

2 Sheets--Sheet 1.

**J. BEAMER & W. A. JACKSON.**  
**Telegraphic Fire-Alarm Boxes.**

No. 150,513.

Patented May 5, 1874.

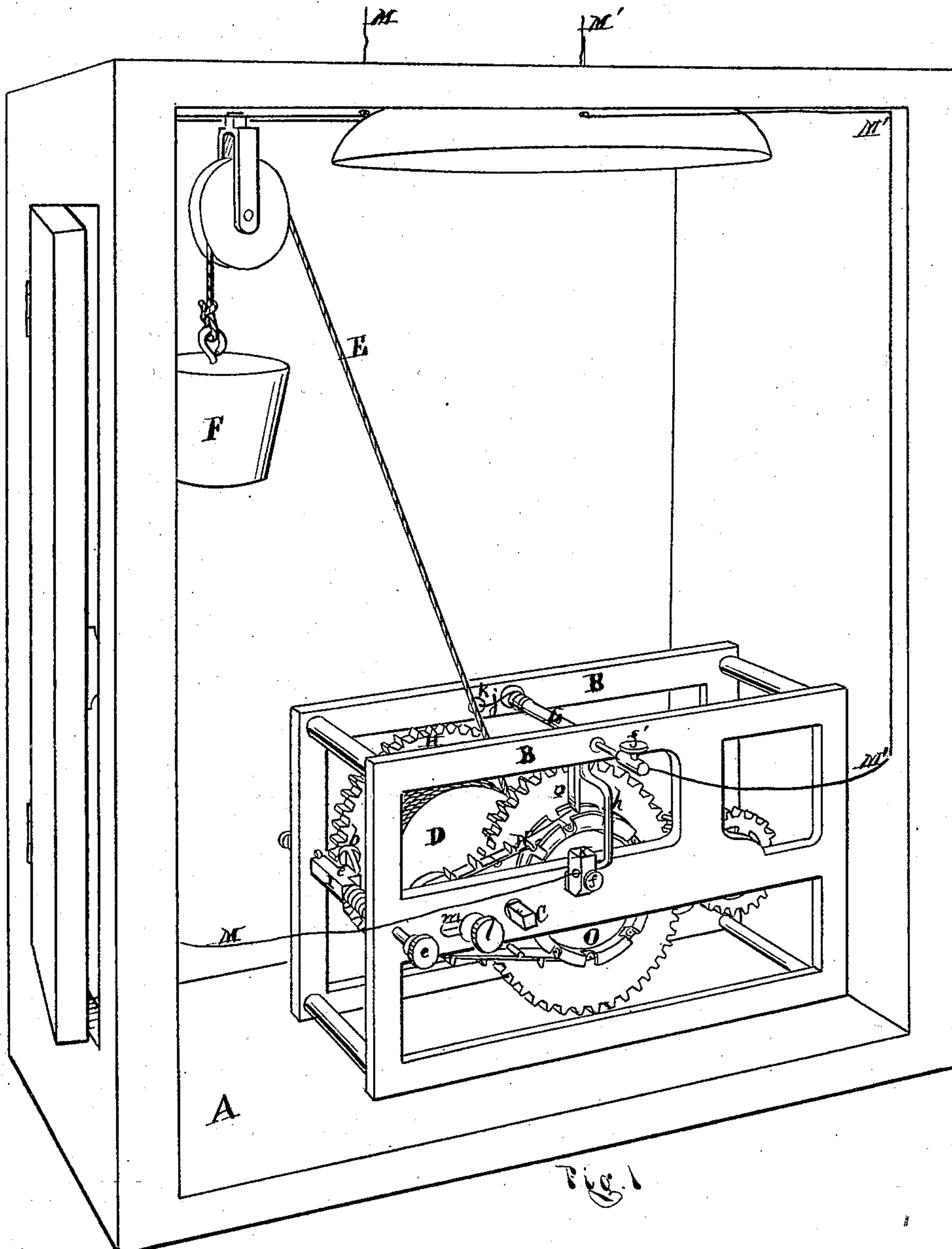


Fig. 1

ATTEST:

