

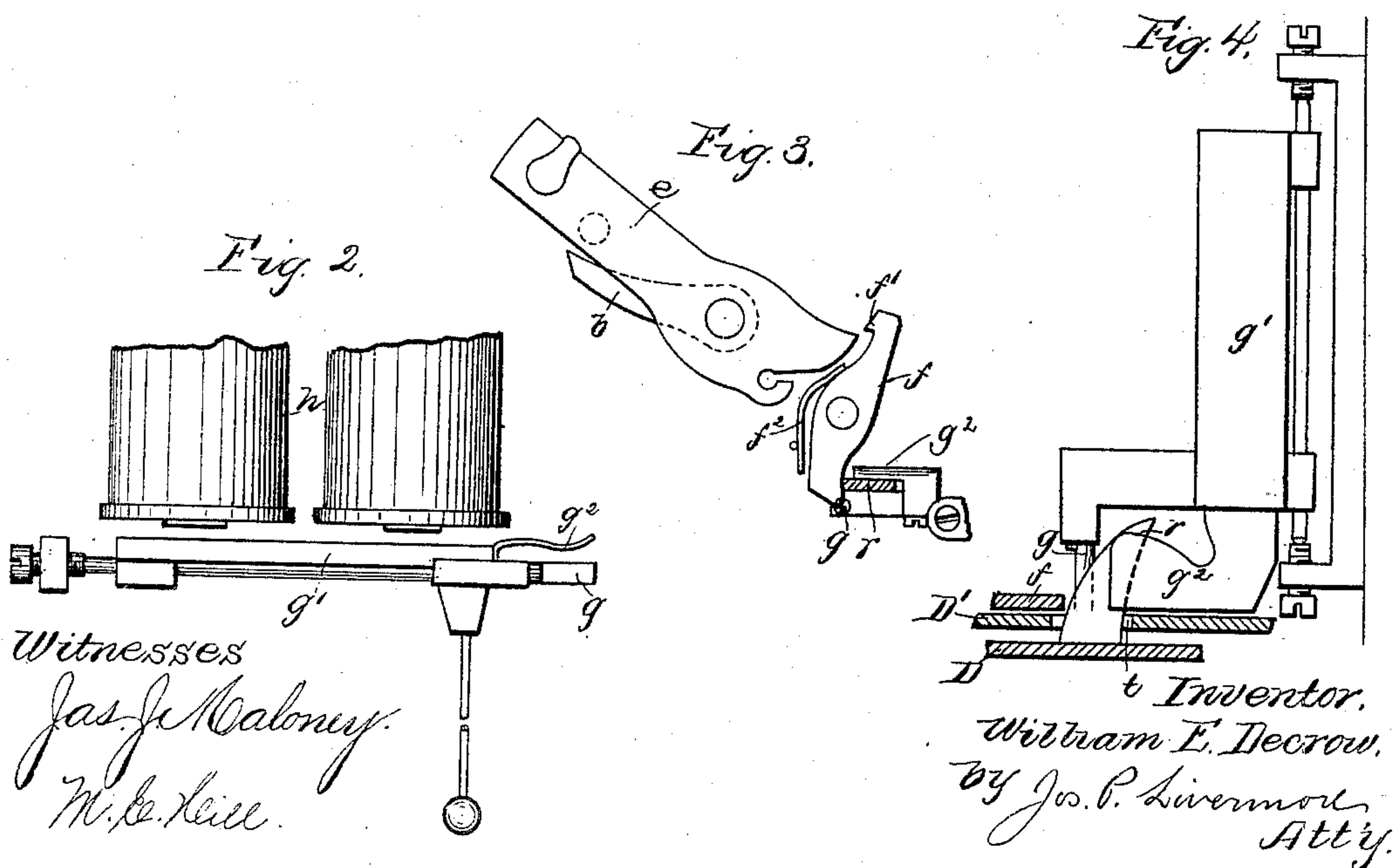
