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PATENTED OCT. 27, 1903.

T. S. PHILPOTT & R. HUTCHINSON.

FIRE ALARM AND FIRE ESCAPE.

APPLICATION FILED AUG. 12, 1902.

NO MODEL.
2

Fig. 1.

2 SHEETS—SHEET 1.

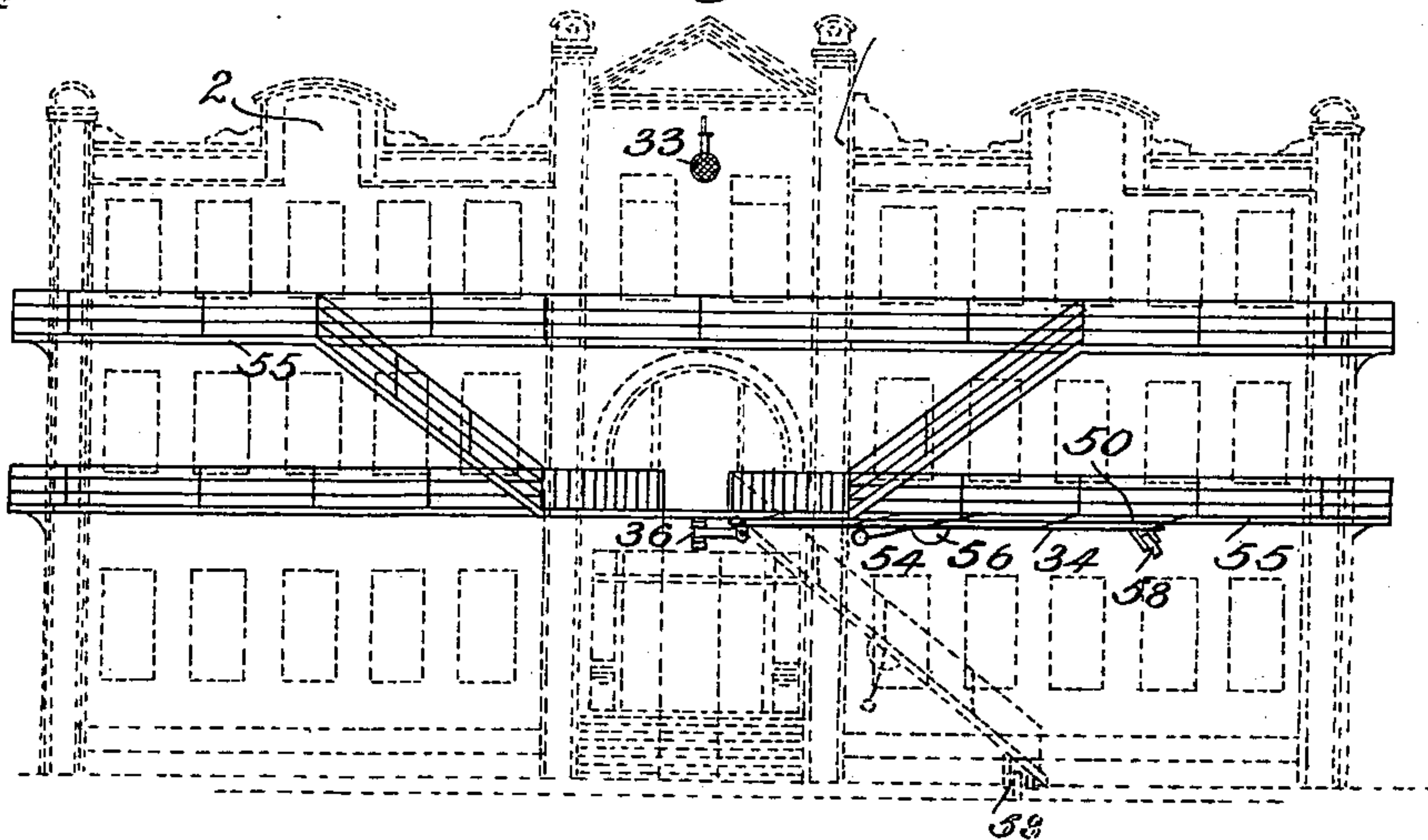


Fig. 2.

