O. M. LEICH & N. PEDERSEN.

SWITCHING DEVICE.

APPLICATION FILED JUNE 19, 1908.

956,377. **Patented Apr. 26, 1910.**

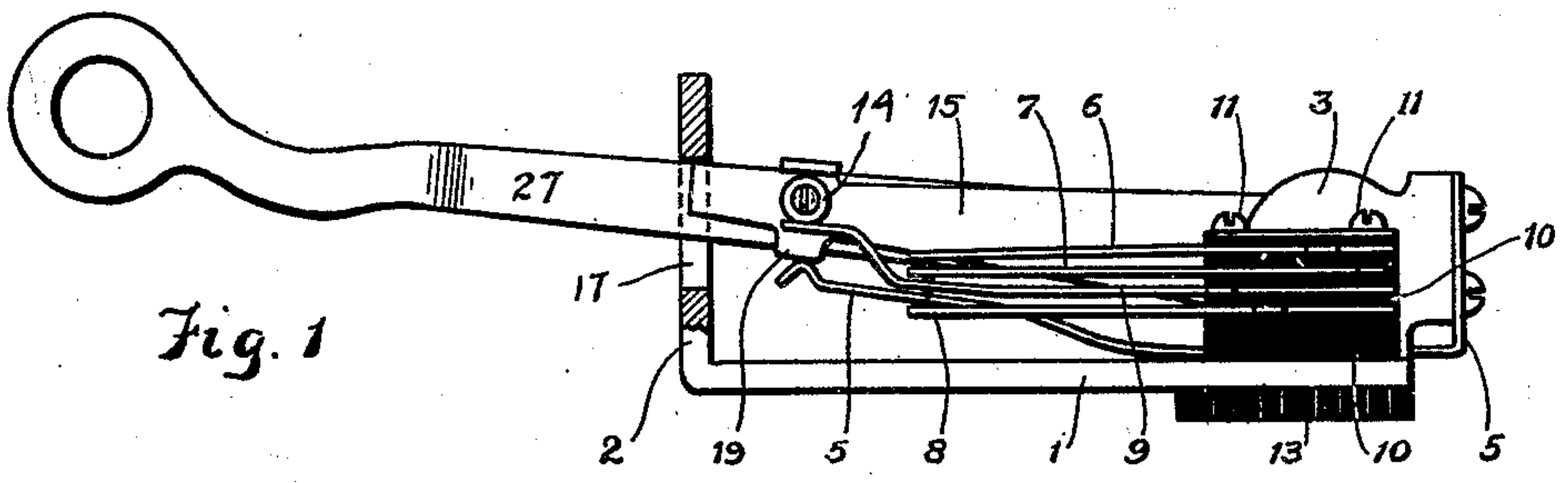

Fig. 1

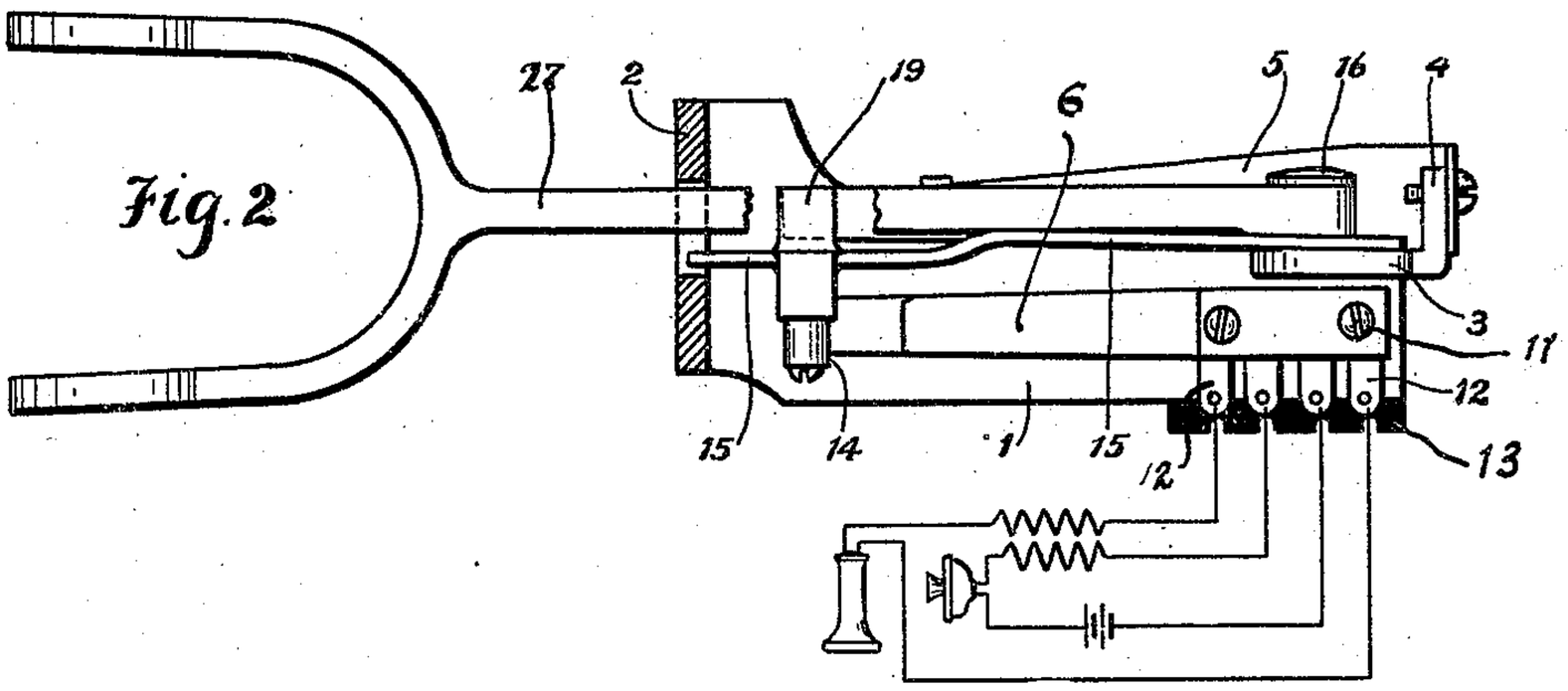

Fig. 2

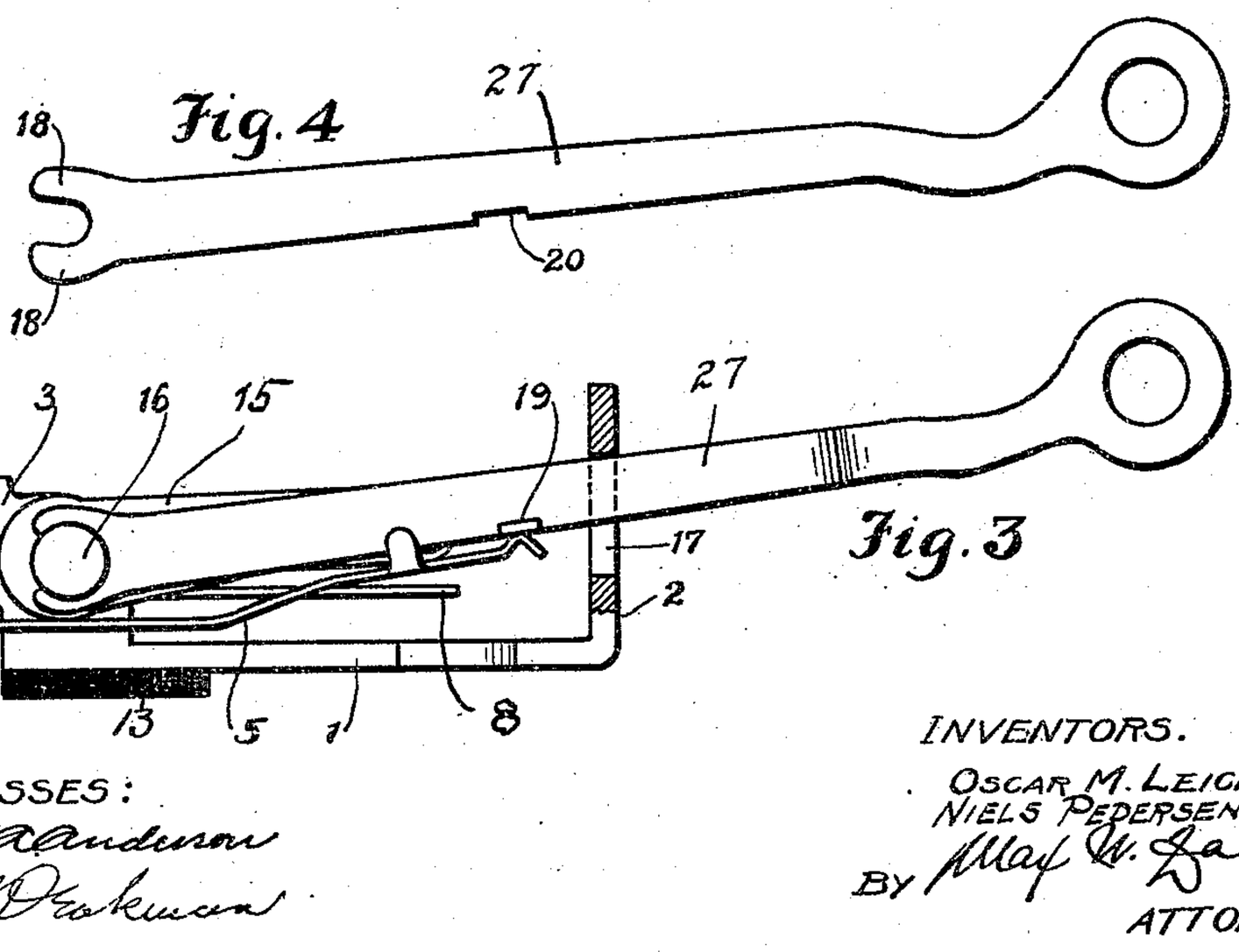

Fig. 4

Fig. 3

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SWITCHING DEVICE.

956,377. Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed June 19, 1908. Serial No. 439,307.

To all whom it may concern:

Be it known that we, OSCAR M. LEICH and NIELS PEDERSEN, citizens of the United States, residing at Genoa, in the county of Dekalb and State of Illinois, have invented a certain new and useful Improvement in Switching Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to switching devices, and has for its object the provision of new and improved means for the construction of switching devices used more particularly in connection with telephone instruments, designated as switch hooks.

Our invention is more particularly designed for the use in telephone instruments where it is adapted to hold the receiver, and where the springs, or switch contacts in said switching devices are operated through the agency of such receiver.

We will describe our invention more in detail by reference to the accompanying drawing illustrating the preferred embodiment thereof, in which—

Figure 1 is a side view of our improved switch-hook, Fig. 2 a top view thereof, Fig. 3 a side view of said switch-hook, looking at it from the opposite side to that in Fig. 1, and Fig. 4 shows our removable lever.

