No. 772,936. PATENTED OCT. 25, 1904.

J. R. & C. A. HARRIS.

CUT-OUT SWITCH FOR TELEPHONES.

APPLICATION FILED JUNE 23, 1904.

NO MODEL.

Fig. 1.

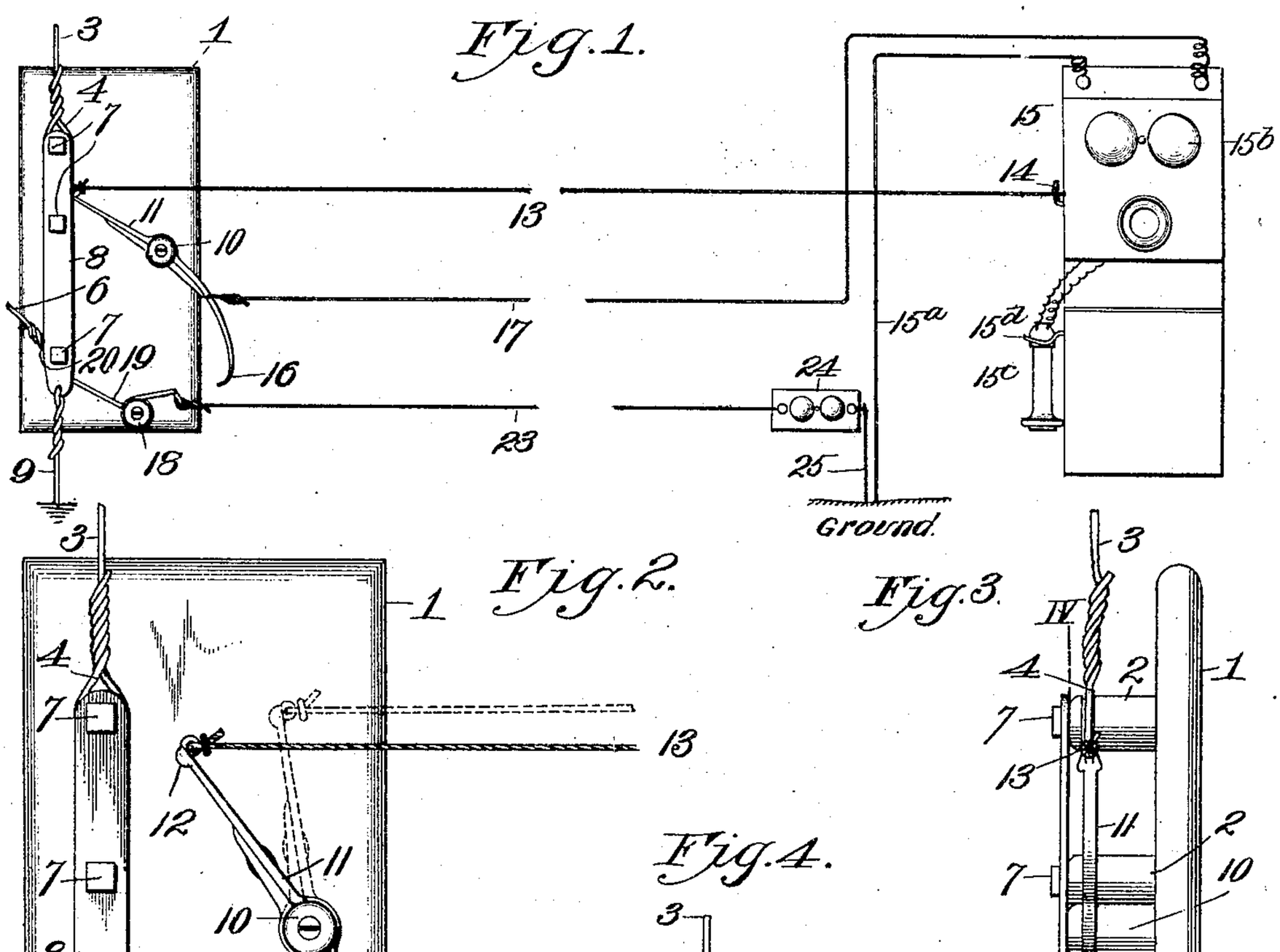


Fig. 2.

