

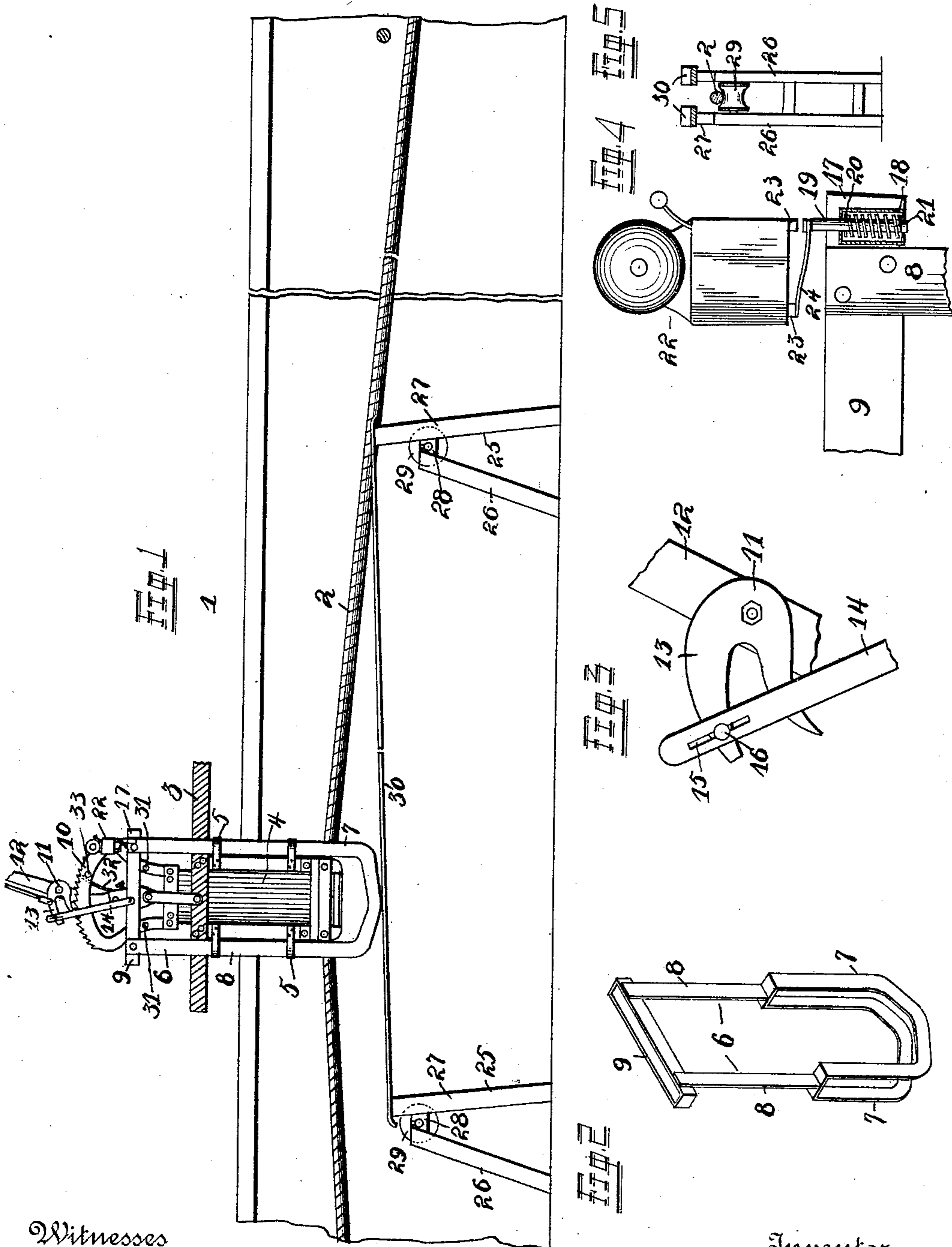
(No Model.)

A. J. SMITH.

**AUTOMATIC RELEASE FOR CABLE GRIPPERS.**

No. 481,431.

Patented Aug. 23, 1892.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC RELEASE FOR CABLE-GRIPPERS.

SPECIFICATION forming part of Letters Patent No. 481,431, dated August 23, 1892.

