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Ellis et al.

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[54] **REMOVABLE SAFETY GUARD FOR LOADING DOCKS AND PLATFORMS**

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[21] Appl. No.: **340,232**

[52] **U.S. Cl.** **49/34,** 49/9, 242/107.13

[51] **Int. Cl.** **E01f 13/00**

[58] **Field of Search** 49/34, 9; 256/35, 37, 1; 254/51, 64, 161, 163, 175.7, 169; 242/107.11, 107.12, 107.13, 100.1

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[57] **ABSTRACT**

A removable safety guard for loading docks, platforms and the like. The opposite ends of a flexible plastic cable are attached to an enclosed spring-loaded reel in which they are retracted when not in use. The reel enclosure is mounted on a main post disposed adjacent to one side of the protected area. A cable pull is used to unwind the cable from the reel and attach it to a terminal post disposed adjacent to the other side of the protected area. The cable provides two vertically spaced lengths of cable extending across the protected area. For larger widths, a removable intermediate post may be used.

5 Claims, 8 Drawing Figures

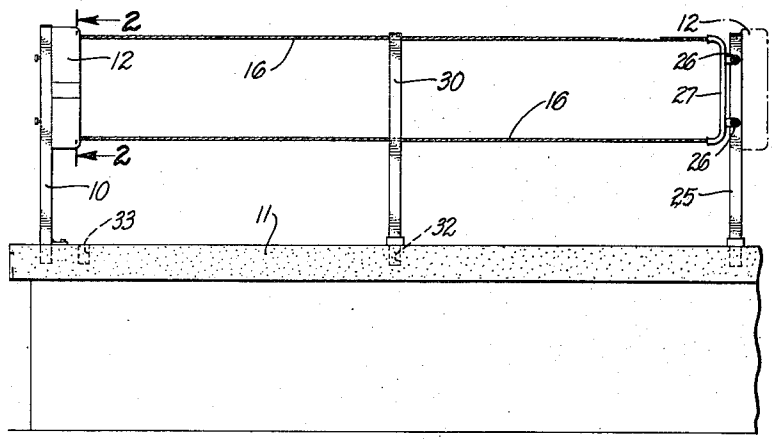


FIG. 1.

