Sept. 15, 1925. 1,554,090

J. H. HEWITT

ELECTRIC SWITCH

Filed Dec. 29, 1924

Fig.1.

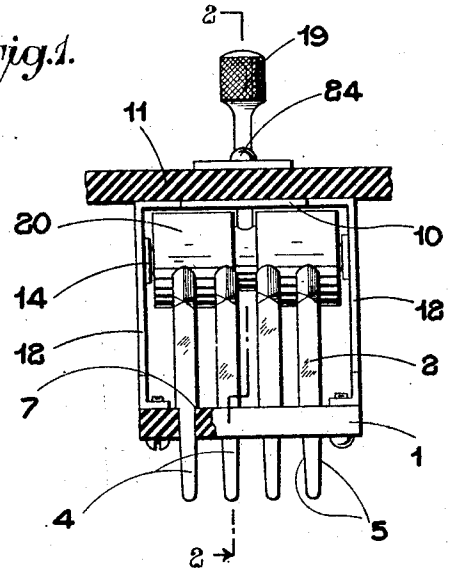


Fig.2.

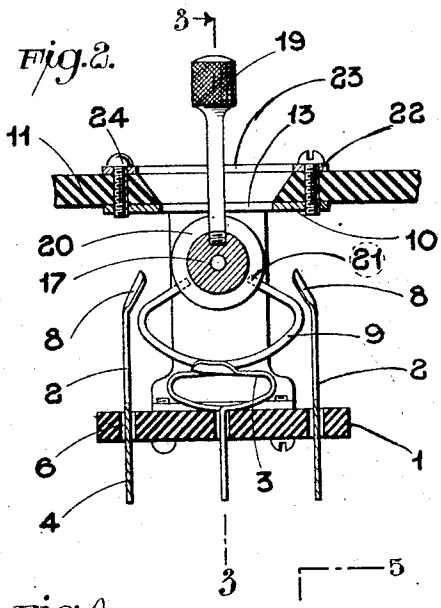


Fig.3.

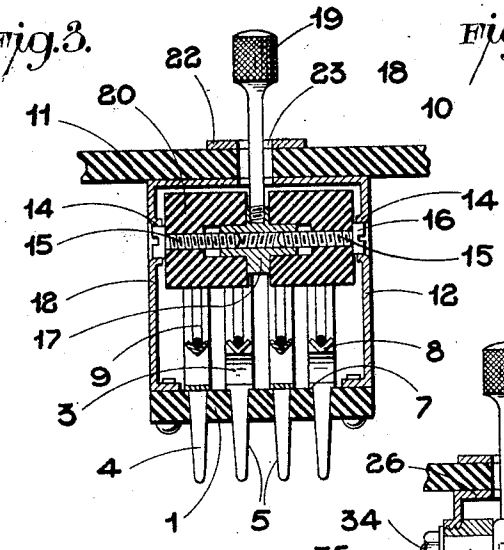


Fig.4.

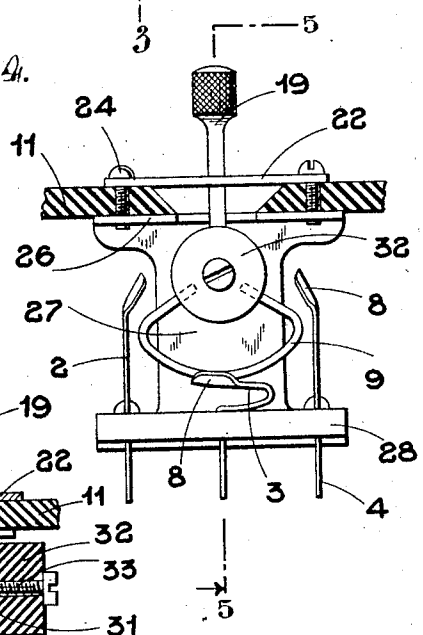


Fig.6.

