

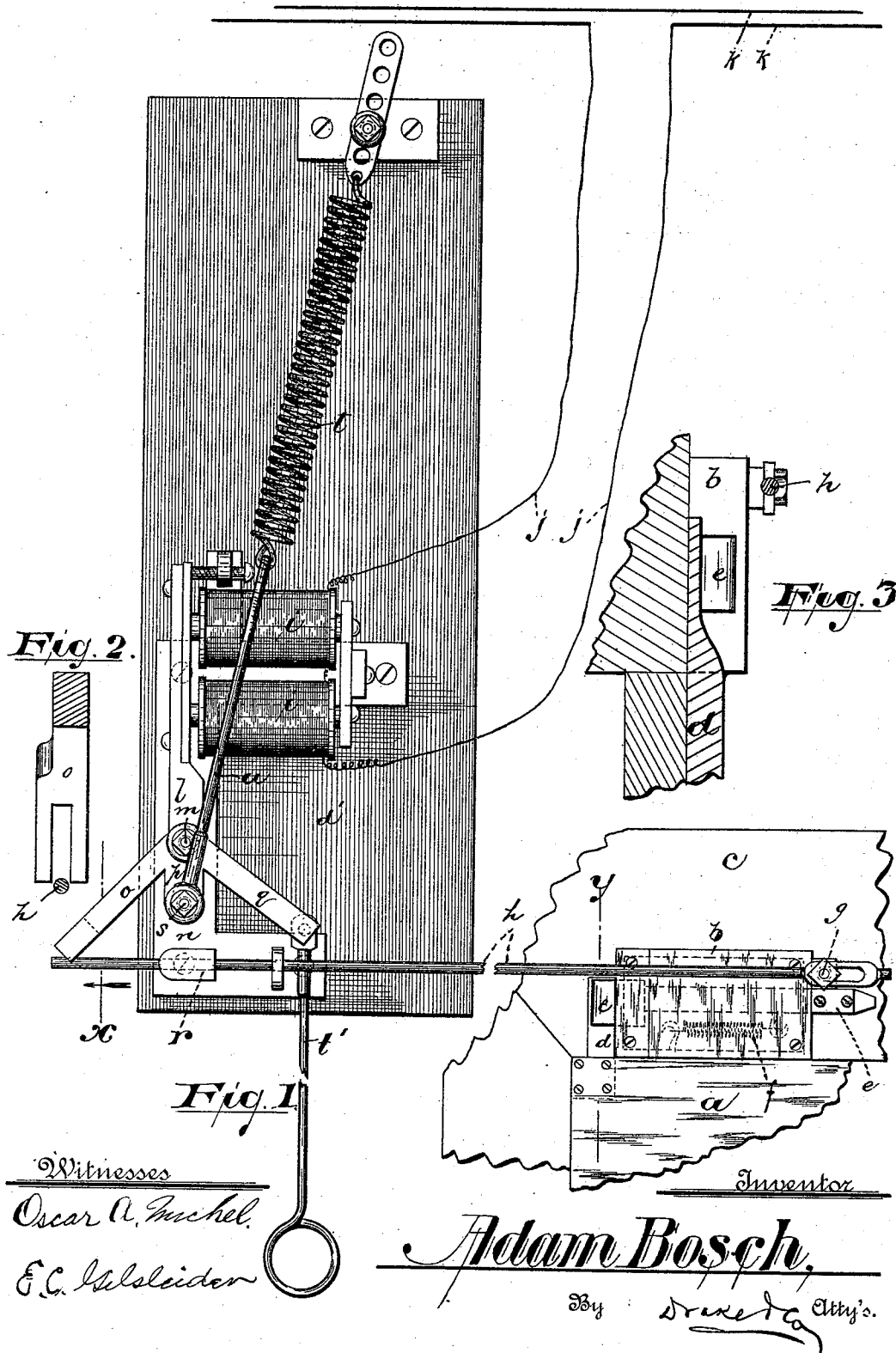
(No Model.)

A. BOSCH.

ELECTRICAL DOOR TRIP FOR ENGINE HOUSES.

No. 485,367.

Patented Nov. 1, 1892.



UNITED STATES PATENT OFFICE.

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ELECTRICAL DOOR-TRIP FOR ENGINE-HOUSES.

SPECIFICATION forming part of Letters Patent No. 485,367, dated November 1, 1892.

Application filed March 14, 1892. Serial No. 424,738. (No model.)

To all whom it may concern:

Be it known that I, ADAM BOSCH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Electrical Door-Trips for Engine-Houses, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide more perfect, effective, and efficient means for releasing the doors of an engine-house, so that said doors may be opened by springs or other automatic means to allow the exit of the engine from its apartment or the horses from the stable to said engine at the striking of an alarm, and to secure other advantages and results, some of which will be referred to in connection with the description of the working parts.

