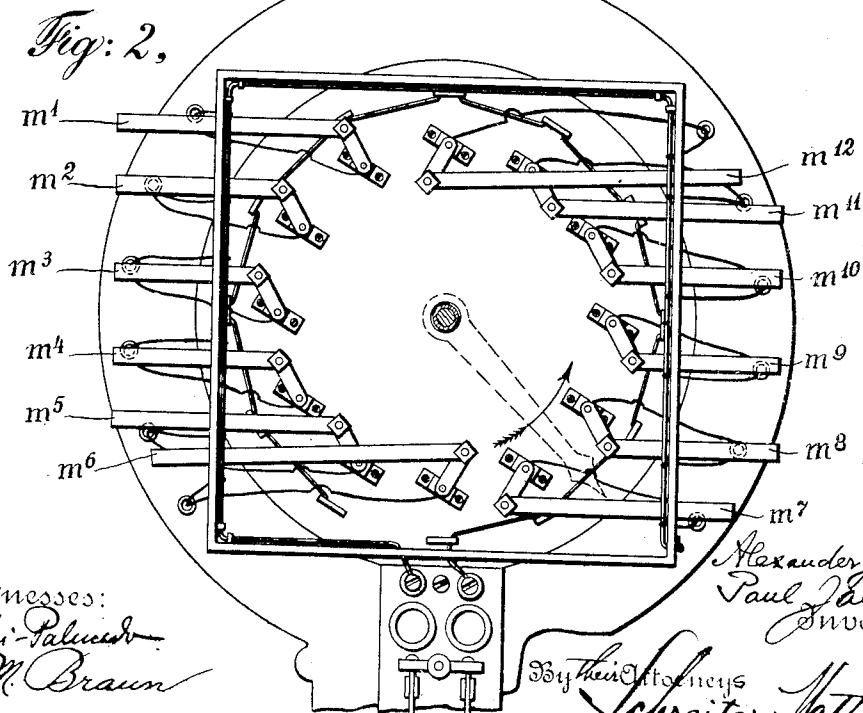
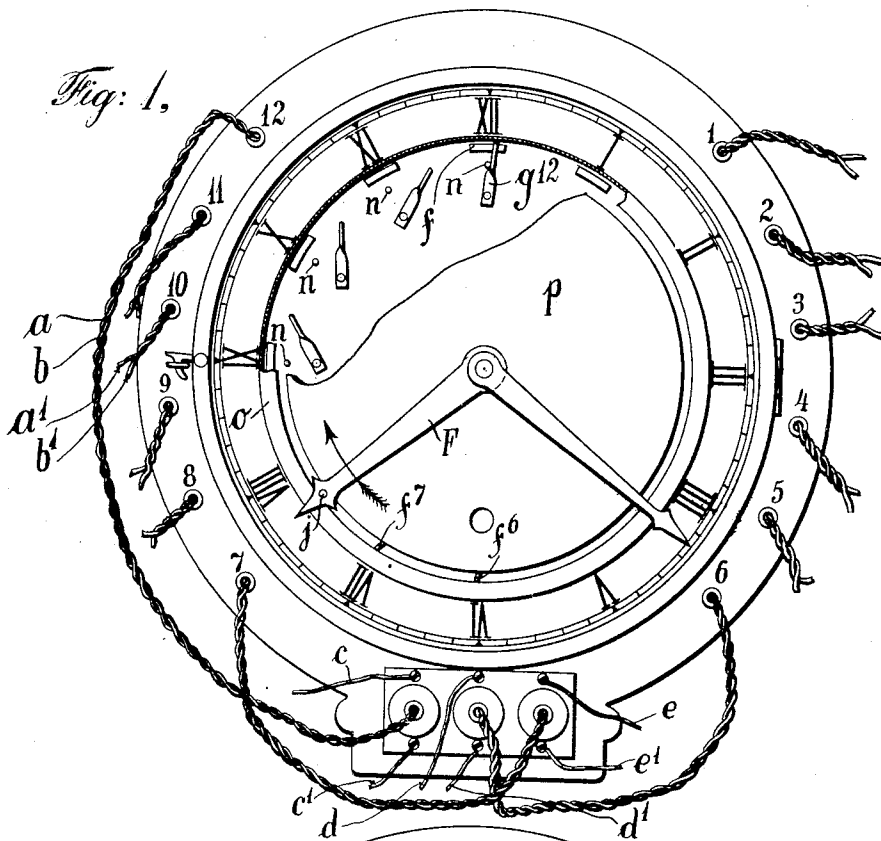


932,132.

Patented Aug. 24, 1909.
2 SHEETS—SHEET 1.



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932,132.

