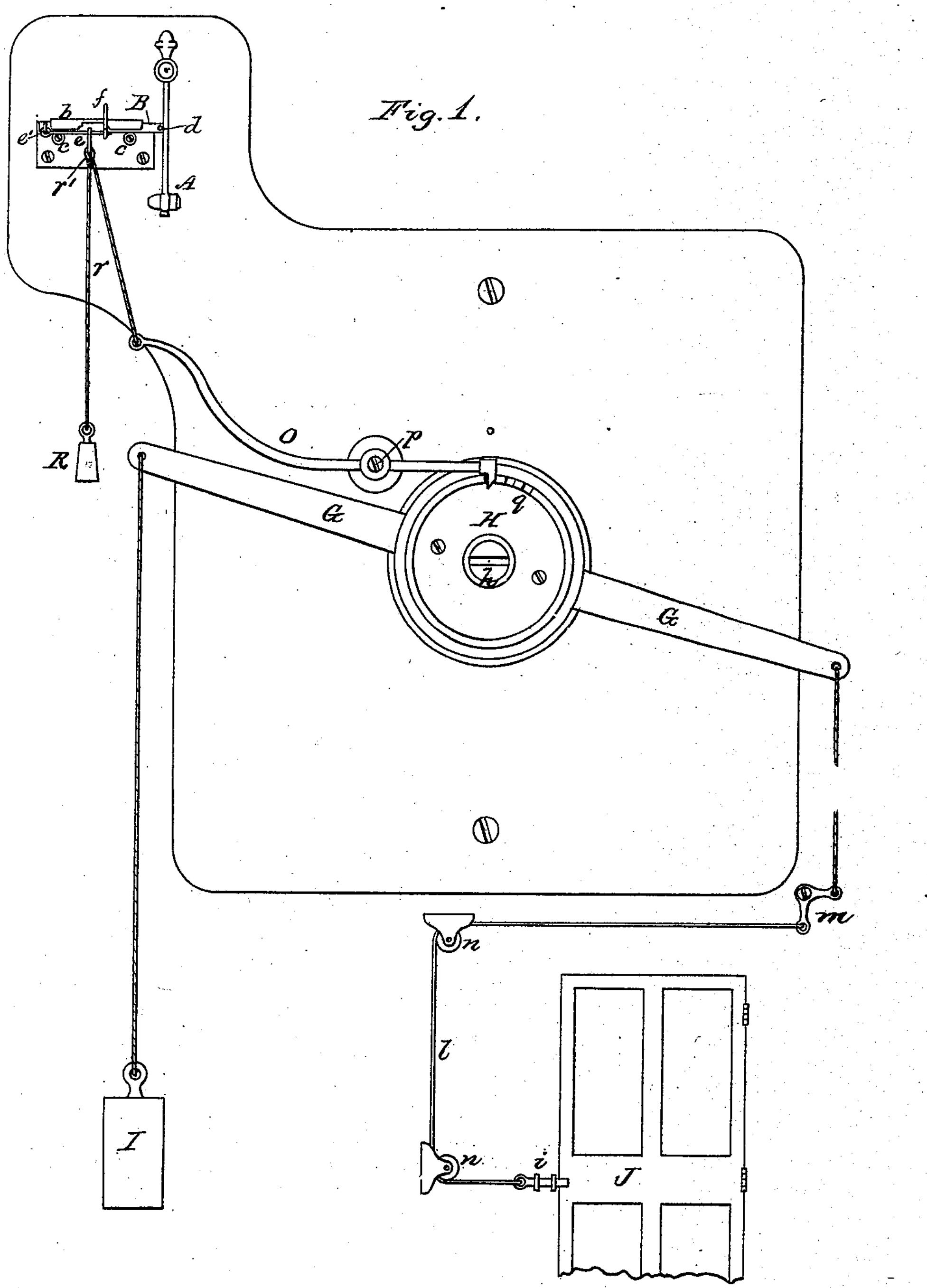
S. V. DICKINSON.

Electric Apparatus for Opening Doors of Engine-Houses.

No. 209,610.

Patented Nov. 5, 1878.