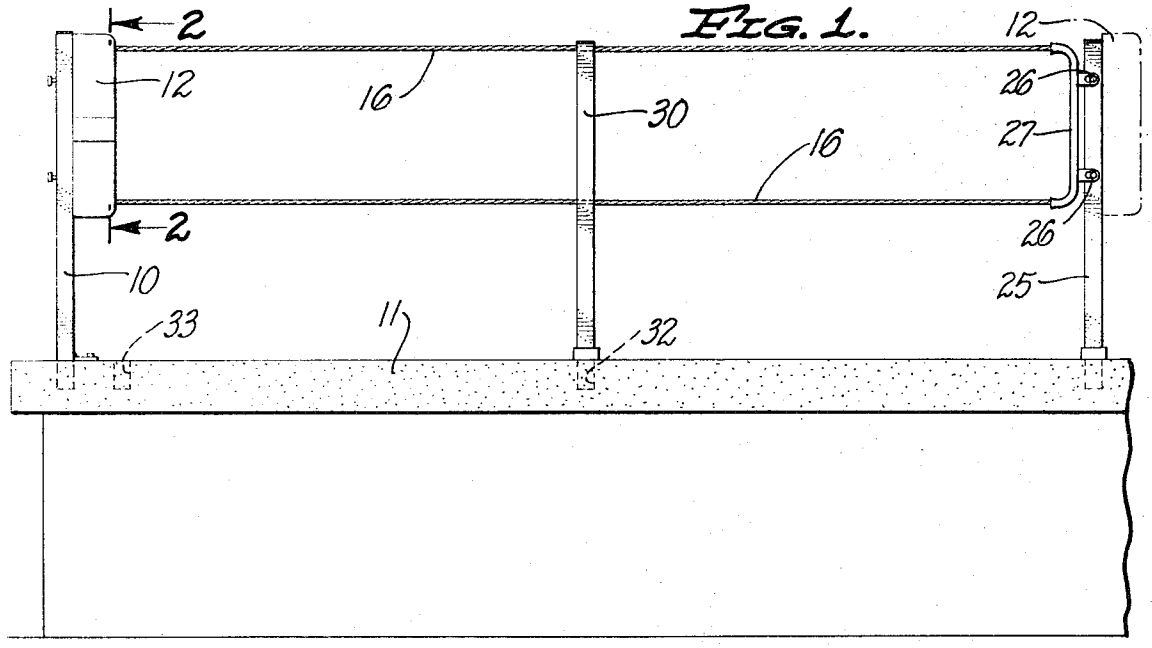


FIG. 2.

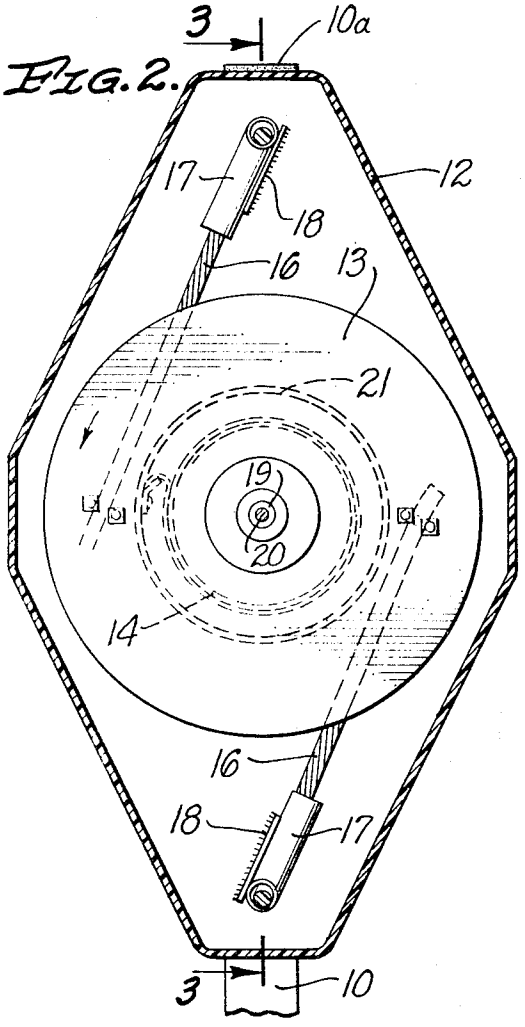


FIG. 3.

