

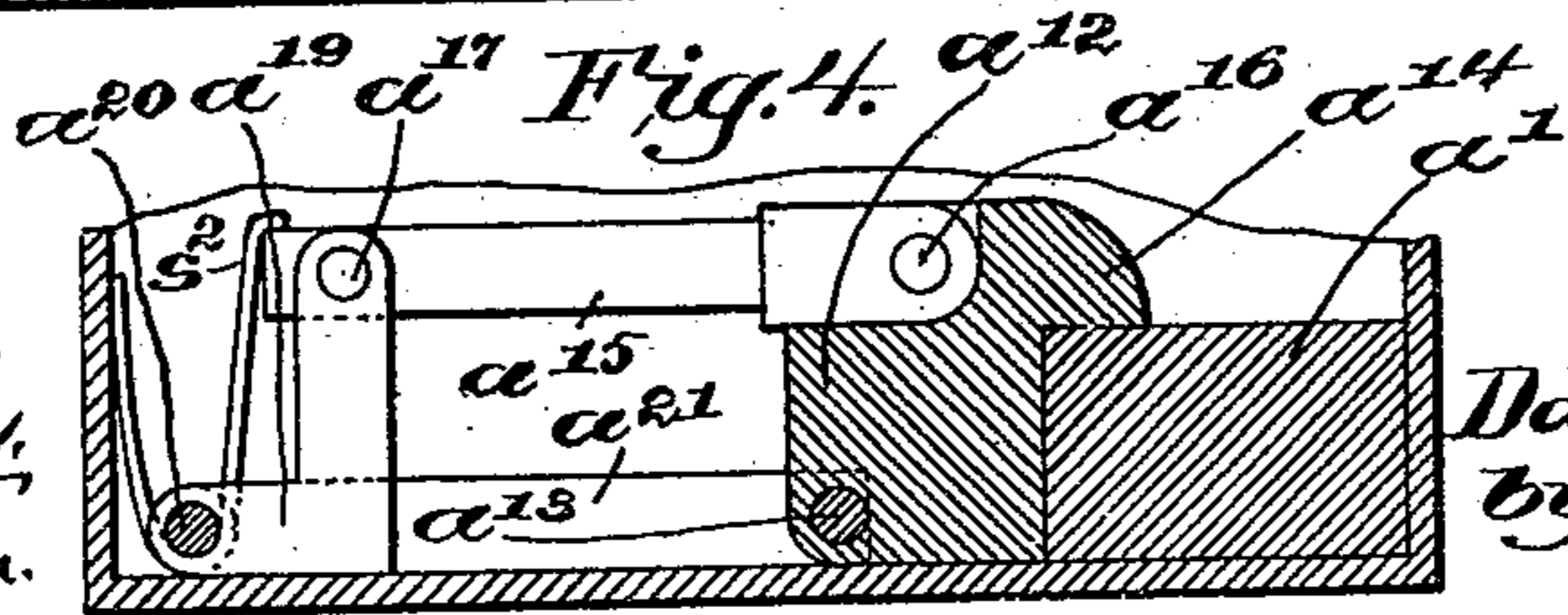