H. F. Check

C. E. Lucas

INVENTORS:

John Beamer

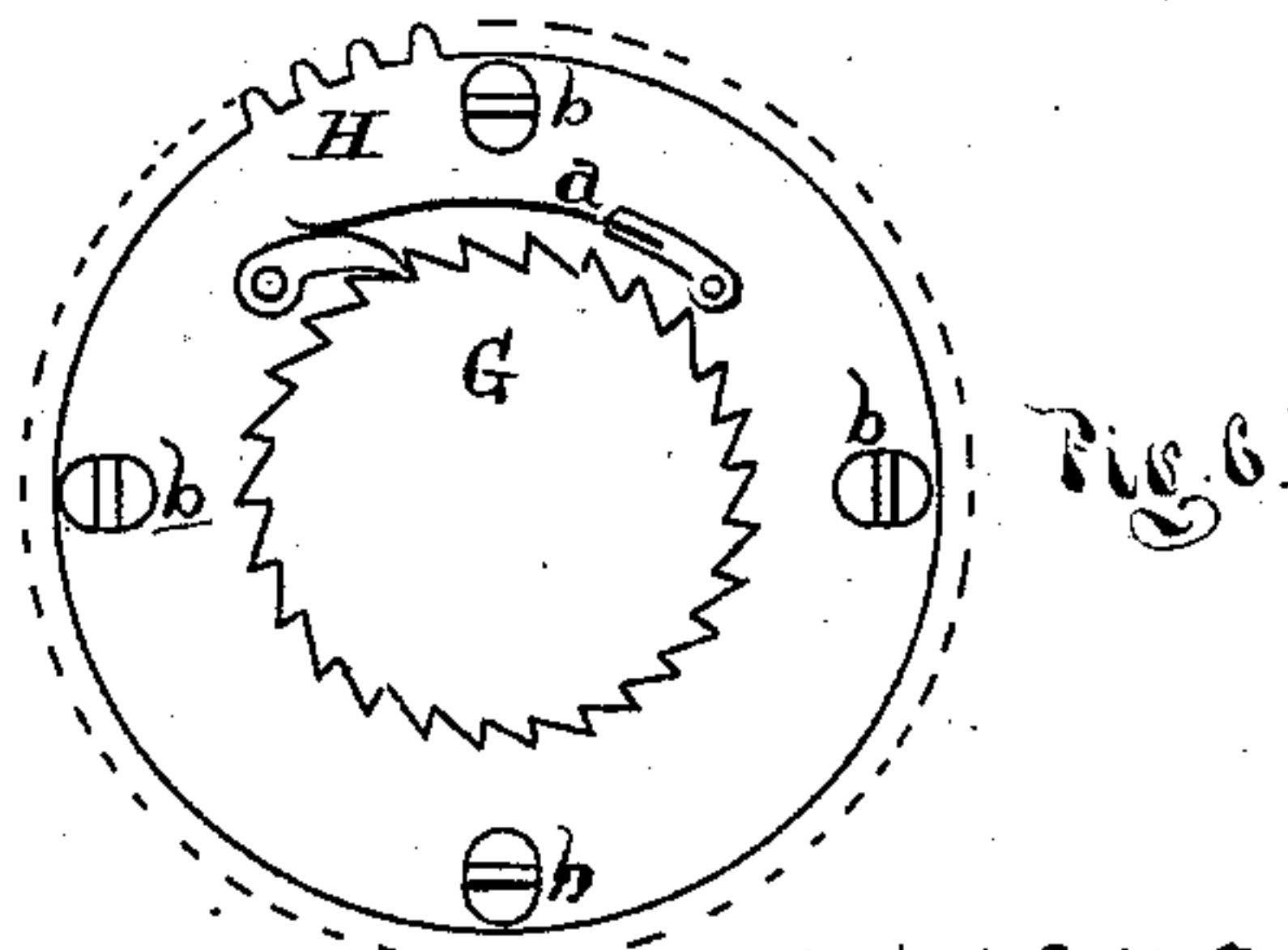
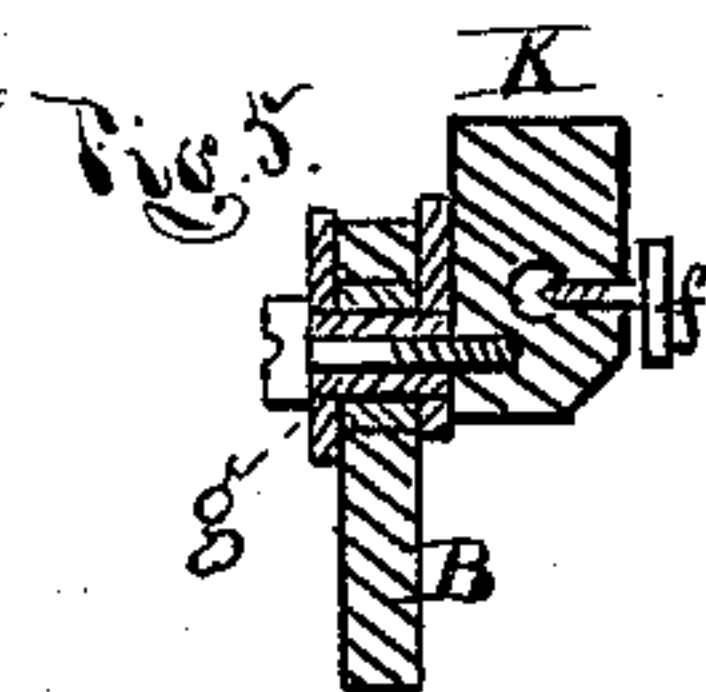
