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A. GUISSART ET AL

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TOY

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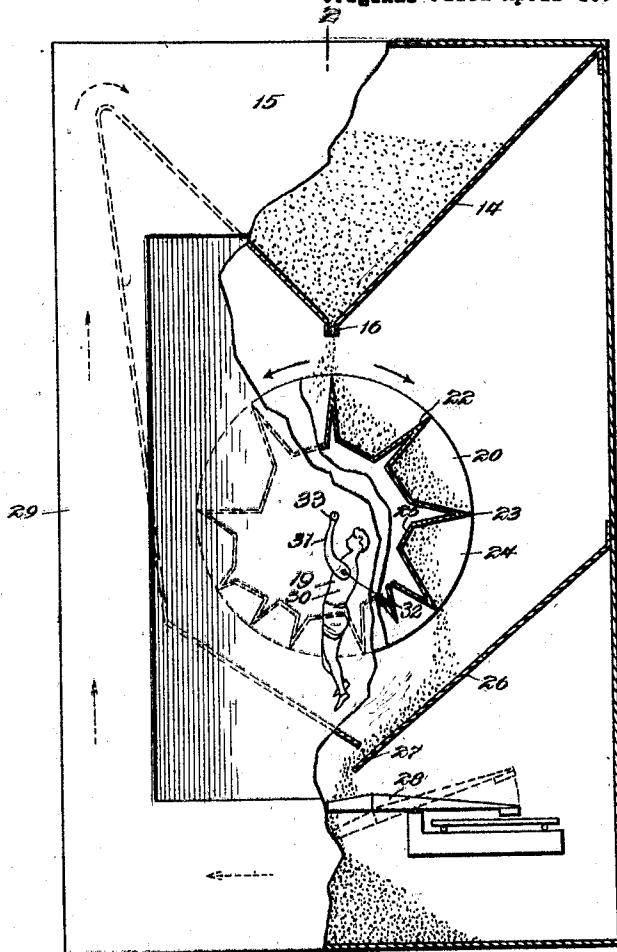


Fig. 1.

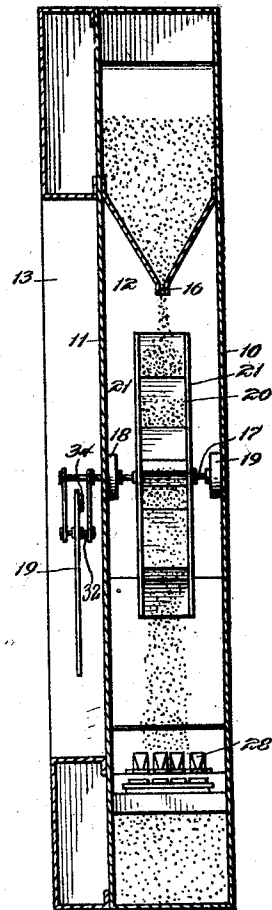


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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SIGNOR TO SAID GUISSART.

TOY.

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*To all whom it may concern:*

Be it known that we, ALBERT GUISSART, a citizen of the United States, and a resident of the city, county, and State of New York, and EDGAR H. BARBE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Toys, of which the following is a specification.

The invention relates to a toy of the type in which a falling substance, such as flowing sand, hereinafter referred to as a fluid, is caused to turn a power wheel, which wheel in turn rotates a shaft on which is mounted an acrobatic figure controlled in its contortions by the rotation of the shaft.

One of the objects of the invention is to provide a simple form of toy of the class outlined but which will differ from similar toys in that there will be caused an irregularity in the movement of the figure.

The invention contemplates the use of a power wheel which will receive a uniformly falling stream of sand and which wheel will be so designed that the sand will exert unbalancing effects on the same to cause the shaft governed by the wheel to rotate some times in one direction; at other times in the opposite direction; at different speeds and for different time durations when moving at the different speeds and which speeds may be uniform or accelerating over different succeeding units of time.

Another object of the invention is to provide a character of figure and actuating mechanism therefor designed so that the figure will assume and hold different swinging positions including a position in which the body portion of the figure extends horizontally.

We attain this phase of the invention by forming the figure with a body portion and with arms pivotally connected thereto and by counterbalancing the head portion of the figure so that the center of gravity will be in line with the pivotal axis between the arms and body portion.