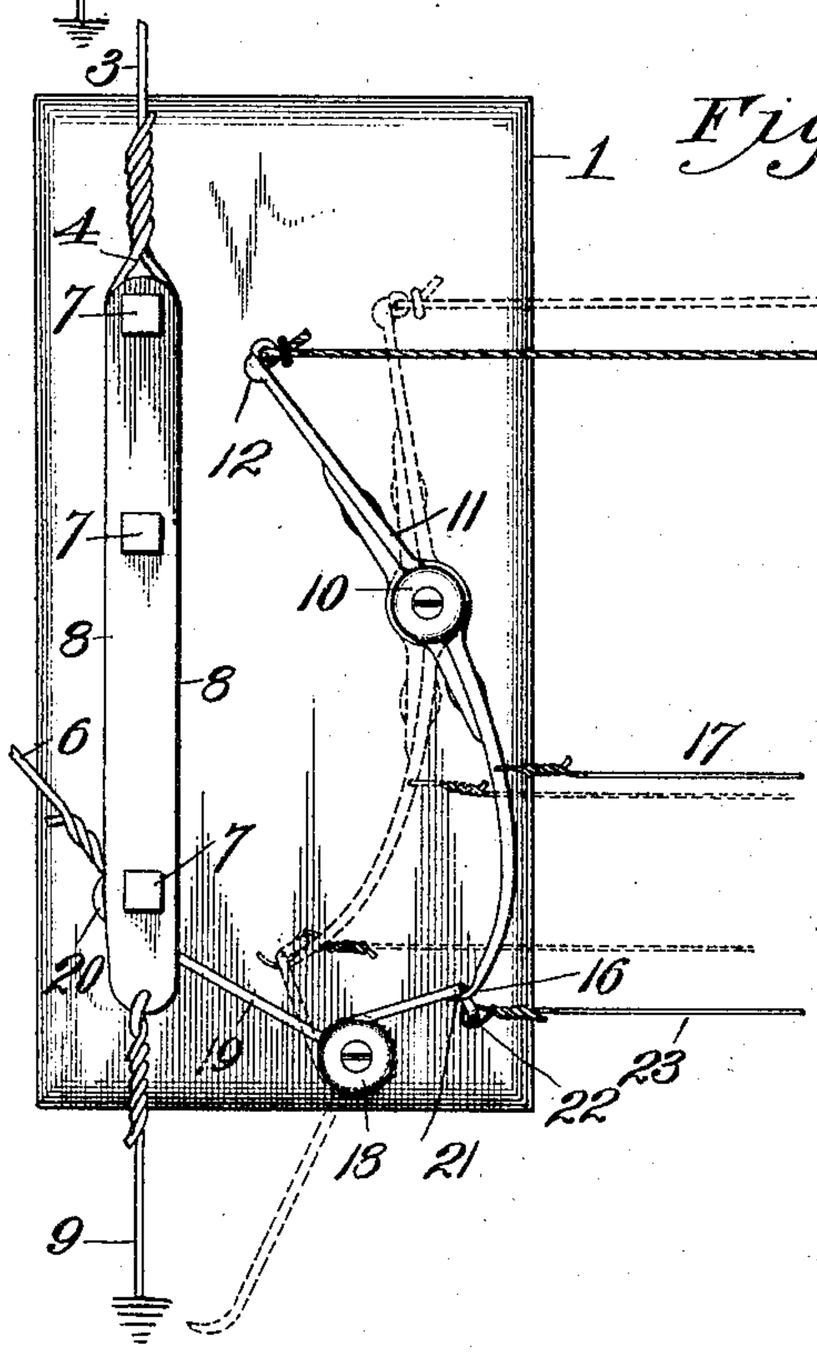


Fig. 3.

