

(No Model.)

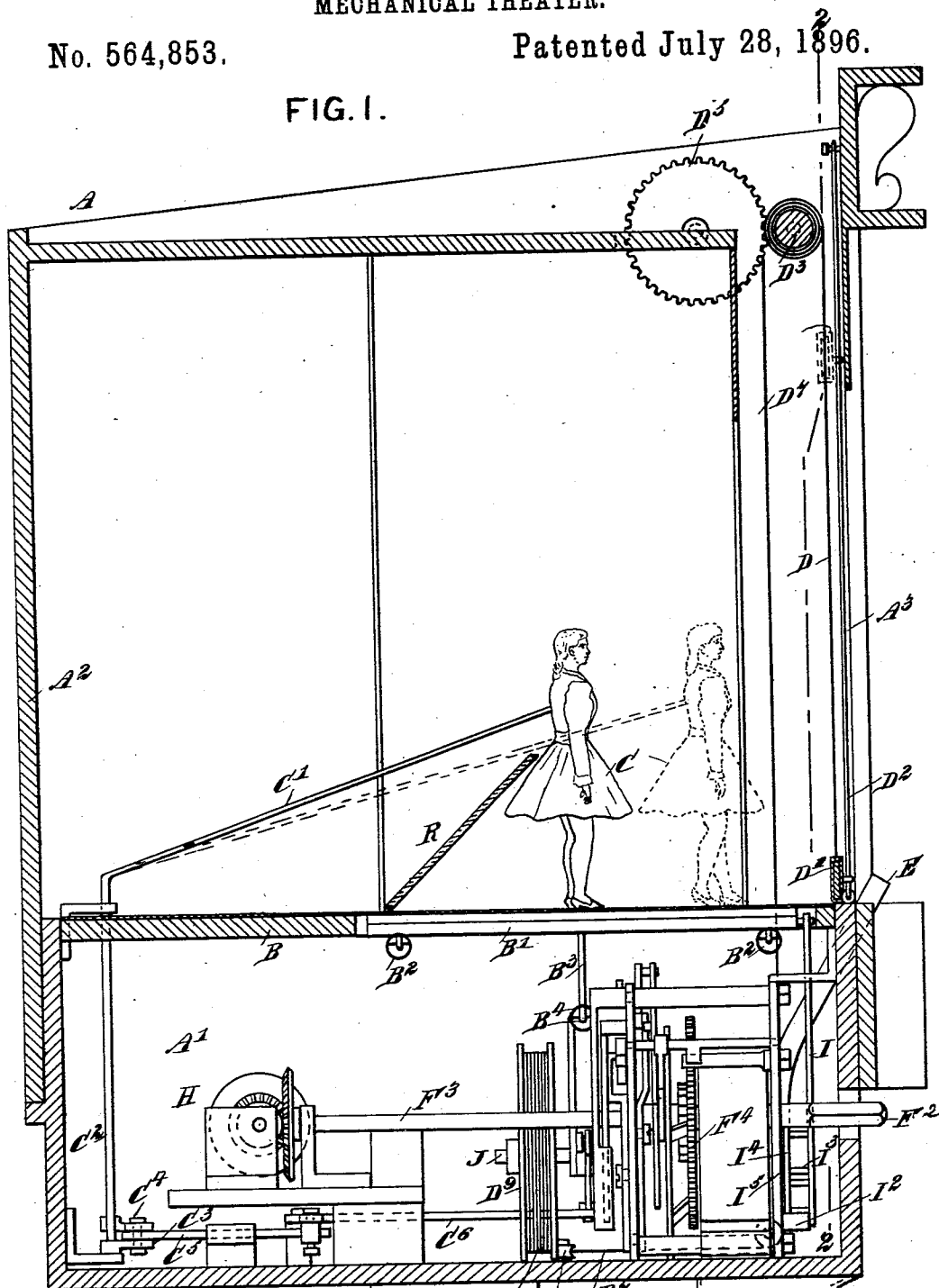
4 Sheets—Sheet 1.

T. B. THORNDYKE.
MECHANICAL THEATER.

No. 564,853.

