May 21, 1929. B. LESTER 1,713,703

AMUSEMENT APPARATUS

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Fig. 1.

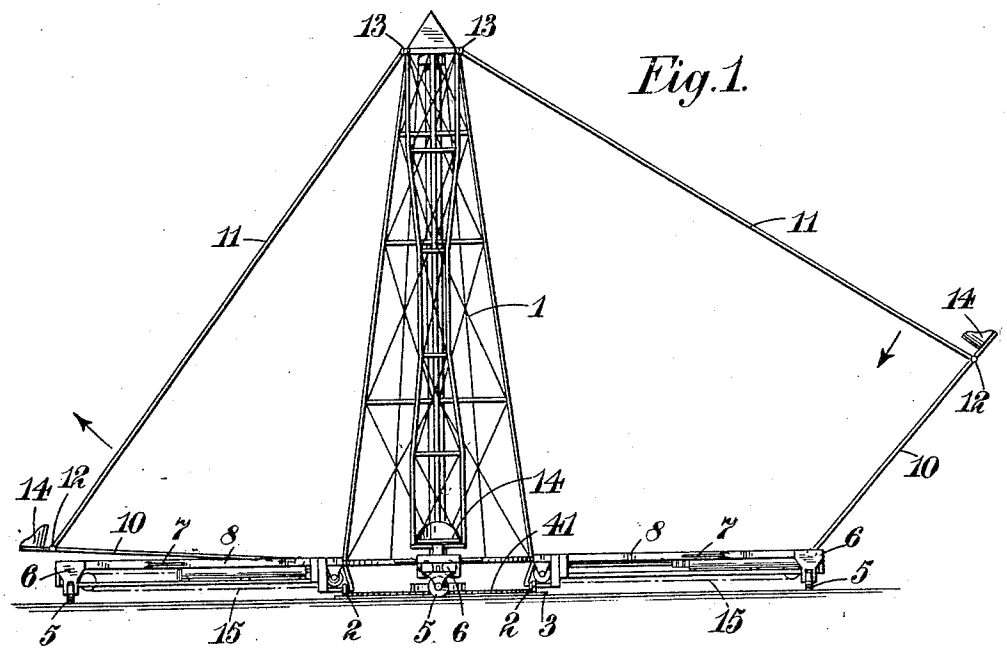
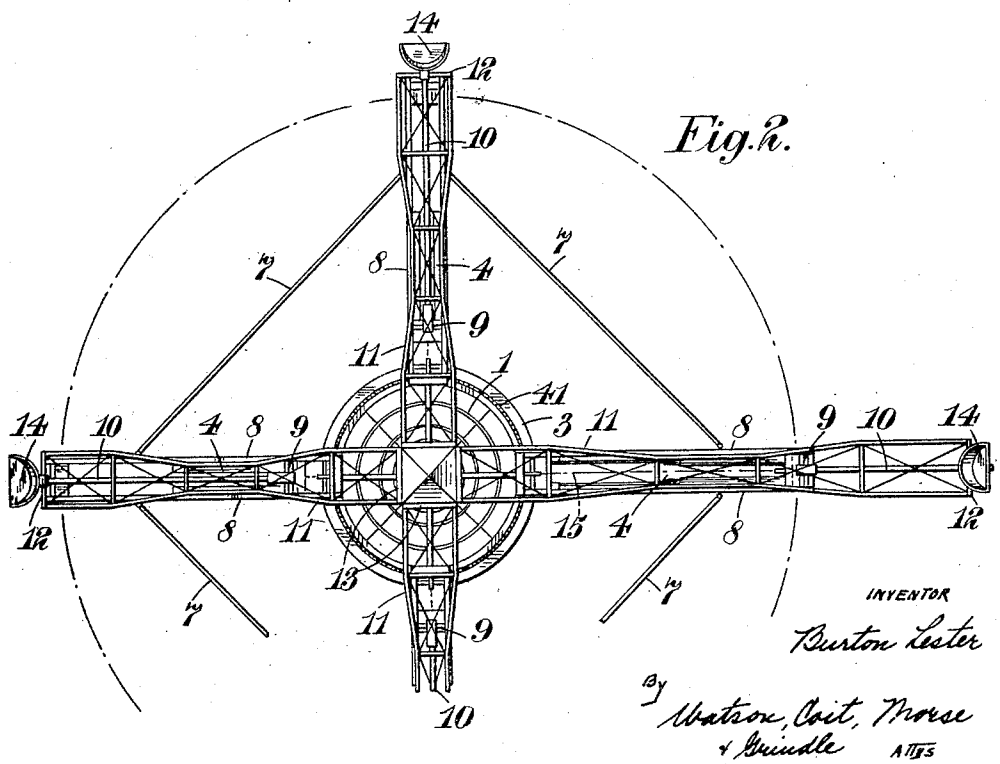


