(No Model.)

L. L. TRUE.

ELECTRIC RELEASE FOR TARGET TRAPS.

No. 433,554. Patented Aug. 5, 1890.

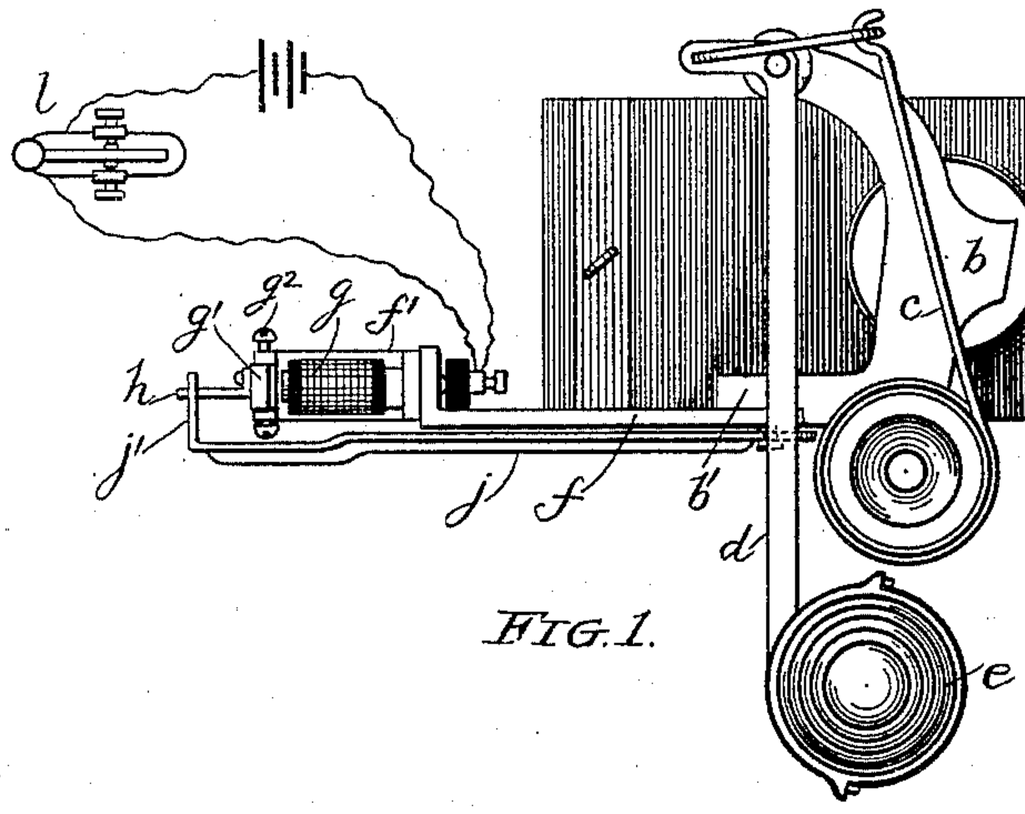


FIG. 1.

