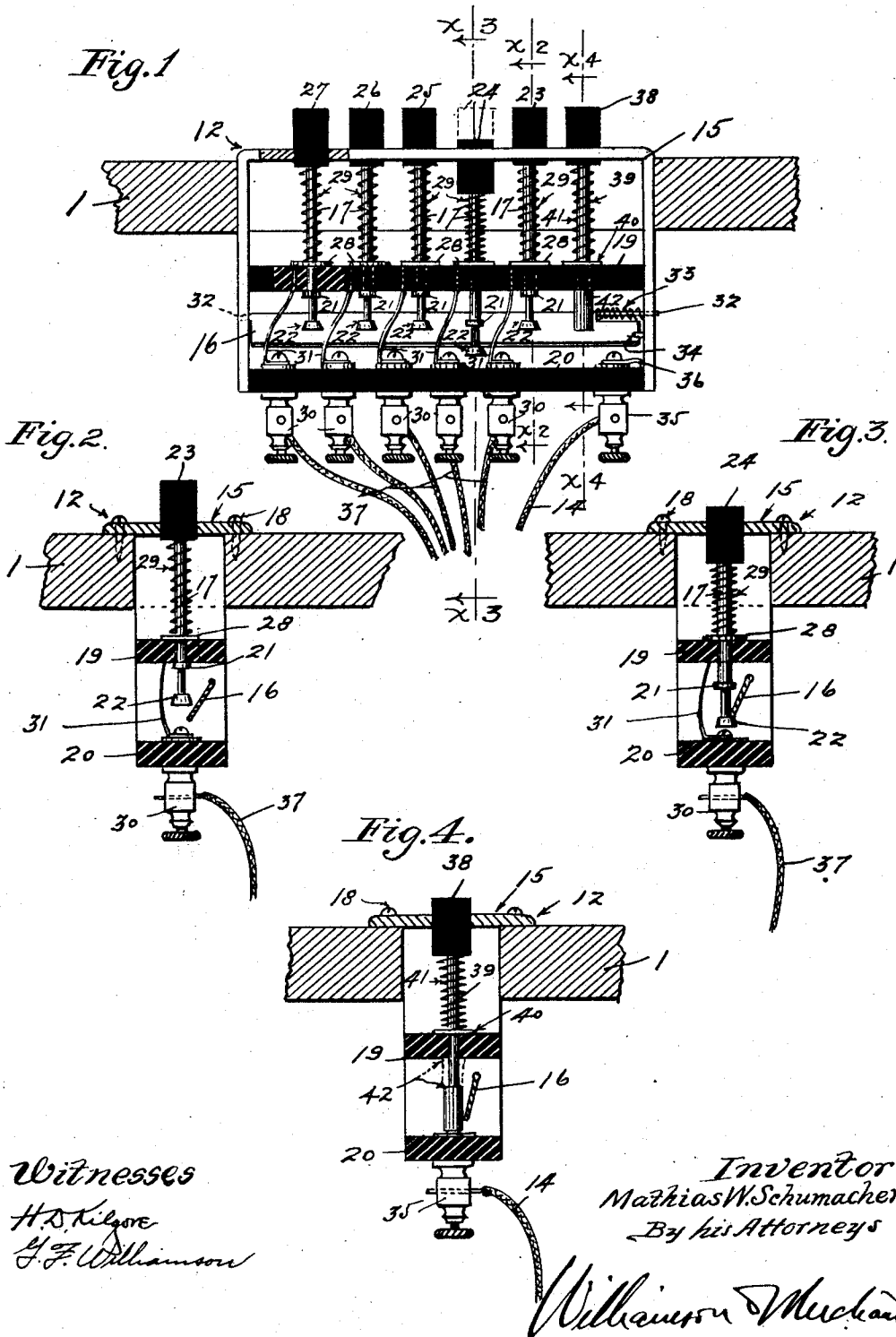


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SELECTIVE SWITCH FOR TELEPHONE AND TELEGRAPH SYSTEMS.
APPLICATION FILED DEC. 24, 1915.

