July 8, 1924. 1,500,788

H. S. ANDERSON

AMUSEMENT APPARATUS

Filed April 2, 1923 4 Sheets-Sheet 1

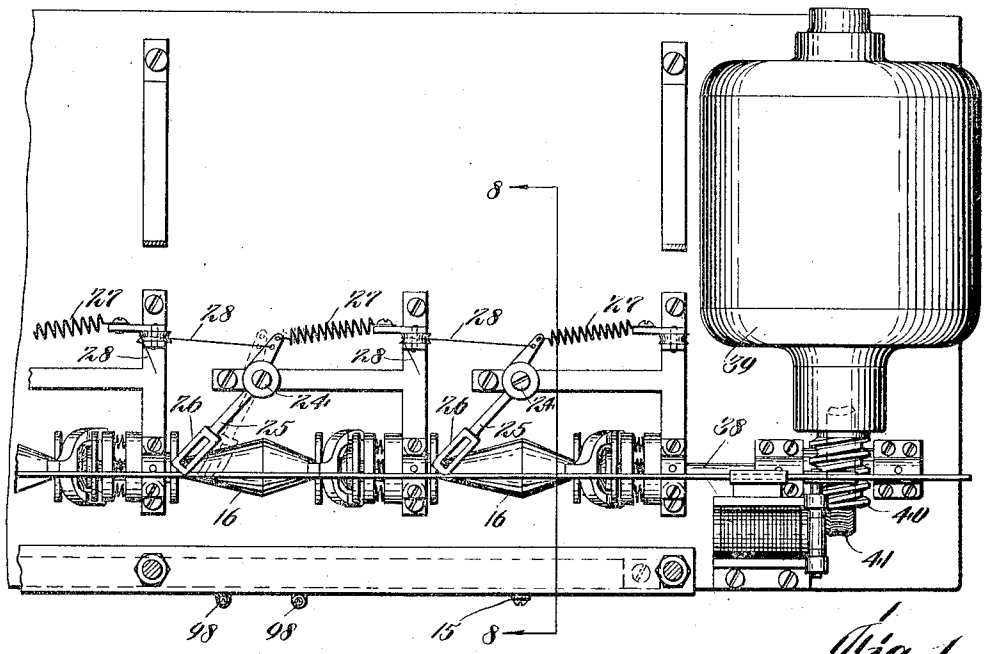


Fig. 1.

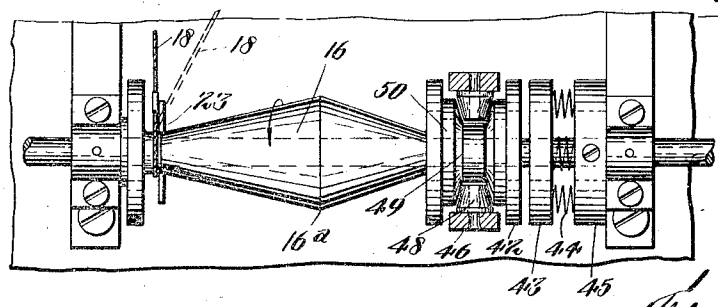


Fig. 2.

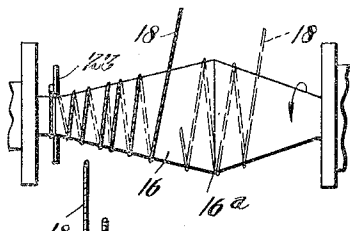


Fig. 3.

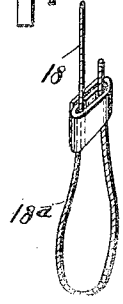


Fig. 4.

