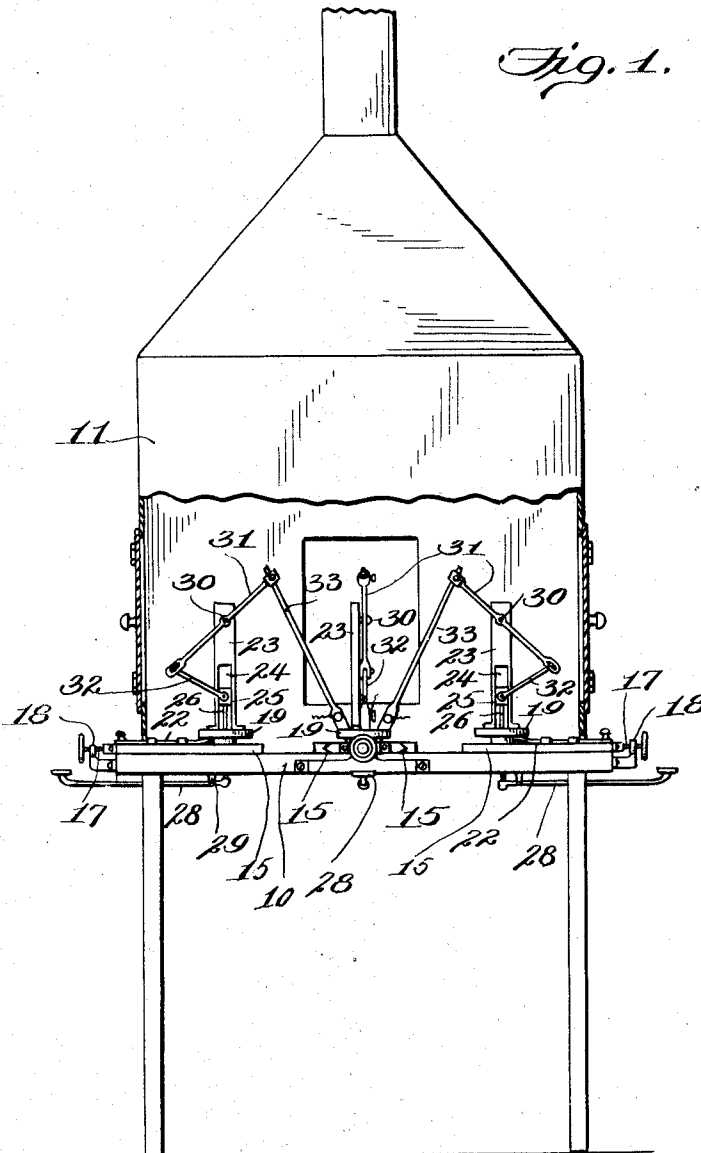


T. P. SHARTS.
ELECTRIC FURNACE.
APPLICATION FILED MAR. 14, 1912.

1,044,088.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.



