

No. 715,334.

Patented Dec. 9, 1902.

J. M. ALLEN.
ELECTRIC SAFE LOCK.

(Application filed June 7, 1901. Renewed May 15, 1902.)

(No Model.)

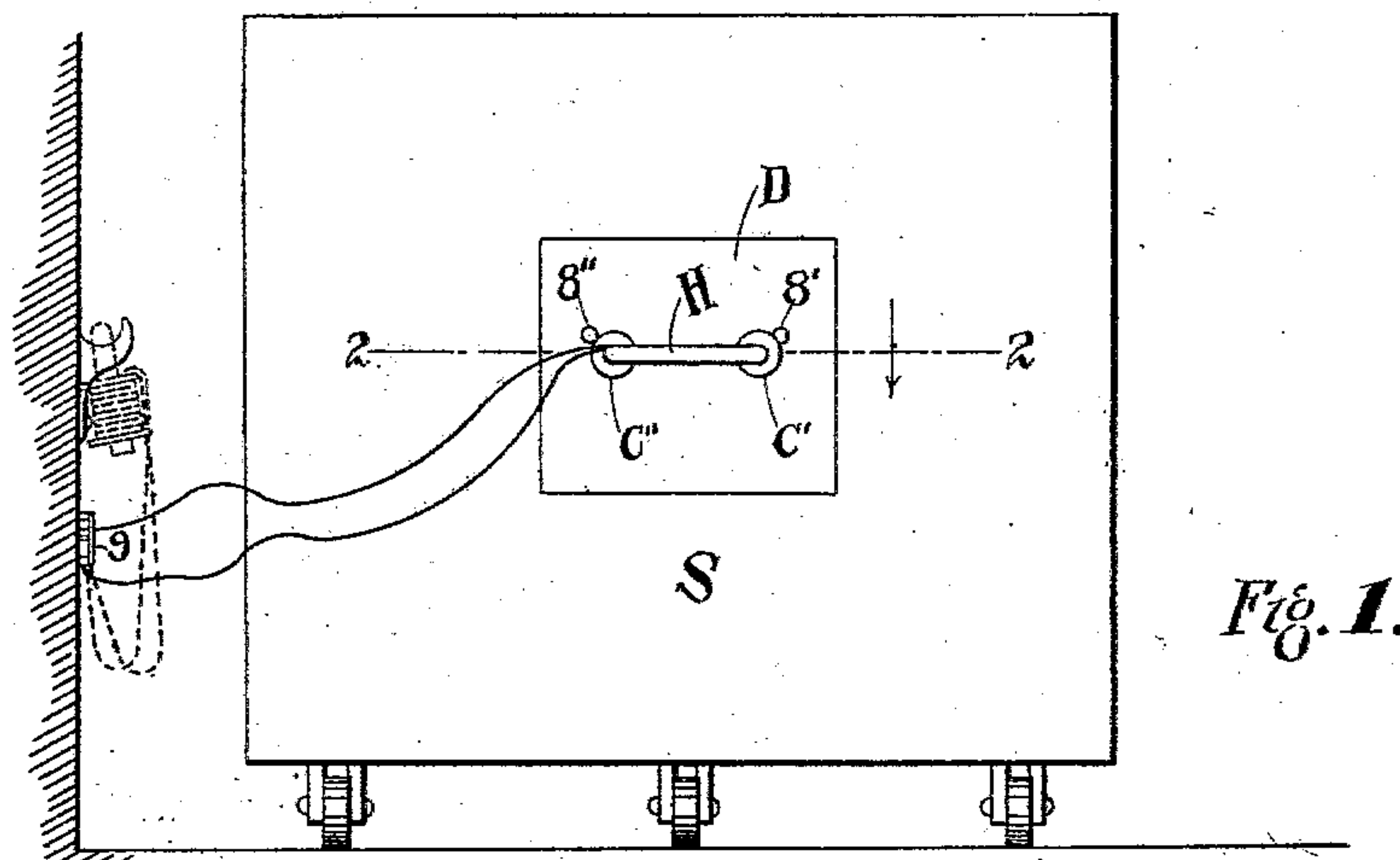


Fig. 1.