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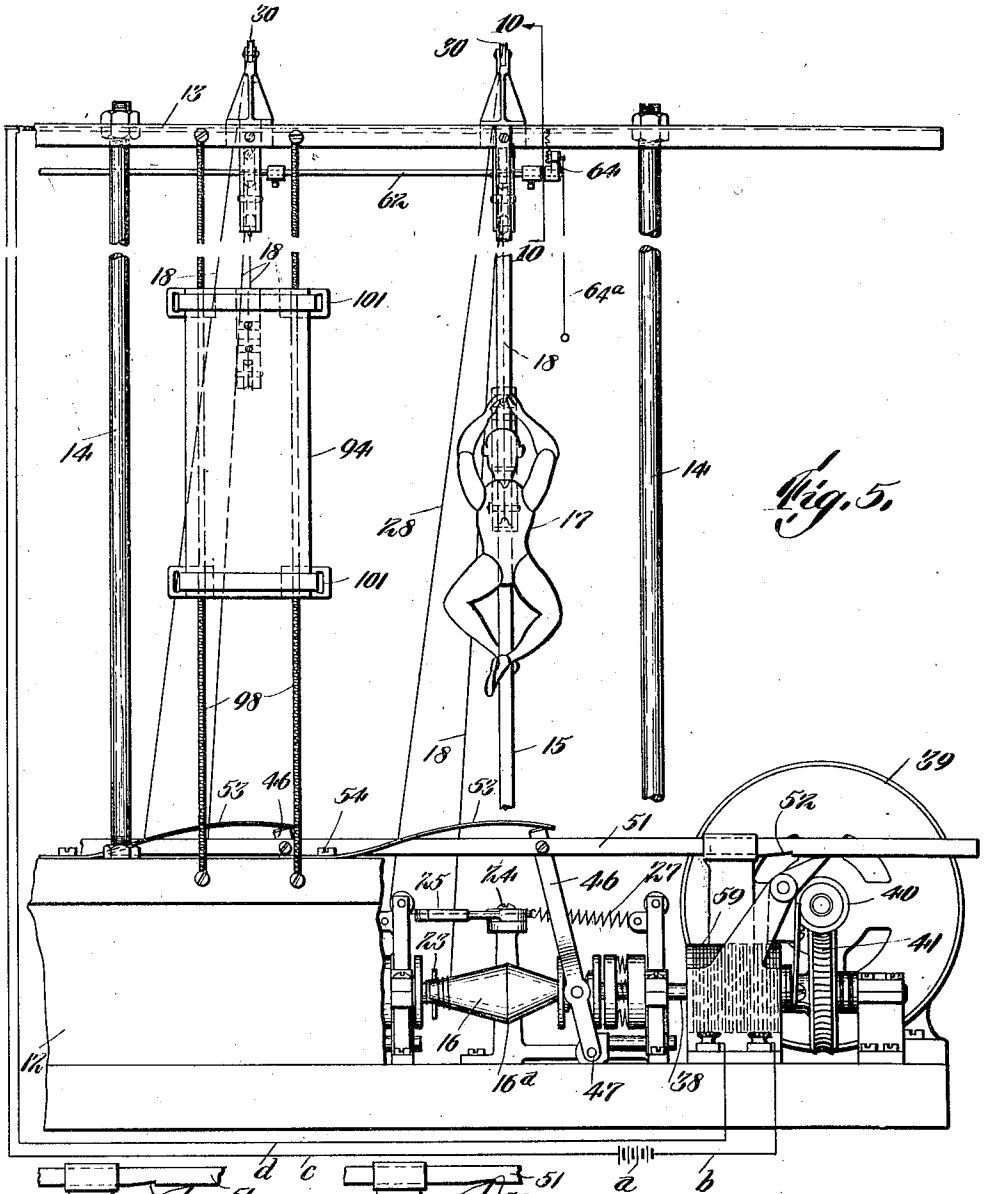


Fig. 5.

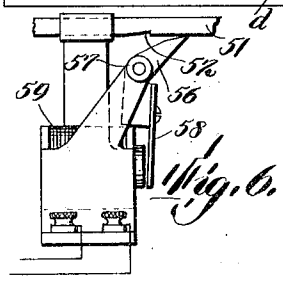


Fig. 6.

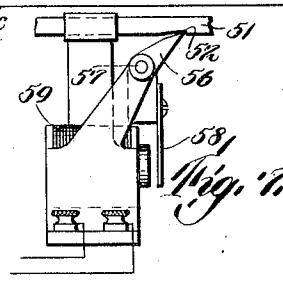


Fig. 7.