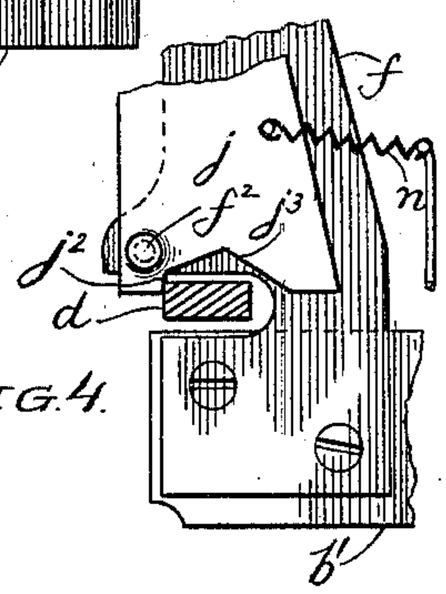
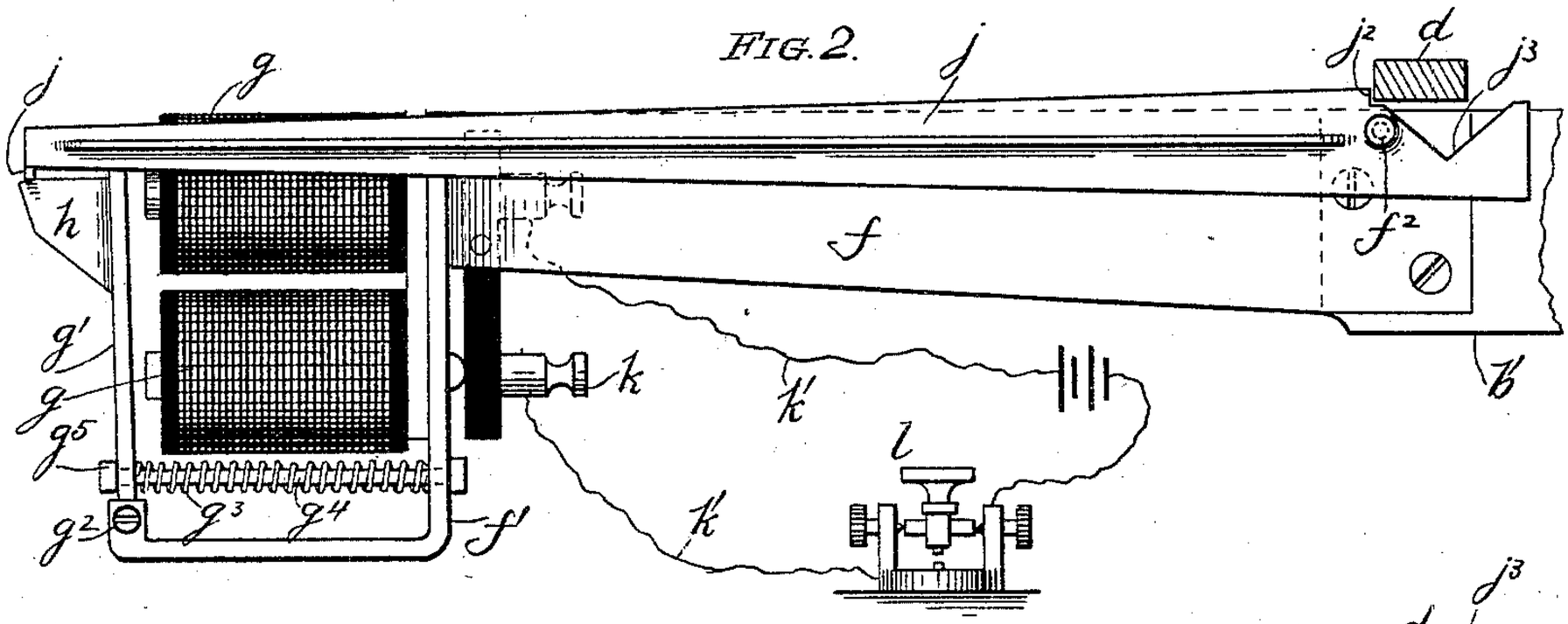


FIG. 4.

FIG. 2.