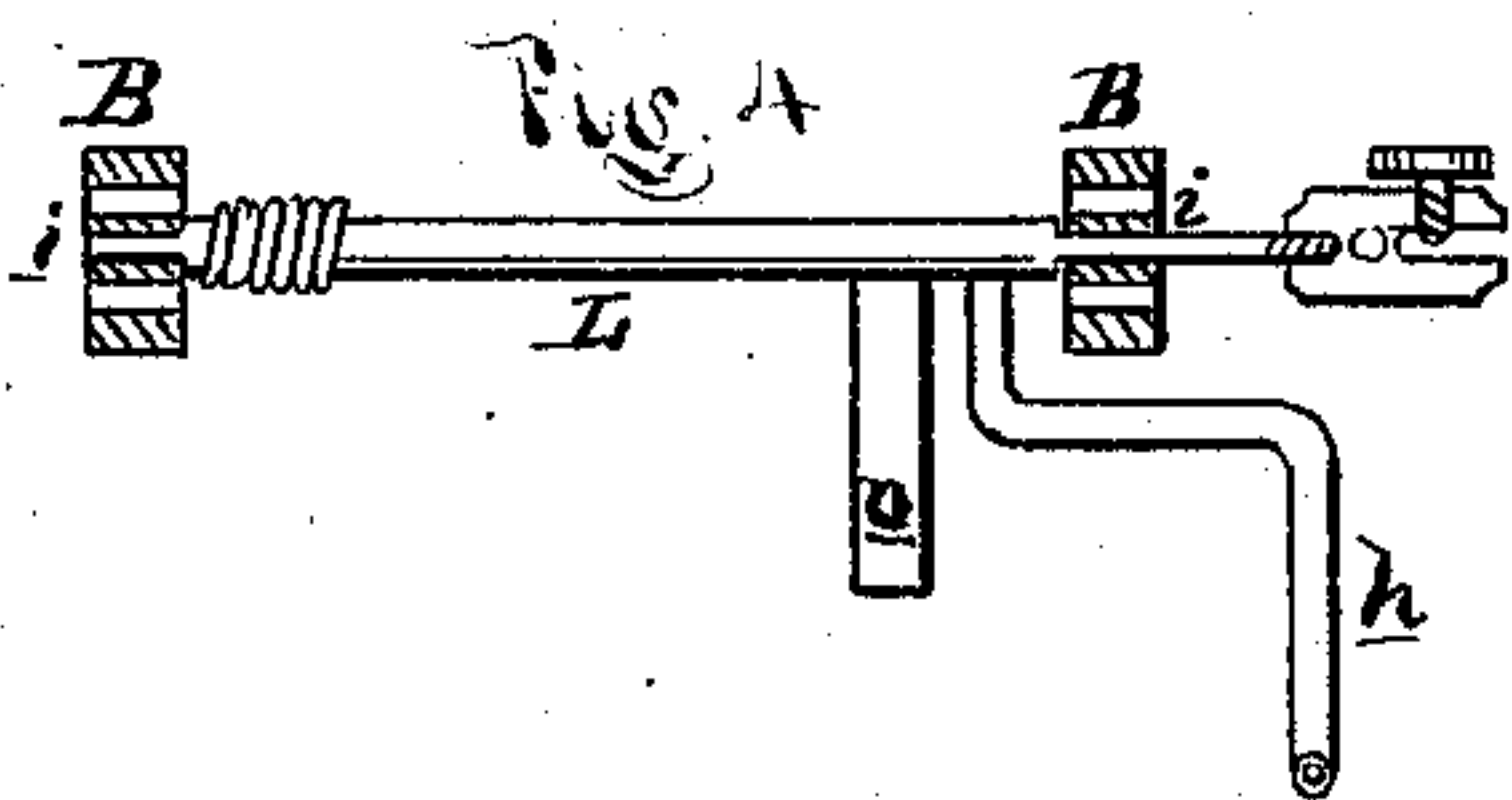
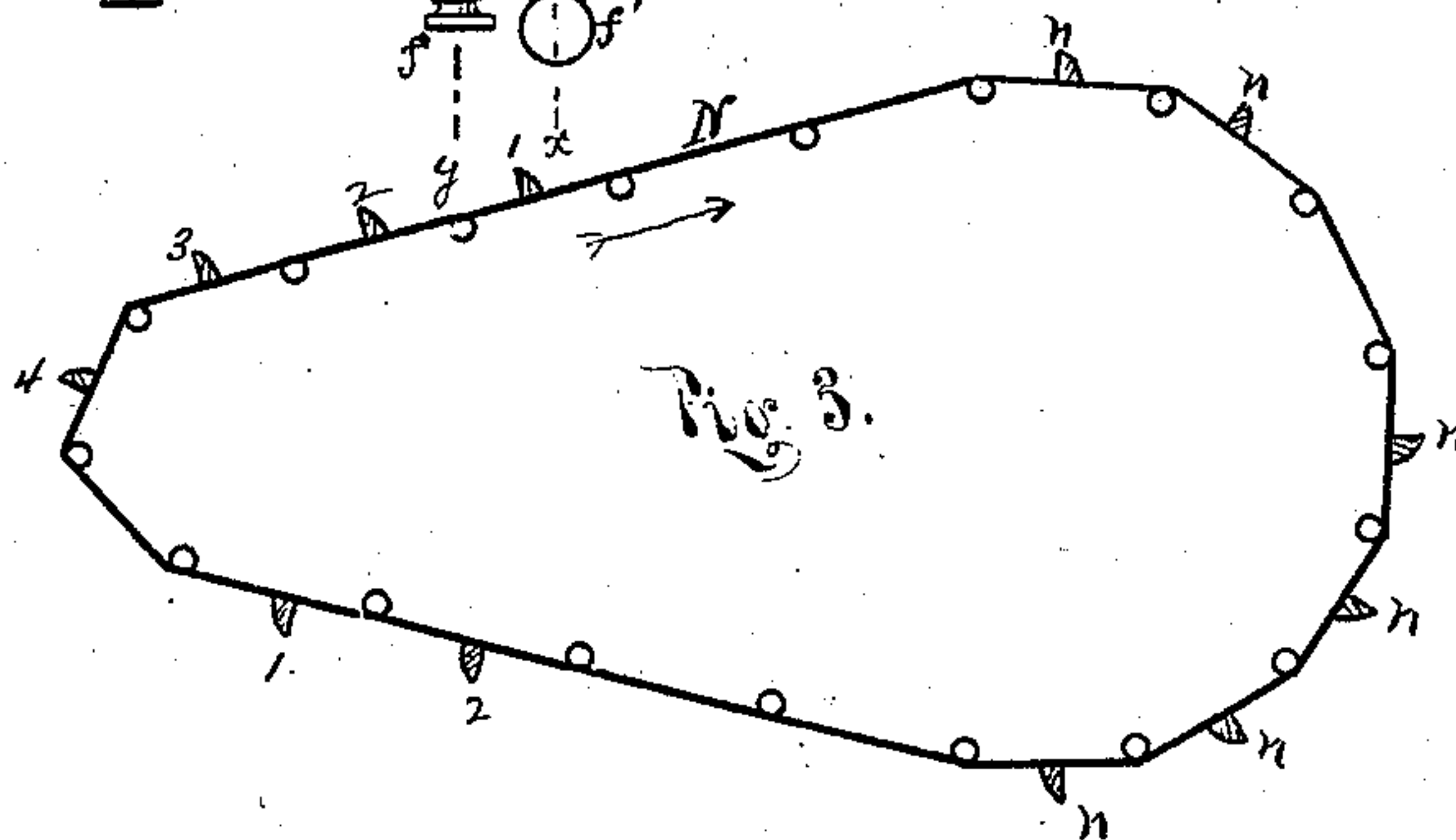
