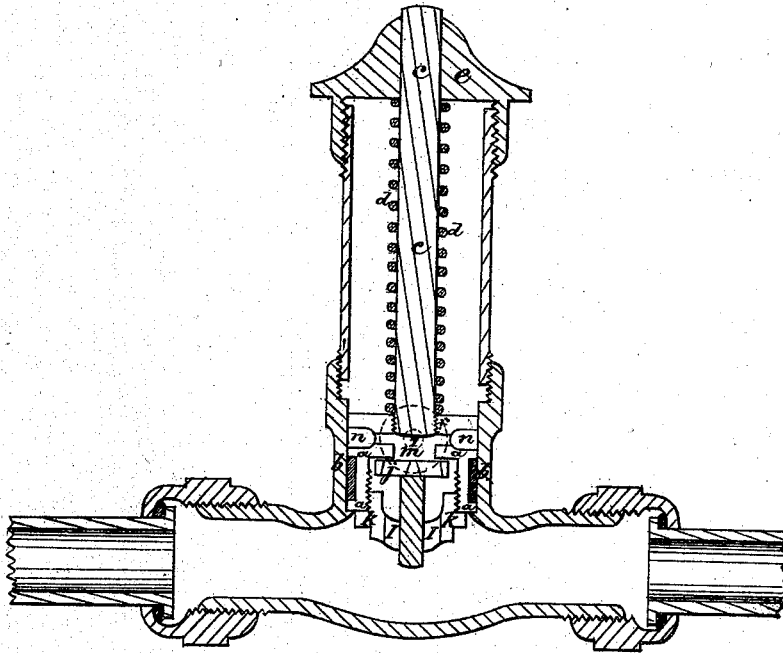


*S. C. Maist,*  
*Safety Valve.*

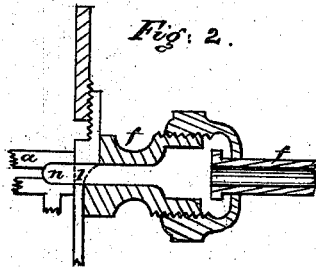
*No. 112611.*

*Patented Mar. 14. 1871.*

*Fig: 1.*



*Fig: 2.*



*Witnesses:*

*W. M. Gooding*  
*Edward Collier*

*Inventor:*

*Howard C. Maist.*

# United States Patent Office.

STEWART C. MARSH, OF NEWARK, NEW JERSEY.

Letters Patent No. 112,611, dated March 14, 1871.

## IMPROVEMENT IN SAFETY-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

I, STEWART C. MARSH, of the city of Newark, in the county of Essex and State of New Jersey, have made certain Improvements in Safety-Valves, of which the following is a specification.

The improvement relates to providing, in one attachment to boilers, against the two-fold contingencies of explosion and collapse, to which neglect, carelessness, or other and unavoidable circumstances are continuously rendering iron and copper boilers at any time liable.

To meet and obviate these dangers it requires a valve conveniently adjustable, at pleasure, to any desired pressure, which shall be so constructed as to be safely and perfectly closed under pressure of a head of water or steam, yet shall freely open and allow a free ingress of air whenever that pressure is removed by the boiler becoming empty.

It is also desirable that the two features should be combined in small space, all the parts easy of access for adjustment, for repairing, or cleansing.

Our manner of meeting and satisfying these requirements is shown in the accompanying drawing, in which the parts in their combinations are shown in views in section.

For the pressure-gauge, *a* is a piston in a cylinder, *b*, having a guide-stem, *c*, around which is a stiff spring, *d*, the lower end of the spring resting on the piston *a*, and the upper end receiving the pressure of the regulating-screw cap *e*, through which the stem *c* projects.

In front of the valve-case is an escape-pipe, *f*, the position of which is designated by dotted circles in

fig. 1, and the pipe shown in a sectional side view in fig. 2.

One end of the cross-pipe below is connected with the boiler, and the other with a stop-cock. When the steam forces the piston against the spring resistance up, above the opening *i*, in the escape-pipe, of course there is an immediate relief.

For the ingress of air, when required, there is within the lower end of the piston a valve, *j*, the stem of which slides in the guide-nut *k*.

Through the guide-nut *k* there are apertures *l*, and also through the edges of the valve *j* there are holes, that are closed by the valve-seat when the valve is pressed and held up against it.

Above the valve-seat is an opening, *m*, with holes therefrom into the recess *n*, around the piston *a*.

When the piston is down to its resting-place and the valve therein is also down, there is a free passage for air through the escape-pipe, piston, valve, and guide-nut into the boiler; but the moment there is a head-pressure of water in the boiler, the valve *j* rises to its seat and closes all the openings, preventing escape of water or steam until the piston is forced above the escape-pipe provided for that purpose.

What I claim and desire to secure is—

The piston *a*, cylinder *b*, spring *d*, valve *j*, and guide-nut *k*, all constructed, combined, and arranged as and for the purpose hereinabove set forth.

STEWART C. MARSH.

Witnesses:

W. M. GOODING,  
EDWARD COLLIER.