We provide an improved mounting plate, 1, having an up-turned flange, 2, at one end and an up-turned flange, 3, at the other end, the up-turned flange 3 has a transversely extending flange, 4, on which a suitable spring, 5, whose purpose is to be more fully explained later, is mounted. On the mounting plate, 1, are provided contact springs 6, 7, 8, and 9 which make the various interconnections with the telephone apparatus, which interconnections our improved switch-hook is designed to effect. These springs are suitably insulated by means of rubber or other insulation strips 10, 10, and are held in place by means of screws 11, 11. The springs 6, 7, 8 and 9 are provided with connecting clips 12, which are alined vertically over an additionally insulated plate 13, screwed to the lower portion of said base plate, so that the switch-hook may be mounted to the side of any suitable cabinet, and the wires be brought from said contact clips 12, downwardly, and thereby be suitably guided by the recesses in said insulated plate 13. Contact spring 9 is extended beyond the contact springs 6, 7 and 8, and is engaged by roller 14 rotatably mounted upon an arm 15. The arm, 15, is rotatably mounted through the agency of a bolt, 16, on the up-turned flange, 3, of the base plate, 1. A longitudinal recess, 17, is provided in the up-turned flange, 2, of the base, 1, and the arm, 15, is so mounted that its upward and downward motion, at its left hand extremity, referring to Fig. 1, is limited by the confines of the longitudinal recess, 17. It will thus be seen that an upward and downward motion of the arm, 15, raises or depresses contact spring, 9, and when the arm 15 is in its elevated position, contact spring 9 closes circuit with springs 6 and 7, and when said arm 15 is in its depressed position, it is depressing contact spring 9, so that it no longer closes circuit through itself and springs 6 and 7, but closes circuit between itself and spring 8.