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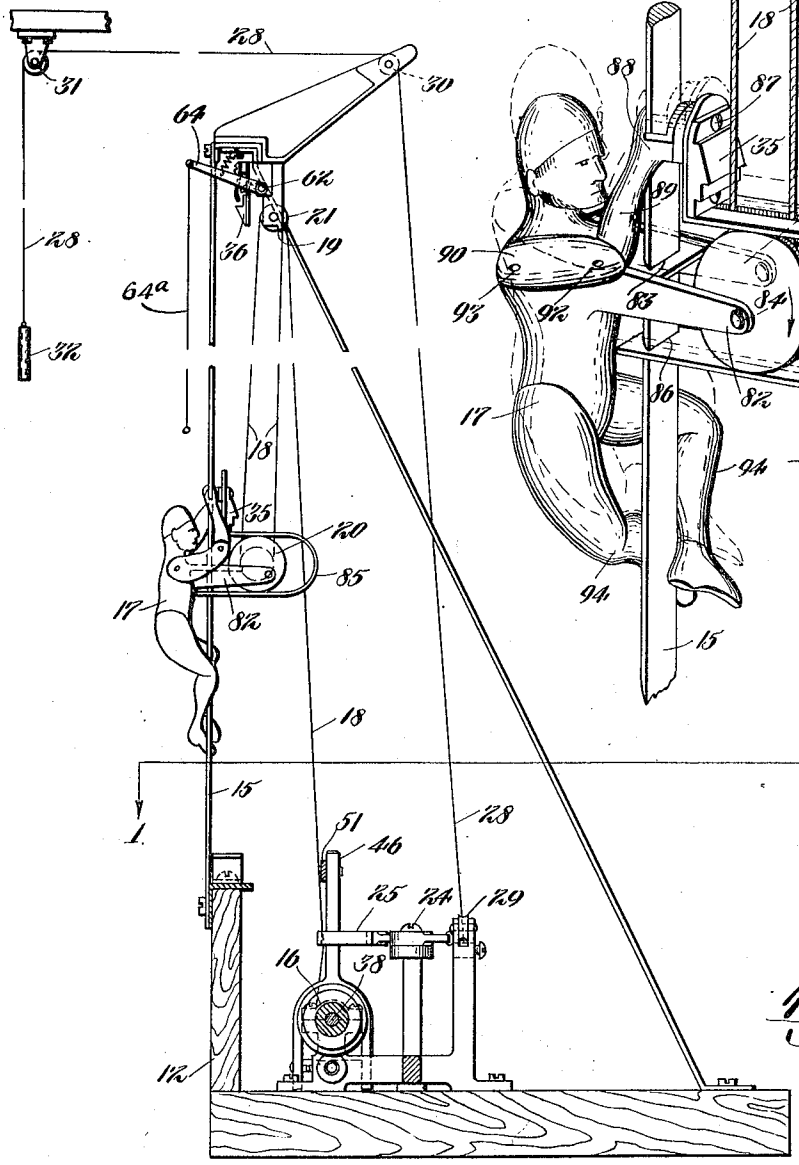


Fig. 8.

Fig. 9.

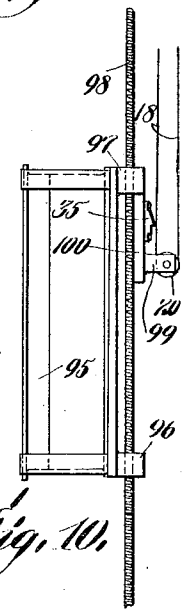


Fig. 10.

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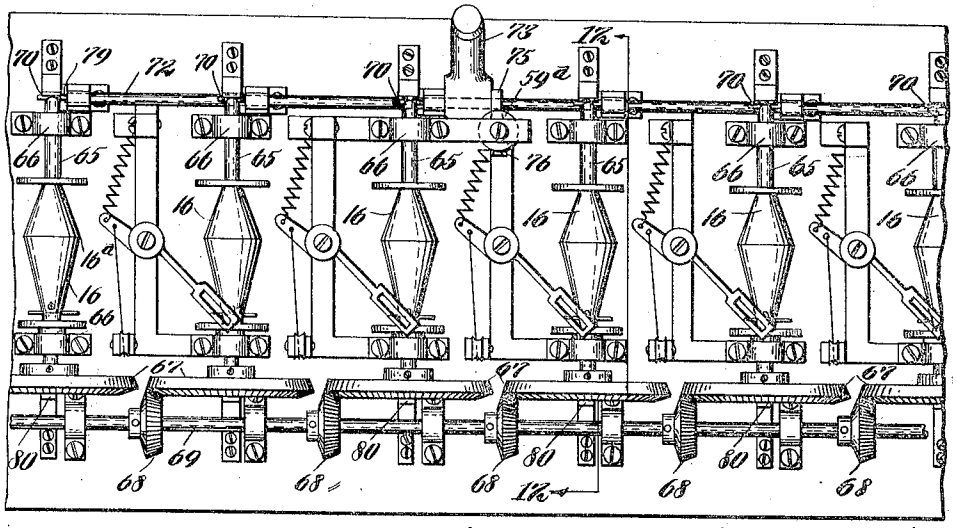


Fig. 11.

