April 23, 1940. M. L. JONES ET AL 2,198,537

BREAKAWAY APPARATUS

Filed Nov. 24, 1939 2 Sheets-Sheet 1

FIG. 1.

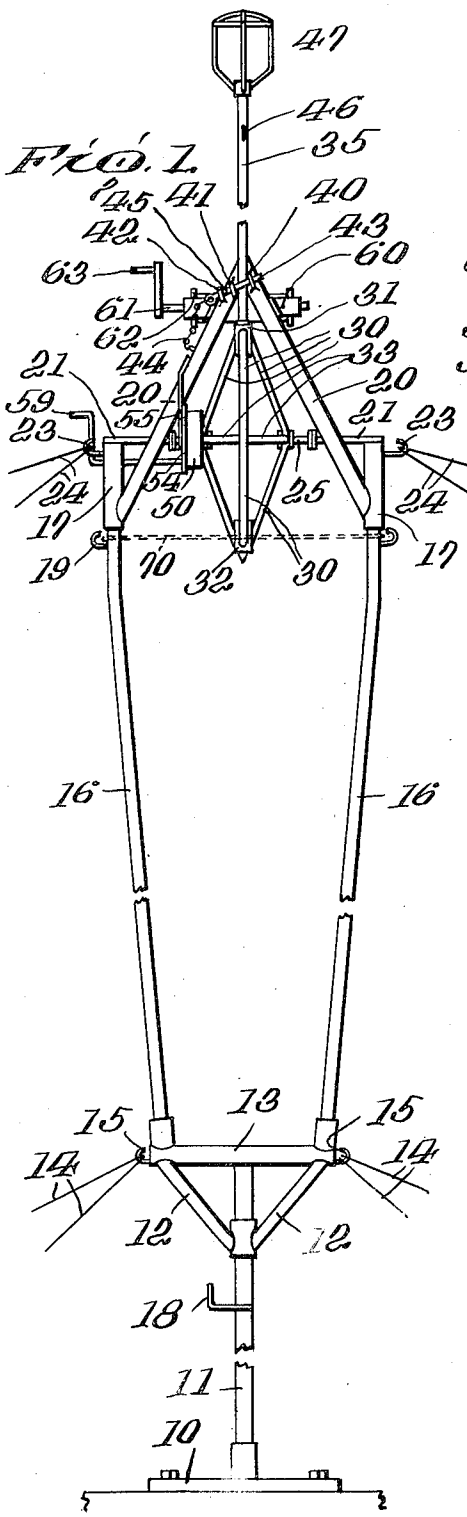


FIG. 2.