The invention consists in the improved electrical releasing device for doors, &c., and in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the figures, Figure 1 is an elevation indicating the relation of the electrical apparatus to the door; and Figs. 2 and 3 are detail sections taken on lines *x* and *y*, respectively.

In said drawings, *a* indicates the door; *b*, the catch for holding the door in its closed position, the said catch being secured to the wall or the door-casing *c* in any suitable manner, but preferably at the top of said door, as indicated. The door may be hinged and be provided with a spring of sufficient power to turn the said door on its hinges when released in any suitable manner. The hinges and spring for opening the door being common and old, it has not been deemed necessary to show the same in the drawings.

The catching means specifically preferred are shown in the drawings, in which *d* is a

catch projection fastened to the door and projecting upward therefrom to receive the latch-bolt *e* of the catch *b*, the said latch-bolt normally projecting from the case of the catch *b*, as indicated in outline, to hold the door and being adapted to slide on its bearings backward from its holding position to release the door, as will be understood. A spring *f* within the catch-case serves to hold the latch-bolt in its holding position. At the back end of the latch-bolt, or the end opposite that at which it engages the co-operating catch *d*, the said bolt extends out through the case and is provided with a lateral projection *g*, on which is loosely secured a slotted connecting-rod *h*, which extends to an electrical releasing apparatus *d'*, suitably fastened to the wall adjacent to the door to be released or to any other suitable fixture. Of the said releasing apparatus, *i* indicates an electro-magnet in connection with branch wires *j* of the main fire-alarm circuit *k*, and *l* is an armature-lever fulcrumed at *m* upon a suitable bed-plate *n*. At one side of the fulcrum the said lever is adapted to be attracted by the magnetized electro-magnet, and on the opposite side it is provided with arms *o*, *p*, and *q*, one of which serves as a hammer to strike a bearing *r* upon the rod *h* and cause the latter to draw the latch and release the door *a*. This arm is forked, as shown in detail, Fig. 2, the prongs of the fork extending on opposite sides of the bar or rod, so that when the blow of the hammer is struck there will be no chance for lateral displacement. The second arm *p* is substantially in line with the armature portion of the lever and provides an eccentric bearing for a spring *t* or a connecting-rod *u*, attached to said spring. By means of said arm *p* and arranging it in connection with the spring *t*, so that the line of draft of said spring is but a little to one side of the fulcrum *m* of the armature-lever, but little power is required to overcome the draft of the said spring *t*, and as a result a small battery force will hold the armature attracted to the magnet. Upon the breaking of the circuit at an alarm and the demagnetization of the electro-magnet the spring is allowed to act to turn the bearings of the arm *p* farther to one side of the fulcrum, increasing the leverage, and the spring *t* is thus enabled to exert its full power to cause the ham-

mer *o* to strike a blow on the bearing *r* of the rod *h*, as will be understood. A longitudinal movement is thus given to the rod *h*, which trips the door-catches, so that the door is allowed to fly open. The third arm *q* serves to receive a handle *t'*, by means of which when the circuit is again closed after an alarm the armature-lever may be turned back against the magnet and be held by the latter preparatory to a new alarm.

I am aware that various modifications and adaptations may be employed without departing from the spirit or scope of this invention. For example, the rod *h* may be extended into connection with a plurality of door-latches.

Having thus described the invention, what I claim as new is—

1. In combination with the electro-magnet and door-catches and connecting-rod *h*, an armature-lever having a hammer to engage said rod or a bearing thereon, and an eccentric bearing for a spring, and said spring, all substantially as set forth.

2. In combination with a door and its catch, a co-operating catch and its rod *h*, an armature-lever and its hammer and eccentric bearing, the latter being connected with a source of power and a magnet controlling said arma-

ture, substantially as and for the purposes set forth.

3. In combination with the trip-connecting rod *h* and its anvil or bearing *r*, an armature-lever having arms *o p q*, the first serving as a hammer, the second as a bearing for a spring or similar means for exerting power, and the last to receive a handle *t'*, an electro-magnet, and fire-alarm electric-circuit wires, and a spring or means for exerting power, all arranged and combined substantially as and for the purposes set forth.

4. In combination with the door-catches and rod connecting therewith, adapted to receive the blow of the hammer, an armature-lever *l*, arranged on a fulcrum *m*, a spring *t*, having a bearing on said lever eccentric to the fulcrum center, the line of power of said spring being a little to one side of said center, and an electro-magnet, and fire-alarm-circuit wires, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of March, 1892.

ADAM BOSCH.

Witnesses:

CHARLES H. PELL,
OSCAR A. MICHEL.