2 Sheets—Sheet 1.

A. PARIS & J. P. LANGE.

Signaling Apparatus for Telephones.

No. 213,929. **Patented April 1, 1879.**

Fig. 1.

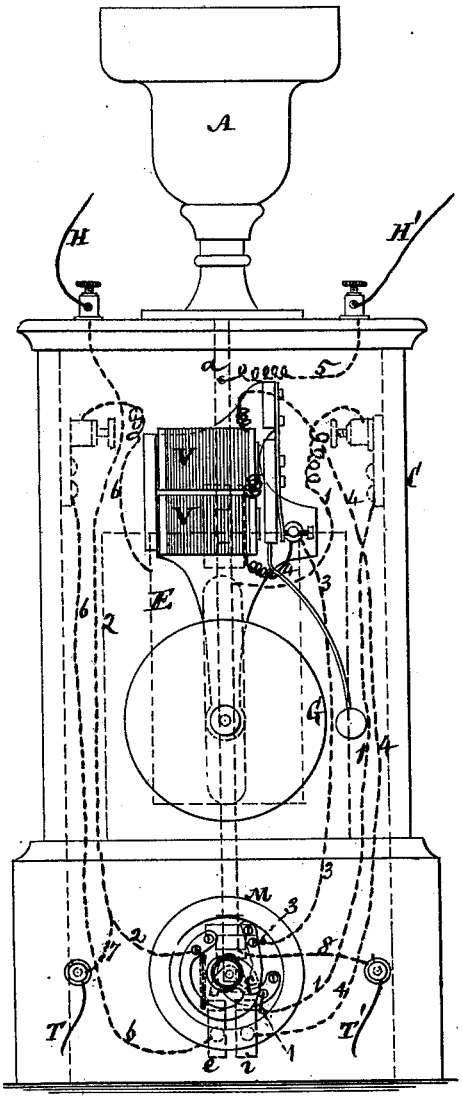
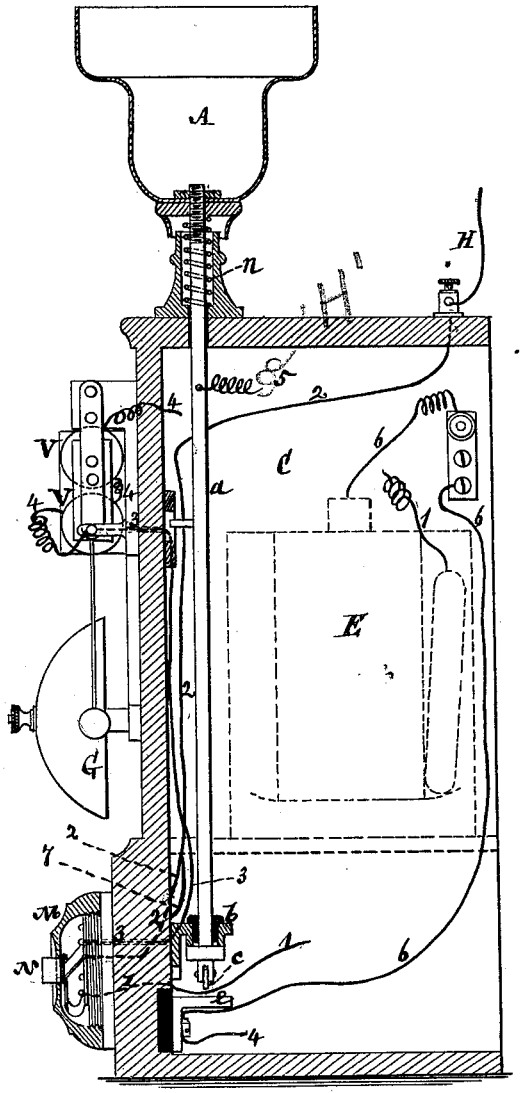


Fig. 2.



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2 Sheets—Sheet 2.

A. PARIS & J. P. LANGE.

Signaling Apparatus for Telephones.

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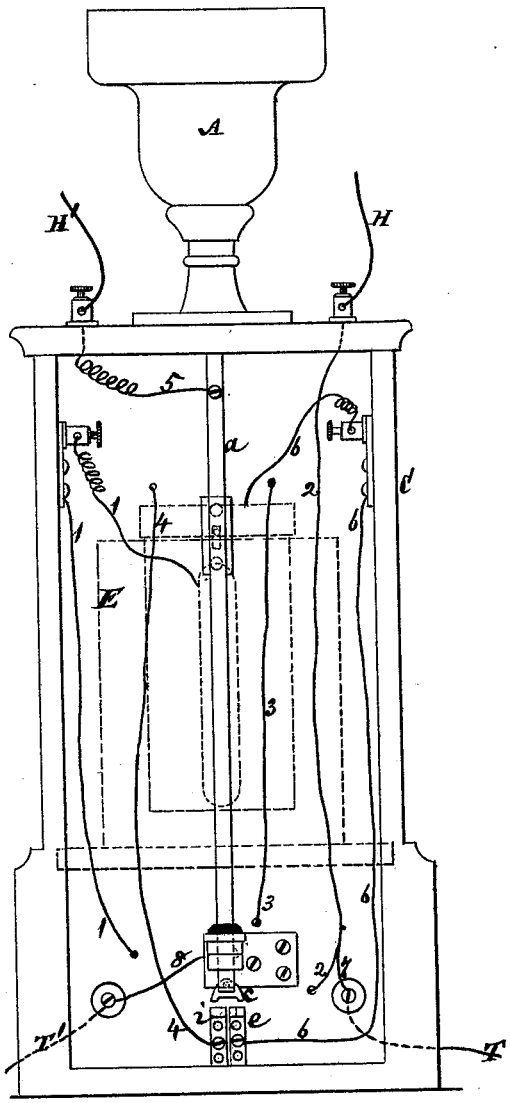
Fig. 3.



