

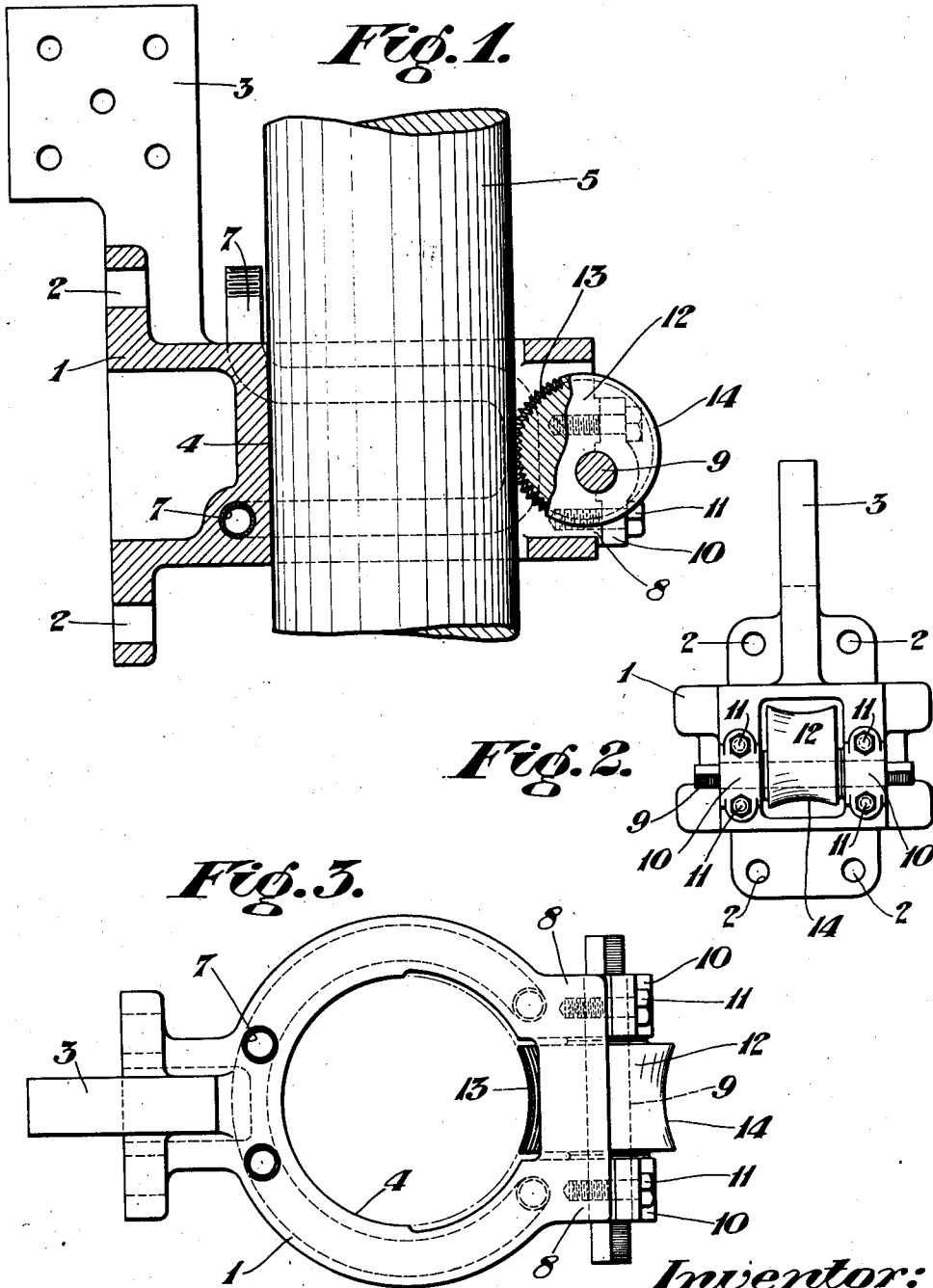
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ELECTRODE HOLDER

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UNITED STATES PATENT OFFICE

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ELECTRODE HOLDER

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This invention relates to electrode holders for use in electrical metallurgical furnaces and the like and it is among the objects of the invention to provide an electrode holder of simple mechanical construction which shall be effective to firmly secure the electrodes in their proper operating positions in such furnaces.

Various forms of electrode holders have been heretofore proposed which function to clamp or wedge the electrode in its supporting structure but most of these have been of somewhat complex mechanical form requiring the use of numerous operating parts.

In accordance with the present invention the electrode is wedged in its support by means of an eccentric clamping member which is mounted to project into the path of the electrode for engagement therewith whereby the clamping action on the electrode is automatically effected by its movement when inserted in the holder.

These and other objects will become more apparent from a consideration of the accompanying drawings in which like reference characters designate like parts and in which—

Figure 1 is a vertical sectional elevational view of an electrode holder and a portion of an electrode embodying the principles of this invention.

Figure 2 is a front elevational view thereof.

Figure 3 is a top plan view.

In the drawings, 1 generally designates a supporting bracket provided with flanges having openings 2 for attachment to a furnace structure and a terminal plate 3, by means of which it is electrically connected with a bus bar. The bracket 1 is provided with an opening 4 conforming generally to the size and shape of an electrode 5 which is inserted therein.

A cooling coil 7 is fitted in a grooved portion of the holder to provide for the circulation of a cooling fluid to protect the metallic parts from excessive heat.

The front end of the supporting bracket 1 is slotted and provided with a half bearing 8 for receiving a shaft 9 which is journaled and retained in position by a pair of

bearing caps 10, the latter being fastened by cap screws 11. An eccentric 12 having a serrated surface 13 is secured to the shaft 9 and is adapted to rotate therewith. The ends of the shaft 9 are squared for receiving a wrench or crank by means of which the shaft can be rotated to engage or release the electrode.

The eccentric 12 is preferably of concave form having a curved outer periphery 14 which is complementary in shape to the outer periphery of the electrode 5 to provide maximum surface contact with the electrode.

In operation, the eccentric is in the position wherein its longest radius is at the top of the shaft 9 and as the electrode 5 is lowered in the holder, the eccentric, by coming in contact therewith, is subjected to angular movement whereby the electrode is wedged against the contacting surface of the supporting bracket 1 and securely held in place. To remove the electrode, it is only necessary to raise it vertically to release the eccentric, but the eccentric may be rotated independently of the axial movement of the electrode by means of a wrench or other turning member which is applied to the squared ends of the shaft 9.

It will be evident from the foregoing description of this invention that electrode holders made in accordance therewith, provide simple and efficient structures for firmly securing or clamping the electrodes in their proper working position, and the use of an eccentric provides a structure possessing a minimum number of working parts thereby reducing the possibilities of rapid wear and destruction.

Although one embodiment of the invention has been herein illustrated and described, it will be obvious to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

An electrode holder for electric furnaces, comprising in combination a one-piece supporting bracket provided with an opening conforming generally to the size and shape of the electrode to be supported, said bracket being slotted at its forward end to receive an

eccentric locking member, a shaft journaled
in bearings on the forward end of said bracket, said eccentric being mounted on said shaft
and rotatable therewith, said eccentric being
5 positioned with its longest radius at its top
and having a serrated concave peripheral surface
complementary to the outer periphery of
the electrode to provide a maximum contact
surface with the electrode, and said shaft
10 having its ends projecting beyond the sides of
said bracket and squared to receive a suitable
tool for rotating said eccentric to grip or release
the electrode.

In testimony whereof, I have hereunto set
15 my hand.

WILLIAM H. WALTER.

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