

No. 721,453.

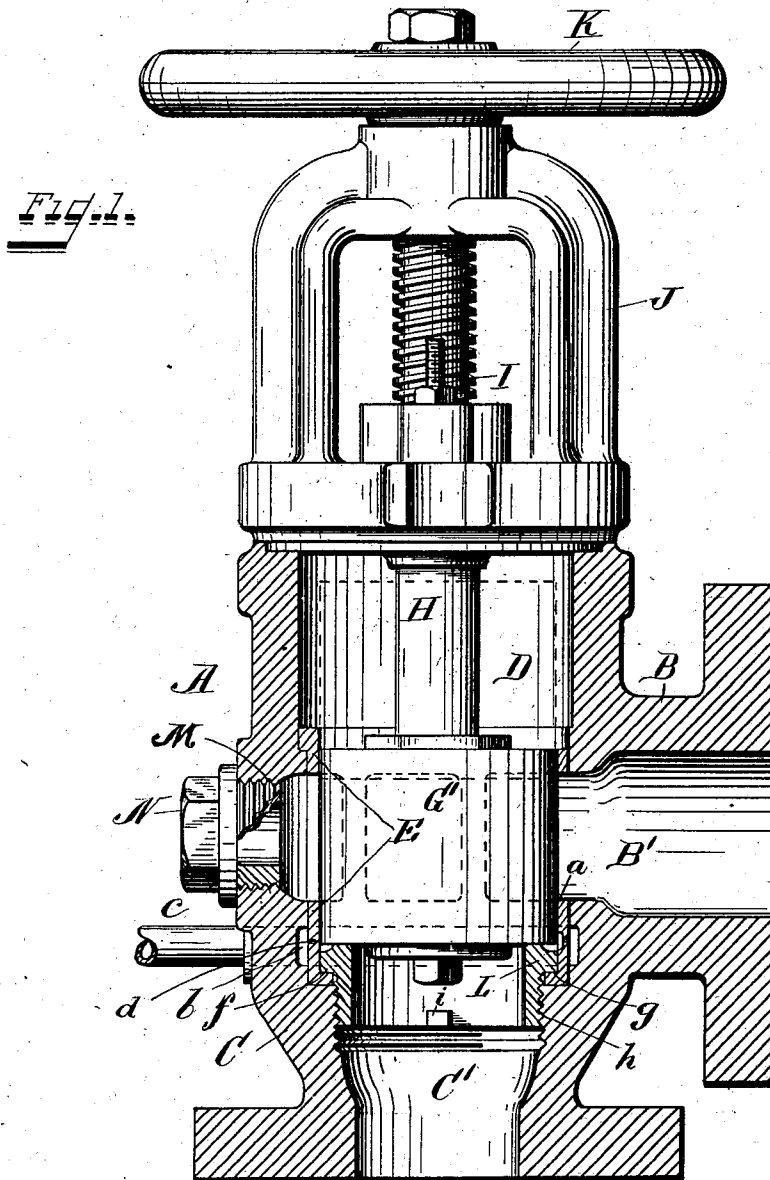
PATENTED FEB. 24, 1903.

E. H. LUNKEN.
BLOW-OFF VALVE.

APPLICATION FILED NOV. 2, 1901.

NO MODEL.

2 SHEETS--SHEET 1.



Witnesses.

Wm. J. Beck

Gus. G. Hampson

Inventor.