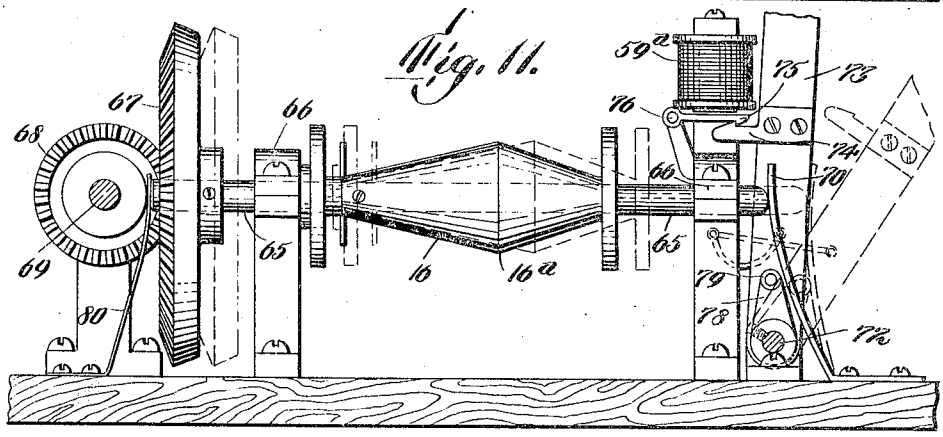


Fig. 12.

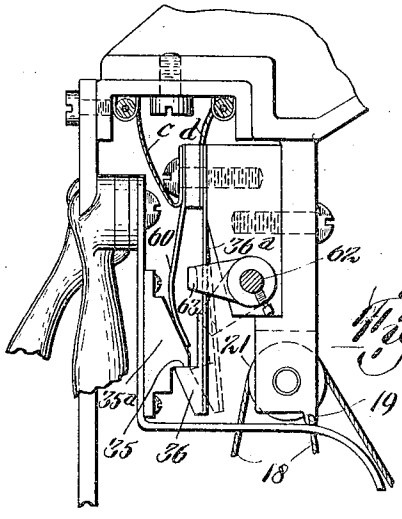


Fig. 13.

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UNITED STATES PATENT OFFICE.

HILMER S. ANDERSON, OF BELMONT, MASSACHUSETTS.

AMUSEMENT APPARATUS.

Application filed April 2, 1923. Serial No. 629,377.

To all whom it may concern:

Be it known that I, HILMER S. ANDERSON, a citizen of the United States, residing at Belmont, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Amusement Apparatus, of which the following is a specification.

This invention is embodied in an amusement apparatus, adapted for use by a plurality of competing players. The feat to be accomplished is to so connect a traveller with impelling mechanism as to cause it to move upward on a fixed guide to a goal at the upper end of the guide. The apparatus includes certain hazards rendering the operation more or less uncertain.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a top plan view of an apparatus embodying the invention, the parts above the line 1—1 (Figure 8) being omitted.

Figure 2 is an enlargement of a portion of Figure 1, certain parts shown by Figure 1 being omitted.

Figure 3 is a view similar to a portion of Figure 2, illustrating the hazard.

Figure 4 is a view showing one end of one of the cables hereinafter described.

Figure 5 is front elevation of the apparatus, parts being broken away.

Figures 6 and 7 are fragmentary views, showing parts shown by Figure 5.

Figure 8 is an end elevation of the portion of the apparatus at the left of line 8—8 of Figure 1.

Figure 9 is a perspective view, showing one of the travellers.

Figure 10 is an edge view, showing another form of the traveller.

Figure 11 is a top plan view, showing another embodiment of portions of the apparatus.

Figure 12 is a section on line 12—12 of Figure 11.

Figure 13 in an enlargement of a portion of Figure 8, showing a traveller locked in a raised position.

