J. C. TURNER.

TOY.

APPLICATION FILED SEPT. 26, 1919.

1,356,324. **Patented Oct. 19, 1920.**

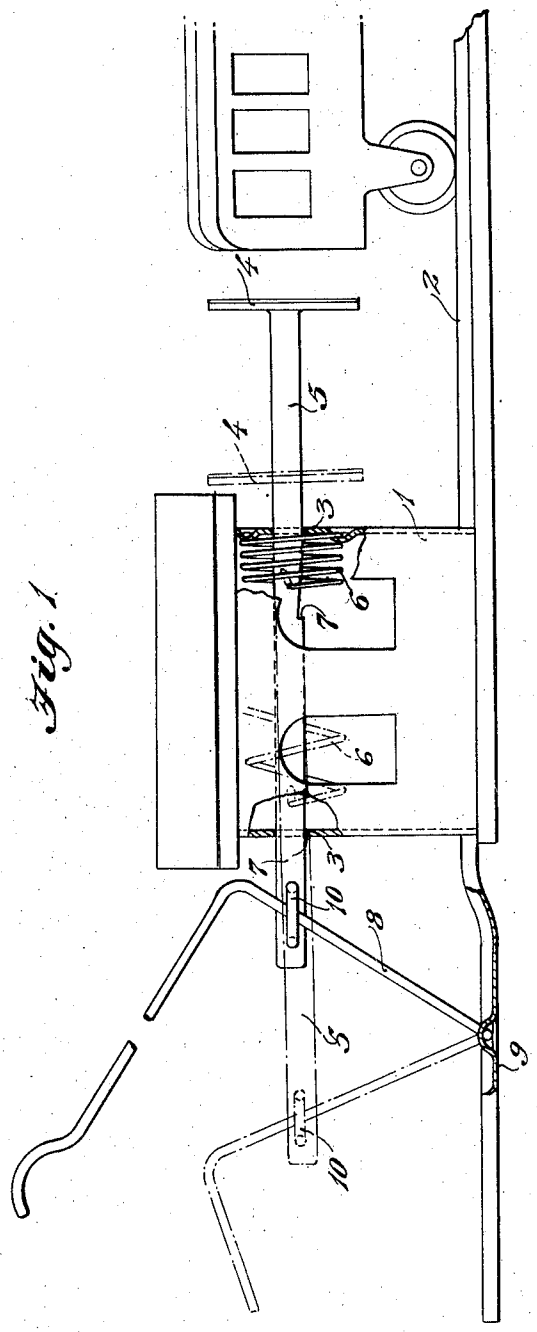


Fig. 1.

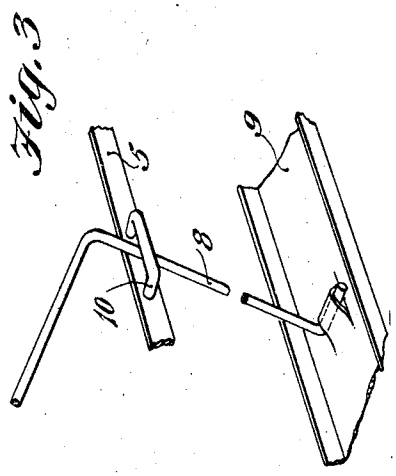


Fig. 3.

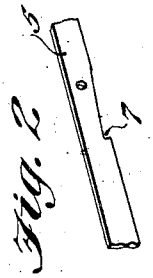


Fig. 2.

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TOY.

1,356,324. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed September 26, 1919. Serial No. 326,638.

To all whom it may concern:

Be it known that I, JOHN C. TURNER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Toys, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to toys, more particularly to a projecting device for a toy such as that shown in the patent granted to me on Oct. 14, 1919, No. 1,318,708.

In the toy shown and described in said application, a car is projected from an initial station along a track to a remote station, from which it is automatically returned to the initial station. The projecting device is spring operated and is of such a character that it may be set with the spring under tension and released, either by hand or by the car upon its return to the initial station, to cause the car to be projected toward the remote station.

