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No. 665,801.

Patented Jan. 8, 1901.

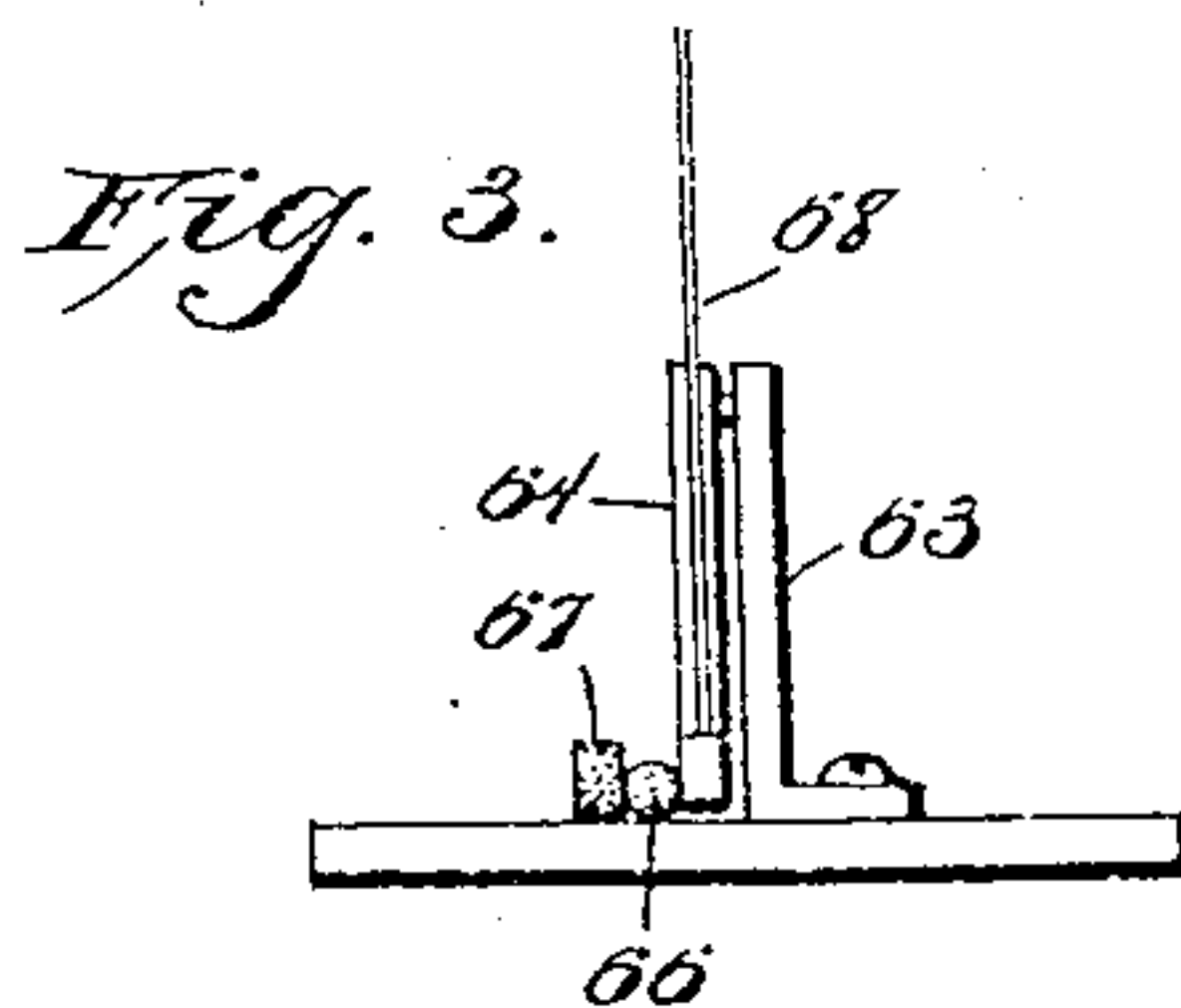
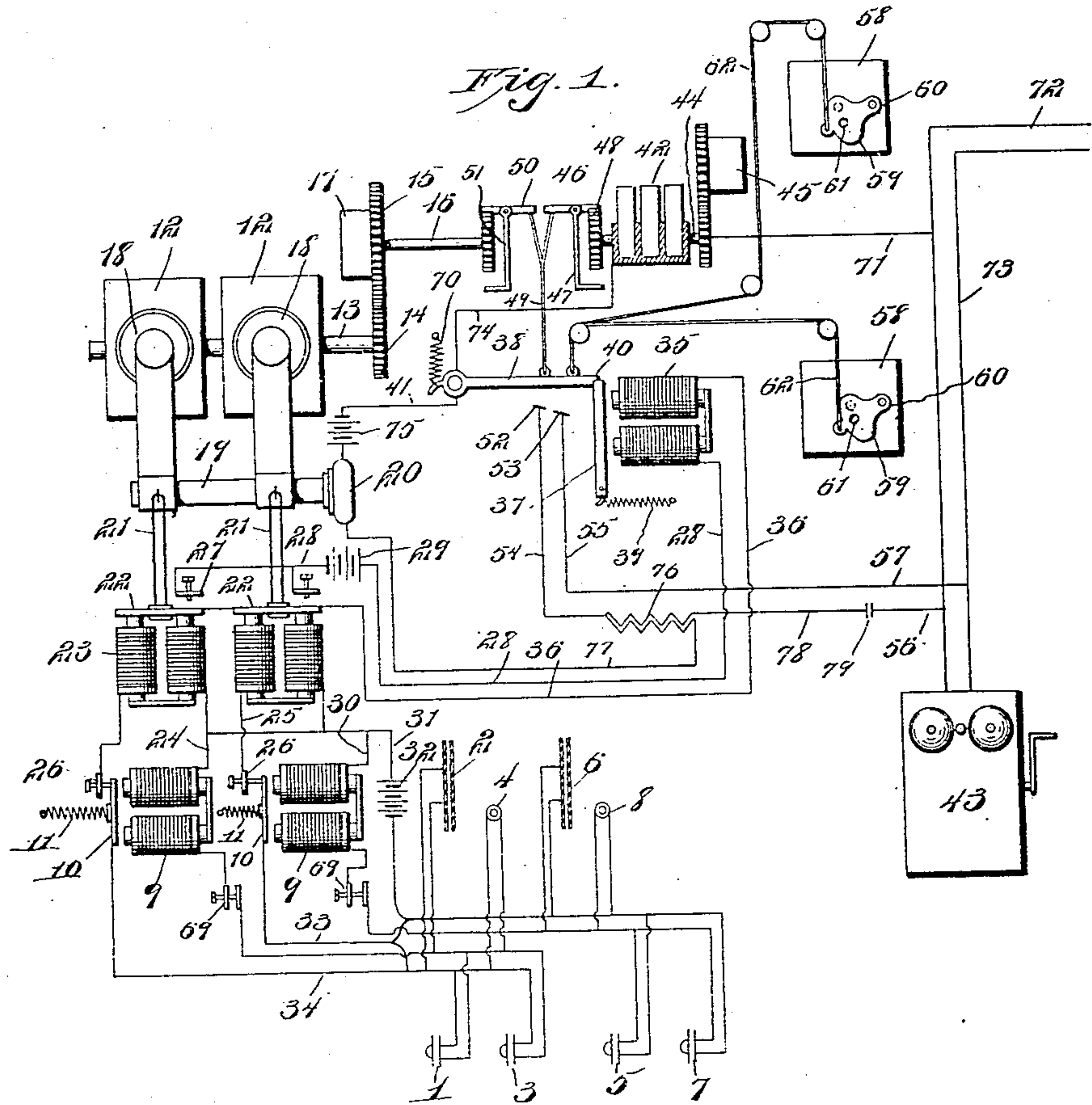
J. W. ROUGH.

