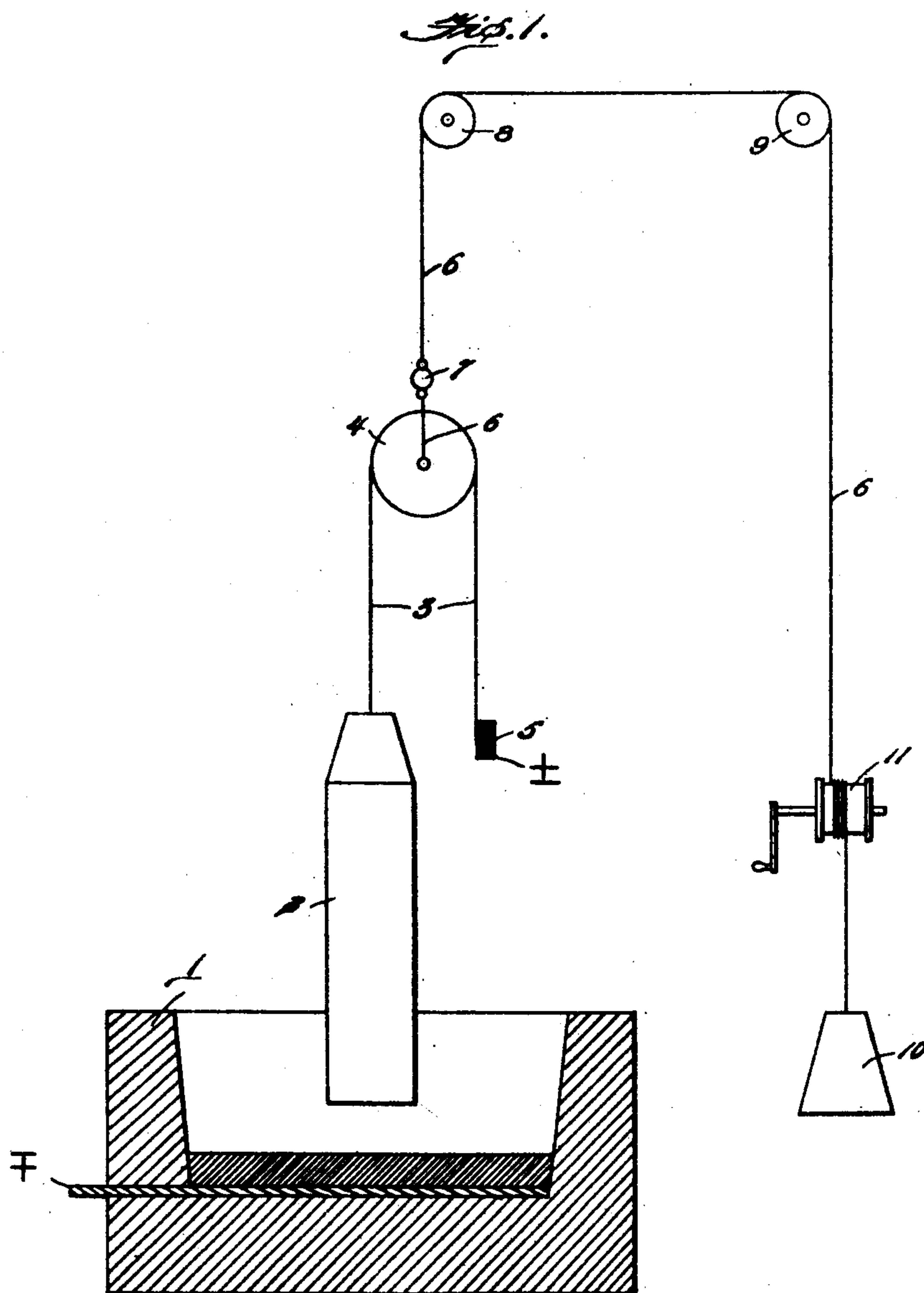


I. R. EDMANDS.
ELECTRODE SUPPORT AND CONDUCTOR.
APPLICATION FILED JAN. 8, 1909.

959,486.

Patented May 31, 1910.