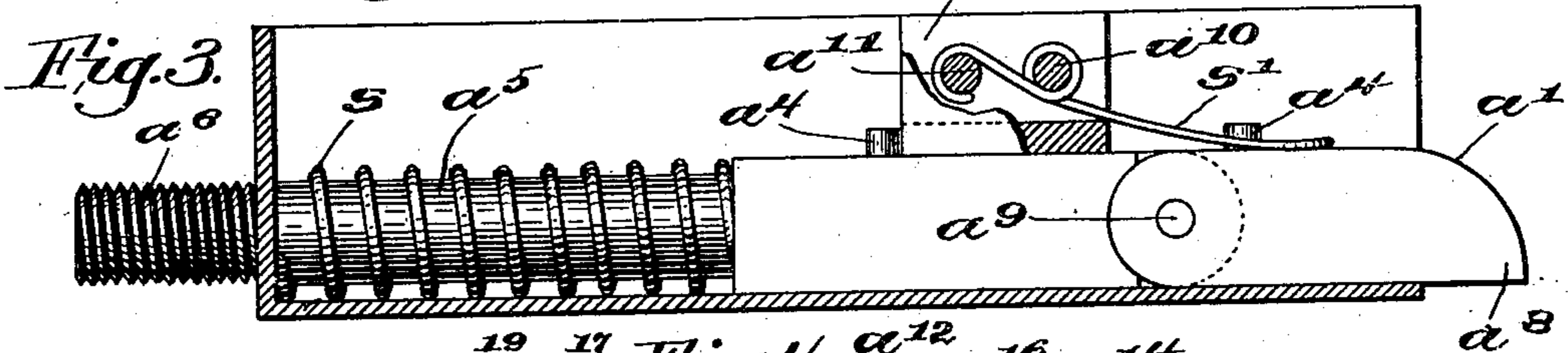
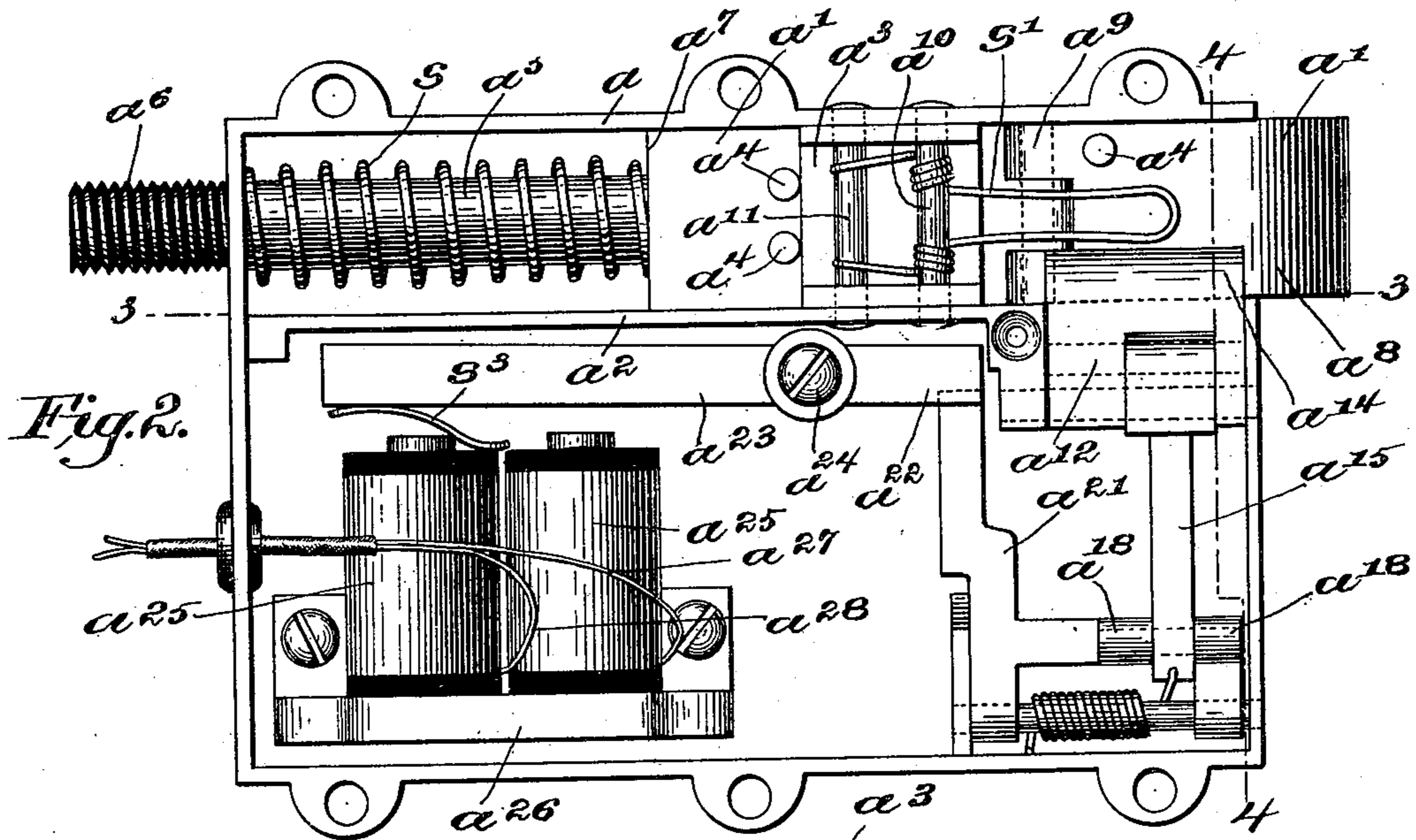
