March 7, 1939. R. G. SMITH 2,149,710

AUTOMATIC LOADER

Filed March 15, 1937

Fig. 1

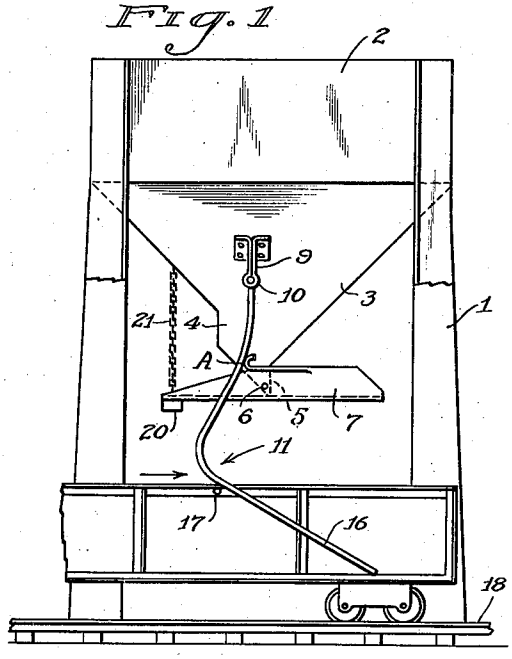


Fig. 2

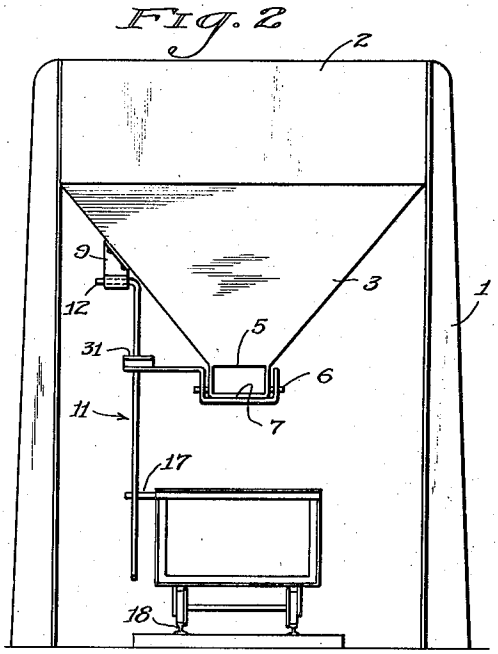


Fig. 3

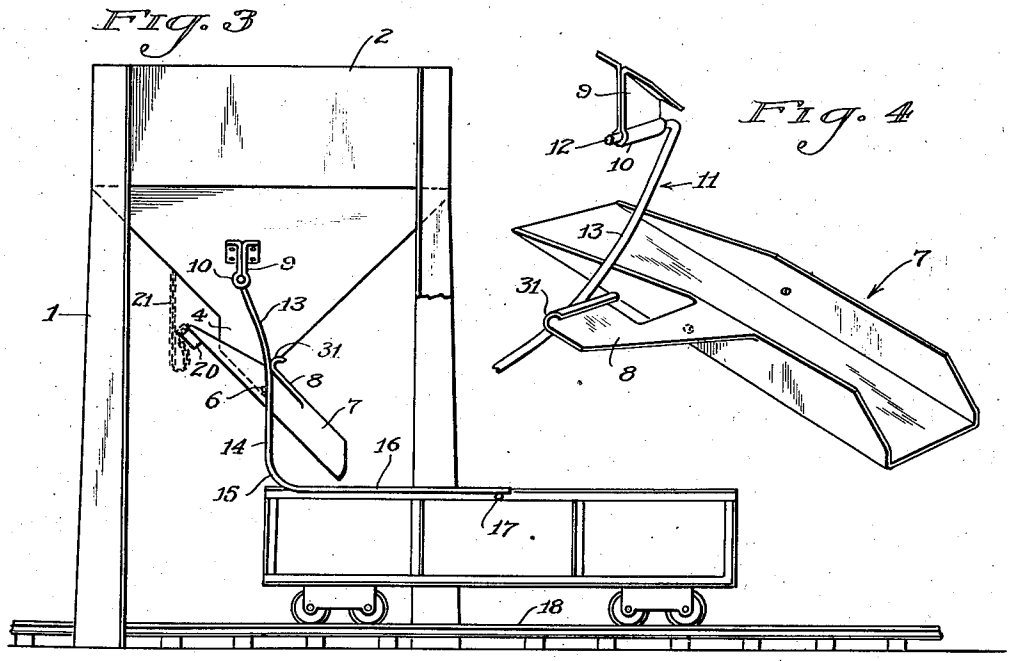


Fig. 4

Richard G. Smith
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

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AUTOMATIC LOADER

Richard G. Smith, Amsterdam, N. Y.

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2 Claims. (Cl. 214—42)

This invention relates to toys, particularly to toy-railway apparatus, and its chief object is to provide a toy of this nature which will operate automatically in conjunction with a toy railway-car.

A particular object of the invention is to provide a toy loading hopper which will smoothly and rapidly fill toy railway cars exactly full as the car passes beneath the hopper.

Another particular object of the invention is to provide a toy-hopper for filling moving cars which will have means for preventing the contents of the hopper from spilling past the car, onto the track beneath, after the car has moved from under the hopper.

Another object of the invention is to provide an improved, realistic-appearing, article of this class which withal will be accurate and intriguing in operation, yet inexpensively manufacturable on the large-scale by stamping etc. of cheap yet durable material.

The other objects and advantages of the invention will be made manifest as this specification proceeds.

