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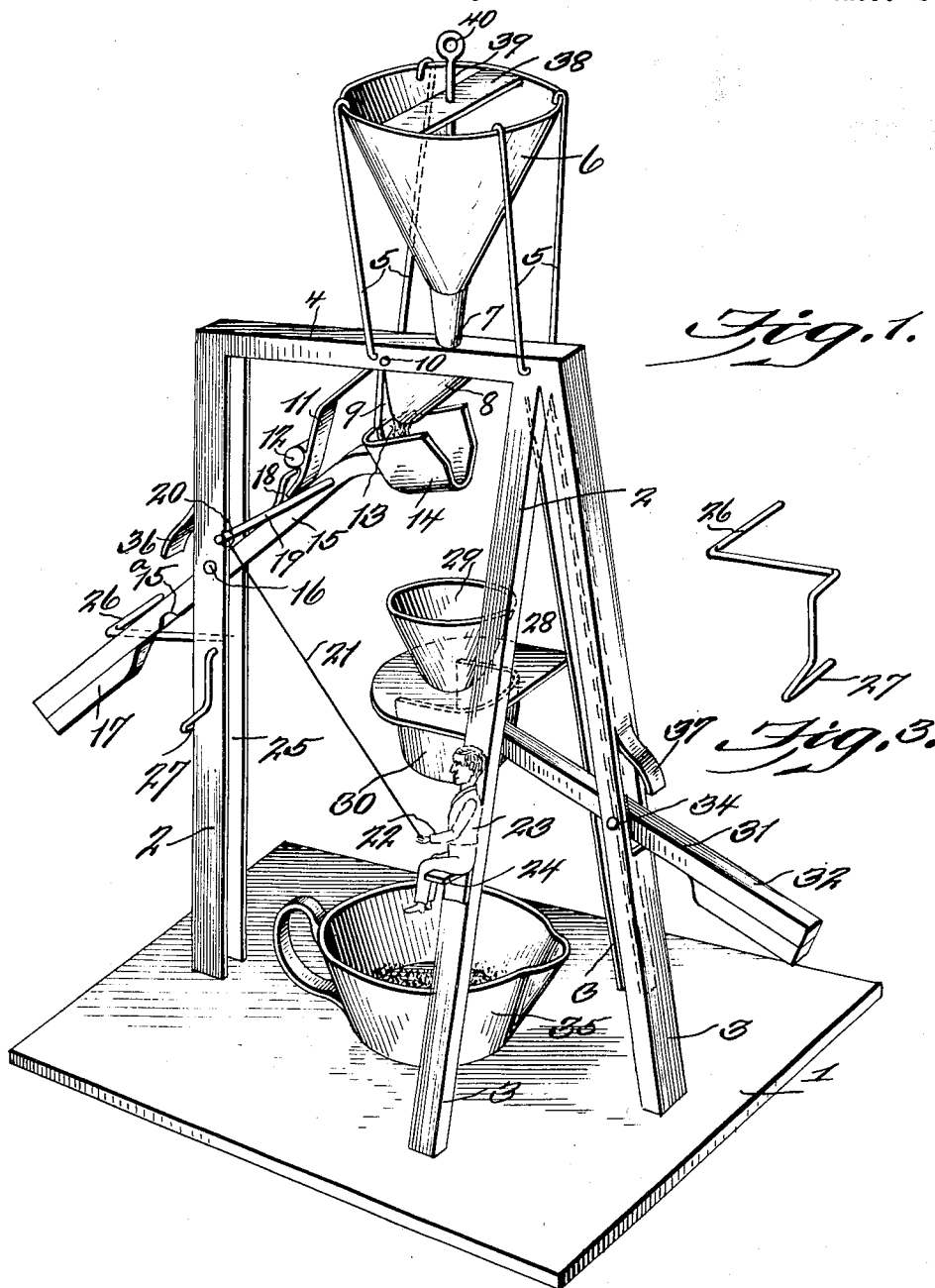
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SAND TOY

