No. 819,505. PATENTED MAY 1, 1906.

J. R. BIRCH.

ELECTRIC RELEASE FOR TARGET TRAPS.

APPLICATION FILED AUG. 28, 1905.

FIG. 1.

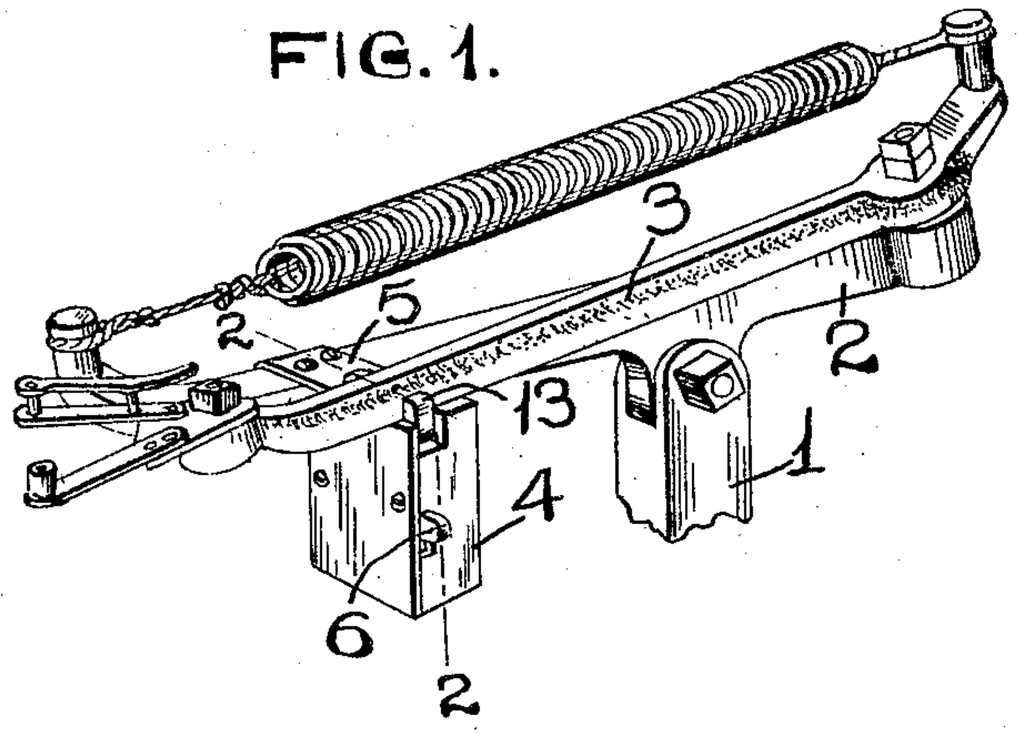


FIG. 2.

