April 4, 1939. S. SWITLIK 2,153,011

AMUSEMENT DEVICE

Filed Dec. 13, 1935

Fig. 1

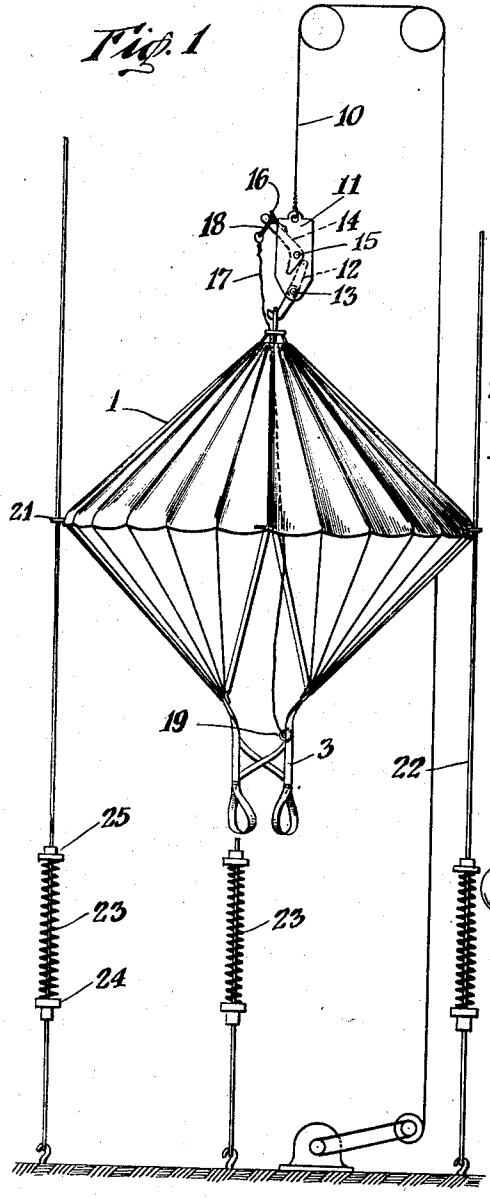


Fig. 2

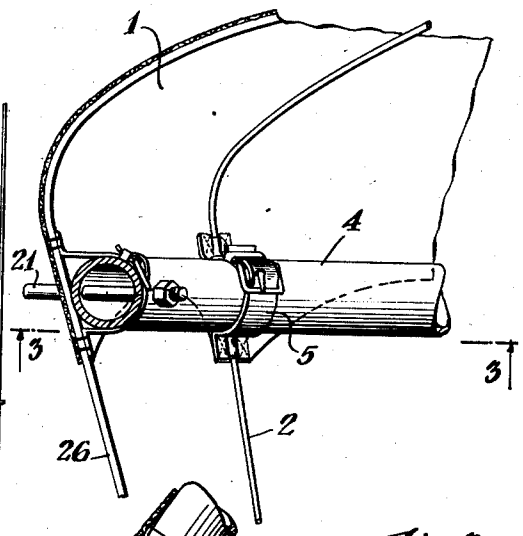


Fig. 3.