Chas J Buchheit
Geo J Metzger } Witnesses

S. V. Dickinson Inventor.
By Wilhelm & Bonner
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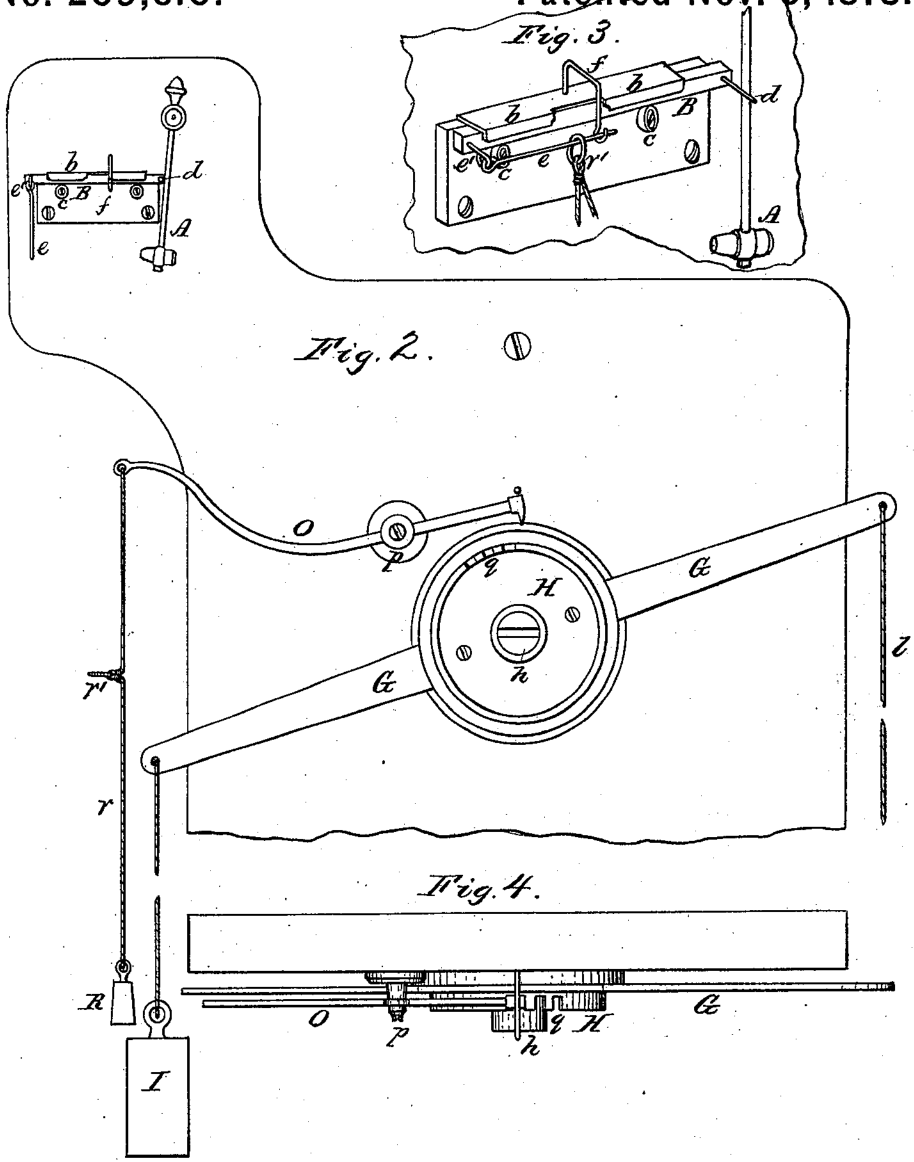

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UNITED STATES PATENT OFFICE.

SAMUEL V. DICKINSON, OF BUFFALO, NEW YORK.

IMPROVEMENT IN ELECTRIC APPARATUS FOR OPENING DOORS OF ENGINE-HOUSES.

Specification forming part of Letters Patent No. **209,610**, dated November 5, 1878; application filed March 13, 1878.

To all whom it may concern:

Be it known that I, SAMUEL V. DICKINSON, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Automatic Apparatus for Opening the Doors in Engine-Houses, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates more especially to an apparatus connected with the electric fire-alarm in engine-houses for the purpose of opening the doors of the stalls and releasing the horses simultaneously with giving the alarm.