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UNITED STATES PATENT OFFICE.

ADOLPH PARIS AND JOHANN P. LANGE, OF HAMBURG, GERMANY.

IMPROVEMENT IN SIGNALING APPARATUS FOR TELEPHONES.

Specification forming part of Letters Patent No. **213,929**, dated April 1, 1879; application filed August 24, 1878.

To all whom it may concern:

Be it known that we, ADOLPH PARIS and JOHANN PETER LANGE, both of the city of Hamburg, Germany, have jointly invented certain Improvements in Signaling Apparatus of Telephones, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a novel signaling apparatus for telephones, whereby a simple and sure means is provided for signaling between stations to be put in telephonic communication without requiring a special wire between said stations for the purpose of signaling.

It consists in a special construction of a telephone-holder having an attached circuit-changer, in which the weight of the telephone is utilized for the purpose of signaling.

To signal between two stations each station is provided with an electric bell, which is automatically placed in line with the main wire or wires connecting said stations, and said main wire or wires converted for the time being into a signaling wire or wires by placing the telephones in or on a movable receiver or holder having an attached circuit-changer, so that the weight of said telephone changes the circuit, and by means of a signaling key or button causes the bell at the receiving end of the line to be sounded.

In the accompanying drawings, Figure 1 represents a front elevation of our improved apparatus having a rectilinearly-moving telephone-holder with attached circuit-changer for converting the main wires into signaling-wires; Fig. 2, a vertical section of the same in a plane at right angles to Fig. 1, and Fig. 3 a rear elevation thereof.

For signaling, a battery or special element is required, and in case of the distance between the stations being excessive relays should also be used.

Referring, in the first instance, to Figs. 1, 2, and 3 of the drawings, the apparatus there shown, and which, or a similar apparatus, is used at both stations, consists, in part, of a box or case, C, within or connected with which is an element or battery, E. Arranged on or connected with said case is the telephone holder or receiver A, which is in the form of a rising and falling cup having a lower rod or stem, *a*, and resting upon a spiral spring, *n*, which serves to keep the cup elevated. When the telephone is placed in said holder A, the rod *a* is forced down until its lower end, which is provided with a pivoted circuit changer or closer, *c*, comes in contact with duplicate metal plates *i e*.

G is the electric bell, and M a signaling-button. A Morse key may be used in the place of said button, if desired.

T T′ are the telephone-wires proper, and H H′ the main conducting-wires between the two stations.

The operation is as follows: When speaking, the position of the parts is as represented in Figs. 1, 2, and 3 of the drawings. The current passes from pole-wire 7 of the telephone at station 1, through wire 2, into the main conducting-wire H, and into the apparatus at station 2, from whence it passes, through the corresponding wires 2 and 7 of the apparatus, into the telephone at station 2, goes then to a wire, 8, and returns from thence, through the rod *a* and a wire, 5, at said station, and through the second main wire, H′, to wire 5 of station 1, and through wire 8 at the latter to the other pole-wire, T′, of the telephone at station 1.

When sending a message from station 2 to station 1, a similar or analogous operation takes place. The telephones are placed in the receivers or holders A during the time they are not required for speaking, whereby the signaling devices are constantly in communication with the main line or lines, and are only disconnected therefrom during the time of speaking or using the telephone.

When signaling, the operation is as follows: At both stations 1 and 2, the telephone-holders A and their rods *a* are pressed down by the weight of the telephones resting in or on said holders, and contact is established between the circuit-changer *c* and the plates *i e*. The rod *a* of each telephone-holder A passes through a bushing, *b*, of india-rubber or other non-conducting or insulating material.

To signal to station 2 from station 1, the movable stud N of the button M in the appa-

ratus at station 1 is pressed inward by hand. The current then goes from the element or battery E, through wires 1 and 2 and through the main wire H, to station 2, where it enters the apparatus at said station through the corresponding wire 2, and as the signaling-button M of the apparatus at station 2 is at rest, the current passes through a wire, 3, to the magnets V of the bell of the apparatus at said station. From said magnets the current goes to wire 4, plate *i*, into rod *a*, and to wire 5, and returns through the main wire H′ to station 1, where it enters the apparatus at said station through its wire 5, and reaches the other pole of the battery E through contact of the circuit-changer *c* with the plate *e*, and by the wire 6 into the battery.

To signal from station 2 to station 1, the electric current traverses in an analogous manner, but in a reverse direction, through the apparatus at the two stations and main wires connecting them.

When the stations are at a considerable distance apart, relays may be applied with advantage. This can be done in the following manner: The wires hereinbefore described as connected with the bell or its magnets are detached and connected to the electro-magnets of the relays, and the electric current from the relay-battery is led from one pole of the latter through the bell-magnets, which may be suitably connected with the other pole of said battery.

We are aware that the wires connecting telephones and their signals with the main wires connecting opposite stations have been connected with interposed circuit-changers controlled by the weight of the telephones and their movable holders, and that the circuit-changer has been arranged to be placed in contact with one screw-point by the influence of the telephone when not in use, and to be brought in contact with another screw-point when the circuit-closing spring is relieved from the influence of the telephone; and we do not claim such arrangements, broadly.

We claim—

The combination of the telephone-holder, consisting of the cup A, mounted upon the end of the vertically-movable spring-supported rod *a*, having a suitable bridge or circuit-changer attached thereto, and two metallic contact-plates connected with opposite terminals of an electric-signal circuit, and arranged in the path of said bridge or circuit-changer, substantially as and for the purpose set forth.

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JOHANN PETER LANGE.

Witnesses:
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