Patented July 28, 1896.

FIG. 1.



WITNESSES:

Donn Twitchell
New York, N.Y.

INVENTOR

INVENTOR
T. B. Thorndyke

BY *Munn & Co*

ATTORNEYS.

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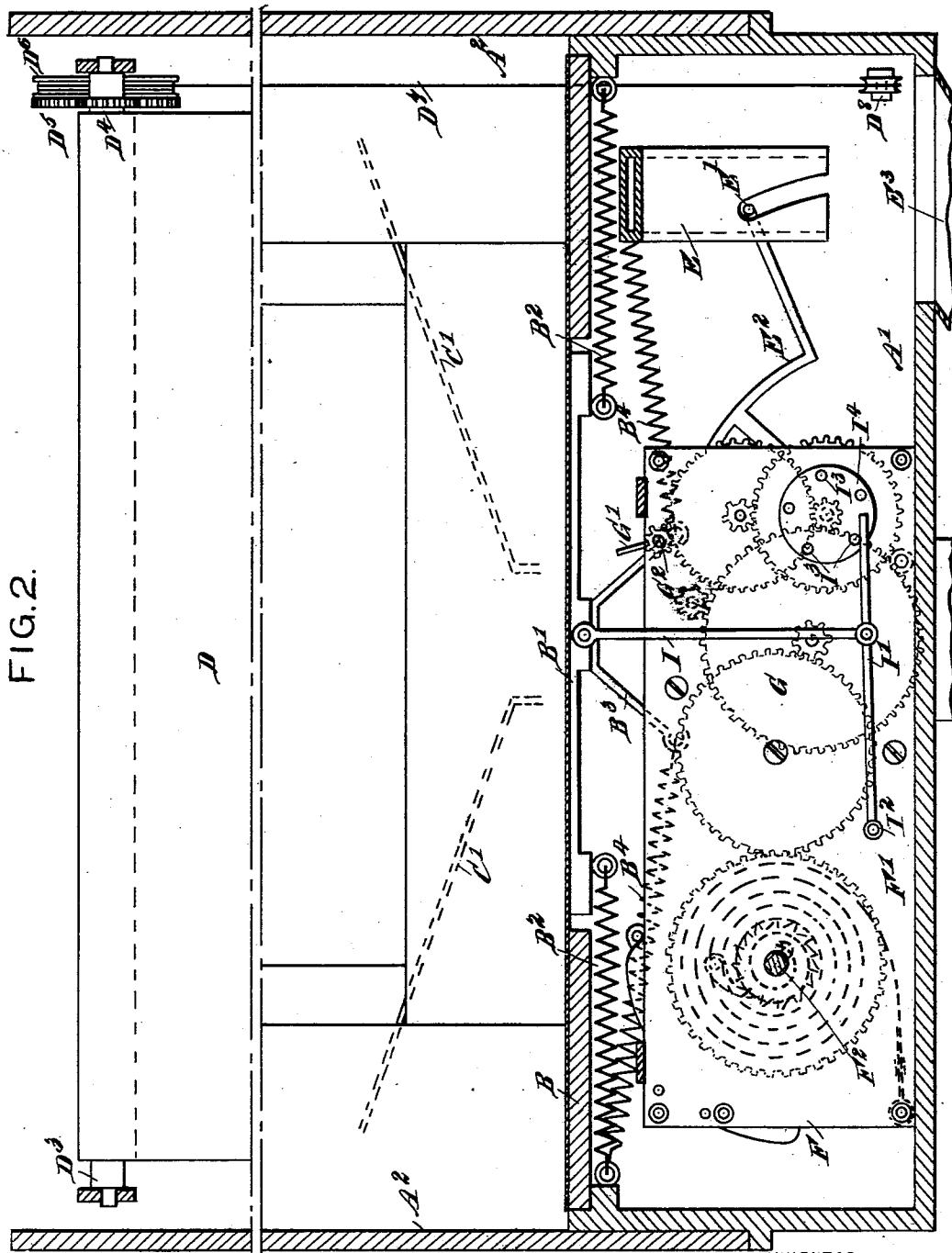


FIG. 2.

