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CONSTRUCTION ELEMENTS FOR CONTACT BANKS
IN AUTOMATIC TELEPHONE SYSTEMS
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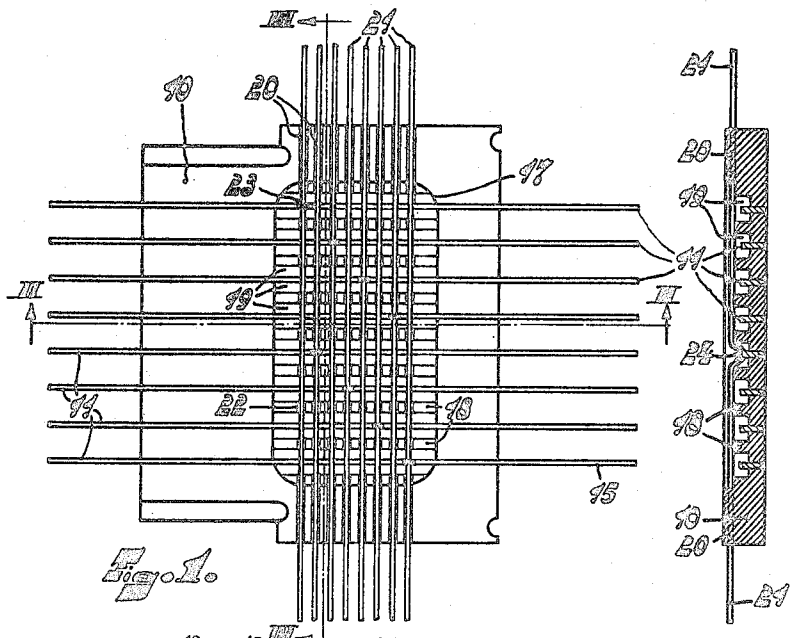

Fig. 1.

Fig. 3.

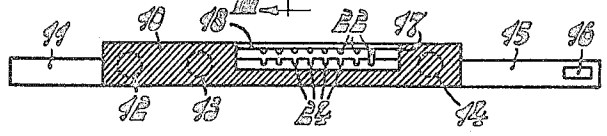

Fig. 2.

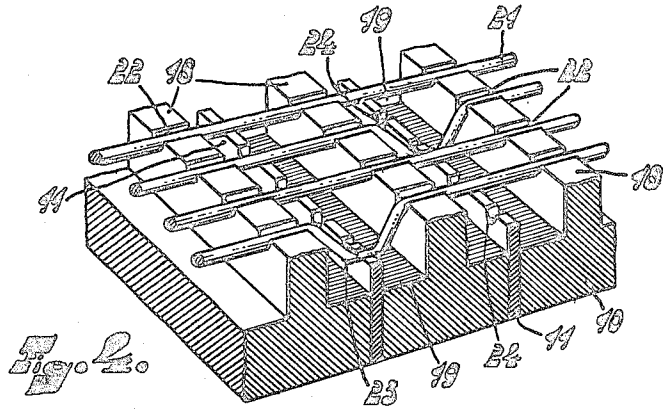

Fig. 4.

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CONSTRUCTION ELEMENTS FOR CONTACT BANKS IN AUTOMATIC TELEPHONE SYSTEMS

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4 Claims. (Cl. 317—112)

This invention relates to construction elements for contact banks used in automatic telephone systems or the like, which elements comprise a plate of insulating material accommodating a number of parallel contact members laterally projecting from the plate at least at one side and said plate further comprising a number of parallel multiplying wires which extend parallel to the plane of the plate and at right angles to the contact members. Such construction elements permit a contact band to be built in a simple manner by stacking a number of said elements such that their flat faces engage one another. The contact members laterally projecting from the plates thus form rows of fixed contacts which, for example by means of a selector switch, are wiped by brushes moving along said rows of contact. In known constructions the multiplying wires extend through a number of construction elements, thus connecting said elements like the beads of a string. Such linked construction elements permit a number of contact banks with multipled contacts to be built simultaneously.

The present invention has for its object a simple and cheap construction of an element referred to in the preamble, which is particularly adapted to mass-production. In accordance with the invention, the contact members consist of metal strips extending at right angles to the plane of the plate and being held in the plate since the insulating material at one side of the strip is connected through recesses therein to the material at the other side of the strip. An edge of said strips, which extends in a longitudinal direction, coincides with a flat limiting surface of the plate, the central portion of the opposite edge of the strips freely engaging a recess provided in the opposite flat limiting surface of the plate. Said recess is divided into a number of grooves by ribs extending between the contact members in a direction parallel thereto, each groove accommodating the said free edge of a contact member, and the multiplying wires resting on the ribs. The multiplying wires are preferably supported in position since they extend over the tops of the ribs and rest in a recess in the top of each rib, a multipled wire being electrically connected to a contact member by providing the former at the crossing of both members with a band engaging the groove in question and the tip of which is secured to the contact member.