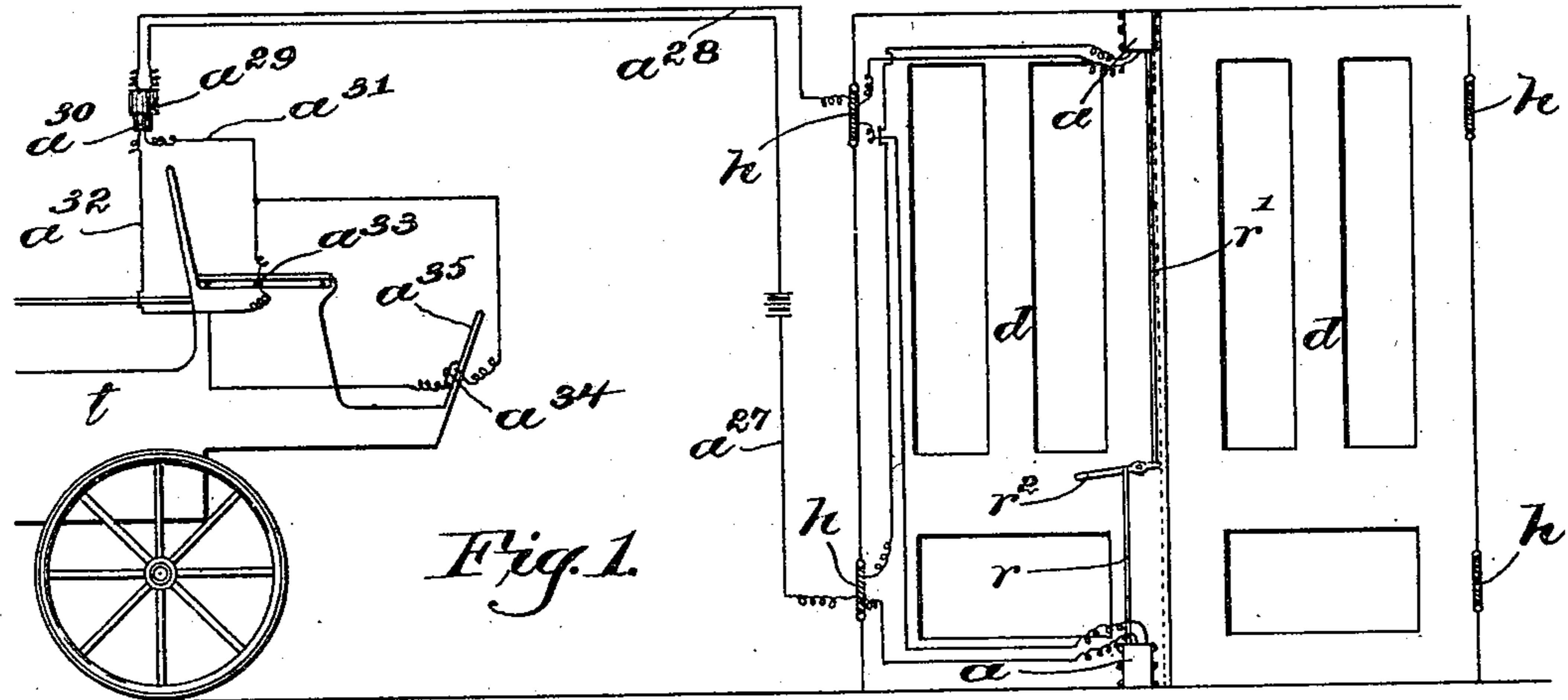
No. 648,171.

