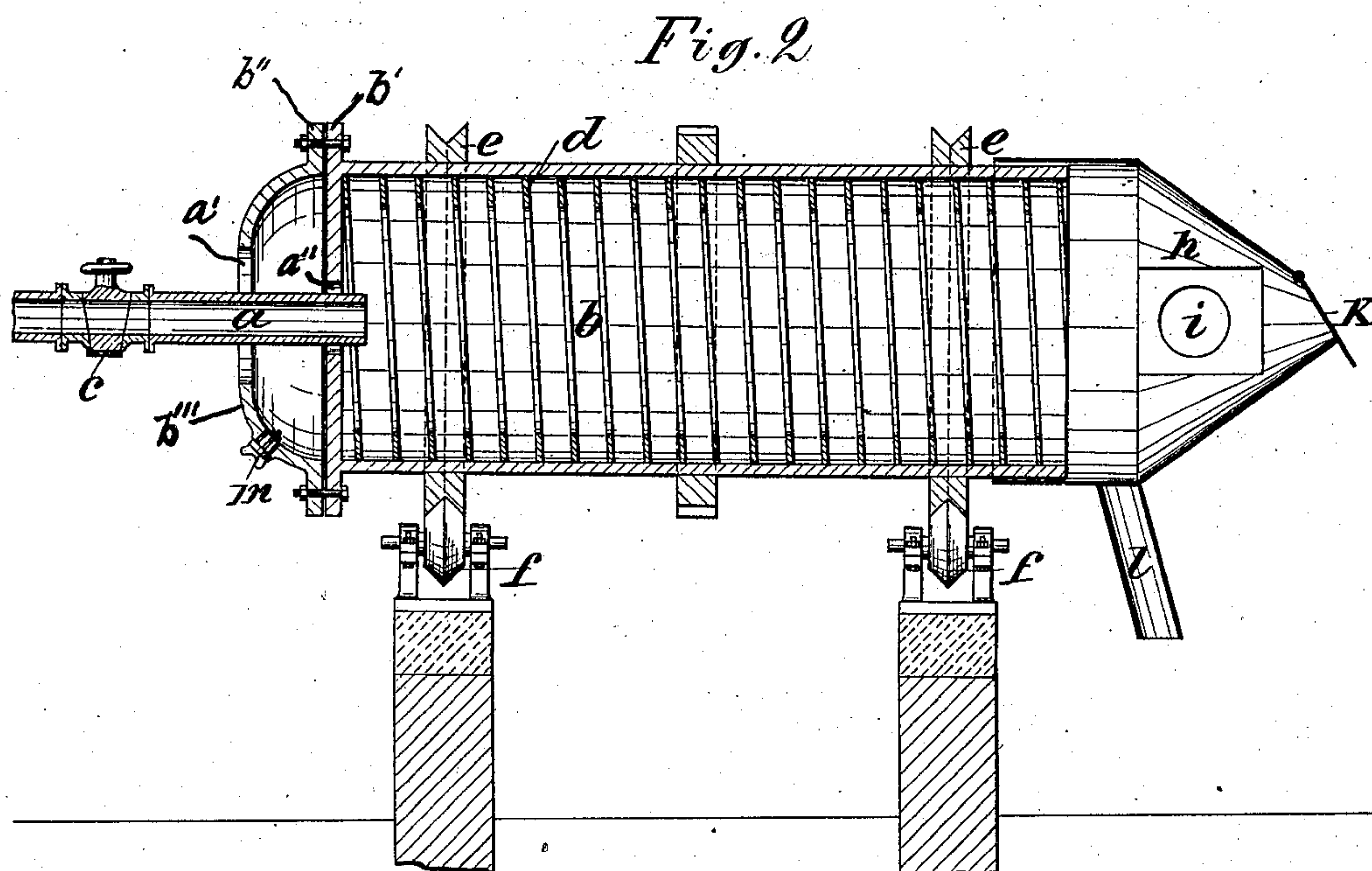