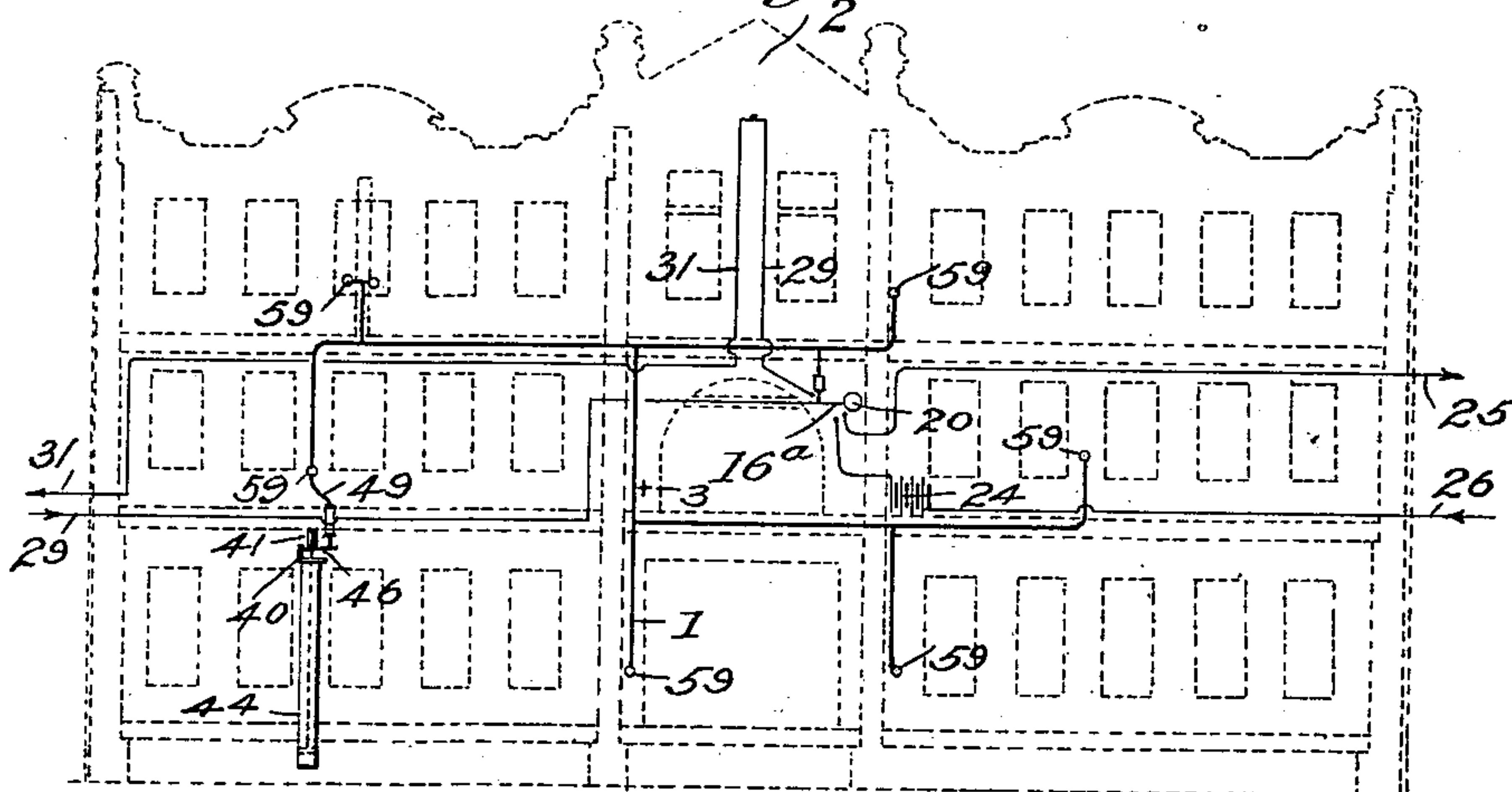


Fig. 5.

