

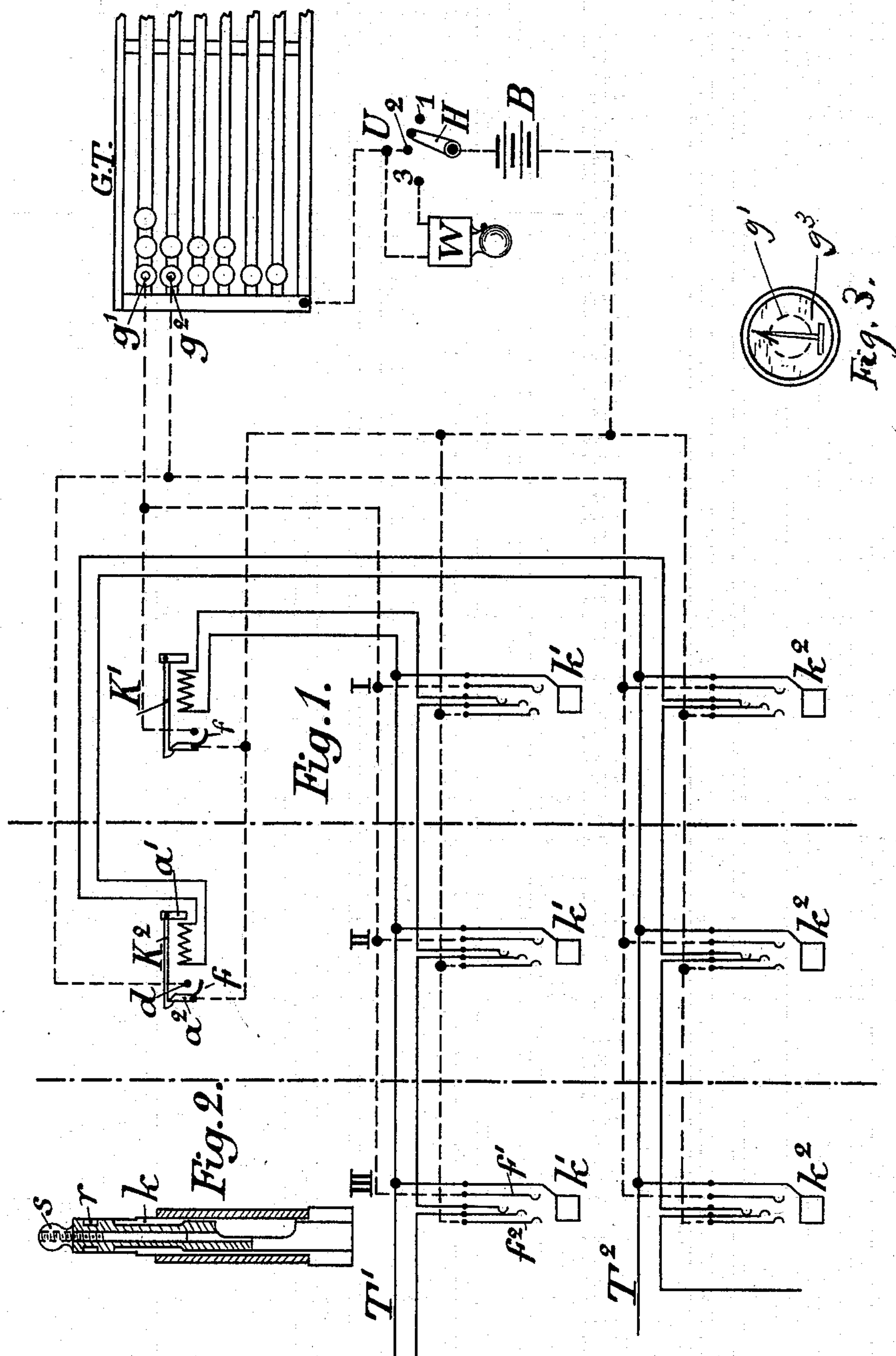
No. 612,219.

Patented Oct. 11, 1898.

J. H. WEST.  
TELEPHONE CENTRAL STATION APPARATUS.

(Application filed July 8, 1896.)

(No Model.)



WITNESSES:

J. E. Hutchinson Jr.  
J. S. Barker.

INVENTOR:

BY ATTORNEY: J. H. West  
H. N. Low



# UNITED STATES PATENT OFFICE.

JULIUS HENRIK WEST, OF BERLIN, GERMANY.

## TELEPHONE CENTRAL-STATION APPARATUS.

SPECIFICATION forming part of Letters Patent No. 612,219, dated October 11, 1898.

Application filed July 8, 1896. Serial No. 598,447. (No model.) Patented in France May 7, 1896, No. 256,178; in Switzerland June 4, 1896, No. 12,273; in England June 5, 1896, No. 12,344; in Hungary June 5, 1896, No. 7,863, and in Austria September 2, 1896, No. 46/3,390.

*To all whom it may concern:*

Be it known that I, JULIUS HENRIK WEST, a subject of the King of Denmark, residing at Berlin, in the German Empire, have invented a certain new and useful Telephone Central-Station Apparatus, (patented in England, No. 12,344, June 5, 1896; in France, No. 256,178, May 7, 1896; in Austria, No. 46/3,390, September 2, 1896; in Hungary, No. 7,863, June 5, 1896, and in Switzerland, No. 12,273, June 4, 1896;) 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.