Application filed March 25, 1892. Serial No. 426,409. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. SMITH, of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Automatic Releases for Cables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in automatic releases for cables; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a side elevation of my complete invention in connection with a subway of an ordinary cable railway. Fig. 2 is a perspective view of the frame which I employ in connection with my invention and which is adapted to be moved or elevated when the same comes in contact with suitable devices located in the subway. Fig. 3 is a side elevation showing more plainly the construction of the pawl which is carried by the grip-lever and also the bar for attaching the same to the frame. Fig. 4 is a front elevation of an electric bell which is attached to the upper portion of the grip and the mechanism which is adapted to be brought in contact therewith for sounding an alarm, and Fig. 5 is a transverse section of the rails which are located in the subway and the supports upon which the same are mounted.

The object of my invention is to automatically sound an alarm at a suitable distance from a crossing cable or cables in order to notify the gripman, in which event should the gripman perform his duties he will at once release the grip upon the cable, and thereby prevent an accident, which generally results in an injury to the said crossing cable or cables.

My invention further consists in automatically releasing said grip before the same comes in contact with the said crossing cable or cables should the gripman or operator fail to perform his duty after the alarm has been sounded in a sufficient time given to release the same, thereby preventing all accidents of the character above referred to.

Referring to the drawings, 1 represents the

subway of an ordinary cable railway, and 2 the cable located therein for propelling the cars along the line.

3 represents a portion of the frame, which is located below the car, and to which is attached the ordinary grip 4, the type of which is commonly known as the "bottom."

In order to movably attach my device to the grip above referred to, I employ straps 5, which are four in number, and when properly attached to the side of the grip, as shown in Fig. 1 of the drawings, loops are formed, through which the frame 6 of the device is adapted to move and which provide means for permanently attaching the said frame to the said grip. The said frame 6 is susceptible of two movements, and is constructed of any light material by being forged or united in sections and said sections secured together in any desirable manner. The lower portion of the said frame 6 is forked, as shown at 7, which allows sufficient space for the cable 2 when the same is held by the grip, as shown in Fig. 1. The vertical parallel extensions 8 of said frame are passed through the loops formed by the straps 5, carried by the grip, forming a movable connection between the said frame and grip.

9 represents a metallic loop, which is secured to the upper ends of the said extensions 8 in any suitable mechanical manner and surrounds the upper portion of the said grip 4 when the said frame is properly attached to the said grip and in the position as shown in Fig. 1.

10 represents a segmental plate, which is of the ordinary construction and forms the upper portion of the grip 4, the upper edge of which is provided with ratchet-teeth, which is adapted to receive and hold the pawl 11, which is carried by the grip-lever 12. The said pawl is peculiarly shaped in order to answer the purpose, the same having an extension 13, which projects in the same direction at the engaging end of the same. To the said loop 9 of the movable frame 6 is loosely attached a connecting-rod 14, the upper end of which is provided with an elongated opening 15, through which a screw or other similar device 16 is adapted to be passed, and also through

the extension 13 of the said pawl, thereby forming a movable connection between said pawl and frame 6.

In order to sound an alarm previous to automatically releasing the cable from the grip, I employ the mechanism as I shall now proceed to describe.

Referring particularly to Fig. 4, 17 represents an extension, which is formed with or attached to the upper portion of the frame 6 to one side thereof and to which is attached a cylinder 18. 19 represents a vertical operating-bar, which passes through said cylinder, and encircling said rod and interposed between the bottom of said cylinder and a pin 20, passing through said bar, is a coiled spring 21, which operates to hold the said rod in an elevated position and, further, allows the same to be depressed when the frame 6 is elevated in the position as shown in Fig. 1. 22 represents an ordinary electric bell, which is adapted to sound an alarm when the circuit is completed through the same. 23 represents contact-plates, which are attached to the poles or wires leading from the battery and in circuit with the bell, and to one of the said contact-plates is attached one end of the metallic spring 24, the opposite end of said spring being normally out of contact with the other plate 23, in which position no alarm will be sounded, as the circuit will be broken. When the frame 6 is elevated, the rod 9 will be brought in contact with the free end of the spring 24, causing said end to be moved in contact, completing the circuit and sounding an alarm, the variation of the movement of the said frame 6 being compensated for by the coiled spring 21.

