C. A. WEEKS.

ELECTRIC FURNACE.

APPLICATION FILED SEPT. 3, 1908.

949,511.

Patented Feb. 15, 1910.

3 SHEETS—SHEET 1.

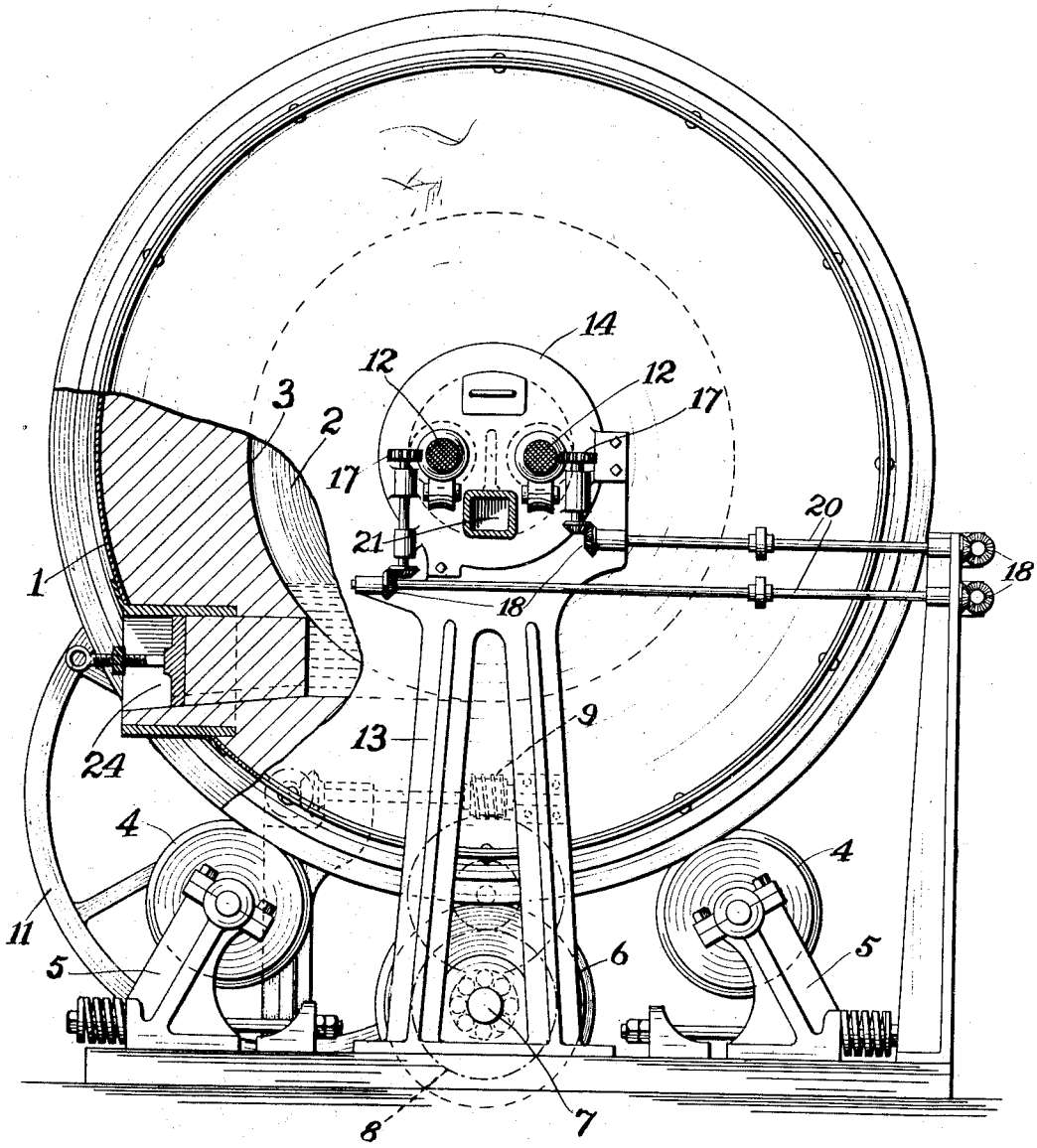

FIG. 1.

WITNESSES:

Robt. R. Ritchel.

Frank E. French.

INVENTOR

Charles A. Weeks

BY

Augustus B. Stoughton

ATTORNEY.