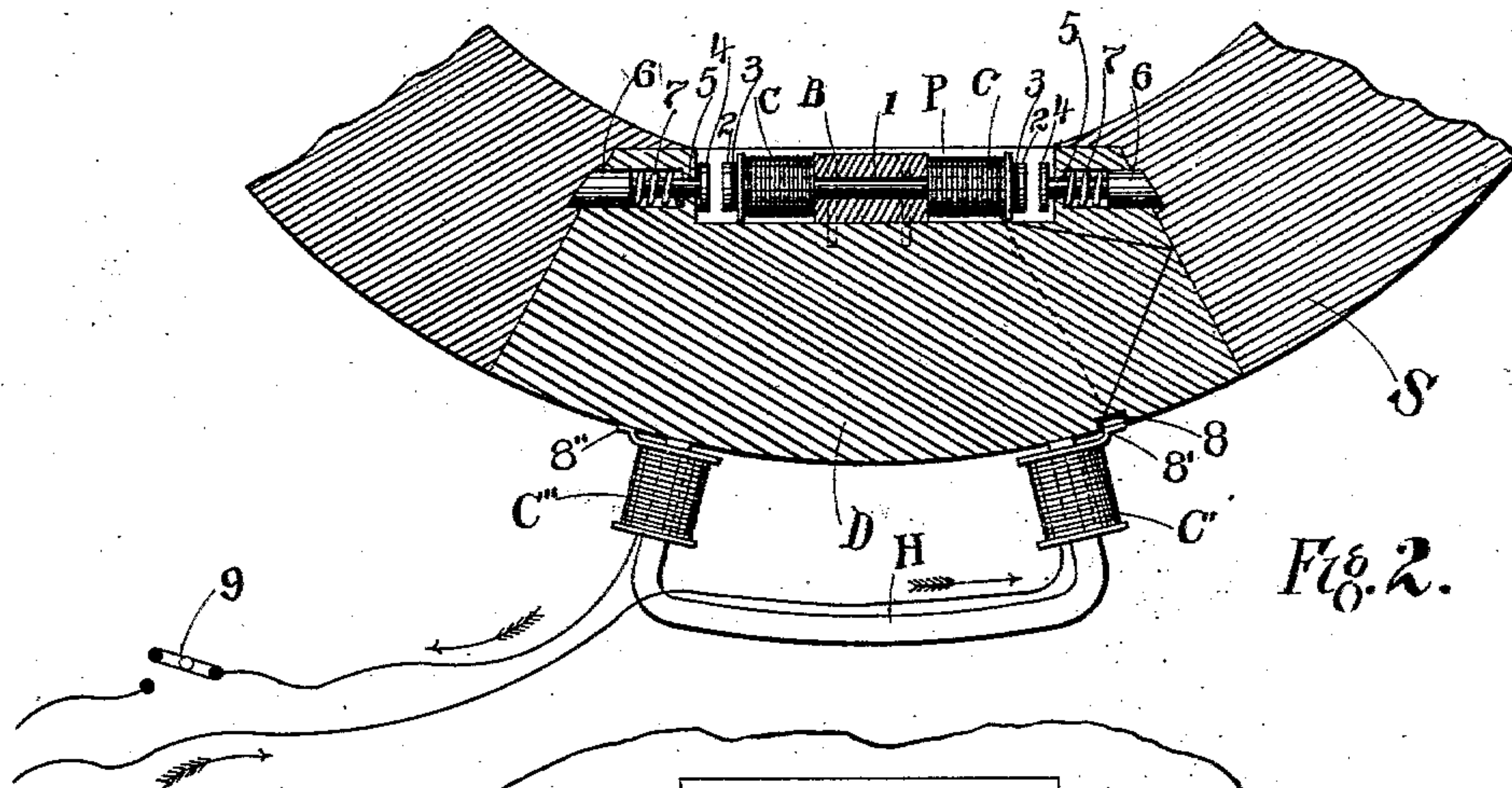


Fig. 2.