This invention has for its object to provide an improved apparatus for the simplification of the working of telephone-stations in which each line can be engaged at several points—that is, at either section of a multiple switchboard—so that it is necessary to have means whereby the operator, before connecting a line, can ascertain whether the said line is possibly already engaged.

On the accompanying drawings, Figure 1 shows a diagram of my system. Fig. 2 is a longitudinal section of a switch-plug, and Fig. 3 is a front view of a lamp-chamber.

Two subscribers' lines  $T^1$  and  $T^2$  are shown running through three multiple switchboards I II III of a station. To the right hand is a glow-lamp board G T, consisting of a framing formed of metal bars effectually insulated from earth. A number of glow-lamps  $g^1 g^2$ , corresponding to the number of subscribers, are fixed on the base in such manner that the one pole thereof is in conducting connection with the bar, while the other pole is connected to an insulated contact  $d$  of the corresponding indicator and with the spring  $f^1$  of the jack of the same number. The glow-lamps  $g^1 g^2$  can be so arranged that they illuminate a transparent plate  $g^3$  from behind, which carries on the back surface the subscriber's number. This is then visible so long as the lamp glows, but disappears as soon as it is extinguished. The battery B is connected with the lever H of the switch U. If H is situated on contact 1, B is out of circuit. If H is on 2, on the other hand, B is directly

connected to the glow-lamp. The night call-bell W is introduced if H is turned on to contact 3.

Generally H is on contact 2. As will be readily seen in Fig. 1, the lamp  $g^1$  will light up as soon as the shutter of annunciator  $K^1$  falls at the call of a subscriber, as the spring  $f$  bears against the contact  $d$ , thereby closing the circuit from the lamp  $g^1$  to the battery B, causing the lamp to glow. If the operator then introduces the plug  $s$  (shown at Fig. 2) of the connecting-cord into the jack  $k^1$  of the switchboard I, the ring  $r$  of the plug will effect the closing of a second circuit, through the springs  $f^1$  and  $f^2$ , to the battery from the lamps  $g^1$ . Consequently when the operator raises the shutter of annunciator  $K^1$  again the lamp will continue to glow as long as the plug remains in the jack  $k^1$ . If a subscriber—for instance,  $T^2$ —is called, his glow-lamp  $g^2$  will light up at the moment when a plug is inserted in one of his jacks  $k^2$ , and it will continue to glow until the plug is withdrawn—i. e., as long as the line is occupied.

It will be seen that there are two circuit-controlling devices for the circuit of each lamp at the section of the multiple switchboard at which the corresponding telephone-line has an annunciator—namely (1) at such annunciator, and (2) at the spring-jack of said telephone-line; but at each other section of the multiple switchboard the circuit of said lamp has a single controlling device only—namely, at the spring-jack of the same telephone-line—and consists of springs  $f^1 f^2$  and ring  $r$  of a switch-plug.

The glow-lamp board is so arranged that it can be readily seen from all the switchboards, so that each operator can see at a moment from the lamp-board when a connection is desired whether the required line is engaged or not. In large stations several of such lamp-boards may be provided.

It will be evident that the converse arrangement could be adopted, whereby on the falling of the shutter and on inserting a plug the lamp-circuit is interrupted, so that the lighting up of the lamp then indicates that the line is free and the extinguishing thereof that the line is engaged.



Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

5 1. The combination of telephone - lines, spring-jacks therefor at several switchboards to which the lines are connected, an annunciator for each line and normally connected therein, a visual indicating-signal for each  
10 line, one terminal of each indicating-signal being normally connected to a source of electricity, the other terminal being connected to two circuit-controlling devices, one controlled by the operation of an annunciator;  
15 the other forming a part of a spring-jack, being controlled by insertion of a plug in said jack.

2. The combination, with subscribers' lines, multiple switchboards each having a jack for  
20 each line, annunciators normally connected in said lines, switch plugs and cords for connecting different spring-jacks, visual signals, as glow-lamps, for indicating lines that are in use, circuit connections for the visual sig-  
25 nals, means operated by the falling of either of said annunciators to operate the corresponding visual signal, means at the spring-jacks and operated by inserting the plugs for operating, or maintaining the operation, of  
30 said visual signals independently of said annunciators.

3. The combination of telephone - lines, multiple switchboards therefor, there being a

spring-jack at each board for each line, a calling-annunciator for each line at one of the  
35 boards, a single electric indicating-lamp for each line to show whether the lines are busy or free, said lamps being massed separate from the spring-jacks in sight from all the  
40 sections of said multiple switchboard, circuits for said lamps, circuit-controlling contacts or circuit-closers operated by the annunciators, and circuit-closing springs therefor operated by insertion of a plug in a jack.

4. The combination of telephone - lines, 45 multiple switchboards therefor, there being a spring-jack at each board for each line, a calling-annunciator for each line at one of the boards, a single electric indicating-lamp for each line to show whether the lines are busy 50 or free, said lamps being massed separate from the spring-jacks in sight from all the sections of said multiple switchboard, two independent circuit-controlling devices for the circuit of each lamp at one section of the 55 switchboard and one circuit-controlling device for the same circuit at each other section, and numbers corresponding to the jacks illuminated by said lamps.

In testimony whereof I have affixed my signature in presence of two witnesses. 60

JULIUS HENRIK WEST.

Witnesses:

MAX WAGNER,  
E. KOLLINER.