

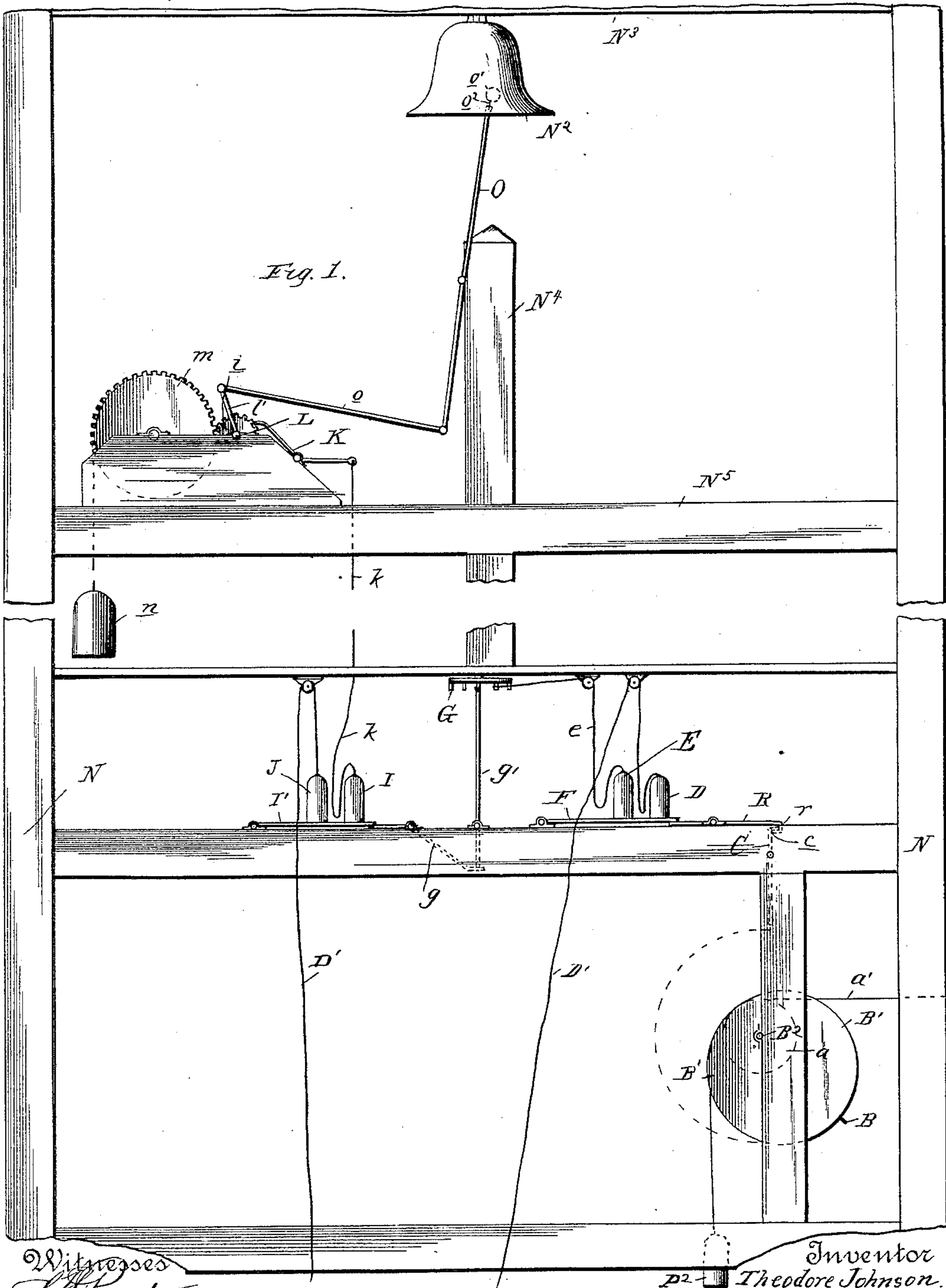
(No Model.)

3 Sheets—Sheet 1.

T. JOHNSON.
FIRE ALARM SYSTEM.

No. 424,558.

Patented Apr. 1, 1890.



Witnesses
C. Haeder.
Van Duren Hillyard.

Inventor
Theodore Johnson.