C. A. WEEKS.

ELECTRIC FURNACE.

APPLICATION FILED SEPT. 3, 1908.

949,511. Patented Feb. 15, 1910.

3 SHEETS—SHEET 2.

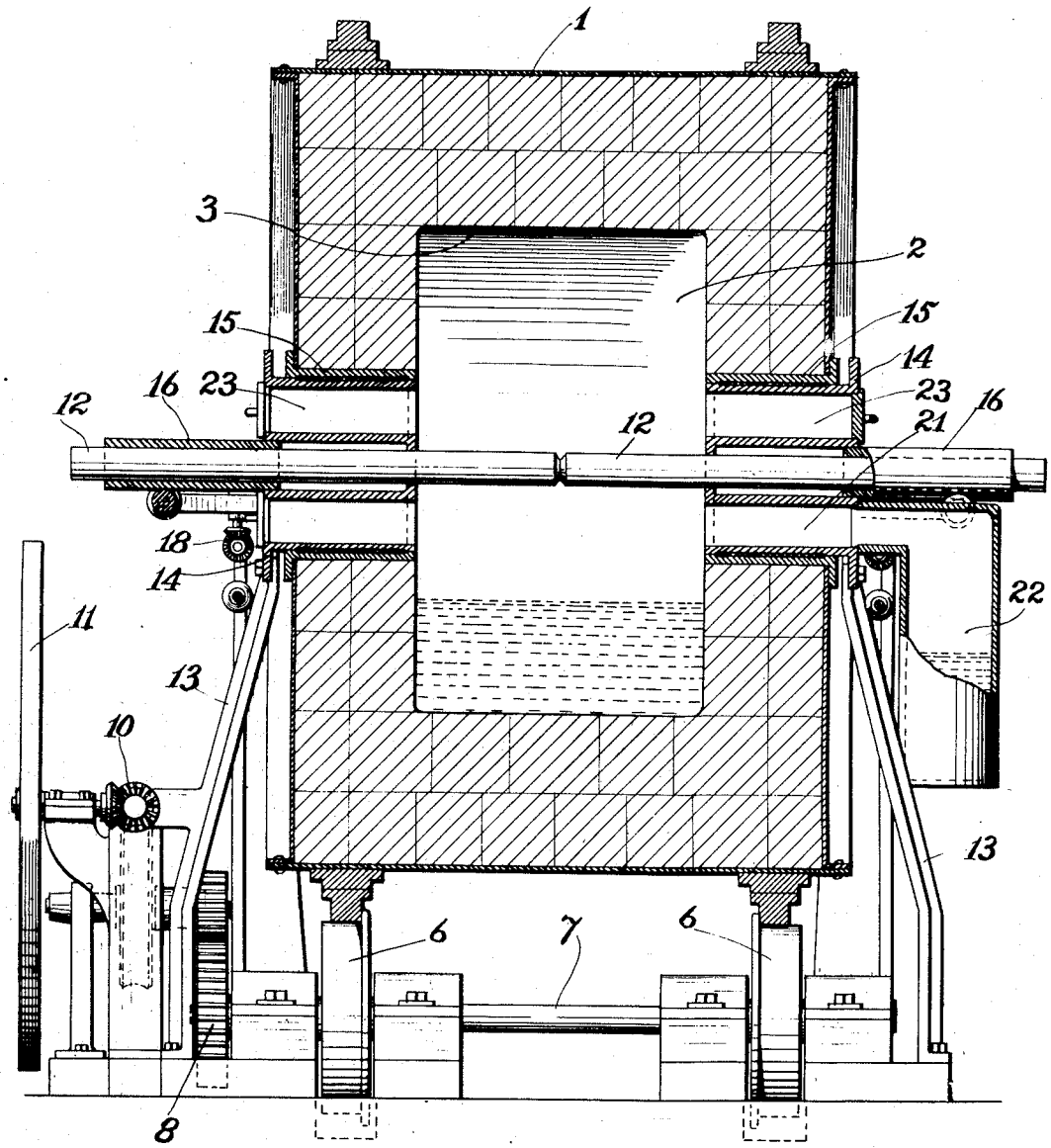

FIG. 2.

WITNESSES:

Robt. R. Litchfield.

Frank E. French.