WITNESSES:

Donn Twitchell
Geo. J. Horton

INVENTOR

T. B. Thorndyke
BY *Munn & Co*

ATTORNEYS.

(No Model.)

4 Sheets—Sheet 3.

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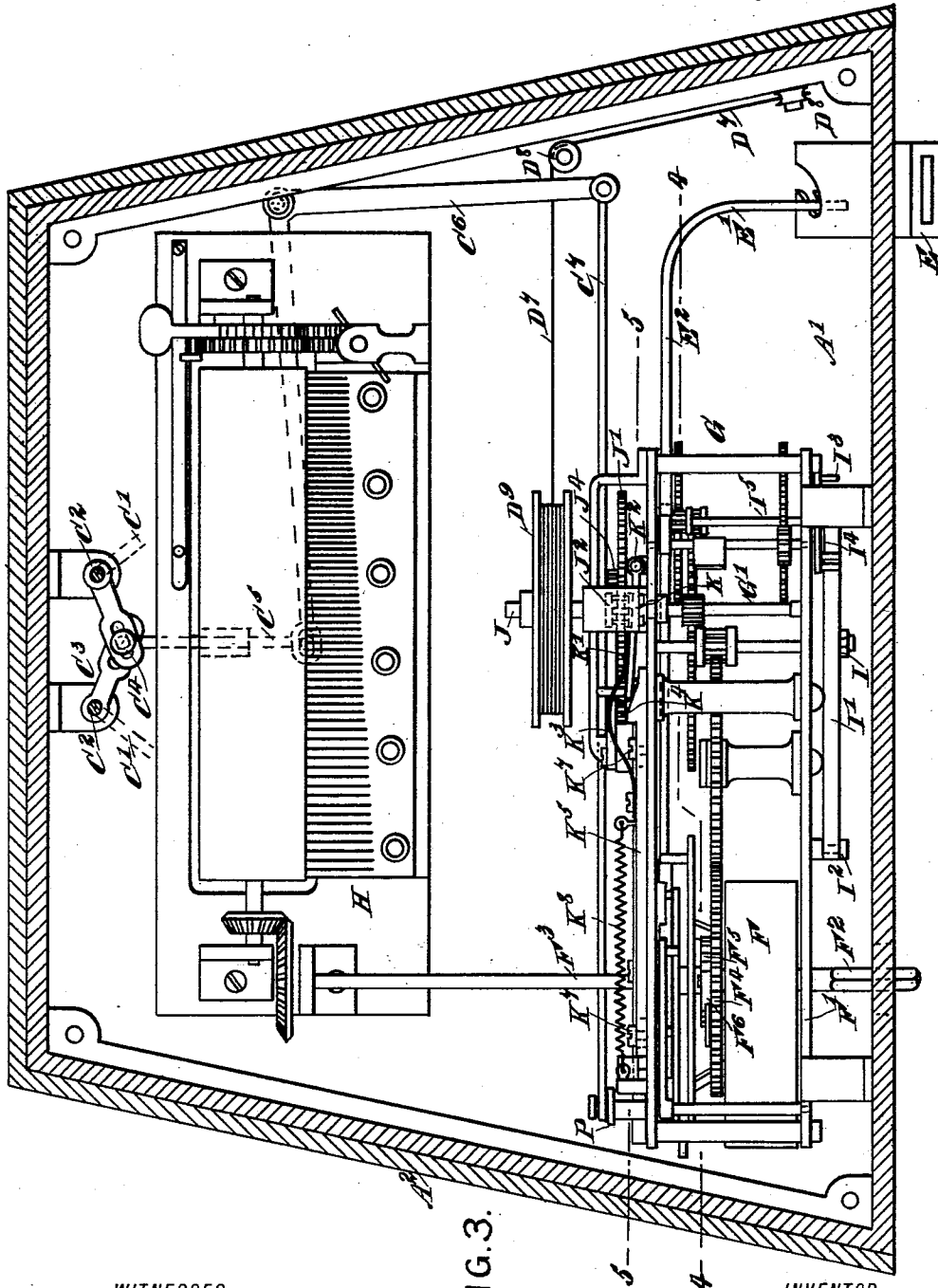


FIG. 3.

