Oct. 21, 1947. M. SAVON 2,429,526

MAGNETIC GROUND DEVICE

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Fig. 1.

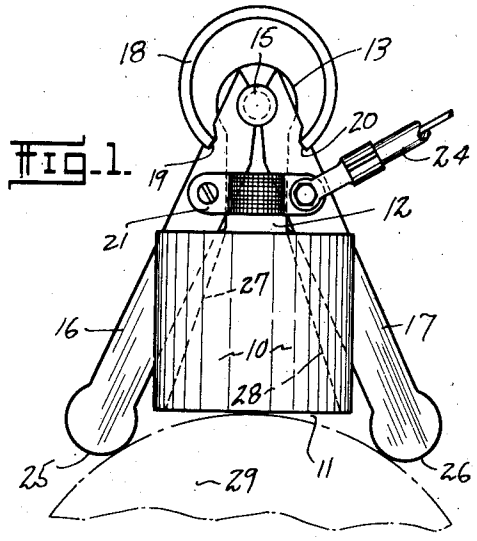


Fig. 2.

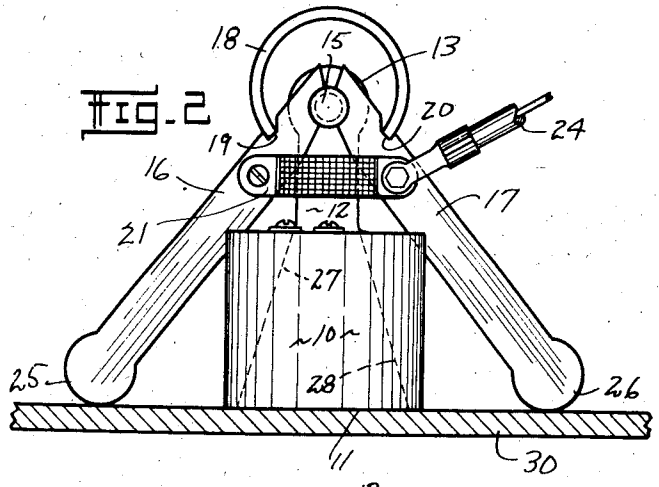
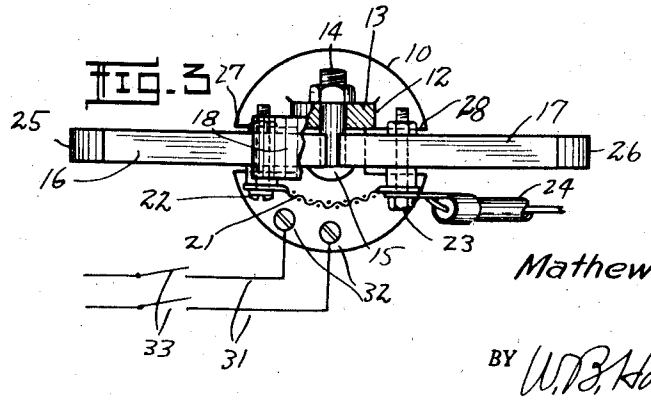


Fig. 3.



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MAGNETIC GROUND DEVICE

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3 Claims. (Cl. 173—324)

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This invention relates to a magnetic ground device as employed by welders in effecting a ground to material being welded.

The principal object of the invention is the provision of a magnetic ground device capable of retaining itself in position on a metal work piece.

A further object of the invention is the provision of a magnetic ground device capable of maintaining itself on the metal work pieces of various shapes and sizes.

A still further object of the invention is the provision of a magnetic ground device incorporating a plurality of current conducting members to engage the work piece and means for tensioning the said ground engaging member against the work piece.

A still further object of the invention is the provision of a magnetic ground device utilizing a permanent magnet such as Alnico.

A still further object of the invention is the provision of a magnetic ground device utilizing an electromagnet.

The magnetic ground device shown and described herein has been devised to form a convenient and practical means of establishing a ground connection to a work piece for an electric welding operation thereon. It is known that various types of clamps and shoes have been devised to effect a satisfactory ground connection for an electric welding operation with the work piece to be welded. It is also known that many of these devices are cumbersome, difficult to install and fail to provide a satisfactory ground for the welding current. The present device has been devised to overcome the objectionable points of the devices heretofore known in the art.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of the magnetic ground device in position on a curved surface.

Figure 2 is a side elevation of the magnetic ground device in position on a flat surface.

Figure 3 is a top plan view of the device illustrated in Figure 2.

