May 14, 1940. P. BOURQUE 2,200,947

ELECTRODE HOLDER

Filed June 20, 1938

Fig. 1.

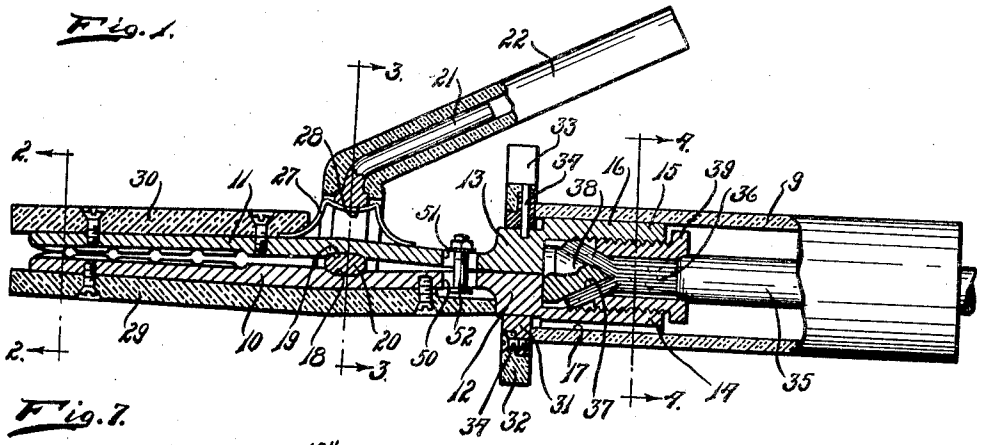


Fig. 7.

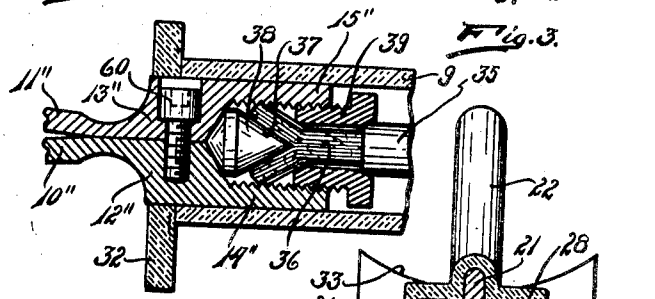


Fig. 3.

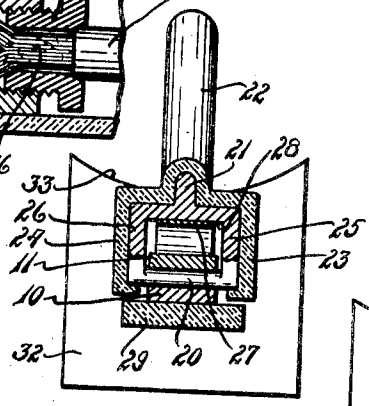


Fig. 4.

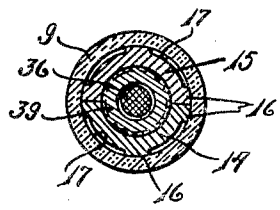


Fig. 2.

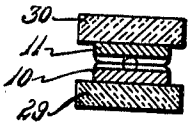


Fig. 6.

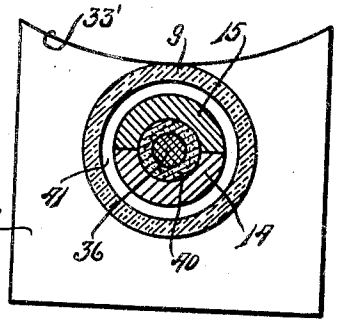
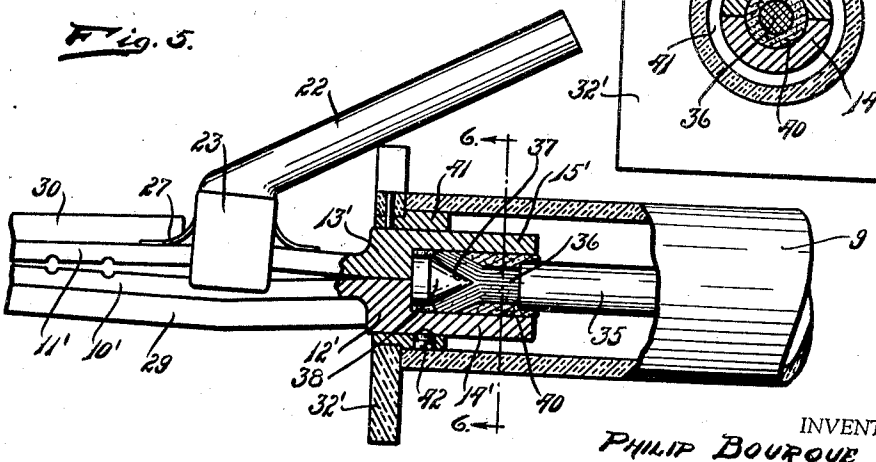