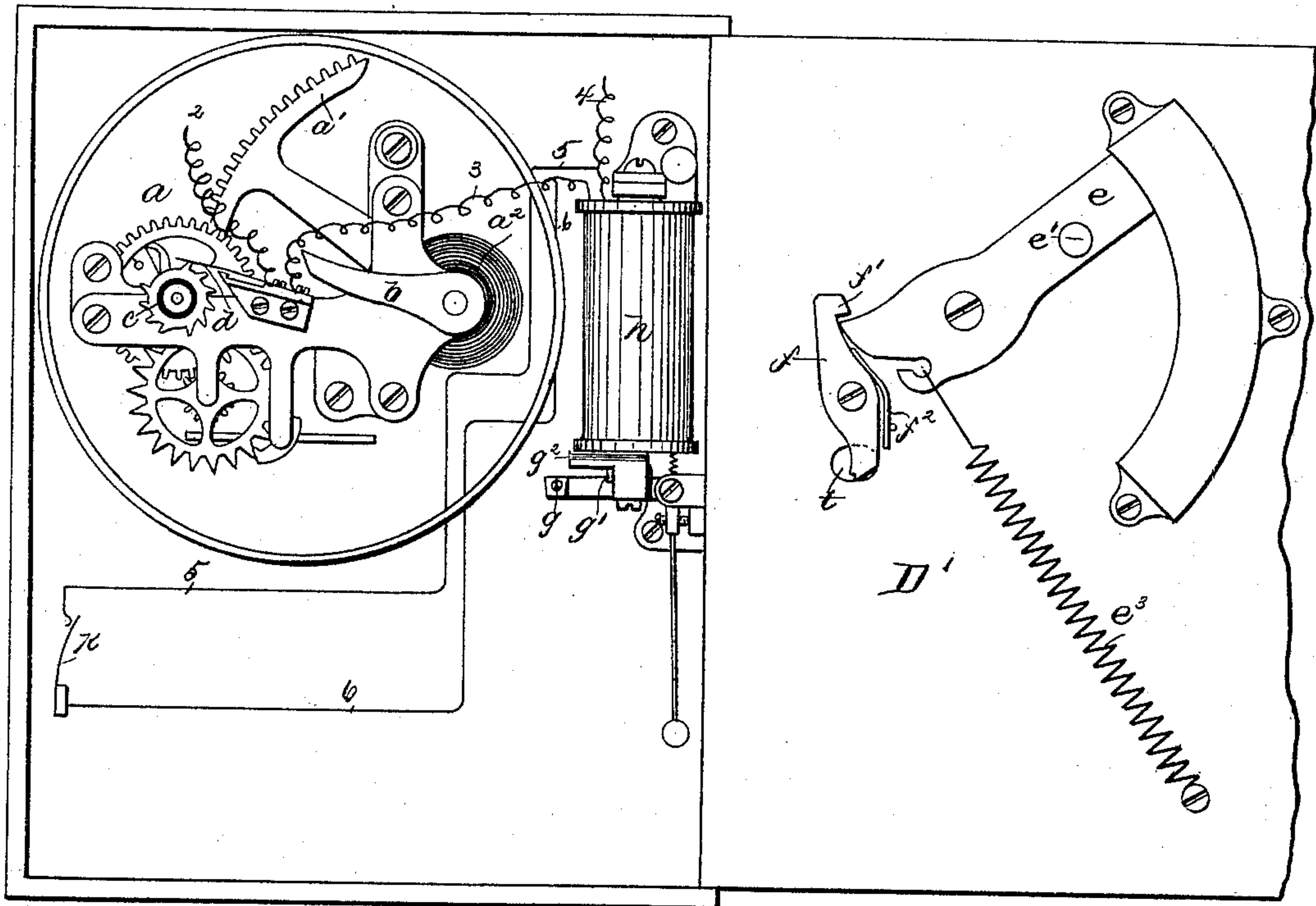
(No Model.)

