

J. HOWARTH.

Apparatus for the Manufacture of Lamp-Black.

No. 161,039.

Patented March 23, 1875.

Fig. 1.

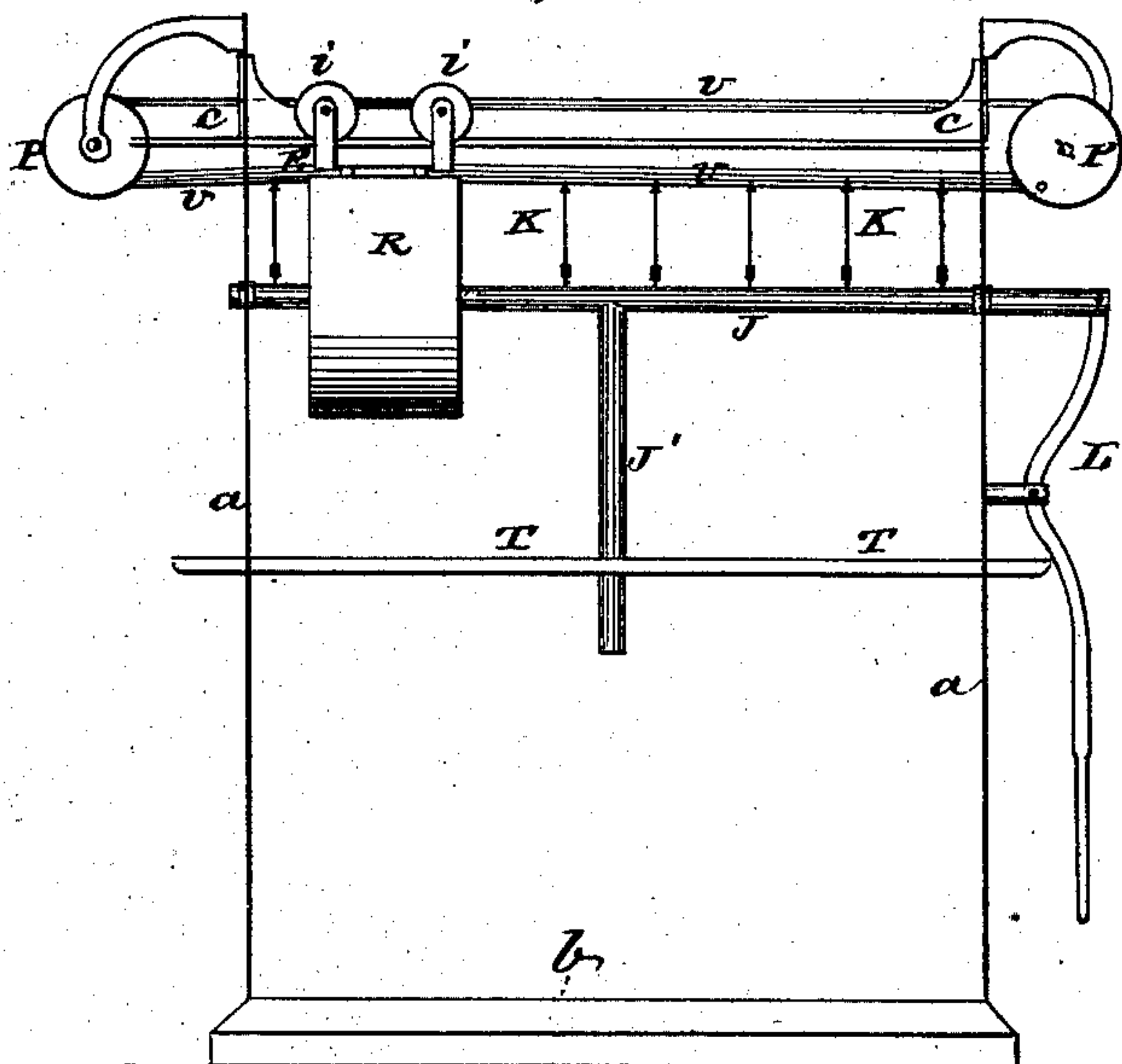


Fig. 2.