The object of the present invention is to provide means by which the projecting device may be quickly and easily retracted and secured in its retracted position; and which will not interfere with the releasing of or the operation of the projecting device.

A further object of the invention is to provide such a device which will be simple in construction and operation and which may be produced at a low cost.

In the accompanying drawings, Figure 1 is a side elevation, partly broken away of a device embodying my invention; Fig. 2 is a detail view of a portion of the plunger; and Fig. 3 is a detail view partly broken away of the actuating device, showing its connection with the plunger and the supporting structure.

In these drawings I have illustrated one embodiment of my invention and have shown the same as applied to a projecting device similar to that shown and described in the above mentioned application, but it will be understood, that not only may the invention be embodied in toys of different kinds, but that the construction of the device itself may take various forms.

As here shown, the toy comprises a housing 1 mounted at one end of a track 2, a part only of which is shown, upon which travels a car or other suitable device, which is not shown. The housing 1, is provided in its front and rear walls with openings 3 in which is guided a plunger comprising a head 4 and a shank 5. This shank has free sliding movement in the guideway, and is acted upon by a spring which tends to move the same forward and to cause it to project the car or other device along the track. As here shown a spring 6 is coiled about the shank of the plunger and is secured at one end to the front wall of the housing and at its other end to the shank 5. Means are provided whereby the plunger may be retained in its retracted position, with the spring under tension, and then released to permit it to act upon the car. Any suitable detent may be provided for this purpose, but a simple and efficient method of accomplishing this result consists in providing the lower edge of the shank of the plunger with a recess 7, forming a shoulder which is adapted to be held in engagement with the lower edge of the guideway 3 in the rear wall of the housing, when the plunger is in its retracted position, the housing at the edge of the opening serving as a detent to retain the plunger in its retracted position. The movement of the shoulder into engagement with the edge of the housing imparts a slight pivotal movement to the shank about its support in the forward portion of the guideway, thus imparting a slight tilting movement to the head 4 of the plunger. Consequently, when the toy is returned to the housing, or initial station it will strike the head of the plunger, rock the same about its pivotal support in the guideway and disengage the shoulder 7 from the edge of the housing, thereby releasing the plunger and permitting the spring to act upon the same to project the toy along the track. By retracting the plunger during the travel of the car to and from the remote station the car can be caused to maintain a continuous reciprocatory movement between the two stations.

I have provided a retracting device by means of which the plunger may be quickly and easily retracted and the shoulder 7 moved into engagement with the detent. To this end the retracting device is of such a character that during the first portion of its movement, retracting movement only will be imparted to the plunger, but as the plunger approaches the completion of its rearward movement, the rear portion of the

shank will be moved downwardly to cause the shoulder to engage the edge of the guideway, or detent. In that form of the device here shown, it comprises a lever 8, pivotally mounted upon a base or platform 9 secured to, and projecting rearwardly from the housing 1. This lever comprises an upwardly extending portion which is loosely connected with the shank 5 of the plunger, preferably by means of a staple 10 mounted in the shank of the plunger and through which the lever extends. The upper end of the lever is bent rearwardly at approximately right angles to the main portion and constitutes a handle portion for the lever. The fulcrum of the lever is arranged between the limits of the movement of that portion of the shank 5 with which the lever is connected. Consequently, when pressure is applied to the handle of the lever in a rearward direction, the shank 5 of the plunger will be moved rearwardly and the spring 6 placed under tension. As that portion of the shank with which the lever is connected passes the fulcrum of the lever the latter will begin to exert a downward movement upon the shank of the plunger, which will increase with the angle of inclination of the lever, thus causing the rear end of the shank to be pressed downwardly, and the shoulder 7 to engage the detent or housing as soon as it is brought into alinement therewith. The lever being mounted upon a part connected with the main structure or housing the downward pressure thereon also serves to retain the device as a whole against movement during the retraction of the plunger. The character of the connection between the plunger and the lever 8 is such that it will not interfere with the vertical movement of the rear end of the shank 5 when the head of the plunger is engaged by the car and the plunger is rocked about its fulcrum in the forward part of the guideway.