Fig. 5.



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Patented May 14, 1940 2,200,947

UNITED STATES PATENT OFFICE

2,200,947

ELECTRODE HOLDER

Philip Bourque, Detroit, Mich.

Application June 20, 1938, Serial No. 214,739

11 Claims. (Cl. 219—8)

My invention relates to a new and useful improvement in an electrode holder and has for its object the provision of an electrode holder which will be simple in structure, economical of manufacture, durable, highly efficient in use, compact and light.

Another object of the invention is the provision of an electrode holder having a pair of jaw-forming plates projecting outwardly from a semi-circular shank formed integral therewith so that when the jaws are placed in cooperative relation in registration with each other, the semi-circular shank portions will form a cylindrical sleeve in which the end of the cable may be secured.

Another object of the invention is the provision in an electrode holder of a pair of jaw-forming plates having at their ends a semi-circular shank and provided with a retainer adapted for embracing said shank portions and retaining the same together to provide a hollow sleeve.

Another object of the invention is the provision in an electrode holder of a pair of super-imposed jaw-forming members provided with a cam mechanism for spreading the same apart and having a resilient member for engaging the cam handle for preventing rattling of the same when the jaws are spread apart.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawing which forms a part of this specification, and in which:

Fig. 1 is a longitudinal, central, sectional view of the invention with parts shown in side elevation.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a side elevational view of a slightly modified form of the invention with parts broken away and parts shown in section.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5.

Fig. 7 is a fragmentary, central, longitudinal, sectional, view of a modified form of the invention.

As shown in the drawing, I provide a hollow or tubular insulating handle 9. A pair of elongated plates 10 and 11 are provided, formed from suitable resilient material, and projecting outwardly from the blocks 12 and 13, respectively, which terminate in semi-circular extensions 14 and 15, respectively. These semi-circular extensions or shank portions form, together with each other, a tubular sleeve internally threaded as clearly shown in Fig. 1. Axially extending, peripherally projecting, spaced ribs 16 engage the inner surface of the tubular handle 9 so that there are channels or air spaces 17 between the inner face of the handle 9 and the periphery of these tubular extensions 14 and 15 thus permitting a circulation of air around the sleeve-forming portions 14 and 15 to prevent excessive heating of the insulating handle 9.

Formed on the inner face of the jaw-forming plates 10 and 11 are oppositely disposed recesses 18 and 19, respectively, in which engages the crossbar 20 of a stirrup which embraces the jaw 11 and projecting centrally outwardly from which, angularly thereto, is the rod 21 which is covered by a tubular gripping member 22 formed from insulating material and which projects beyond the end of the rod 21 and which is provided with the portions 23 and 24 which overlie the legs 25 and 26 of the stirrup for insulating these parts against contact with metal parts. A chair 27 formed from a flat leaf spring is positioned between the face of the jaw 11 and the inner surface of the top 28 of the stirrup so that when the jaws 10 and 11 are sprung apart and a strip of welding wire gripped therebetween, the spring chair will serve to prevent rattling of the stirrup. By rocking downwardly on the member 22, the crossbar 20 of the stirrup will serve to spread the jaws 10 and 11 apart sufficiently to permit the insertion of a welding wire therebetween. Plates 29 and 30 of insulating material are secured to the jaws 10 and 11 to cover the outer faces thereof.

