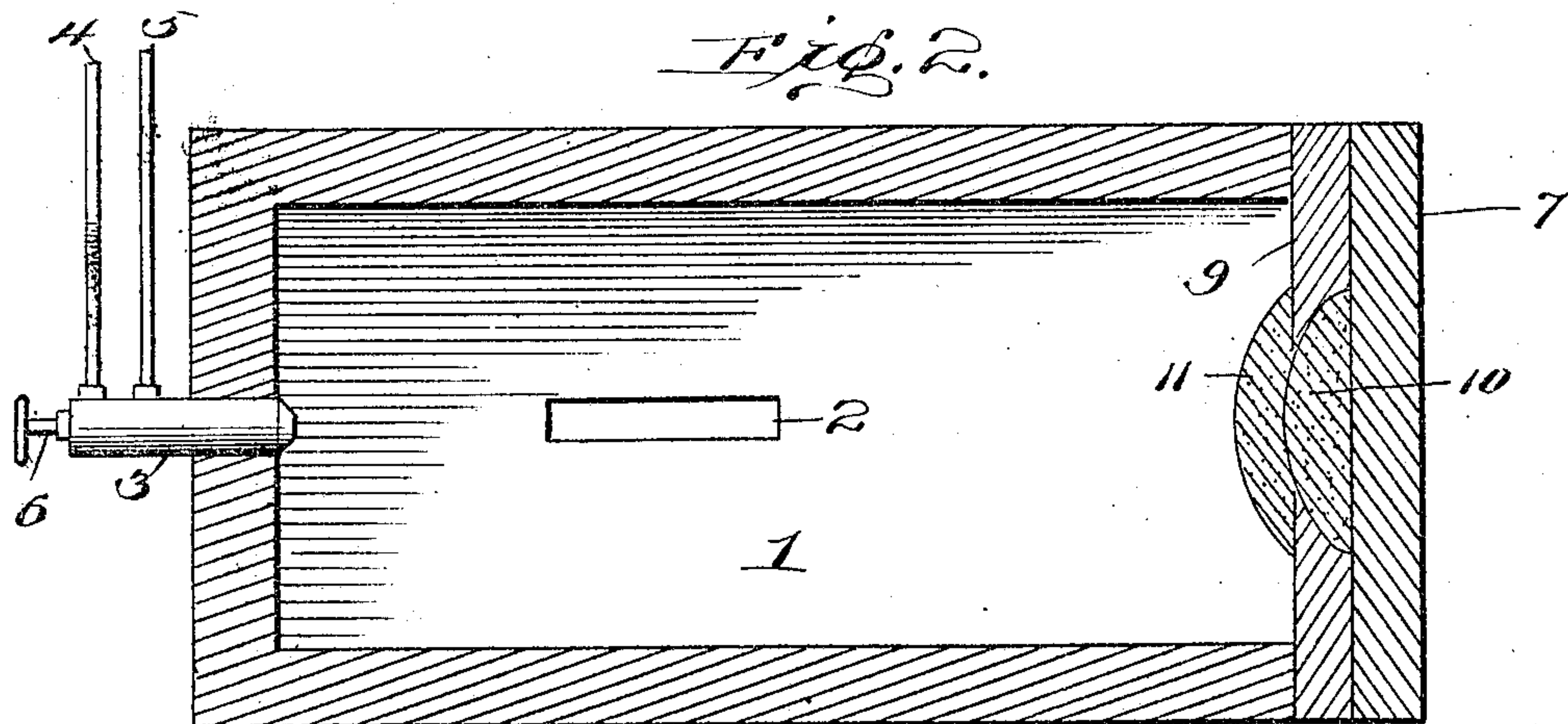