Patented Apr. 24, 1900.

D. F. LATIN.  
DOOR RELEASER.

(Application filed Mar. 2, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## DOOR-RELEASER.

SPECIFICATION forming part of Letters Patent No. 648,171, dated April 24, 1900.

Application filed March 2, 1899. Serial No. 707,464. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID F. LATIN, of Clinton, county of Worcester, State of Massachusetts, have invented an Improvement in Door-Releasees, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an electric apparatus for unlocking a door, being particularly intended for and adapted to use in connection with fire-stations.

As is well known, it is of the utmost importance in connection with the modern fire-department service that time should be economized in every possible way, and accordingly many devices have been invented for opening the doors and in other ways preventing delay in getting started to a fire; but so far as I am aware no electrical device has ever been provided to enable the driver to open the doors when he is ready to start. The usual means provided for opening doors consists of a lock or bolt at the top and another at the bottom of each door, connected by rods provided with a common lever, so that when the lever is moved properly it will simultaneously remove the bolts from locking engagement with the sill and lintel and permit the spring-hinges of the door to swing the latter open; but this is at best a slow means of opening the doors and, besides, is not under the control of the driver, so that the latter must first announce to an attendant that he is ready, and then the attendant thereafter opens the door. Accordingly I have devised a new lock and novel connections to be used therewith, so that not only is the opening of the doors directly in the instant control of the driver, but also because of the special lock mechanism the doors are capable of being relocked when they are swung closed by the automatic closing mechanism usually provided for the purpose.

The details of construction of my invention will be pointed out in the following description, reference being had to the accompanying drawings, illustrative of a preferred embodiment thereof, and the invention will be more particularly defined in the appended claims.

In the drawings, Figure 1 represents, diagrammatically, my novel system and appara-

tus. Fig. 2 is a top plan view of my improved lock or releaser, the cover being removed to show the interior construction. Fig. 3 is a longitudinal section taken on the line 3 3, Fig. 2. Fig. 4 is a sectional detail on the line 4 4, Fig. 2.

In a suitable box or casing  $a$  I mount a bolt  $a'$ , preferably arranged to reciprocate in a way formed on one side by the side of the box and on the other side by a partition  $a^2$ , a bridge-piece  $a^3$  serving to hold said bolt firmly down against the back of the casing, stops  $a^4$  being shown as projecting from the bolt in position to engage the edge of said bridge to limit the movement of said bolt.

It will be understood that the locks or retaining devices which normally hold fire-doors closed are arranged substantially as shown in Fig. 1, there being one at the top and one at the bottom of the overlapping door  $d$ , and the bolts of these locks are connected by rods  $r$   $r'$  to a pivoted plate or lever  $r^2$ , so that upon turning said plate the two bolts will be simultaneously released, permitting the spring-hinges  $h$  or the opening devices of the doors to swing the doors open, and accordingly I have provided the bolts  $a'$  of my improved lock with stems  $a^5$ , threaded at their outer ends  $a^6$  to receive the rods  $r$   $r'$ , a heavy spring  $s$  encircling the stem and bearing against the shoulders  $a^7$  of the bolt at one end and against the end of the casing at the other end. The lower end of the bolt  $a'$  consists of a block or latch-piece  $a^8$ , pivoted at  $a^9$  to the upper portion of the bolt and normally held downward in alinement with the rest of the bolt by means of a spring  $s'$ , supported and coiled about two bolts  $a^{10}$   $a^{11}$  above and preferably retaining the bridge-piece  $a^3$ .