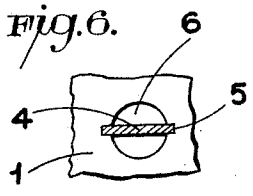
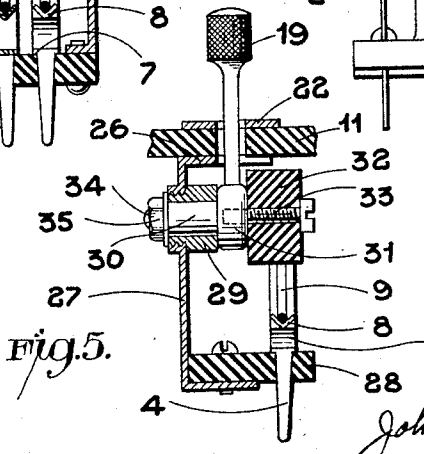


Fig.5.



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By

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UNITED STATES PATENT OFFICE.

JOHN HERBERT HEWITT, OF BIRMINGHAM, ENGLAND.

ELECTRIC SWITCH.

Application filed December 29, 1924. Serial No. 758,704.

To all whom it may concern:

Be it known that I, JOHN HERBERT HEWITT, a subject of the King of Great Britain, residing at Utility Works, Kenyon Street, Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Electric Switches; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to electric switches and one of its objects is to provide a switch particularly suitable for use in wireless work wherein the mass of metal employed for the contacts and other switch parts is reduced to a minimum and wherein the metal parts are arranged to be widely separated for reducing electrical capacity.

A further object of the present invention is to provide an improved method of mounting the contact members whereby their insulation will be more perfect than hitherto.

A further object of the present invention is to provide a generally improved construction of switch in which the manufacture of the various components can be carried out cheaply and quickly.

A further object of the present invention is to provide a switch particularly suitable for wireless work wherein the operation of making the electrical connections is simplified.

Referring to the drawings:—

Figure 1 is a side view partly in section showing one form of switch constructed in accordance with my invention.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is an end view showing another form of switch constructed in accordance with my invention.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a sectional plan upon an enlarged scale taken through the shank portion of one of the contacts.

In the construction illustrated in Figures 1 to 3 and in Figure 6, the switch comprises an insulating base plate 1 having four sets of stationary contacts. Each set of stationary contacts consists of two outer contacts 2 and an inner contact 3.

Each contact is provided with a stem portion 4 of flat section and having tapering edges 5, which stem portion is driven into a hole 6 which may be of circular form so that only the edges 5 of the metal forming the contact are in contact with the plate 1.

As seen from Figure 1, each of the contacts 2 or 3 is provided with a pair of shoulders 7 which limit the motion of the contact through the hole 6.

Each contact is provided with a portion for engagement by the movable contact, the said portion preferably being bent as shown at 8 both transversely and longitudinally partially to embrace the material of the moving contact to be hereinafter described.

Those parts of the stationary contacts 2 and 3 which are to be engaged by the moving contacts are bent to V section so that when engaged by a moving contact formed of round section wire, two points of contact are obtained between the parts.

The inner contacts 3 are bent to the form shown clearly in Figure 2 and it will be seen that when the moving contact 9 engages any of the stationary contacts, it displaces same slightly so that the stationary contact produces a spring re-action on the moving contact 9 and tends to retain it in any position into which it is moved. Further, the spring pressure between the stationary and moving contacts produces and maintains a firm electrical connection.

The switch is provided with a face plate 10 adapted to abut against the underside of a panel 11 and the plate 10 is provided with two end portions 12 which are secured to the base plate 1.

The face plate 10 is provided with an opening 13 and each of the end portions 12 is provided with a bearing 14.

In each of the bearings 14 is a screw 15 having its head 16 rotatably mounted in the bearing 14.

The shanks of the screws 15 engage in a disc 17 having bosses 18 into which the screws engage.

The disc 17 receives a radial lever 19 which constitutes an operating lever.

Each of the screws 15 receives an insulat-

ing block 20 mounted on one of the bosses 18 and engaged by the screws 15.

These blocks 20 are employed for carrying the moving contacts 9 each of which may be made of wire as shown, bent into sector like form with the ends 21 engaging in holes in the insulating blocks 20.