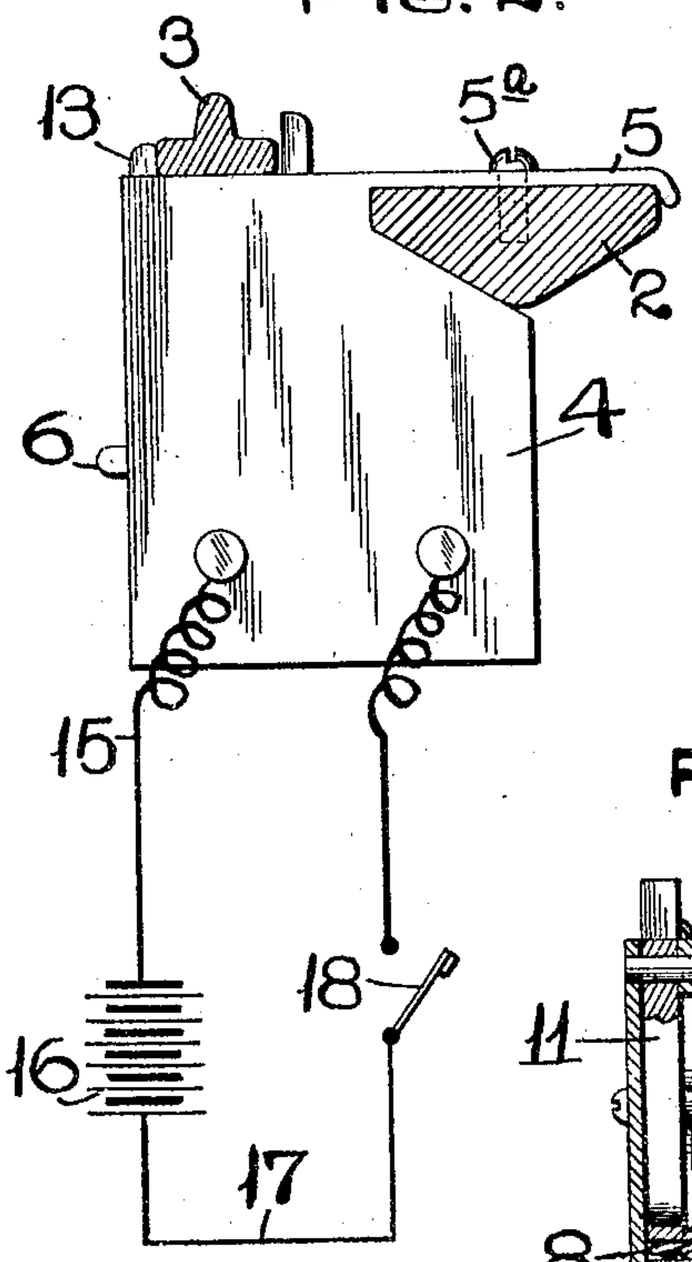


FIG. 3.

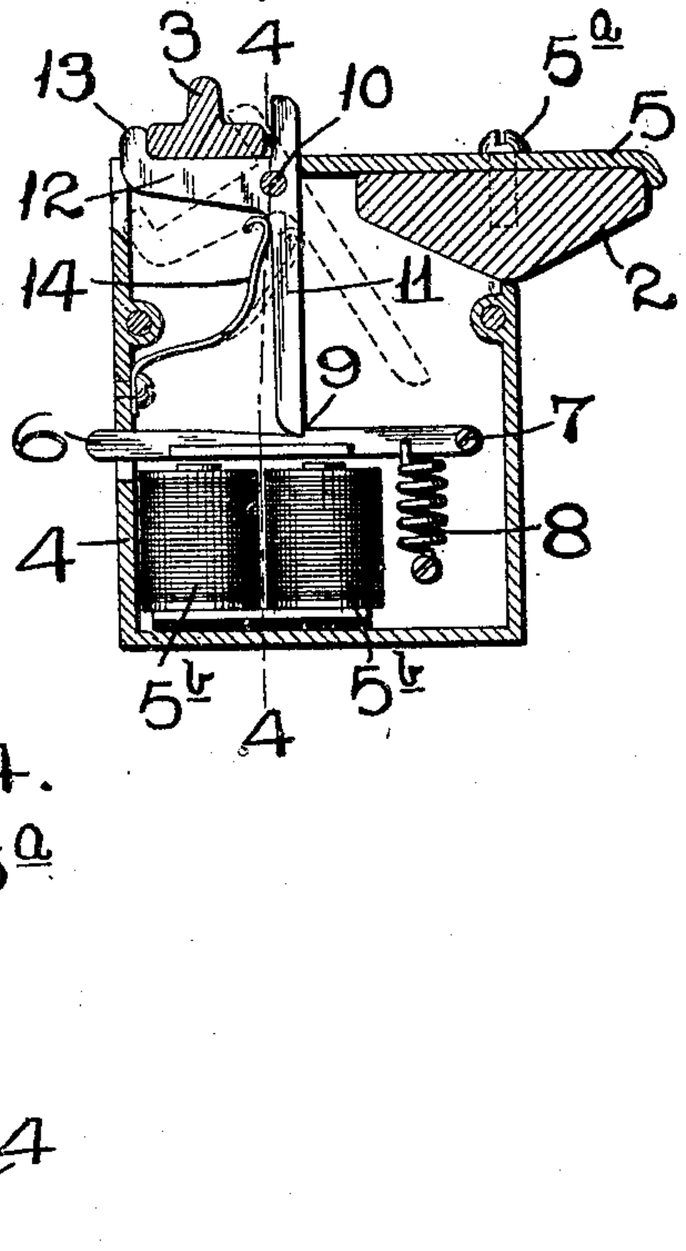
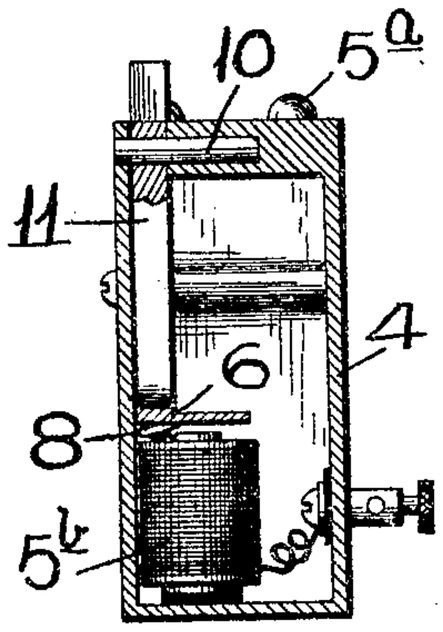


FIG. 4.



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ELECTRIC RELEASE FOR TARGET-TRAPS.

