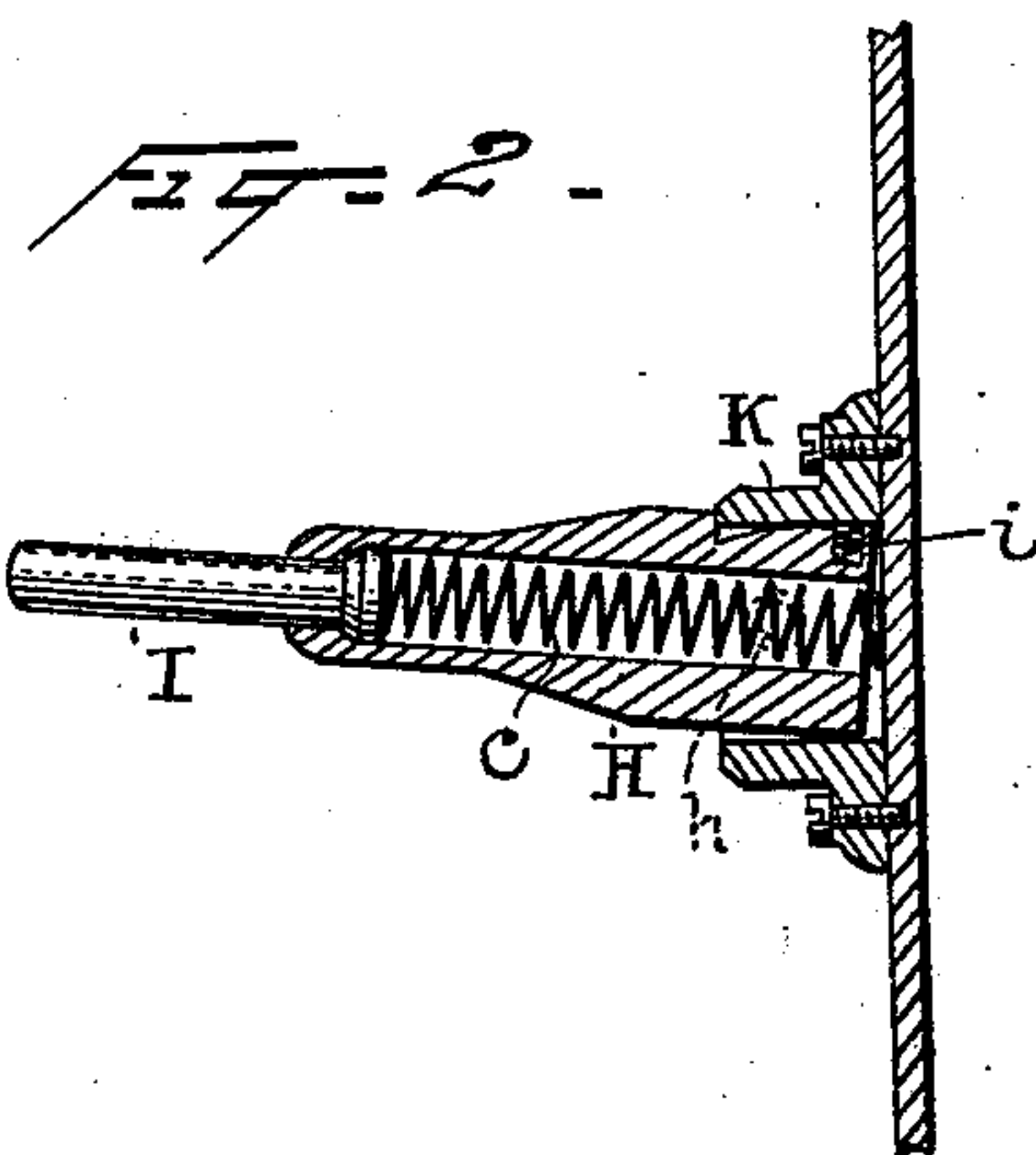
