Jan. 15, 1929. 1,699,484

C. C. BAIN

AUTOMATIC TOY

Filed Dec. 23, 1927 2 Sheets-Sheet 1

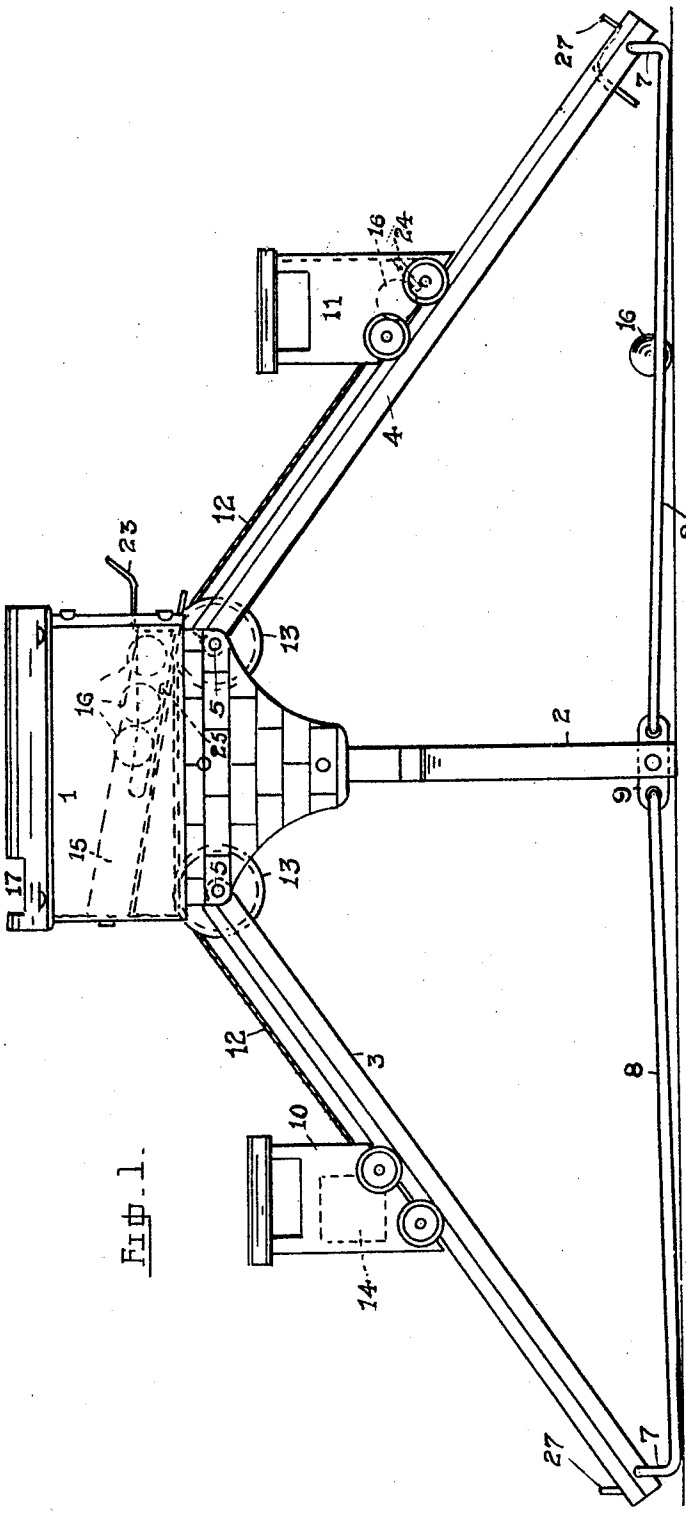


Fig. 1.