2 SHEETS—SHEET 1.



Witnesses,

B. M. Gifford,
C. H. Potter.

Inventor

Isaac R. Edmonds,
By James, Dumas & Co. Attorneys,
Attys

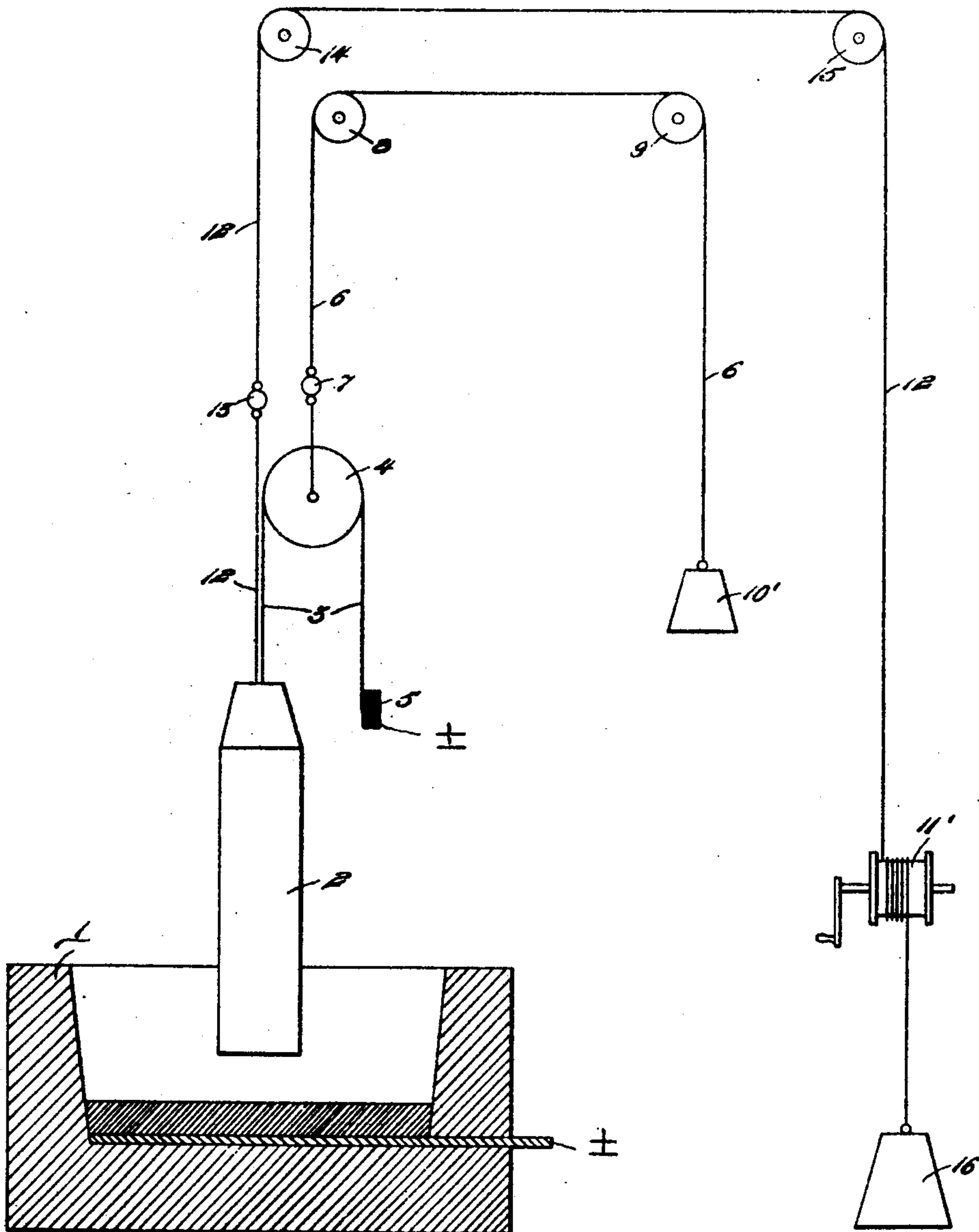
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

ISAAC R. EDMANDS, OF NIAGARA FALLS, NEW YORK, ASSIGNOR TO ELECTRO METALLURGICAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

ELECTRODE SUPPORT AND CONDUCTOR.