Another object of the invention is to provide a form of toy which will either include or exclude the acrobatic figure and which will utilize the irregular flow of the sand or fluid discharged from the power wheel for the purpose of actuating some other mechanism.

Still another object of the invention is to

provide, in the form of toy hereinbefore outlined, a convenient means for restoring the sand or other fluid to an elevated position and in this manner to quickly and conveniently restore the toy to continue its functional activity.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying my invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings:

Figure 1 is a view in front elevation of a toy constituting a preferred embodiment of our invention and with parts broken away to show details of construction; and

Figure 2 is a vertical transverse sectional view taken on the line 2--2 of Figure 1.

In the following description and in the claims, parts will be identified by specific names for convenience of expression but they are intended to be as generic in their application to similar parts as the art will permit.

In the drawings there is shown a rectangular box or casing 10 divided by a partition 11 disposed to form a mechanism containing compartment 12 and an exposed figure containing compartment 13, visible from the outside of the device. The upper portion of the compartment 12 is provided with downwardly extending inclined walls 14 designed to form a funnel shaped sand reservoir 15 and having a lower discharge opening 16. A shaft 17 is positioned directly below the opening 16 and is journaled in bearings 18 and 19 carried by the rear side of the casing and the partition 11. A portion of the shaft extends forwardly of the partition for carrying the figure 19 hereinafter more fully described. Mounted upon the shaft 17 and positioned directly below the outlet 16 is a power wheel 20 for rotating the shaft.

The wheel is provided with axially spaced apart side plates 20 and 21 which are connected by a plurality of radially extending partitions 22. These partitions are spaced apart different distances considered circumferentially of the wheel. Each of the par-

titions come to a sharp edge 23 and it is to be understood that when any one of the partitions is in its uppermost position it will tend to divide the falling stream of sand with one part falling on one side and another part falling on the opposite side of the partition. The spaced apart partitions form pockets 24 therebetween opened outwardly of the wheel to receive the discharge from the funnel as each pocket is brought by the shifting of the wheel into position facing the discharge opening of the funnel. The pockets are of irregular shape and differ from each other in their volumetric capacity and in the different spacing of their bottoms from the axis of rotation of the shaft 17.

By this construction it is to be understood that the several pockets will receive different amounts of the sand and in this way an overbalanced pocket on one side of the vertical plane passing through the axis of rotation of the shaft 17 will cause the wheel, and with it its shaft, to rotate in the direction of the overbalancing force. The sand after it is discharged from the wheel is received onto inclined bottom shelving 26 which coacts to provide a discharge opening 27.

From this construction it will be appreciated that the wheel will discharge irregular amounts of sand through the opening 27 and this irregular discharge is utilized to actuate some form of instrument, such as the piano keys 28, so as to cause the piano or other mechanism to function irregularly.

For the purpose of returning the sand back into the hopper there is provided a return passageway 29 as outlined in dotted lines in the showing in Figure 1.

The acrobatic figure 19 is formed of two main parts. A body portion 30 and a pair of arms 31 which arms are pivotally connected to the body portion by means of a pivot pin 32 which pivot pin forms the pivotal axis of the arms. The hand ends 33 of the arms are secured to the projecting end of the shaft 17.

The body portion of the figure is counterbalanced so as to bring the center of gravity up to the pivotal axis between the arms and body portion and for this purpose the back part of the head is provided with a counterweight 34.

In operation it will be understood that the sand will run from the funnel in a constantly falling stream and in a manner similar to the fall of sand in an hour-glass. As the sand falls onto the wheel it will be received in whatever pocket or pockets may accidentally happen to be in a receiving position below the discharge end of the funnel, and it is obvious that the wheel will turn in the direction of the overbalancing force due to the greater amount of weight in one pocket than in an opposing pocket.

This will cause the wheel to have an erratic action; sometime standing still and at other times rotating in one direction and then suddenly moving in an opposite direction and for different timed durations. This erratic action of the shaft is, of course, communicated to the figure and the figure will assume numerous positions and go through different contortional movements which are fascinating to the observer.

The counterbalancing of the body portion of the figure adds to its irregularity of movement and the figure not infrequently assumes a momentarily fixed horizontal position, and goes through other movements simulating the action of a trapeze performer.