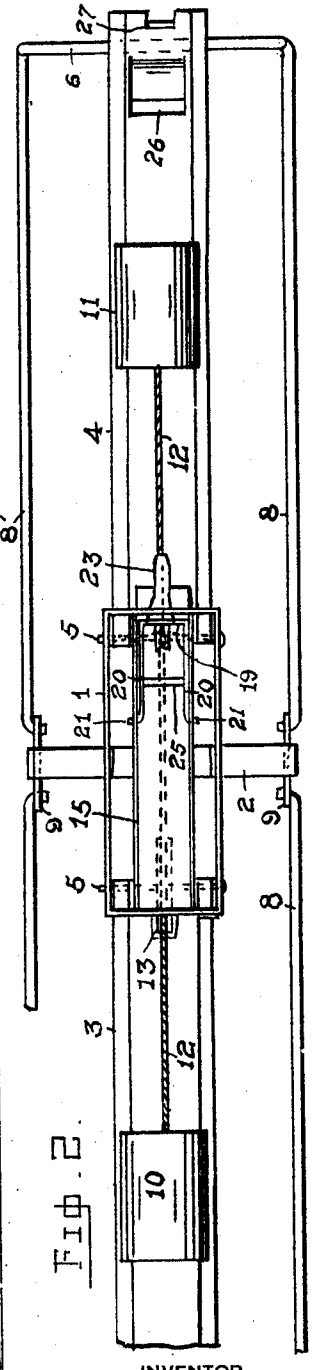


Fig. 2.

INVENTOR

Carl C. Bain,

by Edward A. Lawrence

his attorney

Jan. 15, 1929. 1,699,484

C. C. BAIN

AUTOMATIC TOY

Filed Dec. 23, 1927 2 Sheets-Sheet 2

Fig. 3.

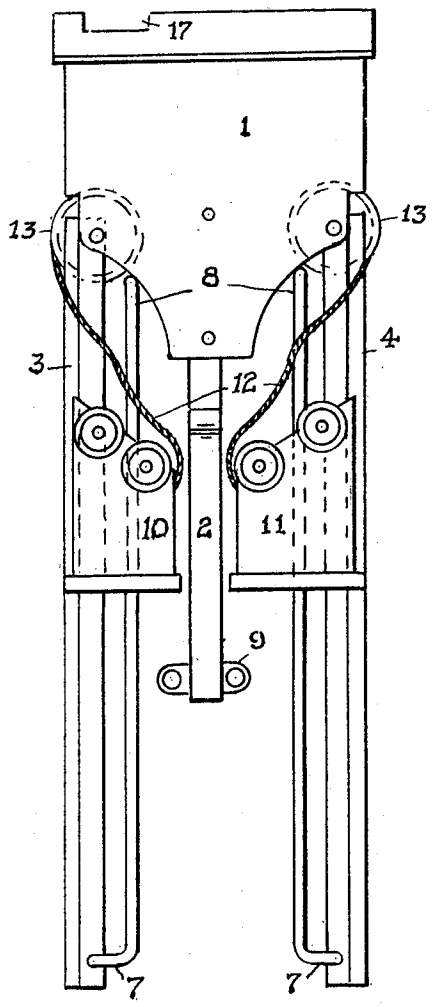


Fig. 4.

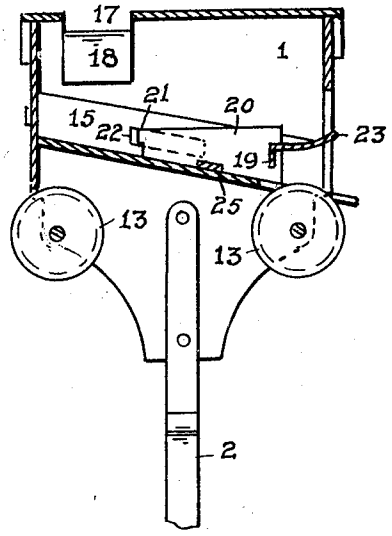
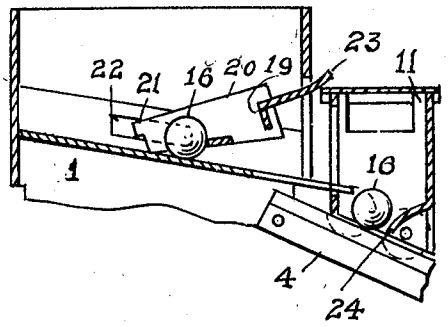


Fig. 5.



INVENTOR

Carl C. Bain,

by Edward A. Laurence.

his attorney.

Patented Jan. 15, 1929. 1,699,484

UNITED STATES PATENT OFFICE.

CARL C. BAIN, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WOLVERINE SUPPLY & MANUFACTURING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

AUTOMATIC TOY.

Application filed December 23, 1927. Serial No. 242,143.