A positive hold or retainer  $a^{12}$  (shown in cross-section in Fig. 4 and in plan in Fig. 2) is pivotally mounted on a pin  $a^{13}$ , journaled at its ends in the end of the lock-case and the partition  $a^2$ , respectively, this hold having a lip  $a^{14}$ , which normally overhangs and holds in place the block part  $a^8$  of the bolt, said hold or retainer  $a^{12}$  being braced in its forward normal position by a strut or bar  $a^{15}$ , pivoted at  $a^{16}$  in a recess of the hold and at  $a^{17}$  to ears  $a^{18}$ , projecting upwardly from an arm or bracket  $a^{19}$ , pivotally supported on a rod  $a^{20}$  in the bottom of the casing, said strut

or bar  $a^{15}$  being normally impelled forward by a spring  $s^2$ , coiled about the rod  $a^{20}$ , and engaging at its ends the end of the bar  $a^{15}$  and the side of the lock-casing. The bracket  $a^{19}$  has at its inner end a projecting lever or trip  $a^{21}$ , which rests normally along the bottom of the lock casing or box and is retained by the overhanging end  $a^{22}$  of a detent, shown as an armature  $a^{23}$ , which is pivoted at  $a^{24}$  intermediate its length and normally caused to engage with the lever  $a^{21}$  by any suitable means, as a spring  $s^3$ .

Electromagnets  $a^{25}$  are mounted at  $a^{26}$  in position to attract the armature  $a^{23}$ , so as to release its engaging end  $a^{22}$  from the lever  $a^{21}$  and permit the latch  $a^8$  of the locking-bolt to yield under the action of the opening mechanism of the doors.

From the electromagnets  $a^{25}$  the wires  $a^{27}$   $a^{28}$  lead by suitable connections, which it is unnecessary to describe, along the ceiling of the room of the station-house to a point approximately over the driver's seat of the hook-and-ladder wagon, engine, or other fire apparatus  $t$  usually kept in the room, where the wires are provided with telescoping contacts  $a^{29}$   $a^{30}$ , normally held together in operative electrical contact, but capable of being pulled apart by the starting of the vehicle.

From the contact member  $a^{30}$  wires  $a^{31}$   $a^{32}$  lead to contact-makers, there being preferably provided an automatic circuit-closer in connection with the seat, as indicated at  $a^{33}$ , and a push-button closer  $a^{34}$  on or adjacent the footboard  $a^{35}$ , to be operated by the foot of the driver as he takes his seat and grasps the reins or motor-wheel in his hands.

It will be understood that of course any other form or location of circuit-closer may be substituted within the scope of my invention when broadly considered, although the arrangement and entire system as shown and described are preferred and are claimed herein, besides the broad features of my invention considered irrespective thereof.

Having thus described my invention in all of its preferred details of construction and arrangement, the operation thereof will be readily understood.

When the driver takes his seat, if the automatic circuit-closer  $a^{33}$  is employed the moment the weight of the driver rests on the seat the circuit will be closed, thereby energizing the electromagnets of the two locks or releasing devices, drawing their armatures out of retaining engagement above the levers  $a^{21}$  of the brackets  $a^{19}$ , so that as the holds or retainers  $a^{12}$  no longer maintain the bolts  $a'$  against movement the latch or pivot part  $a^8$  thereof is free to swing on its hinge  $a^9$ , which it immediately does by the opening pressure exerted thereon by the spring-hinges or other opening devices employed for automatically opening the doors. The moment the doors are opened the horses and truck or engine start from the station or engine house, the plug or telescoping member  $a^{30}$  of the electric

connection pulling out from the member  $a^{29}$  thereof, thereby breaking the circuit and releasing the armatures of the several locks, so that they are permitted to regain their normal position in engagement over the levers  $a^{21}$ , it being understood that the various other parts of the locks were instantly restored to their normal positions by the springs  $s'$   $s^2$  the moment the doors had swung open sufficiently to escape from the usual wear-plates provided at the top and bottom of the door-casing. After the departure of the fire-wagon the doors will be closed automatically by usual appliances provided therefor, and as they move into closing position the bolts  $a'$  of the respective locks will engage the usual wear-plates and be pushed inwardly thereby until they come opposite their respective bolt-holes, whereupon they will be instantly shot into said holes by their springs  $s$ , thereby locking the doors closed. Upon return of the firemen the attendant readily opens the door simply by turning the lever  $a^{21}$ , thereby manually removing the bolts from their locking position, although it will be understood, of course, that a push-button or any circuit-closer may be provided in the wall or convenient place for electrically operating the several locks, if desired, and in this connection I desire to add that, while I have shown the connections diagrammatically in Fig. 1, it will be understood that the wiring and other details will be varied to suit the convenience and arrangement of the various engine-houses or other situations in which my apparatus may be used, and also I wish it understood that I am not limited in respect to the details of construction of the lock itself, nor is the latter limited in its use to fire-doors, inasmuch as it may be employed to advantage in other situations.