WITNESSES:

Donn Litchell
Geo. E. Litchell

INVENTOR

T. B. Thorndyke

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS B. THORNDYKE, OF NEW YORK, N. Y.

MECHANICAL THEATER.

SPECIFICATION forming part of Letters Patent No. 564,853, dated July 28, 1896.

Application filed October 12, 1895. Serial No. 565,460. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. THORNDYKE, of New York city, in the county and State of New York, have invented a new and Improved Mechanical Theater, of which the following is a full, clear, and exact description.

The invention relates to coin-operated machines; and its object is to provide a new and improved mechanical theater arranged with an automatically rising and falling curtain, dancing figures, music, &c.

The invention consists principally of one or more figures adapted to be moved from the wings of a miniature stage upon a movable platform on the stage-floor to cause the figures to dance upon setting the platform in motion.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a transverse section of the improvement. Fig. 2 is a sectional front elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a sectional plan view of the lower part of the improvement, showing the motor and mechanism for operating the various parts. Fig. 4 is a sectional side elevation of part of the mechanism on the line 4 4 of Fig. 3. Fig. 5 is a sectional view on the line 5 5 in Fig. 3, and Fig. 6 is a transverse section of the same on the line 6 6 of Fig. 5.

The improved mechanical theater is arranged in a suitably-constructed casing A, representing a miniature theater-building and formed with the lower part A' and the top or stage part A² set on the said lower part A', as is plainly illustrated in the drawings. The top of the lower part A' forms the stage-floor B, having a movable platform B', upon which the figures C are adapted to dance, said platform being preferably of the construction shown and described in the Letters Patent of the United States for a dancing toy, No. 512,589, granted to me on January 9, 1894. The figures C are visible through an opening A³ in the front of the top part A², said open-

ing being normally closed, however, by a curtain D, adapted to be automatically raised and lowered, as hereinafter more fully described.

A coin-chute E extends from the inside of the lower part A' through the front thereof to the outside, so that a coin can be passed into the said chute, the coin causing an unlocking of a motor F, preferably in the form of clockwork, and adapted to actuate a mechanism G for manipulating the dancing figures C, the platform B', the curtain D, and other parts, if desired, such, for instance, as the wings or flies, footlights, &c. The motor F also actuates a music-box H, in the form of the usual Swiss music-box, located in the rear of the lower part A' of the casing A.

A coin passing down the chute E strikes and actuates the arm E' of a lever E², fulcrumed in the casing of the motor F and adapted to unlock or disengage an arm G', held on the wind-wheel shaft G² of the mechanism G, connected by gear-wheels with the driving-shaft of the motor F. Thus when the lever E² swings downward the wind-wheel shaft G² is released and the motor F is released to actuate the mechanism G and the various parts connected therewith. When the arm E' swings downward past the lower end of the chute E, then the coin drops out of the chute and through the lower part A' of the casing into a delivery-chute E³, extending downward to a suitable box, in which the coins accumulate. The lever E² is balanced so as to stand in either a lowermost or uppermost position, and a return movement of the lever is accomplished, as hereinafter more fully described, to lock the wind-wheel shaft G³ of the mechanism G.

The motor F and mechanism G are preferably mounted on the same framework or casing F', and the motor is provided with a winding-shaft F² for winding up the spring in the barrel, and with a driven shaft F³, connected by a gear-wheel F⁴, ratchet-wheel F⁵, and pawl F⁶ with the winding-shaft, so that the winding up of the latter does not affect the driven shaft and gear-wheel F⁴. The latter is connected by a train of gear-wheels (see Fig. 3) with the mechanism G, and the driven shaft F², besides carrying cams, as hereinafter more fully described, is connected by gear-

wheels with the music-box H to actuate the latter so long as the motor is in unlocked position.

The platform B' is hung at its ends on springs B², and is provided at its middle with a bracket B³, connected by springs B⁴ with the sides of the lower part A' of the stage-floor B. This construction is fully set forth in the patent above referred to, and the action of the platform, owing to the suspended springs, need not further be described.

