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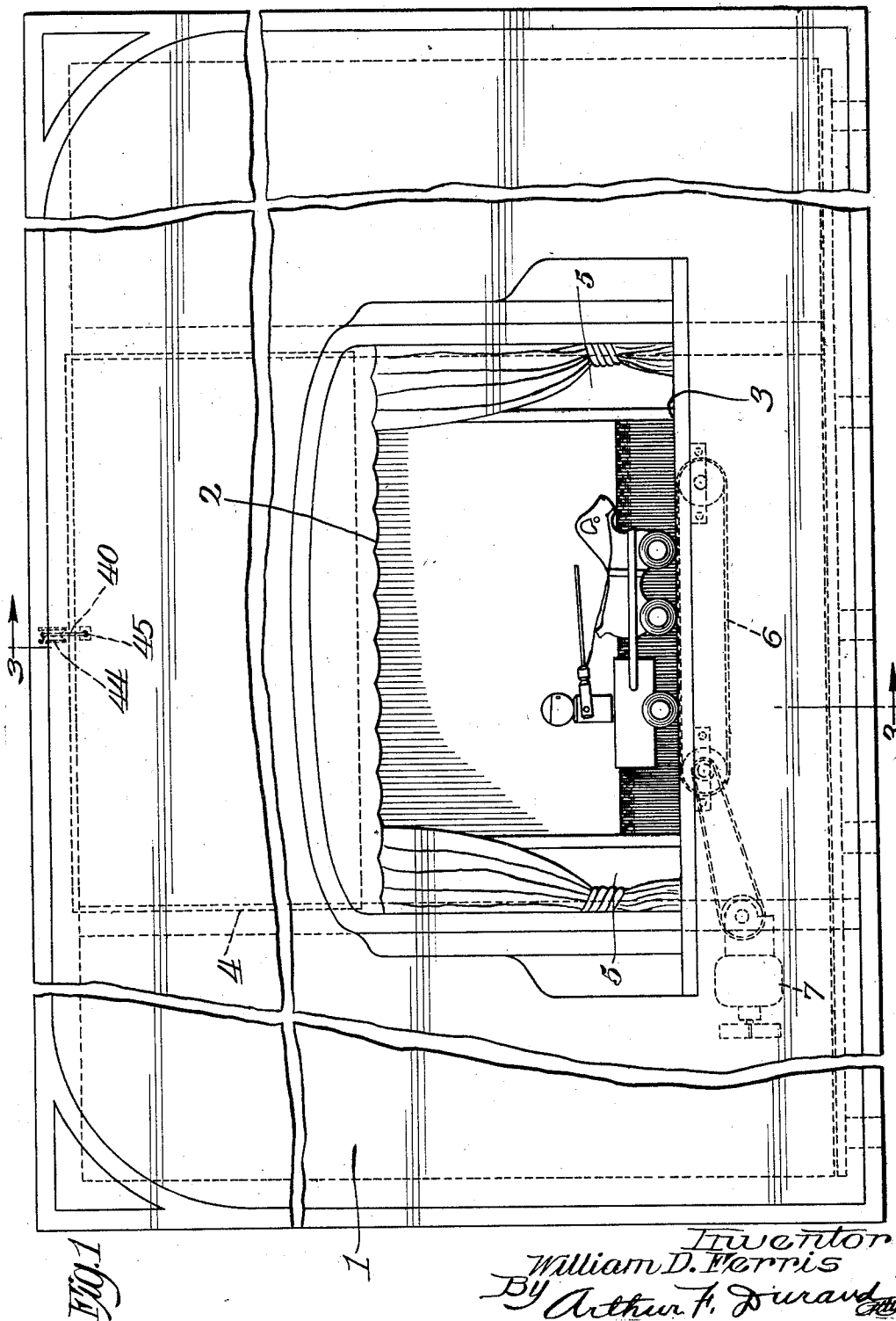
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MECHANICAL TOY DEMONSTRATOR

Filed Dec. 6, 1929

4 Sheets-Sheet 1



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Dec. 15, 1931.

