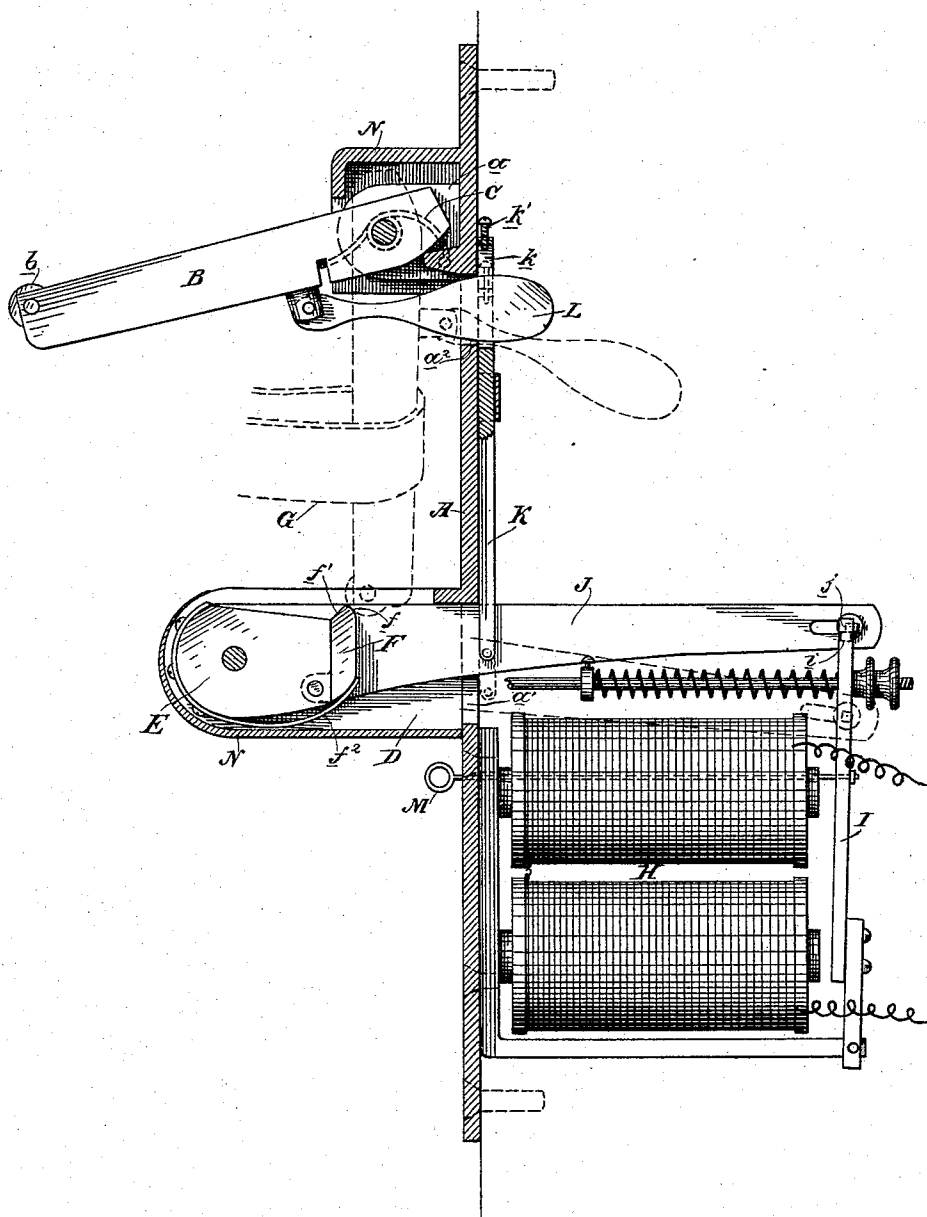


(No Model.)

W. R. HEWITT.
ELECTRIC RELEASING DEVICE.

No. 486,612.

Patented Nov. 22, 1892.



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UNITED STATES PATENT OFFICE.

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ELECTRIC RELEASING DEVICE.

SPECIFICATION forming part of Letters Patent No. 486,612, dated November 22, 1892.

