

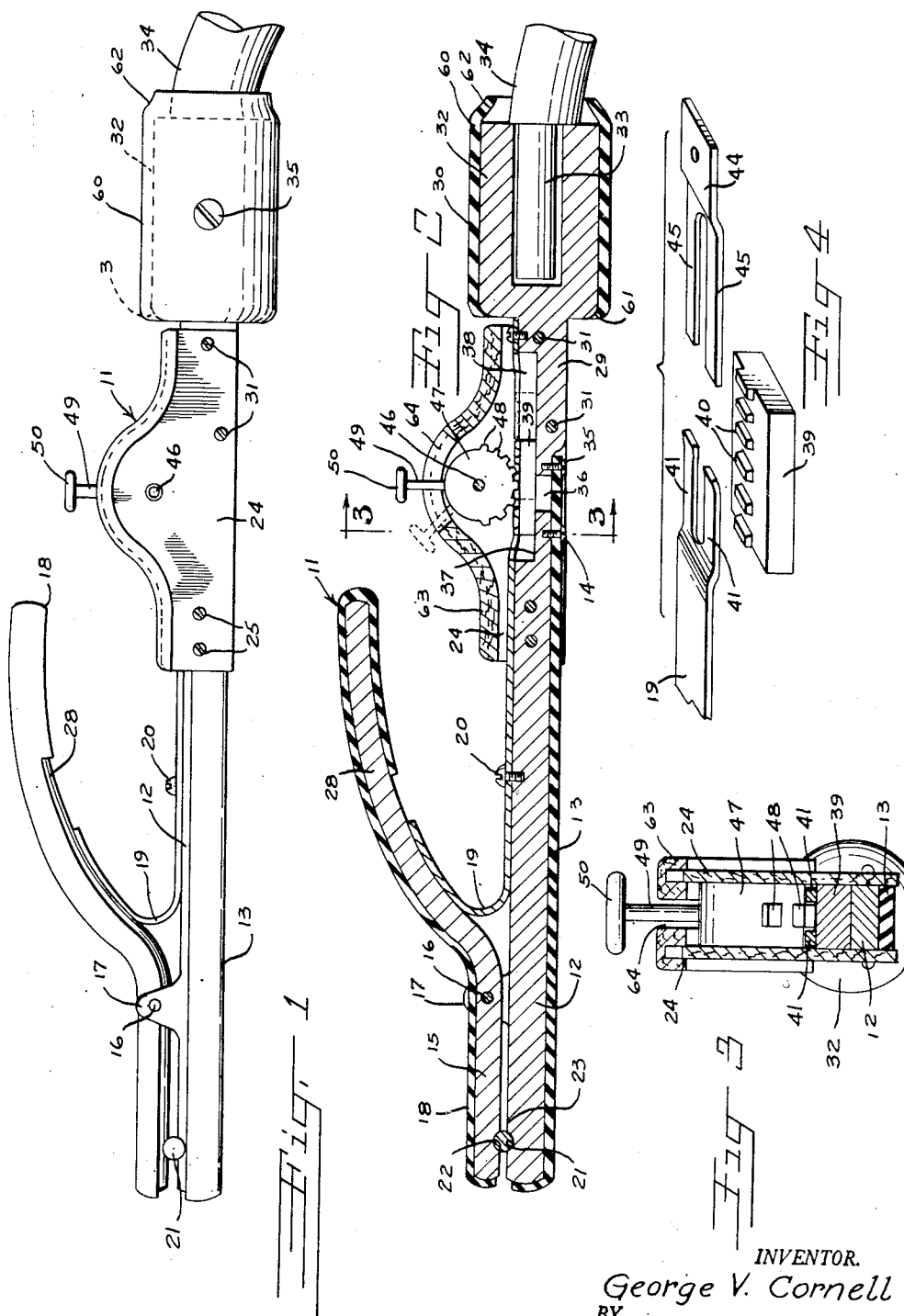
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SWITCH-CONTROLLED ELECTRODE HOLDER

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SWITCH-CONTROLLED ELECTRODE
HOLDER

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1 Claim. (Cl. 219—8)

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This invention relates to electrode holders for electric welding, and more particularly to an improved electrode holder of the type provided with a switch for disconnecting the electrode holder from the current supply when desired.

A main object of the invention is to provide a novel and improved electrode holder having a disconnecting switch incorporated therein, said holder being simple in construction, being easy to manipulate, and involving relatively few parts.

A further object of the invention is to provide an improved electrode holder of the type provided with a disconnecting switch, said electrode holder being inexpensive to fabricate, being durable in construction, and being operable by simple movements of the user's hand.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an improved electrode holder constructed in accordance with the present invention.

Figure 2 is a longitudinal vertical cross sectional view taken through the electrode holder of Figure 1.

Figure 3 is an enlarged transverse vertical cross sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a fragmentary perspective view showing the movable switch block member and the retaining springs associated therewith, as employed in the electrode holder illustrated in Figures 1, 2 and 3.