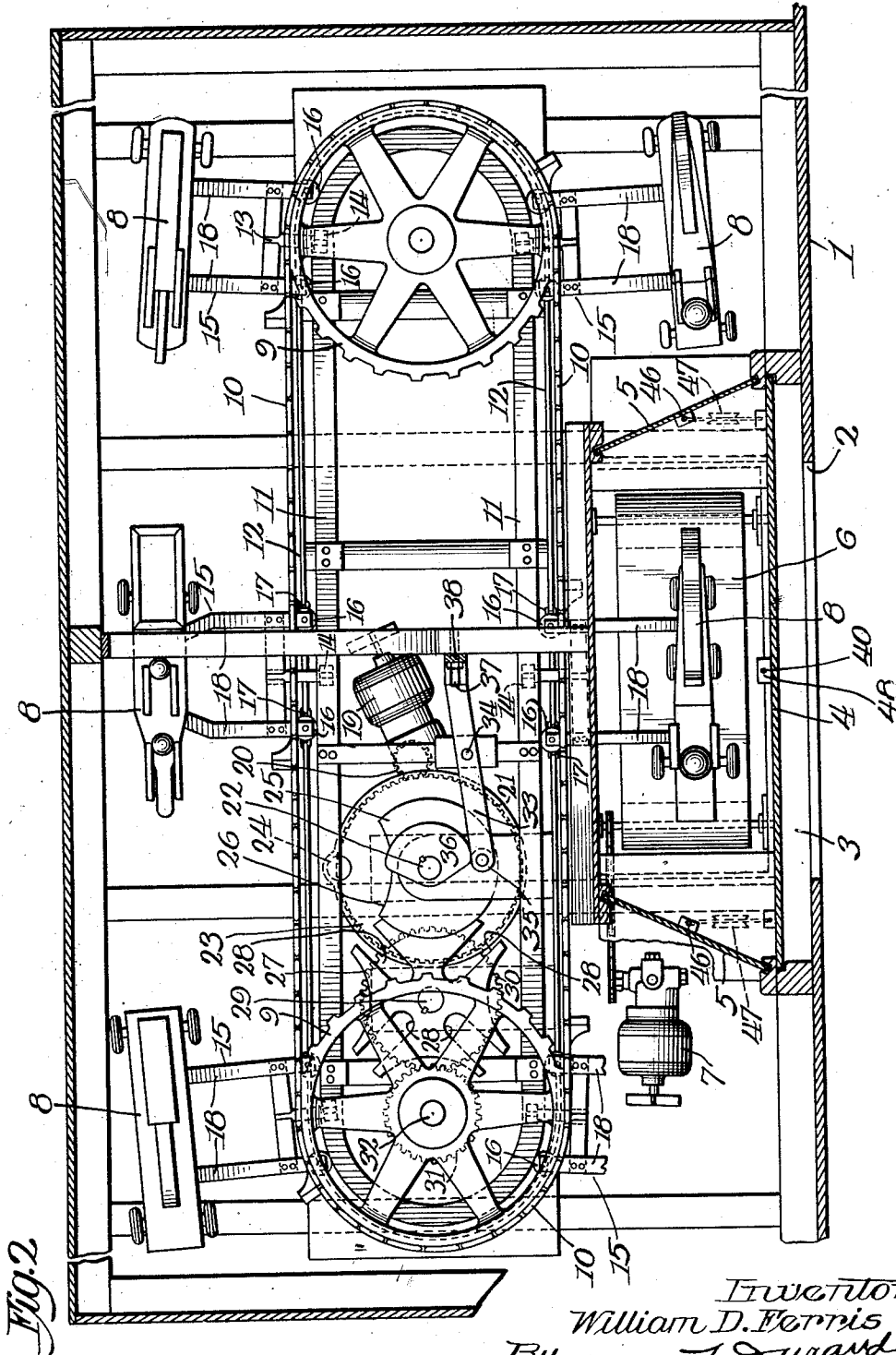
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