

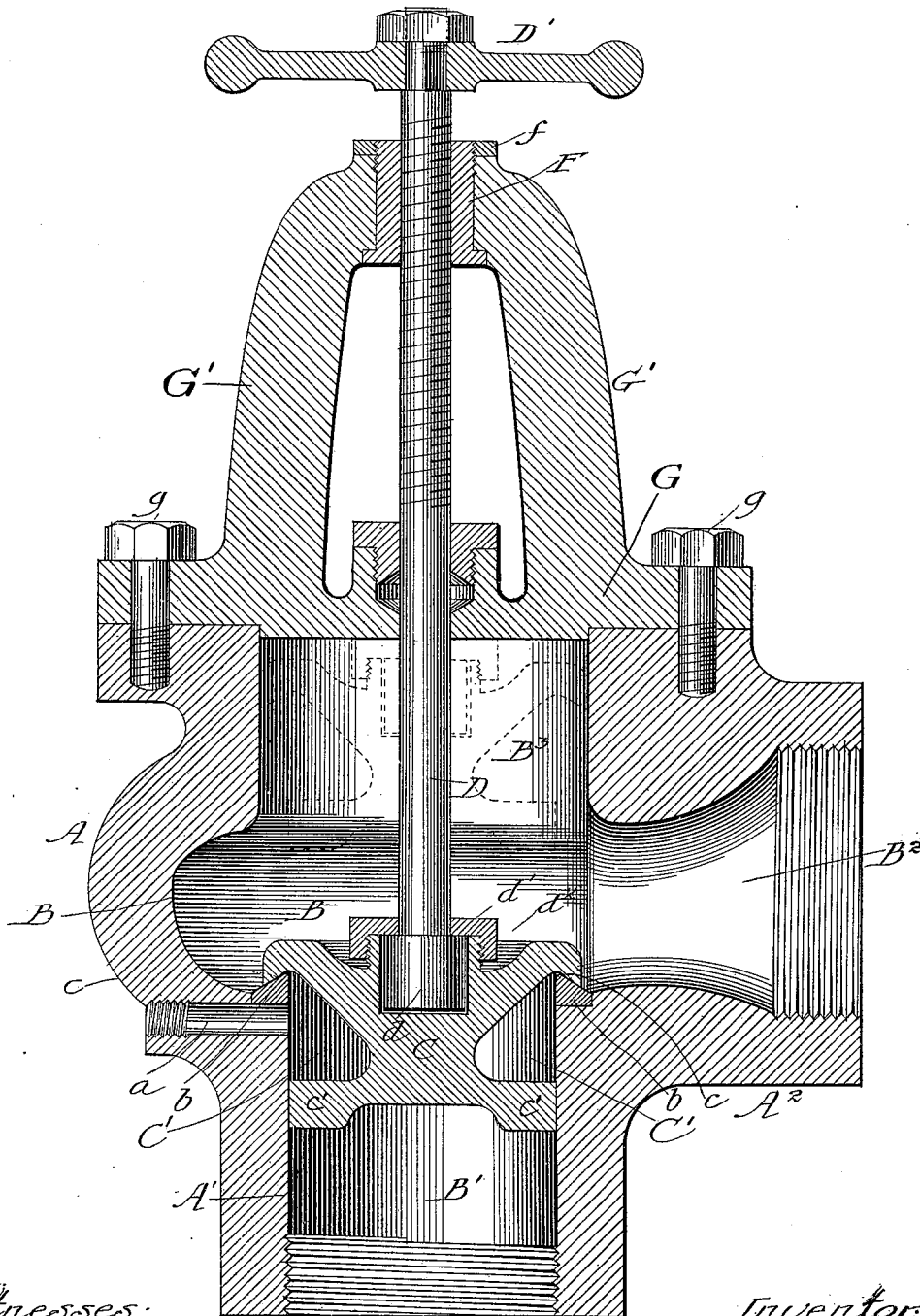
No. 646,103.

Patented Mar. 27, 1900.

F. M. FABER.  
BLOW-OFF VALVE.

(Application filed Nov. 13, 1899.)

(No Model.)



Witnesses:

Frank S. Blanchard

Frank S. Dunham

Inventor:

Frank M. Faber.

By Banning & Banning & Sheridan  
Attorneys.

# UNITED STATES PATENT OFFICE.

FRANK M. FABER, OF CHICAGO, ILLINOIS.

## BLOW-OFF VALVE.

SPECIFICATION forming part of Letters Patent No. 646,103, dated March 27, 1900.

Application filed November 13, 1899. Serial No. 736,827. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK M. FABER, a citizen of the United States, residing at Chicago, Illinois, have invented a new and useful Improvement in Blow-Off Valves, of which the following is a specification.

In use blow-off valves of the ordinary construction wear out rapidly owing to the fact that the discharge through the valve carries with it more or less dirt, sediment, scale, and other foreign substances which accumulate or remain on the valve and its seat and which materials or substances in their discharge, especially those of a gritty nature, cut the valve and its seat. The lodgment of the material also prevents the close seating of the valve and when forced down by the workmen injures the seat.

