FICKEN & WILLIAMS.

Treating Bone Black.

No. 62,537. Patented Mar. 5, 1867.

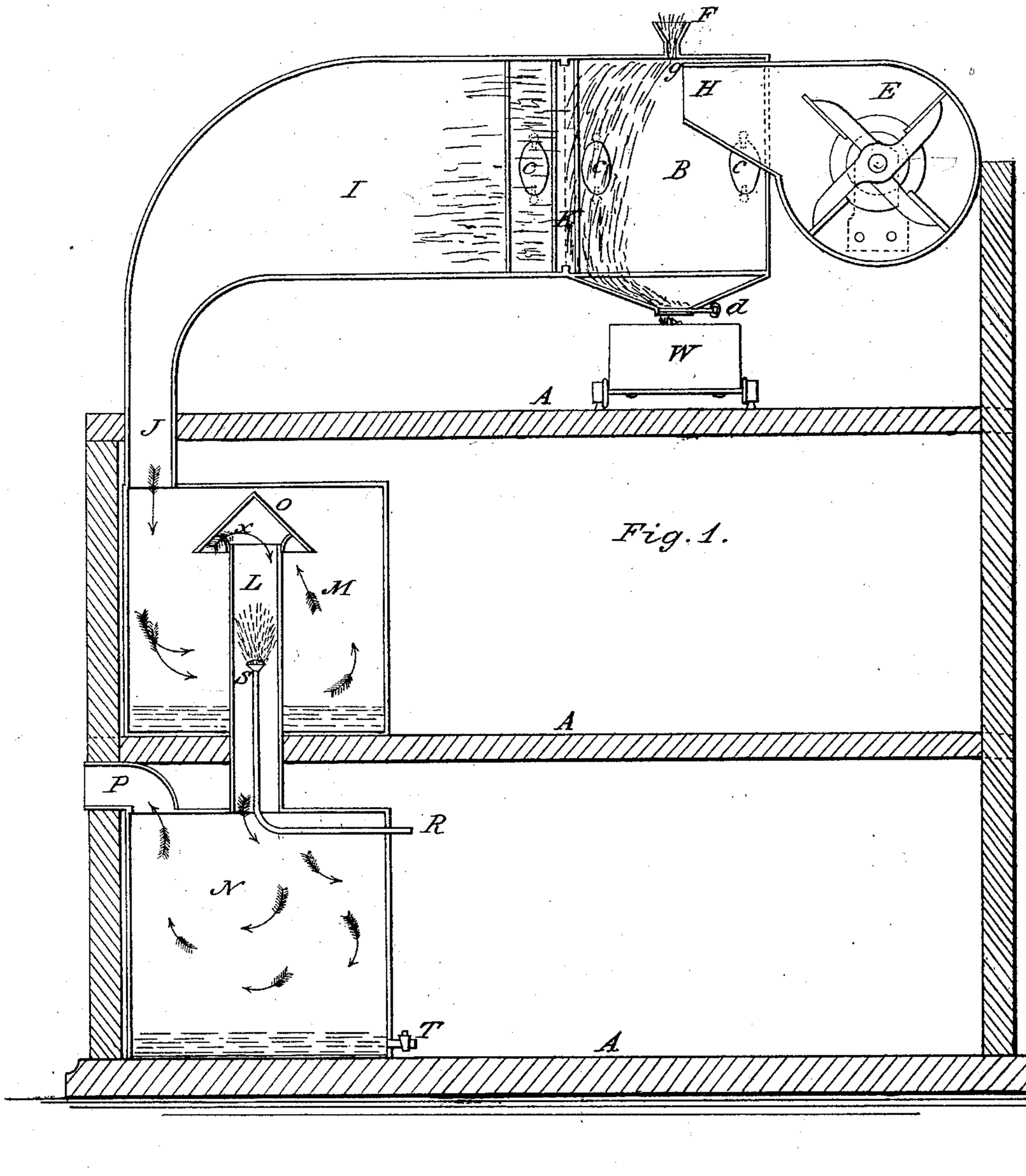

Fig. 1.

Witnesses:

Edw. Brown

P. Henry Phillips.

Inventor:

Richard. Ficken.

Fielding L. Williams.

United States Patent Office.