Fig. 2.



INVENTOR
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AMUSEMENT APPARATUS

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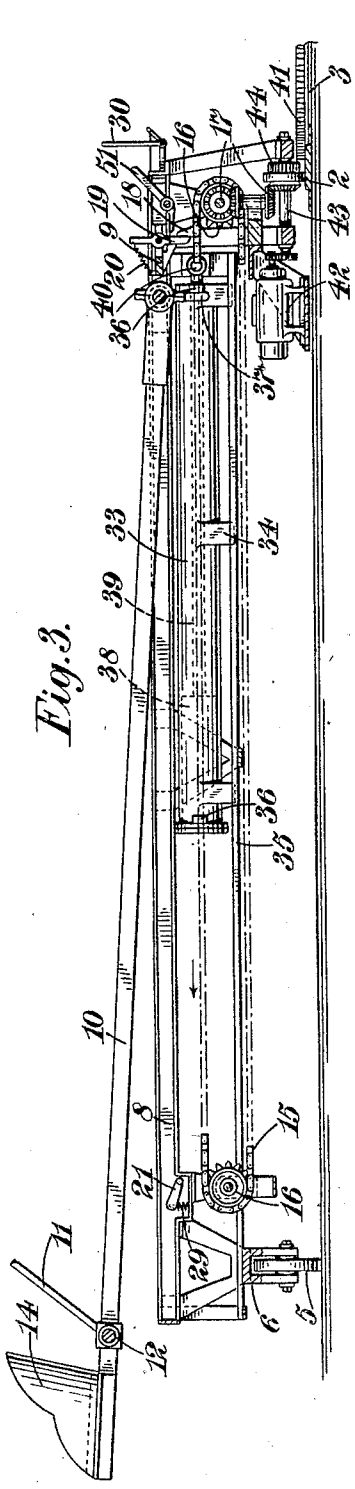

Fig. 3.