More particularly my present invention comprises a toy of the elevator type having two inclined tracks which are preferably upwardly converging and upon which travel a pair of cars flexibly connected together, one of said cars being of greater weight than the other car so that the first car will descend its track and cause the second car to ascend its track, and means are provided for periodically increasing the effective weight of the second car to cause a reversal of the movement of the two cars, the first car ascending its track and the second car descending its track.

The increments of weight which are periodically added to the second car as the same reaches the upper position of its path of travel are preferably balls, such as of metal, having the proper weight to cause the second car to overbalance the first car. When the second car reaches the lower end of its path of travel, the increment of weight is discharged.

A supply of said balls is stored at the top of the track on which the second car moves and means are provided whereby said car as it reaches the upper end of its path of travel releases one of said balls which then engages the car and increases the effective weight of the latter. When said car reaches the lower end of its path of travel the ball is released therefrom, permitting the car to reascend its track and receive another ball, the movements of the cars in alternate directions continuing until the supply of balls is exhausted.

Novel means are provided whereby the balls are fed one by one to the second car at the proper instances.

The balls or other increments of weight are stored in a container which preferably forms the apex of the upwardly converging tracks and is in the form of a tipple-house having a roof apertured for the introduction of the balls and provided with a chute inclined in the direction of the track of the second car, a gate being provided for holding the balls in said chute and said gate having a trigger or projecting portion which is engaged by the ascending car as the latter reaches its high position, thus raising the gate and permitting the first ball to move into engagement with the car while the remaining balls are held back. As soon as the car with its added increment of weight starts to move downwardly the gate is released and dropped and the balls moved against the same.

The general structure comprises a pair of tracks hingedly connected together at their upper ends as to the opposite ends of the tipple-house which may be supported by a central vertical support, braces being provided to hold the tracks in their inclined positions, said braces being pivotally connected at one end and removably connected at the other end so that, by disconnecting the latter ends of the braces, the tracks and braces may be folded in parallelism and at right angles to the tipple-house for packing in small space.

The trigger is arranged to be retracted within the tipple-house so that it will be out of the way when the toy is folded up.

Other novel features of construction, and also of arrangement of parts will appear from the following description.

In the accompanying drawings, wherein I have illustrated the best embodiment of the principles of my invention now known to me, Fig. 1 is a side elevation of the toy set up in its unfolded condition; Fig. 2 is a plan view of the same; Fig. 3 is a side elevation showing the toy folded up for storage or shipment; Fig. 4 is a vertical longitudinal section of the tipple-house and the ball storage and delivery means, showing the latter with the gate down, and Fig. 5 is a similar view showing the gate lifted by the ascending car.

Referring to the drawings, 1 represents the tipple-house which is formed of sheet metal and is supported by the vertically disposed column 2. 3 and 4 represent the two tracks having flat floors and vertical side plates which form guards. The tracks are pivotally connected to either end of the tipple-house 1 by means of the shafts 5 which extend through the side walls of the tipple-house and through the side plates of the tracks. Thus the tracks may be extended in the inclined position shown in Fig. 1 or folded up into parallelism as shown in Fig. 3.

Means are provided for bracing the tracks 3 and 4 in their extended or inclined position. Thus I show braces formed by bending up a length of stout wire comprising an intermediate portion 6 which extends through the side flanges of the track and merges at either end in downwardly extending and vertical portions 7 which act as supporting legs and these legs in turn merge into horizontal por-

tions 8 which extend inwardly toward the column 2 and have their ends hooked so as to be removably engaged with holes in brackets 9 mounted on the lower portion of the column.

It is thus evident that the tracks may be extended into a downwardly diverging relation, such as shown in Fig. 1, or the inner ends of the braces may be unhooked from the brackets 9 and the braces and tracks may be folded up into parallelism with the column 2 as shown in Fig. 3, thus reducing the toy to small compass for packing.

10 and 11 represent cars which are arranged for travel on the tracks 3 and 4 respectively and are flexibly connected together as by the cord 12 which runs over the sheaves 13 on the shafts 5 and across the tipple-house 1. The length of the cord is such that when one car is at the upper end of its path of travel the other car is at the lower end of the latter's path of travel.

One of the cars 10 is heavier than the other car 11, as by the addition to the former of a metal plate 14 indicated in dotted lines in Fig. 1, and thus the car 10 tends to overbalance the car 11, the former traveling to the lower end of the track 3 and drawing the latter to the upper end of the track 4.

