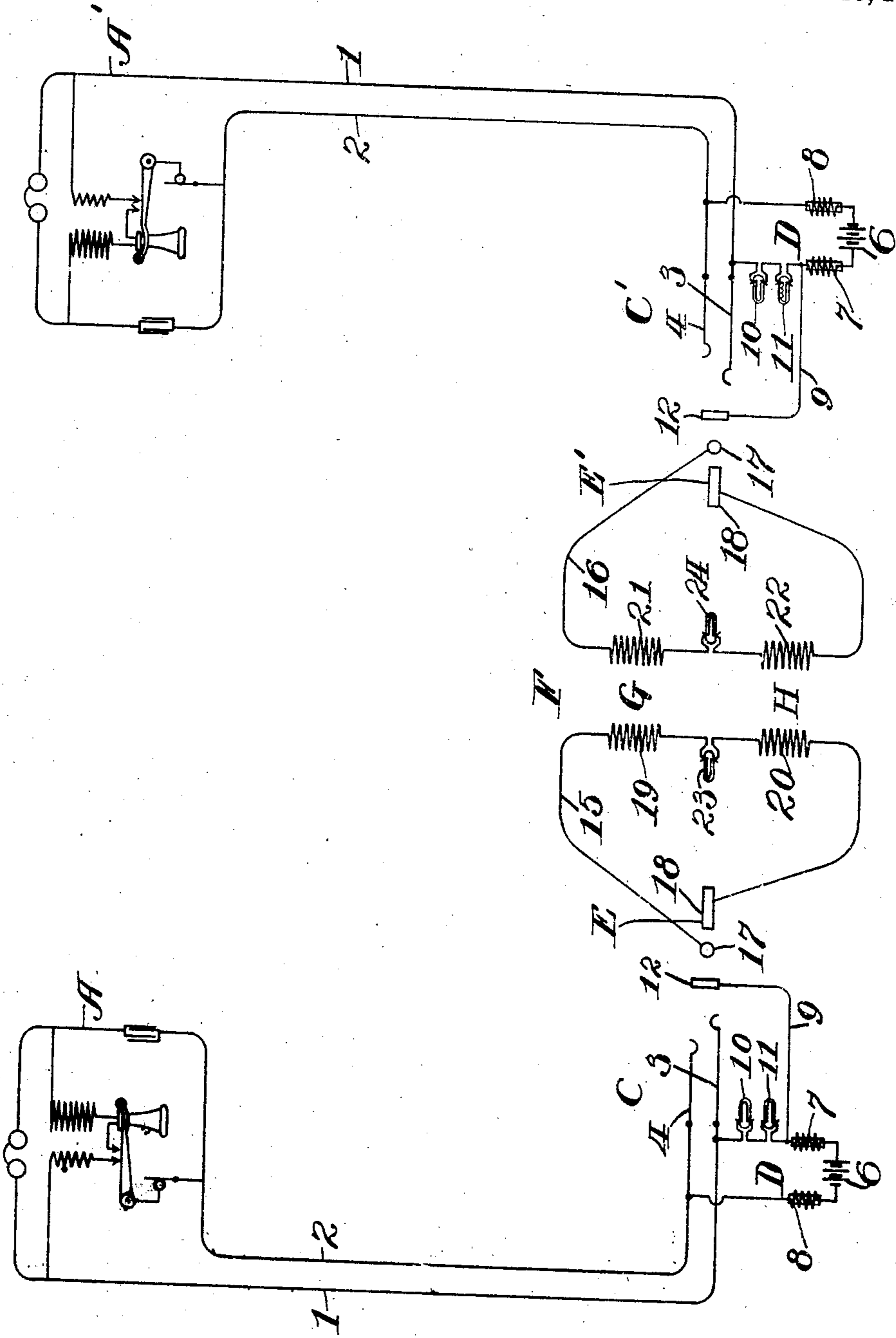


C. D. ENOCHS.
 APPARATUS FOR TELEPHONE LINES.
 APPLICATION FILED FEB. 1, 1907.

952,104.

Patented Mar. 15, 1910.



Witnesses
 W. E. Dichtschull
 J. R. Fischer.

Inventor:
 Claude D. Enoch,
 by: J. G. Prosser,
 Attorney.

UNITED STATES PATENT OFFICE.

CLAUDE D. ENOCHS, OF LA CROSSE, WISCONSIN, ASSIGNOR TO THE VOTE BERGER COMPANY, A CORPORATION OF WISCONSIN.

APPARATUS FOR TELEPHONE-LINES.