The object of my invention is to overcome these objections and provide a valve which will permit the removal of foreign substances or material by the employment of fluid-pressure to carry away any material that would interfere with the proper seating of the valve or have a wearing or cutting effect on the disk or its seat; and the invention consists in the features and combinations hereinafter described and claimed.

In the drawing the figure illustrating my invention is a sectional elevation through the valve and its working parts.

In constructing my improved blow-off valve I employ a main shell or casing A, having on one side a neck A', adapted for connection with the blow-off pipe direct or through an intermediate coupling or otherwise and having also a neck A<sup>2</sup>, adapted for connection with a discharge-pipe either direct or by a suitable coupling or otherwise. The main shell or casing has a chamber B, into which an induction-port B' through the neck A' leads and out from which an eduction-passage B<sup>2</sup> leads through the neck A<sup>2</sup>. The induction-port preferably has leading thereinto through the wall of the main shell or casing a fluid-pressure passage *a*, though this passage may be otherwise located. The induction-port is controlled by a disk C, having a seating-face *c* to engage with the packing or seat *b* around the induction-port, and the seating-face is on a flange of larger diameter than the body of the disk. The valve has a

flange or rim *c'* of a diameter to fit somewhat snugly in the induction-port when the disk is seated, and between the two flanges *c c'* in the body of the disk in the construction shown is formed a circumferential passage or channel C', with which the fluid-pressure passage *a* is free to communicate before the disk is fully seated. The disk is carried by a stem D, and, as shown, the stem has an enlargement or head *d*, preferably of considerable length, entered into an opening in the disk, which opening is surrounded by an annular flange having an exterior screw-thread that receives a screw-threaded cap *d'*, and to prevent backward rotation of the cap a locking-screw *d<sup>2</sup>* may be employed. The stem passes through a stuffing-box E, having a cap *e*, and has at its outer end a handle D' or other device by means of which it can be rotated. The body of the stem has a screw-threaded portion which passes through a nut F, so that with the rotation of the stem the disk will be advanced and receded to close and open the induction-port. The nut F is secured in the end of the arms G' of a cap or cover G by a locking-nut *f*, and the cap or cover is attached to the main shell or casing by lag-bolts *g* or by any other suitable means.

The valve is to be attached to the blow-off pipe from the boiler or mud-drum and to the discharge-pipe leading to the point of discharge, and the operation of the valve is as follows: The disk is receded or raised into the chamber B<sup>3</sup> and into the position shown by the dotted lines by turning the rod or stem in the proper direction. Such raising of the disk opens the induction-port for the discharge of the water and other substances and material from the boiler or mud-drum through the induction-port and out at the eduction-passage. The induction-port is closed by turning the rod or stem so as to advance the disk into the port. This advance of the disks closes the induction-port and opens the channel or discharge C' to the fluid-pressure passage *a*, so that the fluid-pressure, which can be either steam from the boiler or water from a pump or injector, forcibly enters the channel and is projected inward, striking the face of the disk and the face of the valve seat or packing with sufficient force to carry away all material gathered thereon, and thus cleanse

the valve and its packing or seat. The fluid-pressure continues to act until the disk is fully seated, when further action is prevented by the closing of the opening between the acting face of the disk and its seat or packing around the induction-port. It will thus be seen that the valve can be kept clean from dirt, sediment, scale, or other foreign substance, such cleansing being had by the action of the fluid-pressure entered into the channel or passage of the disk from the fluid-pressure passage and passing between the seating-face of the disk and the packing or seat around the port. The result is that the valve can be used for a great length of time without the necessity of repairs and a long-continued use will not wear the valve out, as it will only be subjected to the natural wear of the surfaces and not to cutting or injurious action of any foreign substances or material.

While the form, construction, and arrangement of the parts as shown are preferred, it is to be understood that the form of casing, arrangement of main chamber and induction and eduction ports, the port-controlling disk, and the liquid-pressure passage can be varied without departing from the spirit of my invention, so long as the construction, arrangement, and operation of the parts are such as to enable the disk to close the induction-port and permit the fluid-pressure to enter and cleanse the parts before the final seating of the disk. The essence of my invention therefore consists in making provision for admitting fluid-pressure to act on and against the seat or packing of the valve and its disk in such manner as to cause fluid-pressure injected into the valve after the closing of the induction-port to sweep the parts clean of sediment before the final closing of the valve, and of course this may be done in valves of other forms as well as in valves of the form shown in the drawing.

I claim—

1. In a blow-off valve, a casing having an induction-port, an eduction-port, and a fluid-

pressure passage, a valve-disk, and means for moving the disk to close the induction-port when the fluid-pressure passage is open and to close the fluid-pressure passage when the valve is fully seated, substantially as described.

2. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, substantially as described.

3. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the induction-port, in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, and a valve-stem for moving the valve, substantially as described.

4. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the induction-port, in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, a valve-stem for moving the valve, and a cap carrying the valve-stem, substantially as described.

FRANK M. FABER.

Witnesses:

EPHRAIM BANNING,  
THOMAS A. BANNING.