

[54] CONTROLLED PERSONAL DESCENT DEVICE

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[51] Int. Cl. ....G01n 31/00

[58] Field of Search .....24/129, 129 B, 129 C, 115 G, 24/115 A, 115 K, 73.44, 194, 121; 188/65.4; 182/5

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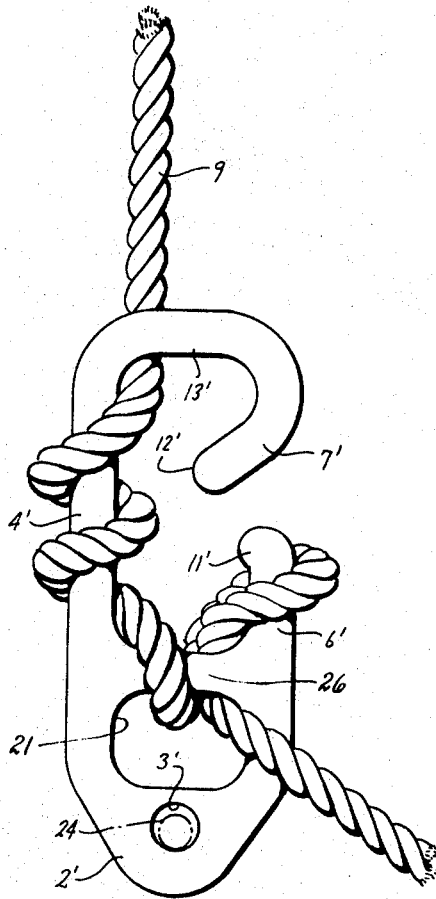
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[57] ABSTRACT

A device for use with a rope to lower persons or objects in a controlled descent down a rope at various speeds or even a complete stop, consisting of a metal article having an elongated member upon which the rope is wound several turns and an open passage located above a post upon which a portion of the rope may be looped. The device having an enclosed opening for attachment to a harness or other fitting.