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To all whom it may concern:

Be it known that I, WILLIAM R. HEWITT, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Automatic Releasing Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the general class of tripping mechanisms or releasing devices; and it consists in the novel construction and arrangement of parts and the several combinations thereof hereinafter fully described, and specifically pointed out in the claims.

The general object of my invention is to provide a simple and effective releasing device for any purpose. Its particular application is for releasing automatically hitched animals.

Referring to the accompanying drawing for a more complete explanation of my invention, the figure is a side elevation of my device, the plate A being in section. The dotted lines of the releasing-arm and cam-lever show the set position and the dotted lines of the trip-lever J show it when momentarily dropping.

A is a plate adapted to be secured to the wall. Near the upper portion of the face of this plate are spaced lugs *a*, between which is pivoted the releasing-arm B, said arm being controlled by a spring C, acting upon it in such a manner as to raise and hold it elevated. The end of the releasing-arm B is fitted with a roller *b*. On the face of the plate A, lower down, is a slotted bearing D, within which is pivoted a block E at its forward end and carrying at its rear end a spring-controlled trip-catch F. This catch has the back or engaging surface of its top made on a curve, as shown at *f*, the extremity of said curve being higher than the top of the block E, and said catch thence is beveled downwardly, as shown at *f'*, to the plane of said block. The catch is secured to the block and is controlled by a spring *f*², secured to or formed with its lower end, said spring being also secured to the under side of the pivoted block E. Now when the releasing-arm B is moved downwardly toward a vertical position its roller *b*, coming in contact with the beveled top edge *f'* of the trip-catch F, will force said trip-catch back-

wardly, whereupon the catch will, under the influence of its spring, return to its place against the end of the block E. The roller will thus be behind the trip-catch and will bear against the curved back *f* of said catch, and the releasing-arm B will thereby be held in a perpendicular or set position. The hitching-strap G is passed behind the releasing-arm when thus held.

Upon the back of the lower portion of plate A is suitably mounted an electro-magnet H, having a swinging spring-controlled armature I. From the side of this armature, near its top, extends a contact-pin *i*. Secured to the pivoted block E and thence passing backwardly through an elongated slot *a'* in the plate A is a trip-lever J, the rear end of which has a contact-pin *j*, which is adapted to lie upon and to be arrested by the stop-pin *i* of the armature I. This pin *j* is preferably made adjustable forward or back in the trip-lever by being mounted in a slot therein, whereby its engagement with the contact-pin *i* may be rendered as delicate as required. When the contact-pins are in engagement, the trip-lever J is held in a horizontal plane, whereby the block E and the trip-catch F are held up in place to cause the latter to engage and hold the releasing-arm B.

The electro-magnet is included in a suitable electric circuit provided with proper switches in convenient positions, keeping the circuit normally open. When, however, the circuit is closed, the magnet attracts its armature, which, swinging forwardly, releases its contact-arm *i* from under the contact-pin *j* of lever J. The lever being thus freed will drop, and thereupon the block E and its catch F will fall away from the engagement with the releasing-arm, which under the influence of its spring C will be thrown upwardly, and will thus release the hitching-strap G. In this releasing movement the curved shape of the back *f* of the trip-catch and the roller in the end of the releasing-arm, while rendering the engagement of the two a positive one, will make the trip exceedingly delicate in that as soon as the lever J is released the constant tendency of the two curved surfaces to pass each other finds a relief which is instantaneously effected, the trip-lever not only dropping, but the trip-catch itself being positively