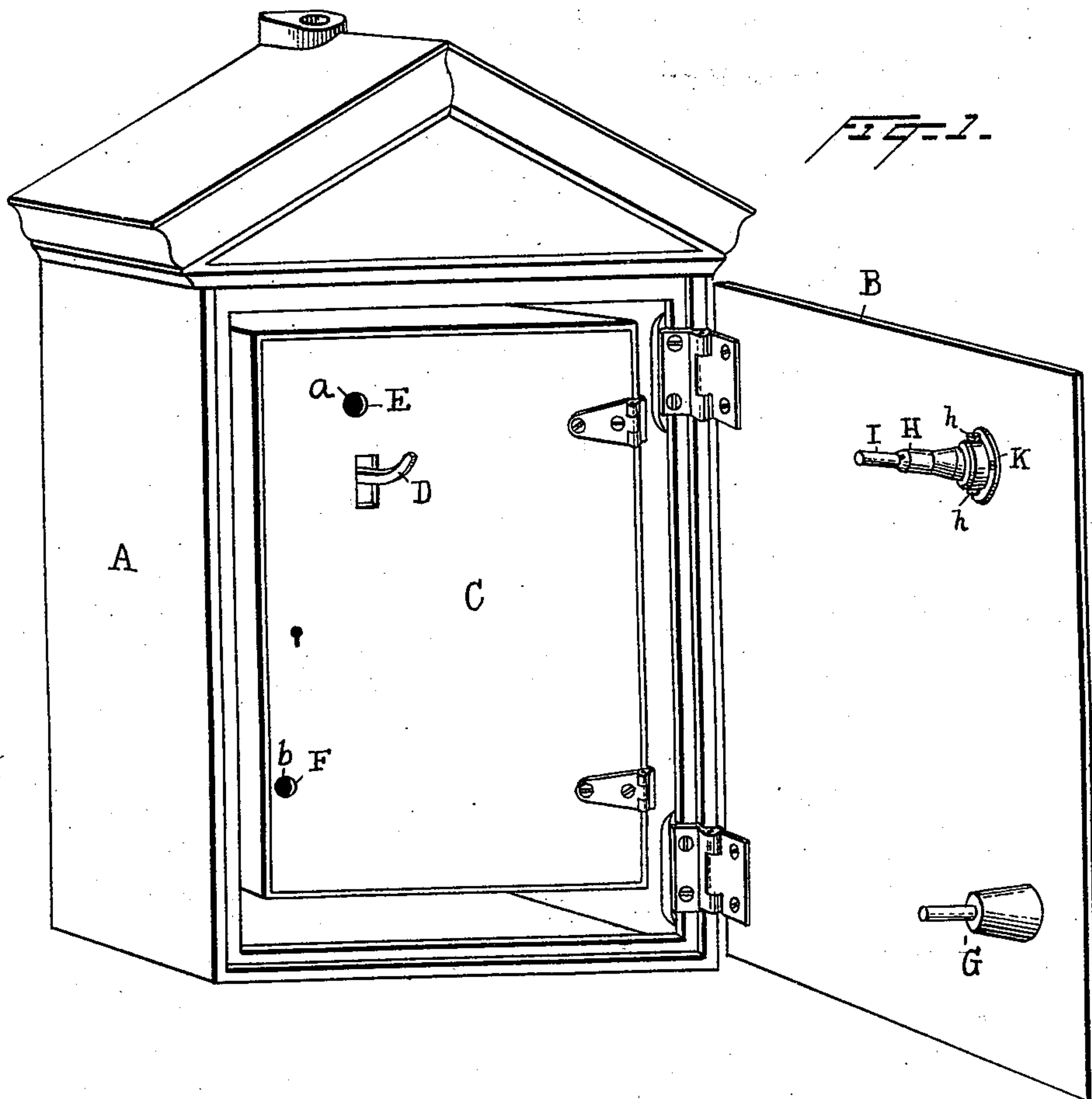