2 Claims, 10 Drawing Figures



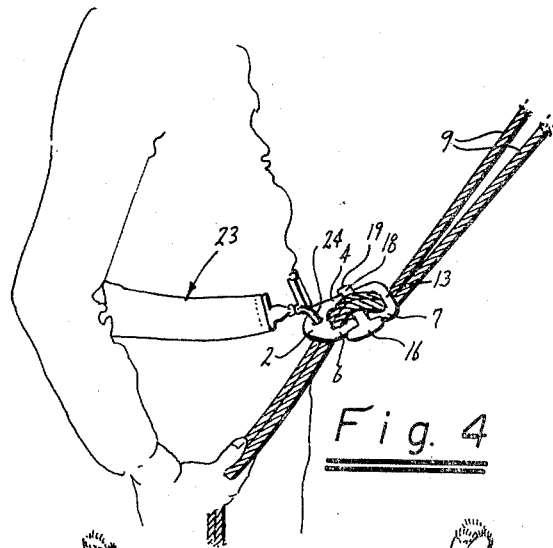


Fig. 4

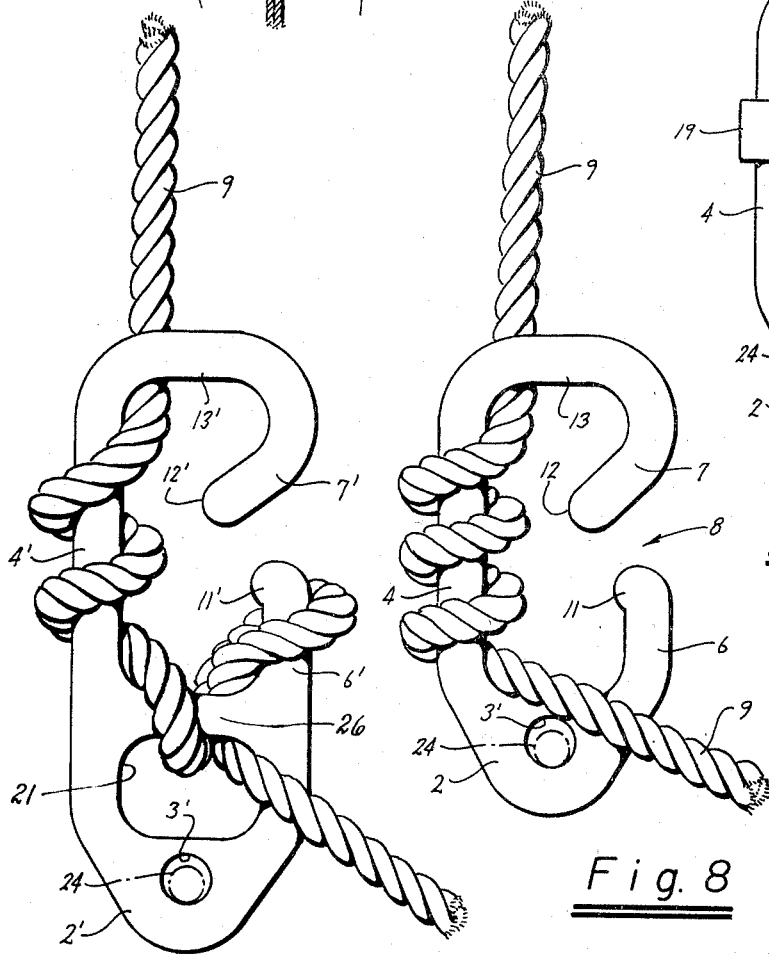


Fig. 8

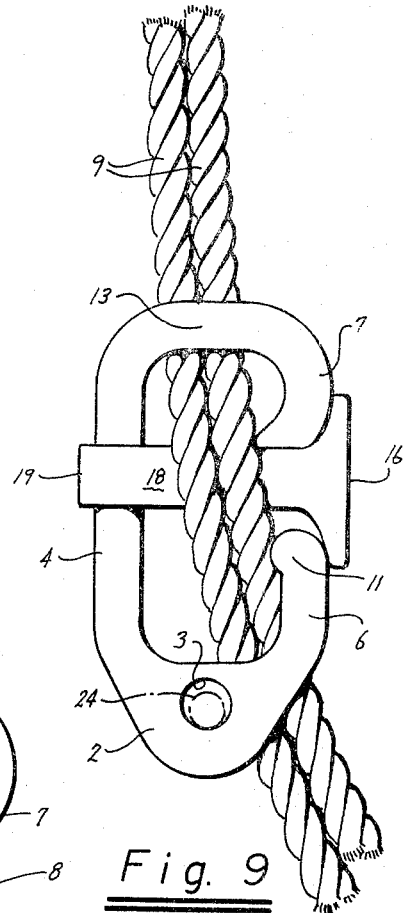


Fig. 9

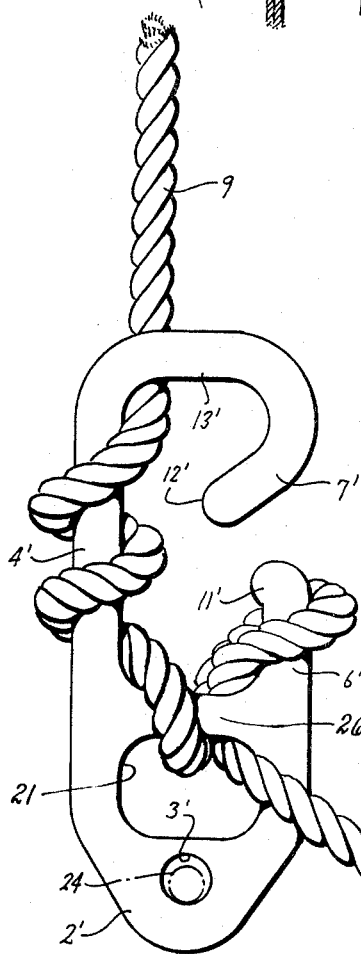


Fig. 1

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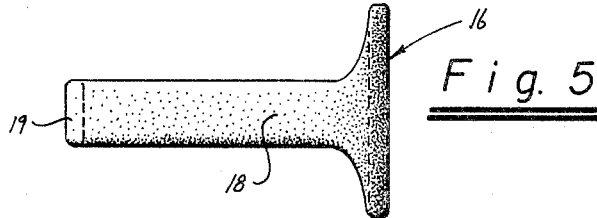