A metallic ring 31 embraces the parts 12 and 13 to retain the portions 14 and 15 in engagement with each other to form a tubular extension or sleeve. This metallic ring is pressed on the parts 12 and 13 by a press fit and carries the shield plate 32 of insulating material, the upper edge of which is cut away as at 33 to provide the necessary clearance for the extension 22. This shield plate 32 embraces the ring 31 and is secured thereto by the screw 34.

The electric cable 35 is led into the rear end of the handle 9 and the bared portion 36 is spread at its ends to provide the pocket 37 into which the conical projection 38 extends, this projection being loosely positioned in the sleeve

formed by the portions 14 and 15. A jam nut 39 is threaded into the portions 14 and 15 to press and lock the cable against the conical spreader 38 thus making a secure contact and connection between the cable and the jaws.

In the form shown in Fig. 5 the jam nut 39 is eliminated as well as the internal threading of the sleeves and the cable is secured in position by means of solder 40.

In this form I have eliminated the ribs 16 and I have provided an embracing ring 41 which is secured in position by the set screw 42 and which carries the shield plate 32'. This ring 41 is formed with a conical bore and the periphery of the extensions 14' and 15' also taper so that, in assembling, the jaws are thrust through the ring 41 and the operating handle mounted in position after the ring 41 is in position. By forcing the ring 41 rearwardly on the parts 14' and 15', a binding of this ring is effected. The shield plate 32' is mounted in position as shown in Fig. 5 and a screw 42 serves to prevent undue axial movement of the ring 41 on the parts 14' and 15'.

In Fig. 7 I have illustrated a further modified form of the invention in which the parts 14'' and 15'', which form extensions on the jaws 10'' and 11'', are secured together by means of a screw 60 which is projected through an opening in the head 13'' and threaded into the head 12'', the extensions 14'' and 15'' being internally threaded for the reception of a jam nut 39 which serves to force the bared end 36 of the cable 35 into close contact with the conical spreader 38.

In all of the forms illustrated, there is provided a cavity-forming portion open at its rear end for the reception of an end of the cable, while separate resilient jaws are connected to and project forwardly from the forward end of the cavity-forming portion.

With an electrode holder constructed in this manner, a light, durable, compact and economical device is provided which is also highly efficient in use. It will be noted that the tubular construction which results from the cooperating extensions 14 and 15 or 14' and 15' or 14'' and 15'' is formed integral with the jaws between which the wire is clamped. It will also be noted that there is a close contact between the cable and the metallic parts which are integral with the jaws thus assuring of a proper and most efficient connection.

In Fig. 1 I have shown the jaws 10 and 11 provided adjacent their butt or rear ends with slots 50 and 51, respectively, for the reception of a bolt 52. By threading the nut tightly on the bolt, the jaws may be clamped together at this point and it will be noted that the jaws begin a spreading or separation proceeding from adjacent their butt ends. Consequently, by moving the bolt 52 forwardly or rearwardly, or by tightening or loosening the nut of the bolt 52 the tension of the jaws at the outer ends may be adjusted.

While I have illustrated and described the preferred form of construction, I do not wish to limit myself to the precise details of structure shown, but desire to avail myself of such variations and modifications as may come within the scope of the appended claims.

What I claim as new is:

1. In an electrode holder of the class described; a pair of registering jaws adapted for being sprung apart; a rockable member extending between said jaws and adapted upon rocking movement for springing the same apart; and a spring engaging one of said jaws and engaging said rockable member for normally resisting movement of said rockable member relatively to said jaw.

2. In an electrode holder of the class described: a pair of jaws in registering relation adapted for being sprung apart; a stirrup embracing one of said jaws and having a portion lying between said jaws and adapted, upon rocking movement of said portion, for springing said jaws apart; and a spring lying between the outer face of one of said jaws and said stirrup and engaging the same for normally resisting relative movement of said stirrup and said jaw.

3. In an electrode holder of the class described: a pair of jaws in registering relation with each other and adapted for being sprung apart; a stirrup embracing one of said jaws and having a portion lying between said jaws, the rocking of said portion effecting a spreading apart of said jaws; a substantially U-shaped spring having the legs flared outwardly positioned between the outer face of one of said jaws and said stirrup and engaging said stirrup and said outer face and adapted for normally resisting relative movement of said stirrup and said jaw.