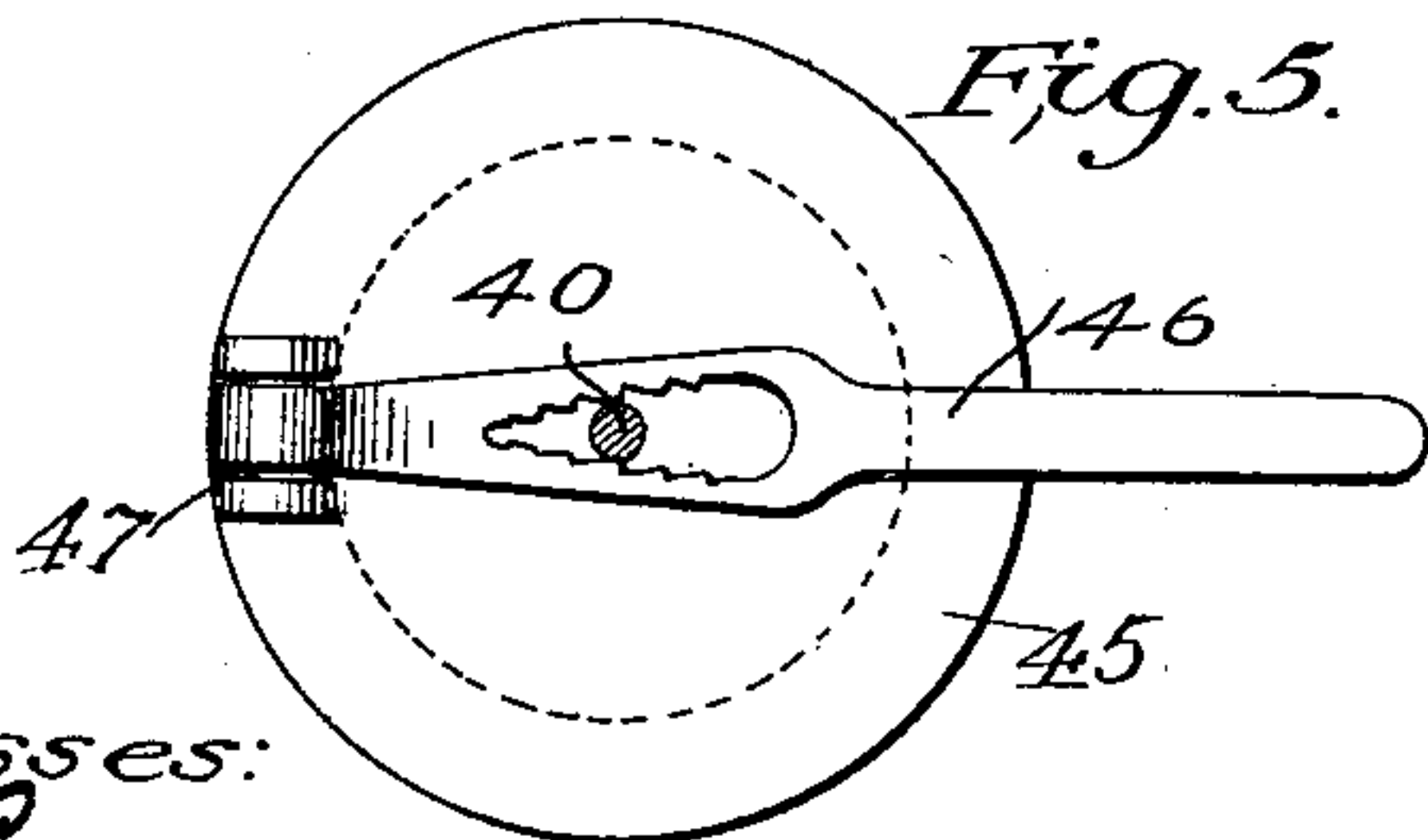