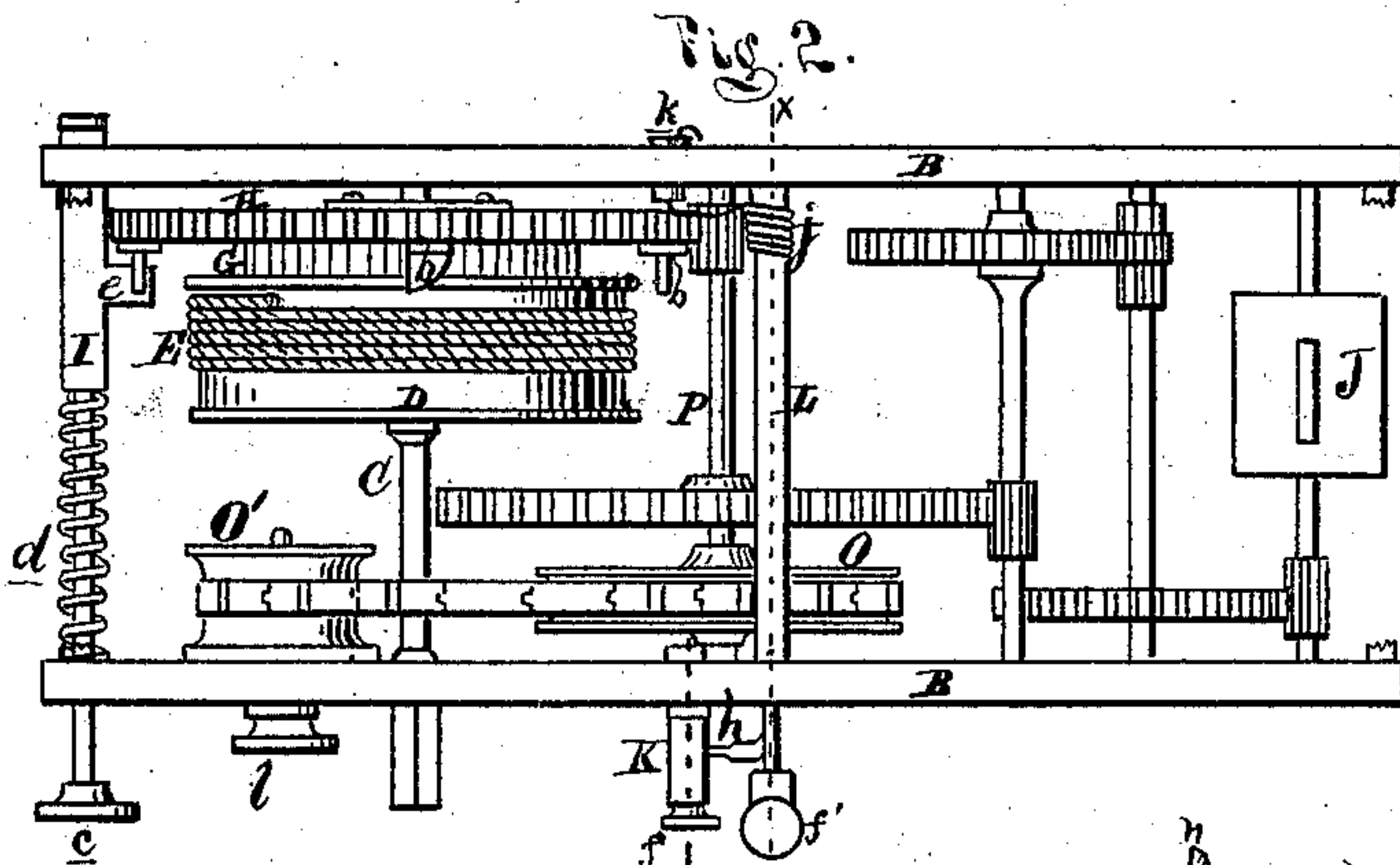
William A. Jackson