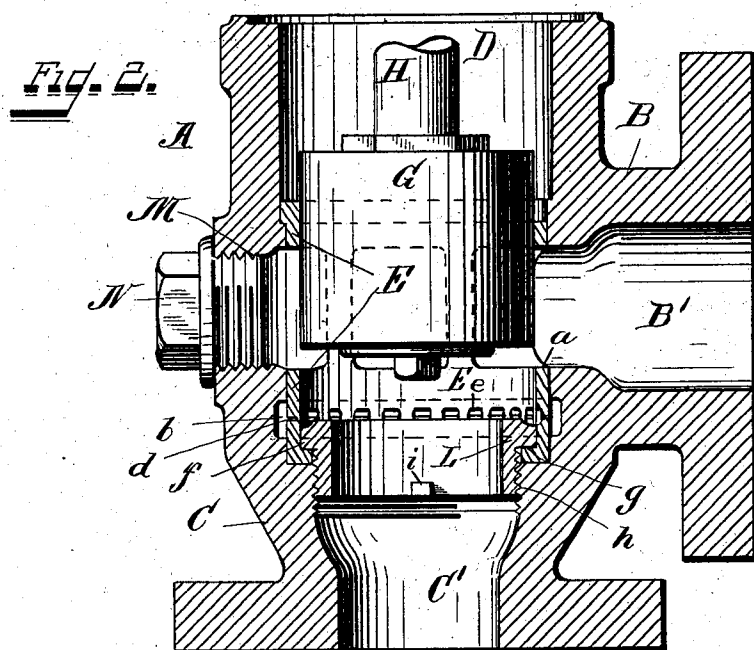
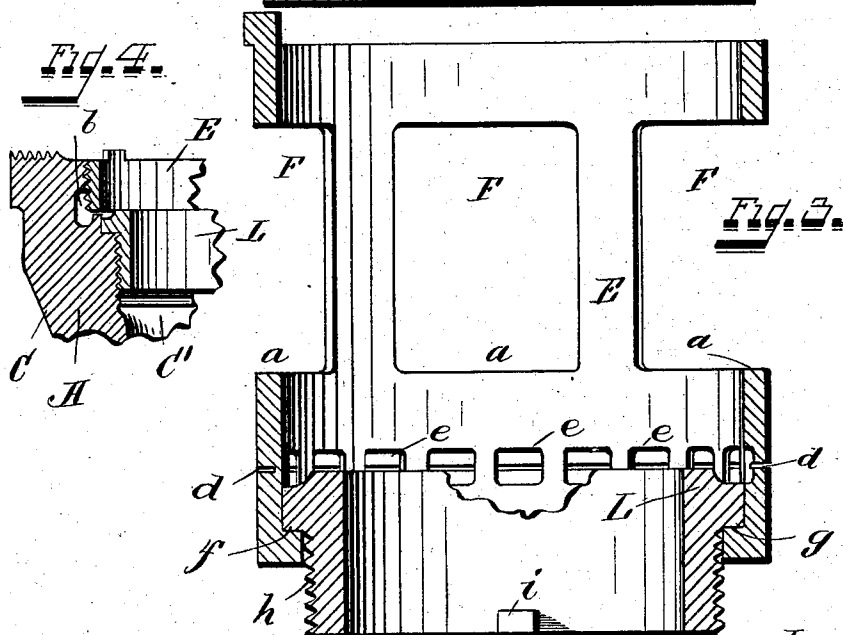
Edmund W. Lunkin
by ~~Charles~~ ^{his} Attorney.

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UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN, OF DENVER, COLORADO, ASSIGNOR TO THE LUNKEN-HEIMER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

BLOW-OFF VALVE.

SPECIFICATION forming part of Letters Patent No. 721,453, dated February 24, 1903.

Application filed November 2, 1901. Serial No. 80,869. (No model.)

To all whom it may concern:

Be it known that I, EDMUND H. LUNKEN, a citizen of the United States, residing at Denver, in the county of Arapahoe, in the State of Colorado, have invented certain new and useful Improvements in Blow-Off Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of valves which are used in connection with boilers or their mud-drums for cleansing out the same and carrying off all collected mud, sediment, scale, and other foreign matter which accumulates therein. Heretofore in valves of this character there has been no provision made for renewing the cut-off for the valve-disk, and as it is well known that valves of this character wear out rapidly, owing to the gritty nature of the discharged accumulations which cut and wear away both the cut-off of the valve-disk and the valve-seat, the value of my invention will be readily apparent when it is understood that I apply both a renewable cut-off and a renewable valve-seat which can be readily applied to the valve-casing whenever the former ones become worn, thereby prolonging the life of the valve very greatly.

The novelty of my invention will be hereinafter set forth, and more specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a central sectional view in elevation of a blow-off valve embodying my invention and with the valve-disk closed. Fig. 2, Sheet 2, is a corresponding view of the lower part of the valve-casing with the valve-disk partially opened. Fig. 3, Sheet 2, is an enlarged central sectional elevation of the renewable cut-off and seat under my preferred form of construction. Fig. 4, Sheet 2, is a detail sectional view illustrating a modified form of construction of the renewable cut-off and seat.