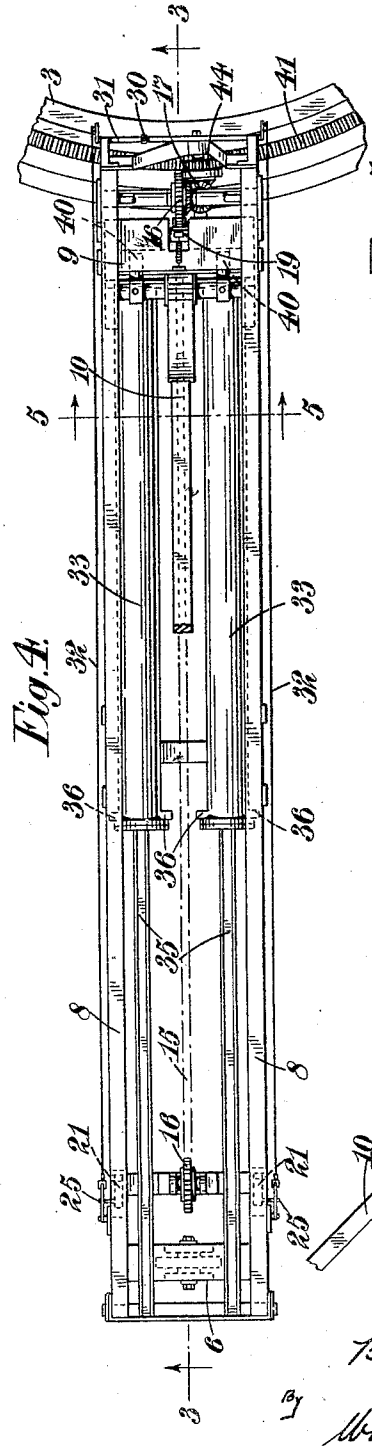

Fig. 4.

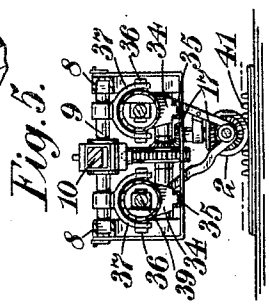

Fig. 5.

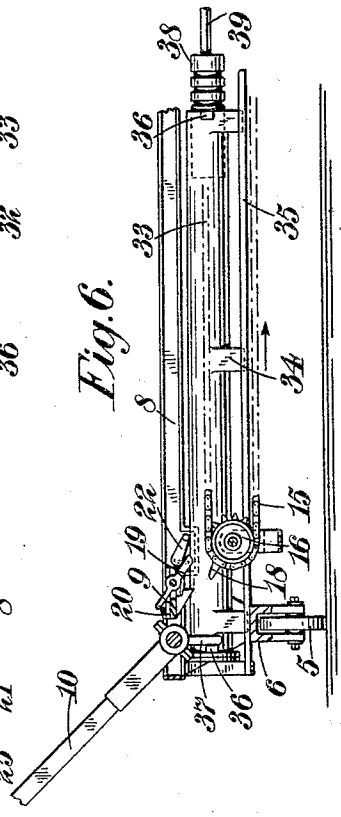

Fig. 6.

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AMUSEMENT APPARATUS

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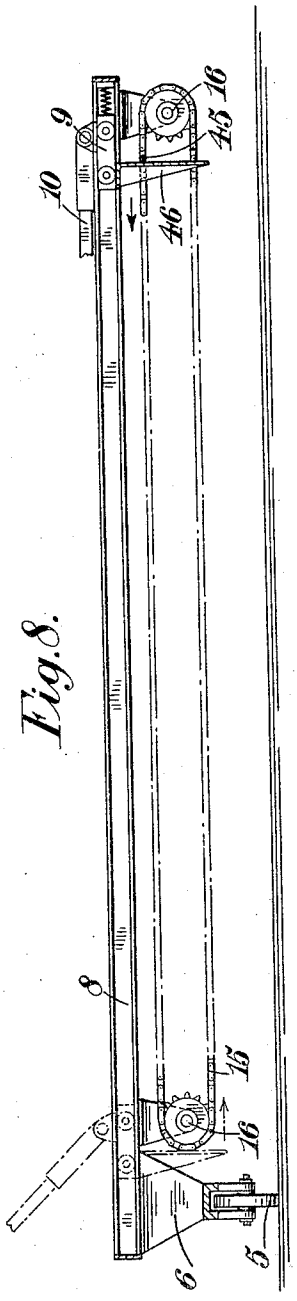

Fig. 8.