INVENTOR

Charles A. Weeks

BY

Augustus B. Stoughton

ATTORNEY.

C. A. WEEKS.

ELECTRIC FURNACE.

APPLICATION FILED SEPT. 3, 1908.

949,511. Patented Feb. 15, 1910.

3 SHEETS—SHEET 3.

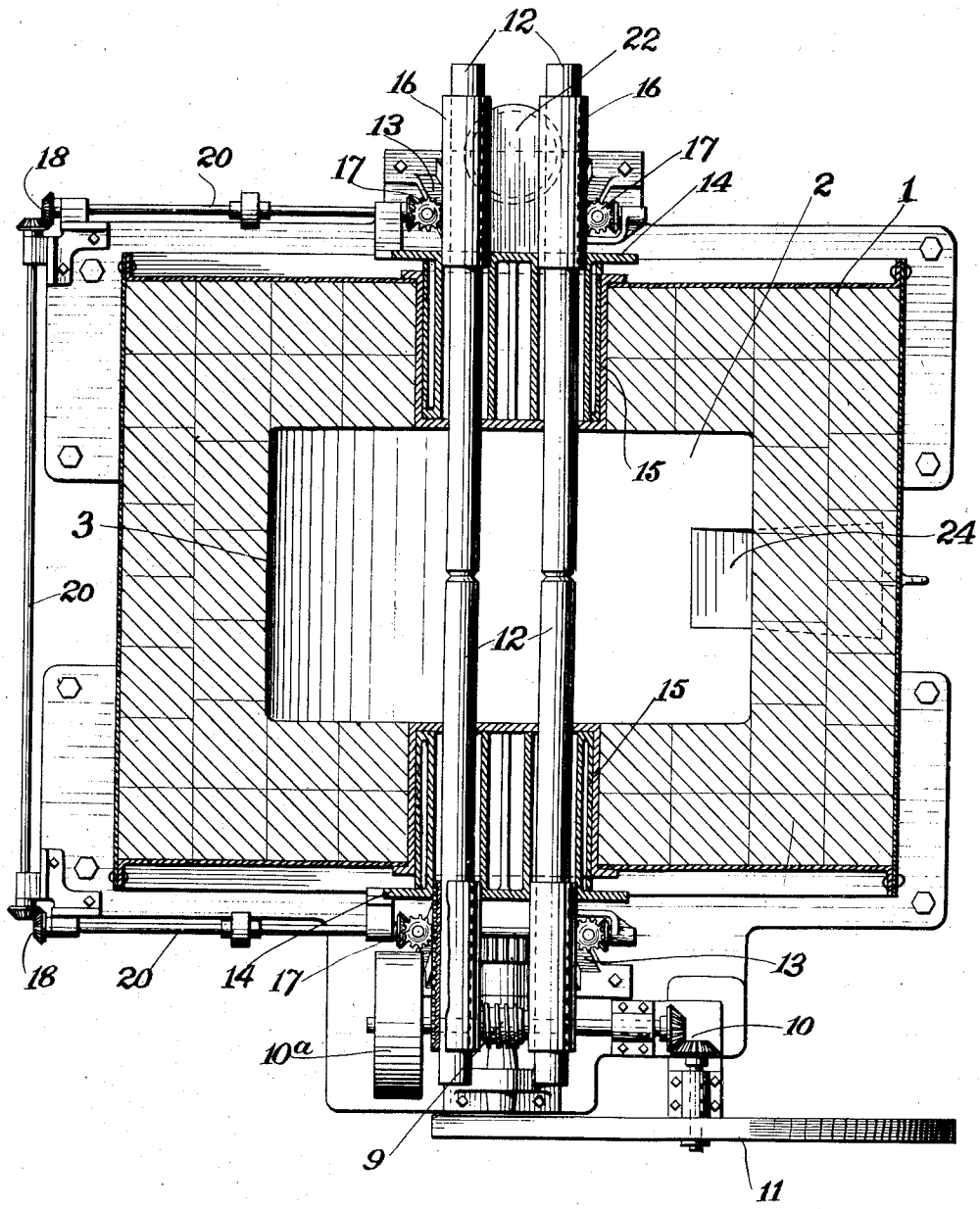

FIG. 3.

WITNESSES:

Robt. R. Kitchel.

Frank E. French.