Filed July 20, 1932

2 Sheets-Sheet 1



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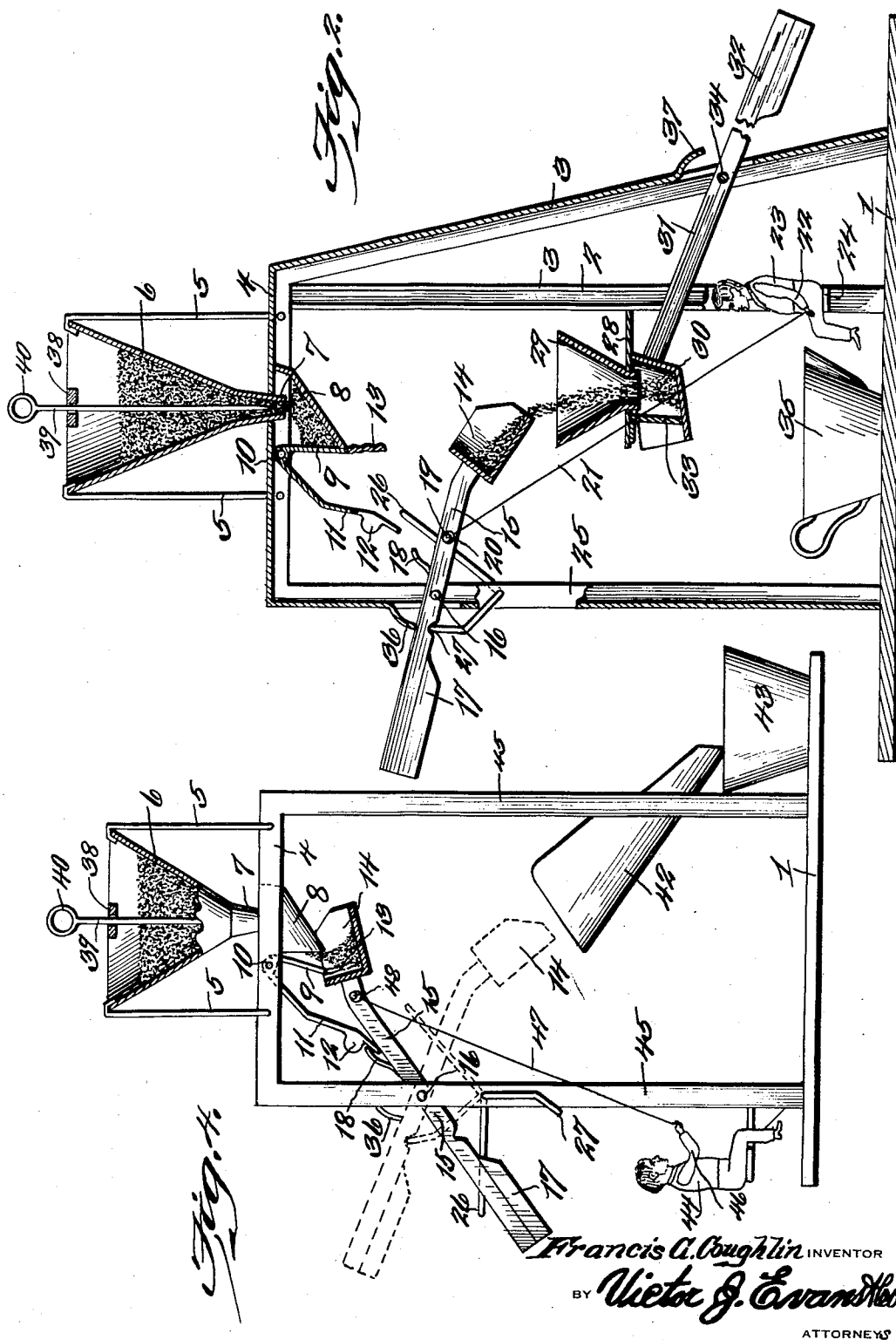
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UNITED STATES PATENT OFFICE

1,935,543

SAND TOY

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6 Claims. (Cl. 46—37)

The present invention relates to mechanical toys and especially to a type which is automatic and operative by the force of gravity through the medium of sand.

One of the main purposes of the invention is to provide a toy of simple construction including well balanced oscillating levers or beams, one staggered in relation to the other, in combination with a main delivery hopper which includes a gravity controlled closure or valve actuated against its gravity by one lever for delivering the sand or similar gravity material into a bucket, which when tilted delivers the sand or other material into a second hopper or funnel, which in turn discharges into a bucket of the second oscillating beam, the latter delivering the material or sand into a receptacle, which can be redumped into the main hopper for causing a repeating operation of the toy.

Another purpose is to provide a figure on the side of the frame of the toy having a movable arm connected to a lateral piece of the first oscillating lever, to give the appearance that the mechanism is being operated by the figure.

Another purpose is to provide means such as an anti-choke member or rod in the main hopper, to prevent the sand or similar material from clogging.

It is to be understood that the particulars herein given are in no way limitative, and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the appliance according to circumstances.

The invention comprises further features and combination of parts to be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a view in perspective of the improved toy constructed in accordance with the invention.

Figure 2 is a vertical sectional view showing a second position of the main oscillating beam.

Figure 3 is a detail view of the brake for holding the main oscillating beam against movement.

Figure 4 is a view in side elevation of a modified construction of toy, wherein a single oscillating beam is used, in conjunction with a chute delivering into a receptacle.

