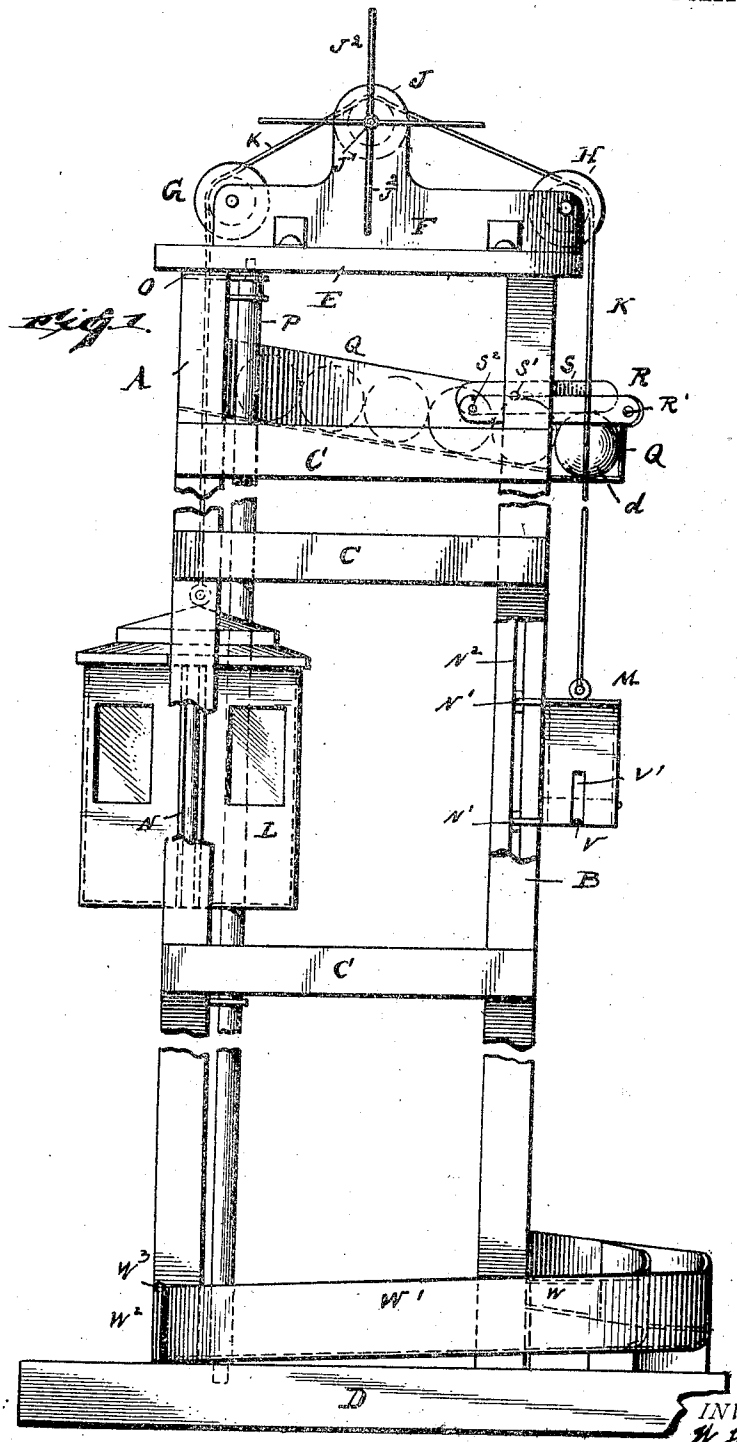
No. 806,930. PATENTED DEC. 12, 1905.

W. H. SMITH.

TOY ELEVATOR.

APPLICATION FILED NOV. 15, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

INVENTOR.
W. H. Smith

BY Oscar F. Gunn
his ATTORNEY.

No. 806,930.

PATENTED DEC. 12, 1905.

W. H. SMITH.

TOY ELEVATOR.

APPLICATION FILED NOV. 15, 1904.

2 SHEETS—SHEET 2.

Fig. 2.