Movement is given to the platform in the following manner: To the front end of the platform is pivoted a link I, connected with a lever I', fulcrumed at I² to the front of the motor-casing, and the free end of this lever I' is adapted to be engaged successively by pins I³, projecting from a disk I⁴, and arranged in a circle thereon, said disk being secured on the front end of a shaft I⁵, journaled in the motor-casing and geared with the gearing of the mechanism G, so that when the latter is actuated the shaft I⁴ is rotated, and the pins I³, in successively striking the free end of the lever I', cause the latter to swing downward, so that a downward pull is exerted on the platform B' by the link I. As soon as the pin I³ passes over the free end of the lever I' then the springs supporting the platform B' cause the latter to suddenly move upward, back into its normal position. As the pins I³ strike the end of the lever I' very rapidly a very quick and continuous vibrating action is given to the platform B', so that the jointed dancing figures C are actuated and dance.

The curtain D, previously mentioned, is provided at its lower end with a weighted bar D', carrying at its ends suitable bearings fitted to slide on guide-rods D², secured on the rear side of the front of the casing A², as plainly indicated in Fig. 1. The curtain winds and unwinds on a roller D³, journaled in the sides of the casing A² and carrying a gear-wheel D⁴ in mesh with a larger gear-wheel D⁵, carrying a drum D⁶, on which winds a rope D⁷, extending downwardly and over a number of guide-pulleys D⁸, (see Figs. 2 and 3,) to then pass and wind upon a drum D⁹, secured on a shaft J, journaled in suitable bearings in the frame of the mechanism G.

On the shaft J (see Figs. 5 and 6) is secured a large gear-wheel J', in mesh with a pinion J², mounted to rotate loosely on a shaft G', forming part of the mechanism G and driven from the motor F by the gearing, so that a continuous rotary motion is given to said shaft G' as long as the motor F is in operation. A clutch K, held to slide on the shaft G', is adapted to engage and rotate the pinion J², so as to drive the latter, and consequently the gear-wheel J'. As the latter is rotated the shaft J is set in motion and the drum D⁹ winds the rope D⁷, so that the gear-wheel D⁵ is rotated, and with it the attached drum D⁶, to revolve the roller D³, through the pinion D⁴ on the end of said roller, and wind

up the curtain D. This motion takes place as soon as the coin has passed through the chute E and actuated the arm E', as previously described.

The clutch K is engaged by a slotted arm K', pivoted at K² to the framework F', (see Figs. 3 and 5,) and the said slotted arm is pressed on at its free end by a spring K³, so as to hold said arm in engagement with a wedge K⁴, formed on one end of a bar K⁵, mounted to slide longitudinally and provided for this purpose with slots K⁶, engaged by screws K⁷, held on the framework F' for the motor F and mechanism G. The outer end of this bar K⁵ is engaged by the free end of a lever L, fulcrumed on a rod L' and provided at its bottom with a pin L², engaging a lever L³, fulcrumed at L⁴ and adapted to be tripped by a cam N. Now, when the bar K⁵ is pushed to the right by the action of the lever L, the arm K' is caused to swing rearwardly, so as to move the clutch K in engagement with the pinion J² and rotate the latter, as previously described. When the lever L releases the bar K⁵, a spring K³, pulling on the said bar, draws the latter to the left, back to its normal position, so that the wedge K⁴ permits the arm K', under stress of the spring K³, to swing forward and draw the clutch K out of engagement with the pinion J². The latter is then at a standstill, and the curtain can drop by its weighted bar D' as soon as a pawl J⁵ is lifted out of engagement with a ratchet-wheel J⁴, secured on the shaft J alongside the gear-wheel J'. The pawl J⁵ is spring-pressed and is connected by a link O with a lever O', fulcrumed at O², and engaged at its free end by a cam-arm O³, secured on a shaft O⁴, connected by suitable gearing to the motor F, so as to rotate in unison therewith. Thus, when the latter is turned, the arm O³ imparts a swinging motion to the lever O' to lift the pawl J⁵ out of engagement with the ratchet-wheel J⁴, so that the shaft J is free to rotate and permit an unwinding of the rope D⁷ from the drum D⁹. Normally, however, the arm O³ is in an uppermost position, to permit the spring J⁶ of the pawl to press the latter in engagement with the ratchet-wheel J⁴.