The nature of my invention will be fully understood from the following description:

In the accompanying drawing, consisting of two sheets, Figure 1 is an elevation of my improved apparatus set ready for operation, the door and connecting parts being shown on a reduced scale. Fig. 2 is an elevation of the apparatus after having been operated. Fig. 3 is a detached perspective view of the primary releasing mechanism. Fig. 4 is a plan view of the main releasing mechanism.

Like letters of reference designate like parts in each of the figures.

A represents the hammer of an electric gong or other alarm. B is a sliding bolt running in guides *b*, and resting upon rollers *c*. *d* is a laterally-projecting pin secured to one end of the bolt B, so as to bear against the hammer A when the latter is at rest. *e* is a pin or rod pivoted to the opposite end of the bolt B at *e'*, and resting with its free end in an open hook, *f*, which is secured to the guide *b*. G is the main releasing-lever, arranged underneath the above-described primary releasing mechanism, and provided with a hub, H, turning on an arbor, *h*. One arm of the lever G is provided with a depending weight, I, and the other arm is connected with the sliding bolt *i*, or other fastening of the door J of the stall, by means of a wire or rope, *l*, attached to a bell-crank lever, *m*, and running thence over guide-pulleys *n*, or in any other suitable manner. O is a two-armed detent-pawl mounted on a pivot or arbor, *p*, and engaging with its short arm in one of a series of notches, *q*, formed in the hub of the lever G. The other arm of the pawl O is provided with a light weight, R, attached to the pawl by a cord, *r*, which is provided with a loop, *r'*, arranged at such a distance from the end of the pawl that the loop can be slipped on the pivoted pin *e* of the primary mechanism, as shown in Figs. 1 and 3.

The operation of the apparatus is as follows: When the parts are arranged ready for operation, as shown in Fig. 1, as soon as the hammer A is swung back, preparatory to striking the gong, the sliding bolt B is moved to the left, (in the drawings, as indicated by the arrow in Fig. 1,) whereby the free end of the pivoted pin *e* is withdrawn from the hook *f*, as shown in Fig. 2. The pin *e* drops down and releases the loop *r'*, which slips from the pin, and permits the weight R to drop until the cord *r* is taut, when the impact or momentum of the falling weight R depresses the long arm of the pawl O and disengages its short arm from the notch *q* of the hub H. The lever G, being released in this manner, is swung on its arbor by the heavy weight I in the direction of the arrow, Fig. 1, so as to withdraw the bolt *i*, which secures the door. The latter is so hung as to swing open as soon as the bolt is withdrawn. All of the above-described movements are effected instantaneously, so that the door is released simultaneously with the backward stroke of the hammer A, preparatory to giving the alarm.

The horses being hitched to the jambs of the door in such manner that they are released by merely opening the door, my improved apparatus enables the horses to leave their stalls at the moment the alarm is given.

Two or more doors can be connected with the lever G by providing the wire or rope *l* with branch wires running to the several doors. In this manner all of the doors of an engine-house can be opened simultaneously by the same apparatus.

The hammer A of an electric gong not being capable of overcoming any considerable resistance, the preliminary releasing mechanism is interposed between the hammer and the pawl O, in order to give, by a slight movement of the hammer, the power necessary to disengage the pawl O.

The bolt B of the preliminary releasing mechanism runs on rollers, and carries only a small weight, which is released by a very short

movement of the bolt, enabling the bolt to be readily actuated by the hammer. The weight R in falling gains the momentum necessary to disengage the pawl and release the main lever G.

I claim as my invention—

1. The combination, with the door-fastening *i*, of the connecting-rope *l*, releasing-lever G, provided with notched hub H, weight I, and pawl O, substantially as and for the purpose set forth.

2. The combination, with the pawl O, of the weight R, connecting-loop *r*, provided with rope *r'*, and releasing-bolt B, arranged so that a slight movement of the bolt will release the rope *r*, and cause the weight to fall a distance before acting upon the pawl, substantially as and for the purpose set forth.

3. The combination, with the pawl O, of the weight R, connecting-rope *r*, provided with loop *r'*, sliding bolt B, pivoted pin *e*, and supporting-hook *f*, substantially as and for the purpose set forth.

4. The combination, with the door-fastening *i*, of the connecting-rope *l*, weighted releasing-lever G, pawl O, releasing-weight R, sliding bolt B, and alarm-hammer A, substantially as and for the purpose set forth.

S. V. DICKINSON.

Witnesses:

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