J. K. BAKER AND T. E. McGUIRE.

ELECTRIC WELDING TOOL.

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1,313,572.

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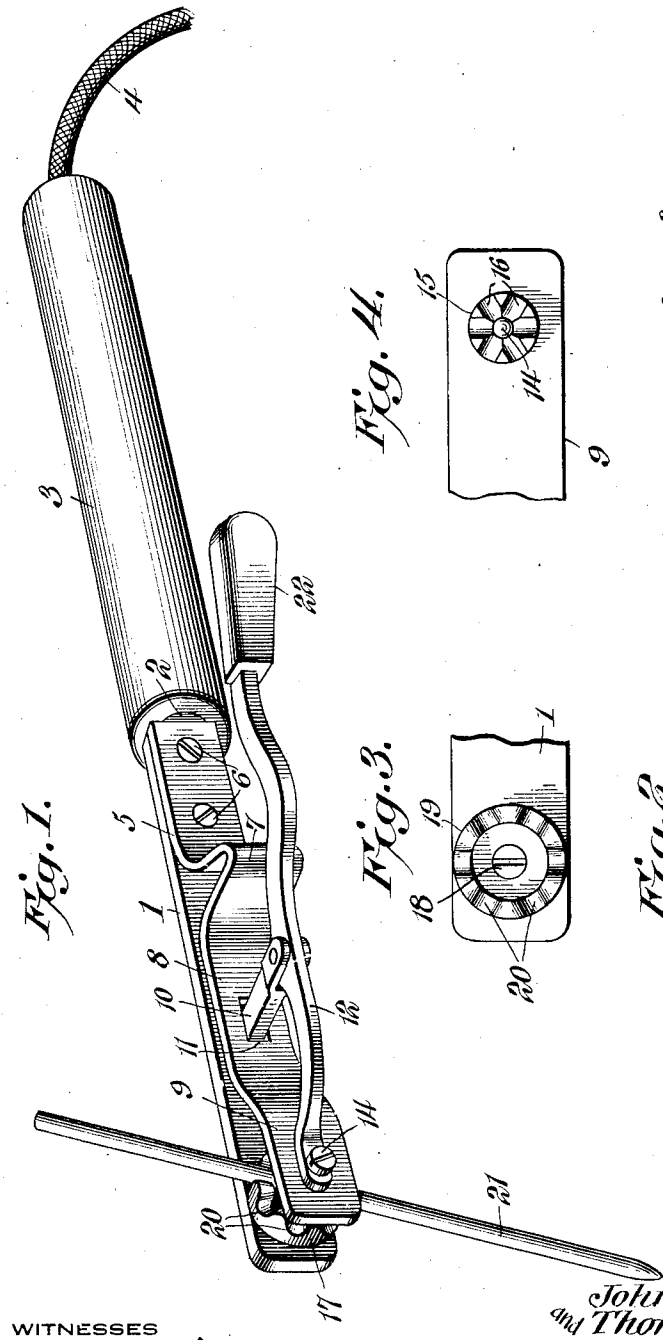


Fig. 1.

Fig. 4.

Fig. 3.

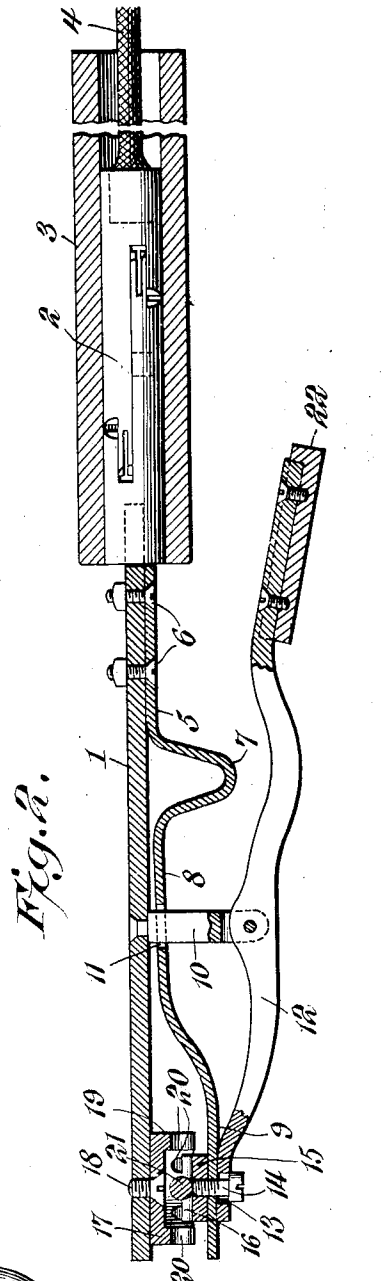


Fig. 2.

