

No. 658,698.

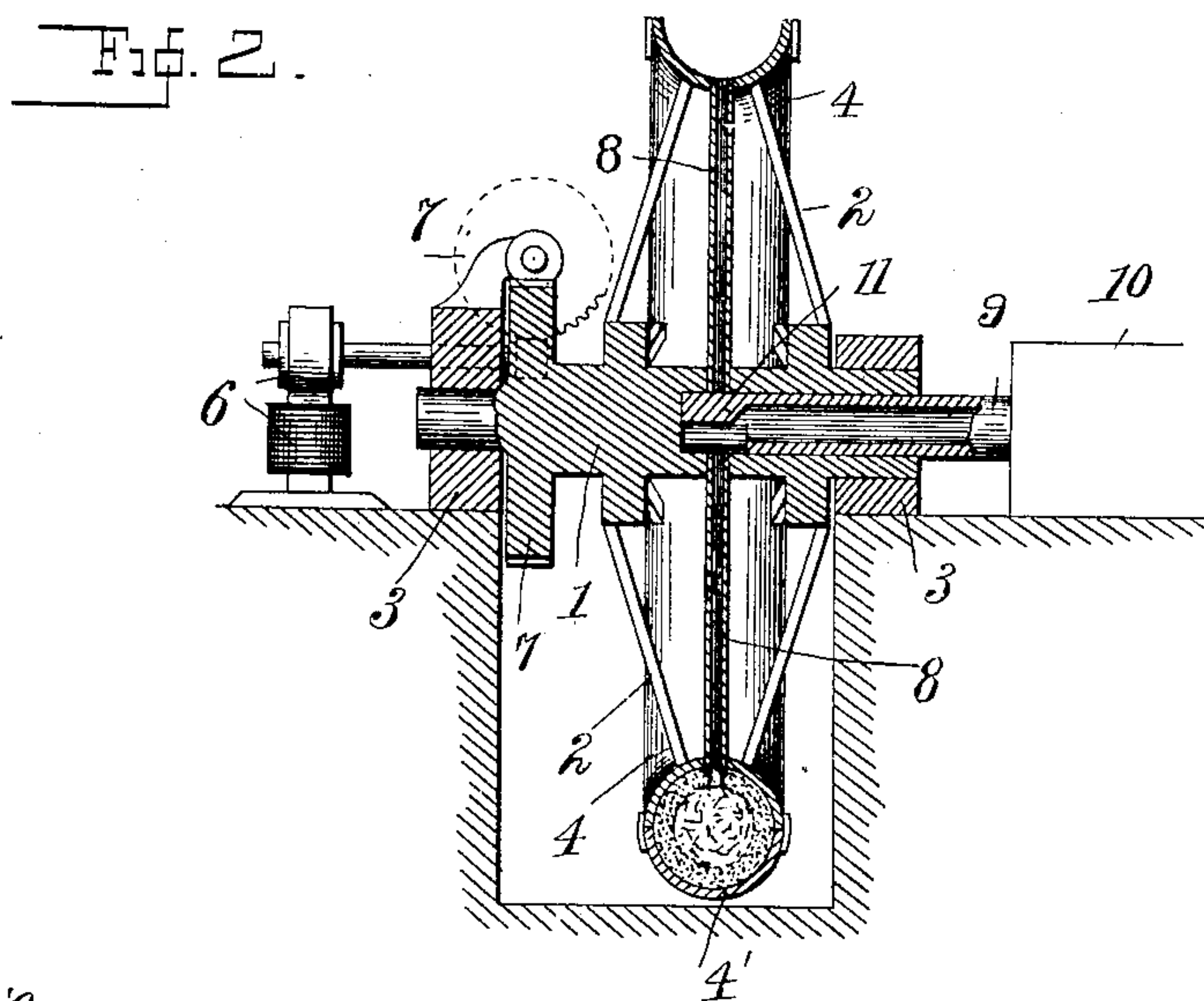
