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STANCHION

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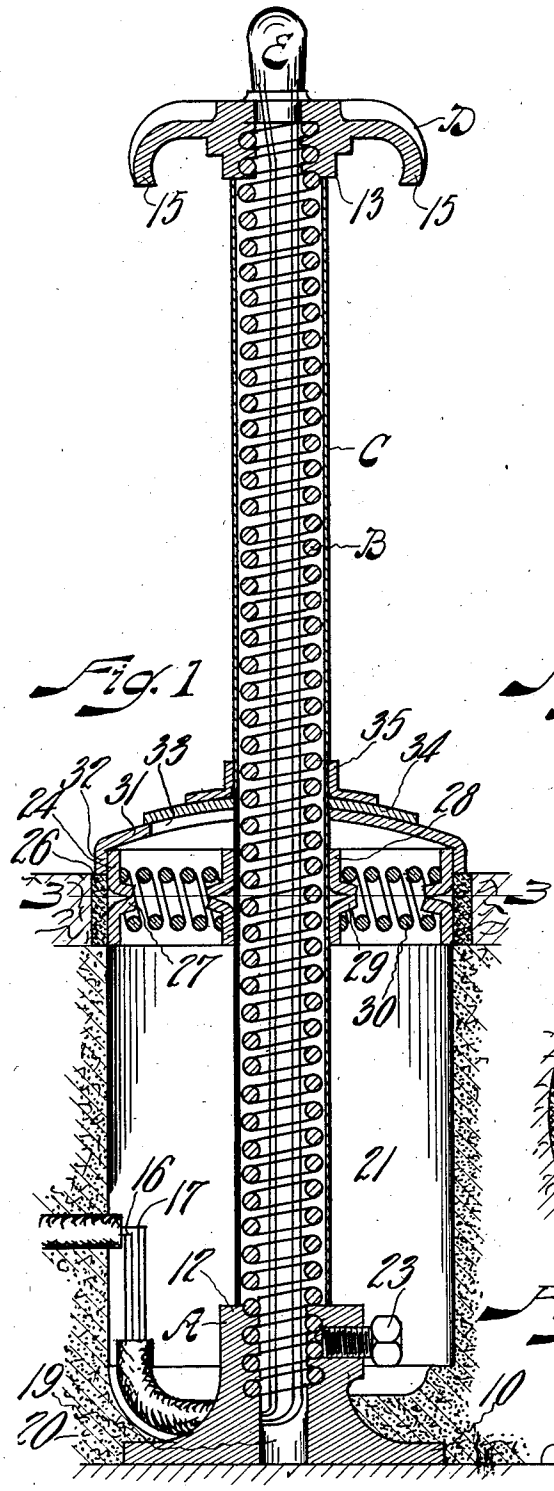


Fig. 1

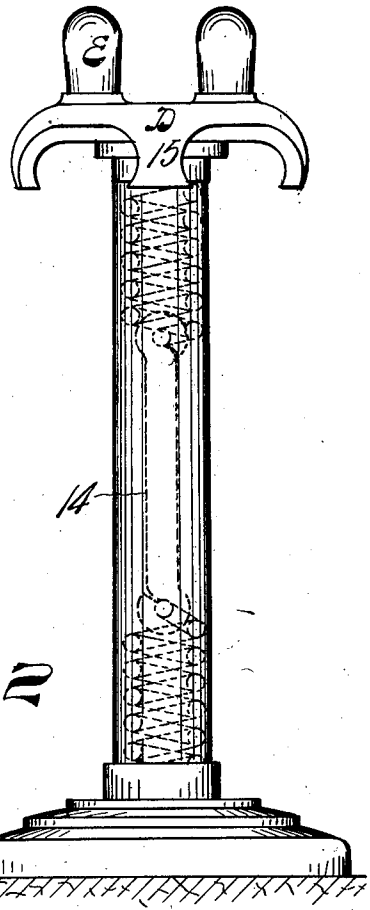


Fig. 2

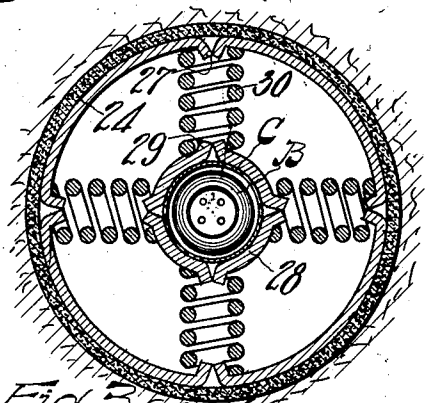


Fig. 3

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STANCHION

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9 Claims. (Cl. 188—32)

The present invention relates to means and method and manner for saving life and limb and property.