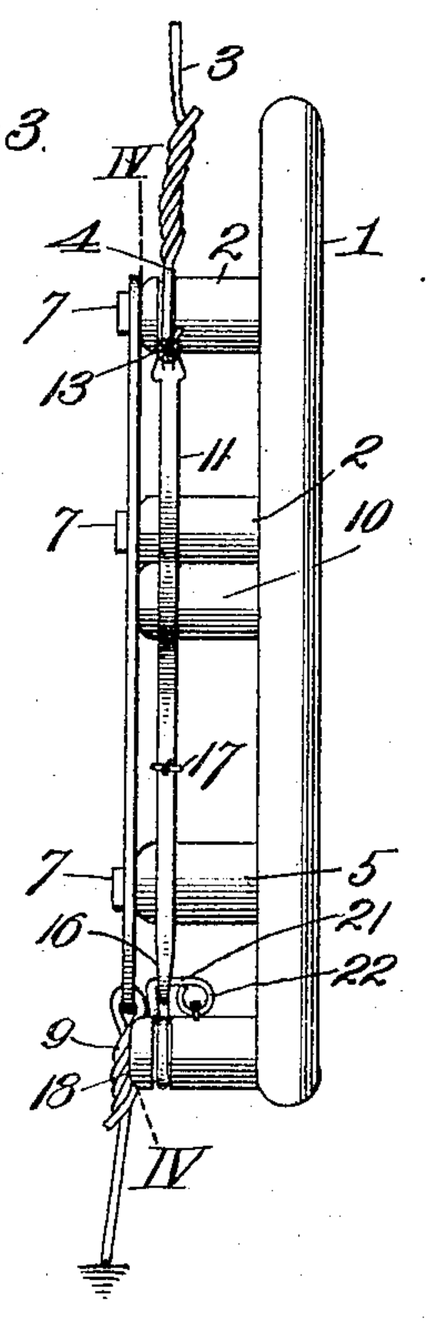
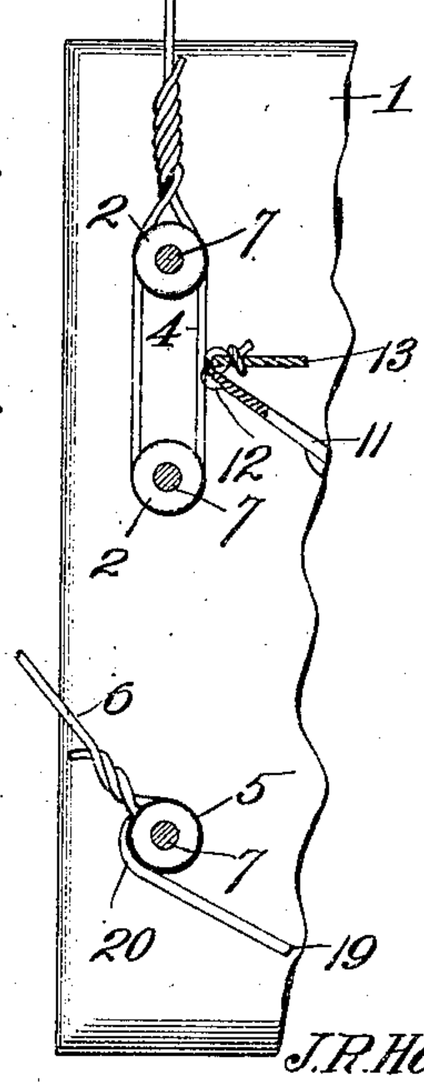


Fig. 4.



Witnesses
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By George L. Thorpe Atty.

No. 772,936. Patented October 25, 1904.

UNITED STATES PATENT OFFICE.

JAMES R. HARRIS AND CHARLES A. HARRIS, OF TRENTON, MISSOURI.

CUT-OUT SWITCH FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 772,936, dated October 25, 1904.

Application filed June 23, 1904. Serial No. 213,772. (No model.)

To all whom it may concern:

Be it known that we, JAMES R. HARRIS and CHARLES A. HARRIS, citizens of the United States, residing at Trenton, in the county of Grundy and State of Missouri, have invented certain new and useful Improvements in Cut-Out Switches for Telephones, of which the following is a specification.

This invention relates to cut-out switches for telephones, and has for its object to produce a device for and under control of each subscriber by which the latter may cut his telephone out of circuit while a storm is in progress, and thus eliminate in a large measure danger of injury to person or property by lightning.

A further object is to produce a cut-out switch of simple, strong, durable, and cheap construction which will operate instantly and reliably and which can be easily and cheaply applied to telephone systems now in use or to those which may hereafter be installed.

A still further object is to produce a switch for connecting a telephone with either of two lines to enable a subscriber to converse over either and by which the telephone can be cut out of service with both lines at the same time.

With these objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a telephone cut-out switch embodying our invention. Fig. 2 is an enlarged view of the cut-out switch. Fig. 3 is an edge view of the cut-out switch. Fig. 4 is a horizontal section taken on the line IV IV of Fig. 3.

In the said drawings, 1 designates a plate secured to a telephone-pole or other support, and 2 a pair of insulating-spools mounted thereon, and looped around said spools, as at 4, is one end of the main-line wire 3. Below spools 2 is a spool 5, to which the main wire 6 of a different telephone system is attached and secured to the spools by the same bolts, 7, which unite the spools to the plate, is a bar 8, grounded by means of wire 9.

Pivoted on insulating-sleeve 10, bolted to plate 1, is a lever 11, adapted to operate in the plane of the main-line-wire loop 4. The upper end of said lever is forked, as at 12, for reliable engagement with the loop of the main-line wire and is connected to a cord 13, which extends into the house and may be attached to the hook 14 of the telephone 15 or may be otherwise supported. The lever, below its pivotal point, is of substantially hook form, as at 16, and is electrically connected by a wire 17 to the telephone, such instrument being grounded by wire 15^a in the usual manner.

