(No Model.) 2 Sheets—Sheet 1.

C. E. BUELL.

DISTRICT TELEGRAPH SYSTEM.

No. 263,759. Patented Sept. 5, 1882.

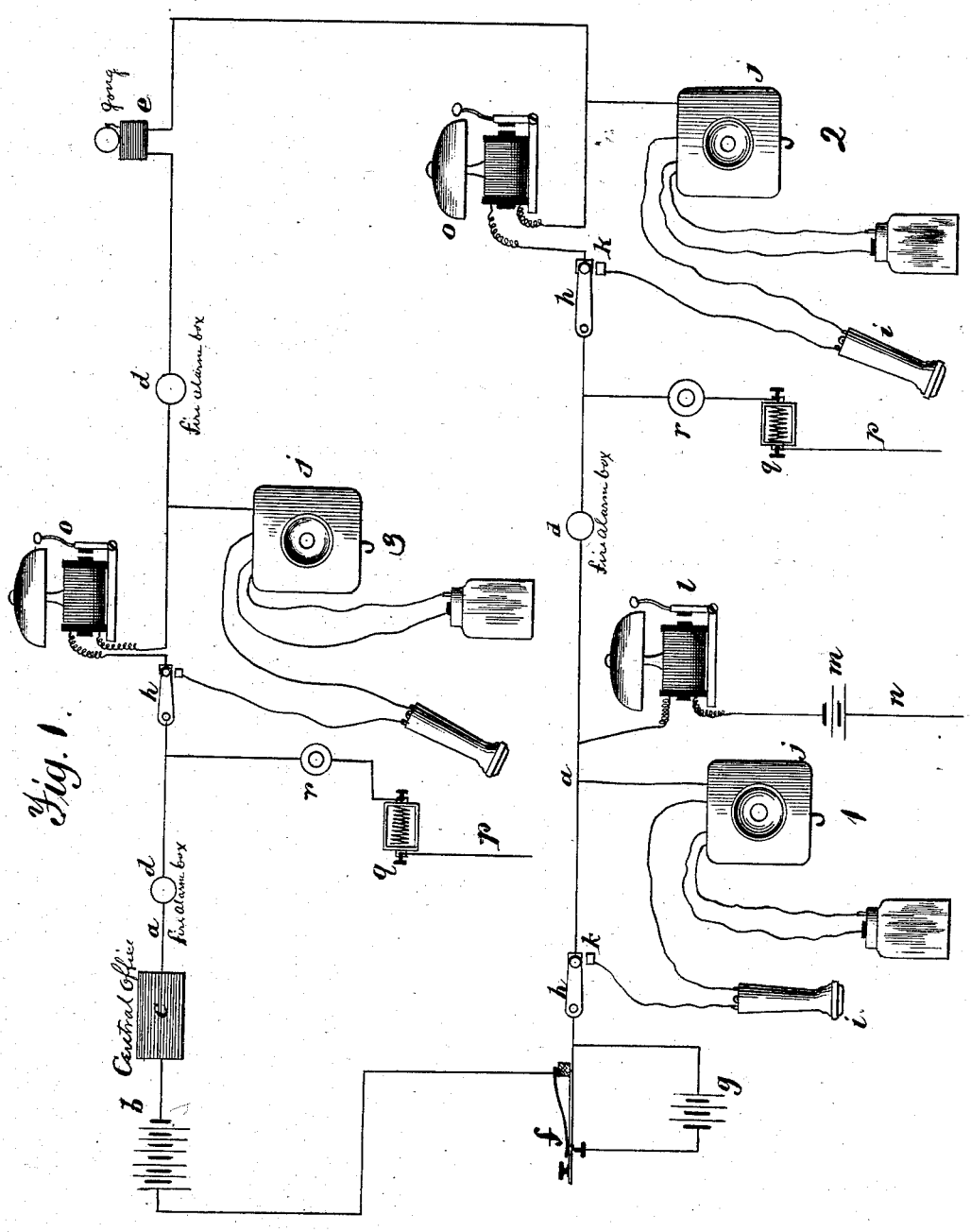

Fig. 1.

Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

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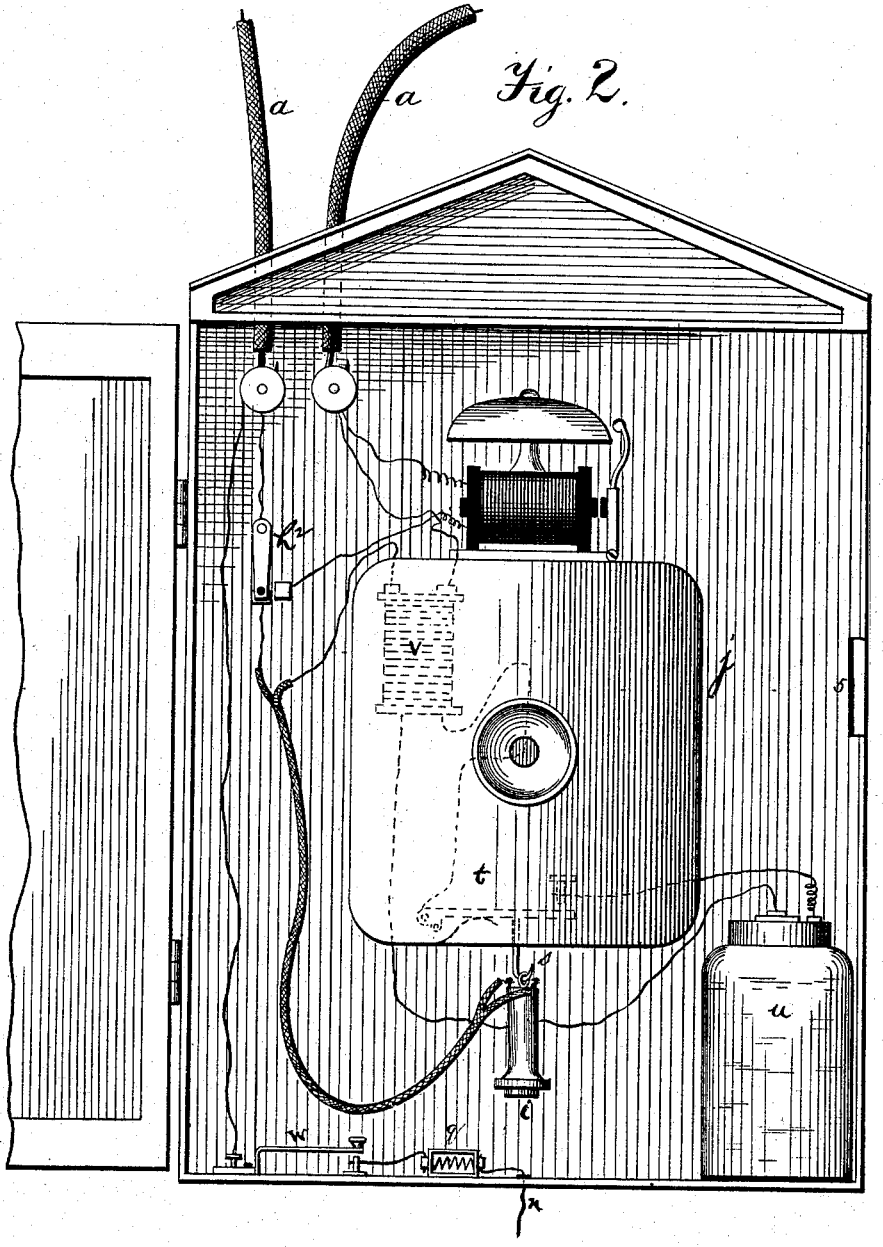
Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

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DISTRICT-TELEGRAPH SYSTEM.

SPECIFICATION forming part of Letters Patent No. 263,759, dated September 5, 1882.

Application filed June 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BUELL, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in a Combined Alarm and Communicating Telegraph; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

My invention is in the nature of a combination of a system of oral communication upon a normally-charged circuit used to maintain a fire-alarm or other analogous system; and the invention, briefly stated, consists in the combination, with a normally closed and charged metallic circuit which includes fire-alarm-signaling devices, of means for signaling between a central office and one or more outlying stations independent of the devices for producing fire-alarm signals, and switches for introducing telephones into and withdrawing them from said charged circuit without rupturing the continuity of the said circuit or disturbing the fire-alarm mechanism, substantially in the manner and for the purpose hereinafter specifically set forth and claimed.

In the accompanying drawings, in the two figures of which like parts are correspondingly designated, Figure 1 is a diagram of an electric circuit containing the elements and illustrating the operation of my invention. Fig. 2 is a front elevation of the station-box apparatus.

In Fig. 1, *a* may designate a metallic fire-alarm circuit, which is preferably normally closed and charged. This circuit will include the charging-battery *b*, the fire-alarm central office *c*, the fire-alarm boxes *d*, and the gong *e*, all being of any preferred construction, and the telephone-stations 1 2 3, in any number. The central or a main station may be provided with the receiving and transmitting apparatus shown at station 1; and this apparatus consists of a spring-key, *f*, in the circuit for interposing and withdrawing an auxiliary battery, *g*, as shown and described in my Patent No. 169,954, dated November 16, 1875, by means of which signals can be sent as calls to outlying stations, as 2 3, hereinafter referred to.

h is a switch in the main line or circuit for cutting in and out a telephone apparatus. This telephone apparatus consists of a telephone, *i*, and the transmitter *j*, of ordinary form, with or without a local battery, and arranged in a branch circuit terminating at the switch-contact *k*. The switch *h* is arranged to turn from its normal contact in the main-circuit line to the terminal contact *k* of the branch without rupturing the circuit, thereby interposing in the main circuit the telephone branch circuit. To the main line at this station is connected the call-bell *l* for receiving incoming signals by the action of a signaling-battery, *m*, when grounded at an outlying station. The main line for this purpose is also grounded, as by the wire *n*, at this station. By these means communications by telephone may be had with or received from outlying stations over the main line without interfering with the fire-alarm apparatus, because there is no rupturing of the main line.