Within the tipple-house 1 is mounted a chute 15 which is downwardly inclined toward the upper end of the track 4 upon which the lighter car 11 travels. The increments of weight, preferably steel balls 16, are stored in said chute being inserted therein through an aperture 17 in the roof of the tipple-house 1, the cut metal being bent inwardly and downwardly at each side to form guides 18 to direct the balls into the chute. The balls are normally held in the chute by means of a transversely disposed gate 19 which is arranged to be lifted, to permit the escape of the front ball as the car 11 attains its high position. Thus the gate is formed integrally with the side plates 20 which are contained within the chute and extend rearwardly and are pivotally attached at their rear ends by the ears 21 bent outwardly from the plates 20 and engaging slots 22 in the side walls of the chute and parallel with the floor of the latter.

The gate is provided with an outwardly extending arm or trigger 23 which is struck by the roof of the ascending car 11 and raised, thus elevating the gate and permitting the front ball 16 to run out of the chute and onto the track 4 where it is caught and held by the car 11, the same being provided with a curved portion 24 of its rear wall against which the released ball rests. The plates 20 are provided at their bottoms with a cross bar 25 which when the gate is raised moves upwardly in front of the second ball and holds it in the chute until the gate again descends when the car 11 starts downwardly, whereupon the balls in the chute move forwardly and the erstwhile second ball takes its position against the gate.

The combined weight of the car 11 and of the released ball are sufficient to overbalance the car 10 so that the car 11 descends and the car 10 ascends. Adjacent to the lower end of the track 4 the floor thereof is provided with an aperture 26 through which the ball drops as the car 11 attains its low position, thus restoring the weight differential in favor of the car 10, causing said car to descend and the car 11 to ascend.

The cars are thus caused to alternately ascend and descend until the supply of balls in the chute is exhausted.

The lower ends of the tracks 3 and 4 are are provided with upwardly extending stops 27 to limit the downward movements of the cars thereon.

When the toy is packed, the trigger is retracted within the tipple-house by sliding the plates 20 inwardly along the chute.

When the toy is to be folded the cars may assume the positions shown in Fig. 3.

It is evident that my improved toy is very attractive to children. It is inexpensive to manufacture and simple in construction.

What I desire to claim is:—

1. In a toy of the character described, the combination of a central platform, a pair of tracks hinged at their upper ends to said platform and arranged to be extended in downwardly diverging relation with each other or to be folded in parallelism, and means for bracing said tracks in their extended positions.

2. In a toy of the character described, the combination of a central platform, a pair of tracks hinged at their upper ends to said platform and arranged to be extended in downwardly diverging relation with each other or to be folded in parallelism, and a strut for bracing said tracks in their extended position, said strut being arranged in parallelism with said tracks when the latter are folded.

3. In a toy of the character described, the combination of a central platform, a pair of tracks hinged at their upper ends to said platform and arranged to be extended in downwardly diverging relation with each other or to be folded in parallelism, a vertical column supporting said central platform, and struts extending from said column to said tracks to brace the latter in their extended positions.

4. In a toy of the character described, the combination of a central platform, a pair of tracks hinged at their upper ends to said platform and arranged to be extended in downwardly diverging relation with each other or to be folded in parallelism, a vertical column supporting said central platform, and struts extending from said column to said

tracks to brace the latter in their extended positions, said struts being arranged in parallelism with the tracks when the latter are folded.

5. In a toy of the character described, the combination with a central housing and a pair of tracks hinged at their upper ends to the housing and arranged to be extended in a downwardly diverging relation and to be folded in parallelism, a ball chute in said housing, and means normally protruding in the path of a car ascending one of said tracks and to be actuated by said car to release a ball from said housing, said means being arranged for retraction within said housing when the toy is folded.

6. In a toy of the character described, the combination with a central housing and a pair of tracks hinged at their upper ends to the housing and arranged to be extended in a downwardly diverging relation and to be folded in parallelism, a ball chute in said housing, a gate for said chute, and an operating member for said gate normally protruding into the path of a car ascending one of said tracks so as to be actuated by said car, said operating member being arranged to be retracted into said housing when the toy is folded.

Signed at Pittsburgh, Pa., this 19th day of Dec. 1927.

CARL C. BAIN.