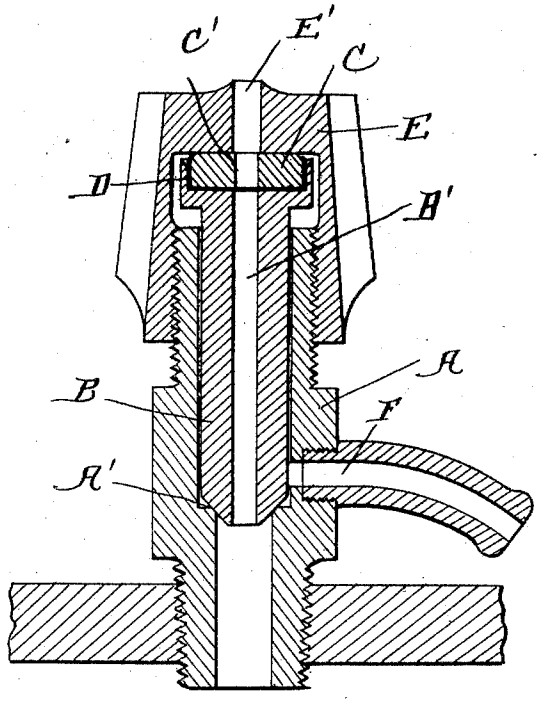
No. 776,834. PATENTED DEC. 6, 1904.

A. GOEBEL.

SAFETY VALVE AND BLOW-OFF.

APPLICATION FILED MAY 18, 1904.

NO MODEL.



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No. 776,834. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

ALBERT GOEBEL, OF CAMDEN, NEW JERSEY.

SAFETY-VALVE AND BLOW-OFF.

SPECIFICATION forming part of Letters Patent No. 776,834, dated December 6, 1904.

Application filed May 18, 1904. Serial No. 208,552. (No model.)

To all whom it may concern:

Be it known that I, ALBERT GOEBEL, a citizen of the United States, residing at Camden, county of Camden, and State of New Jersey, have invented a certain new and useful Improvement in a Combination Safety-Valve and Blow-Off, of which the following is a specification.

My invention relates to a new and useful improvement in combination blow-off for safety-valves, and is intended principally for use upon dental vulcanizers, and has for its object to combine a safety-valve and blow-off in one plug instead of having two plugs, as is now the common custom.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawing, in which is illustrated a vertical section through my improved device.

A represents the body portion of the device, the lower portion of which is threaded through the head or lid of a boiler, so as to connect with the steam-space inside the same. This body portion has a vertical bore formed therethrough, the lower portion of which is smaller in diameter than the upper portion, therefore forming a shoulder A′, which serves as a valve-seat for the valve-plug B, the lower end of which is tapered, so as to make a tight connection with the valve-seat. This valve-plug B is adapted to slide vertically in the larger portion of the bore and extends above the upper end of the body portion, and its upper end is provided with a cup-shape cavity, and a central opening B′ extends longitudinally through the valve-plug and connects with the cup-shaped cavity in its upper end.

C is a disk adapted to fit in the cup-shaped cavity in the upper end of the valve-plug, and this disk has formed through its center an opening C′, adapted to register with the opening B′ through the plug. Before the disk C is inserted in the cavity in the upper end of the plug a thin metallic diaphragm D is interposed between the disk and the bottom of the cavity in the plug B.

E is a cap adapted to fit over the upper end of the device and be threaded upon the upper end of the body portion A. The disk C extends slightly above the upper rim of the plug B, surrounding the cavity, so that when the cap E is screwed down it will come in contact with the disk C and force the disk tightly against the diaphragm D and the diaphragm tightly against the plug B and will also force the plug B in close contact with the valve-seat A′. Thus no steam can enter the cavity surrounding the plug, and no steam can pass through the plug on account of the diaphragm D, interposed between the openings C′ of the disk and the opening B′ through the plug.

E′ is an opening formed vertically through the cap, this opening registering with the opening C′ of the disk.

The diaphragm D is made of such a thickness as to stand a certain pressure of steam; but when this steam-pressure rises above the predetermined point the diaphragm will be broken and then the steam may escape through the openings B′, C′, and E′ to the outer air.

When it is desired to blow off the steam, it is simply necessary to screw the cap E backward, so as to raise the same, and this will allow the steam to raise the plug B, and then the steam may enter the cavity surrounding the plug and escape through the port F, formed through the side of the body portion just above the valve-seat.

I do not claim any invention in using the diaphragm as a safety-valve, as I am aware that certain diaphragms are now used for this purpose, and I do not claim the broad idea of forcing the plug E downward upon its seat and allowing the steam to raise the valve when the pressure upon the plug is released, as this principle is utilized in most blow-offs; but what I do claim is the combination of two devices in one plug, thus saving space upon the top of the boiler and giving the same a much neater appearance than when two are used.

Of course I do not wish to be limited to the

exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a device of the character described, a body portion, the lower end of which is adapted to connect with the steam-space, said body portion provided with a central bore formed therethrough, a valve-seat arranged within the central bore, a valve-plug adapted to slide vertically in the central bore and fit downward upon the valve-seat, a longitudinal opening formed vertically through the valve-plug, said valve-plug extending above the body portion, a disk adapted to lie upon the top of the valve-plug, a central opening formed through the disk in register with the opening through the valve-plug, a thin diaphragm interposed between the disk and the top of the valve-plug, a cap fitting over the top of the plug and threaded upon the upper end of the body portion, said cap provided with an opening formed therethrough in register with the opening through the disk, and a port formed through the body portion above the valve-seat, as and for the purpose specified.

2. In a device of the character described, a body portion, the lower end of which is adapted to be threaded through the lid or head of a boiler, said body portion provided with a central longitudinal bore formed therethrough, a valve-seat formed within the bore, a valve-plug fitted within the upper portion of the bore and adapted to fit downward upon the valve-seat, said valve-plug extending above the body portion, the upper end of the same being provided with a cup-shaped cavity, said valve-plug provided with a central longitudinal opening formed therethrough, a disk provided with an opening through its center adapted to fit in the cavity, a diaphragm interposed between the disk and the bottom of the cavity, a removable cap fitting over the upper end of the plug and adapted to bear downward upon the disk, said cap being threaded upon the upper end of the body portion, said cap provided with an opening formed therethrough registering with the opening through the disk, and a port formed through the body portion above the valve-seat, as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

ALBERT GOEBEL.

Witnesses:
MARY E. HAMER,
L. W. MORRISON.