

[54] **ARRANGEMENT FOR GUIDING OF WIRE
ELECTRODES FOR A BURNER FOR
METAL COATING BY MEANS OF AN
ELECTRIC ARC**

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219/76, 130, 136; 118/49, 49.5, 503; 13/16,
17, 25, 20; 269/86**

[56]

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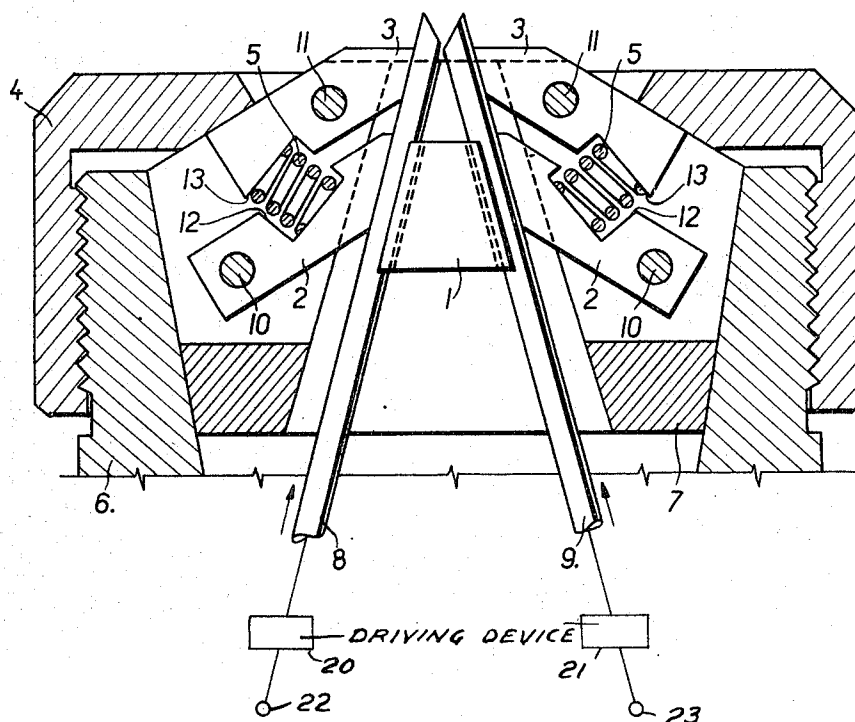
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ABSTRACT

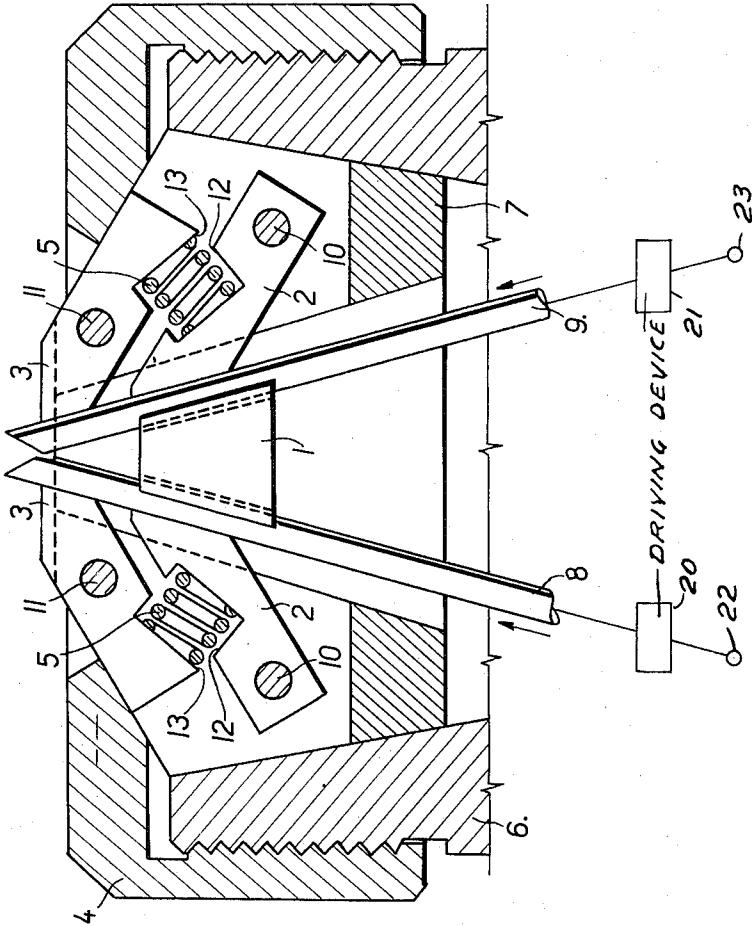
A burner for metal coating by means of an electric arc in which the fusible arc electrodes rest against a stable support, against which they are pressed by first spring loaded chucks. Second spring loaded chucks act on the fusible arc electrodes close to the arc. In case of irregularities of the arc electrodes, maintain thus the arc at a constant place even if the arc electrodes are bent or of irregular thickness.

