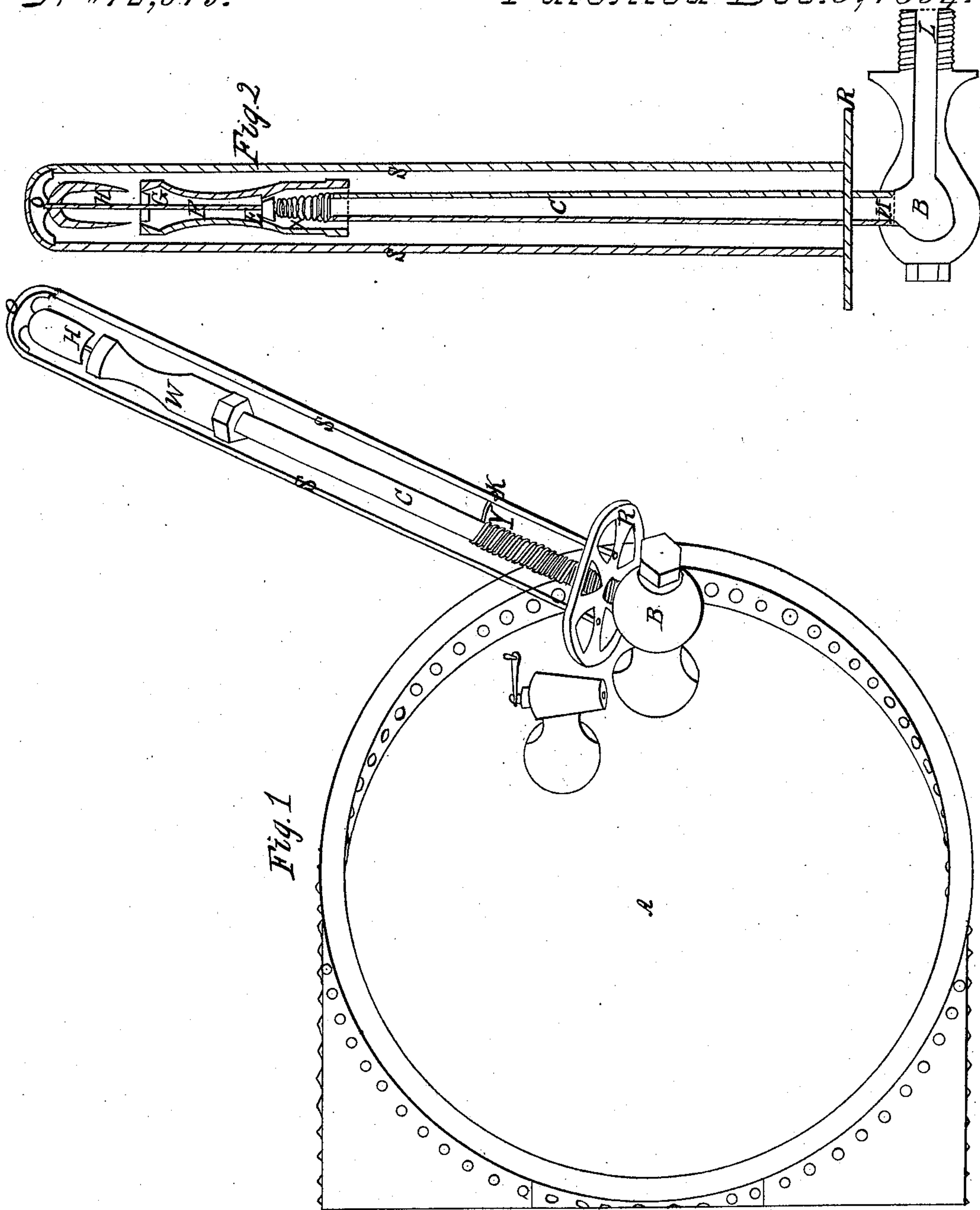


*P. Clark,*

*Steam-Boiler Indicator.*

*N<sup>o</sup> 12,019.*

*Patented Dec. 5, 1854.*





# UNITED STATES PATENT OFFICE.

PATRICK CLARK, OF RAHWAY, NEW JERSEY.

## STEAM-BOILER ALARM.

Specification of Letters Patent No. 12,019, dated December 5, 1854.