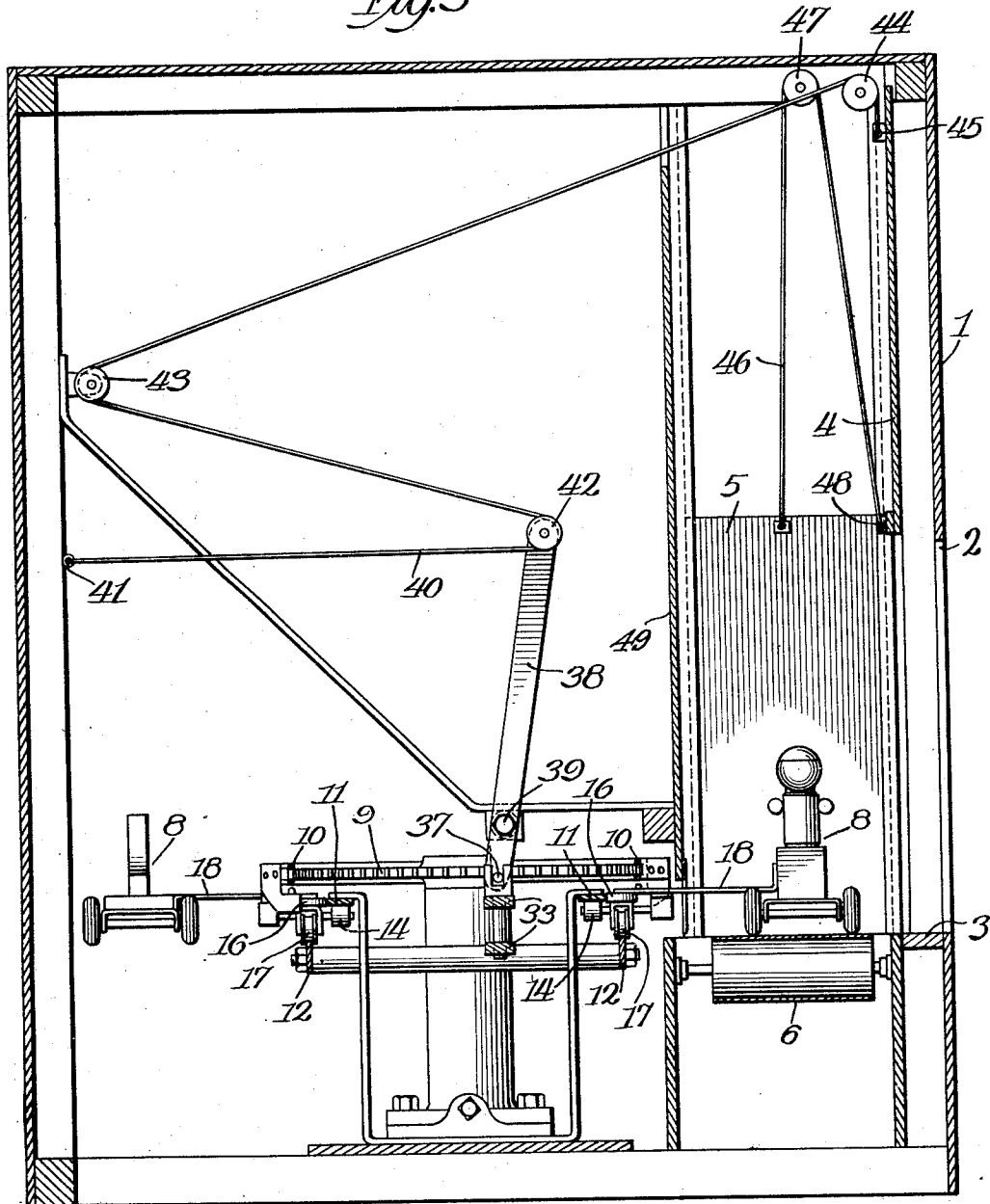
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Fig. 3