In order to elevate the frame 6 at the proper time or at a suitable distance from the crossing cable or cables, I employ the mechanism as I shall now proceed to describe, which mechanism is located within the subway. 25 represents supports, each of which is composed of uprights 26 and 27 and cross-pieces 28, uniting the upper ends of the said upright. Loosely mounted in said cross-pieces are pulleys or rollers 29, which are adapted to receive the cable 2 when the same is released by the grip 4, for guiding the said cable and holding the same in its proper location within the subway. The supports 27 are a little longer or extend above the supports 26, and, further, the upright 27 to the right in Fig. 1 is still somewhat longer or extends above the upright 27 to the left of Fig. 1, as plainly shown in said figure. To the upper ends of the uprights 27 are secured two flat bars or plates 30, forming two tracks at an incline, as best shown in Fig. 1, premising, however, that suitable space is left between said tracks in order to allow the cable 2 to pass between the same and rest upon the rollers or pulleys 29, as shown in Fig. 5. The lower surfaces of the forked portions 7 of the movable frame 6 are adapted to move or slide upon the said plates 30, in which operation

the said frame is elevated, first sounding an alarm and afterward releasing the grip automatically, in a manner hereinafter stated. Attached to the upper portion of the grip 4, or more properly the frame thereof, are fixed two pins 31, upon which the looped portion 9 of the frame 6 is adapted to rest when the same is in its normal position and not in contact with the plates 30. To the grip-lever 12 is attached one end of a flat spring 32, the free end of said spring being adapted to bear against a projection 33 when the said grip-lever is in its normal position or holding the cable in a locked position within the grip, and is employed for the purpose for throwing the said grip-lever past the center when the pawl 11 is released. Otherwise the same would not fall back and release the cable 2 automatically. When the grip-lever 12 is thrown to the right, as shown in Fig. 1, and the cable 2 located in the grip, the movable frame 6 will rest upon the pins 31, in which position the said grip-lever may be operated independent of said frame. When the movable frame 6 first comes in contact with the inclined plates 30, the same is slightly elevated, causing an alarm to be sounded, in a manner heretofore stated, the slot 15, formed in the connecting bar or plate 14, compensating for the movement of said frame until the same has almost passed off of said inclined plates 30, when the pawl 11 will be elevated, in which operation the grip-lever 12 will be thrown in a reversed position to that shown and release the cable 2 before the grip can possibly come in contact with the crossing cable or cables.

The device hereinbefore described, when attached to the grip in a manner before stated, does not in any way affect the two workings of the grip and has no action upon the same only when brought in contact with the inclined plates 30.

Having fully described my invention, what I claim is—

1. An automatic release for cables, consisting of a movable frame, the lower end of which is forked and the same adapted to be attached to the grip, a loop attached to said frame and adapted to surround the upper portion of the grip, inclined tracks located within the subway upon which the forked ends of the said frame are adapted to come in contact, a connecting-rod carried by the said frame and in movable connection with the pawl carried by the grip-lever, and an alarm adapted to be sounded when the said frame is elevated and previous to disengaging the pawl, substantially as described.

2. An automatic release for cables, consisting of a movable frame, straps attached to the grip, forming loops through which the said frame is adapted to pass, a connecting-bar attached to the said frame, a slot formed in the upper end of the said bar through which a screw or other device is adapted to be passed for attaching the said bar to the pawl carried

by the grip-lever, inclined tracks located within the subway and mounted upon suitable supports for elevating the said frame, and an electric bell fixed to the upper portion of the grip-frame and adapted to be sounded when the said frame is partially elevated, substantially as described.

3. An automatic release for cables, consisting of a movable frame 6, having a forked extension 7, a loop 9, forming the upper portion of the said frame, a connecting-rod 14, movably attached to the said loop, a slot 15, formed in the upper end of the said rod, a screw or other like device 16, passed through said slot and into the pawl 11 of the grip-lever, loops attached to the grip-frame for holding the said frame 6 to the said grip, a spring 32, attached to the said grip-lever, the free end of which is adapted to bear against a projection 32, fixed to the upper portion of the said grip-

frame, an electric alarm or bell 22, fixed to the upper portion of the grip-frame, a yielding rod 19, carried by the upper portion of the frame 6 and adapted to sound an alarm when the same is elevated, supports located within the subway, and plates, such as 30, fixed to the upper end of the said supports and arranged at an incline, whereby the frame 6 is elevated when the same comes in contact with the said plate 30, first producing an alarm and afterward releasing the grip-lever, allowing the cable 2 to fall and assume its normal position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW J. SMITH.

Witnesses:

C. F. KELLER,  
ALFRED A. EICKS.