By his Attorneys

R. W. Lacey

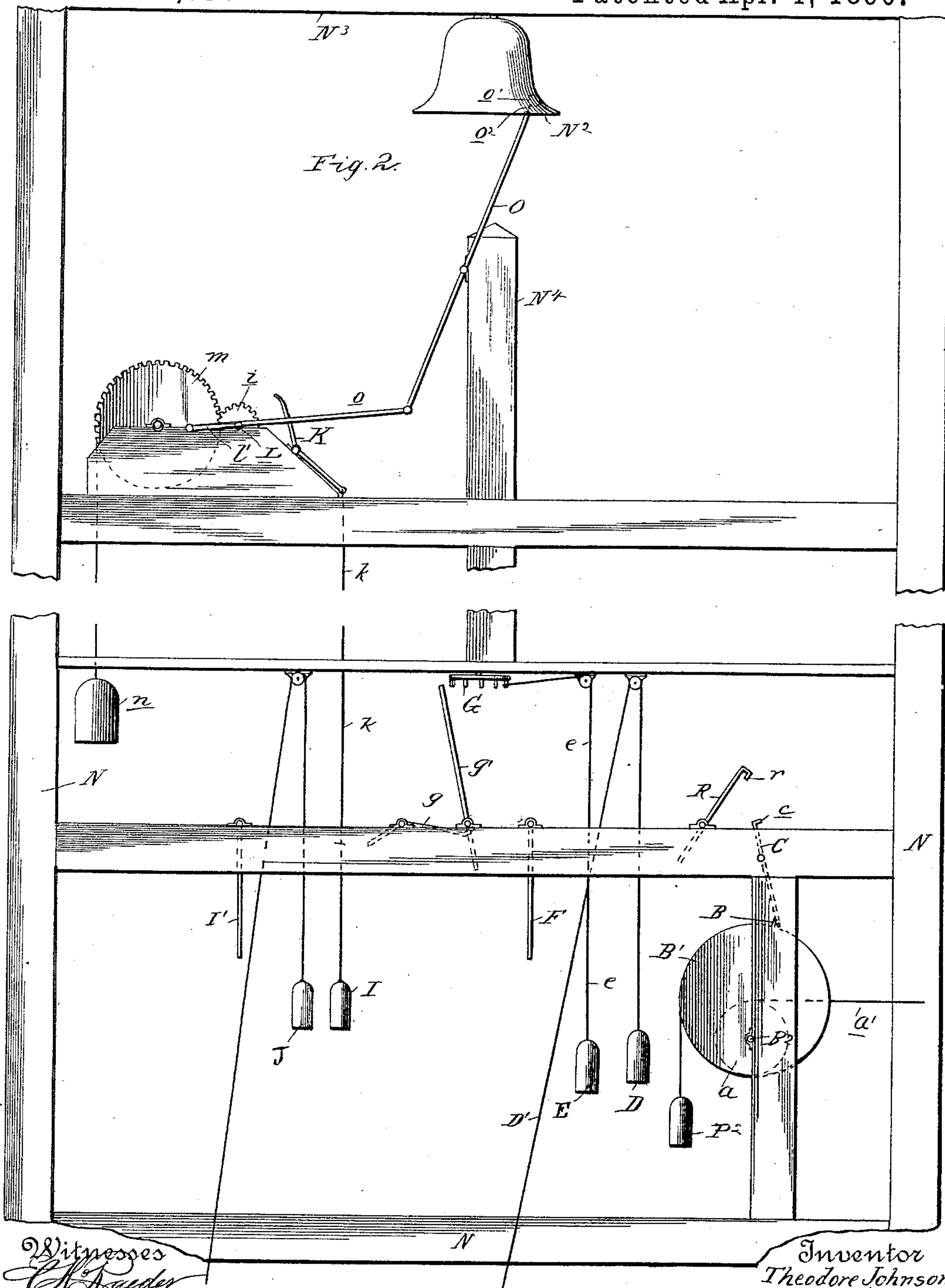
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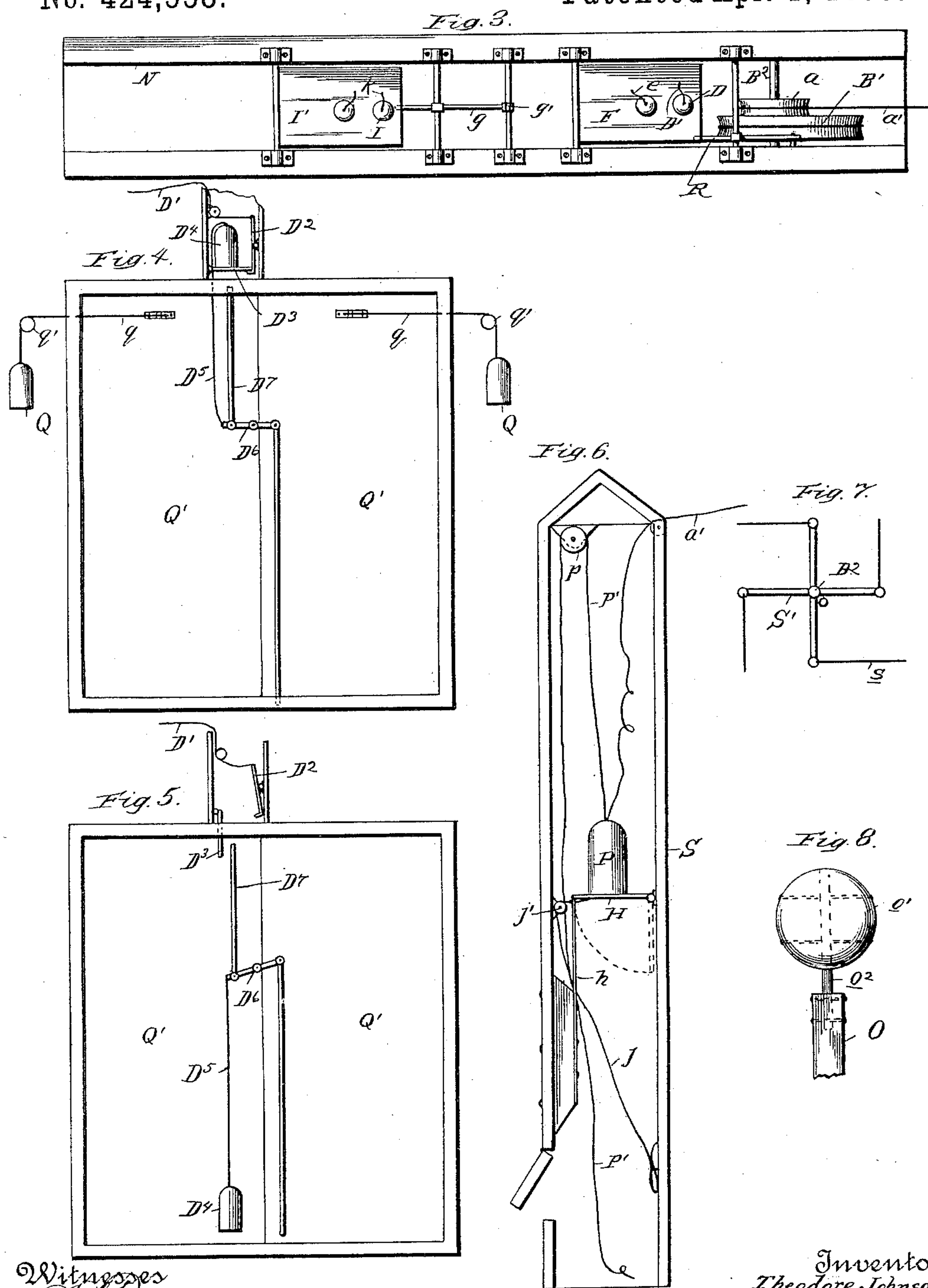
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