1,319,307.

Patented Oct. 21, 1919.

2 SHEETS—SHEET 1.



Witnesses

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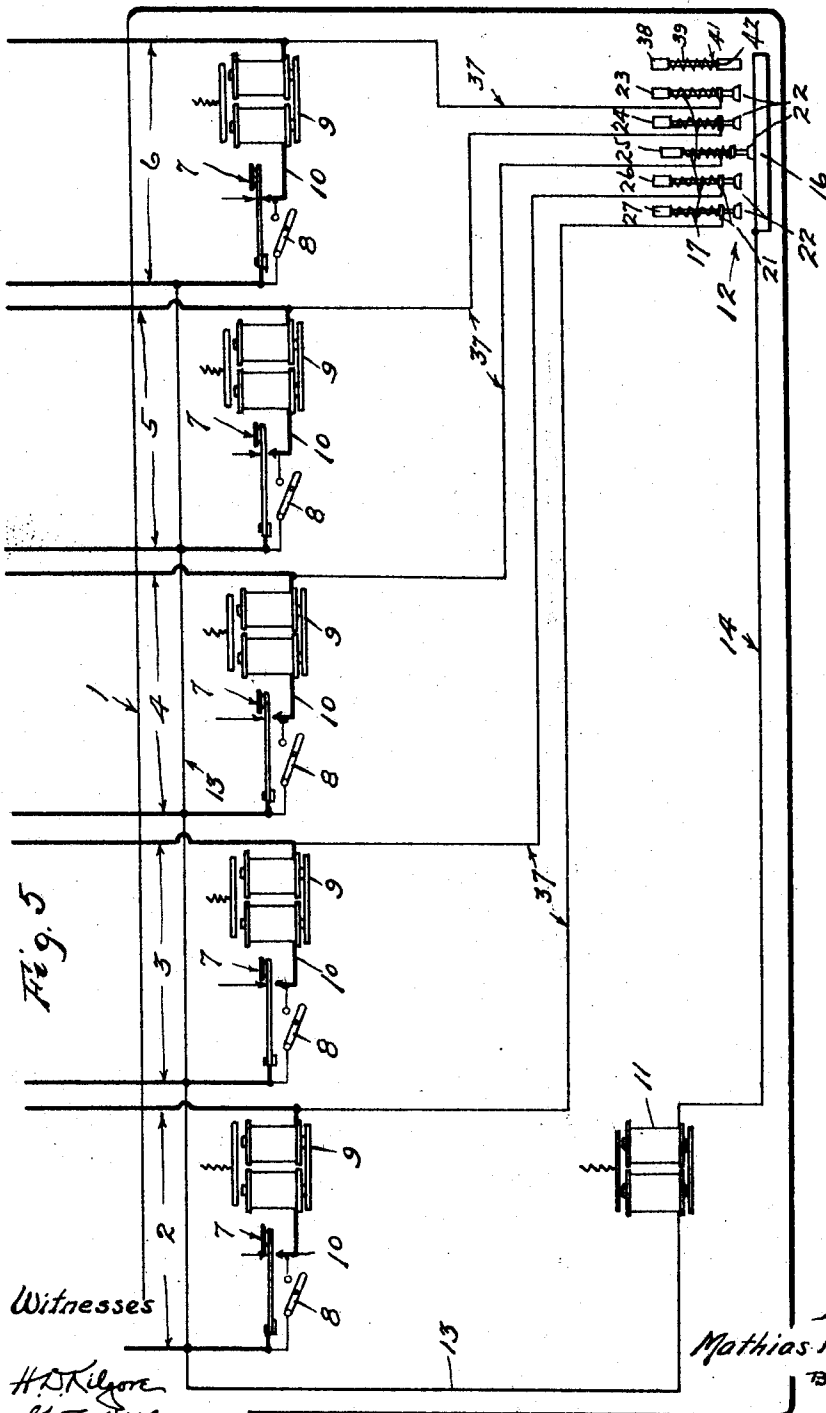
Inventor
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UNITED STATES PATENT OFFICE.