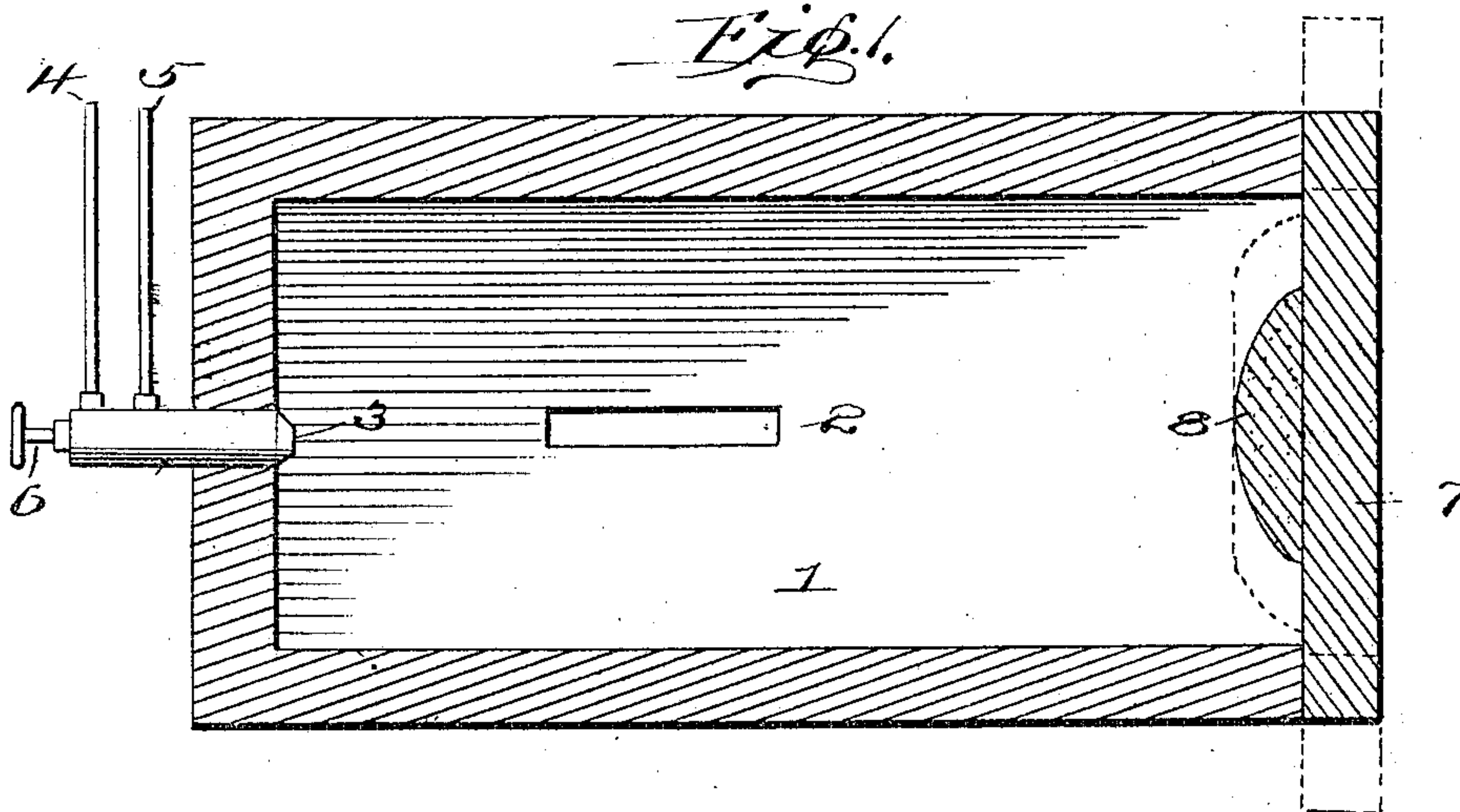