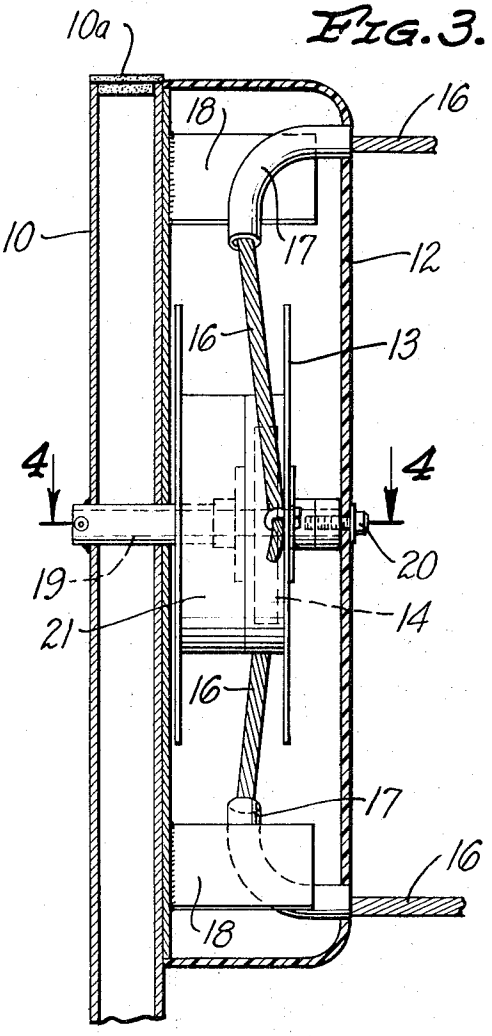


FIG. 4

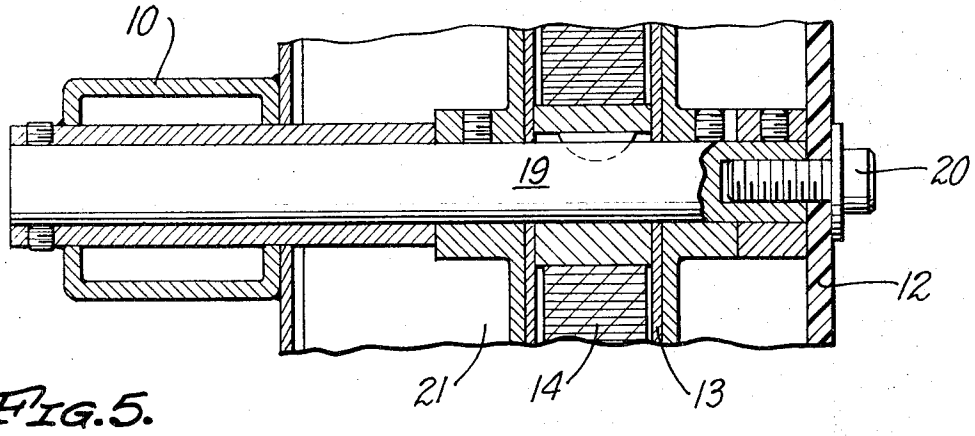


FIG. 5.

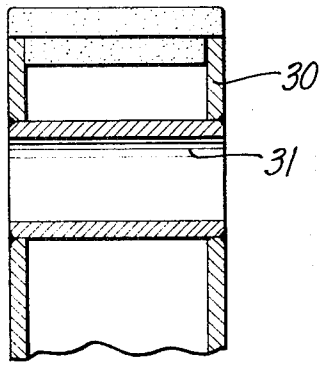


FIG. 6.

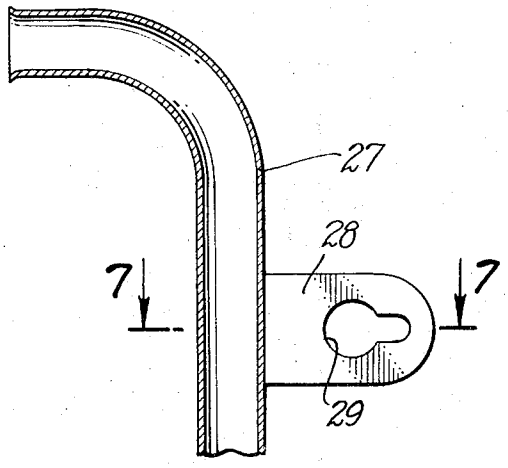


FIG. 7.

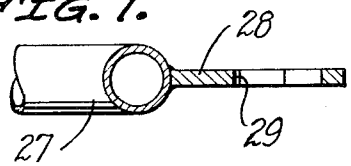
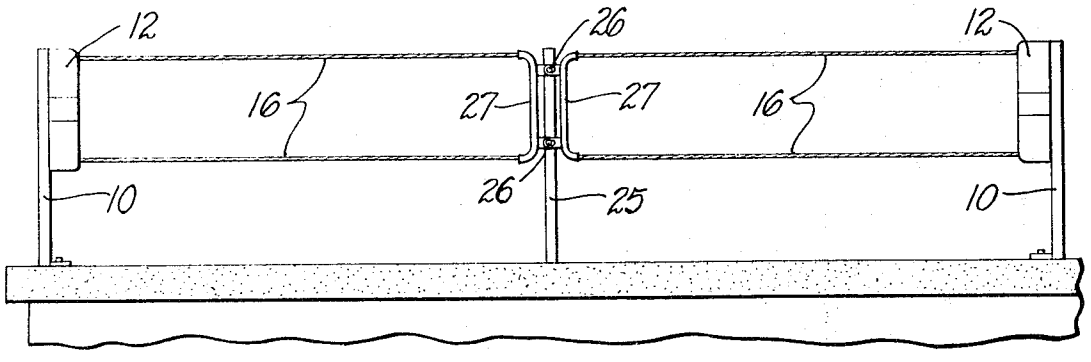


FIG. 8.



