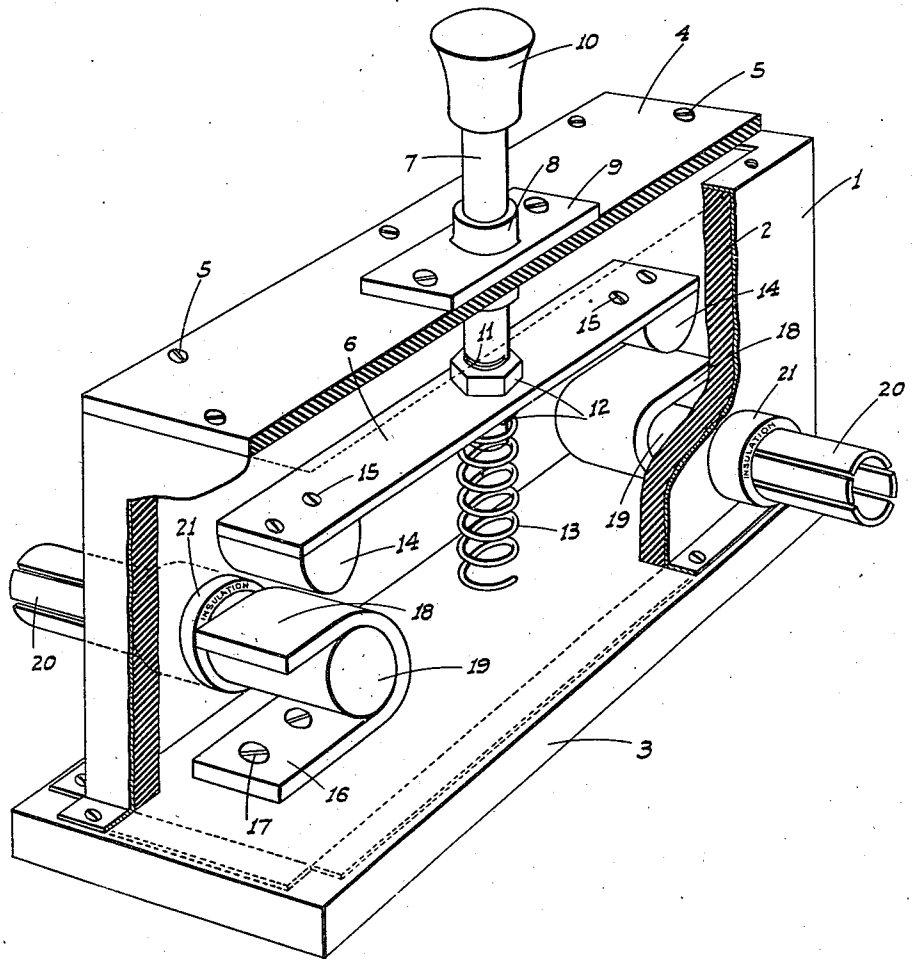
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FOOT ACTUATED SWITCH

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FOOT ACTUATED SWITCH

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2 Claims. (Cl. 200—159)

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This invention is directed to, and it is an object to provide, an improved operator-actuated switch especially designed for industrial uses.

Another object of the instant invention is to provide an operator-actuated switch for the control, from a point adjacent the work, of electric arc welding systems of the type, such as insulation pin welders, wherein the welding circuit is normally open but intermittently closed for limited periods of time.

Another object of the present invention is to provide a switch which is foot actuated to close the contacts, and spring-returned to open position whereby when the operator's foot is removed from the switch it automatically and positively breaks the circuit; such switch being shock-proof.

A further object of the invention is to provide a switch in which the contacts are heavy-duty, long wearing, and do not tend to arc, burn or stick during operation of the welding apparatus.

A further object of the invention is to produce a simple and inexpensivs device, and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

The figure of the drawing is a perspective view of the switch with the switch box partly broken away.

Referring now more particularly to the characters of reference on the drawing, the switch comprises an upstanding, relatively narrow but elongated switch box 1 which is insulated on the inside by the provision of a dielectric lining 2.

The box 1 includes a base 3 and a top plate 4, both of dielectric material; the top plate 4 being removably secured to the box by means of screws 5.

