Dec. 17, 1946. J. P. DOLAN 2,412,604

SWITCH APPARATUS

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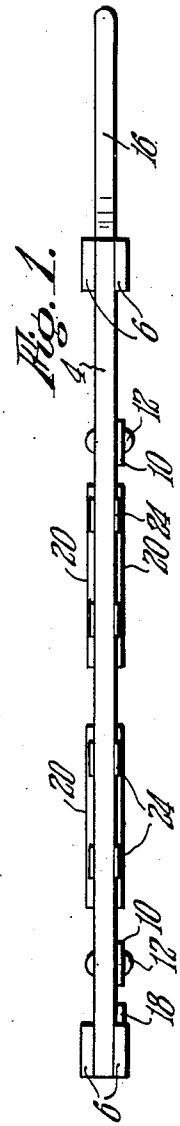


Fig. 1.

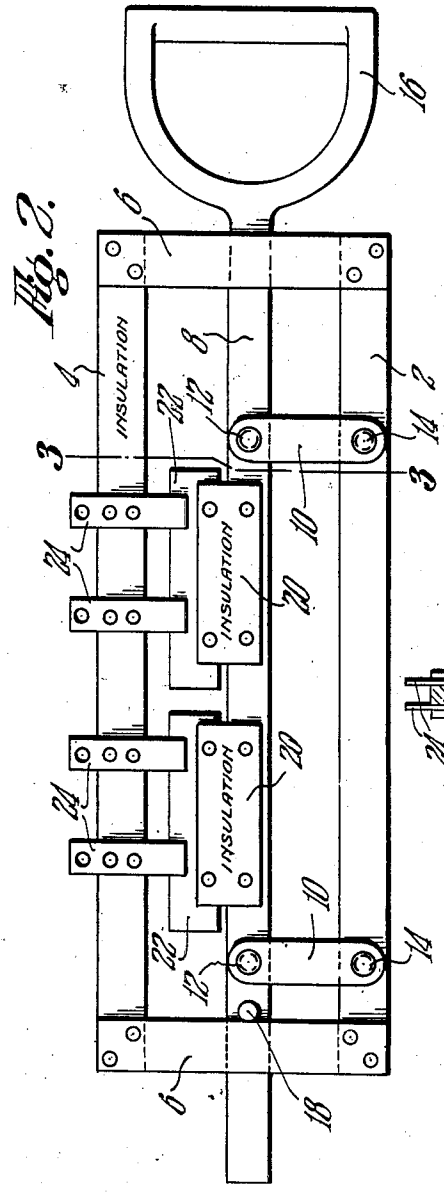


Fig. 2.

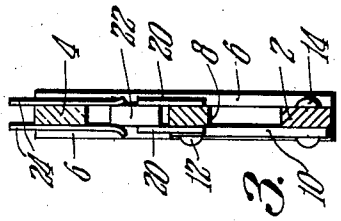


Fig. 3.

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SWITCH APPARATUS

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3 Claims. (Cl. 200—16)

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This invention relates to improvements in switch apparatus.

The principal objects of the invention are directed to the provision of a switch apparatus which is constructed and arranged to occupy but small space. According to the invention, the construction is such that the transverse width of the switch is relatively thin or narrow so that a plurality of the switches may be mounted on the panel in close adjacency while a plurality of circuit closing elements may be employed without increasing the transverse dimensions of the structure.

The novel construction is such that with the switch device or a plurality of them mounted on a switch panel the live parts are located at the rear of said panel while the operating means only projects outwardly from the panel, all of which contributes to safety and desirable switch panel design.

Also the construction provides a curving motion of the blade relative to the contacts thereby insuring a wiping self-cleaning action and a positive make and break which is desirable.

With the foregoing and various other novel features and advantages and other objects of my invention as will become more apparent as the description proceeds, the invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawing wherein:

Figs. 1 and 2 are plan and side elevational views respectively of switch apparatus embodying the novel features of the invention; and

Fig. 3 is a sectional elevational view on the line 3—3 of Fig. 2.