Fig. 5

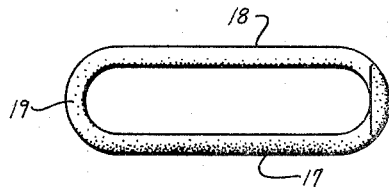


Fig. 6

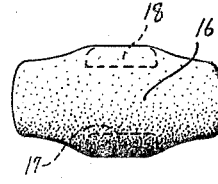


Fig. 7

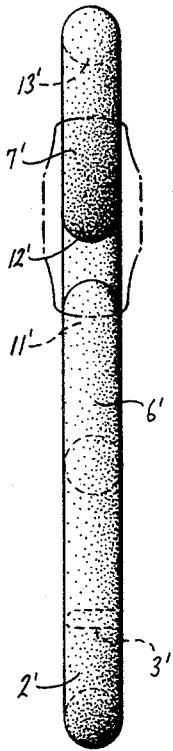


Fig. 3

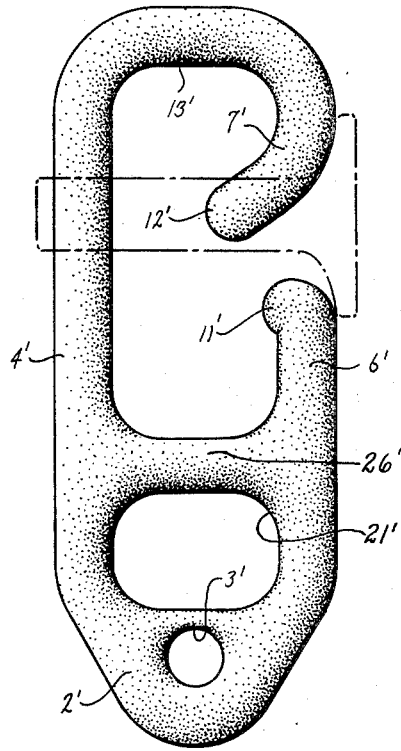


Fig. 2

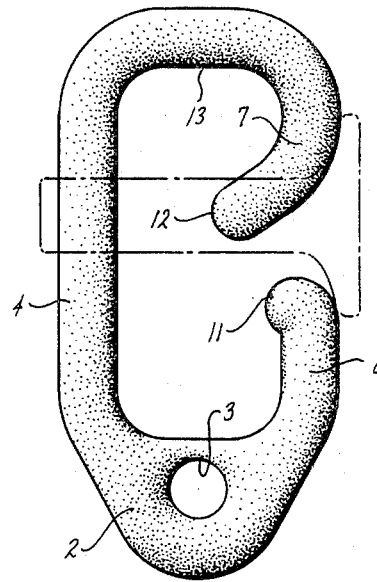


Fig. 10

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## CONTROLLED PERSONAL DESCENT DEVICE

### BACKGROUND OF THE INVENTION

The classic rescue hook for which this invention offers an improvement is known as the "Atlas Pompier Hook." The Atlas hook is in the form of a closed loop with a spring gate. The Atlas hook permits controlled descents down a rope but complete stops can only be made by tying the rope to another device or around the person.

### SUMMARY OF THE INVENTION

The gist of the invention is the provision of an article which has a post about which a loop of rope can be taken to completely stop the descent of a person for a selected period of time so that he can have both hands free, yet resume the descending mode quickly and easily.

An object of the present device is to permit a person to rappel down a stationary single, or double rope from which he is suspended with ease, comfort and complete control.

A further object of the present device is to permit a person to make a complete stop and by merely making a simple loop in the rope about a portion of the device permit the maintenance of a stationary elevation with both hands free to carry out work assignments.

A further object is to provide a device permitting various ways in which a rope may be wound about it to permit various speeds of descent.

Still another object of the device is to permit a ground stationed person to control the descent of the person or object by applying tension to the lower end of the rope.

A still further object is to secure a person or object to a ladder rung or other fitting used by high riggers, fire fighters and others.

Another object is to provide a hook which can be used with a brake bar so that the hook can be used with double or single ropes.

Still another object is to provide a device in which descent can be accomplished only by "feeding" the rope into the device thereby enabling very controlled slow descents.

Another object is to provide a sturdy, completely safe device which has universal use by firemen, painters, steel workers, window washers, tree workers mountaineers, spelunkers, shipworkers and all other construction and rescue personnel who must work in high places.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view showing one embodiment of the invention.

FIG. 2 is a side view of the device shown in FIG. 1 with a brake bar shown in phantom line.

FIG. 3 is a front view of the device shown in FIG. 2 with the brake bar shown in phantom line.

FIG. 4 is a perspective view of the device shown in FIG. 9.

FIG. 5 is a side view of a brake bar used in connection with the invention

FIG. 6 is a top view of the bar shown in FIG. 5.