per attorney  
W. H. Forayne

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 H. F. Echeick  
 C. E. Quastis.

INVENTORS:  
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# UNITED STATES PATENT OFFICE.

JOHN BEAMER AND WILLIAM A. JACKSON, OF DETROIT, MICHIGAN.

## IMPROVEMENT IN TELEGRAPHIC FIRE-ALARM BOXES.

Specification forming part of Letters Patent No. **150,513**, dated May 5, 1874; application filed November 3, 1873.

*To all whom it may concern:*

Be it known that we, JOHN BEAMER and WILLIAM A. JACKSON, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Fire-Alarm-Telegraph Signal-Boxes, of which the following is a specification:

The nature of this invention relates to an improvement in the circuit-breakers used in the signal-boxes of fire-alarm telegraphs, having for its object to render them more certain in operation and less expensive in construction. The invention consists in the employment of an endless chain, capable of convenient removal, replacement, or exchange, which chain runs over pulleys, one of which is driven by the falling weight through a train of gears whenever the detent-lever is pulled to give an alarm. The said chain carries one or more groups of studs, which, successively coming against the lever of the circuit-breaker, open the circuit by pushing aside the lever, and thus cause the bells or gongs in the circuit to be struck with the number of the box.

Figure 1, Sheet 1, is a perspective view, showing the interior of a signal-box with the mechanism in position. Fig. 2, Sheet 2, is a plan of the train. Fig. 3 is a side elevation of the endless chain which carries the circuit-breakers. Fig. 4 is a cross-section of the frame at *x x* in Fig. 2, showing the shaft, arm, and lever of the circuit-closer in side elevation. Fig. 5 is a cross-section at *y y* in Fig. 2, showing the manner of insulating from the frame of the main-line binder where the circuit is broken. Fig. 6 is an elevation of that face of the main spur-wheel which carries the dogs or stops, and of the ratchet.

