No. 832,800. PATENTED OCT. 9, 1906.

A. MERCER.

AMUSEMENT DEVICE.

APPLICATION FILED JUNE 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

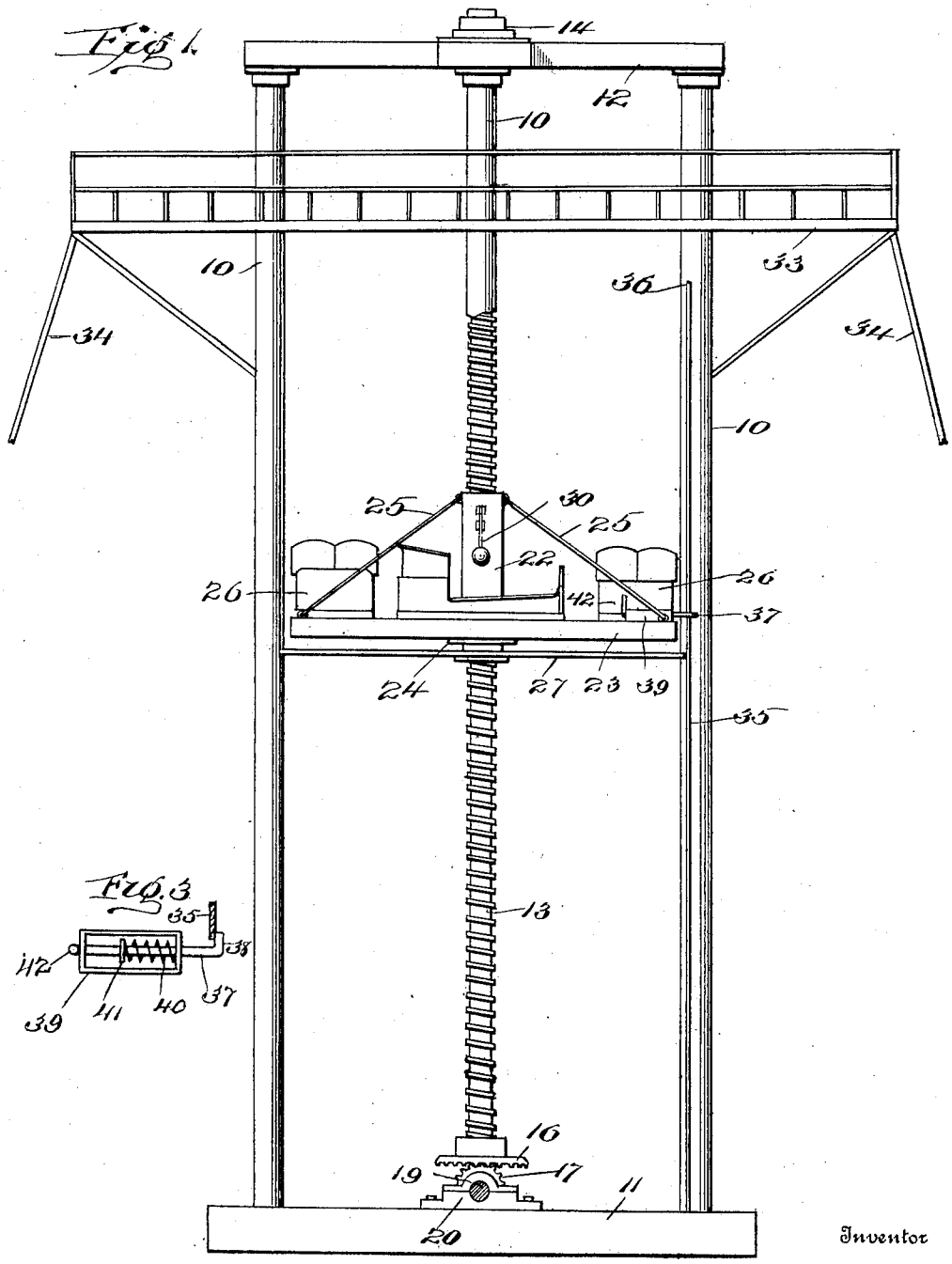


Fig. 3.

Inventor

Witnesses

J. M. Fowler Jr.

L. B. Morrill

Alfonse Mercer.

By Mason Fenwick & Lawrence

Attorneys

No. 832,800. PATENTED OCT. 9, 1906.