W. E. DECROW.
NON-INTERFERING SIGNAL BOX.

No. 434,922.

Patented Aug. 26, 1890.

Fig. 1.



UNITED STATES PATENT OFFICE.

WILLIAM E. DECROW, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE GAMEWELL FIRE ALARM TELEGRAPH COMPANY, OF NEW YORK, N. Y.

NON-INTERFERING SIGNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 434,922, dated August 26, 1890.

Application filed December 27, 1887. Serial No. 259,166. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. DECROW, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Non-Interfering Signal-Boxes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to signal-boxes for fire-alarm telegraphs, and is intended to prevent the interruption of a signal by the operation of another box on the same circuit.

Various devices have been heretofore used for accomplishing this result; and the present invention consists in the combination of instrumentalities hereinafter pointed out by which the desired result is effected.

The invention is shown embodied in what is commonly known as a "sector-box," in which the motor is wound for each signal by turning a winding-arm, which is moved in one direction to strain the spring or raise the actuating-weight and moves back in the other direction to its original position as the motor runs down. The invention is, however, equally applicable to a spring-box, in which the motor is wound for a number of operations and released for each operation by a detent, which is usually a projection carried by an arm that corresponds in its relation to the non-interfering devices with the winding-arm of the sector-boxes, each being the controlling-arm of the motor.

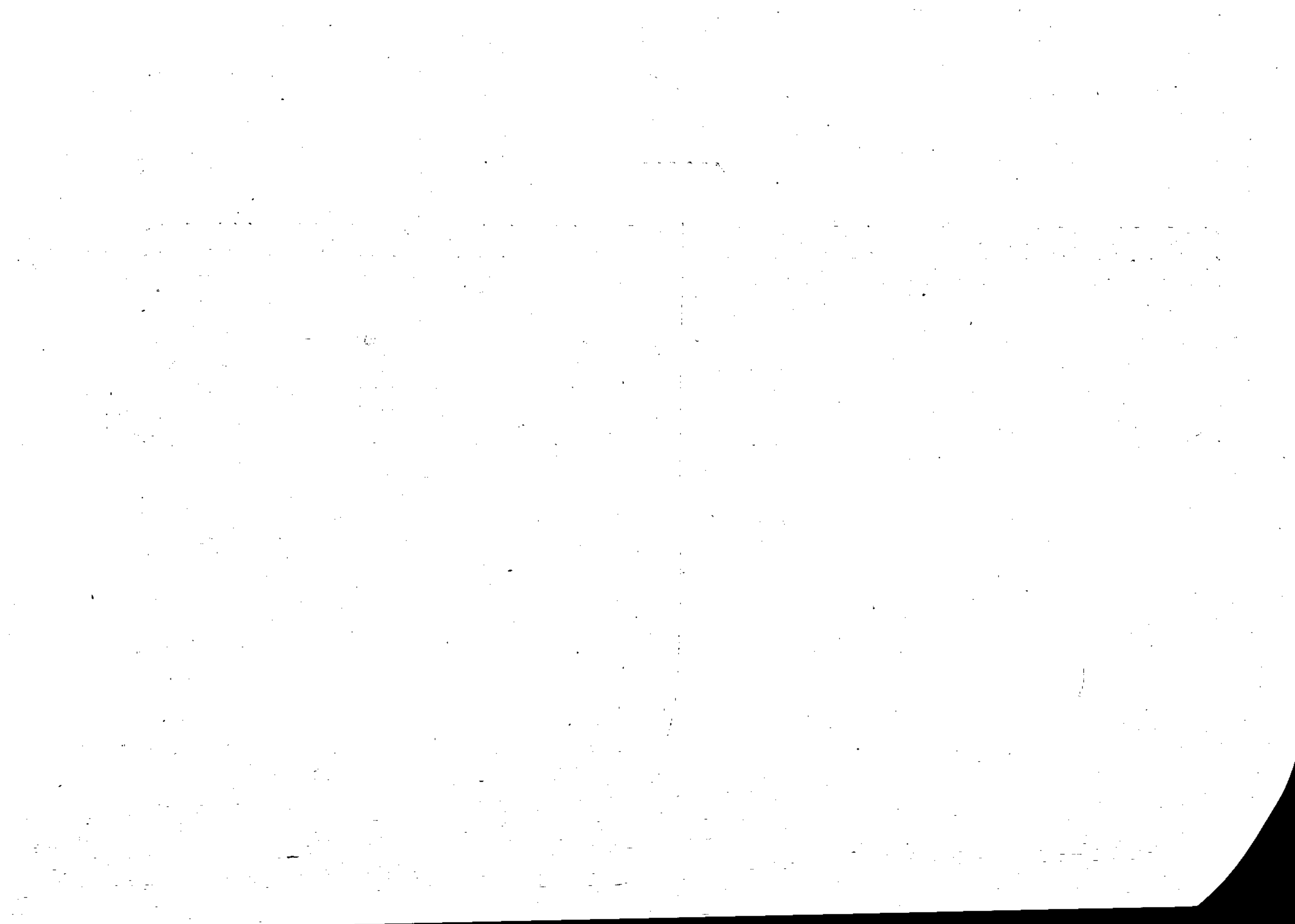
In signal-boxes as commonly constructed the controlling-arm of the motor is engaged and operated by a separate arm or lever, which will be hereinafter called the "pull," which in the box in which the invention is herein illustrated is pivoted on the inner door of the box and provided with a finger-piece or handle at the outside of said inner door, so that the operator may wind, release, or turn in the box without opening the inner door.

