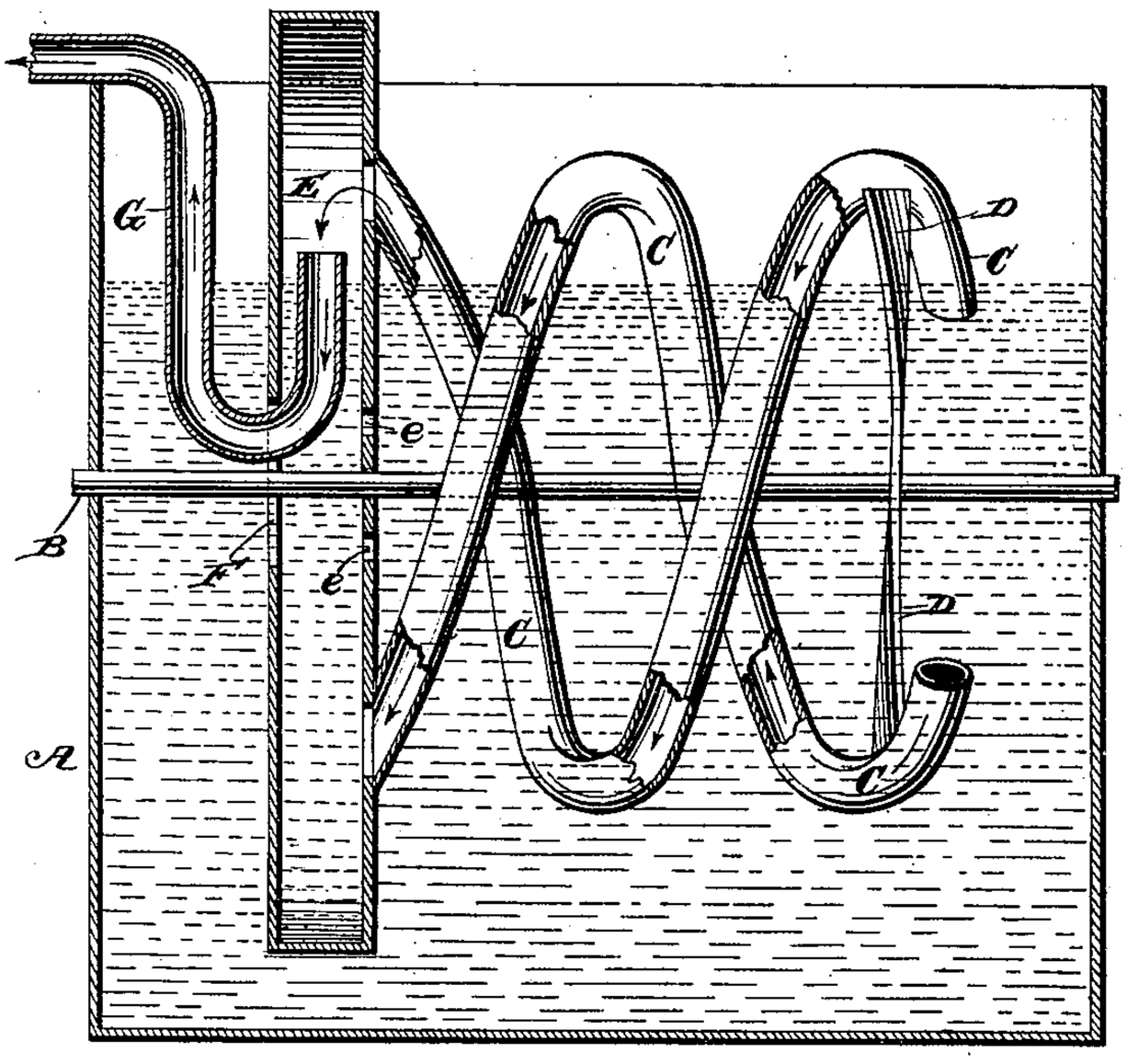
(No Model.)

W. Q. PREWITT.

AIR FORCING APPARATUS.

No. 262,472. Patented Aug. 8, 1882.