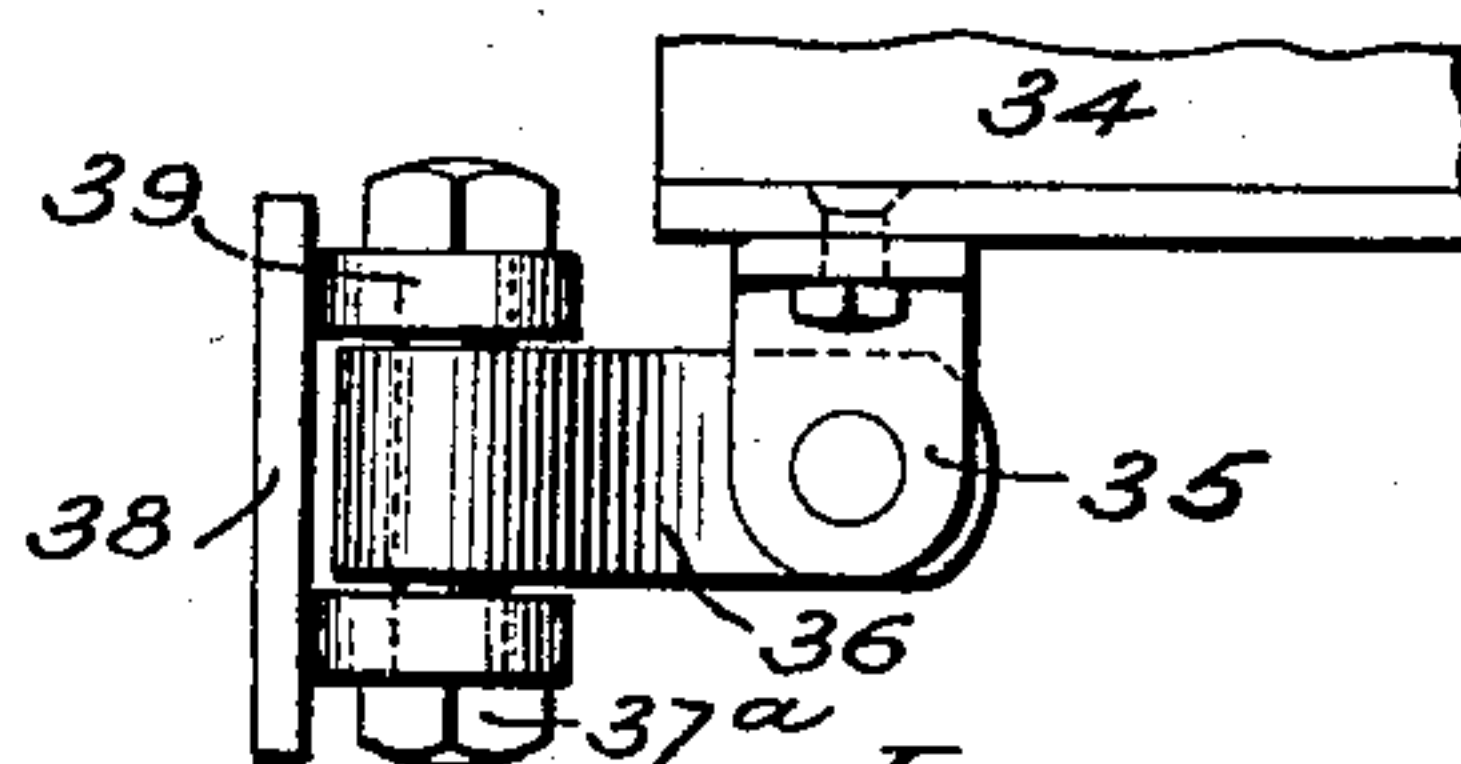