MATHIAS W. SCHUMACHER, OF ODANAH, WISCONSIN.

SELECTIVE SWITCH FOR TELEPHONE AND TELEGRAPH SYSTEMS.

1,319,307.

Specification of Letters Patent.

Patented Oct. 21, 1919.

Application filed December 24, 1915. Serial No. 68,570.

To all whom it may concern:

Be it known that I, MATHIAS W. SCHUMACHER, a citizen of the United States, residing at Odanah, in the county of Ashland and State of Wisconsin, have invented certain new and useful Improvements in Selective Switches for Telephone and Telegraph Systems; 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.

My invention relates to improvements in selective table switches, used in connection with the instruments of telegraph or other message transmitting and receiving systems. As is well known, offices having a plurality of such instruments, usually have a local receiving instrument or resonator, which may be "cut" into any one of the main lines, at will, and used in place of the main line resonator. These local resonators are for the purpose of enabling an operator to hear more plainly and are customarily mounted on swinging brackets, which permit the instruments to be set in different positions close to the operator's ear.

To the above end, the invention consists of the novel devices and combinations of devices, hereinafter described and defined in the claim.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is a view, principally in side elevation, of the improved selective table switch;

Figs. 2, 3 and 4 are views, principally in transverse vertical section, taken on the lines $x^2 x^2$, $x^3 x^3$ and $x^4 x^4$ of Fig 1, respectively; and

Fig. 5 is a view, in diagram, showing the invention incorporated in a telegraph system.

The numeral 1 indicates a table or other support over which run, as shown, five main line wires, 2, 3, 4, 5 and 6 of the telegraph system. In each main line wire is a gap and the wire on one side of the gap is attached to one of the binding posts of a transmitting instrument 7, commonly called a "key" and having the customary switch 8, by which the circuit through the "key" may be closed or broken, at will. The main line

wire on the other side of the gap is attached to one of the binding posts of a receiving instrument 9, commonly called a "sounder". A short wire 10 connects the other two binding posts of the "key" and "sounder". When the "key" 7 of one of the main line wires is in use, the respective switch 8 is open and the circuit is normally broken through said "key". When said "key" is not in use, the circuit to the "sounder" 9 is closed by the switch 8. For the purpose of this case it is not thought necessary to illustrate the batteries, relays, etc.

Mounted on the table top 1, is a local "sounder" 11 arranged to be "cut" into any one of the main line wires by a selective table switch 12. A wire 13 connects all of the main line wires, on the side of the gaps on which the "keys" 7 are connected, to one of the binding posts of the local "sounder" 11. The other binding post of the local "sounder" 11 is connected by a wire 14 to the selective switch 12.

The selective switch 12 comprises a frame 15, a common contact 16 and a plurality of selective contacts 17. The frame 15 is in the form of a yoke, with its transverse portion resting on the top of the table top 1, secured thereto by screws 18 and with its prongs extending through an aperture formed in said table top. Vertically spaced flat bars 19 and 20 extend between the prongs of the frame 15 and are rigidly secured thereto. The selective contacts 17 are in the form of stems mounted for vertical sliding movement in the top bar 19. On the lower depending portion of each selective contact 17 is a stop collar 21 and a lock shoulder 22. Finger pieces 23—27 inclusive are secured, one to the upper end of each selective contact 17 and work slidably through apertures formed in the transverse portion of the frame 15. Surrounding each selective contact 17 and having engagement therewith, is a washer 28, which rests upon the top bar 19. A coiled spring 29 surrounds each selective contact 17 and is compressed between its respective finger piece and washer. For each selective contact 17 is a binding post 30. These binding posts 30 are connected to the washers 28 of the respective selective contact 17 by short wires 31.