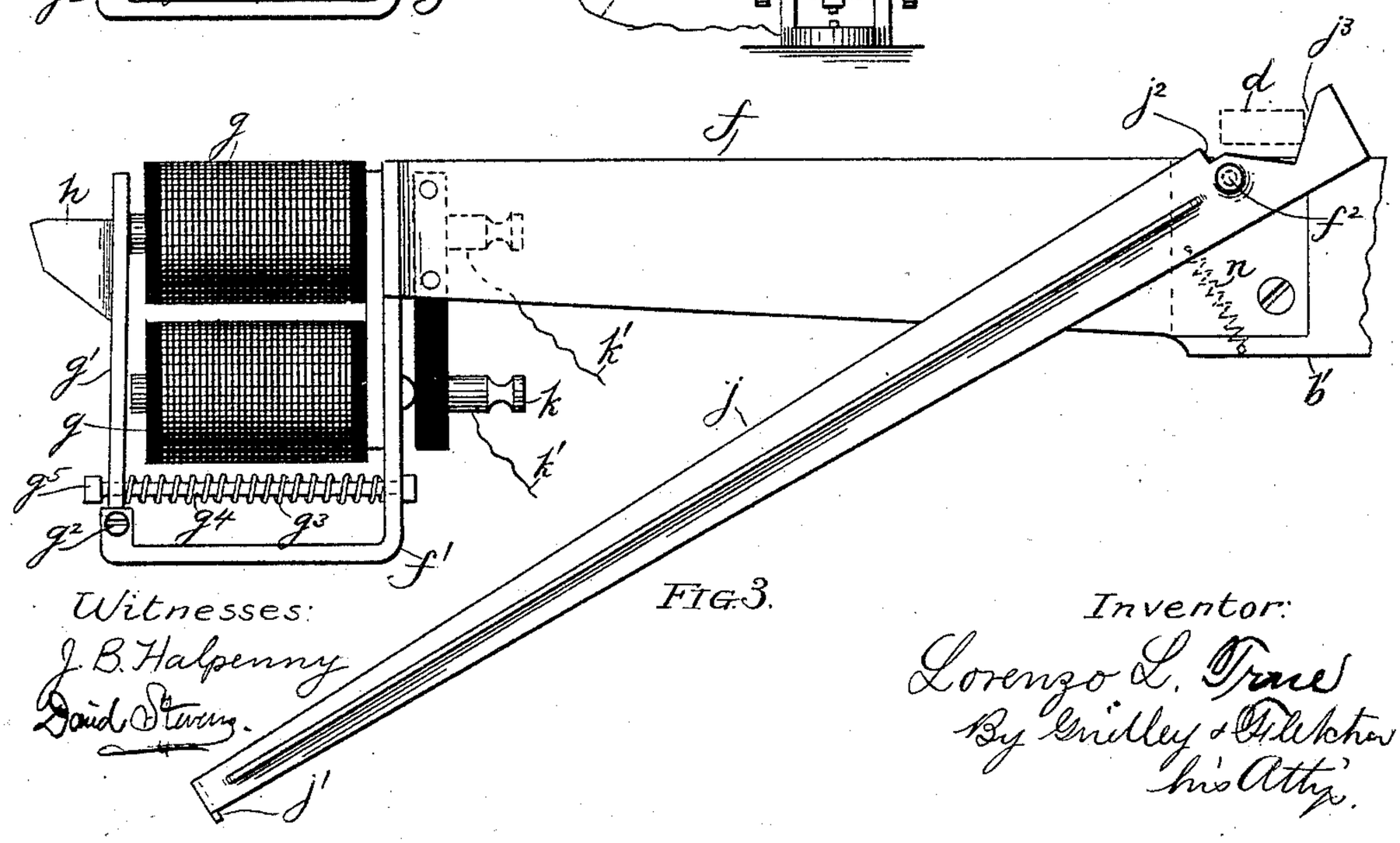


FIG. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

LORENZO L. TRUE, OF BISMARCK, (DAKOTA TERRITORY,) NORTH DAKOTA.

ELECTRIC RELEASE FOR TARGET-TRAPS.

SPECIFICATION forming part of Letters Patent No. 433,554, dated August 5, 1890.

Application filed August 19, 1889. Serial No. 321,208. (No model.)

To all whom it may concern:

Be it known that I, LORENZO L. TRUE, of Bismarck, in the county of Burleigh and Territory of Dakota, have invented a certain new, useful, and Improved Electric Release for Target-Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of an ordinary target-trap, showing my improved releasing mechanism applied thereto. Fig. 2 is an enlarged side view in detail of said releasing mechanism as it appears in its normal position or when the trap is set, the target-throwing arm being shown in transverse section. Fig. 3 is a like view showing said parts in an abnormal position, and Fig. 4 shows a modification of said invention, in which the releasing-trigger is arranged vertically.

Like letters of reference in the different figures indicate corresponding parts.

Attempts have heretofore been made to release the throwing-arm of a target-trap by means of electro-magnetic action; but owing to the great power exerted by the spring of the trap, and the consequent friction of the throwing-arm upon the releasing-trigger when the latter is constructed so as to render it safe and not liable to premature discharge, it has heretofore been found impracticable to produce the desired result, except by the employment of a powerful magnet and great battery force. My object is to overcome this objection and to produce an electric releasing mechanism, which may be simple in its construction, certain and positive in its action, and which may require but a single cell with an ordinary magnet to actuate it.

To these ends my invention consists in the combination of elements, hereinafter more particularly described, and definitely pointed out in the claim.