An elongated, horizontally disposed flat contact bar 6, of spring metal, is disposed within the insulated switch box 1 of vertical movement between the sides of the latter. The bar 6 is supported for such vertical movement by the following arrangement:

A vertical actuator shaft or plunger 7 slidably extends through the dielectric top plate 4, being guided by a vertically elongated collar 8 formed in connection with an attachment plate 9 secured to said top plate. At its upper and outer end the plunger 7 is fitted with a cap or foot pedal 10 of rubber or the like. Below the top plate 4 the plunger 7 is threaded, as at 11, with said

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threaded portion extending through the contact bar 6 centrally of its ends. Lock nuts 12 on the threaded portion of the plunger engage against the top and bottom of the contact bar 6, fixedly securing the latter to said plunger.

Below the lowermost nut 12 the plunger 7 protrudes into the upper end portion of a vertically disposed helical compression spring 13, said spring seating at its lower end on the dielectric base 3, and engaging at its upper end against the bottom of the contact bar 6. The spring 13 normally maintains the contact bar 6 is an elevated position, as shown in the drawing.

At opposite ends the contact bar 6 is fitted with downwardly depending contact blocks 14, which are semi-circular in cross section with the flat side abutting against the bar 6. The contact blocks 14 are attached to the bar 6 by means of screws 15. The contact blocks 14 are adapted to engage in circuit closing relation and upon downward movement of the contact bar, with corresponding fixed contacts 16 mounted in the switch box 1 on the base 3 in spaced relation lengthwise of the latter. The fixed contacts 16 are of substantially U-shape, disposed with the legs horizontal; the lower legs resting on the base 3 and being secured thereto by screws 17. The upper legs, which are indicated at 18, are disposed so that the semi-circular contact blocks 14 abut thereagainst upon lowering of the contact bar 6.

The fixed contacts 16, in the cradle thereof, each fixedly engage with a metallic shank 19 formed on one end of a split-sleeve type connector 20; the connectors 20 projecting through opposite sides of the switch box, being insulated from the latter by means of dielectric grommets or collars 21 fixed in said sides and through which the connectors 20 project in close fitting relation. The split sleeve connectors 20 are one part of a two-part type detachable cable connecting unit, the other part of said unit being secured to a corresponding end of the cable (not shown) in which the switch is adapted to be connected.

In use of the above described switch it is interposed in the "hot" lead of the welding circuit at a point adjacent the work, whereby the operator may actuate the plunger 7 by placing his foot on the cap or pedal 10. Before the arc is drawn by the operator he depresses the pedal 10, which in turn lowers the contact bar 6 engaging the semi-circular contact blocks 14 with the upper legs 18 of the fixed contacts 16. This positively closes the circuit, and thereafter the operator

draws the arc and performs the welding operation. When such operation is complete, the operator releases his foot from the pedal 10, whereupon the spring 13 automatically and positively raises the contact bar 6, together with the contact blocks 14, breaking the circuit between the latter and the fixed contacts 16.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent is desired:

1. A switch comprising an upstanding, elongated switch box having a base, sides and a top, an elongated contact bar disposed lengthwise in the box between the base and top, a plunger slidably extending into the box from above and through the top, means securing the bar intermediate its ends to the plunger, the upper end of the plunger being exposed for foot actuation, contact blocks on and depending from opposite ends of the bar, said blocks being semi-circular in cross section with the curved portion lowermost, generally U shaped contacts fixed on the

base below and for engagement by corresponding contact blocks, said U shaped contacts having one leg secured to the base and the other leg uppermost and substantially parallel to the bar, cable connectors extending through the sides of the box and attached in the cradle of corresponding ones of said U shaped contacts, and an upstanding compression spring between the base and bar normally urging the latter upwardly to a position with the contact blocks clear of the fixed contacts.

2. A switch box having a base, sides and top, a plunger slidably extending through the top and exposed at its outer end for foot actuation, an elongated flat spring metal bar secured on the plunger within the box, a contact block on the under face of the bar at each end thereof, such blocks being semi-circular in cross section with the curved faces extending downwardly, generally U-shaped contacts fixed in the base below the blocks, the curved ends of such U-shaped contacts facing each other and being in line with said curved blocks whereby upon depression of the plunger the curved block faces will frictionally engage the curved faces of the U-shaped contacts under the tension of the spring bar, separate spring means functioning to separate the contacts when pressure on the plunger is released, and cable connectors projecting through the sides of the box and secured to the U-shaped contacts.

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