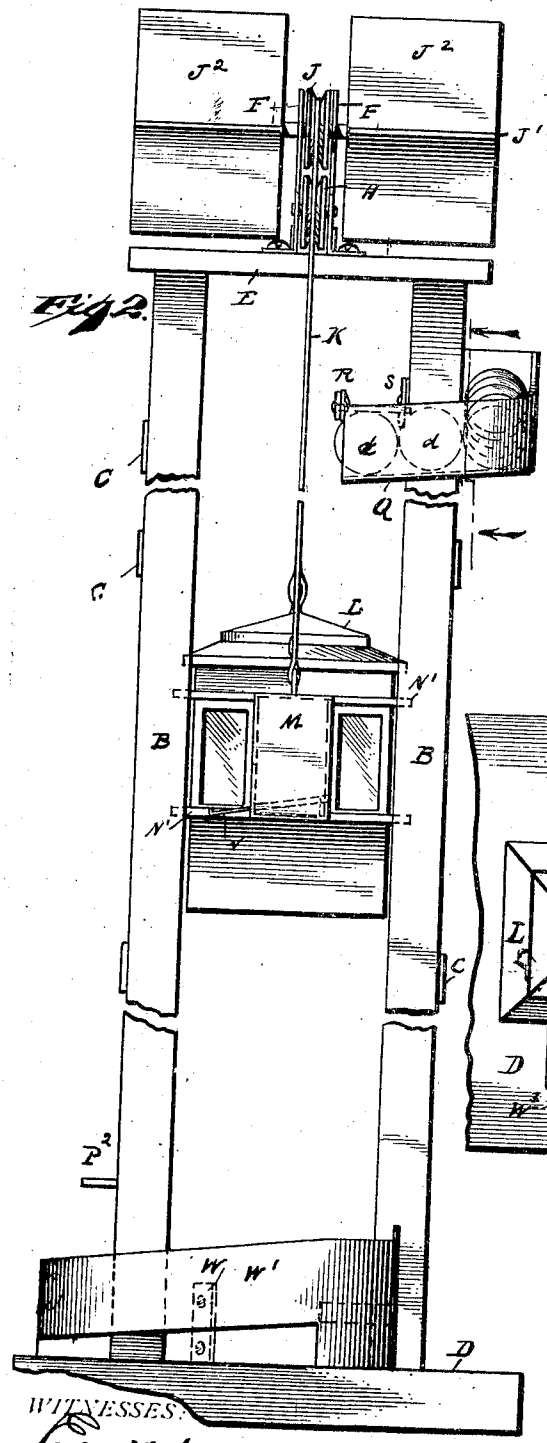


Fig. 4.

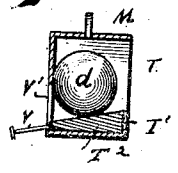


Fig. 5.

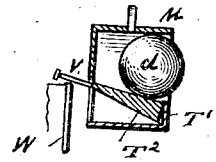


Fig. 6.

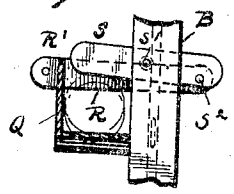


Fig. 7.

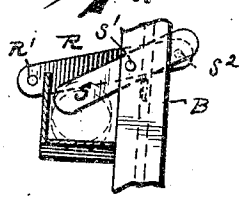
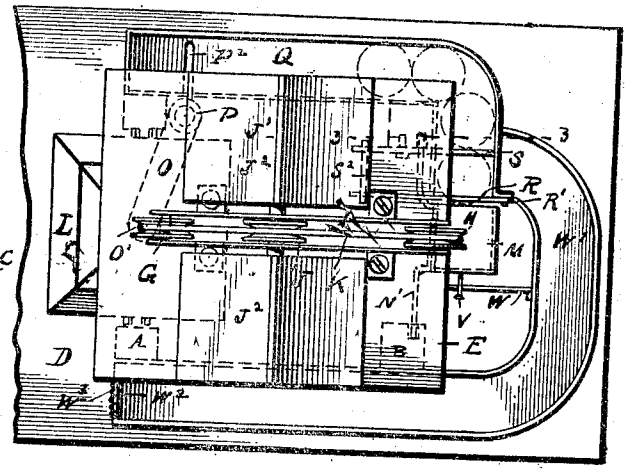


Fig. 3.



WITNESSES:

INVENTOR.

W. H. Smith

BY Albert Grant

his ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM H. SMITH, OF YONKERS, NEW YORK.

TOY ELEVATOR.

No. 806,930. Specification of Letters Patent. Patented Dec. 12, 1905.

Application filed November 15, 1904. Serial No. 232,818.

To all whom it may concern:

Be it known that I, WILLIAM H. SMITH, a citizen of the United States, residing at Yonkers, in the county of Westchester, in the State of New York, have invented certain new and useful Improvements in Toy Elevators, of which the following is a specification.

This invention relates to toy elevators; and the object of my invention is to provide an elevator of this kind which is simple in construction, operates perfectly, is easily manipulated, resembles a passenger or freight elevator very closely, and affords great amusement.

In the accompanying drawings, in which like letters of reference indicate like parts in all the figures, Figure 1 is a side elevation of my improved elevator, parts being broken out. Fig. 2 is a rear elevation of the same, parts being broken out. Fig. 3 is a plan view, parts being broken away. Figs. 4 and 5 are detail sectional views of the weight-box, showing the manner of throwing out the weight when the box arrives at the bottom. Figs. 6 and 7 are sectional views on the lines 3 3, Fig. 3, showing the manner of admitting the weights into the weight-box.