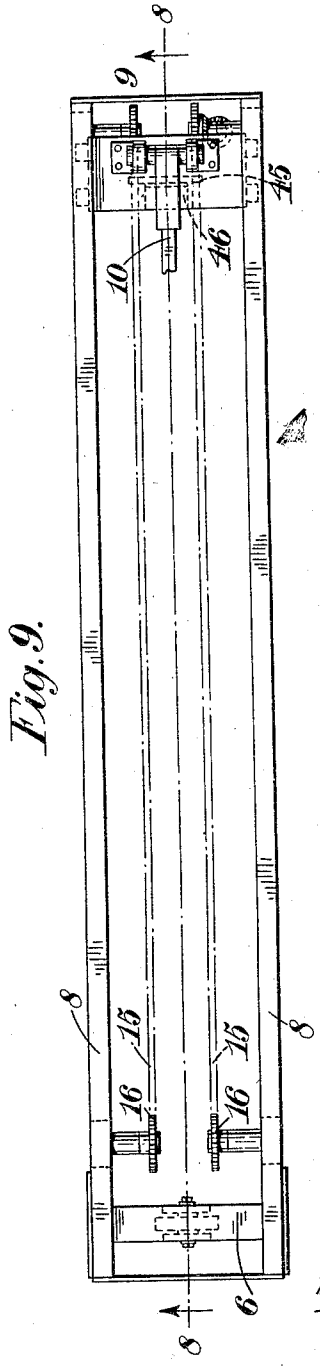

Fig. 9.

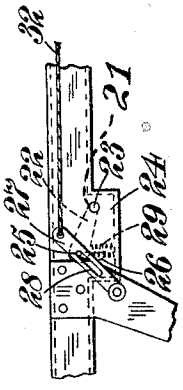

Fig. 7.

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Atty's

Patented May 21, 1929. 1,713,703

UNITED STATES PATENT OFFICE.

BURTON LESTER, OF LONDON, ENGLAND.

AMUSEMENT APPARATUS.

Application filed April 28, 1928, Serial No. 273,577, and in Great Britain May 9, 1927.

This invention is for improvements in amusement apparatus of the kind in which a passenger-support is caused to rotate about an upstanding axis and may at the same time be given an up and down motion.

An object of the invention is to provide a simple construction combining the above motions in various ways so as to give new and amusing sensations and thrills.

A further object of the invention is to provide a construction wherein, more particularly for the amusement of adults, the passenger-support has imparted to it a rapid and unexpected change in motion; while in a modified construction suitable more particularly for children, the movement of the passenger platform may be so controlled that the rate of change of movement is comparatively uniform, so as to avoid undue shocks.

In one form of the invention a means is provided for tripping or releasing the inner end of a controlling pole when the passenger-platform is at its highest point so that the latter with its occupants drop suddenly and swiftly to near their starting position, the fall of the platform and the load being checked by springs, air compressors or any other suitable means.

In another form of the invention the inner end of the pole is permanently attached to a chain in such a manner as to cause the passenger-platform to be raised and lowered at a regular rate of speed while revolving. This form of the device is built for children and those desiring a mild form of pleasure.

The following is a description of amusement apparatus according to this invention and includes descriptions of alternative arrangements for effecting the movement of a pole according to the sensations desired, viz, whether the apparatus is to be used for children or adults.

Reference is made to the accompanying drawings in which:—

Figure 1 is an elevation of the apparatus.

Figure 2 is a plan of a part of the apparatus shown in Figure 1.

Figure 3 is an elevation, on a scale larger than that of Figures 1 and 2, of one of the beam frames showing the pole thereon at the inner end of its travel.

Figure 4 is a plan of part of the apparatus shown in Figure 3.

Figure 5 is a section on the line 5—5 of Figure 4.

Figure 6 is a part elevation of the beam frame corresponding to Figure 3 but showing the pole at the outer end of its travel.

Figure 7 is a side elevation, on a scale larger than that of the preceding figures, showing a detent for holding the pole in the position shown in Figure 6.

Figure 8 is an elevation of a beam frame showing means for effecting a regular inward and outward movement of the pole, and

Figure 9 is a plan of the apparatus shown in Figure 8.

Like reference numerals indicate like parts throughout the drawings.