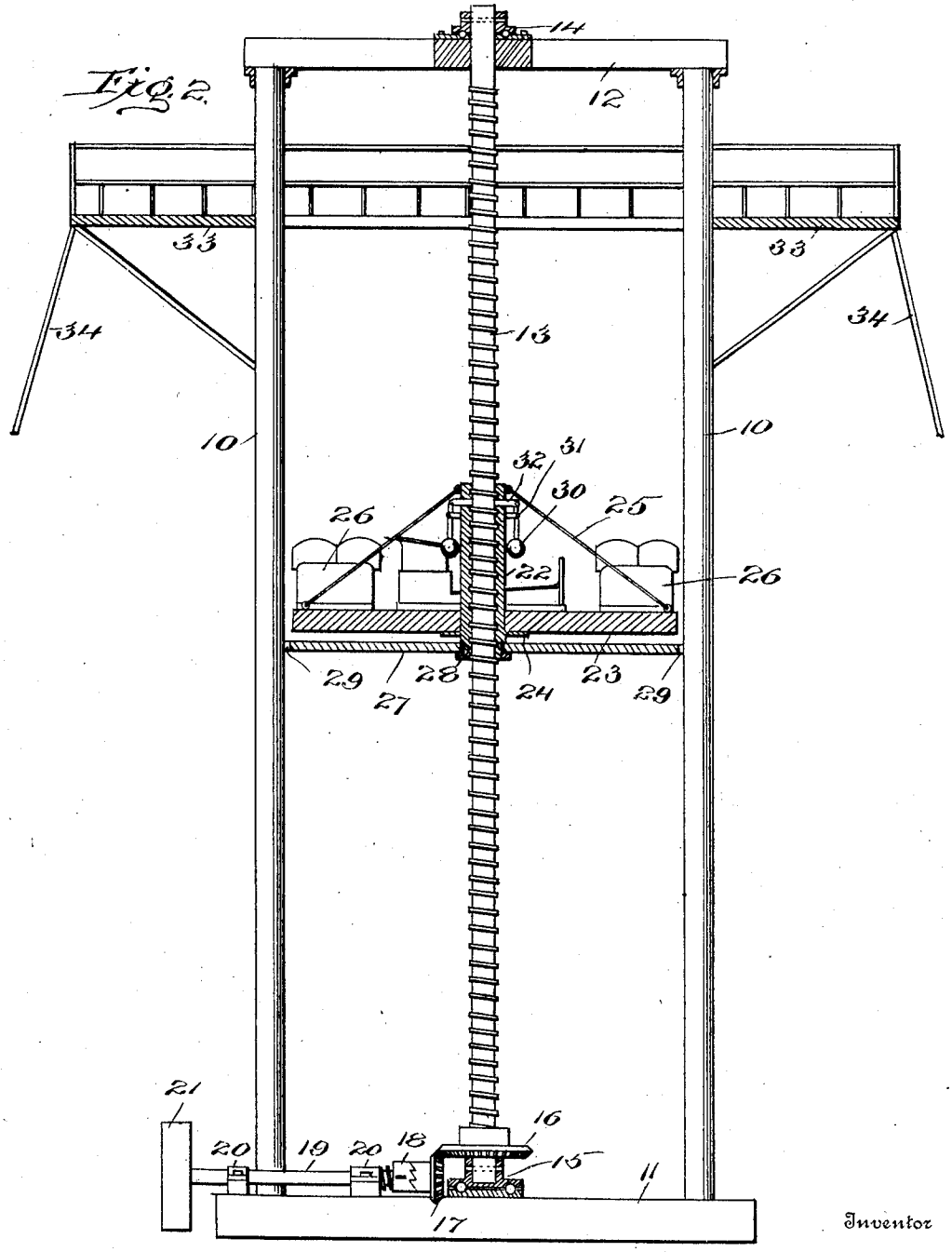
A. MERCER.

AMUSEMENT DEVICE.

APPLICATION FILED JUNE 14, 1906.

2 SHEETS—SHEET 2.

Fig. 2.



Inventor

Witnesses

J. M. Fowler Jr.

L. Morrill

Alfonse Mercer,

By Masan Fenwick & Lawrence

Attorneys

UNITED STATES PATENT OFFICE.

ALFONSE MERCER, OF NORFOLK, VIRGINIA, ASSIGNOR OF ONE-HALF TO JOHN F. EAST, OF NORFOLK, VIRGINIA, AND ONE-HALF TO SOUTHERN NOVELTY AND AMUSEMENT COMPANY, INC., A CORPORATION OF VIRGINIA.