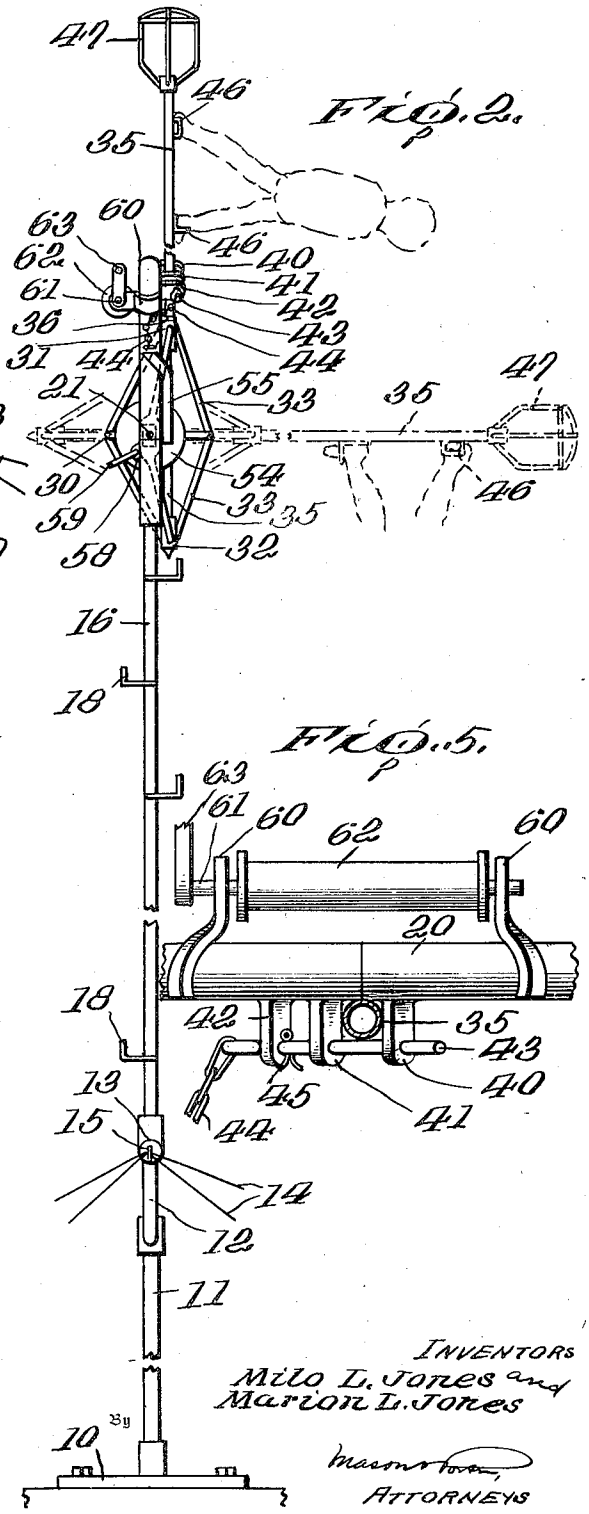


FIG. 5.

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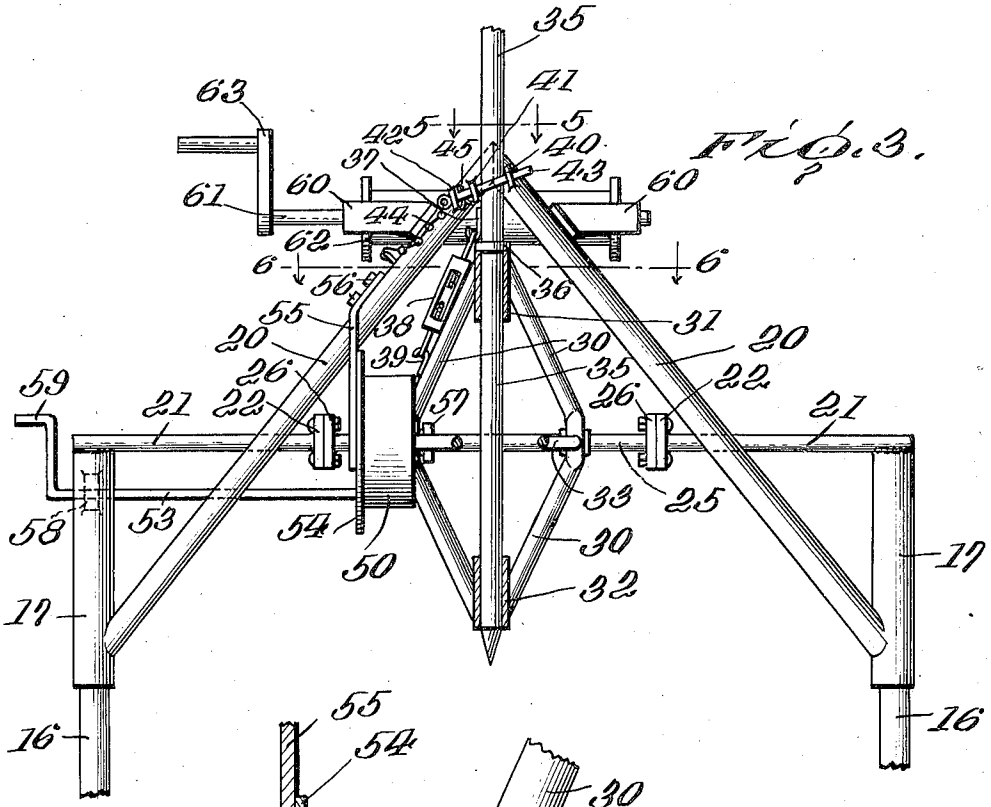


Fig. 3.

