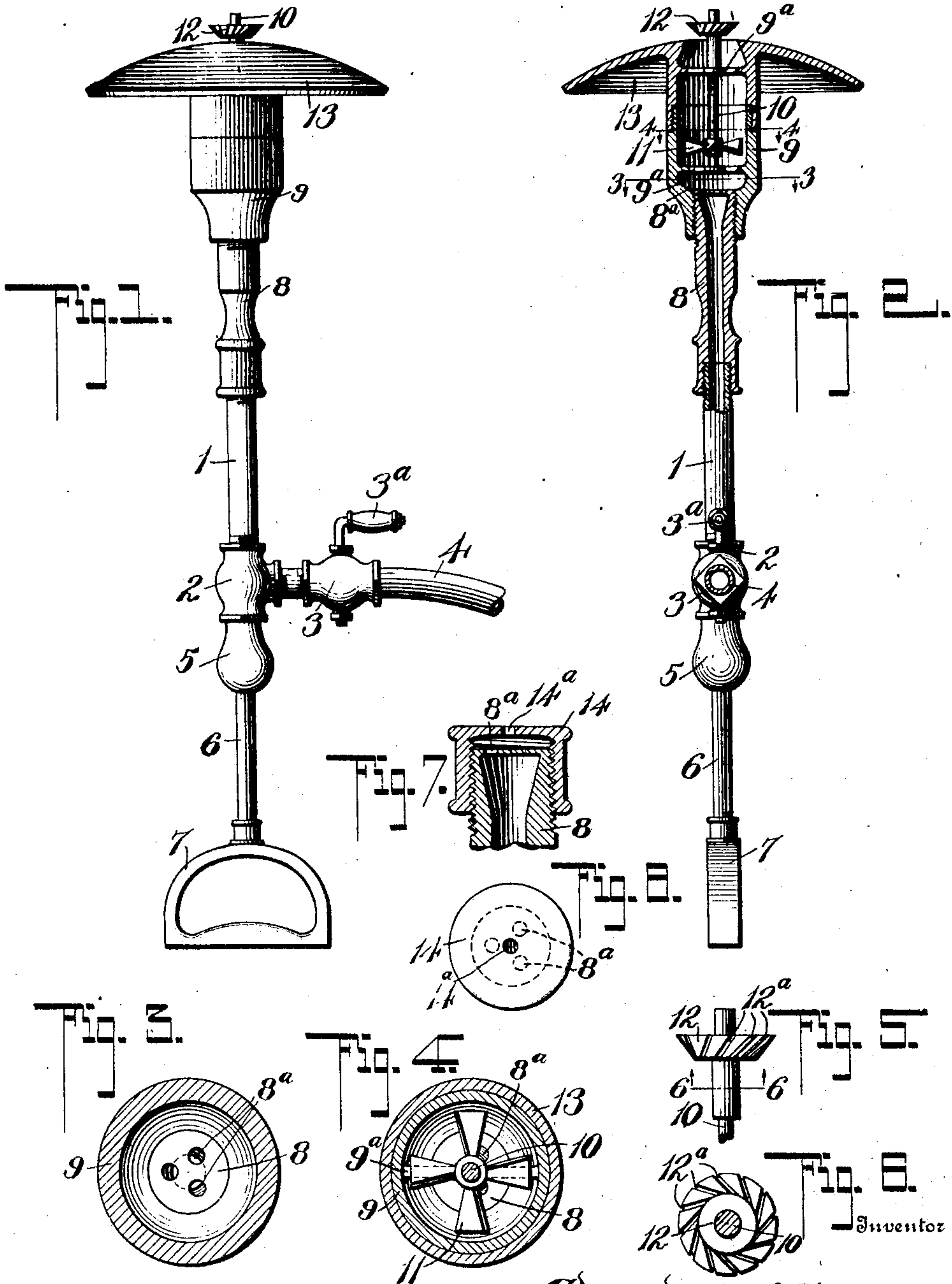


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TUBE BLOWER.

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925,334.

Patented June 15, 1909.



Witnesses

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TUBE-BLOWER.

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To all whom it may concern:

Be it known that I, CHARLES C. GROVER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Tube-Blowers, of which the following is a specification.

This invention relates to a device for blowing out boiler tubes, scalding down engines, and similar purposes.

The invention consists in the novel features of construction hereinafter described, pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a view of the device in elevation. Fig. 2 is a sectional elevation at right angles to Fig. 1. Fig. 3 is an enlarged section on the line 3—3 of Fig. 2. Fig. 4 is an enlarged section on the line 4—4 of Fig. 2. Fig. 5 is a detail enlarged elevation showing a steam spreading disk. Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is an enlarged sectional view showing a nozzle cap employed when scalding engines. Fig. 8 is a plan view of said cap, the discharge nozzle being shown in dotted lines.

In these drawings 1 represents a three-quarter inch gas pipe, in one end of which is threaded a coupler 2 which carries a suitable valve casing 3, to which is connected a steam hose 4. To an end of the coupler 2 is secured a wooden handle 5 from which projects a three-eighth inch gas pipe 6 upon the free end of which is secured either a wooden or metal handle 7. Upon the other end of the pipe 1 opposite the handle 5 is threaded a discharge nozzle 8 the upper end or rose of which is provided with three or more eccentrically arranged perforations 8^a. This nozzle carries and discharges into a sectional casing 9, said sections carrying respectively, cross pieces 9^a in which is vertically journaled a shaft 10 which carries adjacent its lower end fan blades 11 and adjacent its upper end a beveled disk 12, the beveled edge of which is provided with a series of oblique grooves 12^a. A semi-spherical flange 13 is carried by the upper end of the casing 9. In cleaning out a boiler tube the shaft 10, disk 12 and such portion of the flange 13 as the diameter of the tube will admit is inserted into the tube, the device being supported by grasping the wooden handle 5 with the left hand and the handle 7 with the right hand. The valve of the casing 3 is

opened by means of a handle 3^a. Steam passing through the pipe or hose 4 will pass through the pipe 1, nozzle 8 and will be giving a whirling motion by the fan blades 11, which are driven by passage of the steam, and this whirling motion will be further increased by the steam striking the oblique grooves 12^a of the disk, which is also rotated, being fixed to the same shaft to which the fan blades are fixed.

In scalding down an engine, the casing 10 is removed from the nozzle and a cap 14 having a central opening 14^a is threaded on the discharge end of the nozzle 8. The escape of steam in a spray through the opening 14^a can be regulated by screwing the cap so as to bring the top of the cap the proper distance from the discharge end of the nozzle, as the fineness of the spray will be increased by reducing the space between the perforated end of the cap 14 and the perforated end of the nozzle, it being remembered that the opening 14^a is in the center of the cap and the perforations 8^a are eccentric with respect to the center of the end of the nozzle.

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

1. A device of the kind described comprising a discharge nozzle, a casing carried by said nozzle, said casing extending in advance of the nozzle, a shaft journaled longitudinally in said casing, fan blades carried by said shaft and within the casing, the shaft projecting from the casing, and a beveled disk carried by the shaft in advance of the casing, the beveled portion of said disk being provided with obliquely arranged grooves.

2. A device of the kind described comprising a discharge nozzle, the end of said nozzle being provided with eccentrically placed perforations, a casing adapted to be threaded upon said nozzle, a semi-spherical flange carried by the free end of the casing, a shaft journaled in and projecting from the free end of the casing, fan blades carried by said shaft within the casing, and a disk fixed upon the outer end portion of said shaft, the inner face of the disk being beveled, and provided with obliquely arranged grooves.

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