Referring now to the drawing more in detail, the invention will be fully described.

Upper and lower longitudinal members 2 and 4 are provided, the lower one of which may be of metal while the upper one will be of insulating material.

End plates 6 at opposite ends of the members 2 and 4 have their opposite ends secured to the outer faces of said members so that the longitudinal members and end plates provide a frame-like structure. The end plates at each end of the members 2 and 4 provide guideways.

An operating bar 8 is slidably guided between the said end plates and is movably supported by links 10 which have their opposite ends connected at 12 and 14 to the bar 8 and member

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2. The bar 8 is provided with a suitable manually engageable member 16 for moving it back and forth.

The member 8 is shown in its circuit closing position and has a stop 18 adapted for engagement with an end member 6 to prevent further movement thereof to the left.

The bar 8 mounted as shown and guided between the members 6 is adapted to be moved to the right from the circuit closing position shown. Said bar is substantially reciprocable in its operating movements.

One or more insulating members 20 are fixed to the bar 8 in any convenient manner and a blade or blades 22 have lower portions fixed therebetween with upper portions extending upwardly therefrom.

Contacts 24 are fixed to the longtudinal member 4 and have depending portions adapted for engagement by the blade or blades 22.

There may be as many insulating members 20 associated with the bar 8 as may be desired and there may be any number of contacts 24 associated with the longitudinal member 4. A blade or blades may be arranged to contact with any number of contact members as may be desired. In this way, various circuits and combinations of circuits may be opened and closed all as may be desired.

There may be any number of poles without affecting the transverse dimensions of the switch or the cross sectional area of the parts all to the end that the switch occupies but small space. That is, the number of poles may be varied without affecting the thickness of the switch since the length of the switch may be made to accommodate any desired number of poles.

In operation the bar 8 is moved from the circuit closed position shown to the right to circuit open position and vice versa. The arrangement is such that the blade or blades swings upwardly into and downwardly out of contact with the contact members. The blade engages the contacts with a wiping self-cleaning action with a desirable make and break function.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the append-

ed claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. A switch apparatus comprising in combination, lower and upper longitudinal members, pairs of spaced end plates at opposite ends of said members, upper and lower ends of the pairs of said plates secured to the ends of said longitudinal members holding them in spaced relation and providing guideways therebetween, an operating bar slidable in said guideways between the lower and upper members, spaced links having upper and lower ends pivotally connected to said lower longitudinal member and bar respectively whereby said bar is mounted for combined swinging and reciprocating movements in said guideways between circuit closing and opening positions and is maintained in parallelism with said lower and upper members in all of its positions, and circuit closing means carried by said upper member and bar adapted for engagement when the operating member is in circuit closing position.

2. A switch apparatus comprising in combination, lower and upper spaced longitudinal members, said upper member being made from insulating material, a pair of end plates at each end of said members with the plates of said pairs disposed on the outer sides of said members secured thereto providing vertically disposed guideways

at each end of and between said members, an operating member slidable in said guideways provided with a manually engageable member at one end thereof, spaced links pivotally connected at opposite ends to said bar and lower member whereby said bar is mounted for combined swinging and reciprocating movements in said guideways, an insulating member on said bar carrying a blade adapted to engage said contacts in one position of said bar.

3. A switch apparatus comprising in combination, lower and upper spaced longitudinal members, said upper member being made from insulating material, a pair of end plates at each end of said members with the plates of said pairs disposed on the outer sides of said members secured thereto providing vertically disposed guideways at each end of and between said members, an operating member slidable in said guideways provided with a manually engageable member at one end thereof, spaced links pivotally connected at opposite ends to said bar and lower member whereby said bar is mounted for combined swinging and reciprocating movements in said guideways, an insulating member on said bar carrying a blade adapted to engage said contacts in one position of said bar, and means on said bar adapted to engage one of said end plates and limit movements of said bar in one direction.

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