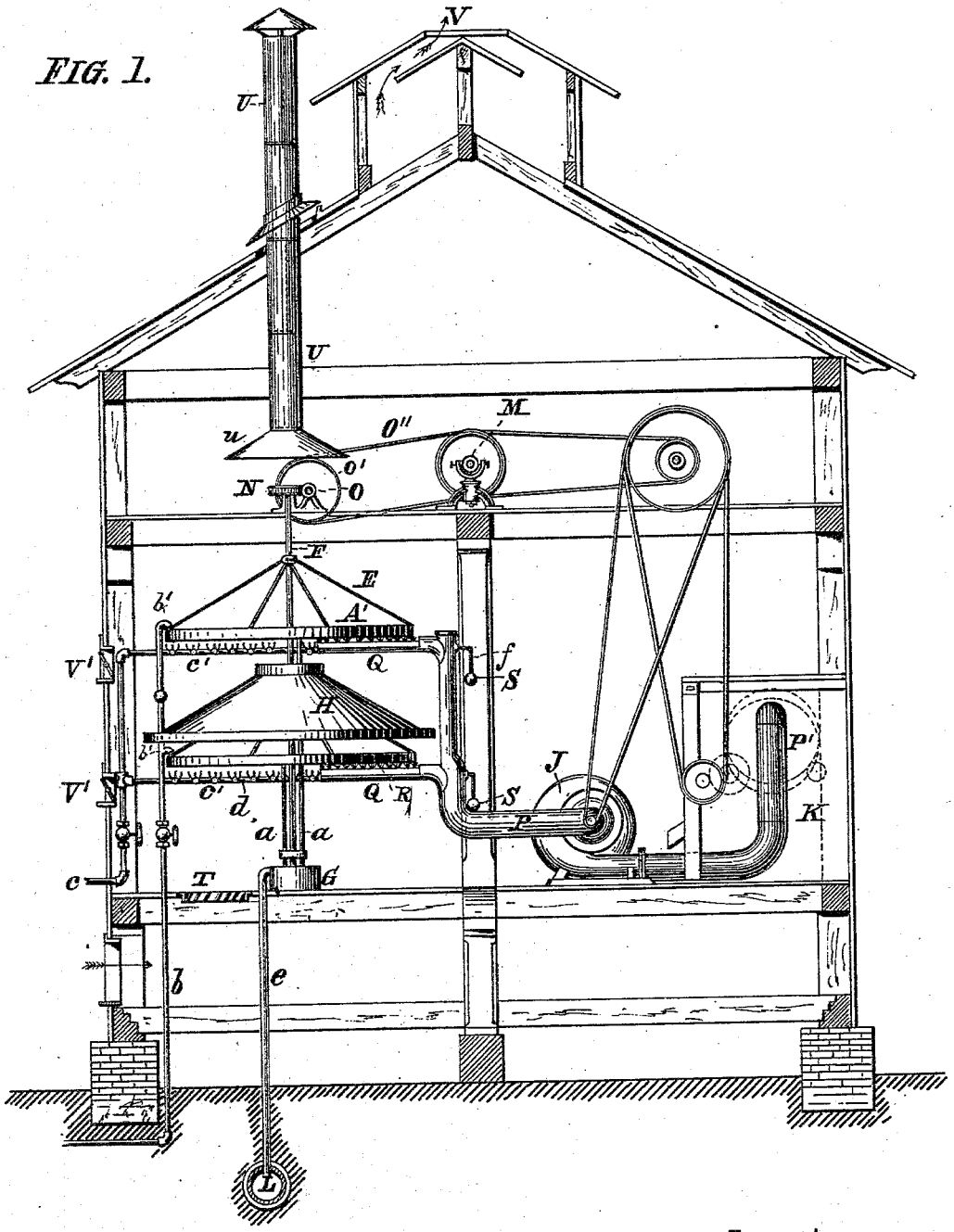
(No Model.) 2 Sheets—Sheet 1.

F. K. PLUMBLY.

APPARATUS FOR THE MANUFACTURE OF LAMP BLACK.