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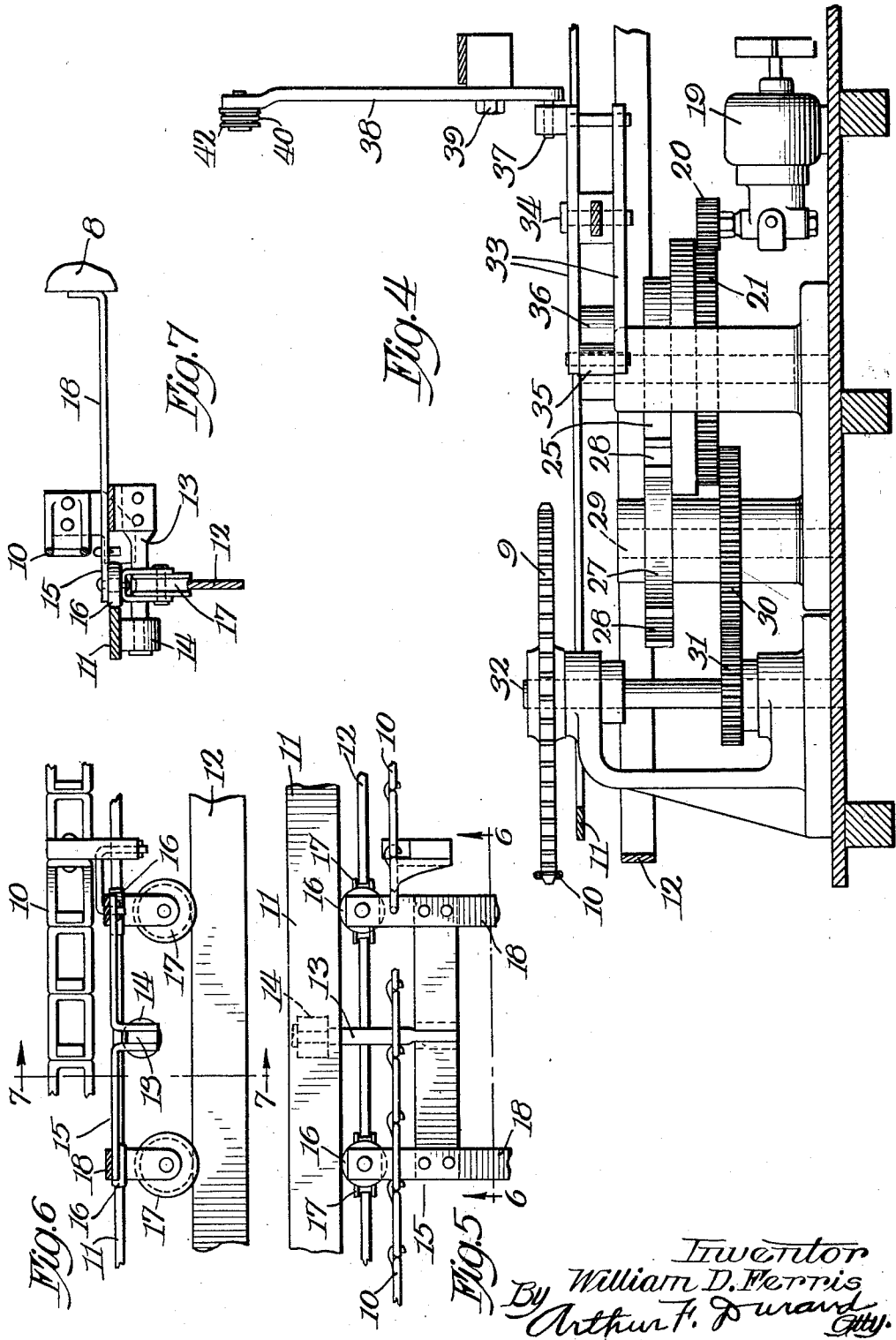
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UNITED STATES PATENT OFFICE