The aim of the present invention, broadly, is to provide a means and method and manner to at least mitigate the force of impacts and thereby mitigate disasters.

Stanchions, as now used, are quite solid and rigidly fixed in position so that an impact thereon, as by a vehicle, does not damage the stanchion much but may seriously damage the vehicle and the driver. Drivers are repatedly hurt or killed in cases of an impact of the vehicle wth a stanchion.

Objects of the present invention are:

To provide a stanchion which saves property and life and limb.

To provide a stanchion which is movable upon impact thereon to prevent the full force of an impact to be resiliently recoiled in the impacting element such as a vehicle.

To provide such a stanchion with a head which has grapple hooks thereon so that a careless driver who runs into the stanchion may be caught thereby when he tries to run away.

To provide such a stanchion with signal lights to show its presence in the dark or to direct travel.

To provide a stanchion with means which will decrease the force of the impact and cause delay for a driver so that he may be apprehended or at least detained until his license number can be ascertained.

To construct such a device in the most simple manner.

To make such a device easy of access to the parts thereof so that the asembling, disassembling, repairs, and inspection can easily and quickly be made.

Other objects will be pointed out herein below or will become obvious or apparent or will suggest themselves upon an inspection of the accompanying drawing and this specification.

The present invention is illustrated in the accompanying drawing, forming part of this specification, and shows one means and method of applying and using the present invention. In the drawing:

Fig. 1 is a vertical section of a stanchion, embodying the present invention, and shows the same as being vertically installed and having the lower end anchored in a pit in the ground and the upper end extending above the ground.

Fig. 2 is a side view showing that part of the stanchion which extends above the ground and a modification of the spring in the stanchion.

Fig. 3 is a transverse section taken on line 3—3 of Fig. 1.

Similar reference characters refer to similar parts throughout the views.

The stanchion shown in the accompanying drawing, used to illustrate the present invention, comprises, principally, the foot A, the spring B, the tube or casing C, the head D, and the signal means E.

The foot A may, conveniently, be made by casting, has the bottom flange 10 to rest upon the ground 11, and has the tubular boss 12 extending upwardly from the flange.

The head D, not absolutely necessary in all instances, may also, conveniently, be made by casting and has the tubular boss 13 extending downwardly therefrom. The foot and the head may also be made of sheet metal by stamping and forming.

The bosses 12 and 13 are each internally threaded; the pitch and the form of the thread conforming to the wire and to the pitch of the coils of the corresponding ends of the spring B.

The spring B is made of spring steel and in this instance the ends thereof are screwed into the threads of the corresponding bosses 12 and 13 as shown to anchor the spring therein.

The tubular upright element or casing C is shown as being telescoped over the spring B and one end thereof abuts the upper end of the boss 12 and the other end thereof abuts the lower end of the boss 13. The casing is not secured rigidly to any part of the stanchion.

When desired, the spring B may be made of two or more pieces and connected together by one or more links 14 as shown in dotted lines in Fig. 2.

The grapple hooks 15, although not absolutely necessary in all instances, four being shown as extending downwardly in this instance, are cast integral with the head D in this instance. However, these hooks can be made separately and bolted onto or otherwise removably attached to the head for exchange thereof so that the same may be replaced when one or more of them become damaged, or can be replaced by others of a different design to serve a particular purpose or better adapted for general purposes under different conditions.

The signal lights E, although not absolutely necessary but quite desirable for a stanchion, two being shown, are placed into suitable receptacles on the head D although the same can be mounted on the upper end of the spring or on the cas-

ing C or any other convenient place above the ground level.

Each of the lights E is independently connected to the main circuit comprising the wires 16 and 17 so that damage to one of the lights will not interfere with the operation of the other. Switches, fuses, flashers, and other instrumentalities may be inserted in either one or in both of the light circuits. The leads for the lights may, conveniently, be brought to the lights through the inside of the spring. The drain hole 19, through the base embedding concrete 20 affords a means to allow water or other liquid to flow from the pit 21 into the ground when, for any reason, water or other liquid gets into the pit. The channel 22 is provided in the concrete 20 for the lead wires of the lights and opens into the drain hole 19 so that moisture may not collect in the channel 22 to probably cause a short circuit.