No. 301,518. Patented July 8, 1884.

FIG. 1.



Witnesses:
Al Stark
Willie O Stark

Inventor:
Fred K. Plumbly
by Michael J. Stark,
Attorney

(No Model.) 2 Sheets—Sheet 2.

F. K. PLUMBLY.

APPARATUS FOR THE MANUFACTURE OF LAMP BLACK.

No. 301,518. Patented July 8, 1884.

FIG. 2.

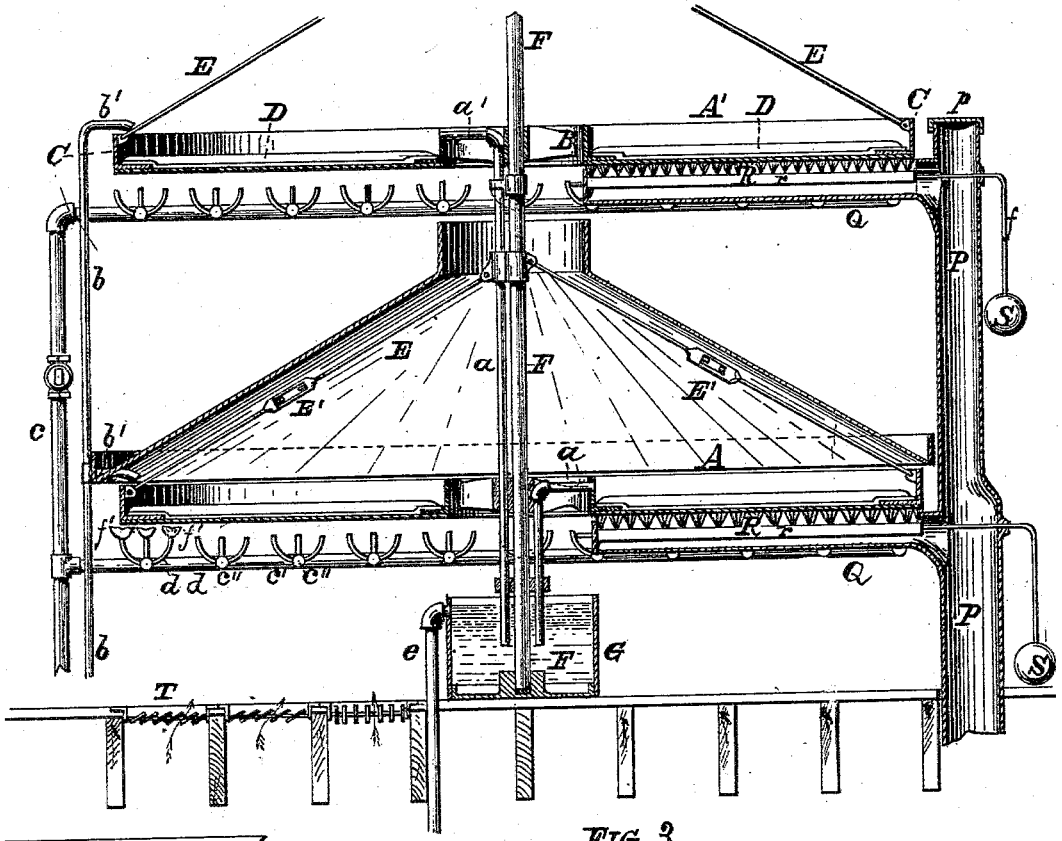


FIG. 3.