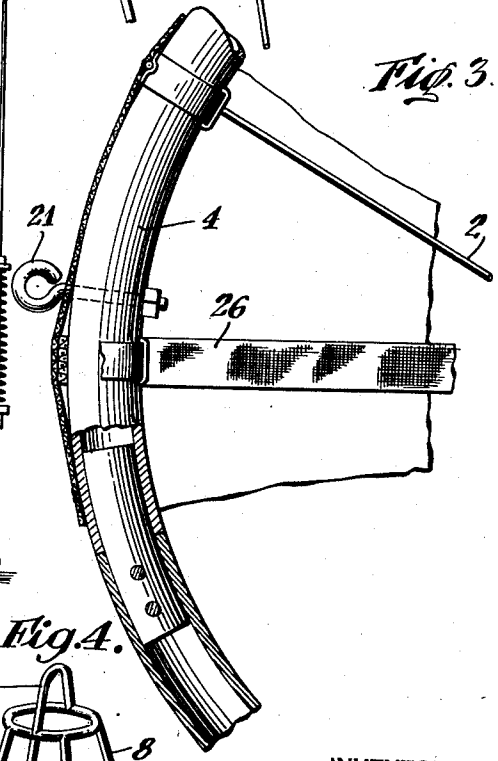


Fig. 5

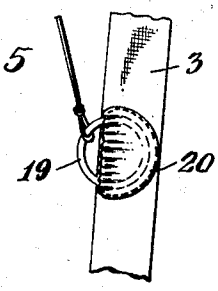
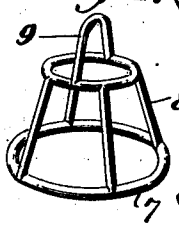


Fig. 4.



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2,153,011

AMUSEMENT DEVICE

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Application December 13, 1935, Serial No. 54,183

7 Claims. (Cl. 35—12)

This invention relates to an amusement and training device that may be used, for instance, in amusement parks and wherein a parachute canopy is elevated and then permitted to fall in simulation of a free drop, and wherein a release of the canopy when it reaches a predetermined height may be automatically accomplished, and wherein the release may be manually accomplished prior to the time that the canopy reaches said predetermined height.

The device in which my invention is incorporated includes a parachute canopy, the skirt of which is maintained open by a rigid ring, a hoist for raising the canopy and the harness that is attached thereto, vertical guides for the canopy in its descent, buffers for gradually arresting the fall of the canopy and means for manually releasing the canopy from the hoist.

The invention of this application includes the canopy with its means for maintaining its skirt extended, the manual release and means for carrying the harnessed load in such manner that the ring is not deformed when it contacts with the buffers.

In the drawing:

Figure 1 is a view of the entire assemblage partly broken away for the sake of convenience of illustration,

Figure 2 is a fragmentary sectional view of the canopy,

Figure 3 is a similar view looking at right angles to Figure 2,

Figure 4 is a perspective view of the vent ring and one element of the separable fastener by which the canopy is attached to the hoist and

Figure 5 is a view of the ripcord ring.

The canopy consists of the usual panels or segments 1 at certain of the seams of which the shroud lines 2 of the usual form are attached. These shroud lines extend to and are attached to the lift webs 3 of the harness. It is, however, to be understood that instead of a harness any type of carrier may be used and either may be used detachably.

A rigid ring 4 is located at the skirt of the canopy and the canopy is attached to this ring by a series of detachable means such as releasable straps 5. These detachable means are located at the points where the panels are joined, and are thus intimately associated with the shroud lines.

The diameter of the ring 4 is less than the diameter of the skirt of the canopy and the lengths of the lower edges of the panels are greater than the distance between the detachable fasteners 5 with the result that when the canopy is inflated the panels will take their usual inflated form.

For convenience of transportation and assembly the rigid ring 4 may be made of a plurality of sections detachably joined together by suitable means 6 such as shown in Figure 3.

The vent of the canopy at the top thereof is surrounded by a rigid ring 7 which is attached to the canopy in a suitable manner and carries a spider 8. This spider in turn carries one element 9 of a separable fastener by means of which the canopy is attached to the hoist.

I have conveniently illustrated the hoist by disclosing the cable 10 thereof. This cable carries the other member of the separable fastener.

In the drawing I have illustrated the separable fastener as consisting of the element 9 to which I have already referred and a plate or body 11 that is attached to the cable 10. A hook 12 is pivoted at 13 to the plate 11 and is of such form that when in a vertical position it is adapted to automatically become disengaged from the element 9 to release the canopy. A trip lever 14 is pivoted on the plate 11 at 15 and is adapted to engage the extended end of the hook 12 so as to maintain the hook out of its vertical position and in its holding position as shown in Figure 1. It is to be noted that the force exerted by the end of the lever is directed at the pivot point of the trip lever 14.

The spring 16 acts as a detent to maintain the connection 18 in position on the lever 14 before the separable fastener is tripped.

This spring tends to hold the lever 12 against movement in either clockwise or counterclockwise directions leaving the release to the force applied to the end of the lever. However, it is to be understood that the cooperation of the lever 14 and the hook 12 insures against disengagement without the spring.

