

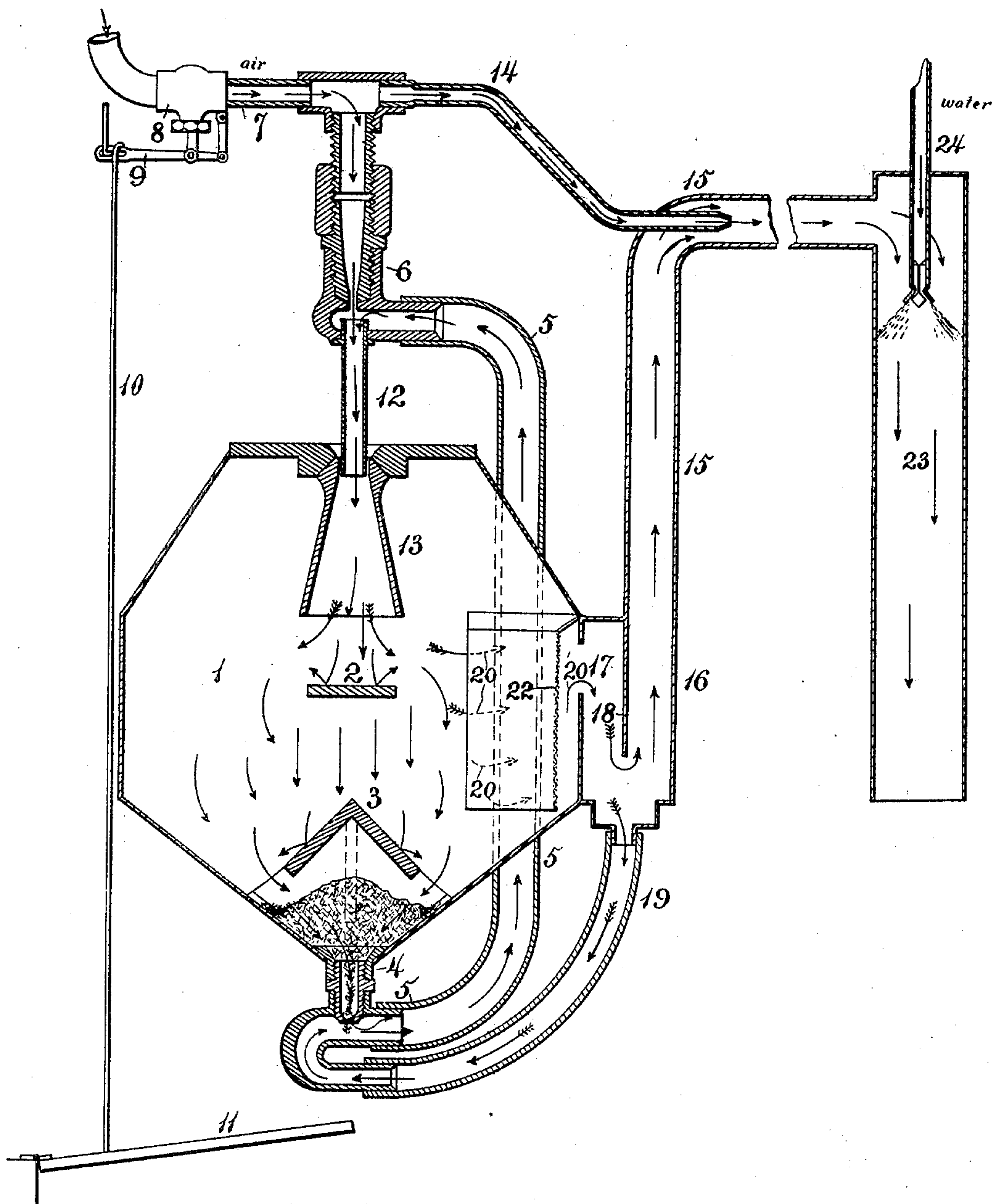
No. 681,867.

Patented Sept. 3, 1901.

A. F. BARDWELL.
SAND BLAST MACHINE.

(Application filed Jan. 24, 1896.)

(No Model.)



Witnesses.
Walter E. Allen.
[Signature]

Inventor.
Arthur F. Bardwell.
By *[Signature]* Knight Bros.
Attys.

UNITED STATES PATENT OFFICE.

ARTHUR F. BARDWELL, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
YALE & TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

SAND-BLAST MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,867, dated September 3, 1901.

Application filed January 24, 1896. Serial No. 576,724. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR F. BARDWELL, a citizen of the United States, and a resident of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Sand-Blast Machines, of which the following is a specification.