FIG. 7 is an end view of the bar shown in FIGS. 5 and 6.

FIG. 8 is a side view of an alternate form of the present invention shown with one possible rope configuration.

FIG. 9 is a side view of the alternate form shown in FIG. 8 with the brake bar of FIGS. 5-7.

FIG. 10 is a side view of the invention shown in FIG. 9 with the rope removed and showing the brake bar of FIGS. 5-7 in phantom line.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

The rescue hook of the present invention consists briefly of an integral generally C-shaped member having a base portion 2 formed with an enclosed opening 3, an elongated side 4 joined to the base, a post member 6 joined to the base and separated from the side member, a hook shaped portion 7 joined to the side and separated from the post end 11 forming

an open passage therebetween indicated by arrow 8; the side member being separated from the post member a distance permitting a rope 9 to be wound about the side member and a turn about the post.

The hook is preferably made from a light metal such as aluminum or magnesium. All surfaces of the metal should be rounded to avoid cutting the rope. The hook is most inexpensively made with all parts in the same plane but variations could be made with the parts at an angle.

It is essential that the device have a hook end which curves inwardly in the direction of the side member to prevent the rope from accidentally coming off the device. The end 12 of the hook must be spaced a sufficient distance from the side of the device to permit at least one turn of rope on the side. The end of the hook should extend below the inside edge 13 of the hook at least 2 or 3 rope diameters of the rope being used. The end of the post is preferably extended inwardly.

An alternate form of the invention consists of the device described above and with a brake bar shown in FIGS. 5, 6, 7, and 9. The brake bar is used for controlled descents with two ropes or a single rope doubled. The brake bar defines a closed loop dimensioned to encircle the side member and post. An end 16 spans the passage formed by the post end and the hook portion. The bar consists of sides 17 and 18 and end 19. The brake bar fits over either form of the invention as shown in phantom lines in FIGS. 2, 3 and 10.

In FIG. 1, another alternate form of the invention is shown consisting of a base 2', an enclosed opening 3', side 4', inside edge 13', hook 7', hook end 12' post end 11' and post 6'. In addition, by providing a cross member 26 spaced from the base, an enlarged opening 21 is formed in the base.

In use, the rope is wound about the side as shown in FIG. 1. The end of the rope is held in one hand and permitted to slide therethrough. If it is desired to make a stop, the rope can be looped around the post as seen in FIG. 1. FIG. 2 shows a form of the hook in which even greater safety is obtained in stopping descent completely so that a person can work with both hands. An enlarged opening 21' is formed in the base by providing cross member 26' spaced from the base. The rope is first looped through the enlarged opening and then placed around the post.

FIG. 9 shows a double rope fed through the hook and over the brake bar. This version permits the use of the hook where use of a double rope is desired. Use of the brake bar is shown in FIG. 4 in which the hook is attached to a harness 23 by means of a ring 24 which is attached to the enclosed opening in the base of the hook.

The rope may be wound about the hook in various ways depending upon the speed of descent required. The drawings are illustrative of a few of the different rope configurations.

I claim:

1. A controlled personal descent assembly comprising:
  - a. a base member having an eyelet opening therein;
  - b. a ring dimensioned for releasable connection to said base member through said eyelet opening and adapted for connection to a belt or harness worn by a person using said assembly for descending;
  - c. a first elongated side member connected to said base and extending longitudinally therefrom in a substantially straight line a distance approximating a plurality of diameters of the line;
  - d. a first flexible line extending longitudinally of said device and being wound a selected plurality of turns around said first side member;
  - e. a second elongated side member having a length less than said first side connected to said base and spaced from said first side member a distance of at least two diameters of said flexible line and extending in substantially the same plane as said base and first side member and terminating in a stub post;
  - f. a cross member spaced from said base and joining said first and second sides and thereby forming a first enclosed opening having an area several times greater than the area of a line adapted to be received therethrough;

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- g. an elongated top member joining said first side member and extending at substantially right angles therefrom, spaced from said cross member and in substantially the same plane therewith;
- h. a hook shaped member joined to said elongated top member and curving inwardly toward said first elongated side member, said hook shaped member being spaced from the end of said stub post at least one line diameter to

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- permit passage of a line loop therebetween;
- g. all surfaces of said members being constructed with smooth rounded surfaces to prevent cutting of said line.
- 2. An assembly as described in claim 1 wherein:
  - a. the distal end of said post is formed with an inwardly extending portion.

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