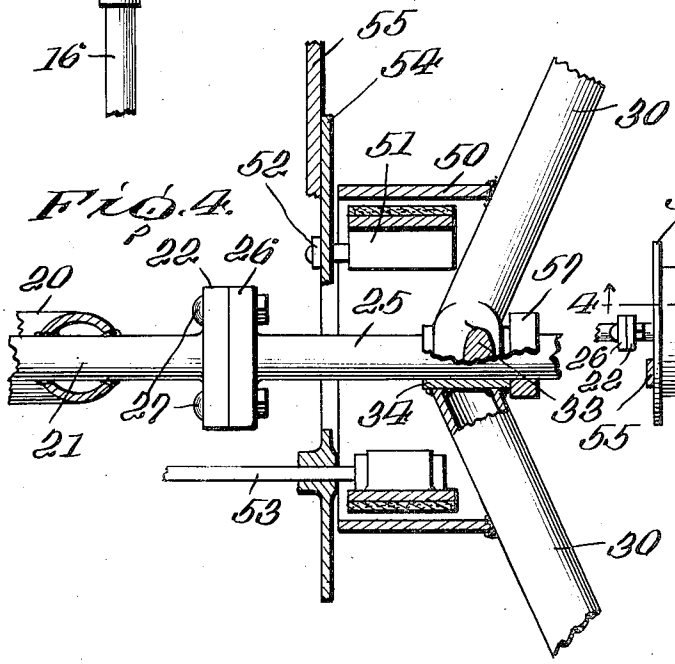


Fig. 4.

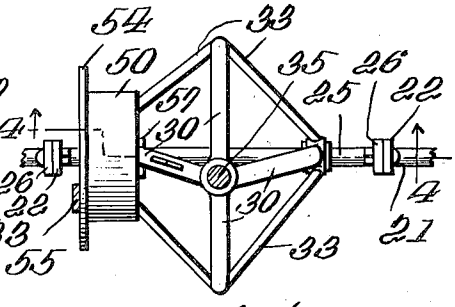


Fig. 6.

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BREAKAWAY APPARATUS

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Application November 24, 1939, Serial No. 306,014

9 Claims. (Cl. 272—60)

This invention relates to breakaway apparatus, and is more particularly concerned with an apparatus of the type employed by acrobats for aerial performances, and is characterized in the provision of parts which initially are maintained in a first position for an acrobatic performance thereon, in association with parts for effecting release and permitting a movement of a part of the general structure whereby the illusion of an accident may be created.

One of the features of the present invention is the provision of a structure for acrobatics, comprising means providing an elevated fulcrum structure and a member mounted for turning about this fulcrum at a regulated rate, together with means for initially holding the member against such turning movement.

Another feature of the invention is the provision of an apparatus of the said type, and including a pivotally mounted member which may be held in an initial position so that an acrobatic performance may be made thereon, together with means for releasing this member for a movement simulating an accidental disruption of the structure, during the course of such a performance.

With these and other features as objects in view, an illustrative form of practicing the invention is shown on the accompanying drawings in which:

Figure 1 is a front elevation of the breakaway apparatus, with parts shown in shortened condition.

Figure 2 is a corresponding side elevation.

Figure 3 is an upright sectional view substantially on line 4—4 of Figure 6.

Figure 4 is a greatly enlarged section, corresponding to the section of Figure 3, but showing the relationship of parts within the brake drum.

Figure 5 is a fragmentary view, substantially on line 5—5 of Figure 3, showing a latching arrangement.

Figure 6 is a top view, substantially on line 6—6 of Figure 3, showing the stiff supporting and pivoting member.

In these drawings, the apparatus is comprised of a suitable base 10 which is mounted on the ground or otherwise fixed firmly in position. This base receives an upwardly extending mast 11 which preferably is of pipe and supports at its top a cantilever bracket structure composed of the brace arms 12 and the cross member 13. It is preferred to have the base 10, the mast 11 and this cantilever structure formed of separate parts for easy assembly and mounting, and for ease in shipment: and it will be understood that the mast 11, and other lengthy parts to be described hereinafter may be made of sections which can be rigidly secured prior to or during the course of assembly and mounting.

It is preferred to provide the cross member 13, at its end, with means for engagement with the guy lines 14, so that the mast 11 may be fixed in an upright position with substantial rigidity. The cross member 13 is also provided with sockets 15 to receive the upwardly extending spars 16 which preferably diverge slightly in an upward direction, but have their upper ends substantially vertical and parallel to receive the sleeve portions 17 of an upper structure which will be described in detail hereinafter. The mast 11 and the spars 16 are preferably provided with the usual climbing pins 18 to facilitate the ascent of the acrobats. Further, hooks 19 are provided near the upper ends of the spars 16 for receiving further guy lines for employment during the erection of the apparatus.

The upper structure is mounted by the sleeves 17, and includes the upwardly converging struts 20 which are secured together at their upper ends by welding and are also connected in similar manner to the sleeves 17, so that a strong and rigid assembly is provided. Co-axial shaft stubs 21 are passed through apertures of the struts 20 and are welded thereto and to the sleeves 17, to provide bracing parts for the upper assembly. These shaft stubs are provided at their inner ends with the rigid flanges 22. The sleeves 17 are provided with hooks 23 for receiving further guy lines 24 which brace and support the structures extending upwardly from the cross member 13.