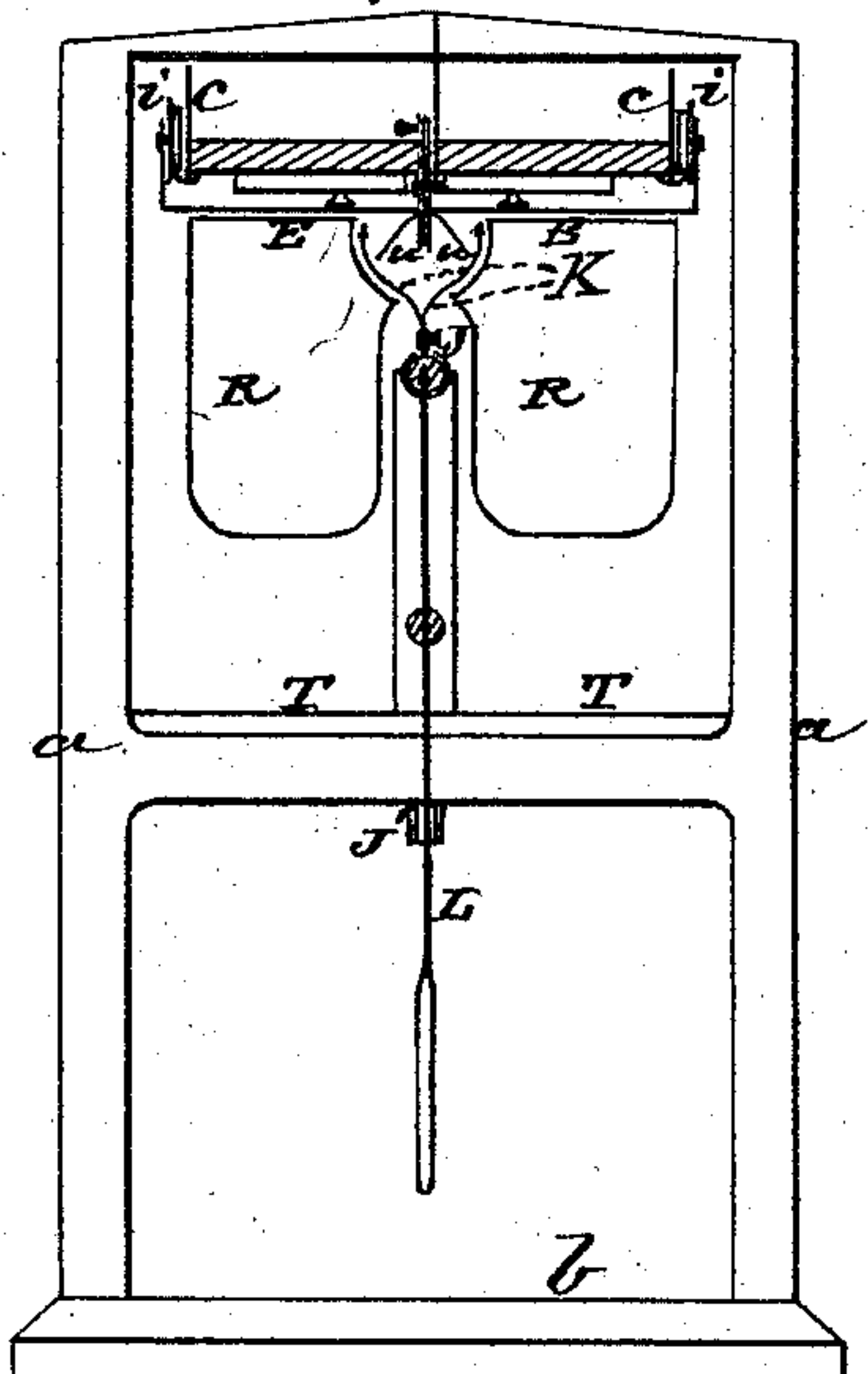


Fig. 3.