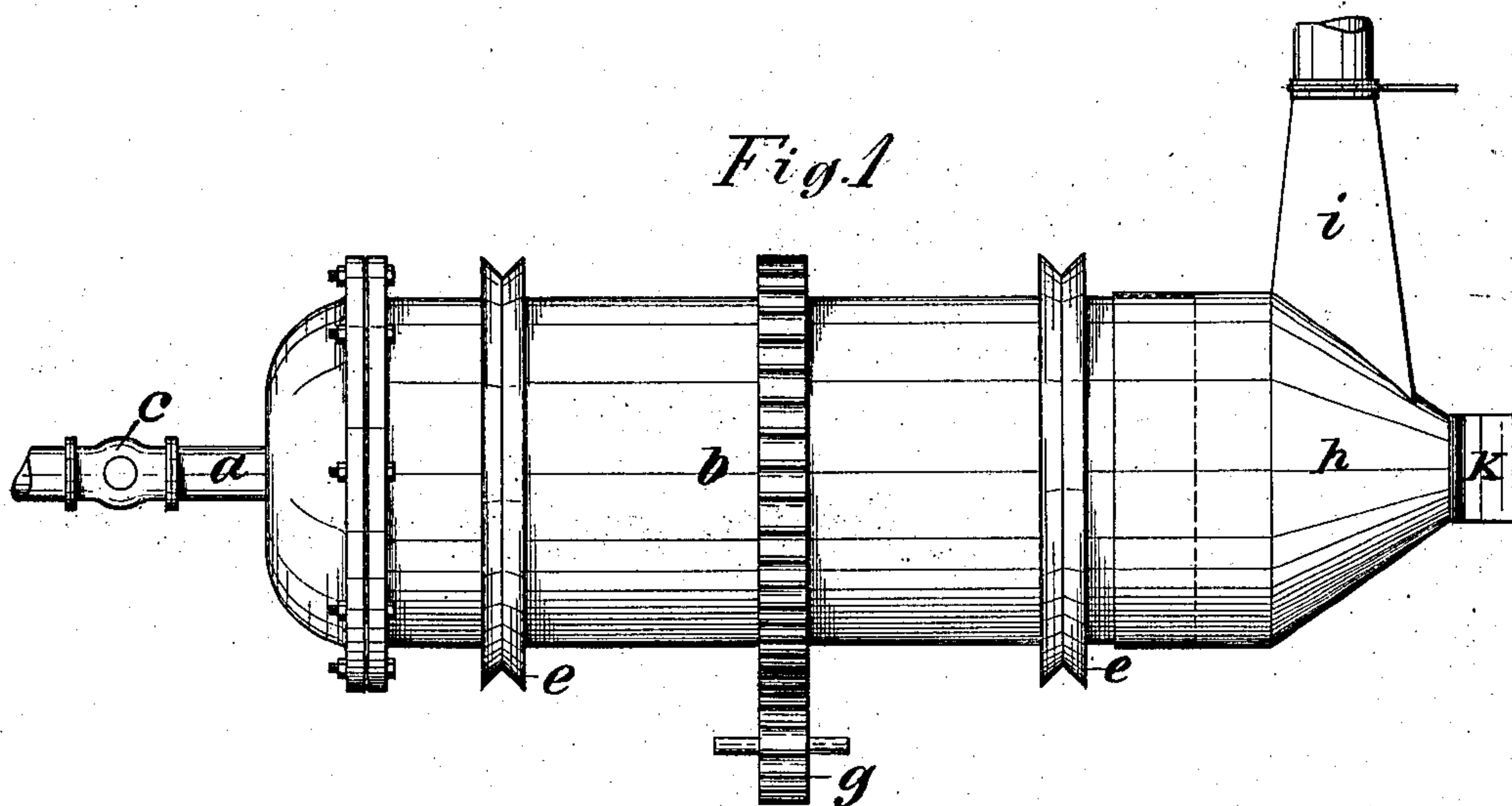