Between the flanges 22 of the shaft stubs is received a shaft member 25 which has similar flanges 26. The flanges 22 and 26 have apertures for receiving the securing bolts 27 by which the stubs and portions 21, 25 may be fixed rigidly in alignment.

A stiff swinging frame or basket is mounted on the shaft portion 25 for swinging movement about its axis and is shown in illustration as comprised of the tubular members 30 which extend from an upper sleeve 31 in a downwardly divergent direction to substantially the horizontal plane of the shaft stubs 21, and then converge downwardly to a lower sleeve 32. At the plane of the shaft stubs 21, in Figure 1, these members 30 are joined and braced by the horizontal spreaders 33. The assembly of the members 30, the sleeves 31, 32, and the spreaders 33 are rigidly secured to-

gether by welding, and preferably include also the bearing sleeves 34 (Figure 4) which loosely fit the central shaft portion 25, and provide the bearings about which the basket assembly may swing.

It will be noted that the common axis of the sleeves 31, 32 is offset (Figure 6) with respect to the shaft portion 25. A pole 35 has its lower end adapted to closely fit in the sleeves 31, 32 and extends past the shaft portion 25. This pole has a stop ring 36 secured thereto for engaging the upper sleeve 31, whereby to determine the telescoping relationship of the parts, and also is provided with a hook 37 which may be engaged with the eye at one end of a turn-buckle 38 which has its other end engaged with a similar hook 39 fixed to one of the members 30 and effective to hold the parts tightly together and to prevent the pole 35 from being pulled out of the sleeves 31, 32.

At the upper ends of the struts 20, they are provided with three spaced eye members 40, 41, 42, whose apertures are located in a line which has a downward inclination toward the left in Figure 1. The detaining bolt or latch 43 passes through these eyes, and is provided with a chain 44 so that it cannot be dropped from the top of the apparatus after it has been withdrawn. Further, a safety pin 45 extends through an aperture of the bolt 43, in the space between the eye members 41, 42, to prevent accidental release of the bolt 43.

From Figure 5, it will be noted that the pole 35 extends upwardly between the eye members 40, 41, and is normally maintained in upright position by the bolt 43.

The pole 35 is provided with loops 46 for permitting easy ascent of the pole and also for receiving the foot of the acrobat and for receiving ankle safety straps and the like, and thus affords means for securing the acrobat in position, such as that shown in dash-and-dot lines in Figure 2, in a "horizontal stand," with the body extending horizontally away from the upright pole 35, and with the feet spaced and the legs braced to support the weight.

The top of the pole may be provided with spreader 47 including handles for a "hand stand" display.

As shown in Figures 3, 4 and 6, two of the members 30 are welded to a brake drum 50, which has an internal brake band and block assembly 51 which is supported by a pivot 52 and an actuating shaft 53 which pass through the end flange structure 54 and are supported thereby. It will be noted that the brake drum 50 turns with the basket member, while the flange 54 is held rigid with the general frame by a connecting strap 55 separately secured to one of the struts 20 by the bolts 56. This end flange also is effective in association with the collar 57 to prevent any substantial axial movement of the basket assembly on the shaft portion 25 during the relative swinging movement. The brake shaft 53 is preferably guided by a bearing 58 on a sleeve 17 (Figures 2 and 3), and is provided with a handle 59 which can be operated to regulate the braking effect and thus determine the rate of relative movement of the basket assembly and the pole 35, with the acrobat, about the axis of the shaft portion 25.

The struts 20 are preferably provided with rearwardly extending arms 60 to receive the shaft 61 of the windlass 62. The crank arm 63 of this windlass permits rotation of its drum so that a rope on the drum may be employed for pulling the basket and pole assembly back to the original upright position after it has been released as described hereinafter. The structures are preferably made of metal for strength and for ease of assembly and disassembly: and it has been found that such a windlass is desirable for safely returning the parts to the initial position.

Preliminary to use, the structures are assembled during the course of erecting them. Thus, the base 10 and mast 11 are raised with the cantilever structure, and secured in position by the guys 14. The spars 16 are set and secured in position, and further guys, such as the guys 24, are secured to the hooks 19, together with a back-stay or strong-back 70 (dotted line in Figure 1) which is temporarily secured in place to hold the upper ends of the spars 16 in position to receive the upper structure composed of the sleeves 17, struts 20, and the shaft stubs 21, which is then slipped into position, and the guy lines 24 are then raised to the hooks 23 and the back-stay or strong-back 70 is removed. This structure then permits hoisting the swinging basket, until its shaft portion 25 may be aligned with the shaft stubs 21 and the bolts 27 passed through the flanges 22, 26 to hold these parts together. The tension strap 55 of the brake drum is then secured by the bolts 56. The pole 35 can then be inserted into the sleeves 31, 32, and tightened into position by the turn-buckle 38. The pole is hoisted to upright position by the windlass 62 and secured therein by the latch bolt 43 with the safety pin 45.