The common contact 16 is in the form of a flat oscillatory blade located at one side of the selective contacts 17 and having at its ends, trunnions 32 alined with the upper

longitudinal edge of said blade and journaled in the prongs of the frame 15 between the bars 19 and 20. The lower or free longitudinal edge of the contact 16 extends under, and in the path of movement of the selective contacts 17 and is held in this position by the coiled spring 33 on one of the trunnions 32. One end of this spring 33 is anchored to the frame 15 and the other end thereof is anchored to the contact 16. A stop 34 on the frame 15 is engaged by the contact 16 which limits the swinging movement of said contact under the action of the spring 33. The frame 15, contacts 16 and washers 28 are all made from suitable conducting material and the bars 19 and 20 and the finger pieces 23—27 inclusive, are all made from suitable insulating material and insulate the selective contacts 17 from each other and from the common contact 16.

As previously stated, the wire 14 is attached to the common contact 16 and this is accomplished by securing the same to a binding post 35 on the bottom bar 20 and connecting said binding post 35 by a short wire 36 to the metallic frame 15 and, hence, through said frame to the common contact 16. The stop collars 21 limit the lifting movement of the selective contacts 17 by their engagement with the bar 19. Each binding post 30 is connected by a wire 37 to one of the main line wires, on the side thereof to which the respective "sounder" 9 is connected. When one of the selective contacts 17 is pressed down by its finger piece, as shown, the finger piece 24, in Fig. 1, the common contact 16 is first moved thereby in one direction to allow the respective lock shoulder 22 to pass the same and then moved by the springs 33 in a reverse direction to carry said common contact 16 into the path of movement of said lock shoulder to hold the respective selective contact depressed. Obviously, the wires 13, 14 and 37 form a local branch circuit. With the finger piece 24 depressed and the switch 8 of the main line wire 4 open, a message coming over said main line wire is shunted around the respective "sounder" 8 and received through the local "sounder" 11. When a second selective contact 17 is depressed, the common contact 16 is again moved, thereby, releasing the held selective contact 17 and locking the second one depressed. In this manner, only one of the selective contacts 17 is held, at one time, by the common contact 16 and

hence, only one of the main line circuits is connected to the local "sounder" 11, at a time.

A finger piece 38 having a depending stem 39 is provided for moving the common contact 16 to release a held selective contact 17. This finger piece 38 and its stem 39 are mounted in the same manner as the selective contacts 17, and said stem works through a washer 40 on the bar 20. A coiled spring 41 compressed between the finger piece and washer 40 holds said finger piece lifted. The lifting movement of the finger piece 38 under the action of the spring 31 is limited by a stop shoulder 42, on the stem 39, which engages the bar 19. The stem 39 is identical with the respective contacts 17, except that it does not have a lock shoulder, and when depressed, to move the common contact 16, does not have any interlocking engagement therewith.

To give the common contact 16 sufficient movement to positively release a held contact 17, the contacts 17, from their lock shoulders 22 to their lower extremities, are made flaring to increase their diameters over the lock shoulders 22. As one of the selective contacts 17 is depressed, the contact 16 is moved thereby out of engagement with the lock shoulder 22 of a held contact 17 and owing to the shape of the lower extremity of the released contact 17, the same will readily move upward out of engagement with the contact 16, under the action of the spring 29.

What I claim is:—

A switch comprising a plurality of independently movable selective contacts, yielding means for holding said contacts raised, an oscillatory yieldingly held common contact blade having an oblique surface normally extending in the path of movement of said contacts and arranged to be engaged thereby when said contacts are depressed and moved out of their path of movement, each of said contacts having a lock shoulder arranged to be engaged by said blade when depressed and held thereby, and means independent of the selective contacts for actuating the common contact blade to release a held selective contact and permit said blade to return to normal position.

In testimony whereof I affix my signature in presence of two witnesses.

MATHIAS W. SCHUMACHER.

Witnesses:

D. J. McMAHON,

ANNA K. FINSTAD.