THEODORE JOHNSON, OF ALEXANDRIA, MINNESOTA.

FIRE-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 424,558, dated April 1, 1890.

Application filed March 9, 1889. Serial No. 302,645. (No model.)

To all whom it may concern:

Be it known that I, THEODORE JOHNSON, a citizen of the United States, residing at Alexandria, in the county of Douglas and State of Minnesota, have invented certain new and useful Improvements in Fire-Alarm Systems; and I do 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to fire-alarm systems.

The improvement consists of the novel construction and combination of the parts, which will be hereinafter more fully described and claimed, and which is shown in the annexed drawings, in which—

Figure 1 is a side view showing the application of the invention. Fig. 2 is a view similar to Fig. 1, showing the operation of the several parts; Fig. 3, a top plan view of the frame which supports the traps and the trip mechanism; Fig. 4, a view of the doors, showing the means for locking and opening the same; Fig. 5, a view showing the bolts withdrawn; Fig. 6, a side view of the starting-box; Fig. 7, a side view of a modified form of operating-wheel; Fig. 8, a detail view showing the manner of connecting the clapper with its arm.

The object of this invention is to furnish a cheap and effective system of fire-alarms for towns and villages where volunteer fire-companies exist, to give a general alarm, the alarm being set off by a person in a manner hereinafter more particularly described.