The present invention consists, mainly, in the combination of the pull with a locking device capable of fastening the said pull, so that it cannot be moved by the operator, and being normally impelled by the force of a spring or equivalent force toward the posi-

tion to engage and fasten the pull, and an electro-magnet and armature therefor movable independently of said locking device that co-operates with said locking device and prevents it from engaging and fastening the pull as long as the said magnet remains in its normal condition, which is energized. The moment, however, the circuit breaks, after the outer door of the box is opened, the magnet releases the locking device, which at once engages the pull and prevents the operator from moving the same to turn in the box. The subsequent energizing of the magnet will not move the locking device to release the pull, and in order to enable the signal to be transmitted after the one that is in the process of transmission has been completed the outer door of the box is provided with a restoring device consisting of a cam-shaped projection that engages the locking device for the pull and restores it to its normal position when the outer box-door is closed. The armature of the controlling-magnet is in position to engage the locking device when thus restored, so that the pull is unlocked, and the box can be operated if the main circuit is closed when the outer door is again opened. The locking device for the pull engages the latter when it comes back to its normal position after it has been moved to wind or pull in the box, and consequently the pull cannot be operated a second time until the signal has been wholly transmitted and the outer door of the box closed and again opened. The restoring device on the outer box-door is shown in this instance as arranged to also co-operate with the armature of the controlling-magnet and hold it up to the poles of the magnet until the outer door is part-way open. This is because the door also controls a circuit-breaker in a shunt or cut-out for the magnet, which normally retains the magnet demagnetized while the box-door is closed, even though the main circuit is closed. This shunt for the magnet will be broken and the magnet energized (if the main circuit is closed) before the armature is permitted to fall back when the box-door is opened.

Figure 1 is a front elevation of a signal-

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the locking-plate g^2 and permit the armature to drop; but there would still be time enough required in fully opening the outer door and engaging the pull to permit the circuit to be broken if another signal were being transmitted and the circuit happened to be closed just at the moment that the cam r disengaged the lifting-plate g^2 . If, however, no signal is being transmitted from any other box and the circuit is in working condition, the armature g' will remain attracted after the outer box-door is opened and its detent will retain the locking device in its normal condition, so that the operator can depress the pull, thus winding the box in question. The moment, however, the said box begins to transmit its signal the armature is retracted at the first break and releases the locking device, so that the moment the operator lets go of the pull it is returned to its normal position by the usual spring e^3 and is engaged by the locking device and cannot again be operated while the box in question is running, so that the operator, besides being prevented from interfering with a signal that is being transmitted from another box, is also prevented from operating the pull of his own box a second time, and thus interfering with the signal which he has himself caused to be transmitted.

I claim—

1. The combination of the pull or operating device of a signal-box with a lock for said pull normally impelled toward the position to engage with and fasten the said pull, and an electro-magnet and armature therefor movable independently of said lock and in its nor-

mal position being engaged with said lock to restrain it from movement into position to engage the pull, substantially as described. 40

2. The combination, with the motor and controlling-arm therefor, of a signal-box with a pull for operating said controlling-arm, a lock for said pull, and an electro-magnet and armature therefor movable independently of said lock that normally engages said lock when the circuit is in proper condition for transmission of the signal without interference, and a restoring device on the door of the box that co-operates with said lock and moves said lock into position to be engaged by said armature when said door is closed, substantially as described. 45 50

3. The combination, with the motor and controlling-arm therefor, of a signal-box with a pull for operating said controlling-arm, a locking device that co-operates with said pull, and an electro-magnet and its armature movable independently of said locking device that co-operates with said locking device, and a cam operated by the box-door that co-operates both with said locking device and with said armature, retaining said locking device in position to be engaged by said armature and said armature in position to engage said locking device when the box-door is closed, substantially as described. 55 60 65

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

WILLIAM E. DECROW.

Witnesses:

JOS. P. LIVERMORE,
M. H. HILL.