My invention relates to an improvement in the construction of sand-blast machines for finishing builders' hardware where a dull or roughened appearance is imparted to metal facings and is different from machines ordinarily constructed in that there is no interference of any nature to break the force of the sand before it comes in contact with the work to be treated and that the force with which the sand strikes the work is aided by gravity only and not by any artificial means, that there are means to collect and reuse the sand until it becomes too fine, and, finally, means for removing and drowning the dust; and my invention consists of such an arrangement of parts to accomplish the above results as will be hereinafter more fully described, and specifically set forth in the claims.

In order that my invention may be fully understood, I will proceed to describe the same with reference to the accompanying drawing, which shows in vertical section my improved machine.

In the said drawing, 1 represents a chamber in which the work 2 is to be treated. This chamber may be of any size, configuration, and construction, and it is closed to the outer air, except through the opening through which the work is inserted and handled. The work 2 is placed under the blast through an opening in the side of the box and is simply pushed in by hand, the workman having on a rubber glove to protect his hand against the sand. If the shape of the piece permits it, he holds it directly in his hand; but if the piece is too short he holds it with tongs. The hole for the insertion of the piece may be at any convenient point in the casing of the machine, and, in fact, some of the machines have two holes in them for this purpose. These holes do not interfere with the circulation of air.

3 represents a suitable deflector for sand, located in the bottom of the chamber 1 and over

an outlet-opening 4, which leads to the sand-pipe 5. This deflector is of such construction as to deflect and not break the sand and also to allow sand to accumulate under it, as shown. The sand-pipe may be of ordinary construction, and it is connected at one end with the opening 4 and at its other end with a jet-pipe 6, through which compressed air passes, it being supplied to the jet 6 from a compressor through the pipe 7.

8 represents a valve located in the pipe 7 and connected by means of a lever 9 and rod 10 with a treadle 11, which on being depressed allows the air to flow into the jet 6.

12 represents a short tube through which the compressed air passes to the chamber 1, and 13 represents a funnel-shaped deflector carried by the chamber for allowing the air to expand and diffuse through the chamber, so that when the air and sand enter the chamber only the sand will be forced onto the work, thus doing away with the strong currents of air directed against the work, which makes it difficult to handle.

In order that the work may be clearly seen and kept free from sand and dust while it is being operated on, I provide a draft across the work. This is accomplished by the following arrangement of parts:

14 represents a pipe leading from the compressed-air pipe and projecting into flue 15, and 24 represents a water-pipe having a spray at its exit end. These cooperate to form a draft. However, under certain circumstances pipe 14 could be dispensed with. These lead from chamber 16, which is secured to chamber 1 by any preferred means. This chamber communicates with chamber 1 through opening 17, and it is provided with a projection 18 in order to form an obstructed passage for the dust-laden air, so that whatever sand is carried over the heavier particles will become separated and fall into pipe 19 to be conducted to the lower part of sand-pipe 5.

22 represents a screen secured to chamber 1 in front of opening 17 and closed at the top in order that the draft will enter chamber 16 at the ends, (indicated by arrows 20.) This deflects a greater part of the sand and causes a draft through all parts of the chamber 1.

23 represents a flue which is connected with

flue 15, through which the dust is conveyed by the draft created by either the spray of water at the end of pipe 24 or by the compressed air through pipe 14, or both. The dust passing through the spray of water is drowned and may be carried away and dispensed with as desired.

The operation of my device, briefly stated, is as follows: The valve is opened and compressed air is allowed to pass through the jet, and as it passes through it creates a draft through the sand-pipe, which causes the sand to pass up through this pipe and onto the work, as indicated by the arrows. As the sand and air enter the chamber the air diffuses and the sand only is directed against the work. After doing its work the greater part of the sand falls to the bottom of the chamber, as indicated by the arrows, to be again used. The dust is carried out of the chamber, separated, drowned, and finally dispensed with as desired.

It will be understood that I do not limit myself to the precise arrangement of parts shown, as they may be changed or varied to conform to surrounding conditions where the machine is placed without departing from the spirit of my invention.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a sand-blast machine, the combination of the chamber in which the work is manipulated, a sand-pipe connected with the bottom and top of said chamber, a compressed-air pipe connected with the said pipe for drawing sand through the same so as to cause it to pass into the chamber, and suitable means for diffusing the compressed air whereby the sand is allowed to drop onto the work by gravity alone, substantially as shown and described.

2. In a sand-blast machine, the combination of a closed chamber in which the work is manipulated, said chamber being provided with an opening which is suitably connected with a discharge-flue, and suitable means for creating a draft through said flue so that air is withdrawn from said chamber to cause a current to pass across the face of the work to keep it free from dust; substantially as described.

ARTHUR F. BARDWELL.

Witnesses:

SCHUYLER MERRITT,
GEO. E. WHITE.