R. A. SEMBDNER.
PROCESS OF MAKING LAMPBLACK.

APPLICATION FILED SEPT. 23, 1901.

NO MODEL.



Witnesses.

Eugene R. Weber.
L. Slater.

Inventor.

Richard August Sembdner
by J. H. Singer
Att'y.

UNITED STATES PATENT OFFICE.

RICHARD AUGUST SEMBDNER, OF PORZ, GERMANY.

PROCESS OF MAKING LAMPBLACK.

SPECIFICATION forming part of Letters Patent No. 741,726, dated October 20, 1903.

Application filed September 23, 1901. Serial No. 76,262. (No specimens.)

To all whom it may concern:

Be it known that I, RICHARD AUGUST SEMBDNER, of Porz, Rhineland, in the Empire of Germany, have invented a new or Improved Process of Making Lampblack, of which the following is a specification.

My invention relates to certain new and useful improvements in a process for the manufacture of lampblack.

For the manufacture of soot coal-tar as produced in gas and coke works was formerly used as raw material. The high temperature produced in combustion resulted, however, in the disadvantage that the less fusible constituents, such as pitch, also became ignited and were partially burned, but only partially carbonized. The result was that the air-inlet conduits of the furnaces frequently became stopped up. The regulation or control of these conduits is the most important part of the manufacture of soot. Explosions and other dangers often resulted, and the removal of slag was only possible with great difficulty and loss of time. With the introduction of continuous working in soot-factories the employment of raw tar was therefore discontinued, and in place thereof the light hydrocarbons obtained by the distillation of raw tar were used; but the cost of these was approximately double that of the latter. It has therefore for a long time been an important problem in the manufacture of soot to separate the pitch from the tar and make the latter directly adapted for the process of conversion into soot. This problem is solved by the process to which the present invention relates and by which the manufacture of soot takes place in one operation, with the simultaneous separation and gain of pitch.

The process essentially consists in the fact that the ignited tar is kept in continuous motion while in the combustion-furnace. By the regulation of this motion the temperature during the converting process is kept within certain limits. Further, the quantity of the tar supplied to the furnace and the quantity of air required for incomplete combustion are regulated. The motion of the tar is so arranged that the mass is gradually moved toward an outlet-aperture.

In the annexed drawings a furnace used with this process is represented, as an exam-

ple, in Figure 1 in plan view, and in Fig. 2 in longitudinal vertical section.

The tar coming from a reservoir or other place where it is kept passes through the pipe *a* into the furnace *b*. A flange *b'* is carried by *b* and is secured to a like flange *b''*, carried by the cap *b'''*. Both the cap and the end of the furnace *b* are provided with openings *a'* *a''* for the reception of an igniter of any form, (not shown,) air for combustion purposes being admitted into the cap by means of the air-regulating device *m* and entering the furnace by means of openings *a''*, formed in the closed end thereof. The supply of tar may be regulated by means of a cock *c* or by other suitable means. The interior of the furnace *b*, which is preferably cylindrical, is provided with a helical conveyer *d*, having a very slight pitch. This conveyer *d* may be made removable. The cylinder *b*, which is provided with rings *e* *e*, resting upon correspondingly-shaped rollers *f* *f*, is rotated by means of the toothed gear *g*. The speed of revolution of the cylinders can be altered according to requirements. The outlet end of the cylinder is closed by a hermetically-fitting cover *h*, which does not take part in the movements of the cylinder. The said cover is connected by a pipe *i* with the chambers, in which the soot produced is accumulated, and with a conduit *l* for the pitch obtained. A door *k* is provided in the cover, by means of which the latter and the furnace may be inspected while at work and which also serves as a safety-valve. The cover is preferably so arranged that it can be removed from the furnace in order that the latter can be easily cleaned.

The form of the furnace and the means for causing the movement thereof may differ from those illustrated without affecting the nature of this invention. It is only necessary that the tar to be converted into soot should be continuously in motion during the process and gradually conveyed to the outlet. At the inlet end an igniter of any suitable kind may be provided to facilitate the ignition of the tar, and a suitable air-regulating device *m* may also be provided at this end.

The process itself is obvious from the above description. The tar supplied to the furnace

is ignited on entering the latter, and the furnace is then rotated. The helical conveyer *d* causes the burning tar to move toward the outlet, and this movement of the tar, and consequently the temperature, can be regulated by the pitch given to the said conveyer and the speed of rotation. As long as the temperature in the furnace does not exceed 572° to 752° Fahrenheit only the light hydrocarbons burn, and the heavy ones, such as pitch, remain liquid. The soot produced by the combustion is conducted by the cover *h* and the conduit *i* to the soot-chambers and there deposited. The pitch passes through the aperture and the tube *l* to the outlet and is preferably received in water.

The regulation of the temperature and the quantity of tar supplied and also of the quantity of air required may be effected by any suitable means.

The quantity of tar first introduced into the furnace equals approximately one-half the capacity of the same. The temperature of the tar may thus be reduced by introducing more tar or by regulating or by entirely excluding the air necessary to combustion. The aperture *a''* is for the purpose of receiv-

ing the igniter. The drum rotates at a speed of from two to three revolutions a minute, and the amount of air introduced is proportional to the temperature to which it is desired to either raise or lower that of the mass.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

A process for the manufacture of lamp-black from tar which consists in introducing tar into the inlet of a furnace and rotating the latter, the heated tar having a temperature between 572° and 752° Fahrenheit and being conveyed gradually to the outlet of the furnace, whereby the light hydrocarbons may burn and be conducted away from the pitch, at the outlet of the furnace, and the lamp-black produced by the combustion may be collected upon its reaching the outlet of the furnace and arising therefrom.

In witness whereof I have hereunto set my hand in presence of two witnesses.

RICHARD AUGUST SEMBDNER.

Witnesses:

CHARLES LESIMPLE,
KARL SCHMITT.