AMUSEMENT DEVICE.

No. 832,800. Specification of Letters Patent. Patented Oct. 9, 1906.

Application filed June 14, 1906. Serial No. 321,758.

To all whom it may concern:

Be it known that I, ALFONSE MERCER, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Amusement Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to amusement devices, and has for an object to provide a device of the class embodying improved means whereby vehicles may be raised to a considerable height vertically and permitted to descend by force of gravity with a rotary motion about a spiral.

A further object of the invention is to provide means whereby a platform carrying vehicles and passengers may be raised to a desired height and maintained in such elevated position for a desired length of time for the purpose of observation and then permitted to descend with a rotary motion, whereby the passengers upon the platform are enabled to observe the scenery from all points.

A further object of the invention is to provide a structure embodying a screw extending the entire height of the structure and centrally of the structure-supports. A platform is mounted upon the screw and capable of moving vertically within the structure without rotation and to be moved by the rotary movement of the screw driven from any convenient and approved source of power. When the platform has reached the upper limit of its movement, it is released, either automatically or manually, from connection with the supporting structure and is supported only by the screw, whereupon the force of gravity impels the platform to rotate about the screw and to descend thereby.

A further object of the invention is to provide, in a device of the class described, means for automatically releasing the platform at the desired height and for automatically governing the speed of rotation and descent of the platform.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a view of the improved device in side elevation. Fig. 2 is a view in vertical section of the device, taken on a plane at right angles to Fig. 1. Fig. 3 is a detail view of the means for locking and releasing the platform to and from the supporting structure.

Like characters of reference designate corresponding parts throughout the several views.

In its preferred embodiment the amusement device forming the subject-matter of this application comprises uprights or masts 10 of any approved height, number, and construction. For clearness of illustration the uprights 10 are here conventionally shown as cylindrical posts or bars and four in number; but it is to be further understood that the said uprights may be of any approved structure and form and in any approved number from two upward. The uprights 10 are supported in any approved manner, as upon the sill or bottom 11, and are provided at their upper ends with any approved form of framework, as the cross-bars 12, extending across from one upright to the opposite; but it is to be understood that in case of a change in the number of uprights the said bars will be properly constructed to conform to such change.

Centrally between the uprights 10 is mounted a vertical screw 13, provided with threads of any approved construction and pitch. The screw 13 extends vertically throughout the entire height of the structure and is mounted to rotate in any approved manner, as by the ball-bearings at the upper end (shown conventionally, as at 14) and with or without a thrust-bearing, (shown conventionally, as at 15.) The screw 13 is rotated in any approved manner, as by means of a bevel-gear 16, rigidly secured adjacent the lower end thereof and engaging a bevel-gear 17. The bevel-gear 17 is preferably driven by means of a clutch 18, mounted upon a shaft 19, journaled in any approved manner, as in the pillow-blocks 20, and driven from any approved source and in any approved manner, as by the pulley 21.

The screw 13 is embraced by a screw-threaded hub 22, upon which is rigidly

mounted a platform 23, preferably circular in plan and extending radially with its periphery adjacent the uprights 10. The platform 23 is secured to the hub 22 in any approved manner, as by the collar 24 and guy-braces 25, and is provided with any approved and desired form of carriages or vehicles, (shown conventionally, as at 26.) To prevent lateral movement or vibration of the screw 13, a cross-head or cross-bar 27 is provided journaled in the groove 28 in the hub beneath the platform and extending radially to and slidably engaging the uprights 10 in any approved manner, as by the notches 29, partially embracing the said uprights or guides secured thereto.

The hub 22 is provided with any approved form of centrifugal governor, shown conventionally as the weighted levers 30, fulcrumed, as upon the ears 31, rigid with the hub 22 and pivotally connected with pins 32, extending laterally through the wall of the said hub and engaging the screw 13.

The structure is preferably provided with an observation-platform of any approved and desired form (shown conventionally, as at 33) and is made rigid in the usual manner, as by the guy-lines 34, extending from any approved portion, as from the platform 33.

One of the uprights 10 is provided with a guide-strip 35, extending from the bottom upward, but stopping short of the top, as at 36. The platform 23 is provided with a locking-bolt 37, having a hook portion 38 arranged and proportioned to hook over and engage the guide-strip 35. The locking-bolt 37 is slidably mounted in the housing 39, rigidly mounted upon the platform, and is embraced by a spring 40, bearing at its outer end against the housing 39 and at its inner end against the collar 41, carried rigidly upon the bolt 37. The bolt 37 is provided with a lever 42 without the housing 39 and by which the bolt 37 may be rotated through one-quarter of a revolution to disengage the hook portion 38 from the guide 35 and permit the bolt 37 to be withdrawn from engagement with said guide-strip 35 by the spring 40.