A guide plate 22 having a closed ended slot 23 is provided through which the lever 19 extends, the guide plate 22 being preferably secured to the face plate 10 by screws such as 24.

Each of the shank portions 4 of the stationary contacts 2 and 3 constitutes a terminal and may be provided with a layer of solder which can be melted when required for forming the connections.

In the construction shown in Figures 4 and 5, the switch has only a single set of contacts. These contacts are constructed and arranged and are in all respects identical with those already described and have been given the same reference numerals.

In this case the face plate 26 is provided with only one end portion 27 which is connected to the base plate 28. The end portion 27 is provided with a bearing 29 in which is located a rotatable pin 30 associated with a disc 31 which receives the operating lever 19.

An insulating block 32 similar in purpose to the blocks 20 is attached to the disc 31 by a screw 33.

The pin 30 is provided with a reduced end or shank 34 which is threaded and receives a nut 35 by which the pin is retained in position in the bearing 29.

The moving contact 9 is constructed and arranged in the same manner as those described with reference to Figures 1, 2 and 3, as also is the guide plate 22.

What I claim then is:—

1. An electric switch comprising an insulating base plate, a plurality of stationary contacts, each consisting of a thin resilient strip of metal having a shank of flat section with tapered edges forced through a hole in the base plate and contacting said plate only at said edges, each having a portion bent partially to embrace a moving contact, a face plate disposed parallel to said base plate and having an opening, an end portion on said face plate connecting it with said base plate, said end portion having a bearing, a metal pin mounted for turning movement in said bearing, a lever arranged radially in relation to said pin and associated therewith, said lever passing through the opening in the face plate and constituting an operating lever, an insulating block associated and moving with said pin, and a moving contact of skeleton form mounted on said block and co-operating with said stationary contacts.

2. An electric switch comprising an insulting base plate, a plurality of sets of stationary contacts arranged in rows on the base plate, each contact consisting of a thin resilient strip of metal having a shank forced through a hole in said base plate, and a portion for engagement by a moving contact, a face plate disposed parallel to said base plate and having an opening, two end portions on said face plate connecting it to said base plate, each of said end portions having a bearing, a pair of screws each having its head mounted for rotation in one of said bearings, a metal disc having a boss on each side into which said screws engage, a lever secured to and projecting radially from said disc, said lever passing through the opening in the face plate and constituting an operating lever, an insulating block mounted upon each of said bosses and secured by one of said screws, and sector-like moving contacts carried by said blocks and each co-operating with a set of stationary contacts.

3. An electric switch comprising an insulating base plate, a plurality of sets of stationary contacts arranged in rows on the base plate, each contact consisting of a thin resilient strip of metal having a shank forced through a hole in said base plate, and a portion for engagement by a moving contact, a face plate disposed parallel to said base plate and having an opening, two end portions on said face plate connecting it to said base plate each of said end portions having a bearing, a pair of screws each having its head mounted for rotation in one of said bearings, a metal disc having a boss on each side into which said screws engage, a lever secured to and projecting radially from said disc, a guide plate disposed parallel with and in spaced relationship to said face plate, said guide plate having a closed ended slot, said lever passing through said opening and said slot and constituting an operating lever, an insulating block mounted upon each of said bosses and secured by one of said screws, and sector-like moving contacts carried by said blocks and each co-operating with a set of stationary contacts.

4. An electric switch comprising an insulating base plate, a plurality of stationary contacts, each consisting of a thin resilient strip of metal having a shank of flat section with tapered edges forced through a hole in the base plate an contacting said plate only at said edges, each having a portion bent to V section partially to embrace a moving contact, a face plate disposed parallel to said base plate and having an opening, an end portion on said face plate connecting it with said base plate, said end portion having a bearing, a metal pin mount-

ed for turning movement in said bearing, a lever arranged radially in relation to said pin and associated therewith, said lever passing through the opening in the face plate and constituting an operating lever, an insulating block associated and moving with said pin, and a moving contact of skeleton form formed of round section wire, mounted on said block and co-operating with said stationary contacts, whereby two points of contact are obtained between the moving and stationary contacts.

In witness whereof I affix my signature.

JOHN HERBERT HEWITT.