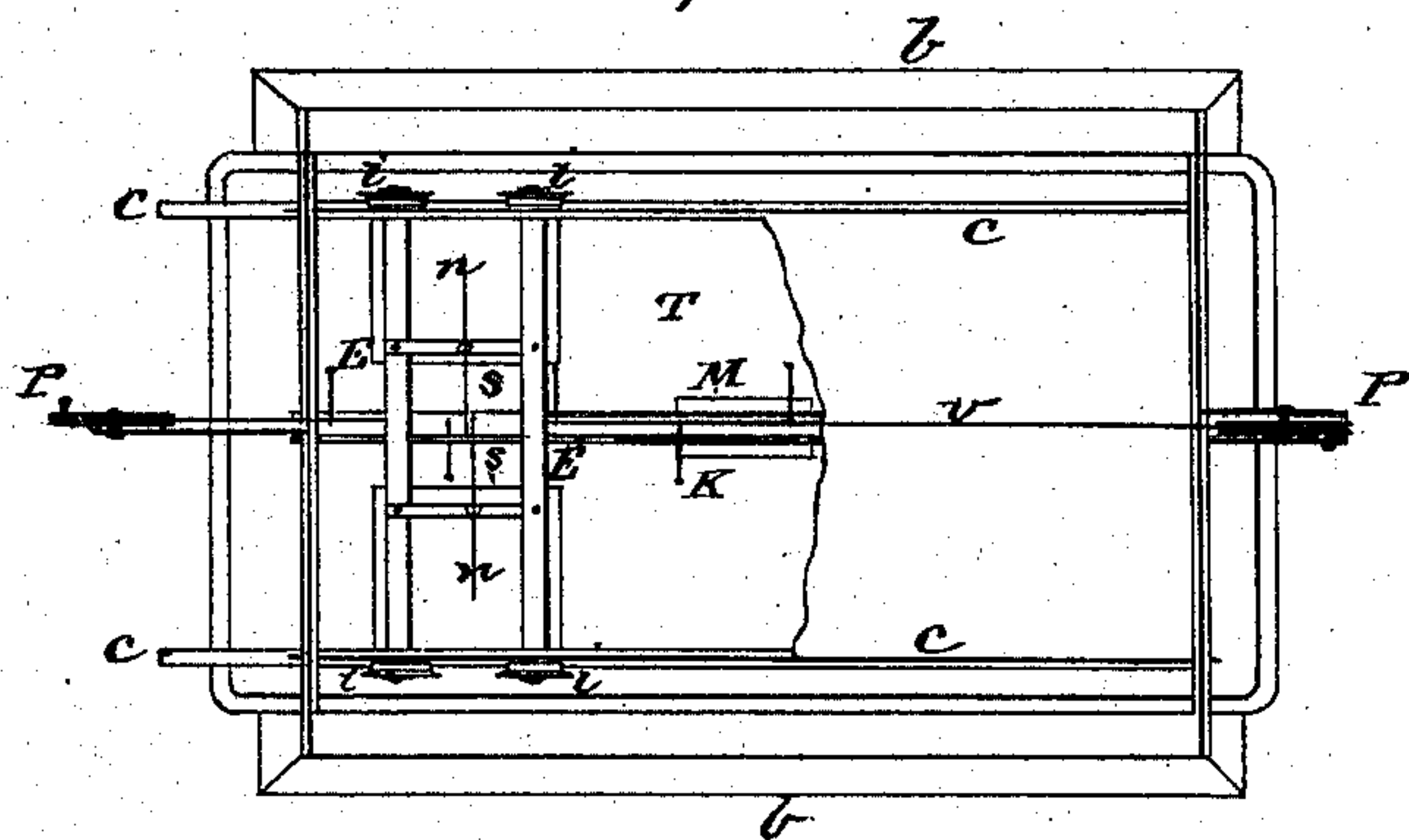
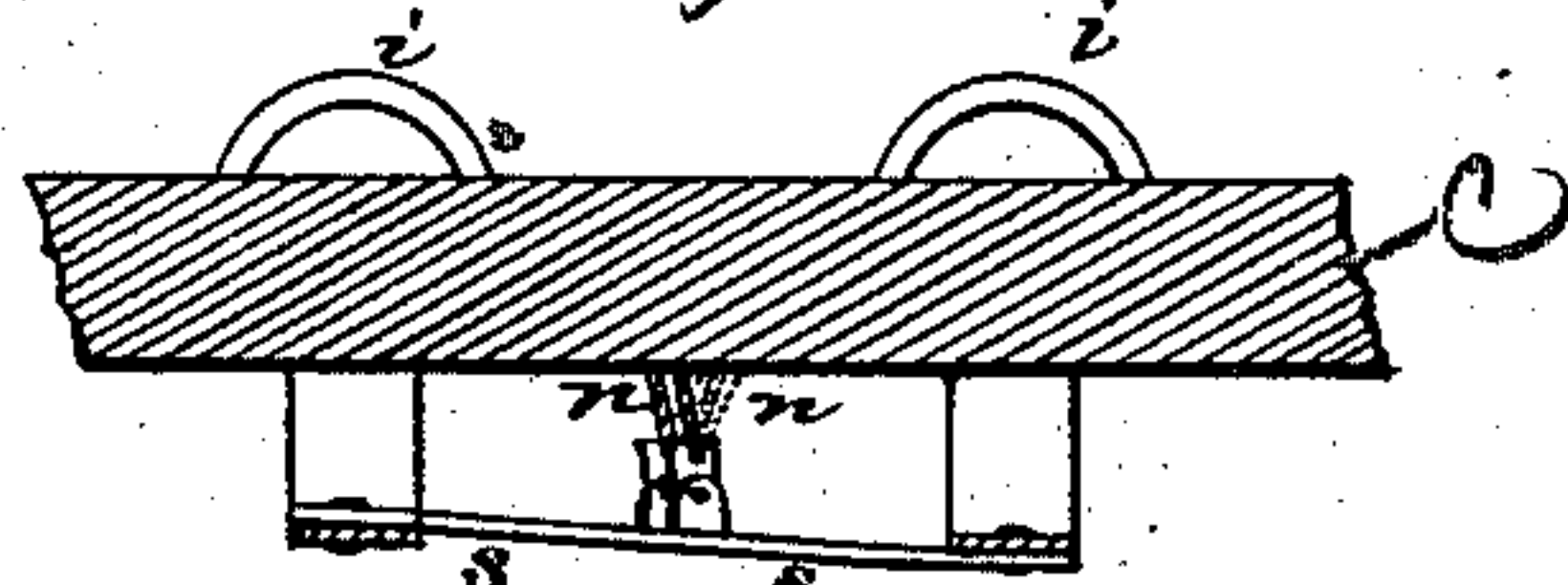


