheels is a rod 16 which is a prolongation of the pin 15 and is bent at the wheel 12 so as to enter wheel 11 at the point 17 which is directly opposite the point at which pin 14 enters, and an equal distance from the center of the wheel. This rod will be called a shaft, and is to be distinguished from the axis 14—15 on which the wheels turn. The drawings show the wheels in mid-position, and in this position a front elevation (Fig. 3) makes it appear as if the shaft and pins were an ordinary shaft on which the wheels were centrally placed. But the plan of Fig. 2 shows that the wheels and shaft are offset from the axis 14—15.

When the wheels turn on the axis 14—15, the shaft generates a cone, of which the apex is the point 18 and the base is the circle which the point describes in traveling around the axis 14—15. That represents what occurs when the wheels turn with respect to a stationary body 10. The wheels, however, travel along a level surface 19. In this movement the pins 14 and 15 have a cycloidal movement which is the same as that of the crank pins of the drive wheels of a locomotive, and the body is supported on the pins which have this movement. The result is that one side of the body rises while the other side is falling, and one side moves forward rapidly while the other side is nearly stationary. This gives the waddling motion corresponding to that of a duck. This motion can be visualized by imaging a locomotive supported on its crank pins instead of on its shaft, and that one wheel is in advance of the other.

On the axis 14—15 the wheels are eccentrics which are 180 degrees apart. On the shaft 16 the wheels are eccentrics which coincide. As a consequence, when the wheels roll along a level surface, the shaft travels in the circle shown in dotted lines in Fig. 1, and in so traveling it is always parallel with the surface on which the wheels roll.

In the top of the body 10 is a hole 20, and thru this extends a tube 21. A wire has eyelets 22 on its ends and a central loop 23 which extends up into tube 21, and is secured thereto by friction due to spring action in the loop. The eyelets 22 embrace shaft 16 at points near the ends thereof.

On the upper end of the tube 21, which represents the neck of the duck, is a block 24 which represents the head. Secured to the head is a plate 25 which represents the upper mandible, and pivoted on a pin 28 in a recess 26 is another plate 27 which represents the lower mandible. In the back of the plate 27 is a pin 29, and on this is pivoted a wire 30 which extends down thru the interior of the neck and out thru a slot 31 into the interior of the body 10 just beneath the board which forms the upper part thereof.

When the body is held stationary (Fig. 2) and the wheels turned, the shaft 16 moves in a path represented by the surface of a cone. This causes the eyelets 22 to travel in circles, and as these eyelets are secured to the neck 21, this circular movement causes the neck to rise and fall corresponding to the upper and lower positions of the eyelets. But the eyelets in traveling in circles have a backward and forward movement which moves the neck back and

forth on the opening 20 as a fulcrum at the same time the neck is rising and falling. The compound of these things causes the eyelets to slide longitudinally on the shaft so that the actual movements of the eyelets are ellipses instead of true circles. As one of these ellipses is further from the apex of the cone than is the other, they are of different sizes, and this difference causes the neck to oscillate rotatively. The general result is to cause a given point in the head to travel in a path which is an inclined and slightly irregular ellipse, and this gives an appearance of the head rising and falling, moving forward and backward, moving from side to side, and oscillating rotatively on the axis of the neck.

As the neck reciprocates axially in the opening 20, each rise of the neck causes the end 32 of the wire 30 to engage the surface 33, and this pulls down on pin 29 to move the mandible 27 on the pivot 28 and thus close the lower jaw. A descent of the neck permits the jaw to open by gravity. It is to be observed that the lower end of the wire 30 is not permanently connected to some moving body, and consequently that a manual closing of the lower jaw will not break anything.

When the device moves forward on its wheels, the body has a waddling motion, the head has a swaying motion which is combined with a vertical reciprocation and a rotative oscillation, and the lower jaw opens and closes. This last is controlled by the vertical reciprocations of the head.

What I claim is:—

1. In a toy, a pair of wheels, a shaft upon which the wheels are eccentrically secured so that they coincide as to their eccentric position on the shaft, crank pins on the outside of the wheels and located 180 degrees apart with respect to the centers of the wheels, a body supported on the crank pins, and a head supported on the shaft, said parts being so placed that the axis of the shaft is at an angle to the axis of the crank pins.

2. In a toy, a pair of wheels, a shaft connecting the wheels and being secured thereto at points other than the centers of the wheels, crank pins on the outer sides of the wheels and on opposite sides of the centers of the wheels, the axes of the shaft and crank pins being at an angle to each other, and a figure representing an animated object, one part of said figure being carried on the crank pins and another part being carried on the shaft.

3. In a device of the class described, a pair of wheels arranged to travel along a surface, crank pins on the outer faces of said wheels and on opposite sides of the center thereof, a diagonally placed rod connecting said wheels together, a body mounted upon said crank-pins, and a head mounted upon said rod and having a bearing in said body.

4. In a device of the class described, a body simulating a duck and having bearings on opposite sides in line with each other, pins in said bearings, wheels connected eccentrically to said pins, a rod securing the wheels together so that they will be held as eccentrics placed on the opposite sides of the axis of said pins, said rod being so placed that its axis is at an angle to the axis of said pins, and a head for said body, said head being mounted upon the angularly placed rod and moved thereby.

5. In a device of the class described, a pair of wheels, a shaft connecting the wheels and serving as a crank when the wheels are rotated, two other cranks on the outer faces of said wheels and being located 180 degrees apart with respect to the centers of the wheels, a body supported upon and moved by the two outer cranks, and a head and neck supported upon and moved by the central crank.

6. In a device of the class described, a pair of wheels, a shaft connecting the wheels, a body supported eccentrically upon said wheels, a head and neck movable with respect to the body, and means extending from the neck and provided with eyelets which embrace the shaft at points near the wheels, said parts being so arranged that said eyelets slide longitudinally on the shaft when the wheels are rotated.

7. In a device of the class described, a body having bearings on opposite sides in line with each other, pins in said bearings, wheels connected eccentrically to said pins, a rod securing the wheels together so that they will be held as eccentrics placed on opposite sides of the axis of said pins, said rod having its axis at an angle to the axis of the pins, and a head and neck provided with arms which embrace the shaft near the wheels, said parts being so arranged that the arms slide longitudinally on the shaft when the wheels are rotated.

JOHN A. JONES.