2 SHEETS—SHEET 2.

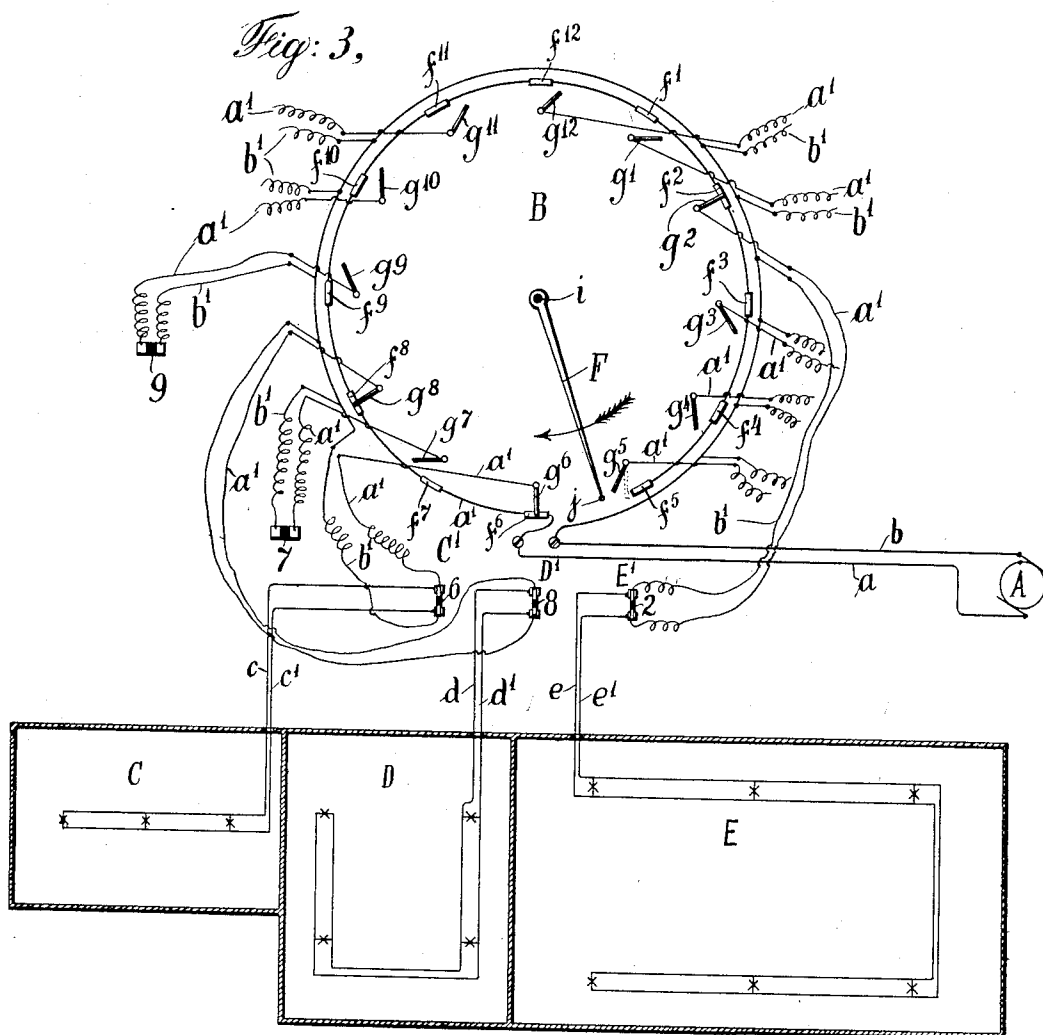
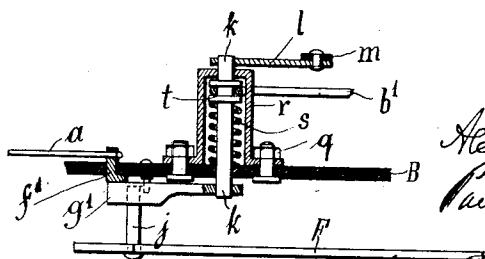


Fig: 4,



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UNITED STATES PATENT OFFICE.

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AUTOMATIC SWITCHBOARD.

932,132.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed March 31, 1909. Serial No. 486,877.

To all whom it may concern:

Be it known that we, ALEXANDER JÁMBOR and PAUL JÁMBOR, citizens of Austria-Hungary, and residents of Bathbeach, county of Kings and State of New York, have invented certain new and useful Improvements in Automatic Switchboards, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a front elevation, and Fig. 2 a rear elevation of our improved automatic switchboard; Fig. 3 is a diagram thereof and of the electrical system operated by the switchboard; Fig. 4 is a detail sectional view showing the construction of the movable contact pieces and the manner of mounting them on the switchboard.

Our invention relates to switchboards for electrical conduits, and consists of the improved automatic switchboard, as shown in the accompanying drawings, and hereinafter described with reference thereto, wherein, by the operations of the improvements, constituting our invention, any lamp or series of lamps, or a number of such lamps or series, may be lighted or extinguished by the automatic action of the device at any predetermined time.