The same reference characters indicate the same parts in all the figures.

An apparatus embodying the invention includes a supporting frame which, as here shown, comprises a base portion 12, a top portion 13, and upright portions 14. The frame supports a plurality of units, each of which is substantially similar in construction and operation to the others, so that a description of one will suffice.

The unit comprises a fixed upright guide or track 15, extending from the base to the top portion of the frame, a rotary conical drum 16, adjacent to the guide, and behind the base portion 12, a traveller 17 movable vertically on the guide 15, a traveller-lifting cable 18, engaged at one end with the drum, to be wound thereon by the rotation of the drum, and so connected with the traveller that the winding of the cable on the drum raises the traveller. One end of the cable 18 has a loop 18^a (Figure 4) encircling the smaller end of the drum 16. The opposite end of the cable is fixed to an elevated support 19, adjacent to the upper end of the guide 15. The cable has a bight which extends downward from the support 19, under a pulley 20, connected and movable vertically with the traveller, and upward from said pulley to a pulley 21, mounted in fixed bearings adjacent to the support 19. From the pulley 21 a stretch of the cable extends to the conical drum 16. The arrangement is such that the loop 18^a normally surrounds the smaller end of the drum loosely, so that the cable has a non-winding connection with the drum, until the portion of the cable adjacent to the loop is deflected laterally from its normal position toward the larger end of the drum and is brought into the path of a pin 23 (Figure 2), fixed to and projecting from the periphery of the drum. When the cable is thus deflected, it is positively engaged by the pin, so that the winding of the cable on the drum is caused by the rotation of the drum, as indicated by Figures 3 and 5, this winding causing the elevation of the traveller 17.

The apparatus comprises cable-deflecting means operable by a user of the apparatus, and including a two-armed horizontally movable lever 25, pivoted at 24 (Figure 1) to a fixed support, and having a longer and a shorter arm. The longer arm of said lever has a slot 26, through which the cable passes, and the shorter arm is engaged with a spring 27, connected at one end with a fixed support and normally holding the lever in the position shown by Figure 1.

The cable-deflecting means also includes a flexible pull member 28, such as a cord or a chain, secured at one end to the shorter

arm of the lever, and guided by pulleys 29 30, and 31 (Figure 8). The free end of the pull member 28 depends from the pulley 31, and is provided with a handle 32, spaced from the front of the apparatus, so that it may be pulled downward by a person standing near the traveller 17, to cause the pull member 28 to swing the lever 25, as indicated by dotted lines in Figure 1, thus bringing a portion of the cable 18 into the path of the pin 23, as indicated by dotted lines in Figure 2. When this is done, the rotation of the drum 16 commences to wind the cable on the drum, and the traveller commences to move upward. The lever 25 is movable by the pull member sufficiently to cause the cable to traverse from end to end of the drum, which is composed of two oppositely tapering portions, meeting to form a zone 16^a of maximum diameter. The drum constitutes a hazard, requiring care on the part of the operator in pulling the pull member 28.

The speed of the ascent of the traveller progressively increases until the cable reaches the zone 16^a, and the operator is obliged to take care in pulling, to prevent the cable from passing beyond said zone and on to the oppositely tapered portion of the drum, because, if this happens, the speed of the ascent of the traveller immediately decreases.

The apparatus is intended to be used by a number of players, each being the operator of one traveller, and each pulling the pull member 28 of the unit connected with that traveller, and all pulling at the same time. The traveller first reaching the goal, which is the upper end of its guide, is the winner. When any traveller reaches the goal, it is arrested there by the engagement of a lug 35 (Figures 8 and 13) on the traveller with a spring-pressed detent 36, fixed to a portion of the frame near the goal, the lug and detent having beveled faces, permitting the lug, in moving upward, to first displace the detent, and then allow it to spring into engagement with the lug, as shown by Figure 13. The arrival of any traveller at the goal actuates releasing mechanism, whereby all of the drums 16 are disconnected from a driving means common to them all, and are rendered loose, so that the travellers, excepting the one locked at the goal, immediately fall by their own weight to the starting position, the drums permitting the cables to unwind therefrom.