In Figures 1 and 2 a tower-frame 1 is shown mounted on wheels 2 which engage with a circular horizontal track 3 whereby the tower-frame may be caused to revolve about a vertical axis. Fixed to the lower end of the tower-frame and extending radially therefrom are four, or any other suitable number of, preferably evenly spaced beam-frames 4. The outer end of each beam-frame is supported by a wheel 5 carried by a bracket 6. The beam-frames are braced together by rods 7. The beam frames each comprise two parallel channel members 8 which extend outwardly away from the tower frame. The channel members form a guide-way in which a crosshead 9 is slidably mounted. A radially extending pole 10 is pivotally secured at its inner end to each crosshead, and a link 11 is secured between the outer end of each pole at 12 and the top of the tower at 13. A passenger-platform 14 is secured at the outer end of each pole, which platform may take the form of a bucket, or seat or other device.

It will be seen that with this arrangement, if the crosshead is moved outwardly along the beam frame, the passenger platform will be moved upwardly and outwardly against the action of gravity. The parts may be designed to give any desired amount of lift according to the sensation required. In Figures 3 to 6 means are shown for mechanically moving the pole upwardly and outwardly and for permitting it to return under the action of gravity. An endless chain 15 is arranged to extend along each beam frame beneath the pole and is carried by sprocket wheels 16 arranged one at each end of the beam frame. Each inner sprocket wheel is driven by gearing 17 from the track wheel 2, and each chain is provided with an upstanding projection 18. Thus the rotation of the beam frames proceeds simultaneously

with the feed of the chains. Each crosshead has pivoted to it a finger 19 which may be swung downwardly into the outward path of movement of said projection. Thus as the projection moves towards the outer end of the beam frame it carries with it the crosshead and inner end of the pole.

When the projection on the chain passes round the outer sprocket wheel it frees itself from the finger on the crosshead and the pole and crosshead are then free unless otherwise prevented to return towards the tower frame under the action of gravity. The finger 19 when free from the projection is swung upwardly by a spring 20. A hand operated lever 51 is mounted at the inner end of the beam-frame and engages the finger 19, when the crosshead is at the inner position, whereby the finger may be swung downwardly when desired into engagement with the projection 18.

The crosshead may be retained at the outer end of the beam frame by detents 21 illustrated in Figure 7. Each detent comprises a lever arm 22 pivotally mounted at 23 in a recess 24 in the lower flange of one of the channel members. The lever arm carries a pin 25 which extends outwardly through a slot 26 in the web of the channel member. A slotted link 27 is pivoted on the outside of the channel member and the slot 28 in the link engages said pin. The lever arm 22 is maintained normally in the path of travel of the crosshead by means of a spring 29, and the crosshead on its outward journey forces the lever arm downwardly against the action of the spring. When the crosshead reaches its outermost position, the lever arm springs up again and retains the crosshead in position. The detents may be released at will from the inner end of the beam frame by a lever 30 (see Figures 3 and 4) mounted on a crankshaft 31 which is connected by cables 32 to the slotted links.

In Figures 3 to 6 two cylinders 33 are shown which extend along the beam frame and are carried by cradles 34 (see Figure 5) which slide in channel guides 35. The said channel guides constitute lower members of the beam frame, and the cylinders are considerably shorter than the beam frame and have formed at each end outstanding lugs 36. Projecting from the underside of each crosshead are two fork-members 37 each of which is arranged to embrace loosely one of the cylinders. This arrangement affords a lost motion connection between the crosshead and the cylinders. A piston 38 is located in each cylinder and is connected by a piston rod 39 to a shaft 40 secured at the inner end of each beam-frame. On the outward journey of the crosshead the forks thereon engage with the forward lugs on the cylinders and carry the cylinders outwardly. After the aforementioned detent is released, the forks will travel freely over the cylinders until they engage the lugs at the inner ends thereof whereupon the cylinders and pistons will act as buffers and bring the crosshead and pole to rest. The movement of the passenger platforms during the aforesaid lost motion is free and sensation-providing, while the buffers ensure perfect safety. Any convenient number of chains and buffer cylinders may be provided.