Fig. 6.



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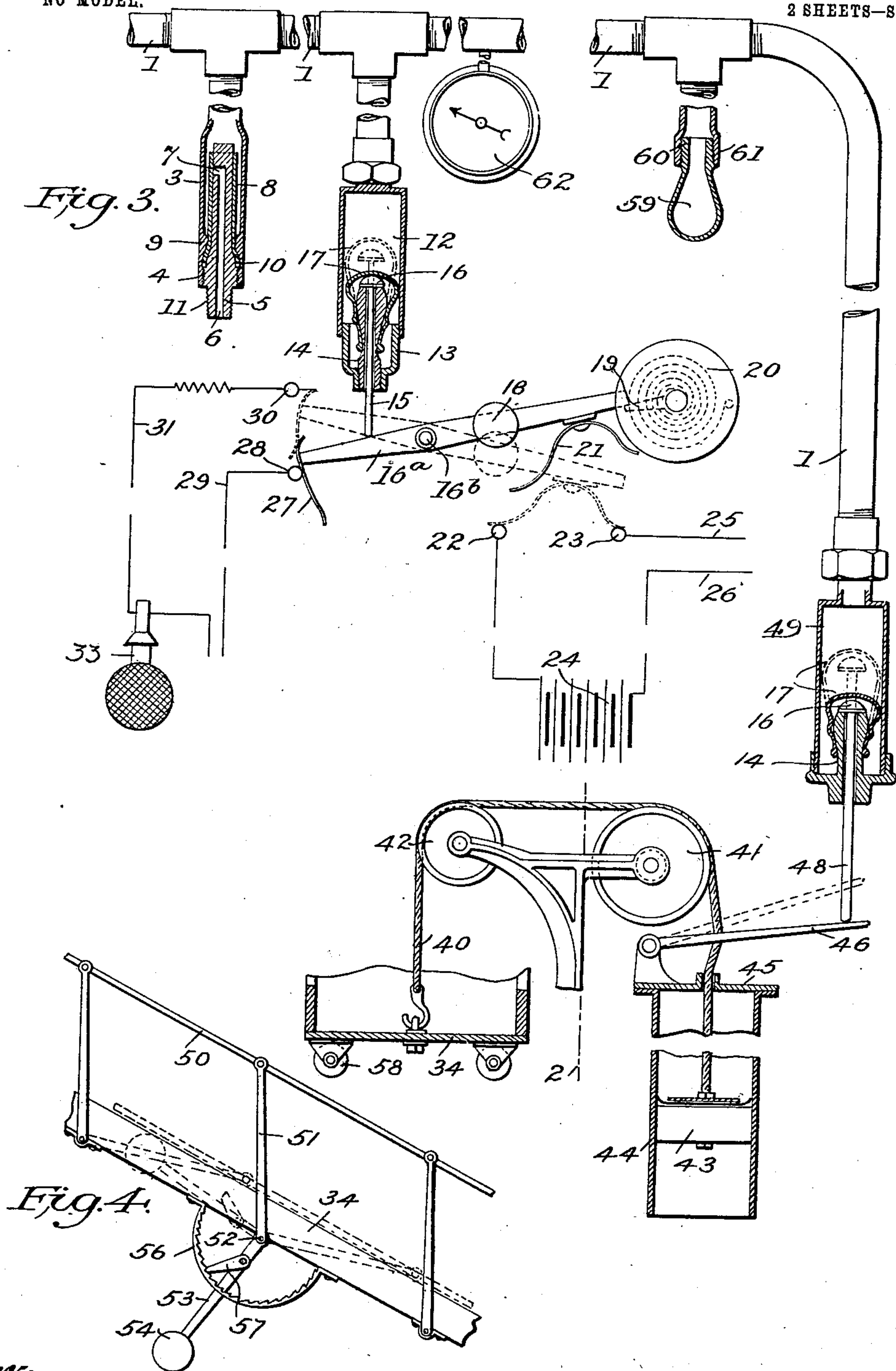
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

THOMAS STANLEY PHILPOTT, OF NEWTOWN, AND ROBERT HUTCHINSON,
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FIRE-ALARM AND FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 742,727, dated October 27, 1903.