R. FICKEN AND F. L. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 62,537, *dated March* 5, 1867.

IMPROVED MACHINE FOR CLEANING AND PURIFYING BONE-BLACK.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, RICHARD FICKEN and FIELDING L. WILLIAMS, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Machine for Cleaning and Purifying Bone-Black; and we do hereby declare the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is an elevation of the machine partly in section.

The nature of our invention consists in constructing a machine for separating and collecting dust and other impurities from bone-black, a common term for animal charcoal. In the refining of sugar, the sirup is filtered through bone-black (broken fine, about half the size of a pea) contained in upright iron cylinders. After being used a certain time the bone-black requires revivifying, which is done by reburning it in kilns. During this manipulation of it a quantity of fine dust is formed, which has to be removed before using it again, as it obstructs and injures the filtration of the sirup. Various means are used to accomplish this, as by sifting and blowing. By the use of our machine the dust is both separated from the bone-black and collected in boxes, thereby preventing the nuisance and injury to surrounding property which takes place when the dust is allowed to escape into the atmosphere.

To enable other skilled in the art to make and use our invention, we will proceed to describe its construction and operation. Referring to drawing, fig. 1—

A A A represent the floors of the sugar-house. On the floor, level with the top of the filters, is placed a cast-iron box, B, about three feet wide and four feet long. Across it is stretched a fine wire screen, K. Above the box is a funnel-shaped orifice, F, opening into the box by a long narrow slit, *g*, about three-fourths of an inch wide, and reaching nearly across the box. C C C are hand-holes in one side, with movable doors, through which the screen K can be brushed occasionally. The bottom of this box is sunk, hopper-shaped, and has an outlet regulated by a sliding door, *d*. At one end of the box is placed a fan-blower, E, having a nozzle or outlet, H, projecting into the box B, within an inch or two of the inlet *g*. This said nozzle H is a little wider than the said inlet, and is about six inches deep. At the opposite end of the box B is an elongated wrought-iron trunk, I, for carrying off the dust after it passes through the screen K. This trunk is shown in fig. 1, rather shorter in proportion than we make it, as it is found that the blast is less obstructed and the dust passes through the screen better when the trunk is long. The trunk is contracted to a pipe, J, about ten or twelve inches square, where it enters the first collecting box M, on the floor below. This box is about four feet square, of wrought iron, and it has a pipe, L, in its centre for the escape of the blast. This pipe has a bonnet, O, secured to its top by rods, so that the blast enters the pipe L, as shown by arrow X. This pipe passes through the bottom of the box, and enters a similar box, N, on the floor below. The blast passes out from this box by a pipe, P, leading upwards into the atmosphere. A steam pipe, R, having a rose, S, on its end, passes into the pipe L to saturate the dust. T is a pipe for drawing off the water which may accumulate by the condensation of the steam. One side of these boxes M N should be removable, so as to clean out the dust which collects in them periodically. These pipes, J L and P, are so constructed and arranged in relation to the boxes M and N, that the direct current of the air is broken and suffused throughout the boxes, so as to facilitate the deposit of the dust. The capacity of this machine as described is about seventy-five thousand pounds per day, and the dust removed about one thousand six hundred pounds per week.

The operation of the machine is this: The bone-black, after being reburnt and cooled, is carried by an elevator to the top of the sugar-house, or to whatever floor the machine may be upon, and falls into the hopper F and through the opening *g*. The blast from the fan E forces the bone-black against the screen K, and all the fine dust passes through it, the larger particles collecting at the bottom on the door *d*, which is opened just sufficiently to allow it to escape; it there falls into a wagon, W, on rails, and is thence conveyed to the filtering pipes. The dust passes along trunk I down pipe J into box M, where the heaviest collects; the finest passes through pipe L, where it is saturated with steam, and falls to the bottom of box N; the blast then escapes by pipe P to the atmosphere almost free from dust.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. We claim the box B, with its diaphragm screen K, openings *g* and *d*, in combination with the blower E, and trunk I, when constructed and arranged substantially as described.

2. We claim the dust-collecting boxes M and N, constrncted and arranged substantially as described.

3. We claim the combination of the blower E, diaphragm box B, trunk I, and collecting boxes M and N, constructed and arranged substantially as described.

RICHARD FICKEN,
FIELDING L. WILLIAMS.

Witnesses:
EDWD. BROWN,
P. HENRY PHILIPS.