Referring to the drawings, A, Fig. 1, represents the usual target-trap, of which *b* is the pivoted adjustable standard; *c*, the coiled spring; *d*, the throwing-arm, and *e* the target, which is detachably connected with the free end of said throwing-arm in any well-known way. Rigidly secured by means of screws or otherwise to a flange or lug *b'*, formed upon the frame or standard of the trap, is an arm *f*, preferably arranged in a horizontal position, or substantially so, to the outer end of which is attached a frame *f'*, within which is mounted an electro-magnet *g*, having an armature *g'* pivotally hinged to the frame at g^2. A spring g^3, mounted upon a rod g^4, serves normally to hold the armature away from the magnet-cores, as shown in Fig. 2, the extent of the outward movement of the armature being limited by the head g^5 upon said rod, or by means of any other suitable device. A projecting detent *h* is formed upon the armature, for the purpose hereinafter stated.

Loosely secured to the rigid arm *f* by means of a wrist-pin f^2 is a trigger-arm *j*, which is arranged parallel to the arm *f* and made of a sufficient length, so that its end, when bent laterally, as shown at *j'*, may be in operative proximity to the detent *h* of the armature, thus enabling the part *j'*, when the arm *j* is in its normal position, as shown in Fig. 2, to rest upon said detent. Binding-posts *k k* are connected in the usual way with the terminals of said magnet, and insulated wires *k' k'*, having a battery *m* interposed therein, serve to connect the same with a circuit maker and breaker *l* at any desired distance from the trap.

Upon the arm *j*, sufficiently near to its pivotal point f^2 to render the leverage greatest and thus overcome the great friction produced by the direct pressure of the throwing-arm *d*, I form a shoulder j^2, adapted to engage the throwing-arm, as clearly shown in Fig. 2. I also prefer to extend the bar *j* rearwardly beyond the axis f^2 and to form a notch j^3 therein, so that upon the falling of the arm *j*, as hereinafter described, one side of said notch may strike against the arm *d* and insure its release, if from any cause it should fail to disengage itself from the shoulder j^2. Moreover, the contact of the throwing-arm with the notch j^3 serves to set the trap by tilting the arm *j*.

The operation of my improved releasing device is as follows: The throwing-arm of the trap is drawn back to a point opposite to the shoulder j^2, whereupon the arm *j* is adjusted so that said shoulder is brought into engagement with said arm, the detent *h* of the armature, through the action of the spring g^3, serving to hold the arm *j* normally in posi-

tion. Upon depressing the button of the circuit-breaker *l* the armature is attracted to the magnet, the arm *j* falls, and the throwing-arm *d* is released. It is obvious that said device may be applied to any of the varying forms of target-traps without departing from the essential features of my invention. The arm *j*, if placed horizontally, may be actuated by gravity only; but if necessary to place it in a vertical or other position a spring—such, for example, as the spring *n*, indicated in dotted lines in Fig. 3 and shown in Fig. 4—may be employed to produce its movement.

I do not claim, broadly, a releasing mechanism for target-traps, the essential feature of my invention consisting, mainly, in the interposition between the armature of the magnet and the throwing-arm of the trap of a lever or trigger-arm having such a short leverage upon said throwing-arm as to overcome the friction produced thereby, and render certain the release of said arm upon the movement of the armature.

I am aware that a target-trap has been made and described in which the throwing-arm, when set, is held by means of a trigger acting directly thereon, said trigger itself forming an armature which is actuated by means of electro-magnets arranged in immediate proximity thereto and to the throwing-arm; but I do not claim such.

What I do claim, and desire to secure by Letters Patent, is—

The combination, with the throwing-arm of a target-trap, of the extended rigid arm *f*, movable arm *j*, pivoted directly opposite to the point at which the same engages the throwing-arm, an electro-magnet *g*, attached to the outer extremity of the arm *f*, bent portion *j'*, armature *g'*, detent *h*, notch j^2, and a battery and circuit-breaker, all arranged and constructed substantially as shown and described, whereby the resistance to the action of the armature is reduced to a minimum.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 27th day of July, 1889.

LORENZO L. TRUE.

Witnesses:
G. E. FLETCHER,
J. H. NEWTON.