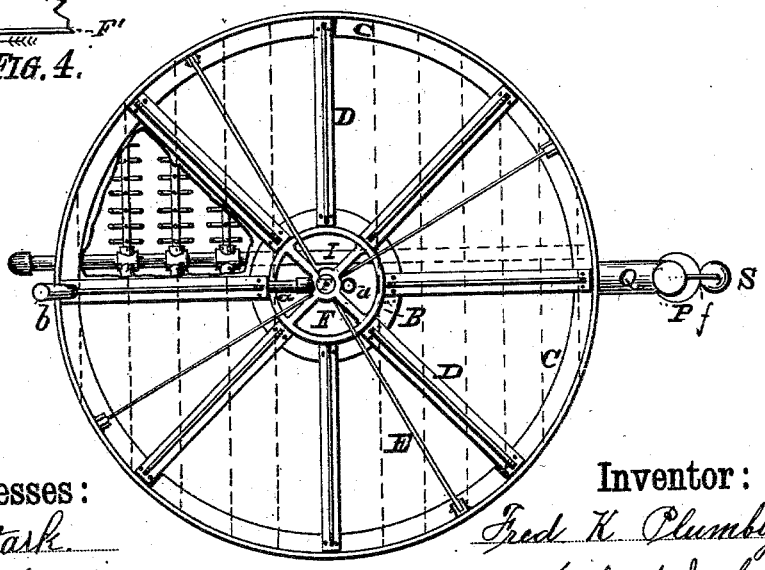
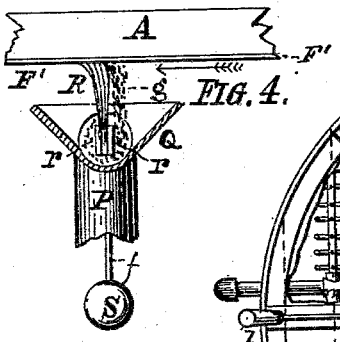


FIG. 4.



Witnesses:
Al Stark
Willie O Stark

Inventor:
Fred K Plumbly
by Michael J. Stark
Attorney.

UNITED STATES PATENT OFFICE.

FREDERIC K. PLUMBLY, OF BUFFALO, NEW YORK.

APPARATUS FOR THE MANUFACTURE OF LAMP-BLACK.

SPECIFICATION forming part of Letters Patent No. 301,518, dated July 8, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC K. PLUMBLY, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on Machinery for Manufacturing Lamp-Black; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

My present invention has general reference to improvements in machinery for manufacturing lamp-black; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already mentioned, which serve to illustrate my said invention more fully, Figure 1 is a transverse sectional elevation of a building fitted up with machinery of my improved construction for the manufacture of lamp-black. Fig. 2 is a transverse sectional elevation of a portion of the machinery. Fig. 3 is a plan of one of the revolving depositors, portions of which are broken away to expose underlying parts. Fig. 4 is a transverse sectional elevation of a fragment of the depositor and the scraper for removing the carbon deposit.

Like parts are designated by corresponding letters of reference in all the figures.

The object of my present invention is the production of suitable mechanism for the economical manufacture of lamp-black from, preferably, natural gas. To attain this result I construct within a suitable building a series of annular pans, A A′, supported upon a vertical spindle or shaft, F, and rotated by means of a worm-wheel, N, and worm O, or any other suitable and convenient mechanism. These pans A A′ consist each of a central L-shaped ring, B, having arms, as shown in Fig. 3, and an outer L-shaped ring, C, secured to the inner ring by means of spider-arms D, and supported by means of guy-rods E, having turn-buckles E′, Fig. 2, for tensioning said guy-rods E. Underneath the rings and spider-arms is secured an annular disk, F′, Fig. 4, forming, as it were, a bottom for the pan, and at the same time a depositing-surface for the lamp-black, as hereinafter to be more particularly referred to.

In constructing this apparatus I prefer to locate two (or more) of these pans A A′, one above the other upon the spindle F, and place underneath each pan a series of burners, *d*, Figs. 2 and 3, from which the gas is burned at *f′* underneath and in close or nearly close contact with the depositing-surface F′. This gas is supplied to the apparatus by means of a large supply-pipe, *c*, having two or more branch pipes, *c′*, (one underneath each pan,) and radiating therefrom a large number of service-pipes, *c″*, into which service-pipes the burners *d* are screwed or otherwise affixed. Above the lower pan, A, I place a hood, H, of funnel-shaped contour, to convey the hot gases of combustion of the burners *d* to the central portion of the next succeeding higher pan, through the central space of which said hot gases of combustion escape from the room in which the apparatus is placed into the story above, and from whence they are conveyed by the chimney U having the hood *u*, into the outer atmosphere. In case only two of such pans are employed, I use but one of the hoods, H, between the two pans; but when more than two are arranged one above the other I place a hood, H, between every pan, so that the gases of combustion of one set of burners underneath its respective pan cannot interfere with the proper burning of the lights underneath the higher pan or pans.