*To all whom it may concern:*

Be it known that I, the undersigned, PATRICK CLARK, of Rahway, in the county of Essex and State of New Jersey, have  
5 invented a new and useful Improvement in Alarms Used for Giving an Alarm when the Water in a Steam-Boiler has Reached the Lowest Point Consistent with Safety, called an "Alarm Gage-Cock," of which the follow-  
10 ing is a full and exact description.

My improvement relates to that kind of alarms which depend for their action on the admission of steam to a tube and the expansion consequent thereon of said tube opening  
15 a valve to allow the escape of steam through a whistle, and the nature of my invention consists in an arrangement, by means of which the parts which do not expand (but hold against the valve) adjust themselves to  
20 the varying length of the tube as it contracts in cooling after having given an alarm or after having been used as an ordinary gage cock, and also in certain improvements in the whistle which renders it more suitable  
25 to be used in combination with this arrangement.

To enable others skilled in the art of making and using steam boilers and their alarms to make and use my invention I shall proceed to describe it in the following specification and the drawings annexed thereto, the same letters of which refer to the same parts in both sectional and perspective figures.

A Figure 1 represents the front end of a  
35 steam boiler.

C C represents a tube so connected with the boiler by means of its lower end that when the water in the boiler is above the level of the place where it is inserted it will  
40 be full of water and when below said place it will be filled with steam. Connected with the upper end of the tube C by being screwed onto it is the whistle W composed of the valve E, valve stem F, disk G, and bell H.  
45 The construction of this whistle differs from the ordinary whistle in the following particulars viz, instead of the bell and disk being mounted on a stem permanently fixed to the body of the whistle they are mounted  
50 on the valve stem F so that when the valve is forced downward for the purpose of opening the valve the bell and disk moves with it. This arrangement in the whistle prevents the necessity of a stop cock or other  
55 valve for the purpose of opening the whistle

and avoids all friction incident to all such cocks and valves.

R is a small wheel screwed loosely on the tube C having the lower ends of the rods S S fastened permanently into it, these rods are  
60 made of one piece and bent at the top in the form shown in the drawings at O.

O is a cap having a groove in its upper side over which the semicircular part of the rods pass. On the under side of O there is  
65 a small hole which receives the end of the valve stem F which projects beyond the bell of the whistle and upon which the cap O turns freely as on a pivot.

X is a spiral spring, its lower end resting  
70 on the upper end of the tube C and its upper end pressing against the back of the valve E; its use is to support the valve disk and bell and keep the valve to its seat in the absence of pressure or under a very light  
75 pressure. Y is also a spiral spring coiled of a sufficient diameter to slip loosely over the tube, C, except a few turns at one end which are so small as to embrace the tube sufficiently tight as to offer considerable resist-  
80 ance to its turning about the axis of the tube. The other end is connected with one of the rods S S, as shown at K, Fig. 1. It is so set as to give the rods S S, and consequently the  
85 wheel into which they are fastened a tendency to rotate about the axis of the tube C. The direction of this rotative tendency is such that the wheel which is screwed onto the tube C, would be screwed toward the  
90 base B when the wheel was turned by the power of the spring. The operation of this arrangement is as follows: When the tube C is filled with water and is cool and consequently shorter than when hot, the action  
95 of the spring Y will keep the cap O close down against the end of the valve stem, if while the arrangement is in this position the water gets down it will alarm, after it  
100 alarms the wheel R may be turned against the action of the spring which allows the valve to close. If now the water is pumped up in the boiler the tube will fill and cool off and as it contracts the action of the  
105 spring keeps the cap O close down on the valve stem which keeps it in readiness to alarm again when the water gets down in the boiler below the level where the tube C is inserted by turning the wheel R in the same direction that the spring tends to turn  
110 it the valve may be opened and when turned



the reverse it is closed. Thence the arrangement answers the double purpose of an alarm and gage cock.

Having thus described the construction and operation of my improvements, I will now state what I claim as my invention:

1. I claim the arrangement of the wheel R turning on the screw of the tube C with its rods S, S, and cap O or any equivalent device when actuated by the spring Y or its equivalent in relation to the valve stem F and valve E and the tube C by means of which the arrangement adjusts itself to the varying length of the tube C as it contracts

in cooling after having given an alarm, or after having been used as an ordinary gage cock.

2. I claim the arrangement of the bell H and disk G on the valve stem of the valve of the whistle when and only when such arrangement is used in combination with the arrangement of the first claim for the purpose set forth in the foregoing specification.

PATRICK CLARK.

Witnesses:

JOHN H. MOORE,  
WM. GIBBY,