No. 819,606.

PATENTED MAY 1, 1906.

T. P. SHARTS.
APPARATUS FOR PRODUCING CARBON.
APPLICATION FILED MAR. 6, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

TRUMAN P. SHARTS, OF READSBORO, VERMONT, ASSIGNOR OF ONE-FOURTH TO CHARLES J. HOWE, OF JAMAICA, VERMONT, AND ONE-FOURTH TO WILLIAM C. DAVIS AND ONE-FOURTH TO J. H. COLE, OF READSBORO, VERMONT.

APPARATUS FOR PRODUCING CARBON.

No. 819,606.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed March 6, 1905. Serial No. 243,883.

To all whom it may concern:

Be it known that I, TRUMAN P. SHARTS, a citizen of the United States, residing at Readsboro, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Apparatus for Producing Carbon; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in apparatus for producing carbon for electrical purposes, and particularly for the purpose of forming electrodes for arc-furnaces or the like.

It consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal central section through a combustion chamber or furnace constructed in accordance with the present invention. Fig. 2 is a similar view, but showing the apparatus arranged for increasing the thickness of the carbon formed therein.

The apparatus forming the subject-matter of the present invention is designed for use in properly collecting the carbon products of combustion from an oil-flame and so collecting the same that it may be formed into various articles for electrical use, and particularly for use as electrodes such as are commonly employed in arc-furnaces, electric lights, or other similar apparatus.

In the drawings one form of apparatus is shown which has been found a simple and yet effective means for producing the desired result, and in the said drawings 1 indicates a closure forming a combustion chamber or furnace, the said closure being preferably formed of fire-resisting material—such, for instance, as fire clay, brick, or the like. The furnace is formed with an outlet-aperture, as 2, in one or more of its walls. Mounted in one portion of the furnace is a suitable oil-burner 3. The oil-burner is preferably ar-

ranged so that its nozzle projects through one of the walls of the furnace, and while the burner may be made in any desired style it is preferably so constructed that oil may be fed to the burner through a pipe 5. The burner may be controlled by any suitable valve mechanism—as, for instance, the ordinary needle-valve 6. The air is delivered through the burner in such form as to take up the oil fed thereto and spray, comminute, or atomize the same within the furnace structure 1. A sufficient force of air is employed to carry the jet well across the furnace and to force the same in an ignited state to impinge against the opposite wall or end 7 of the furnace. The furnace is so constructed that the collecting-surface 7 may be movable with relation to the burner 3, for the carbon will only collect upon the collecting-surface when it is arranged at a certain distance with respect to the burner, the distance being controlled by the pressure of the air employed in spraying the oil and the distance to which such pressure carries the jet from the burner. It is also essential that the collecting-surface may be moved from time to time back from the burner, so as to thicken the deposit formed thereon. It is convenient to form the collecting-surface in the shape of one of the walls of the furnace. To secure the best results, also, the wall 7 when put in position in front of the burner 3 should be sealed by clay or other fire-resisting material applied in a plastic condition and allowed to harden, so as to prevent any outlet adjacent to the collecting-surface for any portion of the blast of air and oil and to hold the wall in place. After the wall has been put into place and the jet has been allowed to impinge upon the same the carbon will begin to collect thereon, forming a solid and homogeneous mass approximately of the shape indicated at 8 in Fig. 1. When the mass has been formed and piled up toward the burner to a certain degree, it is found that it will cease to form and it is necessary to move the wall 7 farther from the burner. As shown in Fig. 2, this is generally accomplished by placing in a plastic sticky