The switch-hook, including the base plate and its springs are always in their correct operating position due to the construction of the arm 15, as said arm 15, due to its confined motion, limits the position which the springs may occupy. The arm 15, therefore, governs the motion of said springs. The switch-hook lever, 27, is provided at one extremity with flaring ends so as to properly hold a telephone receiver, and is provided with arms 18, 18 at its other extremity which form a slot that engages with the bolt 16, around which, set lever, 27 may oscillate. The switch-hook lever when in place on said bolt, 16, is engaged by a catch, 19, which protrudes from the arm, 15, and is caught in a little recess, 20, provided upon said hook lever. When this switch-hook is mounted in a case with the flaring receiver holding end of said switch-hook lever protruding through the case, it is impossible to remove the switch-hook lever from its mounting without getting into the case and exerting pressure against the arm, 15, to release the catch 19 from the slot 20, after which the switch-hook lever may be easily removed from engagement with the bolt, 16. It will thus be seen that the switch-hook lever has an auxiliary lever, the arm 15, which auxiliary lever actuates the springs and which auxiliary lever at the same time locks the switch-hook lever, 27, in position, and likewise limits the upward and downward move-

ment of the springs, whether the switch-hook lever is in place or not. The spring, 5, mentioned heretofore, which is mounted upon the flange 4, presses against the catch 19, and exerts an upward pressure so that the switch-hook springs are normally in the position as shown in the illustrations, their circuit conditions being only changed when pressure is exerted on the flaring end of the switch-hook lever sufficiently to overcome the tension of the spring 5, and press said lever down against said spring action.