N represents the frame-work of the belfry, which is suitably constructed to adapt it for supporting the various operating parts of the system. The bell N² is suspended from the upper cross-beam N³ of the frame, and the clapper O is pivotally supported on the post N⁴. The train of gearing for operating the clapper is supported on the cross-beam N⁵, and is of ordinary construction, being composed in the present instance of the windlass m, on which the weight n is wound, and the shaft L, having the pinion i, which is in mesh with a gear-wheel on the windlass. The crank l' on the end of the shaft L is connected by

the pitman o with the clapper-arm O. The pawl K, engaging with the pinion i, holds the same against rotation. The weight I, resting on the trap I', is connected by cord k with the pawl K. The trap I' is held in place by the catch g, which is engaged by the vertical lever g', which is sustained in a normal position by the latch G. The weight E, supported on the trap F, is connected with the latch G by the cord e. The weight D, also supported on the trap F, is connected by cord D' with an indicator in the office or engine-room to locate the fire or the box from whence the alarm is turned in. The weight J, placed on the trap I', is connected by the cord D' with the trip-lever D², which supports the trap D³, on which the weight D⁴ is placed, the latter being connected by cord D⁵ with the lever D⁶, to which the bolts D⁷ are connected. The bolts D⁷ lock the doors Q' Q', which when released are opened automatically, as by the weights Q, which are connected with the doors by the cords q, the latter passing over the pulleys q'.

The trap F is supported by the lever R, which has a hook r on its end, which is adapted to be engaged by the corresponding hook c on the end of the trip-lever C. The stop B on the eccentric B' is adapted to engage with the trip-lever C and disengage the same from the trip-lever R. This eccentric B' is mounted on the shaft B² with the wheel a, the operating-cord a' being attached to the said wheel a and connected with the weight P, which is supported on the trap II in the starting-box S. The spring h supports the trap, and is operated by the cord j, which passes over the pulley j' and extends down within convenient reach. The cord P', connected with the weight P and passing over the pulley p, extends within reach to replace the weight P when the latter has dropped through the trap H.

The operation of the system is as follows: The box S being opened and the cord j pulled, the spring h will be pulled from under the trap II, which, turning down, permits the weight P to fall and draw upon the cord a' and revolve the shaft B² and eccentric B' until the stop B strikes against the trip-lever C and disengages it from the lever R. The trap F, being released, allows the weights D and E

to drop. The weight E disengages the latch G from lever g' , which, being free, liberates the catch g and allows the trap I' to drop and precipitate the weights I and J. The weight I, drawing on the cord k , lifts the pawl K from contact with the pinion L, and the gearing, being set in motion, sounds the alarm on the bell N² through the clapper O.

The wheel a may be replaced by the device S', which can have any number of arms, four being shown, to which cords s , corresponding with the cords a' , are attached and extend in different directions. A pull on either one of the cords s will rotate the shaft B² and effect a movement of the system.

The clapper o' is connected with the arm O by the flexible strip o^2 , whereby it will have sufficient flexibility to rebound after striking the bell.

The weight P², connected with the wheel B, counterbalances the cord a' when laden with snow and sleet and prevents the same from starting a false alarm.

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

1. The herein-described fire-alarm system, comprising an alarm mechanism—*i. e.*, a bell, clapper, and movement for operating the clapper, a pawl for stopping the movement, a weight connected with said pawl and supported on a trap, a catch supporting said trap, a weight E, connected with said catch for liberating it from the said trap, a second trap F, for supporting the weight E, the trip-levers R and C, the stop on a shaft for disengaging the levers R and C, the wheel on said shaft, the operating-cord connected with the said

wheel, the weight P, connected with the cord a' , the trap H, the spring h , and the cord j , all combined and operating substantially as described.

2. The combination, with the alarm mechanism having trap I, of the weight j , placed on trap I, the cord D, connected with weight J, the trip-lever D², having connection with cord D, the trap D³, supported by the lever D², the weight D⁴, placed on trap D³, the lever D⁶, connected by cord D⁵, weight D⁴, and the locking-bolts D⁷, connected with the lever D⁶, substantially as described.

3. The combination, with the alarm mechanism and the trap on which the starting-weight is supported, of the trip-lever C, supporting the said trap, the shaft B², having the stop B, which is adapted to strike against trip C, the cord a , and the counterbalancing-weight P², substantially as and for the purpose described.

4. The hereinbefore-described starting-box for fire-alarm systems, comprising a case, the trap H, the catch g , for supporting the trap, the cord P', connected with the catch and extending within convenient reach, the weight P, connected with the trip mechanism of the system, placed on the trap H, and the cord P', passing over a pulley and connected with the weight to hoist it in position, substantially as described.

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

THEODORE JOHNSON.

Witnesses:

CHAS. W. COFIELD,
SIDNEY M. LEE.