condition a layer or coat of fire-resisting clay or similar material, as 9, upon the inner face of the wall 7 around the carbon mass 8 and to a suitable thickness with respect to the said mass. A portion of the mass, however, is permitted to project beyond the surface of the clay, as shown at 10 in Fig. 2, so that the additional mass or layer of carbon which is next to be collected will be formed upon the face of the first mass and will be homogeneous therewith. After the wall 7, with its coating of fire-clay, has been placed in position opposite the burner, the clay hardening and cementing the wall in position, the process of collecting the carbon continues, a second mass or collection of the same being produced, as at 11, of about the same shape as the previous mass. A continued setting back of the wall 7 and the carbon mass formed thereon will permit of the production of a large quantity of homogeneous carbon of a size suitable for shaping and cutting various objects, such as electrodes or carbon pencils and the like. If it is desired to spread the mass of carbon collected over a greater surface upon the collecting plate or wall, the said plate may be moved laterally either by raising or lowering the same, as indicated at 12 in dotted lines, or by moving it to one side or the other, so as to bring different portions of the inner face of said collector opposite the burner. It will thus be evident that any structure in which the collecting-surface may be moved to different points opposite the burner and may successively move away from the same for accumulating the mass of carbon to the desired thickness will be within the spirit of the present invention.

When the mass has been formed upon the inner surface of the collector or wall 7, it is removed therefrom and formed by cutting, sawing, grinding, or otherwise shaping the same into various articles—as, for instance, electrodes, pencils, or the like—for electrical use or into receptacles of any kind for holding materials to be acted upon in an arc. I find that the carbon produced in this apparatus is especially well adapted for the production of carbon electrodes for arc-furnaces, since it is a good conductor of electricity and is capable of withstanding intense degrees of heat without deterioration or being detrimentally affected in any way.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for producing carbon for electrical purposes, comprising a combustion-chamber having an outlet communicating with the atmosphere for some of the products of combustion, a burner for carrying on the combustion of hydrocarbon oils, and

means for collecting the carbonaceous products of combustion in an integral mass.

2. An apparatus for producing charcoal carbon, comprising a combustion-chamber having an outlet leading into the atmosphere, a hydrocarbon-burner mounted therein, and means arranged opposite said burner for collecting in a mass the carbonaceous products of combustion resulting from the burning of hydrocarbon oils.

3. An apparatus for producing charcoal carbon, comprising a combustion-chamber having a lateral outlet opening directly into the atmosphere, a hydrocarbon-burner projecting into said combustion-chamber and a movable collecting-plate arranged opposite to the burner for accumulating and collecting in homogeneous masses the carbon products of combustion.

4. An apparatus for producing charcoal carbon for electrical purposes, comprising an oil-burner, a movable surface mounted opposite thereto and capable of rearrangement for collecting the carbon products in successive layers and spacing material capable of holding said movable surface in its different positions.

5. An apparatus for producing carbon for electrical purposes, comprising a combustion-chamber having an opening in one of its walls communicating with the atmosphere, a burner located so as to blow a jet of oil and air within the combustion-chamber so that the same may be burned therein and a movable wall arranged opposite to the burner for collecting the carbon products of combustion from the burning of the oil as they impinge upon the said removable wall.

6. An apparatus for producing carbon for electrical purposes, comprising a combustion-chamber, closed upon all sides save one, one of said sides being provided with a small outlet-opening communicating with the atmosphere and a movable wall for closing the remaining side of the furnace, a burner arranged in the furnace opposite the said wall, the wall being movably held in place so that it may be set back from the burner from time to time to thicken the collection of carbon thereon.

7. An apparatus for forming carbon for electrical purposes, comprising a combustion-chamber having an open end, a burner located opposite said open end and capable of causing the combustion of petroleum, a movable wall for closing the open end of the combustion-chamber and plastic material capable of building out the surface of the wall to different thicknesses as the carbon thickens upon the surface of the wall.

8. An apparatus for forming carbon for electrical purposes, comprising a fire-box

having an open end, a petroleum-burner
mounted in the opposite end, a movable wall
for closing the open end, a plastic sealing ma-
terial for holding the movable wall in position
5 opposite the burner, the said sealing material
insuring the closing of all crevices at that end
of the combustion-chamber and permitting
of the collection of the carbonaceous prod-

ucts of combustion in a hard homogeneous
mass upon the inner face of the wall. 10

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

TRUMAN P. SHARTS.

Witnesses:

JOHN L. FLETCHER,

EDWARD T. FENWICK.