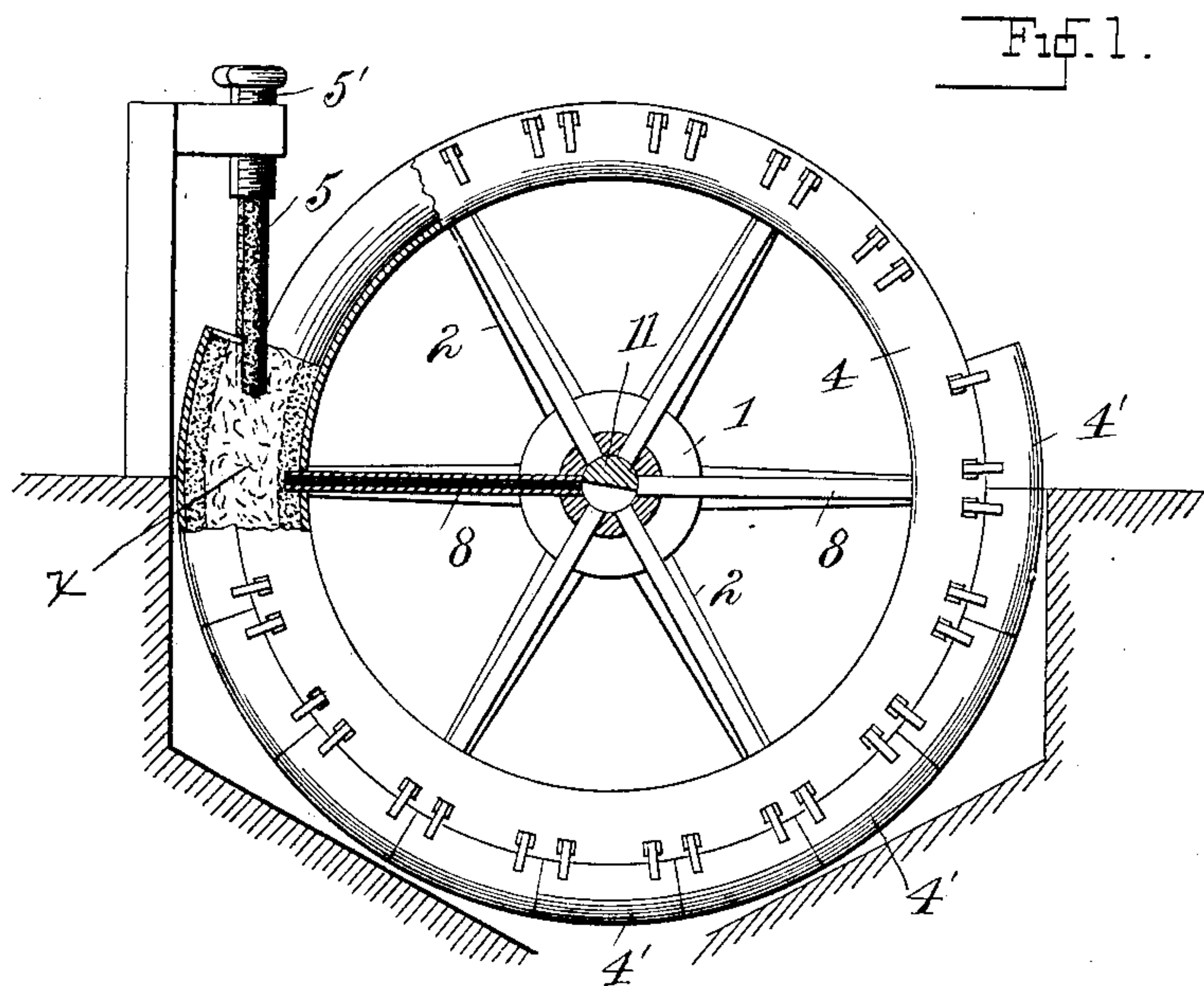
Patented Sept. 25, 1900.