The set screw 23 is threaded into the base 12 to abut on the lower end of the spring when it is desired to provide such a securing means either independently of the thread like structure described above or conjointly therewith. The set screw 23 may also be duplicated in the head D. Other clamping means may be used in place of the set screws shown and described.

The outer band 24 is located at the top of the pit, extends a short distance above the ground level 25, and is held in position by the grout 26 poured around the band after the same is set in position. The spring retainers 27 are shown as being pressed inwardly from the band.

The inner band 28 is guided on and can slide axially on the casing C and has the spring retainers 29 shown as being pressed outwardly therefrom. Each of the springs 30, four being used in this instance, has the corresponding ends thereof telescoped over the corresponding spring retainers of the bands.

In this instance, all of the springs 30 are under the same compression pressure so that the stanchion is held upright. This compression pressure can be varied for different purposes. It may be comparatively light when the stanchion is intended to move readily upon a light pressure impact thereon and may be comparatively heavy to withstand more or less heavy impact imposed on the stanchion before the same starts to move laterally.

The arcuate cap 31 is telescoped over the casing and has the flange 32 extending over and located by the upper edge of the outer band 24. The slot 33 extends through the arcuate part of the cap 31 and preferably is parallel with one of the springs so that the casing can move therein when the same is moved laterally.

The arcuate cover 34 is telescoped over and moves with the casing and lies on the top of the cap 31 to normally cover the slots therethrough.

The drawing shows only one slot 33 through the cap 31 at one side or radially of the casing C. This one slot is adequate when the stanchion is used in a place where impact thereon most likely will come from one general direction. The stanchion is then set so that the slot and the spring under it are in alinement with the direction of likely impact on the stanchion.

When the stanchion is to be installed in a place where impact thereon is likely to occur from any direction it is preferred that a slot 33 be provided through the cap 31 for and parallel with the corresponding one of the springs 30.

The flange 35 lies on the cover 34 and is telescoped over the casing and moves therewith laterally.

In assembling the device, the pit 21 is first dug to desired depth. The base or foot A is then placed on the bottom of the pit and concrete poured around the same so that the foot is firmly set. Concrete is then poured to form the pit either by means of a previously constructed form or built up manually. The outer band 24 is then set onto the top of the concrete of the bed and the grout poured to set the band. Some attention should be paid to set this outer band somewhat concentric with the foot A.

The lower end of the spring B is then inserted into the pit and is screwed into the foot A. The casing C is then telescoped over the spring B until the lower end thereof abuts or rests on the boss 12 of the foot. The springs 30 are then put into their respective places.

The cap and cover and flange are then telescoped over the casing C and brought down to their respective places as shown. The head D, if used as shown, is then screwed onto the upper end of the spring until the lower end of the boss 13 abuts the upper end of the casing C. Electrical connection is then made to the lights E. This is one manner of assembling the device but it is not necessary that the steps, as set forth, be followed since various other steps of assembling can easily be followed.

When a stanchion is damaged, the device is easily disassembled by rotating the head D which action removes the head from the spring B so that the casing can be axially removed from the spring and repaired or replaced with another one which is then accomplished in a very short time. When no head is used, the casing C rests on the boss 12 by its own weight and, upon sidewise impact thereon, moves laterally as the springs 30 let it move. Access to the pit may be had at any time by merely raising the cap and cover and flange.

When a vehicle or other moving instrumentality abuts or impacts the casing C from any angle, the stanchion responds resiliently if the force of the impact is less than the ultimate strength of the springs 30 and the danger of the force of the impact is met resiliently and is, therefore, mitigated and the danger to occupants of the vehicle is also mitigated and damage to the vehicle is also mitigated.

When a vehicle or the like impacts the casing C with a force heavier than the ultimate strength of the springs, this heavy impact does not meet a solid, immovable abutment but actually meets an abutment which is not only movable but is resilient as well. This greatly checks the force of the impact and, in a measure, brings a force acting resiliently against the force of the impact and thereby reduces the impact to force to an extent sufficient to prevent occupants of the vehicle from being violently thrown against a part of the vehicle or through the windshield and thereby saves life and limb and property.