952,104.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed February 1, 1907. Serial No. 355,211.

To all whom it may concern:

Be it known that I, CLAUDE D. ENOCHS, a citizen of the United States, residing at La Crosse, in the county of La Crosse and State of Wisconsin, have invented a new and useful Improvement in Apparatus for Telephone-Lines, of which the following is a specification.

My invention relates to improvements in apparatus for telephone lines, and more particularly, although not exclusively to the operation of the supervisory circuit in which the signal lamp is controlled automatically when the receiver at the subscriber's station is hung up or taken down. In the system thus organized, signal lamps are connected in series with the windings of repeating coils in the supervisory circuit, and during conversation, the lines including the subscribers' sets shunt out the lamps which are lighted when the subscribers hang up their receivers.

This invention is applicable to various forms of telephone circuits in use and is shown applied to line circuits containing automatic ballasts.

The accompanying drawing, forming part of this specification is a diagrammatic view of my invention in which A—A' represent the usual sub-stations and 1 and 2 the lines leading to the central station where they terminate at the springs 3 and 4 of jacks C—C'. It will be understood that the spring jacks and the apparatus cooperating therewith are similar in construction and this description is equally applicable to either one or the other of the subscribers' circuits, described. The lines 1 and 2 include a loop D containing in series the line battery 6, impedance coils 7 and 8, line signal lamp 10 and an automatic ballast 11 such as described in my Patent No. 854,203 granted May 21st, 1907. A branch 9 of this loop is connected with the sleeve 12 of the jack.

The supervisory or cord plug circuit F is provided with lines 15 and 16 the terminals of each being connected one with the tip 17 and the other with the ring 18 respectively of each plug E—E'. The line 15 has connected therewith in series the windings 19 and 20, of repeating coils G and H and the line 16 also contains in series the windings 21 and 22 of said repeating coils. Between the windings in each line 15 and 16 are con-

nected respectively signal lamps 23 and 24. The ring 18 of each plug is sufficiently long to connect the spring 3 with the sleeve 12 when inserted in the jack, and is adapted to short circuit the signal lamp 10 in the line when the supervisory circuit is in use. The battery feed for the transmitters of the lines is obtained from the same source which operates the line signal lamps.

The operation of my system as described is as follows: Assuming that subscriber A desires to converse with subscriber A', he removes his receiver from the hook and thereby closes his line circuit. His line lamp 10 at the central office will thereupon be illuminated by a current flowing through the line from the battery 6. Upon perceiving the line signal, the subscriber's operator whose telephone set and ringing key are not shown, inserts the answering plug E in the jack C of the calling line and ascertains the number wanted. As soon as the plug E is inserted current flows through the cord plug circuit including the windings 19 and 20 of the repeating coils G and H and the supervisory signal lamp 23, the line signal lamp 10 being short circuited. The plug E' is then inserted in the jack C' and communication is established between the subscribers' sets through the repeating coils G and H, both supervisory lamps in the meantime being shunted out, for the resistance of the subscriber's circuit is low enough including all practical lengths of lines, to prevent the lamps from illuminating. When the receiver at either of the stations is hung up, the supervisory signal lamp connected with said station is illuminated as the shunt which affects the lamp is thus removed.

In accordance with the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. Apparatus for telephone lines, comprising, a cord plug circuit having a winding of a repeating coil and a signal lamp connected directly in series therein a plug

connected with said cord plug circuit and a subscriber's circuit containing a subscriber's set, a line jack connected with said subscriber's circuit having a sleeve, and a battery loop connected with said line circuit containing a line lamp and having a branch thereof connected with the sleeve of said jack; whereby the lamp in the cord plug circuit is shunted out and the line lamp in the loop of the subscriber's circuit cut out when the receiver of the subscriber's set is taken off of its hook and the cord plug inserted in the jack, and the signal lamp in the cord plug circuit illuminated when the receiver of the subscriber's set is hung upon its hook.

2. A telephone circuit including a subscriber's line jack, a cord plug circuit, a signal lamp in said cord circuit, a repeater having its windings connected with said cord circuit, a source of current supply con-

nected with said line, and a signal lamp and ballast connected with said current supply and the ring of said jack, for the purposes specified.

3. A telephone system, including a line circuit, a subscriber's set, a line jack, a cord plug circuit containing a winding of a repeating coil and a signal lamp and a battery loop connected with said line circuit and containing a line lamp and ballast and a branch thereof being connected with an independent terminal of said line jack, for the purposes specified.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CLAUDE D. ENOCHS.

Witnesses:

E. C. BREWER,
G. O. GUNDGUN.