As illustrated in the drawings, two dancing figures C are provided having jointed legs and arms and supported on rods C', extending obliquely, as indicated in Figs. 1, 2, and 3, each of the rods C' being secured or formed on the upper end of a vertically-disposed shaft C², journaled in suitable bearings on the casing part A'. The lower end of each shaft C² is provided with an arm C³, formed in its free end with a slot, and the two slots of the arms C³ are engaged by a pin C⁴, engaging a transversely-extending rod C⁵, (see Fig. 3,) fitted to slide transversely in suitable bearings attached to the bottom of the casing part A'. The forward end of the rod C⁵ is pivotally connected with one arm of a bell-crank lever C⁶, connected by a link C⁷ with an arm P, hung on a shaft P' and arranged to be actuated by

a cam Q, operatively connected to the motor F. Now it will be seen that when a swinging motion is given to the lever P from the cam Q the link C⁷ imparts a swinging motion to the bell-crank lever C⁶, and the latter by pushing the rod C⁵ rearwardly causes a swinging of the arm C³, a turning of the shaft C², and a swinging of the rods C¹, so that the two figures C swing from opposite sides of the stage upon the platform B', as indicated in Figs. 1 and 2. The rods C' are sufficiently flexible to permit the figures to stand with their feet on the platform B', and as the latter is vibrated, as previously described, the figures commence to dance. The performance continues until the cam Q has made a revolution, at which time a swinging of the lever P is had in the opposite direction, so that the shafts C² are turned in the opposite direction to cause the figures C to move from the platform back to the sides of the stage into the flies or wings. When this takes place, the pawl J⁵ is lifted, as previously explained, to permit the curtain D to drop. At the same time the extension-arm E⁴ of the stop-lever E² is actuated by a pin on the cam Q, so that the said lever is moved in the position shown in Fig. 4 to engage the arm G' of the wind-wheel shaft G² to lock the mechanism G, and consequently the motor F. The music then stops playing, and the above-described operation is only repeated when another coin is passed into the chute E.

In order to prevent the rods C' from being seen by the onlookers, I provide a mirror R, arranged in an inclined position at the back of the figures, as plainly shown in Fig. 1.

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

1. A mechanical theater, comprising a movable platform, supports carrying figures and movable independently of the platform to carry the figures to different points of the platform, mechanism for imparting vibrating motion to the platform, and means for moving the supports of the figures, substantially as described.

2. A mechanical theater, comprising a stage having a vibrating platform in its floor, and swinging arms carrying figures at their free ends and adapted to move said figures from the wings of the stage upon said platform and back again, substantially as shown and described.

3. A mechanical theater, comprising a platform, arms carrying figures, and mounted to swing about approximately vertical pivots and operatively connected to move simultaneously but in opposite directions so as to approach and recede from each other, and mechanism for actuating the said arms to carry the figures toward each other and from each other, substantially as described.

4. A mechanical theater, comprising a stage, a coin-controlled mechanism, a motor for driving said mechanism, and a platform mounted on springs and connected with said mechanism for imparting a vibrating motion to the said platform, substantially as shown and described.

5. A mechanical theater, comprising a stage, a coin-controlled mechanism, means for driving said mechanism, arms mounted to swing and adapted to be actuated from said mechanism, said arms carrying figures moved from the wings to and upon the stage and back again, and a platform mounted on springs and connected with said mechanism, to cause said figures to dance while standing on the platform, substantially as shown and described.

6. A mechanical theater, comprising a stage, a coin-controlled mechanism, a motor for the same, a platform mounted on springs and forming part of the stage-floor, means for agitating said platform from said mechanism, a curtain for said stage and controlled from said mechanism, and arms carrying figures adapted to be moved from the wings to the said platform and back again, substantially as shown and described.

THOMAS B. THORNDYKE.

Witnesses:

THEO. G. HOSTER,
JNO. M. RITTER.