(No Model.)

N. H. SUREN.  
SIGNAL BOX.

No. 545,639.

Patented Sept. 3, 1895.



Witnesses  
Morris A. Clark.  
John R. Taylor.

Inventor  
Nathan H. Suren  
By his Attorneys Syer & Kelly

# UNITED STATES PATENT OFFICE.

NATHAN H. SUREN, OF NEW YORK, N. Y., ASSIGNOR TO THE GAMEWELL  
FIRE-ALARM TELEGRAPH COMPANY, OF SAME PLACE.

## SIGNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 545,639, dated September 3, 1895.

Application filed March 8, 1895. Serial No. 540,946. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN H. SUREN, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a certain new and useful Improvement in Signal-Boxes, of which the following is a specification.

The standard fire-alarm-telegraph boxes of the "Gardiner" type as at present made are provided with a cut-out switch, which is operated by a stud on the outer door, projecting through a hole in the inner door and engaging with a spring-plunger which operates the cut-out switch. Such boxes are also provided with a spring-plunger which mechanically restores the armature of the non-interfering magnet, and this plunger is likewise operated by a stud on the outer door, entering a hole in the inner door of the box. It has been found that the cut-out switch is not released sufficiently far in advance of the non-interfering plunger to insure the passage of current through the non-interfering magnet prior to the release of the armature of that magnet.

The object of my invention is to overcome this difficulty. This I accomplish by increasing the length of the stud on the outer door which operates the non-interfering plunger and by making such stud telescopic in construction and providing it with a spring, which tends to keep it projected, so that as the door of the box is opened the telescopic stud, which is reduced to its shortest length when the door is closed, is extended and holds the non-interfering plunger for a time after the cut-out switch plunger has been released. My telescopic plunger is also mounted on a swivel and thrown into an inclined position by a spring, so that it may properly engage the hole in the inner door, which, owing to its length, it would not do if not given this oblique position.

In the accompanying drawings, forming part hereof, Figure 1 is a view of the signal-box with the outer door open, and Fig. 2 is a section through the non-interfering stud and the outer door to which it is attached.

A is the outer shell of the fire-alarm-telegraph box, and B is the outer door.

C is the inner door of the box. Through

the inner door projects the pull-hook D, by which the box is operated.

E is a hole in the inner door giving access to the plunger *a*, which restores the non-interfering armature. The inner door is also provided with a hole F, which gives access to the plunger *b* for operating the cut-out switch. The non-interfering devices and cut-out switch are not shown, because they are those which are used in the standard Gardiner boxes and are well understood.

G is a stud mounted upon the outer door, which enters the hole F in the inner door and bears against the plunger *b* of the cut-out switch. The stud which engages the non-interfering plunger is composed of a sleeve H, in which is a pin I, which is pressed outwardly by a spiral spring *c*, placed in the sleeve. The sleeve H is pivoted on screw-points *h*, carried by a holding-plate K, which is secured to the outer door B. A spring *i* is located between the holding-plate K and the end of the sleeve H, close to the surface of the door, and throws the sleeve H and pin I into the oblique position shown in Fig. 2. By means of this oblique position of the non-interfering stud it will properly enter the hole E when the outer door is closed and engage with the plunger *a*, and, being guided by the hole E, will assume a position perpendicular to the door as the door is closed. The pin I is forced into the sleeve H against the tension of the spring *c* by the closing of the door B, and as the door B is opened the pin I is projected outwardly by the spring *c* and holds the plunger *a* in its inward position until the stud G has entirely cleared the plunger *b* and the cut-out switch has been shifted, throwing the box into the circuit, and causing the non-interfering magnet to hold its armature electrically.

What I claim is—

1. In a signal box, the combination with the non-interference and cut-out devices of a stud carried on the box door, for operating the cut-out devices, and a telescopic spring stud carried on the box door for operating the non-interference devices, substantially as and for the purposes set forth.

2. In a signal box, the combination with the



non-interference and cut-out devices, of a stud carried on the box door for operating the cut-out devices, and a telescopic spring stud carried on the box door for operating the non-interference devices, said stud having an oblique position when the door is open, substantially as and for the purposes set forth.

3. In a signal box, the combination with the non-interference device, of a stud carried on the box door for operating such devices, and comprising the plate K for attachment to the door, the sleeve H pivoted to the plate K, the pin I, spring c and spring i, substantially as and for the purposes set forth.

4. In a signal box, the combination of the inner and outer doors, the inner door having holes through which the non-interfering and cutout devices are operated by studs on the outer door, of a rigid stud for operating the cutout devices, and a telescopic swiveled stud for operating the non-interfering devices, substantially as set forth.

This specification signed and witnessed this 6th day of March, 1895.

NATHAN H. SUREN.

Witnesses:

W. PELZER,  
EUGENE CONRAN.