Referring to the drawings 1 identifies a base, from which a frame 2 rises. It is obvious that this frame can be any height, consequently there can be additional balanced beams mounted throughout the height of the frame, so that through the medium of the gravity of the sand

or similar material these various beams may be kept in motion. However for illustrative purposes only two beams are shown.

The frame 2, while extending upright, is reinforced by downwardly diverging braces 3.

Mounted on the upper horizontal portion 4 of the frame 2 and reinforced by the brace wires 5 is a main hopper or funnel 6, its discharge end 7 passing through the upper transverse portion of the frame and adapted to discharge or empty into the chute 8. The outlet end of this chute is normally kept closed by a valve or closure 9, which is pivoted at 10 and is counterbalanced to a closed position by a weighted arm 11, its weight being identified at 12. The lower end of the valve or closure 9 has a pliable extension 13, with which the sand or other material cooperates, the pliable extension acting to prevent the sand or other material from spilling over the side of a bucket 14 when emptying or discharging thereinto. This bucket 14 is mounted on the end of an oscillating beam 15 pivoted at 16. One end of the beam 15 is weighted as identified at 17, while adjacent the other end of the beam or rather adjacent the bucket 14 a stop or abutment 18 is provided which acts to limit the sliding action of the weighted arm on the beam 15. A lateral arm 19 projects from the side of the beam 15, and to the end of the arm a ring 20 is attached. This ring is in turn connected to a cord or a cable or the like 21, which in turn is connected to an arm 22 of a figure 23 mounted upon a lateral seat or support 24 carried by the frame 2, giving the appearance that the beam 15 is being operated by the figure.

A brake member is rockably mounted in the upright 25 of the frame 2, and this brake member has a handle 26, by which the brake member may be set so that the lateral arm 27 of the brake member may engage under the weighted end of the beam 15, acting to hold the beam 15 against oscillatory movement, with the bucket 13 out of register and a remote distance below the chute 8.

Mounted upon a support 28 carried by the frame is a second hopper or funnel 29, its discharge end adapted to empty into a second bucket 30 carried by a second oscillatory beam 31, the end 32 of which is weighted, so as to return the bucket 30 in register with the outlet or discharge end of the funnel or hopper 29. When the bucket 30 is returned in register with the outlet or discharge end of the second funnel or hopper 29 an extension lip 33 fits into the shovel 30 to prevent the discharge of sand or other material into the bucket 30, until the bucket 30 is filled suffi-

ciently to overcome the weighted end 32 of the beam 31, which is pivoted at 34 in the frame. When the bucket 30 is filled sufficiently to overbalance the weighted end 32, the beam 31 tilts, so that the bucket 30 can discharge into a receptacle or container 35.

When all the sand or other material is emptied from the hopper or funnel 6 and has finally reached the receptacle 35, the brake member may be set to prevent oscillation of the beam 15. However when the hopper or funnel 6 is refilled the brake member may be disposed in an inoperative position, in which case the beam 15 may be started on its oscillating movement, and when the beam 15 has started its movement will be automatic while the beam 31 in its movement will be automatic, until the hopper or funnel 6 is again emptied. These operations can be continually repeated.

Carried by the upright 25 of the frame is an abutment 36, to limit the movement of the beam 15 when the bucket 14 is discharging into the funnel or hopper 29. The frame on the other side is likewise provided with an abutment 37, with which the weighted end of the beam 31 engages for limiting the movement of said beam.

A cross piece 38 mounted transversely of the receiving end of the hopper or funnel 6, receives what may be termed as a choke rod 39 provided with a hand piece 40, for the purpose of removing the choke if desired. The lower end of the choke extends down into the lower smaller end of the hopper or funnel and constitutes an anti-choke element to prevent the sand or other material from clogging in the smaller discharge end of the hopper.

In Figure 4 the toy is substantially the same as in Figures 1 and 2, with the exception that the oscillatory beam 31 and its bucket 30 are eliminated, and instead the bucket 14 empties into a chute 42, which discharges into a receptacle or container 43. In this modified construction a figure similar to 23 identified by the numeral 44 is mounted on the side of the frame 45 below the weighted end of the beam 15, and the arm 46 is in turn connected by the wire or cable 47 to the beam 15, as at 48.

The invention having been set forth, what is claimed is:

1. In a sand toy, the combination with a frame, of a supply hopper mounted thereon, a chute on the frame in register and alignment with the discharge end of the hopper, a closure for the discharge end of the chute, said closure including a gravity actuated arm to retain the closure closed, said closure having a pliable flap at its lower end, an oscillatory beam pivoted on the frame having a bucket at one end to register with the discharge of the chute, the other end of the beam having gravity means to move the bucket carrying end of the beam upwardly in register with the discharge of the chute and causing said bucket carrying end of the beam to engage with and actuate the gravity arm of the closure, whereby a granulated material from the hopper may enter the bucket and overbalance the gravity end of the beam, and means on the frame for the reception of the granulated material from the bucket, and a rocking brake carried by the frame for holding the beam against oscillation.