The same letters of reference are used to indicate identical parts in all the figures.

A represents the valve-casing of the usual or any suitable construction, having on one

side a neck B, adapted for connection with the blow-off pipe, either from a mud-drum or from the boiler direct, and also having a neck C, adapted for connection with a discharge-pipe. The main shell or casing A has a chamber D, into which an induction-port B' through the neck B enters and out from which an eduction-port C' leads through the neck C. The ports B' and C' are at right angles to each other, and into the latter, as well as into the chamber D, is fitted a renewable or removable guide-cylinder and cut-off E. (See Fig. 3.) This guide-cage has openings F through it in line with the induction-port B', and the diameter of the chamber D is enlarged around said openings to permit free ingress of the discharged contents of the mud-drum or boiler into the cage all around its periphery, as seen in Fig. 1. The lower edges of the openings F in the guide-cylinder, as at *a*, which are on a level with the lower side of the induction-port B', form a sharp cut-off for the valve-disk G, which is moved up and down and fits snugly cage E, like a piston, by means of a stem H, passing through a stuffing-box I in the arched cap of the bonnet J, which is secured upon the valve-casing A in the usual or any suitable manner and whose upper threaded end passes through a threaded bore in the top of the arch and is controlled by a hand-wheel K. That part of the renewable cylinder which is fitted snugly in a recess in the eduction-port C' has a circumferential chamber *b*, Fig. 1, around it, into which opens a fluid-pressure pipe or passage *c*, leading directly from the water-space or the live-steam space of the boiler and opening through the cut-off wall by means of a circumferential slot *d*, Fig. 3, which communicates with a series of pockets *e* upon the inner side of the cut-off just above the valve-seat L. The valve-seat L is preferably renewable and has an outwardly-extended shoulder *f* engaging with an inwardly-extended shoulder *g* of the cut-off cylinder E, into which it fits and whose lower end is exteriorly threaded, as at *h*, to be screwed into the eduction-port C' to form a convenient means of locking the cut-off and guide-cylinder in place, as well as of securing itself, and

as a convenient means of thus applying and removing the parts lugs *i* are formed on the inner side of the valve-seat, which can be engaged by a spanner-wrench when the valve-disk and bonnet *J* are removed, as will be readily understood.

While I prefer the use of the pressure-passage *c*, which cleanses the valve-seat effectually as soon as the valve-disk has passed below the edge of the cut-off in a manner known to the art, yet my invention is not to be limited to the use of such pressure passage, which might be dispensed with. Again, while I prefer to construct the cut-off in the form of a cylinder to guide the valve-disk, the cylinder feature of the cut-off might be dispensed with and the valve-disk be guided in any other suitable manner. Again, while I prefer to unite the cut-off to the valve-chamber by means of the valve-seat, both the cut-off and the valve-seat might be separate, as seen in Fig. 4, and each be independently screwed in the eduction-port, so as to make both independently removable. *M* is simply an aperture in the valve-casing *A* opposite the induction-port *B'*, normally closed by a screw-plug *N* to enable the induction-port to be cleared in case of choking by any suitable instrument. Again, while I have shown the valve-seat and cut-off as separate pieces, it is to be understood that it would be no departure from my invention to construct them in one piece.

Having thus fully described my invention, I claim—

1. In a blow-off valve, a casing having an induction-port, an eduction-port, a valve-disk with means for operating the same to open and close the eduction-port, a renewable guide-cylinder for the valve-disk with an opening therethrough from the induction-port and having its lower end formed into a cut-off for the valve-disk, and a renewable valve-seat for the valve-disk engaging with said guide-cylinder and with the valve-casing to hold said guide-cylinder in place, substantially as described.

2. In a blow-off valve, a casing having an induction-port, an eduction-port, a valve-disk with means for operating the same to open and close the eduction-port, a renewable guide-cylinder for the valve-disk with openings therethrough from the induction-port and having its lower end formed into a cut-off for the valve-disk, a renewable valve-seat for the valve-disk engaging with said guide-cylinder and with the valve-casing to hold said guide-cylinder in place, and a fluid-pressure passage opening into said casing with port communication through said cylinder between the valve-seat and renewable cut-off, substantially as described.

EDMUND H. LUNKEN.

Witnesses:

EDWARD PECK,
GUS. G. HAMPSON.