forced downwardly by this engagement of the roller with its curved top. Now, in order to immediately and automatically return the trip-lever J to its horizontal position and thereby return the trip-catch to its normal condition ready to be engaged by the releasing-arm, I have the following connections: Secured to the side of the trip-lever J, just back of the plate A, is a vertical slide-rod K, guided upon the back of the plate A and having in its top a vertical elongated slot *k*. Pivoted to the back of the releasing-arm, near its upper end, is a cam-lever L, which projects backwardly through and plays freely in a vertical elongated slot *a*² in the plate A and also through the elongated slot *k* in the slide-bar K. This cam-lever has the flaring shape shown, and its effect is as follows: When the trip-lever J is horizontal and the slide-bar K is thereby raised, the downward movement of the releasing-arm B in being brought to its set position simply has the effect of projecting the cam-lever L through the slot *k* in the slide-bar up to its narrow portion, and said lever then hangs down in said slot, resting in the lower end thereof. When the trip-lever J is released by the swinging of the magnet-armature, the slide-bar K drops with it, thereby bringing the top of its slot *k* down closer to the cam-lever. The releasing-arm B, swinging upwardly toward a horizontal position, now draws the cam-lever F forwardly, and its flaring cam L, coming in contact with the top of the slot *k*, immediately raises the slide-bar K, which thus lifts the trip-lever J to its horizontal position, whereby its pin *j* is in position to receive under it the pin *i* of the armature I, when said armature is released and swings backwardly. Thus simultaneously with the releasing operation of the arm B the parts are reset ready to again receive and hold said arm. A wire M is connected with the armature and extends forwardly through the plate A to the face thereof and is for the purpose of enabling the trip to be accomplished by hand whenever desired. A set-screw *k'* in the top of the slide-bar K has its lower end projecting down into the slot *k*, and by moving this screw up or down the time of contact of the cam L therewith may be nicely regulated to return the parts to position. A suitable boxing N covers the pivotal connection, and the cam-lever of arm B and the pivoted block and trip-catch are also suitably inclosed in the slotted bearing D.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm, a depressible trip-catch with which the end of said arm engages, a trip-lever connected with said catch for releasing it from its engagement with the arm, an electro-magnet, a swinging armature of said magnet, and tripping-contacts between said ar-

mature and the trip-lever, substantially as herein described.

2. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm, a pivoted depressible block below, a spring-controlled trip-catch carried by said block and adapted to engage the releasing-arm, a trip-lever connected with the block, an electro-magnet, a swinging armature thereof, and tripping-contacts between said armature and trip-lever, substantially as herein described.

3. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm, a trip-catch engaging said arm, a trip-lever for operating the catch, means for operating the trip-lever, and the means for automatically returning the trip-lever to its normal position by the swinging of the releasing-arm, consisting of the slide-bar K, attached to said trip-lever and having an elongated slot, and the cam-lever pivoted to the releasing-arm and operating in the slot of the slide-bar, substantially as herein described.

4. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm, a trip-catch engaging said arm, a trip-lever for operating the catch, means for operating the trip-lever, and the means for automatically returning the trip-lever to its normal position by the swinging of the releasing-arm, consisting of the slide-bar K, attached to said trip-lever and having an elongated slot, the cam-lever pivoted to the releasing-arm and operating in the slot of the slide-bar, and the set-screw in the top of the slide-bar for regulating the contact of the cam-lever therewith, substantially as herein described.

5. An automatic releasing device consisting of a swinging spring-controlled releasing-arm, a pivoted depressible block below with the spring-controlled trip-catch with which the releasing-arm engages, a lever secured to said block, an electro-magnet, a swinging armature thereof, trip-pins between said armature and lever, the slide-bar connected with the lever and having the slot, and the cam-lever pivoted to the releasing-arm and operating in the slot of the slide-bar to raise said slide-bar and return the trip-lever to normal position, substantially as herein described.

6. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm having in its end a roller and a depressible trip-catch having a curved upper end behind which the roller of the releasing-arm engages, substantially as herein described.

7. In an automatic releasing device, the combination of a swinging spring-controlled releasing-arm having a roller in its end, a depressible yielding spring-controlled trip-catch having a beveled or inclined forward edge at its top, by which the roller passes, and a curved

back edge against which the roller bears and is held, substantially as herein described.

8. An automatic releasing device consisting of the swinging spring-controlled releasing-arm having the roller in its lower end, the depressible spring-controlled trip-catch with its beveled front and rounded back for engaging the roller of the releasing-arm, the trip-lever for operating said catch, the electro-magnet with its armature, and the contact-pins between the armature and lever, substantially as herein described.

9. An automatic releasing device consisting of the swinging spring-controlled releasing-arm having the roller in its lower end, the de-

pressible spring-controlled trip-catch with its beveled front and rounded back for engaging the roller of the releasing-arm, the trip-lever for operating said catch, the electro-magnet with its armature, the contact-pins between the armature and lever, the slotted slide-bar connected with the lever, and the cam-lever operating in said bar and pivoted to the releasing-arm, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM R. HEWITT.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.