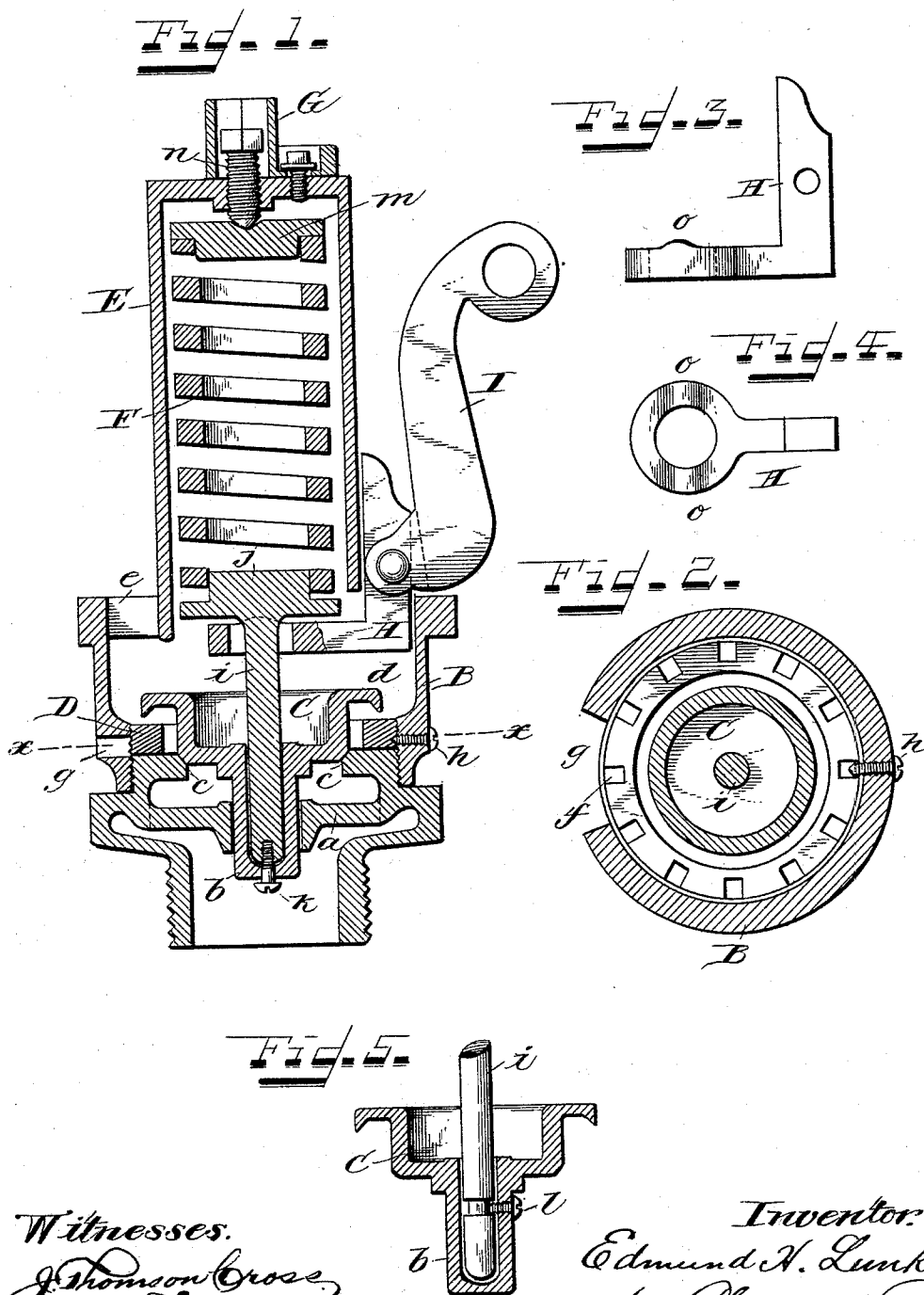


(No Model.)

E. H. LUNKEN.
SAFETY VALVE.

No. 498,803.

Patented June 6, 1893.



Witnesses.
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UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN, OF CINCINNATI, OHIO, ASSIGNOR TO THE LUNKEN-HEIMER COMPANY, OF SAME PLACE.

SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 498,803, dated June 6, 1893.

Application filed December 9, 1892. Serial No. 454,571. (No model.)

To all whom it may concern:

Be it known that I, EDMUND H. LUNKEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Pop Safety-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 pop safety valves which are provided with actuating levers by which the valve may be opened at will without regard to steam pressure, and it has for its object the improved and simplified construction of such valves whereby their certainty of action and efficiency are increased.

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

In the accompanying drawings:—Figure 1 is a central sectional elevation of a valve embodying my invention. Fig. 2 is a transverse sectional plan on the dotted line *x x* of Fig. 1. Figs. 3 and 4 are respective side and plan views of the lifting piece. Fig. 5 is a sectional detail representing a modification in the manner of securing together the valve and its lifting stem.