In order to keep the pans A A′ at a correspondingly low temperature, I furnish them with a continuous supply of cold water from a water-main, *b*, and nozzles *b′*, the escape of the same from the pans being effected by means of a series of discharge or overflow pipes, *a a′*, located near and revolving with the spindle F, and discharging into a reservoir, G, from whence the waste water is directed to any suitable conductor-pipe, L, by means of the pipe *e*, Figs. 1 and 2.

Owing to the condensation of the gas-flames when in close contact with the depositing-plates F′ of the pans A A′, and the imperfect combustion maintained, the unconsumed carbon of the gas is deposited on the under side

of the said pans, from which the carbon (lamp-black) is removed by means of a series of scrapers, R, consisting of steel wire or other suitable brushes secured between two strips of iron or other holder, *c*, Fig. 4, said brushes or scrapers being located in an open-mouthed trough, Q. This trough connects with an exhaust-fan, J, or other suitable motor by means of pipes P in such a manner that a current of air created by the suction-fan or other propelling motor causes the carbon removed by the brushes R to drop into the open mouth or trough and to pass along through the pipe P and fan J and discharge-pipe P′ to a suitably-constructed receiver and separator, (screen,) K. This latter machine may be of any well-known and approved construction, or of any special design, a detailed description of which is not deemed necessary in the present instance.

The scrapers R are provided with pendulum-poises S, by means of which they are always kept in an erect position, and yet not so rigidly held but that the brushes may follow any undulations in the plane of the pans. When desired, they (the brushes) may be kept in an inoperative position away from the disk F′ by lifting the weights S and keeping them suspended in an obvious manner, while, to compensate for wear of the scrapers, their journals may be made adjustable, or other equivalent means (not illustrated) adapted to attain the desired result.

To supply the building with proper ventilation and furnishing the burners with the desired amount of oxygen from the atmosphere, I provide the structure with a suitable number of registers, T, in the floor, and V′ V′ in the sides of the building, which said registers may always be so regulated as to allow of the admission of a suitable supply of atmospheric air.

The machinery described may be revolved by means of a main line of shafting, M, and belting O″, of leather, metal, &c., in any well-known manner, and, to attain a healthy atmosphere in the building, proper ventilators, V, as shown in the drawings, are employed.

It will be readily observed that, instead of the exhaust-fan J and conductor-pipes P P′, I may employ other means for conducting the lamp-black removed from the depositor F′ to the receiver K—such as a screw or belt conveyer or analogous device—which will accomplish the object in view. Such devices are well known, and, for this reason, mechanical equivalents of the exhaust-fan shown.

In case that fine particles of carbon should separate from the depositor F′ and float in the atmosphere, which would cause a loss of the finest part of the lamp-black on account of the upward current of air in the building, I shall surround the entire apparatus with a jacket, (not shown,) or inclose the same with suitable partition-walls to prevent the escape of such floating particles of carbon.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. In machines for manufacturing lamp-black, the combination, with the pans A A′, revolving by means of mechanism substantially as described, of the hood H, scrapers R, pipes Q and P, exhaust-fan J, and receiver K, as stated.

2. The combination, with the pipe P, having the open-mouthed branch Q, of the brush-scraper R, said scraper being pivoted, as described, and provided with the pendulum-poise S, as and for the object specified.

3. In machinery for manufacturing lamp-black, a depositor consisting, essentially, of an annular pan, A, having centrally an L-shaped ring, B, an annular L-shaped outer ring, C, a series of spider-arms, D, and an annular disk, F′, said depositor being secured to the upright spindle F, and supplied with means, substantially as described, for keeping it at a low temperature, as stated.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

FREDERIC K. PLUMBLY.

Attest:
MICHAEL J. STARK,
JOHN C. DUERR.