REMOVABLE SAFETY GUARD FOR LOADING DOCKS AND PLATFORMS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a removable safety guard which is particularly adapted for use on loading docks, platforms, runways and the like.

2. Description of the Prior Art

Truck docks and other work and loading platforms have always been faced with difficult safety problems. At the present time, one common type of protective device which is in use comprises a rigid pipe railing. The pipe railing is normally fabricated on the job site in three foot long sections, which are inserted in pipe sockets in the platform. Longer pipe railing sections tend to bind when being pulled out of or inserted into the sockets, so several shorter sections are used. These sections of rail, when not in use, must be stored out of the way. They are usually leaned against a wall or a column of the building. A person bumping the stack of rail sections or passing at the wrong time may have them fall, causing possible injury.

Another type of protective device is a chain or cable railing, which is usually fixed at one end and removably hooked at the other end. When the railing is opened for work, there is always a pile of loose chain or cable for personnel to trip over. Another problem with cable is that it may fray, so that hands can be injured.

The various devices and expedients which are now in use accordingly create almost as many safety problems as they solve. They are expensive, difficult and awkward to use and do not provide an acceptable answer to the problems of dock and platform safety for personnel, equipment and cargo.

SUMMARY OF THE INVENTION

The invention provides a removable safety guard for loading docks and platforms which overcomes all of the problems presented in previous devices. In essence, the invention contemplates a flexible plastic cable which is mounted on an enclosed spring-loaded reel on which it is retracted when not in use. When extended, the cable provides two vertically spaced lengths of cable removably attached to a fixed or removable vertical post located on the opposite side of the area being protected. A removable intermediate post may also be used.

When the device is in use, the dock or loading platform is protected and guarded as completely and effectively as by the rigid railings, chains or cables previously used. On the other hand, when the device is not in use all of the parts are easily and conveniently stored completely out of the way of personnel, equipment and cargo. Complete safety is accordingly provided.

The device provides with a minimum number of parts and manufacturing variations a removable safety guard system which can be used on substantially every type or size of loading platform or dock.

The device of the present invention is more economical to manufacture and is also more economical to use because it requires only a short time to place in use or to remove from use.

The cable utilized by the invention is more visible than the prior art devices, will not injure hands, will not absorb moisture or rot and will not stretch or sag. It is substantially permanent but can easily be replaced if the need should arise.

If removable posts are used, storage means are provided so that safety hazards are eliminated. There are no loose parts lying around to trip over or run over and no parts which can fall and cause injury.

It is accordingly among the objects of the invention to provide a removable safety guard for loading docks, platforms and the like having all of the advantages and benefits set forth above and described hereinafter in this specification.

The invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by the invention.

While there are shown in the accompanying drawings preferred embodiments of the invention, it should be understood that the same are susceptible of modification and change without departing from the spirit of the invention.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front elevational view on a reduced scale of a safety guard in use on a loading dock, with the possible positioning of a second cable reel shown in phantom lines;

FIG. **2** is a sectional view of the cable reel assembly taken on line **2—2** of FIG. **1**;

FIG. **3** is another sectional view of the same, taken on line **3—3** of FIG. **2**;

FIG. **4** is a partial sectional view taken on line **4—4** of FIG. **3**;

FIG. **5** is a partial sectional view of the upper cable receiving sleeve in the intermediate post;

FIG. **6** is a partial sectional view of the pull, showing in elevation the flange for removably attaching the pull to the terminal post;

FIG. **7** is a transverse sectional view taken on line **7—7** of FIG. **6**;

FIG. **8** is a front elevational view showing two reels in use on a loading dock connected to opposite sides of a central terminal post.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment which has been selected to illustrate the invention is adapted to be used on substantially any type of truck, railroad, ship or airline loading docks, platforms, open sided floors, runways, etc. It may also be used for wall openings in warehouses, factories, etc. or any other place where a safety problem exists.