In order that the invention may be readily carried into effect it will now be described with reference to the drawing representing one example of the construction element according to the invention, and in which:

Fig. 1 is a flat elevation of the construction element;

Fig. 2 is a section on the line II—II;

Fig. 3 is a cross-section on the line III—III in Fig. 1; and

Fig. 4 is a perspective view of the relative position of a contact member and several multiplying wires of the construction element shown in the other figures.

The construction element as represented comprises a plate **10** of synthetic material, for example, polystyrene, moulded or sprayed around eight parallel contact strips

11. Although the contact strips **11** extend with their planes at right angles to the plane of plate **10** and the width of the contact strips substantially corresponds to the thickness of the plate, a unitary assembly is obtained since the material of the plate at one side of the contact strips is connected through recesses **12**, **13** and **14** in said strips to the material at the other side. The contact strips **11** project from the plate **10** at both sides. The parts **15** of the contact members projecting at one side, are provided with an aperture **16** wherein any junction wires can be soldered or otherwise secured. When assembling a number of said plates by stacking them to form a contact bank, the other ends of the contact members constitute fixed contacts wiped by movable brushes. The lower edge of the contact members coincides with the bottom surface of plate **10**. The upper surface of the plate is furnished at its center with a recess **17** freely engaged by the upper edges of the contact members. The recess **17** is divided into a number of parallel grooves **19**, in each of which a contact member is accessible, by a number of ribs **18** parallel to the contact members, the top of said ribs being a little below the plate. The grooves **20** in the upper surface of the plate accommodate a number, at this instance eight, of parallel multiplying wires **21**, each of which is supported in position by an incision **22** in the top of the ribs **18** (Fig. 4). The multiplying wires **21** extend at right angles of the plane of the contact strips **11**. The wires **21** are further held by distorting the grooves **20**, after receiving the wires, while heating. Each multiplying wire is electrically connected to one of the contact members, said connection being established by providing a multiplying wire, where it crosses a contact strip, with a bend **23** whose tip rests in an incision **24** provided in the free edge of the contact member and is held therein by distorting the edge of the contact member beside the incision. The multiplying wires may pass through a number of construction elements so that a number of plates like plate **10** are situated in spaced relationship on the multiplying wires **21**. By stacking a number of elements in accordance with the represented construction element a contact bank is obtained wherein the ends, pointing to the left in Fig. 1, of the fixed contact members form rows of fixed contacts in a direction at right angles to the plane of the construction elements, said contacts being wiped, for example, by brushes of a brush-carriage movable along the bank.

While we have thus described our invention with specific examples and embodiments thereof, other modifications will be readily apparent to those skilled in the art without departing from the spirit and the scope of the invention as defined in the appended claims.

What I claim is:

1. A construction element for a contact bank in an automatic telephone system, said construction element comprising a flat insulating plate having parallel ribs raised thereon to form a plurality of parallel grooves, each of said ribs having spaced transverse recesses therein, a plurality of parallel flat contact strips having openings therein, said strips being embedded in said plate with the material thereof extending through said openings, said strips projecting from at least one edge of said plate, said strips projecting with part of one edge into said grooves, the other edge of each of said strips being flush with the lower surface of said plate, and a plurality of parallel multiplying wires extending through the transverse recesses of said ribs perpendicularly with respect to said strips, each of said wires being connected to at least one of said strips.

2. A construction element for a contact bank in an automatic telephone system, said construction element comprising a flat insulating plate having parallel ribs raised thereon to form a plurality of parallel grooves,

each of said ribs having spaced transverse recesses therein, a plurality of parallel flat metallic contact strips having openings therein, said strips being embedded in said plate with the material thereof extending through said openings, said strips projecting from at least one edge of said plate, one edge of each of said strips projecting into one of said grooves, the other edge of each of said strips being flush with the lower surface of said plate, and a plurality of parallel multiplying wires extending through the transverse recesses of said ribs perpendicularly with respect to said strips, each of said wires being connected to a least one of said strips.

3. A construction element, as set forth in claim 2, wherein said multiplying wires rest in recesses provided in the upper part of said ribs and wherein each of said multiplying wires is electrically connected to a predetermined contact strip by providing each of said wires with a bend at the point where the wire crosses said predetermined strip, said bend pointing to said predetermined strip and the tip of said bend connected to said predetermined strip.

4. A construction element, as set forth in claim 3, wherein each of said contact strip edges facing said multiplying wires is provided with incisions for receiving the bends of said multiplying wires and at least part of the material of said strips adjacent the surfaces defining said incisions being crimped at least partially around the tip of each of said bends for retaining the wires in said incisions.

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