When, in consequence of such heavy impact, the vehicle has moved the casing laterally so that the same abuts the outer end of the slot 33 and is still moving, the casing will bend above the ground level as is explained below. This bending brings the head D closer to the ground so that the grapple hooks thereon catch some part of the vehicle to at least impede its progress.

In such impeding, the imparted force first moves the casing from its normal vertical position to an angular position against the spring 30

on one side of the casing until the angular position becomes great enough to abut the casing on the outer end of the slot **33** whereupon the casing will be bent at that point when the imparted force is sufficient to do so.

When this imparted force is not sufficiently great to bend the casing, the corresponding spring **30** aided by the spring B will automatically bring the casing back to its normal upright position as soon as the force imparted thereon is released.

If a vehicle strikes the stanchion accidentally, the structure and action of the stanchion may completely stop the vehicle before the same can do any further damage and if it does not stop the vehicle completely, it will at least impede its movement and thereby decrease or reduce the damage which might have been done if the stanchion had not acted.

When a hit-skip driver's vehicle strikes the stanchion and tries to run away, the action described and the grapple hooks will cause sufficient delay of his vehicle for him to be apprehended or to at least ascertain the license number of the vehicle.

Usually, a vehicle strikes a stanchion by a part between the front wheels although the wheels or even the fender may strike it. In any case, if the force of impact is heavy enough, the casing will be bent in the direction of the travel of the vehicle so that the grapple hooks on the head will catch some part of the vehicle to stop its progress and, if the driver applies additional power to get away, may easily tear off a part of the vehicle to render the same unfit or unable to proceed further.

The safety device shown and described provides a means and method and manner of impeding impacting forces to save life and limb and property.

It is quite obvious that the principle of the present invention can be embodied in structures and methods and manners other than that shown and specifically described herein and that changes and modifications in structure and arrangement of parts can be made from that shown and described herein within the spirit and intent and scope of the present invention and of the appended claims. Therefore, having described the present invention,

I claim:

1. A stanchion having a foot adapted to be anchored in the ground, an upwardly extending spring having one end thereof anchored in said foot, a casing loosely telescoped over said spring and unsecured to any part of the stanchion, and an object grabbing head anchored to the other end of said spring.

2. A stanchion having a foot to be anchored in the ground, a coil spring having one end thereof secured to said foot, a head secured to the other end of said spring, a tube telescoped over said spring, and extending between said foot and said head and being unsecured thereto, and grapple hooks on said head.

3. In combination with a support having a pit, a stanchion having a laterally movable, bendable normally perpendicular post supported below the top of the pit and an abutment means for said post substantially even with the top of the pit to limit the lateral movement and bending of said post to less than parallel with the top of the pit.

4. A stanchion having a foot fixed to a support, a laterally movable post normally perpendicular to and having one end thereof anchored to said foot, an abutment means to limit lateral movement of said post, and a grapple hook on said post.

5. A stanchion having a foot fixed to a support, a laterally movable post normally perpendicular to and having one end thereof anchored to said foot, an abutment means to limit lateral movement of said post, a grapple hook on said post, and a signal means on said post.

6. A stanchion having a foot fixed to a support, a laterally movable post normally perpendicular of and having one end thereof anchored to said foot, an abutment means to limit lateral movement of said post, a head on the other end of said post, and a grapple hook on said head.

7. In combination with a support having a pit therein, a stanchion having a foot fixed to the bottom of the pit below the surface of the support, a laterally movable post having one end thereof attached to said foot and being normally perpendicular to the bottom of said foot, an abutment means for said post substantially even with the top of the pit to limit lateral movement of said post to less than parallel with the level of the support, and a cap over said abutment means and covering the pit.

8. In combination with a support having a pit therein, a stanchion having a foot fixed to the bottom of the pit below the surface of the support, a laterally movable post having one end thereof attached to said foot and being normally perpendicular to said foot, an outer band in the top of the pit and a part thereof extending above the top of the support, a cap for said pit centralized on the extending part of said band, an inner band within said outer band and telescoped over said post, and a plurality of springs radially between said outer and inner bands.

9. In combination with a support having a pit therein, a stanchion having a normally upright but laterally movable post anchored in the pit, springs between the wall of the pit and said post to normally retain the same upright but permit lateral movement thereof when the same is impacted and effect uprighting thereof when the impact is removed, and an abutment means in the pit to limit normal lateral movement of said post to less than 90 degrees from the normal upright axis thereof.

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