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

1. In an apparatus for use in fire-stations, the combination with an exit-door through which the fire-department vehicles must pass in going to a fire, and a vehicle, of a locking device for locking said door, electric releasing mechanism for said locking device, an electric circuit for said releasing mechanism, said circuit leading from said door to said vehicle, and a circuit-closer in said circuit located immediately adjacent said vehicle, whereby said door may be unlocked for the passage of the vehicle by the driver when mounted on said vehicle ready to start, substantially as described.

2. In an apparatus of the kind described, locking devices for locking a door, electric releasing mechanism therefor, an electric circuit leading from said releasing mechanism to adjacent the driver's seat, and a circuit-closer to be operated by the driver, a vehicle, a portion of said circuit being permanently mounted on said vehicle, and a yielding union interposed in said circuit adjacent said vehicle capable of being pulled apart by the

movement of the vehicle away therefrom, substantially as described.

3. In an apparatus of the kind described, locking devices for locking a door, electric releasing mechanism therefor, an electric circuit leading from said releasing mechanism to adjacent the driver's seat, a vehicle, a portion of said circuit being permanently mounted on said vehicle, a circuit-closer on said vehicle in said circuit, and a yielding union interposed in said circuit adjacent said vehicle capable of being pulled apart by the movement of the vehicle away therefrom, substantially as described.

4. In an apparatus of the kind described, locking devices for locking a door, electric releasing mechanism therefor, an electric circuit leading from said releasing mechanism to adjacent the driver's seat, a vehicle, a portion of said circuit being permanently mounted on said vehicle, an automatic circuit-closer for the seat of the vehicle, and a yielding union interposed in said circuit adjacent said vehicle capable of being pulled apart by the movement of the vehicle away therefrom, substantially as described.

5. In an apparatus of the kind described, a door having at its top and bottom locking devices each provided with a sliding bolt, rods extending from said bolts toward each other, a pivoted lever joining said rods, whereby they may be simultaneously and similarly operated, means tending to maintain said bolts projected forward in operative position, each of said bolts having a pivoted block or latch at its engaging end for locking the door, and electric releasing mechanism for permitting said pivoted block to turn on its pivot out of locking position, substantially as described.

6. In an apparatus for use in fire-stations, the combination with an exit-door through which the fire-department vehicles must pass in going to a fire, and a vehicle, of a locking

device for locking said door, electric releasing mechanism for said locking device, an electric circuit for said releasing mechanism, said circuit leading from said door to said vehicle, and a circuit-closer on said vehicle in said circuit, substantially as described.

7. In an apparatus of the kind described, locking devices for locking a door, electric releasing mechanism therefor, an electric circuit leading from said releasing mechanism to adjacent a driver's seat, a vehicle provided with said driver's seat, a portion of said circuit being permanently mounted on said vehicle, an automatic circuit-closer for the said seat of the vehicle, whereby the sitting down of the driver upon said seat actuates said circuit-closer and operates said releasing mechanism, substantially as described.

8. A lock containing a pivoted locking-bolt, a hold or retainer normally engaging said hold and holding it in locking position, a trip for maintaining said hold in its normal position, a bar pivoted to said trip and to said hold for causing them to move in unison, an armature movable into locking engagement with said trip, and an electromagnet for operating said armature, substantially as described.

9. A lock containing a pivoted locking-bolt, arranged to slide in the lock, said bolt having a stem projecting from the lock at one end, a spring mounted on said stem for normally holding the bolt in forwardly-projected position, and electric releasing mechanism for permitting said pivoted bolt to turn out of locking position, substantially as described.

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

DAVID F. LATIN.

Witnesses:

GEO. H. MAXWELL,  
FREDERICK L. EMERY.