Referring to Fig. 3 of the drawings, A designates the electrical current generator, B the switchboard; a is the electrical conduit from the generator A, b the return conduit; C, D and E, separate lamp circuits, in this instance arranged in three separate compartments.

C', D' and E' are sockets, from which the electrical conduits c , c' , d , d' , e , and e' , wherein the series of lamps (indicated by crosses) are connected, start and terminate. These sockets C', D' and E' are adapted to receive the plugs 1, 2, 3, etc. connected with the movable contact pieces g' , g^2 , etc. by wires a' and with the return conduit b to the generator by wires b' as further on more fully explained. Contact pieces f' , f^2 , etc. to f^{12} , are fixed in the switchboard; the movable contact pieces g' , g^2 , etc. to g^{12} are mounted on the switchboard, as shown in detail in Fig. 4. The fixed contact pieces f' to f^{12} are connected in the conduit a from the generator, the contact piece f^1 forming its terminus.

Plugs 1, 2, etc. to 12 are fitted to be set in sockets C', D' and E'. Plugs 3, 6 and 8 are shown set in, in the sockets E', C' and D', respectively.

a' are electrical conduits connecting the plugs with the movable contact pieces g' , g^2 , etc., and b' are return conduits from the plugs to the return conduit b . There are as many of such plugs provided as there are movable contact pieces, each one of the latter being connected with one of these plugs. The movable contact pieces g' , g^2 , etc., are rigidly connected to studs k , projecting through the switchboard B and mounted in brackets r , secured to the switchboard B by bolts q . Arms l are rigidly connected to the ends of studs k and the free ends of arms l are pivoted to bars m (see Fig. 2), so that the movable contact pieces may be operated by them. Springs s are set on studs k between the switchboard B and the collar t , to draw the movable contact pieces against, or rather press them upon, the fixed. Pins n are set in the switchboard in position to prevent shifting of the movable contact pieces g' , g^2 , etc. beyond the fixed contact pieces f' , f^2 , etc. when the switchboard is set.

An arm F mounted on shaft i and carrying on its free end a pin j , is shown as the means for operating the movable contact pieces after the switchboard is set for such action as it is desired to have it perform. The length of arm F is calculated so the pin j will strike against the movable contact pieces, g' , g^2 , etc. when shaft i is rotated. For actuating the shaft i a clock movement is set in the switchboard, the arm F being set on its shaft turning the hands. In practice the automatic switchboard may be produced with a clock dial on its front face as shown in Fig. 1, the hour hand of the clock serving as the arm F, the pin j being set therein. Arm F may, however, as well be propelled by weight, and its speed regulated or changed by suitable transmissions. The construction of such variable transmissions is no part of our invention, and any of the many known constructions of such transmissions may be employed for this purpose.

Our improved automatic switchboard may be used to turn on, or to extinguish the lamps in the groups or series C, D and E each at such a time as may be desired. The diagram Fig. 3 shows the lamps of the group C connected to the contact pieces f^6 , the lamps of group D to f^8 and the lamps of group E to f^2 . This is done by setting in the respective plugs connected to the contact pieces f^6 , f^8 and f^2 into the sockets C', D' and E' in the order stated. The switch-

board is shown as set for turning off the lamps of the groups successively in the order recited. As the arm F progresses, moving in the direction indicated by the arrow, the pin j set in its outer end, strikes against the movable contact piece g^6 and pushes it off, of the fixed contact piece f , thereby breaking the circuit between the generator A and the lamps of the group C. The same action will be repeated when the arm F reaches the movable contact piece g^8 and again when it reaches the movable contact piece g^2 . The length of the period intervening between the time the switchboard is set and that, at which these actions will take place, depends upon the distance through which the arm F has to travel, and upon the speed of the motion of the arm F. The speed of the motion is determined by the mechanism driving the arm; the distance through which the arm F must travel and the order of succession in which it acts to extinguish the lamps of each of the different groups, may be arranged at will, by correspondingly setting the plugs 2, 6 and 8 (or any other) in the sockets C', D' and E', the plugs connected to any other set, or sets, of contact pieces may be used for that purpose. To effect the turning on of the current in the conduits of the lamps, the movable contact pieces set opposite the hour at which the lamps are desired to be lighted, are set so that the pin j will strike against each of them successively and push it upon the corresponding contact piece. Such a position of the contact piece g^5 is indicated in Fig. 3 in a dotted line. That the movable contact pieces may be set in any desired position by the bars m , was explained above. Then the plugs connecting with the contact pieces, thus set, are inserted in the sockets C', D' and E' in the order as the series of lamps are to be lighted.