ELECTRIC BURGLAR ALARM.

(Application filed Apr. 2, 1900.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses
Louis D. Heinrichs
Herbert D. Lawson.

Inventor
John W. Rough
 By *Victor J. Evans.*
 Attorney

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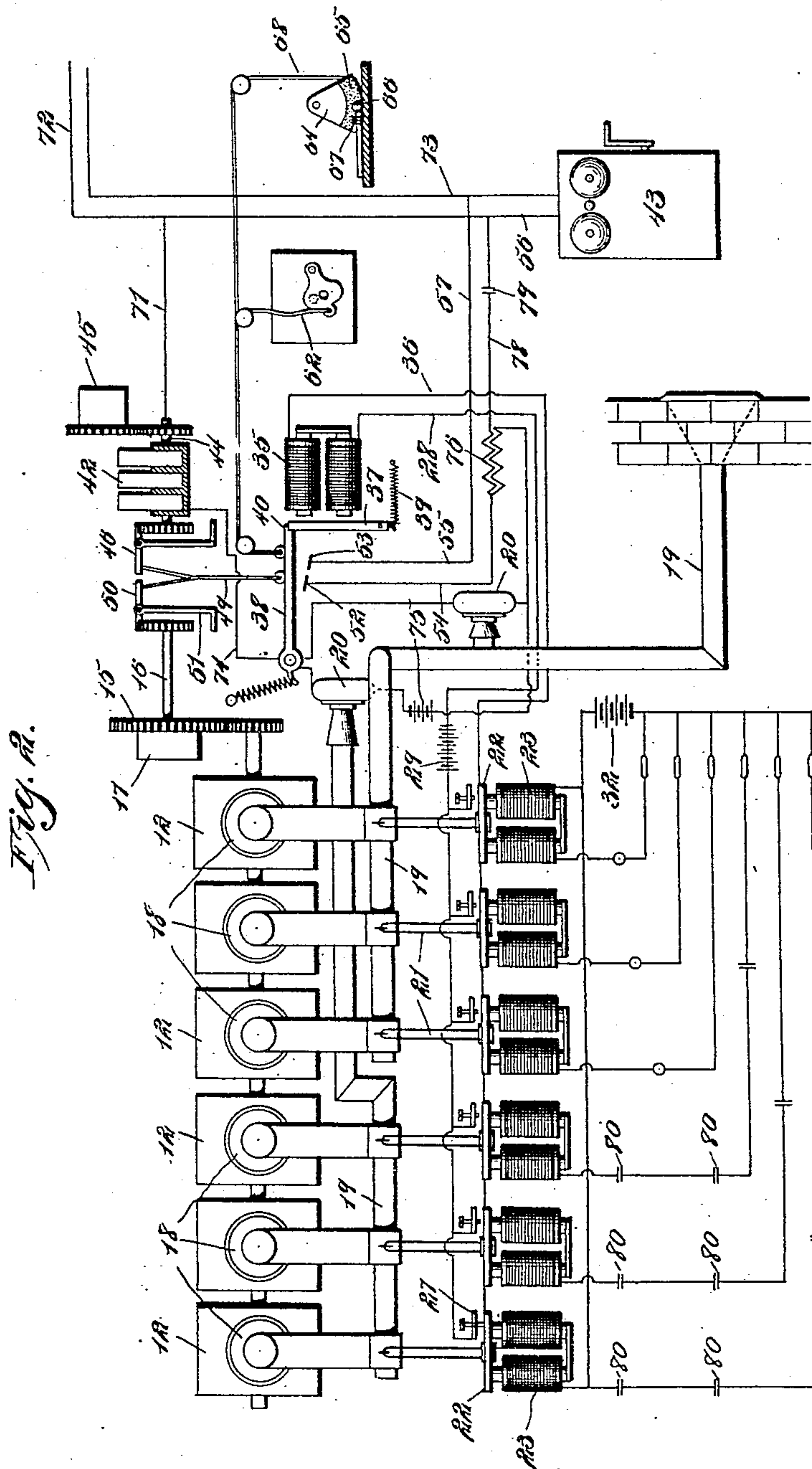
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Herbert Lawson.

Inventor
John W. Rough
By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

JOHN W. ROUGH, OF ORLEANS, INDIANA

ELECTRIC BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 665,801, dated January 8, 1901.

Application filed April 2, 1900. Serial No. 11,215. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. ROUGH, a citizen of the United States, residing at Orleans, in the county of Orange and State of Indiana, have invented new and useful Improvements in Electrical Burglar-Alarms, of which the following is a specification.

This invention relates to new and useful improvements in electrical burglar-alarms; and its primary object is to provide a device whereby a burglar entering a building through a window, door, &c., or stepping upon suitably-disposed circuit-closers will cause the transmission of an audible signal through the medium of a telephone system to parties at different points, who may be in communication with the police department.