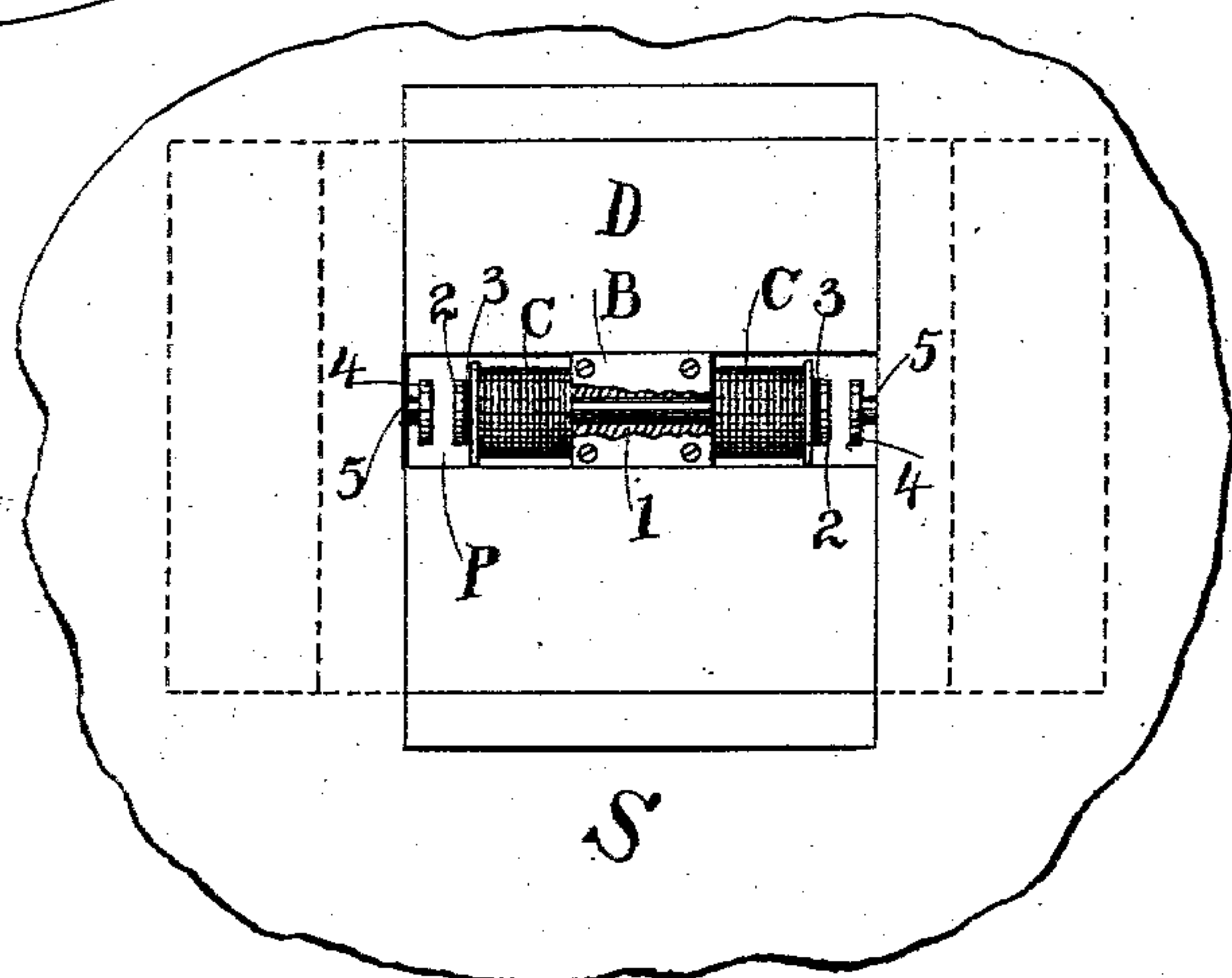


Fig. 3.

Witnesses
Chas. J. Nason
J. C. Nason.

Inventor
James M. Allen
By his Attorney
Curtis Storer

UNITED STATES PATENT OFFICE.

JAMES M. ALLEN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ELEVEN AND ONE-HALF TWENTIETHS TO GEORGE H. PRICE AND ISABEL H. NELSON, OF ST. LOUIS, MISSOURI.

ELECTRIC SAFE-LOCK.

SPECIFICATION forming part of Letters Patent No. 715,334, dated December 9, 1902.

Application filed June 7, 1901. Renewed May 15, 1902. Serial No. 107,468. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. ALLEN, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Electric Safe-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in electric safe-locks; and it consists in the novel construction of lock and door combined, more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a safe, showing my invention applied thereto. Fig. 2 is a transverse section on line 2 2 of Fig. 1, and Fig. 3 is an inside elevation of the parts shown in Fig. 2.

The object of my invention is to construct an electrically-operated lock for safe-doors which will permit the use of a door devoid of hinges, door-knobs, or similar devices which project beyond the face of the door and the walls of the safe carrying the same, it being well known that these projecting portions serve as vulnerable points at which the door can be attacked by prospective dynamiters and safe-wreckers.