The operation of the device will be readily understood from the foregoing description thereof, and it will be apparent that I have provided means which will serve to quickly and easily retract the plunger and to positively move the same into engagement with its detent, and further that this means is of such a character that it will not in any way interfere with the releasing of the plunger, either by hand or by the car as the latter returns to the initial station. It will also be apparent that the device is very simple in its construction and operation, and by reason of its simplicity is especially well adapted for use in connection with toys, which must be produced at a low cost and which are operated by children.

While I have shown and described one embodiment of my invention, I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a toy, the combination with a track for a car, of a structure mounted at one end of said track and having a guideway, a spring actuated reciprocatory plunger mounted in said guideway to project said car along the track, said structure and said plunger having coöperating parts to retain the latter in its retracted position, and a lever pivotally mounted adjacent to said structure, connected with said plunger and having a part forming a handle the manipulation of which will move said plunger to its retracted position.

2. In a toy, the combination with a track for a car, of a structure mounted at one end of said track and having a guideway, a spring actuated reciprocatory plunger mounted in said guideway to project said car along the track, said structure and said plunger having coöperating parts to retain the latter in its retracted position, a part connected with said structure and arranged below said plunger, and a lever pivotally connected at its lower end to said part, connected between its ends with said plunger, and having a part arranged above said plunger to form a handle by means of which said plunger may be actuated to retract said plunger.

3. The combination with a projecting device comprising a spring actuated reciprocatory plunger, and means to retain said plunger in its retracted position, said plunger being movable transversely into engagement with said retaining means, of a retracting device pivotally mounted adjacent to said plunger and operatively connected therewith to retract the same and to impart transverse movement thereto.

4. In a device of the character described, the combination with a spring actuated reciprocatory plunger and a detent, said plunger having a part movable into and out of engagement with said detent and provided with a transverse guideway, of a lever mounted adjacent to said plunger, extending through said guideway, and having a handle portion by means of which it may be operated to retract said plunger and to move said part thereof into engagement with said detent.

5. In a device of the character described, the combination with a spring actuated plunger and a detent, said plunger having a part movable into and out of engagement with said detent, of a lever extending transversely to said plunger and loosely connected therewith, said lever being pivotally mounted on one side of said plunger and being provided

with a handle portion on the other side of said plunger.

6. In a device of the character described, the combination with a supporting structure having a guideway, and a spring actuated plunger slidably mounted in said guideway and having a shoulder arranged to engage the said edge of said guideway to retain said plunger in its retracted position, of a lever operatively connected with said plunger to retract the same and to move said shoulder into position to engage the edge of said guideway.

7. In a device of the character described the combination with a supporting structure having a guideway and a spring actuated plunger slidably mounted in said guideway and having a shoulder arranged to engage the lower edge of said guideway to retain said plunger in its retracted position, of a lever operatively connected with said plunger to retract said plunger and to impart downward movement to that part of said plunger having the shoulder.

8. In a device of the character described, the combination with a supporting structure having a guideway, and a spring actuated plunger slidably mounted in said guideway and having a shoulder arranged to engage the lower edge of said guideway to retain said plunger in its retracted position, of a lever operatively connected with said plunger and so arranged that the first portion of its movement will impart retractive movement only to said plunger, and the latter portion of its movement will impart both retractive movement to said plunger and downward movement to the rear portion of said plunger.

9. In a device of the character described, the combination with a supporting structure having a guideway and also having an extension projecting rearwardly therefrom, and a spring actuated plunger having a shank slidably mounted in said guideway, said shank having a shoulder on its lower edge to engage the edge of said guideway and to retain said plunger in its retracted position, of a lever pivotally mounted on said extension, having an upwardly extending portion loosely connected with said shank of said plunger to permit the latter to have vertical movement relatively thereto, and having a handle portion extending rearwardly from the first mentioned portion.

In testimony whereof I affix my signature hereto.

JOHN C. TURNER.