Application filed August 12, 1902. Serial No. 119,397. (No model.)

To all whom it may concern:

Be it known that we, THOMAS STANLEY PHILPOTT, residing at Mein street, Newtown, and ROBERT HUTCHINSON, residing at Wari-
5 pori street, Wellington, in the Colony of New Zealand, subjects of the King of Great Britain, have invented new and useful Improvements in and Relating to Fire-Escapes, of which the following is a specification.

10 This invention provides apparatus whereby simultaneously an alarm is sounded within a building and at a distant fire-brigade station, electric lamps are switched on, and an escape chute or ladder is lowered.

15 The apparatus comprises a tube extending throughout the building and containing compressed air. The tube is wholly or partly composed of metal fusing at a comparatively low temperature. Upon the tube is fixed a
20 cylinder provided with a valve inclosed in a rubber casing having a rod which is normally projected by the pressure of air in the tube. The end of the rod when projected holds down one end of a weighted lever, the other
25 end of which engages and retains the mechanism of a motor-driven alarm-bell. The weighted lever when released closes electrical circuits, whereby lamps are lighted inside and outside of the building and an alarm-bell
30 is rung at a fire-brigade station. An escape chute or ladder is swiveled at one end upon the front of the building and when out of use is slung beneath a balcony by a cord at its
35 opposite end passing over a pulley to a piston working in a cylinder. The exit of air from above the piston is retarded, so that when brought into operation the end of the escape is gently lowered to the ground. A
40 grip is held in engagement with the rope by the projecting end of a rod working in a cylinder in communication with the air-tube. Air-taps or glass bulbs are provided upon the
45 tube in convenient positions and incased with glass, which must be broken to gain access to the taps or bulbs. In the event of fire air is allowed to escape from the tubes by the fusion of a part of the tube or by the opening of a tap or breakage of a glass bulb. The parts retained by the piston-rods are in-
50 stantly released and the apparatus brought into active operation.

In the accompanying drawings, Figure 1 is a front elevation of a house, showing diagrammatically a general arrangement of the parts of our invention. Fig. 2 is a corre- 55 sponding rear elevation; Fig. 3, an elevation partly in section, showing the parts; Fig. 4, a part side elevation of an escape-ladder; Fig. 5, a plan of the piston and rope-grip used in connection with the escape; Fig. 6, a 60 side part elevation of the arrangement by which the escape is pivoted.

As shown in Figs. 1 and 2, the air-tube 1 is carried throughout different parts of the building 2 and is charged with compressed 65 air through a valve shown more particularly in Fig. 3. The valve consists of an outer casing 3, which is fixed upon the air-tube and is screwed internally at its outer end to receive the screwed end 4 of a valve-pipe 5, 70 which has an air-passage 6, terminating in a port 7. A rubber tube 8 fits closely over the valve-pipe, normally closing the port, and air is prevented from escaping from the casing by the end of the rubber tube being clamped 75 between a projecting ring 9 inside the casing and a shoulder 10 upon the valve-pipe. The valve-pipe has a screwed end 11, by which an air-pump may be connected. A cylindrical casing 12, fixed upon the air-tube in 80 any convenient position, has a cover 13 screwed into it at one end carrying a nipple 14, through which passes a rod 15, having a semicircular valve or head 16 at its upper end. A rubber bulb 17 fits over the nipple 85 and prevents air from escaping through the nipple. The valve assists in preventing escape of air from the tube in case of leakage through the bulb. Rod 15 is projected by pressure of air in the tube, and its end bears 90 upon the end of a lever 16^a, pivoted at 16^b and having a counterweight 18. The opposite end of the lever projects into the path of an arm 19, projecting from the mechanism of an ordinary spring motor-driven bell 20, 95 whereby said bell is prevented from ringing. The lever carries a bridge 21, insulated from the lever and adapted to close electrical circuit between terminals 22 23, whereby electricity from the battery-cells 24 is carried by 100 the wires 25 26 to an ordinary electric alarm-bell set up in a distant fire-brigade station.