In the embodiment of the invention shown by Figures 1 to 8, the drums are loosely mounted on a driving-shaft 38, which is continuously driven by an electric motor 39, through a worm 40, on the motor shaft, and a worm gear 41 on the shaft 38. One end of each drum is provided with a connecting member 42, which in this instance, is a member of a friction clutch, said member being preferably a flat-sided metal disk. With the shaft are connected complemental connecting members 43, which are rotated by the shaft, and may be flat-sided disks of leather connected by springs 44 with rigid collars 45, fixed to the shaft. The drums and their connecting members 42, are movable endwise on the shaft to a limited extent, by forked levers 46, fulcrumed at 47, and having studs 48, engaging grooves 49, in sleeves 50, fixed to the drums. The free ends of the levers 46 are connected by a rod 51, having a notch 52. Springs 53, fixed at 54 (Figure 5) to the frame of the apparatus, and bearing on the upper ends of the levers 46, normally hold said levers in the inclined positions shown by Figure 5, so that the levers hold the connecting members 42, separated from the members 43. In preparing the apparatus for operation, an attendant moves the rod 51 forward endwise until the connecting members 42 contact with the connecting members 43. This operation causes a detent 56 to engage the notch 52 and confine the rod against backward movement by the springs 53. The detent 56 is an arm of a lever pivoted at 57 to a fixed support. The other arm of said lever is an armature 58. An electro-magnet 59 is arranged adjacent to the armature, and is included in an electric circuit which also includes circuit closers 35^a on the traveller-locking lugs 35, and spring-pressed circuit closers 60 on the frame. The circuit is indicated by Figures 5 and 13, in which a is a source of electricity, and b, c, d are conducting wires. The circuit closer 35^a of a traveller reaching the goal, strikes the spring circuit closer 60, as shown by Figure 13, and closes the circuit, so that the magnet 59 is energized and attracts the armature 58, thus displacing the detent 56, so that the rod 51 is released and moved backward by the springs 53, until the connecting members 42 and 43 are separated, and the drums are released, whereupon, all the travellers, excepting the locked winner, drop to their starting position.

The winning traveller may be subsequently released manually, and allowed to drop by means including a rock-shaft 62, having a hooked ear 63, adapted to bear on the spring shank 36^a, of the detent 36, when the rock-shaft is turned, and thereby displace the detent from engagement with the lug 35, as indicated by dotted lines in Figure 13. The rock-shaft is provided with an arm 64, from which depends a pull cord 64^a, whereby the rock-shaft may be turned.

In the embodiment shown by Figures 11 and 12, each drum 16 is fixed to an independent shaft 65, which is movable endwise in bearings 66, and is provided with a connecting member 67, at one end, adapted to engage a complemental connecting member

68, which is one of a series of members fixed to a driving-shaft 69, driven, like the shaft 38, by a motor.

Each drum shaft 65 is normally pressed forward endwise by a spring 70, to hold its connecting member 67 in engagement with one of the connecting members on the driving-shaft.

To render the drums simultaneously inoperative, I provide the means next described.

72 represents a rock-shaft to which is fixed a weighted arm 73, having an ear 74, adapted to be engaged by a detent 75. This detent is pivoted at 76 to a fixed support and constitutes an armature, arranged to be attracted by an electro-magnet 59ª, having the same function as the magnet 59, and included in the electric circuit above described. The detent armature 75 is normally in position to hold the weighted arm 73 somewhat inclined from a vertical position, as shown by Figure 12. When the magnet is energized, the detent releases the arm 73, which moves by gravity to the dotted line position shown by Figure 12, and causes a series of arms 78 on the rock-shaft 72, to displace the springs 70, said arms having studs 79, arranged to bear on the springs. Relatively weak springs 80, bearing on the outer ends of the drum shafts 65, force said shafts, the drums and the connecting members 67 to the dotted line position, so that the members 67 are separated from the driving members 68, and the drums 16ª become loose and inoperative.

The members 67 and 68 may be bevel gears, or may have frictional faces instead of toothed faces, if desired. The drums are made operative by an attendant who restores the arm 73 to the full line position (Figure 12).

