C. L. GOODRUM & H. F. DOBBIN.

CONTACT BANK FOR AUTOMATIC SWITCHING DEVICES.

APPLICATION FILED MAR. 23, 1916.

1,227,904. Patented May 29, 1917.

Fig. 1.

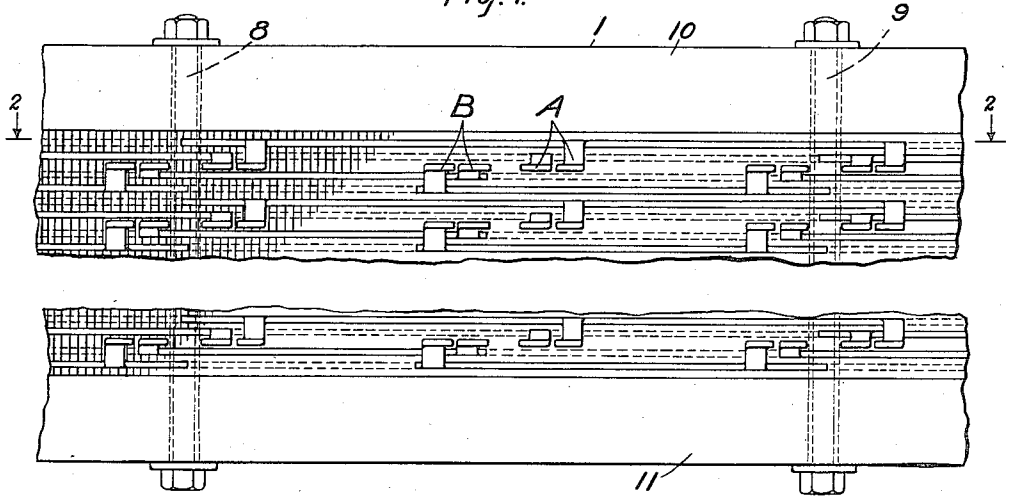


Fig. 2.

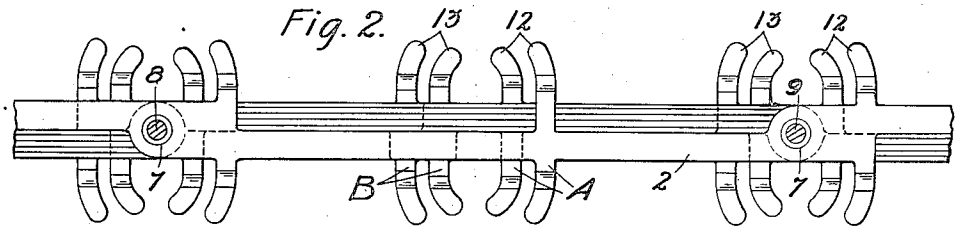
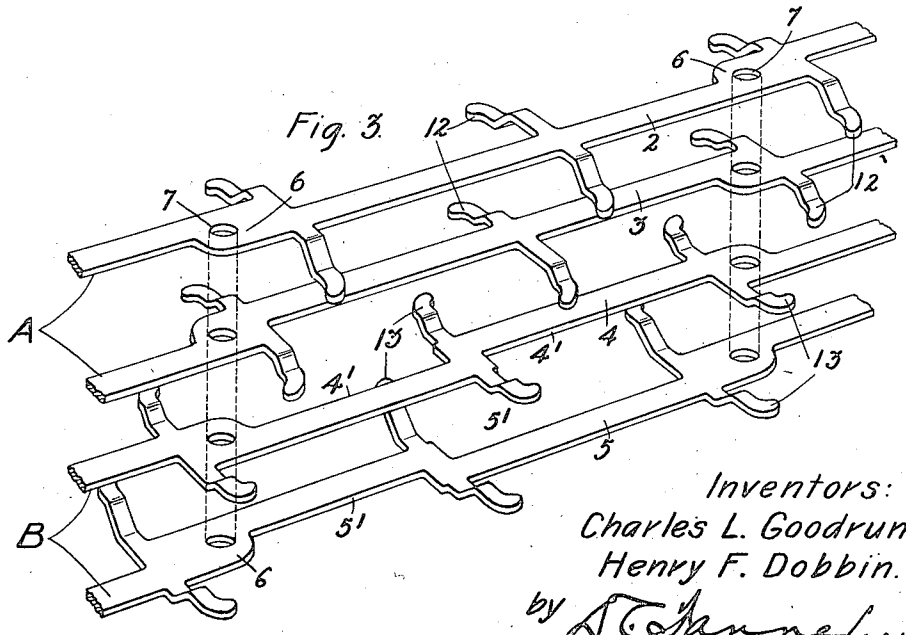


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES L. GOODRUM AND HENRY F. DOBBIN, OF NEW YORK, N. Y., ASSIGNORS TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CONTACT-BANK FOR AUTOMATIC SWITCHING DEVICES.

1,227,904. Specification of Letters Patent. Patented May 29, 1917.

Application filed March 23, 1916. Serial No. 86,178.

