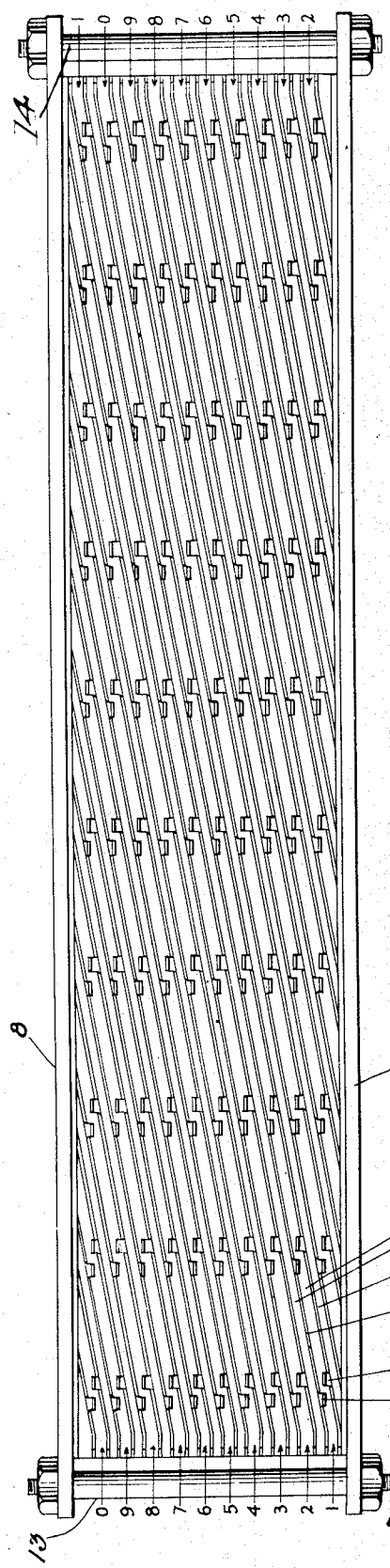
H. P. CLAUSEN.

TELEPHONE EXCHANGE SYSTEM.

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1,279,842.

Patented Sept. 24, 1918.



Inventor:
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UNITED STATES PATENT OFFICE.

HENRY P. CLAUSEN, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TELEPHONE-EXCHANGE SYSTEM.

1,279,842. Specification of Letters Patent. Patented Sept. 24, 1918.

Application filed October 29, 1917. Serial No. 199,036.

To all whom it may concern:

Be it known that I, HENRY P. CLAUSEN, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Telephone-Exchange Systems, of which the following is a full, clear, concise, and exact description.

This invention relates to improvements in contact or terminal banks for selector switches utilized in automatic and semi-automatic telephone exchange systems, and particularly in contact banks of the so-called flat or panel type, such as the one described in Patent No. 1,127,741 of Feb. 9, 1915, to W. F. Dixon.

In the operation of telephone systems in which the selector switches are arranged to automatically hunt for an idle one of a plurality of subscribers' or trunk lines, it was found desirable to provide an arrangement whereby the selector switches will hunt over line or trunk terminals in varying numerical order. As well known to those skilled in the art, the advantages of this arrangement consist in this, that the danger of overloading any one trunk or group of trunks is reduced to a minimum, and the speed at which a switch will find an idle line or trunk is increased.

To attain the aforementioned result, it has been proposed to interconnect or multiple between the various selector switches, contacts of various locations. Such an arrangement is described in Patent No. 831,876 of Sept. 25, 1906, to W. E. Keith, and is frequently referred to as the "slipping of the multiple." Selectors of the type described in this patent to Keith (rotary type) are provided with individual contact banks. The multiple connections between the corresponding contacts of the various banks are established by means of wires formed in cables and suitably arranged on the frame carrying the contact banks. The wires are soldered to the rear ends of the contact points.

In panel type selector switches a plurality of selector switches are provided with a common contact bank. The multiple connection between corresponding contacts in the various switches are established by means of strips of conducting material, the contact points being integral parts of these strips. In view of the fact that in panel type switches the multiple connections are not established by means of wires which may be readily soldered to any desired contact points, but are built into the terminal banks, the "slipping" of the multiple connections presents difficulties which have not been solved heretofore.

It is the object of the present invention to provide a panel type contact bank into which the "slipped" multiple connections are built. This is attained by arranging the strips diagonally rather than horizontally with respect to the line of travel of the various selector switches of the supporting frame, whereby the location of contact points forming integral parts with one and the same strip will be different with respect to the movable contacts or wipers of the various selector switches serving the common bank.

In the drawing, a front elevation of the contact bank is shown. A plurality of metal strips of different lengths such as 10 and 11 are separated from one another by insulating strips such as 12. Ears or lugs 15 and 16 that serve as contacts points are stamped out of the metal strips in any required number or at any required distances. The strips are held between clamping plates 8 and 9 by means of bolts 13 and 14 insulated from the plates 8 and 9. The metal strips and their associated insulating strips are angularly placed with respect to the clamping plates 8 and 9. The ears of two adjacent strips form one set of contacts and are bent so that they lie in horizontal planes in order to make possible their simultaneous engagement by wipers of the selector switches which travel in an upward direction.

As will appear from an inspection of the drawing, the multiple connections between corresponding contacts serving various switches are slipped. Taking for instance, the strips 10 and 11, the contact points 15 and 16 serving the first switch (counting from the left) are in the first level, the contact points serving the second switch are in the second level, those serving the third switch are in the third level, etc., and the contact points serving the tenth switch are in the zero or tenth level.

If required, the contacts of a bank like the one illustrated in the drawing may be multipled to another bank by means of a

cable and in accordance with the slipped multiple arrangement described in the mentioned patent to Keith. Obviously, the capacity of the contact bank may be increased without departing from the spirit of the invention. The number of contact points forming a set depends on the character of the system and may be increased to three, four, etc.

If it is desired to utilize both sides of the frame, contact points similar to those shown in the drawing will project through the rear of the frame.

In the present embodiment of the invention, the contact bank is provided in common for ten selector switches, each of the switches having one set of wipers. By increasing the height of the bank, selector switches having a plurality of sets of wipers may be served by the contact bank. The structure of such switches is described in Patent No. 1,123,696 to E. B. Craft and J. N. Reynolds.

What is claimed is:

1. In a contact bank arranged to be served by a plurality of selector switches, a strip of conducting material arranged angularly with respect to the line of travel of said switches, and a plurality of contact points on said strip, each contact point being arranged to be engaged only by one of said switches.

2. In a contact bank arranged to be served by a plurality of selector switches, clamping plates, a strip of conducting material held between said plates at an angle thereto, and a plurality of contact points on said strip, each contact point being arranged to be engaged only by one of said switches.

3. In a contact bank arranged to be served by a plurality of selector switches, a plurality of strips of conducting material arranged angularly with respect to the line of travel of said switches, and a plurality of contact points on each of said strips, each contact point being arranged to be engaged only by one of said switches.

4. In a contact bank arranged to be served by a plurality of selector switches, a rectangular frame, a plurality of strips of conducting material diagonally provided within said frame, and a plurality of contact points on each of said strips, each contact point being arranged to be engaged only by one of said switches.

In witness whereof, I hereunto subscribe my name this 24th day of October A. D., 1917.

HENRY P. CLAUSEN.