In the drawing, A represents a signal-box without the double doors in the front with which it is provided when in use. B is the frame of the train. C is the main shaft journaled across the frame, carrying a drum, D, to which is secured one end of a cord, E, the other end being rove through a pulley-block at the top of the box, with a weight, F, suspended thereto, which constitutes the motor of the train. At the back end of the drum is a ratchet, G, with which engages a pawl, *a*, on the face of the large spur-wheel H, sleeved on the shaft behind it. The shaft has a project-

ing square at the front end to receive a key, by which the cord may be wound upon the drum and the weight be raised. *b* are four dogs or stops, beveled to a point on their back edges, secured to and projecting from the front face of the spur-wheel, at equal distances apart. I is a detent-bar, sliding through bearings in the left end of the frame. The rear and larger end is square in cross-section, as is also its bearing, so that it cannot rotate therein. The front end projects through the inner door-frame or inner wall of the box, (which is not shown in the drawing,) and carries a button, *c*, by which the bar may be drawn forward. When released, a spiral spring, *d*, coiled about it between the front side of the frame and the shoulder of the square part, shoots it back. *e* is an angular or lateral projection of the bar, which comes in the plane of the path of the stops *b* when the bar is shot back by the spring, and arrests the motion of the wheel H. The under face of the projection *e* is beveled to a point, so that when the bar is withdrawn the stop will require to move down but an inappreciable distance below the projection *e* to prevent the latter from moving toward the wheel until the stop has passed down entirely out of contact with it, when said wheel will make a quarter revolution before the projection arrests the next stop on its face, its motion being governed by a fly, J, to which a rapid motion is given through the train of gears shown, not necessary here to describe, as it is in common use in other devices for a like purpose. K is an abutment of brass, in which one main-line wire, M, terminates, being secured therein by a binder-screw, *f*. The abutment is secured to the front of the frame by a screw passing through an insulated bushing, *g*, Fig. 5. L is a rock-shaft, journaled across the top of the frame in insulated bearings *i*, and to its front and the other end the flexible main-line wire M' is secured by the binder-screw, *f'*. To the rock-shaft is secured a curved pendent circuit-closer, *h*, whose free end is kept in contact with the abutment by a light spiral spring, *j*, coiled about the rear end of the rock-shaft, having one end secured thereto, and the other in an insulated bushing, *k*, in the rear girt of the frame. It will, therefore, be noticed that the circuit is closed when the circuit-closer *h* is in contact with the abut-



ment K, and broken when removed from it, the current going from the line-wire M to the line-wire M' through the abutment, circuit-closer, and rock-shaft, all of which are insulated from the train and frame. N is an endless chain, composed of flat plates hinged together by removable pins, running over a polygonal wheel, O, on the second arbor P of the train, and a smaller polygonal wheel, O', mounted on a screw-stud, l, passing through a slot, m, in the front of the frame, by which the tension of the chain may be adjusted. On the face of the chain are secured one or more groups of studs, n, which act as circuit-breakers. As they sweep past and successively lift an arm, o, pendent from the rock-shaft, and release it, each breaks the circuit, which is instantly closed by the spring j, causing each gong or bell in the circuit to be struck a blow by appropriate mechanism, (not necessary here to describe,) a blow each time the circuit is broken. The chain shown carries two groups of four and two circuit-breakers, thus indicating signal box or station forty-two, and as the chain is geared to travel twice its length while the main wheel is making a quarter revolution, it is evident that an alarm indicating box forty-two will be

struck four times on the gongs and bells in the circuit, the alarm being given by simply pulling outward the detent-bar I by its knob or button c, which is accessible when the outer door of the box is open.

The principal advantage of our apparatus lies in the detachable and removable chain, which can be easily taken off or replaced, or a new one used with any desired number of signal-studs, without disturbance of other parts of the machine; or the chain may be taken off and apart and put together with a different grouping of the signal-studs; or, by a supply of a few signal-studs, any desired combination of signal numbers may be had.

What we claim as our invention, and desire to secure by Letters Patent, is—

In fire-alarm-telegraph signal-boxes, the detachable endless chain N, with groups of studs n, in combination with the wheels O and O', substantially as described and shown.

JOHN BEAMER.

WILLIAM A. JACKSON.

Witnesses:

H. F. EBERTS,  
C. E. HUESTIS.