By suitably controlling the discharge outlet to the funnel and the capacity of the reservoir, the device can be caused to function over a relatively long period of time and by simply inverting the toy the sand can be caused to run quickly from the bottom part of the casing through the by-passageway into the upper reservoir and the device is again ready for continued operation.

While we have shown and described, and have pointed out in the annexed claims, certain novel features of our invention, it will be understood that various omissions, substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described our invention, we claim:

1. In a toy, the combination of means for forming a closed path, part of which is in a downward direction and which path is adapted to have sand or a like fluid passed along the same, a wheel mounted with its axis in the downward part of the path, said wheel having its axis at its center of figure and having a series of radially extending partitions forming pockets therebetween, said partitions being irregularly spaced circumferentially of the wheel thereby to give the pockets different configurations and a two part figure with the parts pivotally connected and with one of the parts secured to the wheel to be turned thereby.

2. In a toy, the combination of a funnel adapted to contain a fluid, a wheel having peripheral pockets of different capacities disposed below the funnel and in position to receive the flow from the discharge end of the funnel, said wheel having its axis of rotation disposed vertically below the discharge end of the funnel and capable of rotating in either direction about said axis under the unbalancing effect of the fluid in the several pockets and an acrobatic figure operatively connected to the wheel to as-

sume different positions dependent upon the speed and direction of rotation of the wheel.

3. In a toy, the combination of a power wheel having exposed peripheral pockets, said pockets having different volumetric capacities, means for directing a flow of a wheel actuating substance into the pockets and vertically downward along a line passing through the axis of rotation of the wheel whereby the wheel will be caused to turn irregularly and a device operatively connected to said wheel and actuated irregularly by the chance turning of the wheel.

4. In a toy, the combination of a shaft, a wheel fixed to the shaft and provided with a plurality of partitions triangular shape in cross section with their apices pointing outwardly and forming peripheral pockets, certain of said pockets having different shapes from certain other of said pockets, means for directing a fluid towards the apices, and into said pockets thereby to cause the shaft to move irregularly and an acrobatic figure operatively connected to said shaft to be actuated thereby.

5. In a toy, the combination of a funnel for discharging a uniform flow of sand or the like, a wheel having radially extending partitions spaced apart irregular distances circumferentially of the wheel, each partition disposed when in its uppermost position to present oppositely disposed inclined surfaces to receive the flow of sand on opposite sides of each partition, and said wheel adapted to turn in the direction of the overbalancing force of the sand, an acrobatic figure including a body portion and an arm pivotally connected and means for connecting the hand end of the arm to said wheel.

6. In a toy, the combination of a funnel for discharging a uniform flow of sand or the like, a wheel having radially extending partitions spaced apart irregular distances circumferentially of the wheel, each partition

disposed when in its uppermost position to receive the flow of sand on opposite sides thereof and said wheel adapted to turn in the direction of the overbalancing force of the sand, an acrobatic figure including a body portion and an arm pivotally connected and means for connecting the hand end of the arm to said wheel, the body portion of said figure being counter-weighted to bring its center of gravity in line with the axis of the pivotal connection of the arm with the body portion.

7. In a toy, the combination of an acrobatic figure including a body portion and arms pivotally connected, the head portion of the body provided with a counterweight to bring the center of gravity of the body approximately in line with the pivotal axis of the arms and body portion, and a rotating shaft connected to the arms of the figure.

8. In a toy, the combination of means for discharging a uniform flow of sand or the like, a shaft, an acrobatic figure operatively connected to the shaft to assume different positions dependent upon the movement of the shaft, said figure having its center of gravity at the axis of the pivotal connection between the arms and the body of the figure and a sand wheel having irregularly shaped pockets and actuated by the falling sand for translating the uniform fall of the sand into an irregular movement of the shaft.

9. In a toy, the combination of a funnel for discharging a uniform flow of sand or the like, means disposed in the path of the falling sand for intercepting the uniformity of the fall and to cause the sand to fall irregularly and mechanism disposed in the path of and controlled by the irregular action of the falling sand.

This specification signed this 13th day of April, 1922.

ALBERT GUISSART.  
EDGAR H. BARBE.