Fig. 4.



Witnesses  
Wm. H. Bishop  
Wm. Scott.

Inventor  
J. Howarth



# UNITED STATES PATENT OFFICE.

JOHN HOWARTH, OF NEW CUMBERLAND, WEST VIRGINIA, ASSIGNOR OF  
ONE-HALF HIS RIGHT TO SAMUEL T. LAMB, OF CAMBRIDGE, MASS.

## IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF LAMP-BLACK.

Specification forming part of Letters Patent No. 161,039, dated March 23, 1875; application filed  
February 16, 1875.

*To all whom it may concern:*

Be it known that I, JOHN HOWARTH, of New Cumberland, Hancock county, West Virginia, have invented certain Improvements in Apparatus for the Manufacture of Carbon-Black, of which the following is a specification, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a side elevation, Fig. 2 an end elevation, Fig. 3 a plan, and Fig. 4 a section, of the carriage with its scrapers and portion of the stone against the surface of which the carbon-black is deposited.

The same letters indicate like parts in all the figures.

My said invention relates to improvements on the method of manufacturing carbon-black, described in and secured by Letters Patent granted to me, and bearing date September 17, 1872.

My present invention consists in making the burners, (the flames from which impinge against the tiles,) as well as the scrapers and collecting-boxes, movable, and in connecting the scrapers to their carriage by a spring-connection, as will be hereinafter more fully set forth.