A further object is to provide means of novel construction, whereby a likeness of the intruder will be automatically secured.

While the invention is adapted to be used independently of other signaling devices, the same may, if desired, be used in connection with the fire apparatus shown and described in the patent to George C. Hale, dated August 8, 1899, No. 630,345.

The invention consists in the novel construction and combination of parts hereinafter more fully described, claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a diagrammatical view of a burglar-alarm system embodying my present improvements. Fig. 2 is a similar view showing the same used in connection with the fire-alarm system covered by the Letters Patent hereinbefore referred to, and Fig. 3 is a detail view of a flash-light attachment adapted to be used in connection with the camera.

Referring to said figures by numerals of reference, 1, 2, 3, and 4 each designates a group or set of circuit-closers, said groups adapted to be suitably arranged upon one floor of the house in which the alarm is used, and similar groups 5, 6, 7, and 8 may be arranged upon the second floor of said house. These circuit-closers may be of various forms. Those shown at 1, 3, 5, and 7 may be so constructed as to close upon the opening of doors or windows of the house, while the circuit-closers shown

at 2 and 6 may be located within the floors of the rooms and adapted to close when a weight is placed thereon. I do not claim any particular form of circuit-closer, as any suitable construction may be employed. Buttons, as 4 and 8, may be suitably arranged within the circuits, whereby said circuits may be closed by hand when desired.

It will be understood that the circuit-closers 1, 2, 3, and 4 are arranged upon a circuit which is independent of the circuit having the closers 5, 6, 7, and 8. In each of these circuits is included an electromagnet 9, as will be plain by an examination of Figs. 1 and 2 of the drawings. These circuits are normally open, and therefore the armatures 10 are normally removed from their respective magnets 9, being preferably held in retracted position by means of coil-springs 11, as shown. The magnets 9 may be arranged at any desired point relative to the circuit-closers, and are all preferably arranged in close proximity to each other in the room or inclosure wherein is situated a graphophone or phonograph signal device of suitable construction, such as will be more fully hereinafter described. This device consists of a series of cylinders 12, mounted upon a common shaft 13, provided with a gear-pinion 14, which meshes with a gear 15, mounted on a driving-shaft 16, to which is connected a suitable motor, as 17. This motor may be of any desired form. I prefer to drive the phonograph-cylinders intermittently or only when an alarm is sent in, and therefore provide a stop or like device which will be hereinafter described. Each cylinder bears a suitable record—for example, the location of the building to which the system is applied and in addition the particular portion of that building wherein are located the circuit-closers of that particular local circuit which controls the position of the transmitter or reproducer 18, adapted to transmit that record.

The reproducers 18 are each mounted upon a tube or conduit 19, preferably in the manner shown and described in the patent hereinbefore mentioned, and said tube 19 extends from points adjacent to the cylinders 12 to an ordinary telephone-transmitter 20, which is arranged in an electrical circuit, such as will

be hereinafter described. Each reproducer 18 is supported above its cylinder 12 by means of a connecting-link 21, which is secured at its opposite end to an armature 22 of a magnet 23. This armature is connected by means of a suitable wire, as 24, to the armature 9 of one of the circuits of the closers herein described. A second wire 25, extending from the magnet 23, is secured to a stud 26, suitably mounted at a point adjacent to the armature 10 and adapted to contact therewith when the same is out of contact with its magnet 9. A second stud 27 is mounted adjacent to the armature 22 of the magnet 23 and is connected to a wire 28, having a suitable battery, as 29, thereon. The wire 24 is connected by means of a wire 30 to the magnet 9 of the second circuit, as shown, and a wire 31, having a battery, as 32, thereon, is connected by means of the wires 33 and 34 to the armatures 10 of the magnets 9. It will be seen that each of the magnets 23 is connected to the wire 30.

35 designates an electromagnet which is arranged in a circuit including the battery 29 and wires 28 and 36. The wire 36 of this circuit, which, as it is the means for assisting the transmission of signals produced by the breaking of either of the hereinbefore-described local circuits, may be termed the "common" circuit, is connected with the armatures 22 of the local-circuit magnets 23, and the other wire 28 is connected with the series of contact-points 27, hereinbefore described, said points being arranged adjacent to and in the path of each of the said armatures 22. The armature 37 of the electromagnet 35 is pivotally supported and is normally held in engagement with the lever-arm 38 by means of a spring 39. This lever-arm 38 is pivotally mounted at one end, as shown, its opposite end 40 normally bearing upon the upper end of the armature 37, as shown. This lever-arm 38 is secured to a wire 41 of an electric circuit connected to the transmitter 20, which includes also a magneto-generator 42, and is adapted, as will be hereinafter described, to be connected with the regular line of circuit connecting the telephone 43 with the central or exchange office.