959,486.

Specification of Letters Patent. Patented May 31, 1910.

Application filed January 8, 1909. Serial No. 471,350.

To all whom it may concern:

Be it known that I, ISAAC R. EDMANDS, a citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Electrode Supports and Conductors, of which the following is a specification.

This invention relates to mechanism for adjustably supporting the depending electrodes used in electric furnaces, means being provided for counterbalancing the electrode and for taking up slack in the flexible electric conductor as the electrode rises and falls.

Referring to the accompanying drawings—Figure 1 is a diagrammatic side elevation of the preferred mechanism, the electric furnace being shown in section; and Fig. 2 is a similar view of a modified construction.

The electric furnace illustrated comprises an open smelting chamber 1, constituting or carrying one electrode. The other electrode 2 depends into the open top of the furnace. To the upper end of the depending electrode is secured a flexible conductor 3, which passes over a sheave 4 and thence downward to a fixed electric main 5. The sheave 4 is movably supported by a cable or chain 6, the electrical continuity of which is interrupted by an interposed insulator 7. The cable 6 passes over two sheaves 8, 9, its free end carrying a weight 10. In the construction shown in Fig. 1, this weight is of such mass as to counterbalance the weight of the electrode 2, so that this electrode will remain in any position to which it is vertically adjusted. The shifting of the electrode is conveniently effected by a winding-drum 11, receiving two or three turns of the cable 6. As the electrode 2 rises and falls, the flexible conductor 3 rolls on the sheave 4, its vertical portions remaining parallel but changing their length. The conductor is thus automatically maintained in elevated position, out of the way of the furnace operators and away from the heat of the furnace. The arrangement permits of a wide range of ad-

justment of the electrode, while requiring but little head room above the furnace.

In the construction shown in Fig. 2, the electrode 2 is provided with means independent of the flexible conductor 3 for counterbalancing and vertically adjusting it. This means comprises a cable or chain 12, one end of which is secured to the upper end of the electrode, an insulator 13 being interposed to make it electrically discontinuous. The cable 12 passes over sheaves 14, 15 and thence around a winding-drum 11' to a weight 16. The cable 6 may also be provided with a winding-drum, as in Fig. 1. The weight 16 is of such predetermined mass as to counterbalance the electrode 2, the weight 10' on the end of the cable 6 being of merely sufficient mass to counterbalance the sheave 4 and keep the flexible conductor 3 taut.

Either of the mechanisms illustrated may be advantageously employed to support the electrodes of furnaces employing plural electrodes of different polarity.

I claim:

1. An electrode, a flexed electrode conductor, and means for adjusting said electrode and for maintaining said conductor taut.

2. An electrode, a flexed electrode conductor, and means for adjusting and counterbalancing said electrode and for maintaining said conductor taut.

3. An electrode, a flexible conductor fixed at one end and connected at its other end to said electrode, and means for adjusting said electrode and for maintaining said conductor taut.

4. A vertically-adjustable electrode, a flexible conductor connected at one end to said electrode and at its other end to a fixed electric main, and an adjustable support for said conductor, between said electrode and main, maintaining said conductor taut.

5. A vertically-adjustable electrode, a flexible conductor connected at one end to said electrode and at its other end to a fixed electric main, and a counterbalanced adjustable support for said conductor, between said

electrode and main, maintaining said conductor taut.

6. A vertically-adjustable electrode, a flexible conductor connected to said electrode
5 and to an electric main, a sheave receiving the intermediate portion of said conductor, and means for adjustably supporting said sheave.

7. A vertically-adjustable electrode, a flexible conductor connected to said electrode
10 and to an electric main, a sheave receiving

the intermediate portion of said conductor, and counterbalanced means for adjustably supporting said sheave.

In testimony whereof, I affix my signature in presence of two witnesses.

ISAAC R. EDMANDS.

Witnesses:

JOHN J. CLARKE,
P. E. LAWTON.