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MECHANICAL TOY DEMONSTRATOR

Application filed December 6, 1929. Serial No. 412,029.

This invention relates to apparatus for demonstrating toys, and more particularly to means for demonstrating mechanical toys of different kinds.

Generally stated, the object of the invention is to provide a novel and improved construction and arrangement whereby a mechanical toy is automatically moved into view on the floor of a miniature stage or other place, and is automatically moved off from such floor or other place, the said floor having means for operating the wheels or other parts of the toy, during the time that the toy is exposed to view on the stage floor or other place.

It is also an object to provide an apparatus of the character stated, having means for automatically and successively demonstrating a series of mechanical toys, arranged to follow one another along an endless path of travel, whereby first one toy and then another is exposed to view for demonstration on the miniature stage floor or other place.

Another object is to provide automatic curtains for the said miniature stage, whereby a front curtain is lowered to conceal the stage or other place from view, while a toy is moving on to or off the stage or other place.

It is also an object to provide certain details and features of construction and combinations tending to increase the general efficiency, the desirability, and the general attractiveness or effectiveness of a toy demonstrating apparatus of this particular character.

To the foregoing and other useful ends, the invention consists in the matters hereinafter set forth and claimed, and shown in the accompanying drawings, in which,—

Fig. 1 is a front elevation of a miniature stage equipped with toy demonstrating apparatus involving the principles of the invention.

Fig. 2 is a plan of said apparatus, showing certain portions of the stage structure in horizontal section.

Fig. 3 is a vertical longitudinal section on line 3—3 in Fig. 1 of the drawings.

Fig. 4 is an enlarged detail view, partly in

vertical section, of a portion of said apparatus.

Fig. 5 is an enlarged detail plan view of a portion or a fragment of the apparatus shown in Fig. 2 of the drawings.

Fig. 6 is a vertical section on line 6—6 in Fig. 5 of the drawings.

Fig. 7 is a vertical section on line 7—7 in Fig. 6 of the drawings.

As thus illustrated, the invention comprises a miniature or simulated stage structure comprising a housing 1 having a front opening 2 provided with a stage floor 3, as shown. The said stage opening has a front curtain 4 that slides up and down, and has the oblique side curtains or walls 5 that also slide up and down in the stage structure, as will hereinafter more fully appear. The stage floor 3 is equipped with an endless belt platform 6 that is operated by a motor 7 of any suitable or desired character.

To bring the toys 8, of different kinds, into view in the stage opening, on the floor 3 thereof, and on to the endless belt 6, power-operated mechanism is provided, as follows:

Sprocket wheels 9 are mounted to rotate in a horizontal plane, and are connected together by the sprocket chain 10, of any suitable or desired character. Adjacent the path of travel of the said sprocket chain there is a flat track 11, disposed in a horizontal plane, and there is also a flat track 12, disposed vertically. The endless link belt 10 is provided with brackets 13 having rollers 14 that travel on the under side of the track 11, and with other brackets 15 having rollers 16 that travel on the inner edge of the track 11, and the brackets 15 also have grooved wheels 17 that travel on the upper edge of the track 12, as shown. Bracket arms 18 are rigid with the brackets 15, and these arms 18 support the toys 8 previously mentioned, in the manner shown in the drawings, the tracks 11 and 12 and the wheels that engage these tracks serving to prevent the arms 18 from sagging under the weight of these toys, when the latter are not in position on the endless belt 6 of the stage floor.

Any suitable means can be employed for driving the sprockets 9 and the endless chain

belt 10, and, as shown, such means consists of the motor 19, of any suitable character, that operates the pinion 20 that drives the gear 21 about a vertical axis 22 supported in any suitable manner. The axis 22 has a disk 23 provided with a pin 24, and has a cam disk 25 provided with a wide notch 26, as shown. The Geneva-movement member 27 is provided with radial notches 28 for receiving the pin 24 previously mentioned, and the axis 29 of said member 27 is connected by gears 30 and 31 with the axis 32 of one of the sprockets 9 previously mentioned. In this way, when the disk 23 is rotated by the motor 19, the pin 24 periodically and intermittently enters the notches 28, and thus turns the sprockets 9 a distance each time sufficient to move one toy 8 off the stage and another one into view. While the member 27 is in peripheral engagement with the cam disk 25, the sprocket wheels and endless chain are stationary, but these elements move as soon as the pin 24 enters one of the notches 28, in the well known manner of a Geneva movement of this kind, and the notch 26 permits such movement relatively between the cam 25 and the member 27, in a manner that will be readily understood.

The curtains 4 and 5 are timed in their movements, so that the curtain 4 is down while the curtains 5 are up, and vice versa, whereby the taking of one toy off the stage and the putting of another one thereon are not exposed to view, the curtain 4 going up, and the curtains 5 being lowered, after a toy is in full position on the endless belt 6, as shown in Figs. 1 and 2 of the drawings. When the wheels of a toy 8 are resting on the belt 6, the latter will cause the operation of said wheels, and of any other mechanical or movable parts of the toy, depending upon the character of the latter.