The elevator-frame is composed of the two front uprights A and the two rear uprights B, which are connected at suitable intervals by cross-ties C, representing the floors. The uprights A and B are secured at their lower ends on a suitable base D, and at their upper ends are united by a top plate E. On the top plate E two upright pieces F are secured, in which are mounted three grooved pulleys—to wit, the pulley G at the front of the frame, the pulley H at the rear, and the pulley J at or near the center, the latter pulley being mounted in a higher plane than the pulleys G and H. Over these three pulleys a cord K is passed, from one end of which a box L is suspended, which represents the car, and from the other end of which a weight-receiving box M is suspended, which represents the counterweight of an ordinary elevator.

The front standards A are provided on their inner sides with tongues N, which enter grooved pieces on the sides of the car L for the purpose of guiding the same in its up and down movement. The weight-box M is provided with curved arms N′, the ends of which pass into vertical side grooves N^2 in the inner sides of the rear standards B for the purpose of guiding the weight-box, which is located outside of the plane of said rear standards B, as shown in Fig. 1. The central pulley J is mounted on a shaft J′, projecting beyond each of the two uprights F, and on each projecting end of said shaft two crossing blades J^2 are mounted, which thus form two fans, one at each side of the uprights, for the purpose of preventing too rapid movement of the parts. The cord K passes through an aperture O′ in the free end of an arm O on the upper end of a vertical shaft P, mounted in the base D and in the top plate E, so as to turn axially, and is provided at or near its lower end with a handle P^2, by which it can be turned.

An inclined gutter Q is attached to the outside of one front and one rear upright A and B and extends from near the front of the elevator-frame to the rear of the same and around a rear corner and terminates at the plane of the open side of the vertically-movable weight-box M. The front of this gutter is open and the rear end is also open. An arm R is pivoted at R′ to a bracket projecting from the outer side of the gutter Q at the rear end of the same, and this arm extends across this open end of the gutter. It is so pivoted that when the arm is lowered it prevents a ball or marble *d* in the gutter from dropping out of the open rear end. When this arm R is raised, it is elevated sufficiently from the bottom of the gutter to permit the ball or marble *d* to roll under this arm out of the rear open end of the gutter.

A lever S is pivoted at S′ to the inner face of one of the rear standards B, and it is of such length that one end extends across the gutter. The opposite end of this lever is connected by a pin S^2 with the swinging end of the arm R, so that when one of the arms N′ of the weight-box in ascending strikes the bottom edge of the arm R and lifts the same the rising end of this arm R will lift the outer end of the lever S and force down the inner end, as shown in Fig. 7; which inner end passes in between the ball *d* nearest the rear open end of the gutter Q and the next adjacent ball, thus arresting this next adjacent ball for the time being, so as to prevent more than one ball from passing out of the gutter into the weight-box, as shown in Figs. 2 and 3.

The weight-box M is open at the side T facing the open end of the gutter Q, and at the bottom of this open side a ledge T is formed, which when the weight-box M is raised to its highest position is on the level

with the floor of the gutter Q at the open rear end of the same. A wedge-shaped piece T^2 rests loosely upon the bottom of the weight-box M, the wider end of the wedge being as high as the ledge T′ and adjacent to the same. A pin V projects from the smaller end of the wedge through a vertical slot V′ in the rear wall of the weight-box, and when the weight-box arrives in its lowermost position this pin strikes against an arm or obstruction W at the bottom of the elevator-frame, whereupon the wedge is lifted, as shown in Fig. 5, causing the ball *d* to roll out of the box—that is, into the curved gutter or runway W′ on the base D, which gutter or runway extends to the front of the elevator at the base and is preferably closed by a hinged door W^2, which is kept closed by a spring W^{3}′.

The operation is as follows: The car L being heavier than the weight-box M when the latter is empty, the car descends under its own weight and lifts the weight-box, so that when the car has arrived at its lowest position the weight-box has arrived at the open rear end of the gutter Q. When an arm N′ strikes the pivoted arm R, it permits the ball at the open end of the gutter Q to roll from said gutter into the weight-box M and upon the wedge-piece T^2, which is in the position shown in Fig. 4. The ball is thus held in the weight-box in such a manner that it cannot roll out accidentally. The weight of the ball is such that the weight of the car L is overcome, and the weight-box immediately begins to descend, and the car is thus lifted. As has been described, the inner end of the lever S is swung down when the pivoted arm R is raised, and this inner end holds the ball *d* next to the end. As soon as the box M descends the pivoted arm R drops and is lowered across the open end of the gutter Q, and at the same time the inner end of the arm S is raised, thus releasing the ball which is held, which ball rolls a distance equal to the diameter of one ball to the end of the gutter, where it is held by the pivoted arm R, which is now in the lowered position, as shown in Fig. 6. The box M descends until it arrives at the bottom of the frame, whereupon the pin V strikes the stop or obstruction W, whereby the wedge-piece T^2 is tilted so as to cause the ball in the weight-box to roll out and into the gutter W′, down which it rolls toward the front of the apparatus. As soon as the ball has rolled out of the weight-box the car immediately begins to descend, the weight-box is raised to its highest position, and another ball rolls into it, and so on, as long as there are balls in the upper gutter Q.