No. 819,505. Specification of Letters Patent. Patented May 1, 1906.

Application filed August 28, 1905. Serial No. 276,078.

To all whom it may concern:

Be it known that I, JOSEPH R. BIRCH, a citizen of the United States, and a resident of St. Louis, Missouri, have invented certain new and useful Improvements in Electric Releases for Target-Traps, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an electric release for target-traps; and the object of my invention is to provide means that may be readily attached to target-traps whereby the throw-arm, that is operated by a stiff coil-spring, is instantly and positively released after it has been set in throwing position and provided with a target.

My invention consists in a housing that is secured to the frame of the target-trap, an electromagnet arranged in said housing, an armature above said magnet, and a hook in the upper portion of said housing for engaging the throw-arm and which hook is released by a downward movement of the armature.

My invention further consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a target-trap with my improved release engaging the throw-arm thereof. Fig. 2 is an enlarged transverse section taken approximately on the line 2 2 of Fig. 1. Fig. 3 is an enlarged transverse section taken through the casing of the release. Fig. 4 is a vertical section taken on the line 4 4 of Fig. 3.

Referring by numerals to the accompanying drawings, 1 indicates the base of the target-trap, 2 the fixed arm, and 3 the throw-arm.

4 indicates a housing approximately rectangular and provided at its top with a laterally-projecting plate 5, that engages over the fixed arm 2 of the trap near the outer end thereof. A screw 5^a passes through this plate and rigidly secures the housing to the arm 2.

Arranged in the bottom of the housing 4 is an electromagnet in the form of a pair of coils 5^b, and arranged above the cores of said coils is an armature 6, the same being pivoted at one end, as indicated by 7, and a small expansive coil-spring 8 normally holds said armature out of contact with the cores of the magnet-coils 6. Formed in the top of the armature 6 is a notch 9. Arranged to swing upon a pin 10, located in the top of the housing 4, is a vertically-arranged lever 11, the lower end of which is adapted to engage in the notch 9 of the armature 6. This lever projects a short distance above the top of the housing 4 through an opening therein, and formed integral with the upper portion of said lever is a laterally-projecting arm 12, that is provided with a hook 13 on its outer end. The top of this arm 12 lies in the same plane with the top of the housing 4 and is of such a length as that the throw-arm 3 will fall between the upper end of the lever 11 and the hook 13. When the throw-arm is swung around into throwing position, it rests directly on top of the arm 12, being held by the hook 13, and the lower end of the lever 11 is engaged in the notch 9. A leaf-spring 14 is secured to the inside of the housing 4, its free end engaging against the lever 11 immediately beneath the pivot-pin 10, and the normal tendency of said spring is to rock the lever upon said pin 10, so as to move the hook 13 downwardly below the path of travel of the throw-arm 3. One end of a wire 15 leads from a battery 16 to one of the coils 5^b, and a wire 17 leads from the opposite side of the battery to the opposite coil 5^b, and there is a circuit-closer 18, preferably in the form of a push-button, located in this last-mentioned wire.

The operation of my improved release is as follows: When the circuit is open, the expansive coil-spring 8 holds the armature 6 elevated away from the cores of the coils 5^b, and when the throw-arm 3 is swung around into a throwing position it is engaged by the hook 13 and the lower end of the lever 11 is engaged in the notch 9 of the armature 6. When it is desired to release the throw-arm to throw the target carried thereby, the operator closes the circuit by operating the push-button 18, and in so doing the electromagnet is energized, pulling the armature 6 downwardly, and thus releasing the lower end of the lever 10. The pull of the throw-arm exercised against the hook 13 now causes the arm 12 and lever 11 to swing upon the pin 10, and thus said throw-arm is released. The end of the armature 6 is projected through the opening in one side of the housing 4 in order that the release may be mechanically operated by the operator, who positions the targets in the carrier of the trap if for any

reason the device fails to operate when the magnet-coils are energized by the closing of the switch 18.

A device so constructed is simple, inexpensive, very positive in action, is readily set to hold the throw-arm, and instantly releasing the same.

I claim—

The combination with a target-trap, of a housing secured to the frame of the trap in the side of which housing is formed an aperture, a vertical arm pivotally mounted in the housing with its upper end projecting through an opening in the top of said housing, a laterally-projecting arm integral with the vertical arm, a lug integral with the outer end of the lateral arm, which lug projects through the opening in the top of the housing, magnet-coils located within the housing, means whereby said coils are energized, and an armature arranged above said coils, in the top side of which armature is formed a notch to receive the lower end of the vertically-arranged arm when in a normal position, and the free end of the armature projecting through the opening in the side of the housing; substantially as specified.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

JOSEPH R. BIRCH.

Witnesses:

M. P. SMITH,

E. M. HARRINGTON.