For the operation of the said curtains 4 and 5, any suitable means can be employed, but as shown such means consists of a lever arm 33 pivoted at 34 and provided with a roller 35 for engagement with a cam 36 on the axis 22 previously mentioned. The other end of this lever 33 is provided with a loose mechanical connection 37 with the lower end of the upright lever 38, which latter is pivoted at 39, in the manner shown, upon any suitable stationary portion of the structure. A cord or other flexible connection 40 is attached at one end to the stationary structure at 41, is trained around the sheave 42 on the upper end of the lever 38, then around the sheave 43 on the stationary structure, and finally over the sheave 44 which is mounted on the stationary structure, and then down to the attaching point 45, where the end of the cord is attached to the curtain 4, which is slidable up and down. The curtains 5 are supported by cords 46 that extend over the sheaves 47 mounted on a stationary portion of the structure, and

then down to the attaching points 48 on the front curtain, whereby the two side curtains 5 counterbalance the curtain 4, but the latter being heavier, the weight of the curtain 4 is sufficient to pull the curtains 5 upward, when the front curtain is lowered by movement of the lever 38, by the said means for operating this lever.

Any suitable means, of course, can be employed for controlling the electric circuits of the motors 7 and 19, and for starting and stopping these motors. The traveling platform 6 operates continuously, but the sprocket chain 10 operates intermittently; but each movement of the latter is sufficient to substitute one toy for another, on the traveling platform 6, so that while the curtain 4 is down and the curtains 5 are up, one toy is substituted for another. It will be understood that the parts are so proportioned and relatively arranged that the operations are properly timed to occur in the manner explained.

It will be seen that the construction and arrangement are such that there are two parallel paths of travel across the stage in one direction and then back in the opposite direction behind the stage, or to the rear of the stage, whereby the returning toy or toys are not observable at the front of the stage, or are not conspicuous, only the toy at the front of the stage being visible or in a conspicuous position. While the wheels of the toy are out at the front of the stage, these wheels are rotated in the manner specified, but while the toys are returning at the back of the stage such wheels are not rotatable. Preferably, therefore, the walls 5 are connected by a back wall 49 forming the back of the stage proper, practically all of the machinery being behind this back wall.

What I claim as my invention is:

1. In apparatus for demonstrating mechanical toys, the combination of means to provide a stage floor, vertical means to provide a back stage, traveling instrumentalities provided with means for supporting the toy, and means for operating said instrumentalities, to move the toy on to and off the stage floor, with parallel paths of travel across the stage in one direction, and then back in the opposite direction behind the stage, or back stage, in the same horizontal plane.

2. A structure as specified in claim 1, said instrumentalities and operating means therefor having intermittent motion, whereby the toy remains at rest for a period of time on the said stage floor, and also in the same plane back stage.

3. A structure as specified in claim 1, said stage floor having a traveling platform to engage wheels of said toy, whereby to operate the toy or other device while on the stage floor.

4. A structure as specified in claim 1, said

instrumentalities having means for supporting a series of toys or other devices, whereby one toy, all in the same horizontal plane, follows another on to and off the stage floor.

5 5. A structure as specified in claim 1, said instrumentalities having means for supporting a series of toys or other devices, all in the same horizontal plane, whereby one toy follows another on to and off the stage floor,
10 said instrumentalities and operating means having intermittent motion, whereby each toy remains stationary for a period of time on the said stage floor, and said stage floor having means for operating wheels of said
15 toys during the period of time that each toy is caused to occupy the stage.

6. A structure as specified in claim 1, said instrumentalities comprising an endless belt arranged to operate entirely in a horizontal
20 plane, and comprising tracks parallel therewith, together with means on said belt for engaging said tracks, whereby to support the toy against sagging while off the stage floor.

7. A structure as specified in claim 1, in
25 combination with an automatic curtain for the stage, together with automatic means whereby said curtain is down while the toy is being moved on to and off the stage floor, and whereby said curtain is up while the said
30 toy is being demonstrated.

8. A structure as specified in claim 1, in combination with an automatic curtain for the stage, together with automatic means whereby said curtain is down while the toy
35 is being moved on to and off the stage floor, and whereby said curtain is up while the said toy is being demonstrated, in combination with side curtains, and means whereby these side curtains are down when the front curtain
40 is up, and whereby the side curtains are up when the front curtain is down.

9. A structure as specified in claim 1 in combination with an automatic curtain for the stage, together with automatic means
45 whereby said curtain is down while the toy is being moved on to and off the stage floor, and whereby said curtain is up while the said toy is being demonstrated, and said stage floor being provided with a movable platform for
50 operating said toy or other device while said curtain is up.

Specification signed this 2d day of December 1929.

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