The balls are taken from the bottom gutter W′ and placed into the top gutter Q whenever the elevator is to operate. The elevator can be stopped at any elevation by turning the brake-rod P in either direction, as thereby the arm O is swung inward or outward, and as the cord K passes through this arm sufficient friction is produced by the movement of this arm in either direction to stop the apparatus, thus enabling the child playing with the toy to stop the car whenever it wishes.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a toy elevator, the combination with a vertical frame and pulleys at the top of the same, of a cord passed over the pulleys, receptacles attached to the opposite ends of the cord and guided to move on the vertical frame, a detached weight, means for automatically delivering the weight into one of said receptacles when the said receptacle is in its highest position thus supporting said weight entirely by said receptacle, and means for automatically discharging this weight from said receptacle, which means are located at the bottom of the vertical frame, substantially as set forth.

2. In a toy elevator, the combination with a vertical frame and pulleys on the same, of a cord passed over the pulleys, two receptacles suspended from the ends of said cord and guided in the vertical frame, a gutter at the top of the frame and a gutter at the bottom of the frame, a detached weight, means at the top of the frame for automatically releasing the weight from the upper gutter into one of said receptacles, whereby said weight is supported entirely by said receptacle, and means at the bottom gutter for automatically discharging the weight from said receptacle into the bottom gutter, substantially as set forth.

3. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over said pulleys, receptacles attached to the ends of the cord and guided in the frame, and a brake for said cord, substantially as set forth.

4. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over said pulleys receptacles attached to the ends of the cord and guided in the frame, an upright shaft mounted to turn axially, an arm on said shaft, which arm has an aperture through which said cord passes, substantially as set forth.

5. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, receptacles attached to the ends of said cord and guided to move vertically in the said frame, a gutter at the upper part of the frame and having an open end, means at said open end of the gutter for temporarily closing the gutter, means on one of the said receptacles for opening said closing means, and a detached ball resting loosely in the gutter at the upper part of the frame and retained in the same by the closing means at the open end of said gutter,

when said closing means closes the gutter, and which ball, when the gutter is temporarily open, can roll into one of the receptacles, substantially as set forth.

6. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, receptacles attached to the ends of the cord and guided in the frame, a gutter in the upper part of the frame and having its rear end open, an arm pivoted at said rear end of the gutter to extend across the same, a pivoted lever mounted so as to be capable of extending into said gutter and located some distance from the above-mentioned pivoted arm and connected therewith, and means on one of said guided receptacles for lifting the pivoted arm, substantially as set forth.

7. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, two receptacles attached to the ends of the cord and guided in said frame, a gutter on the frame at the top and having an open inner end, an arm pivoted at said open end, means on one of the above-mentioned receptacles for lifting said arm, and a lever located at the gutter a short distance from said arm and pivoted to a suitable support and connected with the said arm, substantially as set forth.

8. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, receptacles attached to the ends of the cord and guided in the frame, a wedge-shaped piece in the bottom of one receptacle and means for raising said wedge-shaped piece when the receptacle arrives at its lowermost position, substantially as set forth.

9. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, receptacles attached to the ends of the cord and guided in the frame, a wedge-shaped piece in one of the receptacles, a pin projecting from the narrower end of said piece, and a stop on the bottom part of the frame, which said pin can contact with when the said receptacle arrives at its lowermost position, substantially as set forth.

10. In a toy elevator, the combination with a frame and pulleys on the same, of a cord passed over the pulleys, receptacles attached to the ends of the cord and guided in the frame, one of said receptacles having an open side, a ledge at the bottom of said open side, a wedge-shaped piece resting on the bottom of the receptacle, the thicker end of the wedge being at said ledge and of the same height as the ledge, a pin projecting from the narrower end of said wedge, and a stop-piece in the bottom of the frame, with which stop-piece the pin can contact to tilt the wedge when said receptacle arrives in its lowermost position, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of November, 1904.

WILLIAM H. SMITH.

Witnesses:
OSCAR F. GUNZ,
R. MCCONNEL LEACH