WITNESSES

Howard D. Orr.

W. T. Chapman.

John K. Baker and Thomas E. McGuire, INVENTORS,

BY

C. L. Siggers.

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN K. BAKER, OF IRWIN, AND THOMAS E. McGUIRE, OF EAST PITTSBURGH, PENNSYLVANIA.

ELECTRIC WELDING-TOOL.

1,313,572. Specification of Letters Patent. Patented Aug. 19, 1919.

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To all whom it may concern:

Be it known that we, JOHN K. BAKER and THOMAS E. McGUIRE, citizens of the United States, residing, respectively, at Irwin and East Pittsburgh, in the respective counties of Westmoreland and Allegheny and State of Pennsylvania, have invented a new and useful Electric Welding-Tool, of which the following is a specification.

This invention has reference to electric welding tools, and its object is to provide a tool especially adapted for arc welding.

In accordance with the invention there is provided a handle with a shank carrying a leaf spring, the shank and leaf spring being provided with opposed jaws correspondingly notched to receive a rod electrode such as is commonly used in arc welding. The electrode holders are rotatable and associated with the spring is a lever for moving one electrode holder away from the other in opposition to the normal tendency of the spring. The handle end of the electrode holder contains a terminal or connection for the reception of an electric conductor, the work itself constituting the opposite electrode of the device.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:—

Figure 1 is a perspective view of the electrode holder with an electrode mounted therein.

Fig. 2 is a longitudinal section through the holder, some parts being shown in elevation and other parts broken away.

Fig. 3 is a face view of the jaw mounted on the handle shank.

Fig. 4 is a face view of the jaw mounted on the spring.

Referring to the drawing, there is shown a shank 1 which may be conveniently made of metal such as iron or steel and is preferably made in the form of a flat strip of suitable length, a piece of flat bar iron, or steel, of appropriate width and length being customarily employed, although the shank may be otherwise formed.

At the base end of the shank there is secured thereto or formed thereon a handle extension 2 with a gripping member 3 forming a sheath therefor. The member 3 may be made of wood or other suitable material of a non-conducting nature for the current to be employed and also having heat insulating properties so that heat conducted along the shank in the operation of the tool will not reach the hand of the operator grasping the handle sheath or gripping member 3, which gripping member may be tubular throughout. An electric conductor 4 is made fast to the handle portion 2 which is assumed to be made of metal and to which the shank 1 is made permanently fast.

Secured to the shank 1 near the handle 2 is one end of a leaf spring 5 which may be of a width corresponding to the shank 1, although such particular structure is not obligatory. The spring 5 is made fast to the shank 1 by bolts 6 or rivets or in any other manner suitable for the purpose. Near the bolts 6 the spring 5 has a return bend 7 contributing to its elasticity and avoiding overstiffness of the spring, while at the same time permitting it to be of sturdy structure. Beyond the return bend 7 toward the outer end of the spring is a relatively flat portion 8 and still farther removed from the return bend 7 the spring has a continuation 9 normally bent away for a short distance from the shank 1. At an intermediate point about midway of the length of the flat portion 8 a post 10 is made fast to the shank 1 and projects through a passage 11 in the spring, the post serving to an extent as a guide for the spring. Pivotally connected to the end of the post 10 remote from the shank 1 is a lever 12 extending from a point partially overhanging the handle sheath 3 to a point close to the outer end of the spring 5 where the lever 12 has a longitudinally extended slot 13 therethrough traversed by a screw 14 also traversing the spring 5, the head of the screw being sufficiently larger than the slot 13 in one direction to permit a limited relative movement between the spring and lever, while the shank of the screw is of less diameter than the extent of the slot 13 lengthwise of the lever.

The screw 14 carries on the side of the

spring 8 toward the shank 1 a block 15 with the face remote from the spring traversed by radial grooves 16. The screw 14 serves as a retaining means for the block 15 and holds it firmly and snugly but not too firmly to prevent rotation of the block 15 under sufficient force.