The construction of the traveller may be variously modified. As shown by Figures 5, 8 and 9, the traveller includes a figure resembling a man. The body of the figure is provided with a projection including ears 82, and an intermediate portion having a slot 83, adapted to slide on the guide 15. A pin or stud 84 is fixed to and extends between the ears 82. The above-described pulley 20 is journaled on said pin, and its perimeter is eccentric to the pin. A looped slide 85, having a slot 86, slidable on the guide 15, bears loosely on the upper and lower portions of the pulley, and is connected by a pivot 87 with the end portions 88 of the arms of the figure. Said end portions may be fashioned to represent hands grasping, and adapted to slide on the guide 15. Each of the arms includes an outer section 89, and an inner section 90, the outer section being loosely jointed at 92 to the inner section, which is loosely jointed at 93 to the body. The rotation of the eccentric pulley 20 by the cable causes the pulley to move the slide 85 up and down while the traveller is moving upward, so that the arms are caused to simulate the action of the arms of a man climbing on the guide 15, the elbows being variously flexed while the body is climbing. The lug 35 is, in this instance, fixed to the slide 85. The legs 94 of the figure, which may be rigidly attached to the body, are arranged to loosely embrace the guide 15, as shown by Figure 9.

Another form of traveller is shown by Figures 5 and 10, comprising a frame or slide, 95, having perforated ears 96 and 97, adapted to slide on a pair of guides 98, each of which may be flexible and composed of helically coiled wire, attached at its opposite ends to the frame portions 12 and 13. The pulley 20 is, in this instance, journaled in ears 99, on an arm 100, fixed to the guides 97. The lug 35 is fixed to the arm 100, as shown by Figure 10. The frame or slide 94 may be provided with slotted ears 101, providing means whereby an article of merchandise, such as a box of candy or cigars, may be tied to the frame.

Operation.

The drums are first connected by an attendant with the motive power through the instrumentality of the bar 51, or the weighted arm 73. The players stand in a row, each being in position to grasp the handle of a pull member 28. At a given signal, the players pull on the pull members, and thus cause the engagement of the cables 18 with the conical drums. The travellers are thus caused to rise simultaneously, the speed being determined by the skill of the player in causing the cable of his unit to wind on the drum. If the player moves the deflecting lever 25 of his unit too fast, the cable is liable to pass the zone 16ª as indicated by dotted lines in Figure 3, so that the speed of the winding of the cable decreases.

The drums are concealed from the players by the frame portion 12, so that the players cannot see the winding of the cables on the drums.

The contact of the lug 35 of any traveller with the contact spring 60, at the goal, causes the drums to become inoperative, and the travellers which have not reached the goal, to drop. The attendant then releases the winning traveller, and again renders the apparatus operative.

In each of the described embodiments of the invention, there is a starting mechanism operable by an attendant, and including yielding means, such as the spring-pressed bar 51, or the weighted arm 73, a releasing mechanism operated automatically by the traveller reaching the goal, said yielding means normally holding the connecting

members 42 and 43, or the connecting members 67 and 68, separated from each other

I claim:

1. An amusement apparatus comprising, in combination, a supporting frame an upright guide thereon; a traveler movable on said guide; a conical winding drum having cable-engaging means; mechanism for rotating said drum; a cable normally having a loose non-winding connection with the drum, and connected with the traveler to raise the latter when engaged with the drum by said engaging means; manually operable cable-deflecting mechanism including a flexible pull member and a cable-guiding lever movable by the pull member to positively engage the cable with the said engaging means; and locking means adapted to lock the traveler in a raised position.

2. An amusement apparatus substantially as specified by claim 1, the said drum including oppositely tapered portions, and a zone of maximum diameter at the junction of said portions.

3. An amusement apparatus substantially as specified by claim 1, the said traveller comprising a figure movable on said guide, and provided with arms composed of jointed sections, an eccentric pulley journaled in bearings fixed to the body of said figure, and engaged with a bight of said cable, and a slide movable with the figure on the guide and independently movable by the rotation of said pulley, said slide being connected with the arms of the figure to independently move the arms when the figure is moving on the guide.

4. An amusement apparatus substantially as specified by claim 1, the said non-winding connection being provided by a loop on the cable loosely encircling a portion of the said drum, the said cable-engaging means being embodied in a pin projecting from the drum beside said loop.

5. An amusement apparatus substantially as specified by claim 1, the said traveller being provided with a pulley engaging a bight of said cable, and constituting an element of means for connecting the traveler with the cable.