INVENTOR

Charles A. Weeks

BY

Augustus B. Stoughton

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES A. WEEKS, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC FURNACE.

949,511. Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed September 3, 1908. Serial No. 451,479.

To all whom it may concern:

Be it known that I, CHARLES A. WEEKS, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Furnaces, of which the following is a specification.

The principal object of the present invention is to provide a single or multiple electric arc furnace for smelting or refining purposes which shall, in addition to the known advantages of electric furnaces, possess the additional advantage of uniformly wearing its lining and at the same time applying substantially all of its heat to its contents.

In describing the invention reference will be made to the accompanying drawings, illustrating one but not the only embodiment thereof, and in those drawings—

Figure 1, is an end view with parts broken away of a furnace embodying features of the invention. Fig. 2, is a central vertical sectional view of the same, and Fig. 3, is a horizontal sectional view of the same.

In the drawings 1, is a furnace body provided with an inclosed furnace chamber 2, having a ring-like hearth 3, which is revoluble about its center on a horizontal axis, so that the hearth may revolve. The furnace body as shown is of generally barrel-form and it is revolubly supported on rollers 4, that may be mounted in spring bearings 5.

6, are friction wheels mounted upon a shaft 7 and they serve to turn the furnace body. The shaft 7, is driven by means of gearing 8, a worm and worm-wheel 9 and the latter is driven manually by beveled gearing 10 and a driving wheel 11, or by a pulley 11^a, to which power can be applied. Two pairs of electrodes 12, are shown, and this arrangement is useful in connection with alternating currents, but the number of the electrodes is not material and may be increased or diminished.

There is a frame work 13, which carries what may be called trunnions 14, around which the furnace body rotates and a packing as 15, may be provided around these trunnions so as to inclose the furnace chamber.

16, are holders for the electrodes and they are shown as fitted with racks which mesh with spur wheels 17, which are driven through beveled gears 18 and shafts 20 so that the electrodes may be adjusted toward and away from each other. The trunnions constitute water jackets around the electrodes and if desired they afford convenient means for arrangement of an offtake.

21, is an offtake shown as connected with the condensing chamber 22, and 23 are passages or openings that may be used, if desired, for charging the furnace.

24, is a tap or discharge hole that may be provided through the curved wall of the furnace. In using it the hand-wheel 11 may be availed of.

What I claim is—

1. An electric furnace comprising a hollow body having affixed at or near its end portions inturned walls or heads to provide a retaining hearth, means for revolubly supporting the body and inturned walls or heads about a substantially horizontal axis, electrodes arranged through said inturned walls or heads, provisions for sealing the body at the ends thereof, and means for revolving said body to interchange the roof and hearth, substantially as described.

2. An electric furnace comprising a hollow furnace body provided with a lining constituting the retaining walls of an annular retaining hearth, means for revolubly supporting the annular retaining hearth about a horizontal axis, means for revolving said body to interchange the roof and hearth, and electrodes axially arranged in respect to the annular hearth and disposed in the furnace body, substantially as described.

3. An electric furnace provided with an inclosed furnace chamber having the walls of a retaining hearth affixed thereto, trunnions in respect to which said chamber is revoluble about a substantially horizontal axis and which are provided with passages or openings, means for revolving said body to interchange the roof and hearth, and electrodes projecting axially into the furnace chamber, substantially as described.

4. An electric furnace comprising a furnace chamber having end walls and having an opening through its side wall, means for rotatably supporting the furnace chamber about a horizontal axis, means for revolving said body to interchange the roof and hearth, and electrodes projecting axially into the furnace chamber, substantially as described.

5. An electric furnace provided with an inclosed furnace chamber having walls constituting a retaining hearth affixed thereto, trunnions in respect to which said chamber is revoluble about a horizontal axis and which are provided with a passage or opening, means for revolving said body to interchange the roof and hearth, electrodes projecting axially into the furnace chamber, and a condenser connected with said passage or opening, substantially as described.

6. In an electric furnace, the combination of a revoluble body comprising end walls or heads and an intermediate casing connecting said ends, stationary hubs extending through apertures in the ends of said body, and electrodes carried by said hubs and projecting beyond the inner faces thereof.

In testimony whereof I have hereunto signed my name.

CHARLES A. WEEKS.

Witnesses:

CLIFFORD K. CASSEL,

FRANK E. FRENCH.