4. In an electrode holder of the class described: a pair of jaws in registering relation with each other and adapted for being sprung apart; a stirrup embracing one of said jaws and having a portion lying between said jaws, the rocking of said portion effecting a spreading apart of said jaws; a substantially U-shaped spring having the legs flared outwardly positioned between the outer face of one of said jaws and said stirrup and engaging said stirrup and said outer face and adapted for normally resisting relative movement of said stirrup and said jaw; and adapted, upon relative movement of said stirrup and said jaw for moving longitudinally of said body in unison with a portion of said stirrup.

5. In an electrode holder of the class described having a pair of superimposed registering jaws engaging each other at their opposite ends and bowed intermediate their ends, said jaws having registering elongated longitudinally extending slots; and a bolt engaging in said slot and adapted upon longitudinal movement relatively to said jaws for adjusting the tension thereof.

6. In an electrode holder of the class described: a pair of jaws adapted for being superimposed in registering relation; a concave extension on one end of each of said jaws, said extensions being adapted for, upon the superimposing of said jaws in registering relation, registering with each other and forming a tubular portion, said tubular portion being internally threaded and adapted for the reception of one end of a cable; a jam nut having a passage formed therethrough threadable into said tubular portion for securing one end of a cable in position therein; and means in said tubular portion for spreading said end of said cable apart, said jam nut clamping the spread apart end of said cable against said spreading means.

7. An electrode holder of the class described, comprising: a pair of jaws in registering relation adapted for being sprung apart; a stirrup embracing one of said jaws and having a portion lying between said jaws and adapted, upon rocking movement of said portion, for springing said jaws apart; and a spring lying between the outer face of said embraced jaw and said stirrup, and engaging said face and said stirrup for normally resisting a relative approach of the same,

and movable longitudinally of said face in unison with said stirrup upon a rocking of said portion of said stirrup lying between said jaws.

8. In an electrode holder of the class described, a pair of blocks adapted for being positioned in superimposed relation to each other and in engagement with one of the faces thereof, the anterior portion of each of said blocks at said face being formed concave to provide, with the other of said blocks, a tubular body; an elongated jaw-forming plate projecting forwardly from each of said blocks and over-lying each other in superimposed relation, said jaws having registering openings formed therein forwardly of said blocks; and a securing member projecting through said openings for securing said jaws together and maintaining said blocks in relative engagement.

9. In an electrode holder of the class described, a pair of blocks adapted for being positioned in superimposed relation to each other and in engagement with one of the faces thereof, the anterior portion of each of said blocks at said face being formed concave to provide a tubular body; an elongated jaw-forming plate projecting forwardly from each of said blocks and over-lying each other in superimposed relation, said jaws having registering elongated longitudinally directed slots formed therein; and a securing member projected through said slots for clamping said jaws together and maintaining said blocks in relative engagement, said jaws forwardly of said slots being formed arcuate, and the position of said securing member in said slots adjusting the tension of said jaws.

10. In an electrode holder of the class described, a pair of blocks adapted for being positioned in superimposed relation to each other and in engagement with each other at the opposed faces thereof; an elongated jaw forming plate projecting forwardly from each of said blocks and overlying each other in superimposed relation, said jaws having registering openings formed therein forwardly of said blocks, said jaws forwardly from said openings being formed arcuate; and a securing member projected through said openings for securing said jaws together and maintaining said blocks in relative engagement and adapted for adjusting the tension of said jaws.

11. An electrode holder of the class described, comprising: a cavity-forming portion open at its rear end for the reception of an end of an electric cable; a pair of elongated resilient jaw-forming plates connected to and projecting forwardly from the forward end of said cavity-forming portion and overlying each other in super-imposed relation, said jaws, forwardly of said cavity-forming portion, being formed arcuate and provided, in said arcuate portion, forwardly of said cavity-forming portion, with registering openings; a rockable member extending between said jaws forwardly of said openings and adapted, upon rocking movement in one direction, for springing said jaws apart; and a securing member projected through said openings for securing said jaws together and adjusting the tension of said jaws.

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