6. An amusement apparatus substantially as specified by claim 1, the said traveller locking means being embodied in a lug carried by the traveller and provided with a bevelled face, and a detent supported by the former and provided with a spring shank and with a correspondingly bevelled face, the detent being normally held by the shank in the path of the lug, and the arrangement of said bevelled faces being such that the detent is first displaced by the upward movement of the lug and then springs outward to engage the lug and lock the traveller in an elevated position.

7. An amusement apparatus substantially as specified by claim 1, the said traveller-locking means being embodied in a lug carried by the traveller and provided with a bevelled face, and a detent supported by the former and provided with a spring shank and with a correspondingly bevelled face, the detent being normally held by the shank in the path of the lug, and the arrangement of said bevelled faces being such that the detent is first displaced by the upward movement of the lug and then springs outward to engage the lug and lock the traveller in an elevated position, the apparatus comprising also a rock-shaft journaled in fixed bearings, and provided with a hooked ear engaging said shank, and with means whereby the rock-shaft may be turned to displace the detent and release the traveller.

8. An amusement apparatus substantially as specified by claim 1, the cable-guiding lever of the said cable-deflecting mechanism being composed of two arms, one of which is provided with a slot through which the cable passes, the apparatus comprising also a spring connecting the other arm of said lever with a fixed support and normally holding the lever in position to prevent the winding of the cable on the drum.

9. An amusement apparatus comprising, in combination, a supporting frame having upright guides; a continuously rotatable driving-shaft; a series of travellers movable on said guides; conical winding drums having cable-engaging means; cables normally having a loose non-winding connection with said drums and connected with the travellers to raise the latter when engaged with the drums by said engaging means; manually operable cable-deflecting mechanism including flexible pull members, and cable-guiding levers movable by the pull members to positively engage the cables with said engaging means; locking means adapted to lock the travellers in a raised position, the said drums being normally loose and inoperative; starting mechanism operable by an attendant to render said drums simultaneously operative by the driving-shaft; and releasing mechanism operable by any locked traveller of the series, to render the drums simultaneously inoperative and permit the other travellers to drop.

10. An amusement apparatus comprising, in combination, a supporting frame having upright guides; a continuously rotatable driving-shaft; a series of travellers movable on said guides; conical winding drums having cable-engaging means; cables normally having a loose non-winding connection with said drums and connected with the travellers to raise the latter when engaged with the drums by said engaging means; manually operable cable-deflecting mechanism including flexible pull members, and cable-

guiding levers movable by the pull members to positively engage the cables with said engaging means; locking means adapted to lock the travellers in a raised position, and including lugs carried by the travellers, and spring detents on the supporting frame, the said drums being normally loose and inoperative; starting mechanism operable by an attendant to render the drums simultaneously operative by the driving-shaft; and releasing mechanism operable by any locked traveller of the series to render the drums simultaneously inoperative, said releasing mechanism including connecting members adapted to separably connect the drums with the shaft, yielding means normally holding the connecting members separated and inoperative, a detent adapted to cooperate with said yielding means in holding the connecting members operatively connected, and means operable by the arrival of any traveller at its locked position for displacing said detent and permitting the separation of said connecting members.

11. An amusement apparatus comprising, in combination, a supporting frame having upright guides; a continuously rotatable driving-shaft; a series of travellers movable on said guides; conical winding drums having cable-engaging means; cables normally having a loose non-winding connection with said drums and connected with the travellers to raise the latter when engaged with the drums by said engaging means; manually operable cable-deflecting mechanism including flexible pull members, and cable-guiding levers movable by the pull members to positively engage the cables with said engaging means; locking means adapted to lock the travellers in a raised position, and including lugs carried by the travellers, and spring detents on the supporting frame, the said drums being normally loose and inoperative; starting mechanism operable by an attendant to render the drums simultaneously operative by the driving-shaft; and releasing mechanism operable by any locked traveller of the series to render the drums simultaneously inoperative, said releasing mechanism including connecting members adapted to separably connect the drums with the shaft, yielding means normally holding the connecting members separated and inoperative, a detent adapted to cooperate with said yielding means in holding the connecting members operatively connected, said detent being an armature; an electro-magnet adapted to attract said armature; an electric circuit which includes said magnet, and circuit-closers including members carried by the travellers and members supported by the frame, the arrangement being such that any traveller on reaching its locked position closes the circuit, so that the armature is attracted and releases said yielding means to render the drums inoperative.

In testimony whereof I have affixed my signature.

HILMER S. ANDERSON.