C. DOSCHER.

APPARATUS FOR COOLING BONE-BLACK.

No. 186,327. Patented Jan. 16, 1877.

Fig. 1.

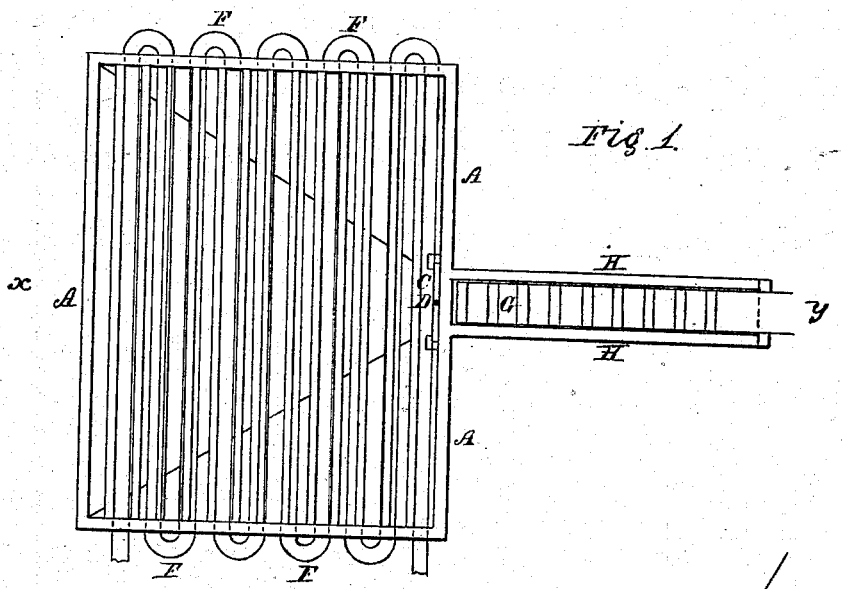
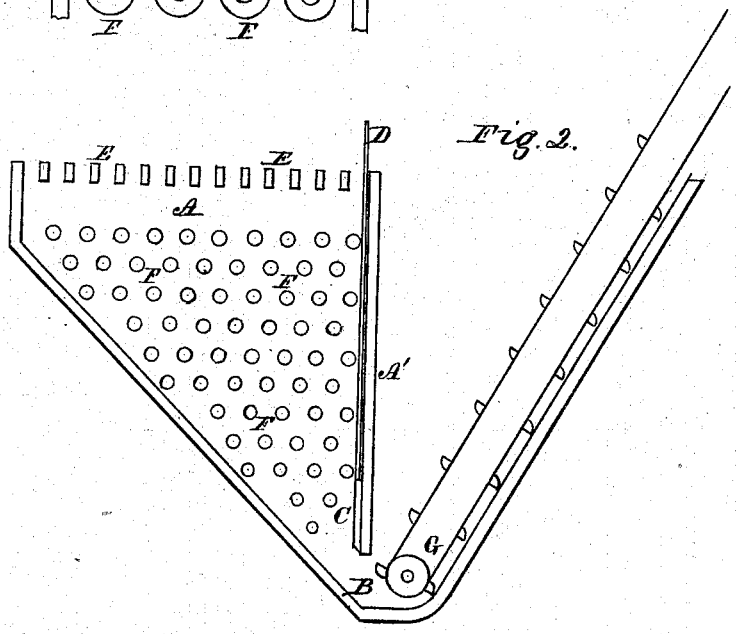


Fig. 2.



Witnesses.

John L. Peters.

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UNITED STATES PATENT OFFICE.

CLAUS DOSCHER, OF HASTINGS-UPON-HUDSON, NEW YORK.

IMPROVEMENT IN APPARATUS FOR COOLING BONE-BLACK.

Specification forming part of Letters Patent No. **186,327**, dated January 16, 1877; application filed September 30, 1876.

To all whom it may concern:

Be it known that I, CLAUS DOSCHER, of Hastings-upon-Hudson, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Apparatus for Cooling Bone-Black or Animal-Char; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

In the manufacture of refined sugar the sirup is filtered through bone-black or animal-char for the purpose of clarifying it. After the char has been used in filtering, it is washed and reburned in kilns, so as to again render it fit for use. It is drawn out from the bottom of the kilns into wagons, but before it is again put into the filters it is necessary to cool it down to 150° Fahrenheit. This is now done in a variety of ways, but it is generally done by spreading the char upon a stone floor until it has cooled sufficiently for use.

The object of my invention is to provide a simple and efficient apparatus for cooling the char rapidly and economically without so great an expenditure of manual labor as is now used.

My invention consists in the construction, arrangement, and combination of parts that will be hereinafter described.

In the accompanying drawing, Figure 1 is a top view of my improved apparatus. Fig. 2 is a section through the middle of the apparatus on the line *x y* of Fig. 1.

A is a hopper for the reception of the char that is to be cooled. It is shown in the drawing with a top of a rectangular form, and having the back and sides inclining downward toward a vertical face, A′, so as to form an inverted pyramid. The sides and back incline so as to conduct the contained char toward the opening or outlet B, which is provided with the gate C, for regulating the size of the opening. D is a rod, extending upward to a point above the hopper, for the purpose of opening and closing the gate C. E is a series of bars, forming a grating through which the char is deposited in the hopper A. F is a series of water-pipes for conducting a stream of cold water back and forth across the hopper from side to side.

These pipes can be connected by curved couplings outside or inside of the hopper, as shown in Fig. 1, in any number to a set that may be desired. In the drawing one horizontal layer is shown to be so connected, although a greater or less number can be joined, according as may be found most convenient to reduce the char to the required temperature.

G is an elevator, consisting of a series of buckets arranged upon a revolving belt, by which the char is raised from the bottom of the hopper to the place where it is to be deposited. This elevator works in an inclosed chamber, H, which is attached to the face of the hopper A.

The operation of my invention is as follows: The hot char is brought in wagons and emptied into the hopper A through the grating E, and passes downward between the cold-water pipes F, through which a stream of cold water is constantly flowing. In this operation it is continually presenting new surfaces to the action of the pipes, and becomes equally cooled throughout. The gate C is opened sufficiently to allow only just a sufficient quantity of the char to flow out to fill the buckets of the elevator G. This is raised to the desired position, where it is deposited, and the buckets return upon the under side of the belt.

What I claim as my invention is—

The combination of the hopper A, provided with the pipes F, the opening B, and its gate C, with the chamber H and the elevator G, substantially as herein set forth.

CLAUS DOSCHER.

Witnesses:

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