A vertically directed main post **10** is customarily permanently installed in the floor adjacent to one side of the platform **11** or other dock or wall opening being protected. The post **10** may be formed of any suitable material. Two inch square structural steel tubing has been found particularly satisfactory. The top of the post **10** is preferably closed by a rubber guard **10***a* to prevent personal injury and protect the interior of the post from debris and moisture.

Mounted on the top of the main post **10** is a reel enclosure **12,** which may conveniently be formed of molded fiberglass material or other plastic or metal material. Rotatably mounted within the reel enclosure **12** is a spring-loaded reel **13** of a conventional type which is available as a product of standard manufacture and which is well known in the art. A reel **13** having a di-

ameter of 12 inches has been found satisfactory in use. The reel **13** is normally urged in one direction by an internal spring **14** and can only be rotated in the opposite direction against the urging of the spring **14.**

A pair of diametrically opposed U-bolts **15** or other suitable anchoring devices, extend through one side of the reel **13,** with their closed ends disposed on the inside of the reel. Extending beneath the closed ends of the U-bolts **15** are the opposite ends of an elongated cable **16,** which may be formed of any suitable material. Twisted polypropylene having a ½ inch diameter with high tensile strength and an easily visible yellow color has been found particularly satisfactory in use. Such line has a tensile strength of 4,400 lbs.

Each of the U-bolts **15** has a pair of threaded legs which are disposed on the outside of the reel. Nuts threaded thereon may be loosened to release the U-bolts **15** and permit longitudinal adjustment of the length of the cable **16.**

Within the top and bottom of the reel enclosure **12** are a pair of right angular cable receiving guide tubes **17,** which may conveniently be formed of metal. The ends of the cable **16** extend from the reel **13** through the guide tubes **17,** the ends of which extend through openings in the front of the reel enclosure **12.**

The guide tubes **17** are circular in cross section and their sides are welded to flanges **18** which are in turn welded to the inside of the back wall of the reel enclosure **12.** The guide tubes **17** act to direct the cable **16** to and from the reel **13** and prevent its opposite ends from becoming entangled.

The guide tubes **17** are fixed, but the reel **13** is rotatably mounted on a shaft **19** which extends transversely through the reel enclosure **12** and the main post **10.** The bolt **20** which extends through the front of the reel enclosure **12** and into the end of the shaft **19** may be removed to permit removal of the front cover portion of the reel enclosure **12** to provide access to the interior. The reel **13** has a central circular hub **21,** which encloses the spring **14.** Both ends of the cable **16** wind around the hub **21** in opposite directions in overlying relationship to each other as the reel **13** is rotated. The sides of the reel **13** extend radially outwardly from the hub **21** a sufficient distance to hold the cable **16** on the reel **13** when the cable **16** is fully wound on the hub **21.**

A terminal post **25,** which may be formed substantially identical with the main post **10,** is mounted adjacent to the opposite side of the area to be protected. A terminal post **25** may be either permanently or removably mounted, as desired. The upper portion of the terminal post **25** is provided with a pair of vertically spaced outwardly projecting pins **26** which are disposed on one side of the terminal post **25.**

The center of the cable **16** extends through an elongated U-shaped tubular cable pull **27,** which may be formed of metal or other suitable substantially rigid material. Extending outwardly from the front edge of the pull **27** are a pair of flanges **28,** each of which is provided with a keyhole slot **29.** The keyhole slots **29** are dimensioned and arranged to removably receive and engage the pins **26** on the terminal post **25.** The pull **27,** flange **28** and keyhole slots **29** are shown in FIGS. **6** and **7** of the drawings.

When the device is not in use, the cable **16** is fully wound around the hub **21** of the reel **13** which is in turn disposed within the reel enclosure **12.** The pull **27** is disposed directly adjacent to the reel enclosure **12,** with its opposite ends abutting against the reel enclosure **21** adjacent to and surrounding the openings through which the guide tubes **17** extend.

The spring **14** of the reel **13** acts to normally hold the cable **16** in fully retracted position and to hold the pull **27** in the position described.