The track on which the tower frame is mounted carries a circular rack 41 and the tower is caused to be rotated by a motor 42 mounted conveniently on one of the beam frames and coupled to the shaft 43 of one of the track wheels. The track wheel has secured to it a pinion 44 which engages the said rack.

In Figures 8–9 is shown means for connecting the crosshead to the endless chains whereby a continuous and uniform outward and inward motion may be imparted to the poles. It will be seen that each beam frame carries two endless chains which carry between them a cross bar 45. The crosshead has secured beneath it a fixed depending finger 46 which is at all times located on the outerside of the cross bar. On the outward journey the crosshead is moved by the cross bar pressing against the finger while on the inward journey the crosshead is prevented from moving any more quickly than the chain, as it might otherwise do under the action of gravity, by reason of the contact of the depending finger with the cross bar.

From the foregoing, it will be appreciated that the poles are capable of being rotated and of having one end lifted to any preferred height simultaneously with the rotation and then suddenly or slowly dropped through space in a continuous travelling motion; alternatively the pole may have its end maintained raised while continuing to rotate, the control of the motion being at the will of the operator located adjacent to the tower.

It is to be understood that the invention is not restricted to the precise constructional details set forth.

I claim:

1. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole carried by said frame, means for constraining one end of said pole to move on said frame towards and away from the upstanding axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, means for moving the pole towards and away from said upstanding axis while subject to the control of said constraining means and link, and a passenger support on said pole.

2. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole radially disposed in relation to said axis

and carried by said frame, one end of which pole is constrained to move in said frame radially in a horizontal plane towards and away from the said axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, means for moving the pole towards and away from said upstanding axis while subject to the control of said constraining means and link, and a passenger support on said pole.

3. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a guideway in said frame extending away from said axis, a crosshead slidably mounted in the guideway, a movable pole one end of which is pivotally connected to the crosshead, a link secured between the other end of the pole and a part of the frame above the guideway, means for moving the crosshead along the guideway, and a passenger support on said pole.

4. An amusement apparatus comprising in combination, a frame, means for rotating the frame about an upstanding axis, a passenger support so carried on the frame as to share its rotary movement and as to be movable upwardly and outwardly away from the said axis, means for effecting mechanically the last said movement, means for permitting the passenger support to return by gravity towards said axis and a damping device for bringing said passenger support to rest during its inward journey.

5. An amusement apparatus comprising in combination, a frame, means for rotating the frame about an upstanding axis, a passenger support so carried on the frame as to share its rotary movement and as to be movable upwardly and outwardly away from the said axis, means for effecting mechanically the last said movement, mechanism for releasing the passenger support from the last said means whereby it is returned by gravity towards said upstanding axis and a damping device for bringing said passenger support to rest on its inward journey.

6. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole carried by said frame, means for constraining one end of said pole to move on said frame towards and away from the upstanding axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, means for moving mechanically the pole outwardly away from said axis, mechanism for releasing the pole from the last said mechanism whereby the pole is returned by gravity towards the said axis and a passenger support on said pole.

7. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole carried by said frame, means for constraining one end of said pole to move on said frame towards and away from the upstanding axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, means for moving mechanically the pole outwardly away from said axis, means for maintaining the arm in its outermost position for a desired period of time, means for mechanically controlling the return of the pole towards said axis, and a passenger-support on said pole.

8. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole carried by said frame, means for constraining one end of said pole to move on said frame towards and away from the upstanding axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, means for moving mechanically the pole outwardly away from said axis, means for maintaining the pole in its outermost position, means for releasing the pole so as to permit it to return by gravity towards said axis and a passenger support on said pole.

9. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a pole so mounted on each beam-frame as to be slidable therealong and as to extend outwardly away from the tower-frame, a passenger-support secured towards the outer end of each pole, means for rotating said tower-frame and means for raising and lowering the outer end of each pole.

10. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a movable pole carried by each of said beam-frames, means for constraining the inner end of each pole to move along each beam-frame towards and away from said axis, a link secured between the other end of each pole and the top part of the tower-frame, means for moving the poles towards and away from the said axis and a passenger-platform on each pole.

11. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a guideway along each beam-frame, a crosshead slidably mounted in each guideway, a

movable pole pivotally connected to each crosshead, a link between the other end of each pole and a top part of the tower-frame, means for moving each cross-head inwardly and outwardly along each beam-frame and a passenger platform on each pole.

12. An amusement apparatus comprising in combination a frame, means for rotating the frame about an upstanding axis, a movable pole carried by said frame, means for constraining one end of said pole to move on said frame towards and away from the upstanding axis, a link secured between the other end of the pole and a part of the frame which is above the constraining means, a travelling band arranged to extend along the pole, means for connecting the constrained end of the pole to the band, and a passenger-platform on said pole.

13. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a guideway along each beam-frame, a crosshead slidably mounted in each guideway, a movable pole pivotally connected to each crosshead, a link between the other end of each pole and a top part of the tower-frame, an endless chain device carried by and extending along each said beam-frame beneath each pole, means for connecting and disconnecting each said chain from each said crosshead, means for moving said endless chain, and a passenger-platform on each said pole.

14. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a movable pole carried by each of said beam-frames, means for constraining the inner end of each pole to move along each beam-frame towards and away from said axis, a buffer cylinder so mounted as to be movable along each beam-frame, means for connecting each cylinder to the constrained end of each said pole, pistons in said cylinders and connected to the tower-frame, and a passenger platform on each said pole.

15. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a guideway along each beam-frame, a crosshead slidably mounted in each guideway, a movable pole pivotally connected to each crosshead, a link between the other end of each pole and a top part of the tower-frame, an endless chain device carried by and extending along each said beam-frame beneath each pole, means for connecting and disconnecting each said chain from each said crosshead, means for moving said endless chain, a buffer cylinder so mounted as to be movable along each beam-frame, a lost motion connection between the cylinders and crossheads, pistons in said cylinders and connected to the tower-frame, and a passenger platform on each said pole.

16. An amusement apparatus comprising in combination a track, a tower-frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a guideway along each beam-frame, a crosshead slidably mounted in each guideway along each beam-frame, a crosshead mounted slidably in each guideway, a detent in each guideway for retaining the crosshead in its outermost position, means for releasing said detent, a movable pole pivotally connected to each crosshead, a link between the other end of each pole and a top part of the tower-frame, means for moving each crosshead inwardly and outwardly along each beam-frame and a passenger platform on each pole.

17. An amusement apparatus comprising in combination a track, a tower frame adapted to rotate on said track about an upstanding axis, a plurality of beam-frames secured to and extending outwardly away from the lower end of the tower-frame, a guideway along each beam-frame, a crosshead slidably mounted in each guideway, a movable pole pivotally connected to each crosshead, a link between the other end of each pole and a top part of the tower-frame, an endless chain device carried by and extending along each said beam-frame beneath each pole, an upstanding projection on each said endless chain, a movable finger on each said crosshead adapted to engage said projection, means on said crosshead which normally tends to move said finger out of the path of travel of said projection, means carried at the inner end of the beam-frame for moving said finger into engagement with the projection, means for moving said endless chain, and a passenger platform on each said pole.

18. An amusement apparatus comprising in combination, a frame, means for rotating the frame about an upstanding axis, a passenger support so carried on the frame as to share its rotary movement and as to be movable upwardly and outwardly away from the said axis, means for effecting mechanically the last said movement, means for permitting the passenger support to return freely under the action of gravity for a part of the inward journey, and a damping device for bringing said passenger support during the remaining part of the inward journey.

In testimony whereof I affix my signature.

BURTON LESTER.