Inventor

Freeman P. Sharts

Witnesses

W. H. Schmitt

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By

Leopold E. Stevens

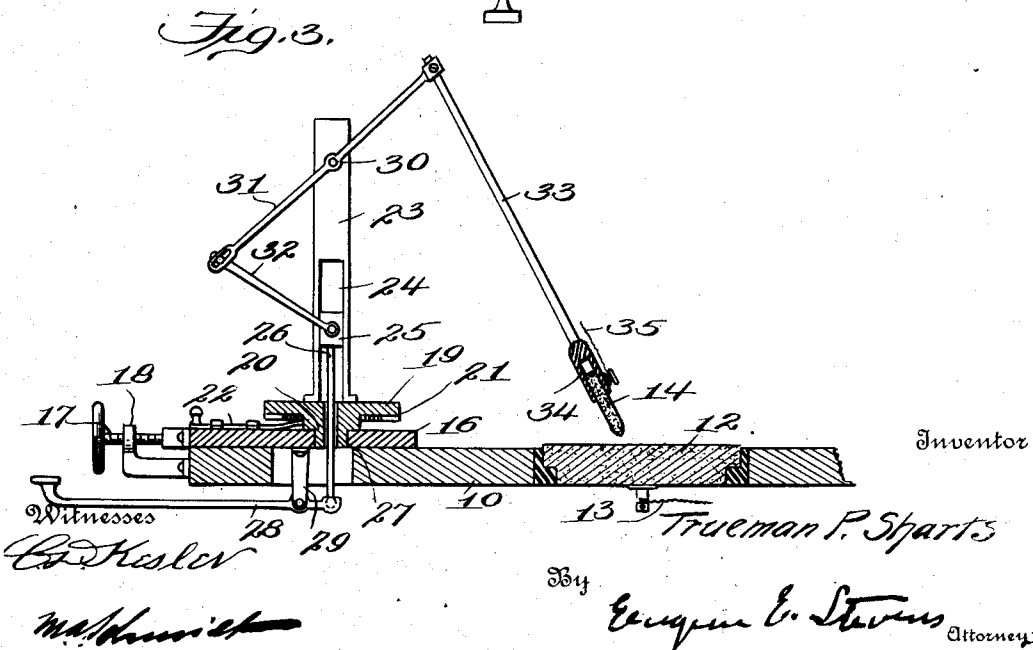
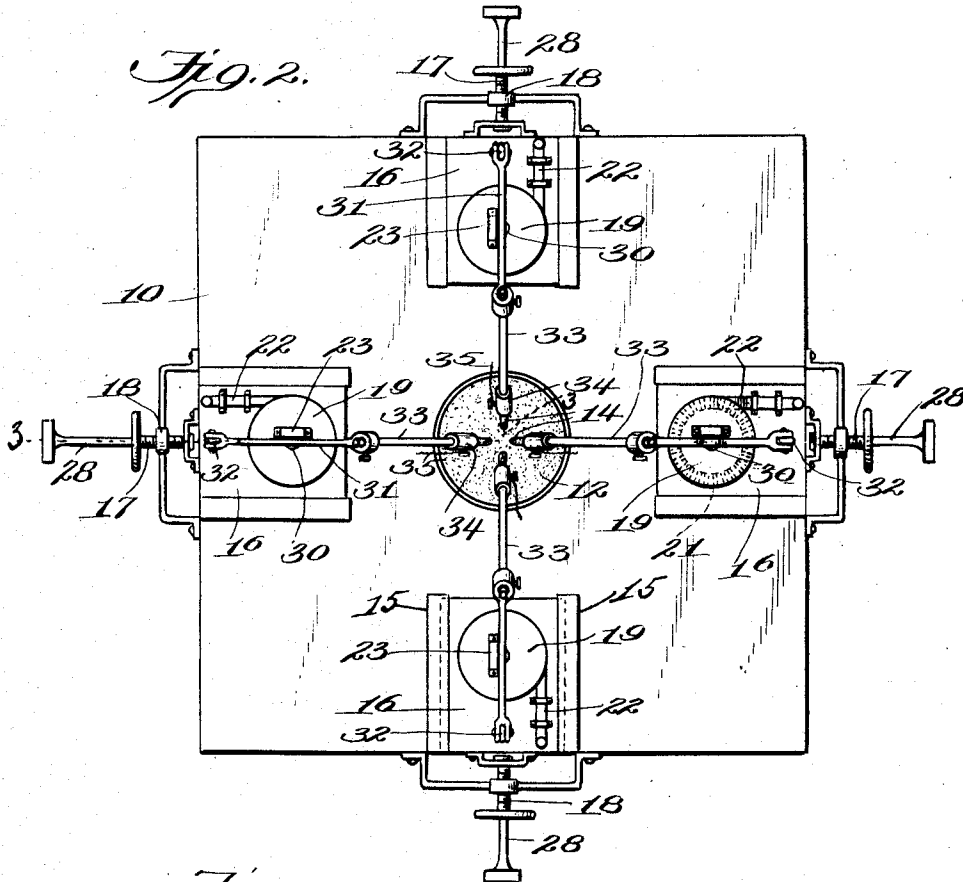
Attorney

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

TRUEMAN P. SHARTS, OF NORTH ADAMS, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO MORTON M. SPAULDING AND WILLIAM E. HALL, BOTH OF NORTH ADAMS, MASSACHUSETTS.

ELECTRIC FURNACE.

1,044,088.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed March 14, 1912. Serial No. 683,891.

To all whom it may concern:

Be it known that I, TRUEMAN P. SHARTS, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Electric Furnaces, of which the following is a specification.

This invention relates to furnaces in which the heating medium is obtained by an electric arc formed between two separated electrodes, and it is the object of the invention to provide a furnace having a movable electrode, together with novel and improved means for adjusting the same so as to facilitate the bringing of the material to be acted on directly within the influence of the arc.

In order that the invention may be better understood reference is had to the accompanying drawings in which,

Figure 1 is an elevation of the furnace, partly broken away; Fig. 2 is a plan view with the casing of the furnace removed, and Fig. 3 is a cross-section on the line 3—3 of Fig. 2.