I will describe my said improvement in connection with the original invention heretofore patented.

In the accompanying drawings, *a* represents a suitable frame for the purpose, and *b* the base on which it stands. From the upper part of this frame are suspended two longitudinal and parallel rails, *c c*. For convenience these rails are double flanged. The outer flanges are for the wheels *i i i i* of the carriage *E E* to run on, and the two inner flanges are for the support of the soap-stone tiles. The carriage *E* is moved from end to end by a cord, *v*, attached to it, and which passes around two pulleys, *P P*, mounted on the frame, one at each end, so that by turning either of the pulleys the carriage can be run in either direction. The cord *v* should be made of wire. Other equivalent means might be substituted. The purpose of the carriage is to carry and move the scrapers *n n* from end to end of the soap-stone tiles. I prefer to use two scrapers, as represented. They are connected with the carriage-frame

by springs *S S*, so that, while moving in contact with the under face of the soap-stone tiles to scrape off the accumulated carbon-black, they can yield to any inequality of the surface, and they are hinged to the spring-connections, so that when the carriage moves in either direction they will be inclined backward, and thus avoid catching against obstructions, and the seams in the soap-stone tiles. To the carriage are suspended two boxes *R R*, one on each side of the range of burners, to catch and hold the carbon-black as it is scraped from the surface on which it is deposited as the carriage is moved from end to end. They are so suspended to the carriage that when full they can be readily detached, to be carried away and emptied, and then replaced. There is a deflector, *u*, attached to the carriage above the space between the two boxes, *R R*, to direct into the boxes any carbon-black which otherwise might fall to waste between them, and a pan, *T*, extends the entire length and breadth of the apparatus to catch and collect any carbon-black that may fall when not scraped off by the scrapers. A horizontal gas-pipe, *J*, extends the whole length of the apparatus below the soap-stone tiles, and it is provided with numerous branches with burners *K K*, which are alternately branched in opposite directions; and from the middle of its length the main pipe *J* has a vertical branch, *J'*, extending downward, and which is to be connected with any suitable reservoir of gas, whether from a well or other supplier of gas. This branch pipe *J'* passes through a hole in a plate, *M*, fitted to slide longitudinally on the bottom of the pan *T*, when the main pipe *J*, with its burners, is moved longitudinally by a lever, *L*. The object of moving the burners is to shift their position under the soap-stone tiles when the heat becomes too intense, as it is a fact that carbon-black when subjected to too high a temperature is injured.

The operation of the apparatus is as follows, viz: The gas from the gas-well issuing from the ground, or other source, is passed into a gas-holder, not simply as a reservoir to hold and store up gas, but to bring the gas, or such portions of it as shall be required for consump-



tion under a uniform pressure for the supply of the gas-burners. The gas is transmitted from the holder to the pipe J, which supplies it to the burners. The gas-flame from each burner is adjusted to impinge against the under surface of the soap-stone tiles, and the quantity of gas supplied to each burner is controlled in the usual manner by a small gas-cock attached to each burner. The carbon-black is deposited on the tiles, and is removed and collected from them as often as desirable by the scrapers being traversed the entire length of the tiles in either direction by the line and pulleys before mentioned, or other equivalent means, and the carbon-black deposited into the boxes R R. The scraper-frame or carriage can be traversed in either direction by hand or power, as may be desired. The purpose and use of the lever L are designed to shift the main pipe with its burners so that the action of the gas-flames shall not impinge on the tiles always at any one given point, but

to have a few inches of the tile to distribute the black over and prevent its being impaired by the heat of flame playing upon it too long.

What I claim as my invention of improvements on my former invention, as above specified, is—

1. In combination with the soap-stone tiles, the movable burners, substantially as and for the purpose described.

2. In combination with the soap-stone tiles, the movable carriage, with scrapers and collecting-boxes, substantially as and for the purpose specified.

3. In combination with the soap-stone tiles, the scrapers, connected with the carriage by spring and hinge, substantially as and for the purpose specified.

J. HOWARTH.

Witnesses:

WM. H. BISHOP,  
WM. SCOTT.