2. In a sand toy, the combination with a frame, of a supply hopper mounted thereon, a chute on the frame in register and alignment with the discharge end of the hopper, a closure for the discharge end of the chute, said closure including

a gravity actuated arm to retain the closure closed, said closure having a pliable flap at its lower end, an oscillatory beam pivoted on the frame having a bucket at one end to register with the discharge of the chute, the other end of the beam having gravity means to move the bucket carrying end of the beam upwardly in register with the discharge of the chute and causing said bucket carrying end of the beam to engage with and actuate the gravity arm of the closure, whereby a granulated material from the hopper may enter the bucket and overbalance the gravity end of the beam, and means on the frame for the reception of the granulated material from the bucket, and a rocking brake carried by the frame for holding the beam against oscillation, a guide carried transversely of the larger end of the hopper, and a choke mounted in the guide and extending into the discharge end of the hopper to prevent clogging of the material therein.

3. In a mechanical toy, a frame having a supply hopper mounted thereon adapted for the reception of gravity feeding granulated material, a chute in register with and leading from the discharge end of the hopper, a gravity closed check for the outlet end of the chute, a gravity actuated oscillatory beam pivoted on the frame to actuate an opening check on the upward movement of one end of the beam to permit the discharge of the granulated material, and a bucket on the upwardly moving end of the beam to receive the discharge of the material from the chute, when the gravity moving end of the beam moves downwardly, a second hopper carried by the frame to receive the granulated material from the bucket, a second oscillatory beam having a shovel, said second beam having a gravitating end to actuate the second beam to register its shovel with the discharge end of the second hopper, whereby the granulated material passing from the second hopper may fill the shovel of the second beam and overbalance its gravity means, whereby the material may deposit from the shovel of the second beam into a receptacle, and a check entering the shovel of the second beam to retain the material in the second shovel until it is overbalanced, and limiting stops for both levers when overbalanced.

4. In a sand toy, the combination with a frame, of a supply hopper mounted thereon, a chute on the frame in register and alignment with the discharge end of the hopper, a closure for the discharge end of the chute, said closure including a gravity actuated arm to retain the closure closed, said closure having a pliable flap at its lower end, an oscillatory beam pivoted on the frame having a bucket at one end to register with the discharge of the chute, the other end of the beam having gravity means to move the bucket carrying end of the beam upwardly in register with the discharge of the chute and causing said bucket carrying end of the beam to engage with and actuate the gravity arm of the closure, whereby a granulated material from the hopper may enter the bucket and overbalance the gravity end of the beam, a second hopper carried by the frame to receive the granulated material from the bucket, a second oscillatory beam having a shovel, said second beam having a gravitating end to actuate the second beam to register its shovel with the discharge end of the second hopper, whereby the granulated material passing from the second hopper may fill the shovel of the second beam and overbalance its gravity means, whereby the material may deposit from

the shovel of the second beam into a receptacle, and a check entering the shovel of the second beam to retain the material in the second shovel until it is overbalanced, and limiting stops for both levers when overbalanced.

5 In a mechanical toy, a frame, a hopper mounted on said frame for the reception of gravity feeding granulated material, a rigid chute secured to the frame and registering with the discharge end of the hopper, a gravity closed check for the outlet end of the chute, a gravity actuated beam mounted on the frame for oscillation and engageable with the check to move the latter to an open position for permitting the discharge of the granulated material, a bucket on the beam to receive material from the chute, means depending from the check and together with the chute being receivable within the bucket to prevent the material from flowing over the latter, means on the frame for the reception of the material from the bucket, and means on the frame to be engaged by the beam to limit the movement of the latter.

6. In a mechanical toy, a frame, a hopper

mounted on said frame and adapted to receive gravity feeding granulated material, a chute depending from the frame and registering with the discharge end of the hopper to receive material therefrom, a gravity actuated check for closing the outlet end of the chute and having a weighted end, a gravity actuated oscillatory beam having a weighted end and mounted on the frame to engage the weighted end of said check to move the latter to open position upon upward movement of the non-weighted end of the beam to permit the discharge of material, a bucket on the non-weighted end of the beam to receive the material as it discharges from the chute when the weighted end of the beam moves downwardly, pliable means depending from the non-weighted end of the check and together with the chute extending into the bucket when the latter is in material receiving position for cooperation with the chute to prevent material from flowing over the bucket, and means on the frame for the reception of the material when the bucket is in dumping position.

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