5 Claims, 1 Drawing Figure



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3,798,411



ARRANGEMENT FOR GUIDING OF WIRE ELECTRODES FOR A BURNER FOR METAL COATING BY MEANS OF AN ELECTRIC ARC

BACKGROUND OF THE INVENTION

This invention relates to a burner for electric arc metal coating of the type having a system for guiding the wire electrodes, for stabilizing the position of both fusible arc electrodes wires and for enabling a correct guiding of wires, even when the electrodes have irregularities.

The wire electrodes of actual burners of this type are guided either by mutually insulated tubes or by simple guiding, whereby the contact place of both free wire ends changes its position either due to a curved shape of the wires or due to irregularities of their cross section. Thus instabilities of the burning of the arc are created and the amount of fused metal varies. If irregularities of the shape or cross section of the wire electrodes appear, the feeding of the wires can be interrupted.

SUMMARY OF THE INVENTION

It is the object of this invention to provide a burner for electric arc metal coating, in which the wire electrodes of the arc are guided so as to safeguard a correct feeding to a constant place even in the event of irregularities in the shape of the wire electrodes in order to achieve a stabilized arc and a regular burning and fusing of the electrodes.

In accordance with the invention the burner for metal coating by means of an electric arc comprises a burner body with a guiding insert with guiding grooves for both arc electrodes. A pair of first spring loaded chucks urges the electrodes against the guiding insert, and a pair of second spring loaded chucks close to the fusing ends of the electrodes secures the correct position of the fusing ends of both electrodes. Stop means determines the initial position of the pair of second chucks.

DESCRIPTION OF DRAWING

An exemplary embodiment of a part of a burner for electric arc metal coating according to this invention is shown in the attached drawing in a cross sectional elevation.

DESCRIPTION OF PREFERRED EMBODIMENT

A supporting piece 7 for the arc electrodes 8 and 9 is inserted into the end of burner body 6. The end of the body 6 is provided with external threads and the internal surface of body 6 widens towards its end. A guiding insert 1 is fixed in the central part of the supporting piece 7, said guiding insert 1 having guiding grooves for both arc electrodes 8 and 9. The supporting piece 7 is secured in the burner body 6 by a covering nut 4 threaded on the external thread of the burner body 6. The electrodes may be driven by conventional means 20, 21, as shown by the arrows, for example as shown in U.S. Pat No. 3,141,616, and are connected to suitable terminals 22, 23.

A pair of supporting bolts 10 are provided in the supporting piece 7, supporting pivotably a pair of first chucks 2 and another pair of supporting bolts 11 are provided supporting pivotably a pair of second chucks 3. Each chuck 2 and 3 has a recess 12 and 13, respectively, opposite to each other. The supporting bolts 10

and 11 are mutually offset and a common spring 5 extending between the recesses 12 and 13 generates a pressure urging the chucks 2, 3 against the electrodes 8, 9 leaning against the guiding insert 1. The pair of chucks 2 and 3 and the guiding insert 1 are at least partially made of some electrically insulating and abrasion resistant material as, for instance, of fused corundum, so that both arc electrodes 8 and 9 are mutually electrically insulated. The guiding insert 1 is stable and determines by its guiding grooves the position of the arc for straight arc electrodes 8, 9. Advantageously, the arc electrodes 8, 9 rest against the guiding insert 1 along two of their generating lines of their surface.

