

J. Absterdam,
Steam Safety-Valve.

N^o 86,341.

Patented Feb. 2, 1869.

Fig: 1.

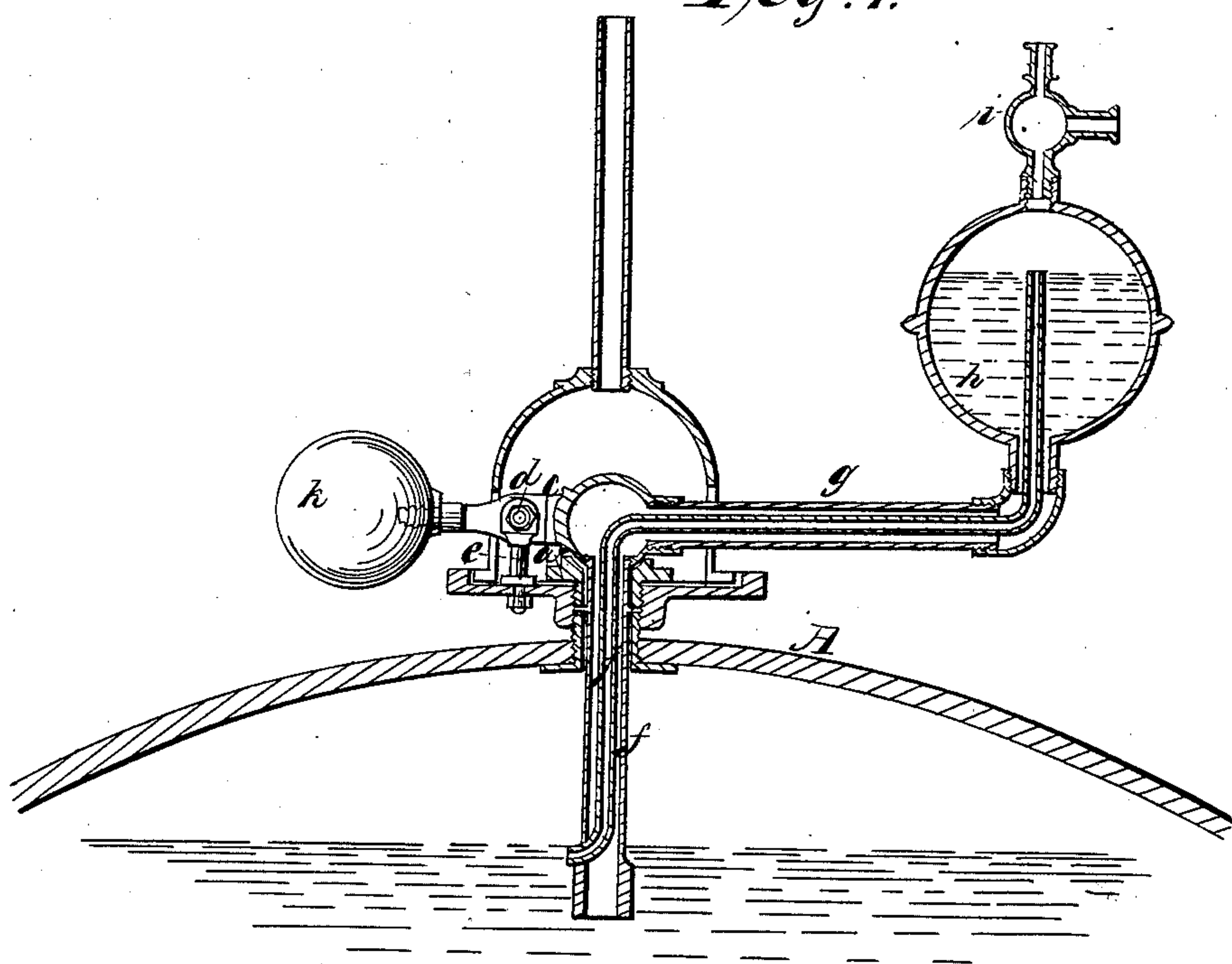
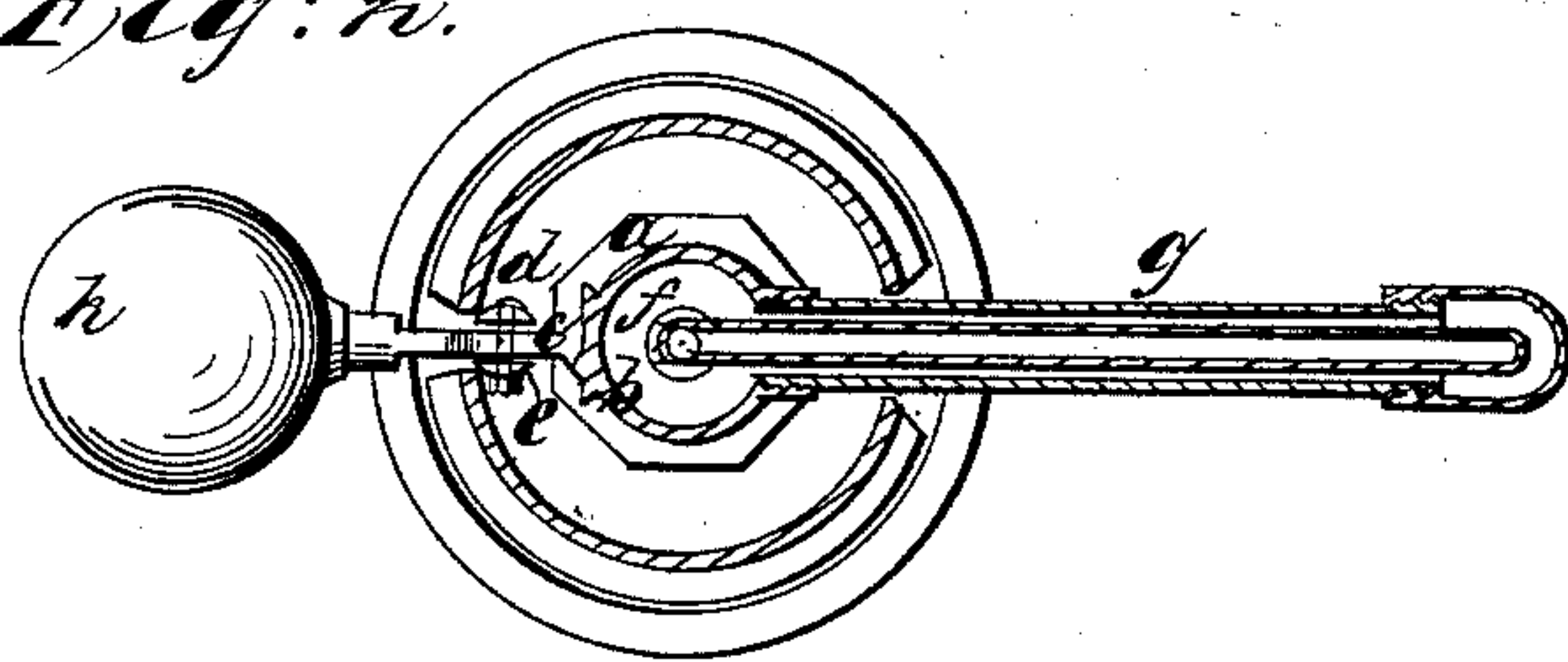