Referring specifically to the drawing, 10 denotes a table, stand or other suitable support which forms the base of the furnace, and supports a chamber 11 in which the electrodes are mounted. At the center of the base is mounted a fixed or stationary electrode which is a disk 12 of carbon or other suitable conducting material to which is suitably connected a current conductor 13. The movable electrodes are arranged in a group of four above the disk 12 and are adjustable vertically relative thereto, and also laterally parallel to the plane of the top of the disk. The movable electrodes are therefore adjustable with respect to the fixed electrode in planes at right angles to one another. Each movable electrode is a pencil 14 of carbon or other conducting material, the same being carried by a holder which is adjustable so that the aforesaid adjustment of the electrode may be readily effected. As the holders of the several electrodes are alike, a description of one suffices for all.

On the base 10 are guides 15 in which is mounted a slide 16, the guides being arranged so that the slide may be carried toward and from the fixed electrode 12.

The slide is operated by a screw 17 threaded through a bracket 18 mounted on the edge of the base. Any other suitable means for operating the slide may be provided. The slide carries a rotatable disk 19 having a hub 20 which seats in a bearing opening in the slide. On the underside of the disk 19 is a circular rack 21 which is engageable by a spring dog 22 slidably mounted on top of the slide. The dog, when moved in one direction, slips over the teeth of the rack, and when moved in the opposite direction, takes hold of the rack teeth and rotates the disk 19.

From the top of the disk 19, at the center thereof, rises a post 23 having a vertical guideway 24 in which is slidably mounted a block 25. From the bottom of the block depends a stem 26 which passes through a central opening 27 in the disk 19 and the hub 20 thereof, and has connected to its lower end a lever 28 fulcrumed to a bracket 29 on the bottom of the slide 16. The lever is mounted to swing in a vertical plane and therefore serves to move the block 25 up and down in the guideway 24. To the post 23, above the block 25, is fulcrumed intermediate its ends, as indicated at 30, a lever 31 having one of its ends connected by a link 32 to the block 25. To the other end of the lever 31 is connected a downwardly-extending arm 33 carrying at its lower end a suitable clamp 34 for holding the electrode 14; the current wire for the latter being indicated at 35. The parts carrying the electrode 14 and its current wire 35 will be suitably insulated from the parts supporting the fixed electrode 12.

The lever 31 swings in a vertical plane, in view of which it will be evident that by operating the lever 28 the electrode 14 may be adjusted toward and from the electrode 12 to start the arc and to regulate the width of the air-gap. The electrode 14 may also be shifted laterally parallel to the plane of the top of the electrode 12 by operating the slide 16 and the disk 19, the former carrying the electrode support toward or from the electrode 12, and moving the electrode 14 radially with respect to the latter. The operation of the disk 19 rotates the electrode-holder and swings the electrode 14 in a curve across the top of the electrode 12. The elec-

trode 14 may therefore be readily adjusted to bring the material to be acted on directly within the influence of the arc.

I claim:

- 5 1. In an electric furnace, a base, a stationary electrode mounted on the base, a slide carried by the base and movable laterally toward and from the stationary electrode, a rotary holder carried by the slide, and an
10 electrode carried by said holder.
2. In an electric furnace, a base, a stationary electrode mounted on the base, a slide carried by the base and movable laterally toward and from the stationary electrode,
15 a rotary and vertically adjustable holder carried by the slide, and an electrode carried by said holder.
3. In an electric furnace, a base, a stationary electrode mounted on the base, a slide
20 carried by the base and movable laterally toward and from the stationary electrode, a rotatable disk carried by the slide, a holder carried by the disk, and an electrode carried by the holder.
- 25 4. In an electric furnace, a base, a stationary electrode mounted on the base, a slide carried by the base and movable laterally toward and from the stationary electrode, a rotatable disk carried by the slide, a vertically adjustable holder carried by the disk,
30 and an electrode carried by the holder.
5. In an electric furnace, a base, a stationary electrode mounted on the base, a slide

carried by the base and movable laterally toward and from the stationary electrode, 35 a rotatable disk carried by the slide, a post carried by the disk and having a guideway, a block slidable in the guideway, a lever fulcrumed on the post, an electrode holder connected to one end of the lever, a connection 40 between the other end of the lever and the block, and means for adjusting the block in the guideway.

6. In an electric furnace, a base, a stationary electrode mounted on the base, a slide 45 carried by the base and movable laterally toward and from the stationary electrode, a rotatable disk carried by the slide, a post carried by the disk and having a guideway, a block slidable in the guideway, a lever fulcrumed on the post, an electrode holder connected to one end of the lever, a connection 50 between the other end of the lever and the block, a stem extending from the block, and a lever fulcrumed on the slide and connected 55 to the same.

7. In an electric furnace, a stationary electrode, and a movable electrode adjustable with respect to the stationary electrode in planes at right angles to one another. 60

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

TRUEMAN P. SHARTS.

Witnesses:

J. D. YOAKLEY,
E. F. CAMP.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."