In operation the platform 23 is normally at the lower extreme of its movement and with the hub 22 in engagement and resting upon the hub of the gear 16. In this position passengers are permitted to enter upon the platform and to be seated within the vehicles 26 or otherwise. The bolt 37 is then moved radially outward and turned until the hook 38 is in engagement with the guide-strip 35, whereby the platform 23 is maintained against rotary movement. The screw 13 is then rotated by means of the pulley 21, shaft 19, and the associated gears, and by reason of the rotary movement of such screw and the hub 22, in engagement therewith, said hub and its associated platform and parts will move vertically upward along the said screw, rotary movement being prevented by the engagement of the bolt, as above described. When the platform has been moved to such a height that the bolt 37 passes beyond the upper end 36 of the strip 35 the bolt is automatically withdrawn from engagement with the upright 10 by means of the spring 40, and the platform is then free to rotate upon the screw 13. It is designed that prior to the release of the bolt from the guide-strip 35 the rotary motion of the screw 15 be stopped and that the carriage be held for the desired time adjacent the upper extreme of its movement to permit the passengers to view the surrounding scenery. When the observation time has expired, the bolt 37 is withdrawn by the manual operation of the lever 42 by an attendant or passenger and the platform permitted to move spirally downward along the screw 13, such descent being retarded and controlled by any approved form of centrifugal governor. (Shown conventionally in the drawings.) When the platform is at rest adjacent the upper extreme of its movement, passengers may step from such platform onto the observation-platform 33 and may remain there, if desired, while the platform is descending and ascending for another trip, and such passengers may then step upon the rotating platform 23 and return, as above described. It is of course obvious that the platform may be lowered by a reverse movement of the screw 13, if desired, in which case the platform will be lowered vertically and without rotary movement. When the platform descends spirally, it will of course contact with the gear 16 when it reaches the bottom, and provision is made whereby the gear and the screw 13 may be rotated with the carriage until the momentum of the carriage has been overcome by friction. Such provision is made by means of the clutch 18, whereby the screw 13 and gears 16 and 17 may be rotated independently of the shaft 19 and under the action of the momentum of the platform 23.

In practice it is designed to extend the structure to a very considerable height, on account of which a lateral or vibratory movement of the screw is liable to occur, unless prevented by means of the cross-bars 27, as above described. The screw 13 is also provided with a bearing at its upper end, whereby the weight of the platform is carried upon the uprights 10 and the permanently-rigid structure and suspended by the screw 13 instead of being carried and supported entirely from the screw 13 upon its thrust-bearing at its lower end.

What I claim is—

1. In a device of the class described, a rigid structure, a spiral mounted upon said structure, means to rotate said spiral, a platform mounted upon and arranged to be raised vertically by the rotation of said spi-

ral, means mounted upon said platform for slidably engaging the rigid structure and arranged to prevent rotary movement of the platform, and means for releasing the connection between the platform and the permanent structure whereby the platform is permitted to move downward about the spiral under the force of gravity.

2. In a device of the class described, a plurality of spaced uprights, a spiral vertically mounted between said uprights, means to positively rotate said spiral, means permitting the rotation of the spiral independently of its positively-rotating means, a platform mounted between the uprights and arranged to move slidably and vertically therebetween, means connecting the platform and spiral whereby the platform is raised vertically by the rotation of the spiral, means carried by the platform and arranged to slidably engage one of the uprights, and to prevent rotary movement of the platform, means whereby the upright-engaging means is automatically released when the platform reaches the upper limit of its movement, and means whereby the upright-engaging means may be manually released.

3. In a device of the class described, a vertically-disposed spiral, a platform mounted upon and to be raised by the rotation of the said spiral, means for rotating the spiral, means to prevent rotary movement of the platform under the action of the rotating spiral, means for releasing the platform and permitting it to rotate about the spiral, and means for retarding and governing the descent and rotary movement of the platform.

In testimony whereof I affix my signature in presence of the witnesses.

ALFONSE MERCER.

Witnesses:
HARRY O. NICHOLS,
C. S. THOMSON,
MORDAUNT ETHEREDGE.