We have herein described the preferred embodiment of our invention, but do not wish to limit it to the precise construction and arrangement shown, but

Having thus described the salient features thereof, what we claim as new and desire to claim by Letters Patent is:—

1. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips said springs being mounted one on top of the other, and said clips being displaced lengthwise of said springs to register with said grooves, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, and a switch-hook lever for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever.

2. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips said springs being mounted one on top of the other, and said clips being displaced lengthwise of said springs to register with said grooves, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, a switch-hook lever for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever, and a locking device provided upon said auxiliary lever to hold the said switch-hook lever in place.

3. A telephone switch-hook comprising a base and switching springs suitably mounted thereon, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, a rectangular extension provided upon said base for limiting the oscillatory movement of said auxiliary lever, a switch-hook lever passing through said rectangular extension for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever a device for engaging springs to be operated, mounted on said auxiliary lever on a portion thereof between its mounting and said rectangular extension.

4. A telephone switch-hook comprising a base and switching springs suitably mounted thereon, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, a rectangular extension provided upon said base for limiting the oscillatory movement of said auxiliary lever, a switch-hook lever passing through said rectangular extension for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever, a device for engaging springs to be operated, mounted on said auxiliary lever on a portion thereof between its mounting and said rectangular extension, and a locking device provided upon said auxiliary lever to hold the said switch-hook lever in place.

5. A telephone switch-hook comprising a base and switching springs suitably mounted thereon, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, a rectangular extension provided upon said base for limiting the oscillatory movement of said auxiliary lever, a switch-hook lever passing through said rectangular extension for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever, a roller for engaging springs to be operated, mounted on said auxiliary lever on a portion thereof between its mounting and said rectangular extension.

6. A telephone switch-hook comprising a base and switching springs suitably mounted thereon, an auxiliary lever rotatably mounted on said base for effecting when oscillated circuit changes in said switching springs, a rectangular extension provided upon said base for limiting the oscillatory movement of said auxiliary lever, a switch-hook lever passing through said rectangular extension for receiving a subscriber's telephone receiver, rotatably mounted alongside said auxiliary lever to operate said auxiliary lever, a roller for engaging springs to be operated, mounted on said auxiliary lever on a portion thereof between its mounting and said rectangular extension, and a locking device provided upon said auxiliary lever to hold the said switch-hook lever in place.

7. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips, said springs being mounted one on top of the other, and said clips being

displaced lengthwise of said springs to register with said grooves, an auxiliary rotatable lever mounted on said base associated with a free end of one of said switching springs to effect circuit changes, and a rotatable switch-hook lever mounted alongside said auxiliary lever upon said base to operate said lever.

8. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips, said springs being mounted one on top of the other, and said clips being displaced lengthwise of said springs to register with said grooves, an auxiliary rotatable lever mounted on said base associated with a free end of one of said switching springs to effect circuit changes, a rotatable switch-hook lever mounted alongside said auxiliary lever upon said base to operate said lever, and a locking device on said auxiliary lever to lock said switch-hook lever in the base.

9. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips, said springs being mounted one on top of the other, and said clips being displaced lengthwise of said springs to register with said grooves, an auxiliary rotatable lever mounted on said base associated with a free end of one of said switching springs to effect circuit changes, a rotatable switch-hook lever mounted alongside said auxiliary lever upon said base to operate said lever, a locking device on said auxiliary lever to lock said switch-hook lever in the base, and a spring for normally holding the auxiliary lever in a predetermined position.

10. A telephone switch-hook comprising a base and switching springs having connecting clips suitably mounted thereon, a strip of insulation mounted on said base having grooves adapted to guide connecting wires to said clips, said springs being mounted one on top of the other, and said clips being displaced lengthwise of said springs to register with said grooves, an auxiliary rotatable lever mounted on said base associated with a free end of one of said switching springs to effect circuit changes, a rotatable switch-hook lever mounted alongside said auxiliary lever upon said base to operate said lever, a locking device on said auxiliary lever to lock said switch-hook lever in the base, a spring for normally holding the auxiliary lever in a predetermined position, and means provided upon said base for limiting the movement of said auxiliary lever.

In witness whereof, we hereunto subscribe our names this 31st day of March, A. D. 1908.

OSCAR M. LEICH.
NIELS PEDERSEN.

Witnesses:
MAX W. ZABEL,
O. M. NEMID.