When the trip lever 14 is actuated about its pivot it passes beyond the extended end of the hook 12, moving it out of its path of travel, and releases the hook so that it is free to swing into its releasing position under the influence of the weight of the jumper. The trip lever 14 is so formed as to allow the movement of the hook into this position.

A ripcord device 17 having a separable connection 18 with the trip lever 14, which separable connection is maintained in engagement with the trip lever, extends from the trip lever to a point adjacent the harness. Preferably this ripcord carries the ordinary ripcord handle 19 which is located at a point adjacent the harness and may

be removably held in a pocket 20 on a lift web of the harness.

As illustrated in the drawing the ring 4 is provided with a plurality of eyelets 21 that are adapted to slide on the vertical guides 22 by means of which engagement the canopy is guided in its ascent and descent.

Buffer springs 23 are arranged on the guides 22 and are secured thereto to 24, the springs having movable plates 25 on their upper ends and being compressible when force is applied thereto by the contact of the eyelets 21 during the descent of the canopy. Thus the descent is buffeted.

It has been found that when all of the shroud lines are of the ordinary character and of the same lengths there is a tendency of the ring 4 to deform when the buffers are engaged. I have overcome this tendency by forming the shroud lines adjacent the points of contact between the eyelets 21 and the buffers of a material relatively heavier and stronger and relatively shorter than the remaining shroud lines. These shroud lines 26 may be formed of webbing of the character used in the harness and become in reality load carrying shroud lines.

While I have disclosed certain details for the convenience of illustration I do not wish to be limited to those details except as is necessitated by the claims.

What I claim is:

1. In a device of the class described the combination with a parachute canopy, of a rigid ring for maintaining the skirt of the canopy extended, vertical guides with which the ring has sliding connection, buffers associated with the guides and with which the ring is adapted to contact, a harness, load carrying shroud lines connected to the ring at the points at which the ring contacts with the buffers and additional shroud lines connected with the harness and ring between the first mentioned shroud lines.

2. In a device of the class described the combination with a parachute canopy, of the rigid ring attached to the skirt of the canopy to maintain the same extended, the canopy having a vent at the upper end, a rigid ring surrounding the vent to maintain the vent open, a spider extending upwardly from the latter ring and one element of the separable fastener attached to the spider.

3. In a device of the class described, a parachute canopy, a harness attached thereto, a rigid ring in the skirt of the canopy to maintain the same extended, a plurality of vertical guides with which the ring is slidably engaged, means for elevating the canopy, load-carrying shroud lines extending from the ring at the points of engagement between the ring and the guides to the harness, and shroud lines connected to the canopy and harness between the load-carrying shroud lines.

4. In a device of the class described, the combination with a parachute canopy of a harness attached thereto, the canopy having a vent at its upper end, a hoist, a rigid ring attached to the canopy and surrounding the vent and having one element of a separable fastener thereon, a hoist carrying the cooperating element of the separable fastener and means for releasing said separable fastener elements.

5. In a device of the class described, the combination with a parachute canopy of a carrier attached thereto, a hoist for raising the canopy and carrier, means for releasably attaching the canopy to the hoist, manually controlled means for operating said attaching means to release the canopy from the hoist, and means for automatically operating said attaching means to release the canopy from the hoist when the canopy reaches a predetermined position and the manual operating means has remained inoperative.

6. In a device of the class described, the combination with a parachute canopy of a carrier attached thereto, a hoist for raising the canopy and carrier, means for releasably attaching the canopy to the hoist, manually controlled means for operating said attaching means to release the canopy from the hoist, and means for automatically operating said attaching means to release the canopy from the hoist when the canopy reaches a predetermined position and the manual operating means has remained inoperative, said manual means including a handle located adjacent the carrier.

7. In a device of the class described, a parachute canopy, a carrier attached thereto, a rigid ring in the skirt of the canopy to maintain the same extended, a plurality of vertical guides with which the ring is slideably engaged, means for elevating the canopy, load-carrying shroud lines extending from the ring at the points of engagement between the ring and the guides to the carrier, shroud lines connected to the canopy and carrier between the load-carrying shroud lines, and means for automatically releasing the canopy from the elevating means.

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