The presently-preferred embodiment of these inventive concepts is illustrated by way of exemplification, in the accompanying drawing, and described in the following matter. In the drawing,

Fig. 1 is a side elevation, partly broken away for clarity, of the device in use with a toy gondola car;

Fig. 2 is a front elevation of same;

Fig. 3 is a side elevation of same just about to finish loading the car, and

Fig. 4 is a detailed perspective view of a portion of the device.

In all embodiments of the inventive concepts above, it is assumed that the device is constructed, by a few die-pressing, stamping, or the like operations, from an inexpensive but durable and weatherproof material, such as tinned-iron, galvanized iron, or the like.

The device shown comprises a framework 1, here shown as of the four-posted, or box-girder type, supporting, at its top a receiving bin 2, which tapers inwardly and downwardly in the form of a hopper 3.

The hopper 3 is formed with an enlargement 4 on one side, in the form, preferably of a parallelopiped with the longer side parallel to, but offset from, the line of that side of the hopper. The forward face 5 of said enlargement is formed open, for the directed discharge of the material.

Pivoted on a pair of pins 6 extending outwardly from points near the foremost end of the outlet opening, is a member 7, constructed as an elongated, open-ended scoop, to function as a chute, or director of the discharge of the material fed by gravity from the bin and hopper to the open face of the enlargement 4. As mentioned, both ends of the chute are open, and the sides extend upwardly well above the outlet of the hopper. The approach-end of the chute is weighted, as with a piece of lead solder 20, and is connected flexibly to the bin, as with a chain 21.

As shown most clearly in Fig. 4, this chute member 7 is constructed with a flange-member 8 projecting parallel to its bottom, from the top of one edge, for a purpose and function to be later made clearer. The flange has its approach end bent upwardly and inwardly in the form of an oblate semi-circle, 31, as shown.

A hinge-fitting 9 is riveted or soldered to the abutting tapered side of the hopper, slightly back of the vertical center-line thereof. From its bearing-portion 10 depends a member 11, the journal 12 of the member 11 lying substantially horizontally.

The member 11 has a peculiar formation and function. Its uppermost portion, as indicated, is bent at right angles to the rest of it. The next succeeding portion, 13, is first bent on a rather sharp, short, radius of curvature, whereas the portion, 14, is bent on a long radius of curvature. The portion 15 is bent abruptly on almost a "right angled" curve, and the last portion 16 of the member 11 is bent substantially at a right angle to the portions 13, 14 and 15, which portions all lie in the same plane. The lowermost portion of the member 11 ends at such a distance above the track etc. as to obviate any danger of contact or interference therewith. It is apparent that the member 11 is susceptible of movement backwardly and forwardly as freely as a pendulum, if occasion should demand.

A lug, or stub-shaft, 17, or its equivalent, is required to be mounted near the middle of the outermost side of each gondola, or other car, in the toy-railway set, and it extends horizontally for an appreciable distance from the side of the car, as best seen in Fig. 2, and is so constructed, as of steel, as to be able to well withstand the various abrasions and impacts to which it will be subjected.

It is to be observed that the front end of the bottom of member 4 can be bent down around the pivot 6, when same is constructed as a single

integral pin extending all the way across the opening 5.

In operation, a gondola or other car to be filled with the contents of bin 2, and equipped with the equivalent of the member 17, approaches the device on tracks 18 from the left-hand side. The chute 7 is always loaded with material, even when in the horizontal position shown in Fig. 1. Upon continued forward movement of the car and lug 17, the entire member 11 is swung forwardly, the portion A taking just behind the sharpest curve of the member 31 and therefore forcing the chute to tilt forwardly, first causing it to release its standing contents into the car, and, the lug 17 continuing to slide along the underside of member 11, the chute is positively-held downwardly at the acute angle shown in Fig. 3, thus allowing the contents of the bin to flow out of the hopper, thru the chute, into the car.

The end of rod 11 drops off the lug 17 just in time to prevent the flowing material from spilling over the back end of the car down onto the tracks.

The lead weight attached to the back of the chute then returns the released chute to the horizontal position. The tensile member 21 prevents the chute from continuing to swing downwardly past the horizontal. It is obvious that though the bottom face 5 of the hopper is always open, due to the level position of the chute, the material in the bin cannot run out.

It is to be observed that the device will fill the cars level-full, and do so without interference with the engine or other higher extending train-parts, first-approaching the hopper from the left.

It will also be observed that the toy-train can be "backed-out", without damaging the device or impairing it in any way, as the rod 11 will simply swing backwardly and upwardly, and do so without contacting the tracks, etc.

It is to be understood that the foregoing embodiment has been described only by way of simplification, and that the invention is contemplated as embodiable in any of the forms within the scope of the sub-joined claims.

I claim:

1. An automatic loader having a hopper having an outlet opening at the bottom, a channel shaped trough pivoted to the hopper adjacent to and below the opening, a counterweight carried by the trough to the rear of the opening to normally hold the chute elevated so that material flowing from the hopper into the chute will be retained in the chute, and a lever pivoted to the hopper above the chute pivot and co-operable with a laterally extending element carried by the chute for swinging the chute to discharging position.

2. An automatic loader for toy-railways, comprising a bin for material, an opening in the lower end thereof, a chute normally horizontally pivoted therebelow, a rod depending from the bin to near the track, a curved flange on the chute, an opposite curve on the depending member for contact therewith to depress the chute, and means on the rolling-stock of the railway to move said depending member to cause it to actuate said chute.

RICHARD G. SMITH.