The apparatus is now ready for the performance of the acrobatics, during the course of which the performer may take the position shown in dash-and-dot lines in Figure 2. At this moment, a second performer usually occupies a position over the left-hand sleeve 17 in Figure 1, with his hand upon the crank arm 59 of the brake assembly. At a pre-arranged time, this second performer than removes the safety pin 45 and pulls the latch bolt 43 so that the performer on the pole 45 is now located on a free structure which is in unstable equilibrium, and this structure now begins to swing toward the right and downwardly, in a clockwise direction in Figure 2, passing through the horizontal position shown in dash lines in that figure, and approaching a vertical position and passing through the clear space between the spars 16. The rate of this downward movement is preferably controlled by the second performer, through the operation of the brake, so that a proper illusion of breakage of apparatus can be conveyed, and also to prevent any extensive pendulum swinging after the pole 35 has passed the dependent or downward position. Thus, the illusion may be brought to an end immediately after its proper conclusion: and the performer can then immediately climb the pole 35 onto the top structure, and continue with another portion of the general act.

It is obvious that the invention is not limited to the particular construction shown, but that it may be modified in many ways within the scope of the appended claims.

We claim:

1. A breakaway apparatus comprising an upright structure having a horizontal pivot adjacent its upper end, a swinging member mounted upon said pivot, means on the swinging member for supporting a performer, means on the upright structure cooperative with the swinging member including a releasable element for latch-

ing the swinging member in a position extending upward beyond said structure, and retarding means including parts connected to the upright structure and to the swinging member for controlling the rate of swinging movement of the swinging member when the said element is released.

2. A breakaway apparatus comprising an upright structure having spaced spars with an open space therebetween, a swinging member pivotally connected to the upright structure and movable in a path through said open space and being in unstable equilibrium in a first position with a performer thereon so that said member will swing through said path, and a releasable element for latching the swinging member in its said first position.

3. A breakaway apparatus comprising a supporting structure having an elevated pivot thereon and a clear space below said pivot, a swinging member movable about said pivot and being in unstable equilibrium in a first position so that it can swing downwardly by gravity, a releasable latch for holding said member in said first position, retarding means for controlling the rate of swinging movement of said member, and means on the member for securing a performer thereon as the member swings.

4. A breakaway apparatus comprising an upright structure having spaced spars with an open space therebetween and a strut frame connecting said spars at their tops and extending upwardly beyond the spars, a swinging member pivoted to said structure and having a swinging pole, said member being in unstable equilibrium when the pole is in position extending outwardly beyond said strut frame and a performer is in position on the pole, and releasable latch means on said strut frame and swinging member for holding said swinging pole in said position, the open space having a greater vertical dimension than the length of the pole from the swinging member pivot.

5. A breakaway apparatus as in claim 4, in which the strut frame and swinging member include cooperating brake elements for retarding the rate of swinging movement of said pole.

6. A breakaway apparatus comprising an upright structure having a horizontal fixed pivot shaft adjacent its upper end, a swinging member comprising bearing sleeves for rotatably surrounding said shaft and a supporting sleeve structure having its axis at an angle to said shaft, and also including spaced angularly directed elements for bracing the sleeve structure against movement relative to said bearing sleeves, said elements and sleeves and sleeve structure being rigidly connected together, a pole engaged in said sleeve structure and means for holding said pole in position therein, means on said pole for supporting a performer in a horizontal stand position, and releasable latch means for normally detaining said swinging member and pole in an upright position.

7. A breakaway apparatus as in claim 6 including a brake having relatively movable parts and a control means, one of said parts being rigidly connected to said swinging member and another said part being rigidly connected to the upright structure.

8. A breakaway apparatus as in claim 6 in which the shaft includes a section extending through said bearing sleeves and separably connected to the upright structure so that the shaft section and swinging member may be mounted and dismounted as a unit.

9. A breakaway apparatus comprising a supporting structure, a member mounted for swinging movement on said structure and being in unstable equilibrium in a first position with a performer thereon so that said member will swing in a downward path, a releasable element for latching the swinging member in its said first position, and retarding means for controlling the rate of swinging movement of the swinging member when said element is released.

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