Mounted on an insulating-sleeve 18, secured to plate 1, is a lever 19, terminating in a hook 20 at its free end for engagement with the wire 6 and with a laterally-projecting arm 21 at its other end, said arm being coiled to form a loop 22, to which is connected the wire 23, leading to electromagnetic bells 24, grounded, as at 25, or in any other suitable manner, it being understood, of course, that any suitable audible signal may be substituted for said bells and that said signal is not detailed because it may be of any suitable or preferred type.

The wires 17 and 23 are so arranged that their weight is utilized to hold their respective levers in frictional engagement and electrical contact with the main-wire loop 4 and wire 6.

The parts, as shown in Fig. 1, occupy their normal positions, and in a call for the subscriber over line 3 the current passes through 3 4, lever 11, wire 17 to telephone and then to ground through wire 15^a and attracts the subscriber's attention by the ringing of the telephone-bell 15^b. The subscriber by removing the receiver 15^c from the hook 15^d completes the circuit in the usual manner and is enabled to hold a conversation with the calling subscriber. When the subscriber is called over the other telephone-line, 6, by the ringing of bells 24, he grasps cord 13 and swings lever 11 to the position shown in full lines, Fig. 2, so as to establish communication with the call-

ing subscriber, the current passing over wire 6, lever 19, lever 11, wire 17 to the telephone, and to ground through wire 15ª.

Should a storm arise, the subscriber pulls the cord 13 until lever 11 engages lever 19, continuing the pull on the cord until the levers have assumed the position shown in dotted lines, Fig. 2, when the telephone is totally disengaged from both wires 3 and 6, so that should lightning strike either of said lines it can jump to bar 8 and pass thence through the grounded wire or lightning-conductor 9 to the ground.

From the foregoing it will be apparent that we have produced a cut-out switch for telephones which embodies the features of advantage enumerated as desirable in the statement of the object of the invention, and while we have illustrated and described the preferred embodiment of the invention it is to be understood that it is susceptible of modification in various particulars without departing from the principle and scope or sacrificing any of its advantages.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a pair of main-line conductors, a telephone having a return or ground wire connection, an audible electromagnetic signal separate from the telephone and having a ground-wire connection, a conducting-lever normally in electric contact with one of said conductors, a conducting-lever normally in contact with the other main-line conductor, a conductor between the first-named lever and the telephone, a conductor between the last-named lever and the signal, and a ground-wire connection contiguous to said main-line conductors.

2. The combination of a pair of main-line conductors, a telephone having a return or ground wire connection, an audible electromagnetic signal separate from the telephone and having a ground-wire connection, a conducting-lever normally in electric contact with one of said conductors, a conducting-lever normally in contact with the other main-line conductor, a conductor between the first-named lever and the telephone, a conductor between the last-named lever and the signal, a ground-wire connection contiguous to said main-line conductors, and means for withdrawing the first-named lever from engagement with its main-line conductor and throwing it into engagement with the other lever.

3. The combination with a suitable support, a main-line conductor secured thereto, a lever mounted on said support, a telephone, a conductor between said lever and the telephone and holding the lever in contact with the main-line conductor, means for throwing the lever out of engagement with said main-line conductor, a return-wire leading from the telephone, and a ground-wire connection contiguous to the main-line conductor.

4. The combination of a suitable support, a main-line conductor secured thereto, a ground-wire connection contiguous to said conductor, a lever mounted on said support, an audible electromagnetic signal having a ground-wire connection, a conductor between said lever and said signal and holding said lever yieldingly in engagement with said main-line conductor, a second lever pivoted to said support, a telephone having a return or ground wire connection, a conductor connecting the telephone with said second lever and holding the latter yieldingly away from the first-named lever, and means for causing the second lever to engage the first and establish communication between the main-line conductor and the telephone or to throw said first-named lever out of engagement with said conductor.

5. The combination with a suitable support, a main-line conductor secured to but insulated from said support, a second main-line conductor secured to but insulated from said support, a ground connection contiguous to said conductors, a lever mounted on but insulated from said support, a conductor holding said lever yieldingly against the first-named main-line conductor, a second lever mounted on but insulated from the support and having one arm in the path of the first-named lever, a conductor attached to the second lever and holding the same normally in contact with the second main-line conductor, and a cord attached to the first-named lever for the purpose of withdrawing the same from engagement with the first-named conductor and throwing it into engagement with the second lever and also for throwing the second lever out of engagement with its conductor.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES R. HARRIS.
CHARLES A. HARRIS.

Witnesses:
ETTA WHITESCARVER,
PLATT HUBBELL.