Fast to the shank 1 in opposition to the block 15 is another block 17 held to the shank by a screw 18 so as to be capable of rotation under sufficient force. The block 17 is formed with a cylindrical flange 19 about its edge and this flange is provided with a circular series of notches 20. The block 15 is of a size approaching the inner diameter of the flange 19 so that the block will enter the flange when the spring 5 is in its nearest approach to the shank 1. The number of grooves 16 and notches 20 agree and the two blocks 15 and 17 constitute opposed gripping jaws so that when the jaws are suitably shaped a rod electrode 21 may be introduced between them and seated in the diametrically opposed notches 20 and in opposed radial grooves 16, whereby the rod 21 is firmly gripped in the holder. Since both jaws are capable of rotation under suitable force the electrode 21 may be placed in various relations to the holder to facilitate the use of the electrode in arc welding, the range of adjustment of the electrode including the greater part of a circle. The two jaws may readily be made tight enough in their connections with the shank 1 and spring 5 to prevent accidental movement under the conditions of use and yet permit intended movements for adjustment.

The lever 12 at the end remote from its connection with the spring 5 has a handle 22 of wood or some other suitable material which is both a heat and an electrical insulator. By making the grooves 16 relatively shallow and the notches 20 considerably deeper than the grooves 16 the jaw 15 may be firmly secured to the spring 5, in which case, when it is desired to adjust the electrode into different angular positions with respect to the length of the holder, the handle 22 is moved toward the handle 3 and the electrode 21 may be easily moved from one angular position to another, the angular positions, however, being determined by the number of opposed grooves 16. If the jaws be so mounted as to rotate then any angular position may be obtained. The spring 5 has a normal tendency to seat the body 15 in the jaw 17 and the strength of the spring is such as to firmly hold the electrode 21 against movement either longitudinally or circularly under ordinary working conditions.

What is claimed is:—

1. An electric welding tool comprising a handle, a shank carried by and projecting from the handle, a spring extending along the shank and fast at the handle end thereof and at the other end tending toward the shank, coacting jaws on the outer end of the shank and corresponding end of the spring for holding an electrode, and means for moving the spring in opposition to its normal tendency.

2. An electric welding tool comprising a handle, a shank carried by and projecting from the handle, a spring extending along the shank and fast at the handle end thereof and at the other end tending toward the shank, coacting jaws on the outer end of the shank and corresponding end of the spring for holding an electrode, and means for moving the spring in opposition to its normal tendency, the jaws being rotatably mounted and provided with matching receptacles for the electrode.

3. An electric welding tool comprising a handle portion and a shank portion, a leaf spring extending along the shank portion and fast to the handle end thereof with the other end of the spring tending toward the coresponding end of the shank, electrode receiving and holding jaws on the shank and spring respectively, and a lever mounted on the shank and connected at one end to the outer end of the spring and having its other end provided with a handle adjacent to the handle of the electrode holder.

4. An electric welding tool comprising a shank, a handle at one end of the shank, an electrode-holding jaw at the other end of the shank, a post intermediate of the length of the shank, a leaf spring fast to the shank near its handle end and traversed by the post, an electrode-engaging jaw carried by the spring in opposition to the jaw on the shank, and a lever mounted on the post and connected at one end to the outer end of the spring and at the other end provided with a handle associated with the handle on the shank.

5. An electric welding tool comprising a shank, a handle at one end of the shank, an electrode-holding jaw at the other end of the shank, a post intermediate of the length of the shank, a leaf spring fast to the shank near its handle end and traversed by the post, an electrode-engaging jaw carried by the spring in opposition to the jaw on the shank, and a lever mounted on the post and connected at one end to the outer end of the spring and at the other end provided with a handle associated with the handle on the shank, the jaw on the shank having a circular series of notches and shaped to receive the jaw on the spring and said jaw on the spring having a circular series of notches corresponding in number to those of the first-named jaw.

6. An electric welding tool comprising a shank, a handle at one end of the shank, an

electrode-holding jaw at the other end of the shank, a post intermediate of the length of the shank, a leaf spring fast to the shank near its handle end and traversed by the post, an electrode-engaging jaw carried by the spring in opposition to the jaw on the shank, and a lever mounted on the post and connected at one end to the outer end of the spring and at the other end provided with a handle associated with the handle on the shank, the jaw on the shank having a circular series of notches and shaped to receive the jaw on the spring and said jaw on the spring having a circular series of notches corresponding in number to those of the first-named jaw, and said jaw on the spring being of a size to enter the jaw on the shank.

7. An electric welding tool provided with opposed electrode-holding jaws having a normal tendency toward each other, said jaws having matching notches for receiving an electrode and rotatable to hold an electrode gripped between them in different angular positions with respect to the longitudinal axis of the welding tool.

8. An electric welding tool comprising a shank, a handle, a leaf spring fast at one end to the shank and provided at an intermediate point with a return bend, and opposed jaws carried by the shank and spring for gripping an electrode between them.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures.

JOHN K. BAKER.
THOMAS E. McGUIRE.

Witnesses:
ADAM SCHADE,
CHARLES H. HILD.