The switchboard, shown in Fig. 1, is made to represent the dial of a clock and one fixed, and one movable contact piece provided for each hour number. A raised flange or guard o is provided to cover the fixed contact pieces, and plate p to cover the movable contact pieces. Pin j , set in the hour hand F travels in the slot between the guard o and the plate p . In the rim of the switchboard, extending beyond the dial, are twelve electrically insulated openings, numbered respectively 1, 2, 3, etc. to 12, and through each of these openings are drawn wires a' and b' , connecting a plug to each of the movable contact pieces g' , g^2 , etc., and to the return conduits b to the generator. The numbers of the openings correspond with the numbers of the hours as indicated on the clock, and the sockets C', D' and E' are, or may be designated, by the numbers or names of the compartments or of groups of lamps connected thereto.

Assuming now that it be desired to light all lamps, and to set the switchboard to extinguish the lamps illuminating the compartment C at midnight, those in compartment D at six o'clock and those in compartment E at seven o'clock in the morning. To do this, the bars m^6 , m^7 and m^{12} are pushed in, whereby the lamps of the said groups are lighted. The arm F being operated by a clock movement, will be propelled in the direction indicated by the arrow in Fig. 1 and at twelve o'clock midnight, the pin j will strike against the movable contact piece g' and progressing on its motion, will push it off of the contact piece f , thereby breaking the circuit between the generator A and the lamps in the compartment or group C. The lamps in this group are thereby turned out, and so will be the lamps of the group D at six o'clock in the morning when the hour hand of the clock will reach the movable contact piece g^6 , and, progressing on its way, push it off of the fixed contact piece f^6 .

The same operation will be repeated at seven o'clock in respect to the movable contact piece f' and the lamps of the group E. The clock movement is not necessary for such operation of the switchboard, the clock serving here only as a convenient means of illustration, both of a mechanism for operating the switchboard and also for measuring or determining of the time. Any other mechanical movement, and any other means for regulating the speed of the motion, may be employed.

From the description of our improved automatic switchboard, and of the manner of using it, it will also be readily understood, that the same is not limited to any number of groups of lamps, though, of course, a socket must be provided for each group or circuit of lamps, and also that the successive order of the operations may be changed and varied by changing the setting of the plugs into the sockets. It should also be understood, that the number of the contact pieces may be more or less than twelve, we having elected to show twelve of them, to enable us to illustrate the operation of the board by an ordinary clock movement.

We claim as our invention:

1. An automatic switchboard, a series of fixed, and a series of movable, contact pieces and means for setting the movable contact pieces in position in the switchboard; an electrical current conduit to, and connecting the, fixed contact pieces, terminating with the last one of the series; a return conduit from the switchboard; a series of sockets and electrical current conduits, one from and to each socket; lamps connected in the conduits; a series of plugs; electrical current conduits, one connecting each of the movable contact pieces to one of the plugs and return conduits one from each plug to

the return conduit from the switchboard; an arm movably mounted on the switchboard and means connected with the arm adapted to engage with the movable contact pieces; and mechanism for moving the arm.

2. An automatic switchboard, a series of fixed, and a series of movable, contact pieces and means for setting the movable contact pieces in position in the switchboard; a mechanically actuated arm, adapted to traverse the switchboard and means connected with the arm for engaging the movable pieces; an electrical current conduit to, and connecting the, fixed contact pieces, terminating with the last one of the series; a return conduit from the switchboard; a series of sockets and electrical current conduits, one from and to each socket; lamps connected in the conduits; a series of plugs and electrical current conduits, one connecting each of the movable contact pieces to one of the plugs and return conduits one from each plug to the return conduit from the switchboard.

3. An automatic switchboard, a series of fixed, and a series of movable contact pieces in the switchboard; an electrical current conduit to, and connecting the, fixed contact pieces, terminating with the last one of the series; a return conduit from the switchboard; a series of sockets and electrical current conduits, one from and to each socket; lamps connected in the conduits; a series of plugs and electrical current conduits, one connect-

ing each of the movable contact pieces to one of the plugs, and return conduits, one from each plug to the return conduit from the switchboard; an arm, adapted to engage with the movable contact pieces, movably mounted on the switchboard; means for setting the movable contact pieces in position to be engaged by the arm; and mechanism for moving the arm at a predetermined uniform speed.

4. An automatic switchboard, a series of fixed, and a series of movable contact pieces in the switchboard; an electrical current conduit to, and connecting the, fixed contact pieces, terminating with the last one of the series; a return conduit from the switchboard; a series of sockets, electrical current conduits, one from and to each socket; lamps connected in the conduits; a series of plugs and electrical current conduits, one connecting each of the movable contact pieces to one of the plugs, and return conduits, one from each plug to the return conduit from the switchboard; means for setting the movable contact pieces in position; a clock movement and means, operatively connected therewith, for shifting the movable contact pieces from contact with, or to contact with the fixed contact pieces.

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