The lever also carries an arc-shaped spring contact-piece 27, engaging terminal 28 and adapted when the lever operates to also engage a terminal 30, whereby electric circuit is established in wires 29 and 31, leading to and from an electric light 33 upon the front of the building.

A chute 34 has fixed upon its upper end a jaw-bracket 35, (see Figs. 5 and 6,) pivoted upon a bracket 36, which is hinged to a bracket 38 upon the front of the building by a pin 37^a, passed through an eye in bracket 36 and eyes 39 upon bracket 38. The opposite end of the chute is secured to a rope 40, which passes over guide-pulleys 41 42 (see Fig. 3) through the front of the building to a piston 43 in a cylinder 44, having a cover 45, through which the rope passes. Rope 40 is normally held by a clutch consisting of a lever 46, pivoted at 47 upon the cover 45 and having a V-shaped slot, (see Fig. 5,) through which the rope passes. The outer end of the lever is engaged by a rod 48, (see Fig. 3,) projecting from a cylindrical casing 49, fixed upon the air-tube. The parts within the casing 49 correspond exactly with those described in regard to casing 12 and for convenience in reference are marked with the same numerals.

Iron hand-rails 50 upon the sides of the chute 34 are pivoted upon posts 51, and the posts are pivoted at their lower ends upon the chute, so that the railings can be folded down, as shown in Fig. 1 and in dotted lines in Fig. 4. A post upon each side is fixed upon a rocking shaft 52, upon which is fixed a lever 53, carrying a balance-weight 54. When the chute is out of operation, as shown in Fig. 1, the railings are folded down to allow the chute to be close to the under side of the balcony 55. When the chute is lowered, the balance-weight raises the posts to a vertical position with the rails parallel with the chute. (See Fig. 4.) A semicircular rack 56 beneath the chute is engaged by a pawl 57 upon the lever 53, whereby the railing when raised is maintained in position. Friction-runners 58, fixed beneath the chute, permit the chute when lowered to be turned upon its pivot to any desired angle with the building.

Glass bulbs 59, having screwed ends 60 screwing into sockets 61, fixed upon the air-tube 1, are arranged in convenient positions about the building. Ordinary air-stop valves may, if desired, be employed instead of or in addition to the glass bulbs upon the air-tube.

Upon the outbreak of fire a part of the air-tube is melted by the fire or a glass bulb broken or a stop-valve opened by a person in the building. Air is thereby allowed to escape from the air-tube 1, and the rod 15 is pressed into the cylinder 12 by the weighted lever 16, which moves into the position shown in dotted lines, Fig. 3, thereby releasing the motor-driven alarm-bell and closing the electrical circuits, ringing the bell at the fire-brigade station, and lighting the electric lamps. Simultaneously lever 46 is released

by the rod 48 passing into the cylinder 49, and the lever, lifted by the weight of the chute upon the rope, passes into the larger part of the V-shaped slot and the end of the chute is free to descend. The descent of the chute is retarded by permitting only gradual escape of air from the cylinder 44 above the piston 43.