In the course of feeding of straight arc electrodes 8 and 9, when the second chucks 3 are in their initial position, they rest with their rear part against the internal surface of the covering nut 4 and exert substantially no pressure on the arc electrodes 8, 9, which are pressed solely by the first chucks 2 against the guiding insert 1.

If the electrodes 8 or 9 are somewhat bent, they cause a shifting of the arc to one or the other side. In that case the second chucks 3 generate pressure on the ends of the arc electrodes 8, 9 stabilizing the position of the arc, which returns to its original place. If arc electrodes 8, 9 are fed having some irregularities in cross section, the springs 5 enable the first chucks 2 and subsequently also the second chucks to recede so that the irregular part of the arc electrode can pass without difficulty. A common spring 5 is shown in the drawing acting simultaneously to both chucks 2 and 3. It is understood that alternatively each chuck 2 or 3 can be urged against the arc electrodes 8, 9 by its own spring. A still better stability of the arc can be achieved, if the chucks 2 and 3 are also provided with guiding grooves for the arc electrodes 8, 9.

In the exemplary embodiment, the second chucks 3 rest in their initial position with their rear part against the internal surface of the covering nut 4, which simultaneously secures the supporting piece 7 in the burner body 6. If arc electrodes 8, 9 of different cross sections have to be used, special stop means must be provided for adjustment of the correct initial position of the second chucks 3.

The improved stability of the ends of the fusible arc electrodes ensures a quiet burning of the arc and a uniform fusion of the metal, which is particularly of importance for mechanized metal coating, where the individual coating tracks join one another to form a continuous coating. The uniformity of thickness of the deposited layer on each place is directly proportional to the uniformity of fusion of the metal of the arc electrodes.

I claim:

1. An arrangement for guiding a pair of wire electrodes connected to driving means and electric terminals of a burner for metal coating by means of an electric arc comprising in combination:

- a burner body,
- an insulating guiding insert mounted in said burner body with guiding grooves for guiding said wire electrodes at an angle to each other,
- a pair of first spring loaded insulated chucks positioned to urge both wire electrodes against the guiding insert,
- a pair of second spring loaded insulated chucks close to the fusing ends of the wire electrodes, securing

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the correct position of the fusing ends of the electrodes, and stop means positioned to determine the initial position of said second chucks.

2. An arrangement for guiding a pair of wire electrodes connected to driving means and electric terminals of a burner for metal coating by means of an electric arc comprising in combination:

a burner body,

an insulating guide insert mounted in said burner body and having guiding grooves for guiding said wire electrodes at an angle to each other,

a plurality of bolts mounted in fixed positions within said burner body,

first and second pairs of insulated chucks pivotally mounted on said bolts,

said chucks being positioned with each group of one first and one second chuck engageable with a separate electrode and the second chucks being closer to the fusing ends of said electrodes than said first chucks;

a recess in each said chuck on the side thereof toward the other chuck of the same group of first and second chucks;

spring means extending between the recesses of each

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group of first and second chucks, said recesses being spaced from the bolts on which the respective chucks are pivotally mounted whereby said spring means urges both chucks of each group of chucks into engagement with the respective wire electrode; and

stop means positioned to limit the displacement of said second chucks toward said electrodes.

3. The arrangement of claim 2 further comprising a covering nut pivotable on said burner body and having an aperture through which said electrodes are adapted to extend, said stop means comprising a bevelled surface on the inside of said cover nut, said second chucks being positioned to engage said surface to limit the displacement thereof toward said wire electrodes.

4. The arrangement of claim 2 further comprising a supporting piece mounted within said burner body, said bolt being mounted on said supporting piece, said guiding insert being centrally mounted on said supporting piece.

5. The arrangement of claim 4 further comprising a covering nut threaded on said burner body for holding said supporting piece within said burner body.

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