Referring to the drawings, the improved electrode holder is designated generally at 11 and comprises a first jaw 12 of conductive material which is surrounded at its lower exposed surfaces by the insulating sheath 13. The sheath 13 may comprise any suitable insulating sheet material, such as a molded plastic sheath which is secured to the exposed surfaces of the electrode jaw 12, as by cementing or the like, and is further secured at its rear portion to said jaw 12 by a machine screw 14, as shown in Figure 2. Designated at 15 is a second jaw of conductive material which is pivotally connected to the first jaw 12 at 16, as by a transverse pin extending through the intermediate portion of the second jaw 15 and through a pair of upstanding lugs 17 integrally formed on the first jaw 12 and extending upwardly on opposite sides of the second jaw 15. The exterior exposed surfaces of the second jaw 15 are covered by a suitable insulating sheath 18, for example, a sheath of molded plastic material similar to the material of the sheath 13, suitably secured, as by

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cementing or the like to the exterior exposed surfaces of the second jaw 15. The second jaw 15 is biased counterclockwise, as viewed in Figure 1, by a U-shaped leaf spring 19 disposed between the under surface of the rear portion of the jaw 15 and the top surface of the rear portion of the jaw 12, as shown in Figure 1, the bottom arm of the leaf spring 19 being secured to the jaw 12 by a machine screw 20 or the like. The opposing forward portions of the jaws 15 and 12 are formed with suitable opposing transverse grooves 21 and 22 to receive a welding rod 23, as shown in Figure 2, whereby the welding rod will be clamped between the jaws 12 and 15 by the force exerted on the jaws by leaf spring 19.

Designated at 24, 24 are parallel insulating plates secured to the rear portion of the first jaw 12, as by the transverse bolts 25, 25, the insulating plates being located subadjacent to the upwardly and rearwardly curved handle portion 28 of the second jaw 15. Secured between the rear portions of the insulating plates 24, 24 is the shank 29 of the cable terminal 30, the shank 29 being secured between the insulating plates in any suitable manner, as by transverse bolts 31. The cable terminal 30 is provided with the sleeve portion 32 in which the end 33 of the current supply wire 34 is clamped, as by a set screw 35.

As shown in Figure 1, the insulating sheath 13 may be secured to the end portion of shank 29 of the cable terminal, as by a machine screw 35, whereby the rear portion of the sheath 13 underlies the gap 36 between the ends of jaw 12 and shank 29, as is clearly shown in Figure 1.

The rear end portion of the jaw 12 and the adjacent end portion of the shank 29 of cable terminal 30 are longitudinally grooved, as shown at 37 and 38. Slidably received in the aligned grooves 37 and 38 is a conductive block member 39 which is slidable into bridging contact with the end portions of the jaw 12 and shank 29, as shown in Figure 2, but which may be moved laterally, namely, to the right, as viewed in Figure 2, to disconnect jaw 12 from shank 29.

The conductive block 39 is formed with the rack teeth 40 located on the intermediate portion of its top surface and extending longitudinally thereon, the rear end portion of the lower arm of spring 19 being formed with the downwardly offset retaining fingers 41, 41 which are engageable with the top surface of the conductive block 39 on opposite sides of the rack teeth 40 when the conductive block is in its bridging position, shown in Figure 2, the fingers 41, 41 terminating substantially over the end of the electrode jaw 12,

whereby the block 39 is disengaged from the fingers 41, 41 when said block is moved to its disconnecting position, shown in dotted view in Figure 2. Secured to the shank 29 of the cable terminal 30 is a retaining spring 44 having the downwardly offset retaining fingers 45, 45 which are engageable on the top surface of the conductive block 39 on opposite sides of the rack teeth 40 to retain the sliding block in the groove 38 of shank 29. As shown in Figure 4, the retaining fingers 45, 45 terminate a substantial distance from the ends of the retaining fingers 41, 41.

Rotatably mounted between the insulating plates 24, 24, as on a transverse pin element 46 is the disc member 47 formed with the gear teeth 48 which mesh with the rack teeth 40. Rigidly secured to the top portion of the periphery of the disc 47, as viewed in Figure 2, is the upwardly projecting arm 49 formed at its end with the button or knob 50 which may be readily operated by the hand of the welder to rotate disc 47, when desired. Thus, when it is desired to disconnect jaw 12 from the cable terminal shank 29, the operator merely rotates the arm 49 counterclockwise, as viewed in Figure 2, to the dotted line position thereof shown in said figure, whereby the conductive block 39 is moved to the right, to its dotted line position shown in Figure 2, thus disconnecting the electrode jaw 12 from the terminal shank 29. When it is desired to reconnect the jaw 12 to the terminal shank 29, the knob 50 is merely rotated clockwise, as viewed in Figure 2, to its full line position, which returns the conductive block 39 to the bridging position thereof shown in Figure 2, whereby the shank 29 is electrically connected to the jaw 12.

Secured on the sleeve portion 32 is a protective insulating cover 60 of hard rubber or other suitable insulating material, the forward end of the cover being flanged inwardly at 61 to engage the forward annular shoulder defined by the sleeve portion 32, and the rear end of the cover tapering inwardly at 62 to overlie the end of the insulation on the current supply wire 34.

Secured on the top edges of the vertical insulating plates 24, 24 is a protective cover 63 of fibre or

other suitable insulating material, said cover being formed with a longitudinal slot 64 through which the arm 49 extends and in which said arm is rotatable.

While a specific embodiment of an improved electrode holder for welding has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

In an electrode holder for welding, a first jaw of conductive material, a second jaw pivotally connected to said first jaw, spring means biasing the forward portions of said jaws together, whereby a welding rod may be clamped therebetween, said second jaw having a rearwardly extending arm portion, a pair of parallel insulating plates secured to the rear end portion of said first jaw and being arranged adjacent said arm portion, a cable terminal secured between said insulating plate adjacent to but spaced from the rear end of said first jaw, a conductive block member slidably engaged on said terminal and being movable into sliding contact with the rear end of said first jaw, a switch operating member rotatably mounted between said insulating plates and gearingly engaging said block member, the rear end of said first jaw and said terminal being longitudinally grooved to define a guide channel receiving said block member, and spring means on the terminal engaging said block member and maintaining said block member in said guide channel.

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