To the shaft 44 of the generator 42 is geared a suitable motor 45, and a brake or stop device 46 is provided for normally preventing rotation of said shaft. This stop device preferably consists of a lever pivotally mounted upon a bracket, as 47, one arm of which is adapted to engage with a toothed wheel 48 upon the shaft 44, while the other arm is connected by means of a cord or other flexible device 49 to the lever-arm 38, hereinbefore described. This cord is also connected to one arm of a lever 50, mounted upon a bracket 51 and adapted to act as a stop for holding the power-shaft 16 of the graphophone signal apparatus stationary. Contact-points, as 52 and 53, are arranged below the lever-arm 38 at the terminus of the wires 54 and

55, respectively, that are connected with the wires 56 and 57, leading from the telephone 43.

A camera 58 of any suitable construction may be arranged at any desired point within each of the rooms of the house. This camera is preferably provided with a shutter 59 of substantially the form shown in Figs. 1 and 2 and pivoted at one end, as at 60, to the casing of the camera. This shutter is provided with an aperture 61, which is adapted to register with the lens-opening within the casing when the shutter is partially raised, said lens-opening being so located as to be closed when the shutter reaches its upper or lower limits of travel. A suitable flexible connection, as 62, connects said shutter with the arm 38 and may be arranged in any suitable manner.

At a point adjacent to each of the cameras is secured a bracket 63, substantially as shown in Fig. 3, to which is pivotally mounted a vertical substantially bell-shaped plate 64, the outer edge of which is roughened, as at 65, and adapted to contact with the head of a match 66 or other suitable device, which will ignite from frictional contact therewith, and a suitable cartridge 67, containing flash-light material, is arranged adjacent to the match and adapted to be ignited thereby. A cord 68 or other flexible device connects the plate 64 with the lever-arm 38, hereinbefore described.

Each of the local circuits of this apparatus may be provided with a circuit-breaker, as 69, whereby the operation of the apparatus may be prevented, as desired. These circuit-breakers are preferably placed upon the wires which do not connect with the magnets 23, which support the phonograph-reproducers. The magnets 23 are normally in circuit, the current passing from the battery 32 through the wires 31 25, armatures 10, and wire 34 back to the battery 32, as is obvious. It will therefore be seen that the armatures 22 are normally held in contact with their magnets 23. Whenever either of the local circuits is closed by means of the circuit-closers 1, 2, 3, 4, 5, 6, 7, and 8, the current from the battery 32 will energize the magnet 9 of said circuit and attract the armature 10. This will, as is obvious, break the circuit at the point 26 and release the armature 22 of the magnet 23, causing the reproducer to fall upon the cylinder 12 of the phonograph. At the same time the armature 22 will contact with the stud 27 and form a circuit including the wires 28 and 36 and the battery 29, charging the magnet 35, which will attract its armature 37, and thereby release the lever-arm 38, which, under the pull exerted by the spring 70, secured thereto, as shown, will be thrown against the two contact-points 52 and 53, as is obvious. Such movement of the lever-arm 38 releases the shaft 44 of the generator 42 and the action of the latter rings the call-bell of the telephone 43, which call being transmitted over the wires 56 and 57 notifies the operator at the