Fig: 2.



Witnesses:

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United States Patent Office.

JOHN ABSTERDAM, OF NEW YORK, N. Y.

Letters Patent No. 86,341, dated February 2, 1869

IMPROVEMENT IN STEAM-GENERATOR SAFETY-VALVES.

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

To all whom it may concern:

Be it known that I, JOHN ABSTERDAM, of the city, county, and State of New York, have invented a new and improved Hydrostatic Safety-Valve; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of this invention.

Figure 2 is a sectional plan or top view thereof.

Similar letters indicate corresponding parts.

The nature of this invention consists in the arrangement of a hollow lever furnished with or forming a hollow weight, in combination with a valve, and with a pipe extending down into the boiler, to the mean water-level, and up through the valve, connecting with the hollow lever in such a manner that a hydrostatic safety-valve is formed, the valve being held down in its seat by the weight of the hollow lever, together with the weight of the water filling the same, as long as the pressure of the steam does not exceed the desired limit, and the water in the boiler does not sink below the mean water-level or the mouth of the pipe, but as soon as the water in the boiler sinks below the mean water-level, the water contained in the hollow lever and shell runs back into the boiler, and thereby the valve is relieved and allowed to open.

An adjustable counter-weight serves to set the safety-valve to any desired pressure.

A represents the shell of a steam-boiler, to which is secured the seat *a* for the valve *b*.

This valve connects, by a rod, *c*, with the fulcrum-pin *d*, which has its bearing in a standard, *e*, and it is bored out to receive the pipe *f* and the tubular or hollow lever *g*.

The pipe *f* extends through the valve-seat down into the boiler, and its mouth is at a level with the mean water-line of the boiler, so that when the water in the boiler rises to or above the mean water-line, said pipe is closed against the steam, but if the water in the boiler sinks below the mean water-line, the pipe is open, and the steam from the boiler has free access to the same.

The hollow lever *g* connects, through the holes in the valve *b*, with the pipe *f*, and it is provided with a hollow shell, *h*, to which is attached an air-valve, *i*, so that

when the steam is generated in the boiler, the pressure of the steam will cause the water to rise into the hollow lever *g* and shell *h*, and the weight of this water, together with that of the hollow lever and shell, will hold the safety-valve down into its seat. But when the water in the boiler sinks down below the mean water-line, the steam enters the pipe *f*, hollow lever *g*, and shell *h*, causing the water contained therein to flow back into the boiler, and the safety-valve, being relieved, is forced open by the pressure of the steam in the boiler.

The rod *c*, which forms the connection between the valve *b* and the fulcrum-pin *d*, extends beyond said fulcrum-pin, and it forms the support for the balance-weight *k*, which is made adjustable by a screw-thread, or in any other desirable manner.

This balance-weight serves to set the safety-valve to any desired pressure, so that said valve acts precisely like an ordinary safety-valve as long as the water in the boiler is kept above the mean water-line; but as soon as the water in the boiler sinks below the mean water-line, the safety-valve is relieved, and the steam blows off, thus relieving the boiler from all dangerous pressure.

To allow the steam to rise with facility into the hollow shell *h*, when the water in the boiler sinks below the mean water-line, I have secured, in the interior of the hollow lever *g* and pipe *f*, an internal pipe, *j*, which rises up near to the top of the hollow shell, as clearly shown in fig. 1 of the drawing.

I do not claim broadly as my invention the arrangement of a hollow water-weight, in combination with a safety-valve; but

What I claim as new, and desire to secure by Letters Patent, is—

1. A hydrostatic safety-valve, constructed with a hollow lever, *g*; and a hollow shell, *h*, in combination with a pipe, *f*, extending into the boiler, to the mean water-line, substantially as shown and described.

2. The balance-weight *k*, in combination with the hollow lever *g*, shell *h*, valve *b*, seat *a*, internal pipe *j*, and pipe *f*, all constructed and arranged substantially in the manner set forth.

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Witnesses:

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