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

The base *A* of the valve has its upper and lower ends threaded exteriorly, the former for the attachment of the hood *B*, and the latter for the attachment of the valve to the boiler or steam pipe.

In a centrally bored spider *a* in the base is guided the lower end of the stem *b* of the valve proper *C* which is of the usual or any suitable construction and is seated as at *c* in the upper side of the base. The valve *C* in this instance is cylindrical with a projecting and dependent flange *d* at its upper end to form, in connection with an adjustable ring *D* to be presently described, the huddling chamber, and with the central pendent tubular stem *b* inserted through and guided in the spider *a*.

The hood *B* carrying upon its top the cylindrical spring case *E* with openings *e* around it for the escape of the steam has its lower

end interiorly threaded to screw upon the base *A* and to receive the exteriorly threaded ring *D* which surrounds the valve *C* under the flange *d*. The outer side of the ring is notched as seen at *f* Fig. 2 and one side of the hood is slotted or cut away as seen at *g* Figs. 1 and 2 to permit the introduction of a tool for turning the ring by means of the notches, to adjust it up or down and thereby regulate the size of the huddling chamber. A set screw *h*, Figs. 1 and 2, passed through the side of the hood serves to lock the ring when adjusted.

Fitted in the base of the stem *b* is the lower end of a shank *i* whose upper end is a disk *j* to form the base for the coiled spring *F* within the case *E*, and the shank *i* is secured to the valve stem, so that the valve can swivel thereon either by a screw *k* through the bottom of the stem, as in Fig. 1, or by a pin or screw *l*, Fig. 5, passed through the side of the stem and entering a circumferential groove in the shank as shown.

Upon the upper end of the spring *F* is a compression cap *m* upon which a set screw *n* passed through and engaging the top of the case *E* bears to regulate the pressure at which the valve is held closed, and *G* is any suitable locking device to hold the screw *n* from turning when adjusted.

The lifting piece *H*, Figs. 1, 3, and 4, for raising the valve *C* extraneously is a right angular piece whose vertical part passes through a slot in the top of the hood and whose inner side bears and is guided against the side of the spring case *E*, and whose horizontal part within the hood has a flattened circular inner end through the opening in which the shank *i* passes. Ribs *o* on diametrically opposite sides of the circular part of the lifting piece bear against the under side of the disk *j*. The lever *I* for the lifting piece has its inner lower end slotted to straddle the vertical part of the lifting piece and is pivoted thereto, as at *p*, while its lower outer end is rounded and bears upon the upper outer edge of the hood as shown. Upon drawing out the upper end of the lever *I* the effect of a toggle joint is obtained and the piece *H* is lifted to raise the valve *C* from its seat positively and to compress the spring *F*, both the lifting and

compressing forces being applied centrally so that there is no binding.

While I prefer the manner of connecting the lever I and lifting piece H shown, yet it is evident that the lever might be pivoted to ears on the hood and have a projecting toe to engage a notch or recess in the lifting piece.

By the above construction the valve is much simplified and the efficiency of its action increased.

Having thus fully described my invention, I claim—

1. In a pop safety valve, the combination of the base, the valve seated therein and having a huddling flange, the hood interiorly threaded, and the huddling ring adjustable in the hood, substantially as described.

2. In a pop safety valve, the combination of the base, the valve seated therein and having a huddling flange, the hood screwed upon the base and having an opening *g* through its side, and the huddling ring adjustable in the hood and having notches registering with the opening *g*, substantially as described.

3. In a pop safety valve, the combination of the base, the valve seated therein and having a pendent stem guided in the base, a lifting shank on which the valve is swiveled in the pendent stem, and a spring for the shank and valve, substantially as described.

4. In a pop safety valve, the combination with the valve and its lifting shank and spring,

of a lifting piece guided by and sliding on the spring case and engaging the disk of the lifting shank centrally, and a lever for said lifting piece fulcrumed upon the hood of the valve, substantially as described.

5. In a pop safety valve, the combination with the valve and its lifting shank and spring, of a lifting piece guided by and sliding on the spring case and engaging the disk of the lifting shank centrally, and a lever pivoted to said lifting piece and fulcrumed upon the hood of the valve, substantially as described.

6. The herein described pop safety valve, consisting of the base A with spider *a* and valve seat *c*, the valve C seated therein and having the pendent stem *b* and huddling flange *d*, the hood B screwed upon the base and having the openings *e g*, the ring D adjustable in the hood and operated through the opening *g*, the spring case E with spring F therein and under adjustable tension, the shank *i* to which the valve C is swiveled and upon which the spring F bears, the lifting piece H engaging the shank disk centrally and bearing against the spring case, and the lever I pivoted to the lifting piece and fulcrumed upon the hood, substantially as described.

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Witnesses:

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