C. S. BRADLEY.
ELECTRIC FURNACE.

(Application filed Feb. 10, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses,
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J. Green

Inventor,
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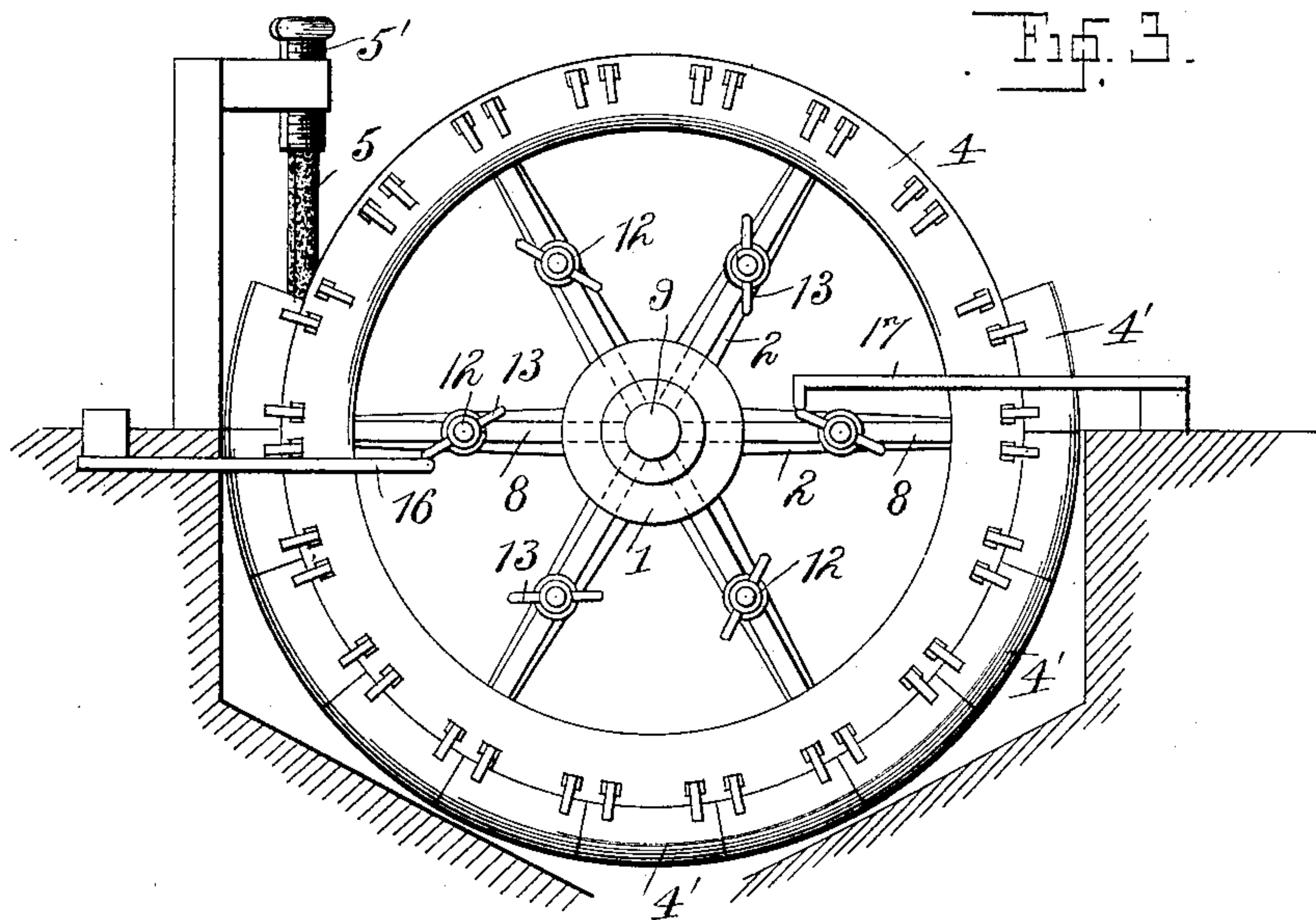
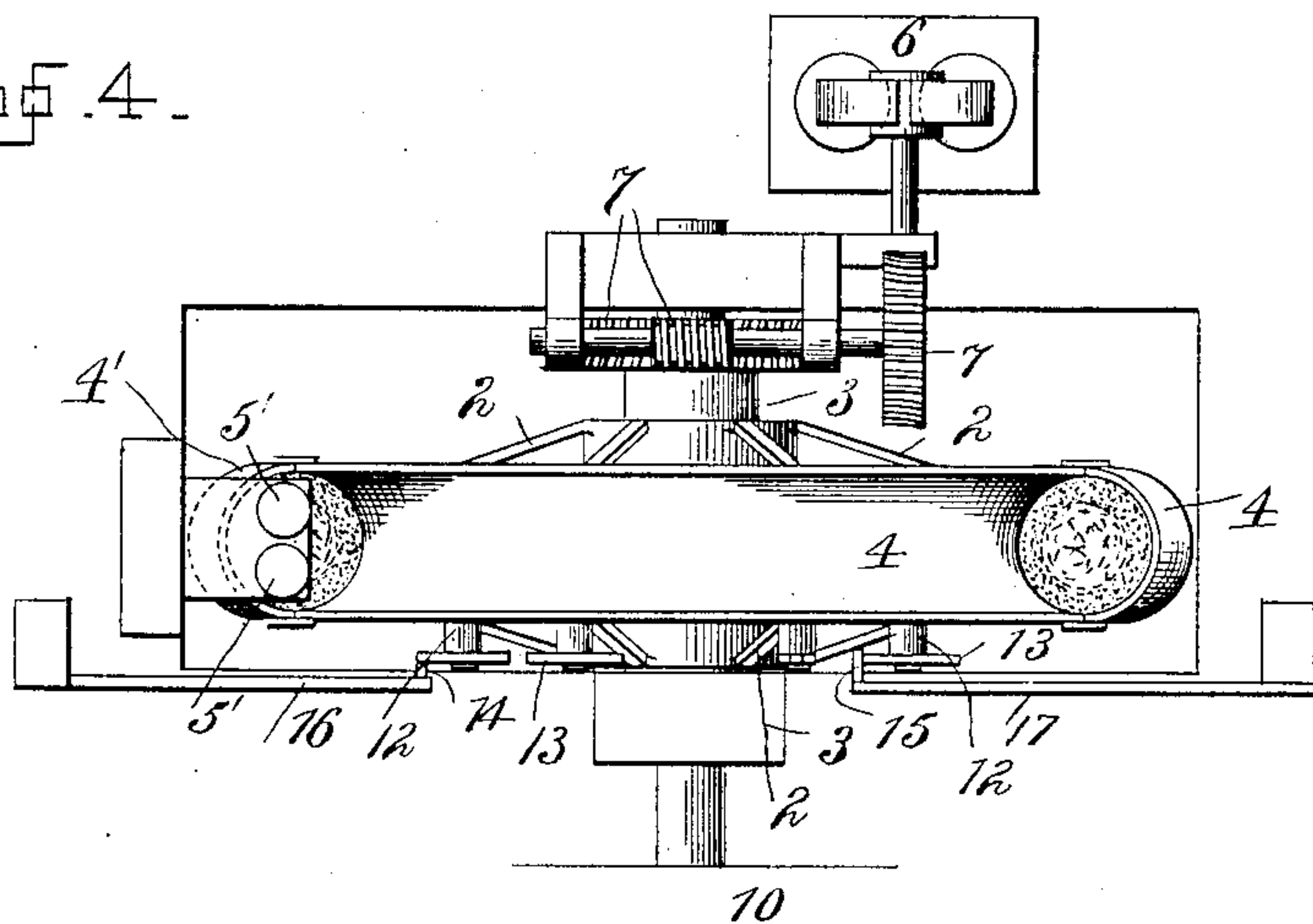