The outlying stations 2 3 may include a switch, *h*, to interpose in the main line a telephone, *i*, and receiver *j*, as before described, without rupturing the circuit, and to withdraw the call-bell *o* when so interposed. This call-bell *o* is constructed and adjusted so as to respond to variations of the force upon the circuit by interposing and withdrawing the auxiliary battery *g*, and in its normal state this call-bell does not attract its armature. A branch wire, *p*, to earth includes a resistance, *q*, and a key, *r*, which is an open-circuit press-button key. The resistance of the ground-wire should be sufficient to compensate for the circuit from the station around to the negative pole of the alarm-battery *b*. By pressing upon the key *r* a ground is put on the main circuit and the battery *m* is brought into action to make operative the bell *l* of station 1.

The apparatus of station 3 is identical with

that just described of station 2, and its operation the same.

The interposing of these telephone apparatus does not affect the transmission of signals over the fire-alarm, and utilizes the fire-alarm circuit with an economy of lines, thus placing the police and fire departments of a city in instant oral and signal communication, and so promoting and increasing their efficiency.

When my system is used in buildings a gas or water pipe or a wire may take the place of the earth for return-circuit.

Any of the well-known means for adjusting call-bell magnets employed in circuits which are not broken, but whose tension is varied, may be here employed. By making the branch containing the call-bell magnets of approximately the same resistance as the telephone apparatus to be introduced in the circuit when the call-bell is removed, the resistance of the circuit is not appreciably changed, and consequently the fire-alarm mechanism is not disturbed nor made operative by such manipulation of the circuit. Any of the well-known forms of switches that will serve to make such changes and not rupture the circuit may be used without departing from my invention.

The peculiarities of my boxed telephone apparatus for outlying stations are illustrated in Fig. 2, where the telephone *i* is suspended by a hook, *s*, from a spring-switch, *t*, and which by its weight keeps the local circuit normally open. This apparatus is put into the circuit without rupturing such circuit by means of the switch h^2.

j is the transmitter, *u* a local battery, and *v* an induction-coil. The ground-wire *n* may serve as a lightning-arrester. As shown, this ground-wire may be connected to the main line by a key or switch, *w*, which leaves the ground-line normally open. The box for inclosing this apparatus is provided with a suitable lock, the keeper 5 of which only is shown.

I do not wish to confine myself to the particular arrangement of call-bells and telephonic apparatus described and shown to illustrate my invention.

What I claim is—

1. In a combined system of fire-alarm and telephone telegraph, substantially such as described, the combination, with a normally closed and charged metallic circuit which includes fire-alarm-signaling devices, of means for signaling between a central office and one or more outlying stations independent of the devices for producing fire-alarm signals, and switches for introducing telephones into and withdrawing them from said charged circuit without rupturing the continuity of the said circuit or disturbing the fire-alarm mechanism, as set forth.

2. In a combined system of alarm and telephone telegraph, substantially such as described, the combination, with the same normally-closed electric circuit, of mechanism for producing signals by make and break of the circuit, and added means for producing signals by increasing the force charging said circuit, of the switch devices for interposing telephonic apparatus in and withdrawing it from said circuit without interrupting the continuity of the circuit.

3. The combination, with a fire-alarm or analogous system of signaling, of a series of telephone-station apparatus, each provided with a call-bell and telephone apparatus and switch devices adapted to exclude the call-bell when the telephonic apparatus is included in the circuit, the whole arranged and operating substantially in the manner and for the purpose set forth.

4. The combination, with a main electric circuit which is normally charged, of one or more branch circuits which include telephone apparatus and devices for connecting said branch circuits into and withdrawing them from said charged circuit, and the signaling-battery *g* and means for including said battery in and withdrawing it from the charged circuit.

5. In a combined system of fire-alarm and telephone telegraph, a charged main circuit including apparatus for producing fire-alarm signals, independent branch circuits which include telephone apparatus, and switch devices for introducing and withdrawing the telephonic apparatus from the main circuit, an independent branch containing a signaling-battery and means for introducing said battery into circuit, combined with a normally-disconnected ground-wire at outlying stations of a predetermined resistance and a calling-key for connecting said ground-wire to main circuit for signaling to a central office, all arranged and operating so that the signals for telephone-calls shall not be sounded upon the gongs and bells provided for fire-alarm signals.

6. The combination, with one normally-closed electric circuit, of devices for signaling by make and break of the circuit and by augmenting the force charging the circuit without rupturing it, with the added means for signaling by a grounded auxiliary battery over a portion of said circuit by grounding the circuit at a second point, as shown and described.

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

CHARLES E. BUELL.

Witnesses:
THOMAS W. PEYTON,
OBED H. SANDERSON.