The present invention possesses many advantages better apparent from a detailed description thereof, which is as follows:

Referring to the drawings, S represents a safe or vault of any prevailing design and approved construction, a section of the wall thereof being removed for the accommodation of a door D, which when fully inserted into the opening made therefor will come flush with the outer surface of the safe, and therefore will have no vulnerable points capable of being attacked by a prospective dynamiter. Formed in the rear surface of the door D is a chamber or recess for the reception of two sections C C of an electric coil, the sections encircling a common bar 1, supported by a wooden block B, screwed to the door, said block serving at the same time to keep the sections C C spaced properly apart. The sections C C and the bar 1 form an electromagnet when the coil C C is traversed by an elec-

tric current. Each end of the bar 1 terminates in an expanded head 2, the latter being additionally insulated from the coil C C by an insulating-disk 3. The electromagnet when energized serves to attract to itself the armatures 4 4, which are but the terminal expanded heads of the stems 5 5 of the bolts or latches 6, normally engaging the sockets formed for their reception in the side walls of the opening which receives the door, it being understood that normally the bolts 6 6 are retained in their locked or engaged positions under the resilient actions of the coiled springs 7, encircling the stems 5 5 and bearing with their opposite ends, respectively, against the bases of the bolts proper and the guide-walls for the stems. The wire constituting the coil-sections C C is of course continuous, one end contacting directly with the inner surface of the door and the opposite end following a zig-zag course through the door (though it may take the straight course, as shown by dotted lines in Fig. 2) and terminating at the insulated metallic button 8, which latter is flush with the outer surface of the door. The wire connecting the sections C C preferably follows along the bar 1. Adapted to be retained temporarily against the door by means of magnetic attraction is a handle-bar H, having terminal bent arms surrounded by coils C' C'', respectively, the inner ends of the coils terminating in contact-buttons 8' 8'', respectively, the former being adapted to contact with the terminal button 8 referred to and the latter with the surface of the safe-door. The opposite ends of the coils C' C' are connected, respectively, to a suitable electric generator, (not shown,) a switch 9 being interposed in the path of one of the wires for closing and breaking the circuit.

Referring now to Fig. 2 of the drawings and assuming that the switch 9 is closed, the electric current will travel, as indicated by the arrows, through coil C', contacts 8' 8, through the electromagnet C C, through the door D, and thence through the contact 8'', coil C'', back to the generator. Thus the circuit will be complete, energizing not only the bar 1 to a degree sufficient to attract the armatures 4 and retract the bolts 6 from their

sockets, but energizing the bar H, which now becomes a magnetic handle for the door, to which it is strongly attracted. Thus the closing of the circuit not only retracts the bolts 6 6, but results in forming a temporary handle H for the door, by means of which the door (with its bolts now retracted) can now be removed from the safe-wall. When the door is restored to its proper place in the safe and the circuit opened by the opening of the switch 9, the magnetism at once leaves the bar 1, permitting the springs to force the bolts back into their sockets, the handle H under the circumstances releasing its magnetic hold on the door. When the handle H is not in use, it may be hung upon a bracket, as shown by dotted position of parts in Fig. 1.

The object of causing the end of the wire leading from the coil-sections C C to take a zigzag course through the door is to prevent a dynamiter or safe-wrecker from tapping the door along a direct opening leading to the coils and destroying or dislodging the latter and the bolts in their proximity.

It is apparent that I may depart in minor details from the present construction without affecting the nature or spirit of my invention.

Having described my invention, what I claim is—

1. In a safe, a suitable door, a movable bolt locking the same to the body of the safe, an electromagnet placed in coöperative relation with said bolt, and an electromagnet for energizing the magnet from the outside of the safe, and retracting the bolt from its locked position, the said electromagnet serving as a temporary handle for the door, substantially as set forth.

2. In a safe, a suitable door, a sliding spring-actuated bolt normally locking the

door to the safe, an electromagnet coöperating with said bolt, a handle-bar having terminals or arms adapted to contact with the outer face of the door, and coils wound about said arms, the inner end of said coils adapted to form electrical connections through the door respectively with the opposite ends of the wire of the coil constituting the said electromagnet, the opposite ends of the coils on said handle-bar leading to a suitable source of electric energy, the parts operating substantially as, and for the purpose set forth.

3. In a safe, a suitable door, a handle-bar having terminals adapted to contact with the body of the door, means for magnetically energizing said handle-bar whereby the same is attracted to the door, and a lock for the door, the lock being adapted to release the door at the moment of the magnetization of the handle-bar, substantially as set forth.

4. In a safe, a suitable door having a bolt normally locking the door to the safe, a handle-bar magnetically energized and adapted to be placed against the outside of the door, and intermediate connections between said handle-bar and bolt for automatically retracting the bolt from its locked position, upon contact of the handle-bar with said door, substantially as set forth.

5. In a safe, a suitable door, a handle-bar having terminals adapted to contact with the body of the door, and means for magnetically energizing the handle-bar, whereby the same is attracted to the door, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES M. ALLEN.

Witnesses:

EMIL STAREK,
GEO. H. PRICE.