Gage 62, of ordinary construction, indicates the pressure of air in the air-tubes.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. Apparatus for simultaneously sounding an alarm, lighting an electric light and lowering an escape-chute consisting of the combination of an air-tube, means for compressing air therein, a casing secured to the tube and having communication therewith; a rod, means by which the rod is projected from the casing by the pressure of air in the tube, a pivoted counterbalanced lever engaged by the end of said rod; a motor-driven alarm-bell normally retained by the end of the lever, an electric lamp, wires adapted to carry electrical current to said lamp, means upon the lever for closing circuit between the wires; an electrically-operated bell, wires for carrying a current of electricity thereto, a battery for generating electricity, means upon the lever for closing electrical circuit between the wires; an escape-chute pivoted at one end, a rope having one end connected to said chute, a piston to which the other end of the rope is attached, a cylinder in which the piston operates, a lever-clutch upon the rope above the cylinder, a casing upon the air-tube and in communication therewith a rod adapted to engage the end of the clutch-lever, and means by which the rod is projected by pressure of the compressed air in the tube, and means by which air can be permitted to escape from the air-tube.

2. Apparatus for the purpose indicated comprising in combination a tube adapted to contain compressed air and portions of which are composed of fusible metal, a valve through which air is passed into the tube, a cylindrical casing secured to the tube and in communication with the compressed air therein, a nipple in the end of the casing, a rod through the nipple having a valve-head upon its end, a rubber bulb upon the nipple, a pivoted counterbalanced lever engaged by the end of said rod, a motor-driven alarm-bell normally retained by the end of the lever, an electric lamp, wires conveying electrical current to said lamp, a contact-piece upon the lever for closing circuit between the wires; an electrically-operated bell, wires carrying electrical currents thereto, a battery for generating electricity, a contact-bridge upon the lever for closing electrical circuit in the wires; an escape-chute pivoted at one end, a rope having one end connected to said chute, a piston to which the other end of the rope is attached, a cylinder in which the piston operates, a

cover upon said cylinder, a pivoted clutch-lever having a V-shaped hole through which the rope passes; a cylindrical casing secured to the air-tube and open to the compressed air therein, a nipple in the end of the casing, a rod through the nipple having a valve-head upon its end, a rubber bulb upon the nipple, the end of said rod being adapted to engage the end of the clutch-lever, and a glass bulb upon the air-tube designed to be broken to allow air to escape from the tube when it is desired to operate the apparatus.

3. The combination in apparatus for the purpose indicated of a tube adapted to contain compressed air, an escape-chute pivoted at one end upon the wall of a building, a rope having one end connected to said chute, a piston to which the other end of the rope is attached, a cylinder in which the piston operates, a clutch upon the rope above the cylinder, a casing upon the air-tube, a rod adapted to engage the end of the clutch-lever, and means by which the rod is projected from the casing by the pressure of the compressed air in the tube.

4. The combination in apparatus for the purpose indicated of an escape-chute pivoted upon the wall of a building, means for lowering the unpivoted end of said chute, posts pivoted to the sides of the chute, hand-rails pivotally connected to the posts, a rocking

shaft upon which two of the posts, one upon each side of the chute, are fixed, a lever fixed upon the rocking shaft, a balance-weight upon the lever, a semicircular toothed rack, and a pawl upon said lever adapted to engage said teeth in one direction.

5. The combination in apparatus for the purpose indicated of a tube adapted to contain compressed air, an escape-chute pivoted at one end upon the wall of a building, a rope having one end connected to said chute, a piston to which the other end of the rope is attached, a cylinder in which the piston operates, a cover upon said cylinder, a clutch-lever pivoted upon said cover having a V-shaped hole through which the rope passes, a cylindrical casing secured to said air-tube and open to the compressed air therein, a nipple in the end of the casing, a rod through the nipple having a valve-head upon its end, a rubber bulb upon the nipple, the end of said rod adapted to engage the end of the clutch-lever.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

THOMAS STANLEY PHILPOTT.
ROBERT HUTCHINSON.

Witnesses:

J. H. MURRAY,
T. O. SULLIVAN.