By referring to the drawings and Figures 1 and 2 in particular it will be observed that a magnetic ground device has been illustrated which comprises a magnetic body 10 which may obviously be either a fixed magnet incorporating a magnetic material such as Alnico properly magnetized or include an electromagnet subject to energization from a power source. The magnetic body 10 is preferably circular in form, as illustrated in the top plan view of Figure 3, and has a flat base section 11 of sufficient area to adequately engage a metallic object to which a ground connection for electric welding is to be established. An upstanding bracket 12 is formed off-center with respect to the top of the magnetic body 10 and is provided near its uppermost end with an enlarged area 13 and an opening 14 in which a bolt 15 is located and positioned as by means of a nut threadably engaging one end thereof. By referring to Figure 3 of the drawings it will be seen that a portion of the bolt 15 extends outwardly beyond the enlarged area 13 of the upstanding bracket 12 and provides in conjunction therewith means for positioning the uppermost ends of a pair of work engaging arms 16 and 17, respectively. The work engaging arms 16 and 17 are held in engagement against the opposite sides of the bolt 15 by means of a clamping ring 18, the ends of which engage notches 19 and 20, respectively, formed in the outermost surfaces of the work engaging arms 16 and 17 at points inwardly from the uppermost end of the work engaging arms 16 and 17 and also inwardly from the sections of the work engaging arms 16 and 17 in engagement with the bolt 15. A strip of flexible conductor material 21 is connected between the work engaging arms 16 and 17 as by means of bolts 22 and 23 passed therethrough and serves also as a means of attaching a ground cable such as indicated by the numeral 24.

It will thus be seen that the electromagnetic body 10 supports in spring tension relation thereto the pair of work engaging arms 16 and 17 in a manner so that their lowermost ends, which are provided with enlarged work contacting surfaces 25 and 26, respectively, may easily adjust themselves to the particular shape of the work piece against which they are positioned and held by means of the magnetic body 10.

By referring now to Figures 1 and 2 of the drawings it will be observed that a pair of oppositely disposed slots 27 and 28 are formed in the magnetic body member 10, the slots 27 and 28 being deeper at their uppermost ends than at their lowermost ends, and of a width sufficient only to enable the work engaging arms 16 and 17 to move thereinto at such time as required de-

pending upon the surface formation of the work piece the device is employed upon. In Figure 1 the drawings the device is shown in operative position upon a curved surface of a work piece 29 and it will be observed that the work engaging arms 16 and 17 are positioned within the slots 27 and 28 to cause the work contacting ends 25 and 26 thereof to come into forceful engagement with the work piece 29.

In Figure 2 of the drawings, the device illustrated as being in position on a flat work piece 30 which may be horizontal or vertical as, for instance, a metallic floor plate of horizontal location or a vertically positioned wall plate, and it will be seen that the work engaging arms 16 and 17 are substantially clear of the slots 27 and 28 in the body member 10. It is obvious that the magnetic ground device is capable of adjusting itself to the particular surface conformation of the work piece upon which it is located and that it will hold itself in position thereon by means of the magnetic body 10 and thereby establish a desirable ground connection for an electric welding current to be passed therethrough.

In Figure 3 of the drawings an electrical circuit 31 is illustrated as being in connection with terminals 32 on the magnetic body 10 and a conventional switch is indicated by the numeral 33, it being obvious that if desirable the switch may be located directly on the body rather than adjacent thereto.

In Figure 2 of the drawings the electrical connection terminals 32 are also shown to establish electrical connection to an electromagnet in the magnetic body 10 while in Figure 1 no electrical connections are shown, the electromagnetic body comprising a suitably magnetized portion of permanent magnetic material such as Alnico.

It will thus be seen that a simple and efficient magnetic ground device has been disclosed which may be conveniently employed by a workman effecting an electric welding operation on a work piece, it being observed that the electromagnetic device is so formed as to enable it to affix itself practically and efficiently to any type of metallic surface in any location and thereby establish a satisfactory ground connection.

Having thus described my invention, what I claim is:

1. A magnetic ground device including a magnetic body member having a pair of oppositely disposed slots therein and a bracket thereon and a pair of work engaging arms pivotally affixed to said bracket, and a spring for retaining the said work engaging arms in pivotal relation thereto, the said arms partially engaging the said slots, the said slots normally positioning the said arms in operative relationship on the said magnetic ground device.

2. In a magnetic ground device a magnetic body, a bracket formed thereon and extending thereabove, a bolt positioned in the said bracket and a pair of work engaging arms each of which is relatively longer than the height of the said magnetic body pivotally positioned at their uppermost ends of the said bolt and retained thereon by spring means normally urging the said work engaging arms toward each other, slots in said body, the said arms slidably engaging the said slots for positioning the said arms with respect to the said body.

3. A magnetic ground device including a magnetic body member having a bracket thereon and a bolt in said bracket, and a pair of work engaging arms positioned one on each side of said bolt, and spring means urging said arms against said bolt for retaining the said work engaging arms in pivotal relation thereto, and electrical conducting means interconnecting said arms and means for establishing a ground connection thereto.

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