To all whom it may concern:

Be it known that we, CHARLES L. GOODRUM and HENRY F. DOBBIN, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Contact-Banks for Automatic Switching Devices, of which the following is a full, clear, concise, and exact description.

This invention relates to contact banks for automatic switching devices, and particularly to contact banks for switches of the panel type in which two movable contacts or brushes are employed.

The principal object of this invention is the provision of a contact bank composed of multiple pairs of contact strips so shaped and positioned that inductive action with the resulting crosstalk will be reduced to a minimum without the use of metallic strips or shield between the elements of each pair of terminal strips.

In contact banks in which the contact strips are formed of sheet material, it has formerly been necessary to interpose between the members of each pair of strips provided with the so called tip-and-ring contacts, a third strip provided with test or sleeve contacts which serves as a shield to prevent crosstalk. The present invention is intended to eliminate this third strip without lessening the effectiveness of the device. This is accomplished by restricting the area of and offsetting the parts of the strips of the various pairs to practically eliminate the inductive action. It is provided that the strips of the pairs be placed as nearly as possible in the same position with respect to the other adjacent strips of the bank in order that the currents induced in the two sides of the same pair may neutralize one another. It is evident that if the two strips constituting a pair or set are not in the same relative position with respect to the circuit from which the induced currents are received, the current in one strip of the pair will not be equal to the current in the other strip of the same pair, and hence there will be resulting crosstalk.

Referring to the drawings, Figure 1 is a front elevation of a portion of a terminal bank; Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged perspective view of two sets, A and B of contact strips illustrating the preferred shape and arrangement of various strips of each of the sets.

1 indicates a portion of a switch bank of the preferred form built up of sets A and B of flat contact strips 2, 3, 4 and 5, separated by insulation and arranged in pairs. These strips have projecting contacts 12 and 13, and are apertured at 7 to receive the insulated bolts 8 and 9 by which the said strips are clamped in superposed position between the plates 10 and 11 in a manner similar to that described in the patent to A. F. Dixon, No. 1,127,741.

Referring to Fig. 3, it will be noted that a strip 4 of set B has cut-out portions 4^1—4^1 intermediate the alternate pairs of contacts. These cut-out portions equal substantially one-half the width of the strip and their lengths are substantially equal to the distance between the adjacent pairs of contacts. Shoulders 6 integral with the strips are located adjacent certain of the contacts. These shoulders are apertured at 7 to receive the insulated bolts 8 and 9 on which the strips are threaded as above stated. The companion strip 5 of this set is similarly constructed with cut-out portions 5^1—5^1, but the parts are reversely arranged with respect to the strip 4. This arrangement of the cut-out portions provides in effect a strip with alternately arranged off-set portions lying in the same plane as the strip, and when the strip is associated with its companion strip, produces in effect lateral transpositions in the pairs of strips. Strip 2 of set A differs from strip 4 of set B in that the former has off-set portions of a length twice as great as the off-set portions in the strip 4. Strip 3 is similar to its companion strip 2, but its parts are reversely arranged. These sets of contact strips are alternately arranged in superposed position with the set B placed between adjacent sets A.

In the present embodiment of the invention, the contacts 12 and 13 of the strips 2, 3, 4 and 5, are off-set vertically to adapt the contacts of these two sets to lie in the same horizontal plane when the bank is in operative position. If desired, contacts may be provided on both sides of the bank as clearly illustrated in Figs. 2 and 3. However, the number and position of the contacts can be

changed and other modifications can be readily substituted for the specific structure herein disclosed without departing from the spirit of this invention.

What is claimed is:

1. In a contact bank, flat terminal strips arranged in pairs, the strips of a pair having portions intermediate their ends offset in the plane of the strips to effect a transposed relation between portions of the strips.

2. In a contact bank, flat terminal strips arranged in pairs, the strips of a pair having alternately disposed portions projecting in the plane of said strips intermediate their ends, arranged to effect a transposed relation between portions of the strips.

3. In a contact bank, pairs of flat terminal strips, portions in said strips offset at right angles to the bank, the offset portions of each strip being reversely arranged with respect to its companion strip.

4. In a contact bank, a pair of flat terminal strips, off-set portions in said strips, said off-set portions being alternately disposed in opposite lateral directions in the plane of the strips, and the off-set portions of each of said strips being reversely arranged with respect to its companion strips.

5. In a switch bank, sets of superposed flat strips arranged in pairs, the strips of one set having relatively long off-set portions reversely arranged, and the strips of the other set having relatively short reversely arranged off-set portions.

6. In a contact bank, a pair of flat terminal strips, contacts projecting from each of said strips, said contacts being arranged in pairs, each member of the pair comprising a contact of each of said strips, and a series of laterally disposed off-set portions in each of said strips, the off-set portions of each strip being reversely arranged in the plane of said strip with respect to those of the other.

In witness whereof, we hereunto subscribe our names this 22nd day of March A. D., 1916.

CHARLES L. GOODRUM.
HENRY F. DOBBIN.