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UNITED STATES PATENT OFFICE.

WILLIAM Q. PREWITT, OF LEXINGTON, KENTUCKY.

AIR-FORCING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 262,472, dated August 8, 1882.

Application filed December 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Q. PREWITT, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented new and useful Improvements in Air-Forcing Apparatus, of which the following is a specification.

This invention relates to a blower for supplying air to carbureting apparatus, or for increasing the draft in forges and furnaces, or for inducing a current of air for various other purposes.

The objects of my invention are to dispense with the use of valves in the construction of the blower, to construct the device in a cheap, simple, and durable manner, and to insure a constant and steady current of air during the operation of the apparatus. These objects I attain by means of the devices illustrated in the accompanying drawing, which represents a longitudinal section of the apparatus.

To carry my invention into effect I provide a suitable vessel, A, which is adapted to contain the operative parts of the blower, and also to contain the water which is employed as an agent in creating the required current of air. The rotary horizontal blower-shaft B has its bearings in the walls of this vessel, and it will be extended out from one side of the same, so that a pulley to be driven by belt-power or a gear to be driven by a suitable arrangement of gearing can be secured upon the end of the blower-shaft. This blower-shaft constitutes the horizontal axis of a screw-coil, comprising two or more spiral pipes, C, which at one end are supported by radial arms D, secured to the shaft, and which at their opposite ends connect with and open into the side of a short cylindrical air-receiver, E, that is rigidly mounted upon the blower-shaft. The cylindrical air-receiver has a series of perforations, *e*, formed through one of its sides, so that the chamber within the receiver will communicate with the vessel A through said perforations. Through the opposite side of the air-receiver is formed a central opening, F, which will be considerably larger than the diameter of the blower-shaft that passes through such opening, whereby space is left for the passage of the eduction-pipe. G indicates the eduction-pipe, which extends down into the vessel containing the blower mechanism. This pipe is bent into U form, and, passing through the opening F in the air-receiver, extends up into the air-receiver to a point which will be just below the highest point in the path described by that end of the spiral tube which discharges the air into said receiver. The eduction-pipe leading from the air-receiver will be conducted to the apparatus or the locality where a current of air is desired.

The operation is as follows: The vessel containing the spiral coil and the air-receiver will be filled with water up to a level which will be below the end of the eduction-pipe that is in the receiver, and which will also be below the inlet ends of the spiral coil when the latter are at the highest point. Power is applied to rotate the blower-shaft, and hence cause the spiral tubes to revolve about a common horizontal axis, during which operation the spiral tubes will gather air while above the water, and in entering the water a water-column will enter the same, so that as the tubes continue to revolve the water within the same will act as a piston and drive before it the body of air and force the same into the air-space above the water in the air-receiver. From thence the air will pass out through the eduction-pipe to the required locality. The water is carried along the spiral tubes as in the ordinary Archimedean screw, and is finally discharged into the air-receiver. The openings in the side of the receiver allow the water to pass into the outer vessel, and hence the water-level will be the same in both the receiver and the vessel within which it arranged.

It will be obvious that more than two of these spiral tubes can be employed, and also that by employing tubes instead of a spiral blade one tube will be gathering air while the remaining tube or tubes are immersed in the water and conducting the air to the receiver.

Prior to my invention spiral blades have been employed in a water-vessel for forcing air into an eduction-pipe, and in another instance a hollow rotary cylinder having perforated heads has been provided with a series of curved tubular arms attached to its periphery; but in the first-mentioned instance it is im-

practicable to arrange a number of blades sufficient to prevent the air being forced out with distinct impulses at each rotation of the screw, and in the latter the device is too large and and cumbrous, and the air will be liable to be forced back through one of the pipes when considerable resistance is offered to the air-current.

What I claim is—

The combination, in a blower, of the open vessel A, for containing water, with the coil of spiral tubes C, connected with one of the sides of a rotary air-receiver, E, and located to revolve about a horizontal axis within the water-vessel, and the stationary air-discharge pipe G, entering the said receiver, substantially as shown and described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

W. Q. PREWITT.

Witnesses:

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