In order to place the safety guard in position for use, the user need only exert sufficient force manually on the cable pull **27** to move it away from the reel enclosure **12.** As the pull **27** is moved away from the reel enclosure **12,** both ends of the cable **16** are unwound from the hub **21** of the reel **13** and the reel **13** is rotated against the urging of the spring **14.** When the pull **27** reaches the terminal post **25,** the keyhole slots **29** of the flanges **28** are fitted over the pins **26** on the terminal post **25** and return movement of the pull **27** and cable **16** is prevented.

When removal of the safety guard is desired, the pull **27** is detached from the terminal post **25** and the spring **14** will then automatically rewind both ends of the cable **16** simultaneously, moving the pull **27** back to its storage position adjacent to the reel enclosure **12.**

If the width of the area to be protected is 8 feet or less, only a single main post and a single terminal post are required. If the area to be protected is wider, an intermediate post **30** of the type shown in FIG. **1** of the drawings may be used. The intermediate post **30** is normally removably mounted in a socket **32** formed in the floor. The intermediate post **30** is formed similarly to the previously described posts **10** and **25,** but is provided with a pair of transversely directed tubular sleeves **31** through which the cable **16** freely and slidably extends. The intermediate post **30** and upper sleeve **31** are shown in FIG. **5.**

In order to provide a clear working area when an intermediate post **30** is required, a storage socket **33** is provided adjacent to the main post **10** (or terminal post **25**). The intermediate post **30** may thus be moved from its own socket **32** and stored in the storage socket **33** when not in use.

In order to cover a larger area, a series of main and terminal, or main, terminal and intermediate posts may be used in successive series. This can easily be done by mounting a second reel enclosure on the opposite side of the terminal post, as shown in phantom lines in FIG. **1** of the drawings.

FIG. **8** of the drawings shows another alternative arrangement in which a pair of main posts having reel enclosures are mounted on opposite sides of the area to be protected, with both pulls being connected to a single central terminal post, which may be removable. Intermediate posts may also be used with this arrangement, if required.

While any suitable dimensions may be used, it has been found for the protection of personnel that a height of 21 inches from the ground is satisfactory for the lower portion of the cable **16** and 42 inches from the ground for the upper portion of the cable.

We claim:

1. A safety guard for loading docks, platforms and the like comprising a spring-loaded reel rotatably mounted adjacent to one side of the area to be protected, a cable having a pair of ends connected to said reel, said reel having a central circular hub, both ends of said cable being wound around said hub from opposite directions in overlying relationship to each other,

said reel having sides extending radially outwardly from said hub a sufficient distance to hold said cable on said reel when said cable is fully wound on said reel, a cable pull connected to said cable remote from said ends, said cable pull being manually movable away from said reel to unwind both ends of said cable from said reel simultaneously, and means engageable with said cable pull to hold said cable against retraction on said reel, said cable when extended from said reel providing a pair of vertically spaced lengths of cable extending across the area to be protected.

2. The structure described in claim **1,** said reel being mounted on a vertically directed main post, said reel being mounted for rotation about a horizontal axis, a terminal post spaced from said main post along the area to be protected, said cable pull being engageable with means on said terminal post to prevent the retraction of said cable.

3. The structure described in claim **2,** said reel being rotatably mounted within a reel enclosure, said reel enclosure being mounted on said main post, and guide means disposed within said reel enclosure for guiding the ends of said cable to and from said reel and for vertically separating said cable lengths from each other when said cable is extended, said guide means comprising a pair of arcuate right angular guide tubes disposed adjacent to the top and bottom of said reel enclosure, said cable ends slidably extending through said guide tubes.

4. The structure described in claim **3,** and an intermediate post removably mounted between said main and terminal posts, said intermediate post having means for slidably receiving both lengths of said cable, and socket means disposed adjacent one of said first named posts for storing said intermediate post when not in use.

5. The structure described in claim **3,** said cable pull comprising an elongated U-shaped tubular member approximately equal in length to the distance between said cable lengths when said cable is extended, said cable comprising a single length of cable slidably extending through said cable pull and having its opposite ends connected to said reel.

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