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES S. BRADLEY, OF NEW YORK, N. Y., ASSIGNOR TO THE CYANIDE COMPANY, OF AMPERE, NEW JERSEY.

ELECTRIC FURNACE.

SPECIFICATION forming part of Letters Patent No. 658,698, dated September 25, 1900.

Application filed February 10, 1900. Serial No. 4,717. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. BRADLEY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electric Furnaces, of which the following is a specification.

This invention relates to an electric furnace which is particularly designed to carry out the process disclosed and claimed in United States application, Serial No. 712,054, filed April 7, 1899, by Charles B. Jacobs.

The invention comprises a furnace of the moving-receptacle type shown in United States Patent No. 597,945, granted to me January 25, 1898, in combination with means for supplying gas to such moving receptacle at a definite part of its movement, so as to effect a particular reaction. In the present case the construction is designed with particular reference to the production of cyanids by the reaction on carbids immediately subsequent to the production of such carbids in the same furnace, and it is adapted to permit access of the nitrogen to the carbid in the receptacle from the time of formation of the carbid until the carbid cools below the point at which further absorption of nitrogen will take place.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of one form of my improved electric furnace. Fig. 2 is a vertical section thereof transverse to Fig. 1. Figs. 3 and 4 are respectively a side elevation and a plan view of another embodiment of the invention.

Referring to Figs. 1 and 2, 1 represents a main shaft supported on bearings 3 and carrying by spokes 2 a rim 4, formed as the inner half of an annular drum, removable shells or covers 4' being attached to the rim to complete such annular drum, which serves as the receptacle for the materials operated upon during the process. In practice these shells are attached to the lower half of the rim, being added to one side and removed from the other as the wheel-frame 2 3 rotates. Two carbon terminals 5, with suitable feeding devices 5', are located so that the carbons may project into the annular receptacle, as indicated in Fig. 1. Means, such as a motor 6 and gearing 7, are provided for slowly ro-

tating the annular receptacle, the mechanism as so far described being similar to that shown in the patent above referred to. To embody my invention in this apparatus, pipes or tubular connections 8 may be provided at a plurality of points in the annular rim and communicating with a hollow bore in the shaft 1, said bore being connected by a pipe 9 with a suitable source of nitrogen under pressure, here indicated as a tank 10. Valve devices are provided for cutting off the supply of nitrogen from those parts of the annular rim which are unoccupied by carbid material, and for this purpose I have shown a valve formed by an extension 11 of pipe 9, which, being stationary, acts as a valve-stem in co-operation with the openings of pipes 8, so that the nitrogen is admitted to the carbid material (indicated at *x*) shortly after the production of the carbid between the electrode terminals and after the material has begun to cool and the supply of nitrogen is maintained in contact with the carbid after the latter has cooled below its melting-point, being only cut off when the carbid finally cools to ordinary temperatures.

The construction of the furnace used for carrying out my process may be varied in numerous ways, provided the principle is maintained of delivering the gas, in this case nitrogen, to the moving receptacle at a certain definite stage of the movement thereof, so as to produce a specific effect, which depends on the relative position of the receptacle. Thus valves 12 may be arranged in each pipe 8, as indicated in Figs. 3 and 4, providing each valve 12 with a tappet or lever 13, which is struck alternately by fixed tappets or lugs 14 15 on arms or brackets 16 17, respectively, at opposite sides of the machine, so that the tappet 14 on one side will open each valve as it comes around. The result is the same as in the apparatus shown in Fig. 1, and the construction of the apparatus may be otherwise the same.

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

1. An electric furnace comprising means for delivering current to the furnace, a movable receptacle adapted to contain carbid-produc-

ing materials and to present different portions of such materials successively to the action of the current, and gas-delivering means adapted to deliver gas to the receptacle at a
5 definite part of the movement thereof.

2. An electric furnace comprising means for delivering current to the furnace, a movable receptacle adapted to contain carbid-producing materials and to present different portions of such materials successively to the action of the current, and gas-delivering means
10 adapted to deliver gas to the receptacle at a

definite part of the movement thereof, and comprising pipe connections to the different parts of the movable receptacle and valve
15 mechanism adapted to control such pipe connections to admit gas successively through such pipe connections to different parts of the receptacle.

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