central office that connection for the purpose of transmitting speech should be made with the telephone 43. As soon as the connection is made between the lever-arm 38 of the contact-points 52 and 53 the record on the particular graphophone-cylinder whose reproducer has been brought into operative position will be transmitted to the operator at the central station through the transmitter 20 and over the wires 54, 55, 56, and 57. When the lever-arm 38 falls upon the contact-points 52 and 53, the lever 50 is raised, releasing the phonograph mechanism, and at the same time the shutter 59 and the flash-light attachment 64 are operated through the cords 62 and 68, connected to said arm 38. It will be seen that as the shutter 59 is thrown upward the lens of the camera is exposed to view, when the aperture 61 within the shutter registers therewith. The cord 62 is preferably slack, so that the shutter of the camera will be operated subsequently to the ignition of the flash-light material. It will be understood that when the cord 68 is operated by the lever-arm 38 the plate 64 will be swung upon its casing, causing its roughened surface to ignite the match 66, which in turn will ignite the cartridge 67. The action of the magneto-generator 42 causes the current to pass over the wires 71 and 72 of the regular telephone-circuit and through the signal apparatus in the central office back over line-wire 73 and wire 57 to contact 53, and thence to the magneto-generator over or through lever 38 and the wire 74, connecting it with the said generator. A portion of this current also passes through the telephone instrument 43, ringing the signal thereon.

The local current of the transmitter 20 is as follows: From the transmitter to the battery 75, then through the lever-arm 38 to contact 52, and from there through the primary circuit 76 of the induction-coil and over wire 77 back to the transmitter. This induces a current in the secondary circuit of the inductive coil, which travels over the wire 78 through a "condenser" or resistance 79 and the wire 56 to one side of the main telephone-circuit. The secondary current returns over the opposite side of said main circuit to the wire 57 and through the contact 53 and lever 38 back to contact 52 and wire 54, which is connected with the secondary or the inductive coil.

It will thus be seen that the operator in the central or exchange office is advised of the exact location of the burglar. The signal will be repeated until the motor 17 is run down.

While I have hereinbefore described this apparatus as complete in itself, it may, if desired, be used in connection with the system covered by Patent No. 630,315, which may be operated independently thereof to indicate fires, &c., as shown and described in said patent.

If desired, the burglar-alarm apparatus

when used in connection with the fire-alarm apparatus may be of the construction shown in Fig. 2, in which but one magnet is used in each common circuit and circuit-breakers 80 are used in lieu of the closers 1, 2, 3, 4, 5, 6, 7, and 8, hereinbefore referred to. The operation of the local circuits of the burglar-alarm apparatus shown in said Fig. 2 is the same in every respect as that of the fire-alarm apparatus described in the above-mentioned patent.

By the term "graphophone" or "phonograph," I mean to include any of the various forms of apparatus for producing the human voice or other sounds which may be adapted for use in my improved system.

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

1. In an automatic burglar-alarm apparatus, the combination with a phonograph-cylinder; of a reproducer suspended adjacent thereto, a normally-energized magnet, an armature to said magnet secured to the reproducer, an armature in the circuit of said magnet, a magnet adjacent to the armature and having a normally open circuit, a contact-point adjacent to the armature of the normally-energized magnet, a magnet in circuit with said armature and contact-point, said circuit adapted to be closed by the release of the armature, an armature to said magnet, a camera, a shutter thereto, a lever bearing upon said armature and adapted to be released by the attraction of the armature to its magnet, and a flexible connection between the lever and shutter.

2. In an automatic burglar-alarm apparatus, the combination of a magnet in a normally open circuit, an armature thereto in circuit with a normally-energized magnet, an armature to said normally-energized magnet, a contact-point adjacent thereto, a magnet in circuit with said armature and contact-point and adapted to be energized by the release of the armature, an armature 37, a lever-arm normally supported by said armature, a camera, a shutter pivoted thereto and having flexible connection with the lever-arm, a plate pivoted adjacent to the camera and having a flexible connection with said lever-arm, and a frictional surface to said plate adapted to ignite flashing material by the movement thereof, said shutter and plate being operated by the release of the lever-arm.

3. In an automatic burglar-alarm apparatus, the combination of a magnet having a normally open circuit, an armature thereto, a normally-energized magnet normally in circuit with the armature, an armature to said energized magnet, a contact-point therefor, a magnet in circuit with said armature and contact-point and adapted to be energized by the breaking of the circuit of the normally-energized magnet, an armature 37, a lever-arm normally supported by said armature, a camera adapt-

ed to be operated by the release of said arm,
a pivoted plate, a flexible connection between
said plate and the lever-arm, a friction-sur-
face to the plate, material adjacent to the
5 friction-surface adapted to be ignited by the
movement thereof, and a flash-light cartridge
adjacent to said material.

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

JOHN W. ROUGH.

Witnesses:

CHARLES P. COLLINS,
ROBERT E. BAKER,