

THOMAS R. SINCLAIRE. Improvement in Boiler Fire Extinguishers.

No. 119,190.

FIG. 1.

Patented Sep. 19, 1871.

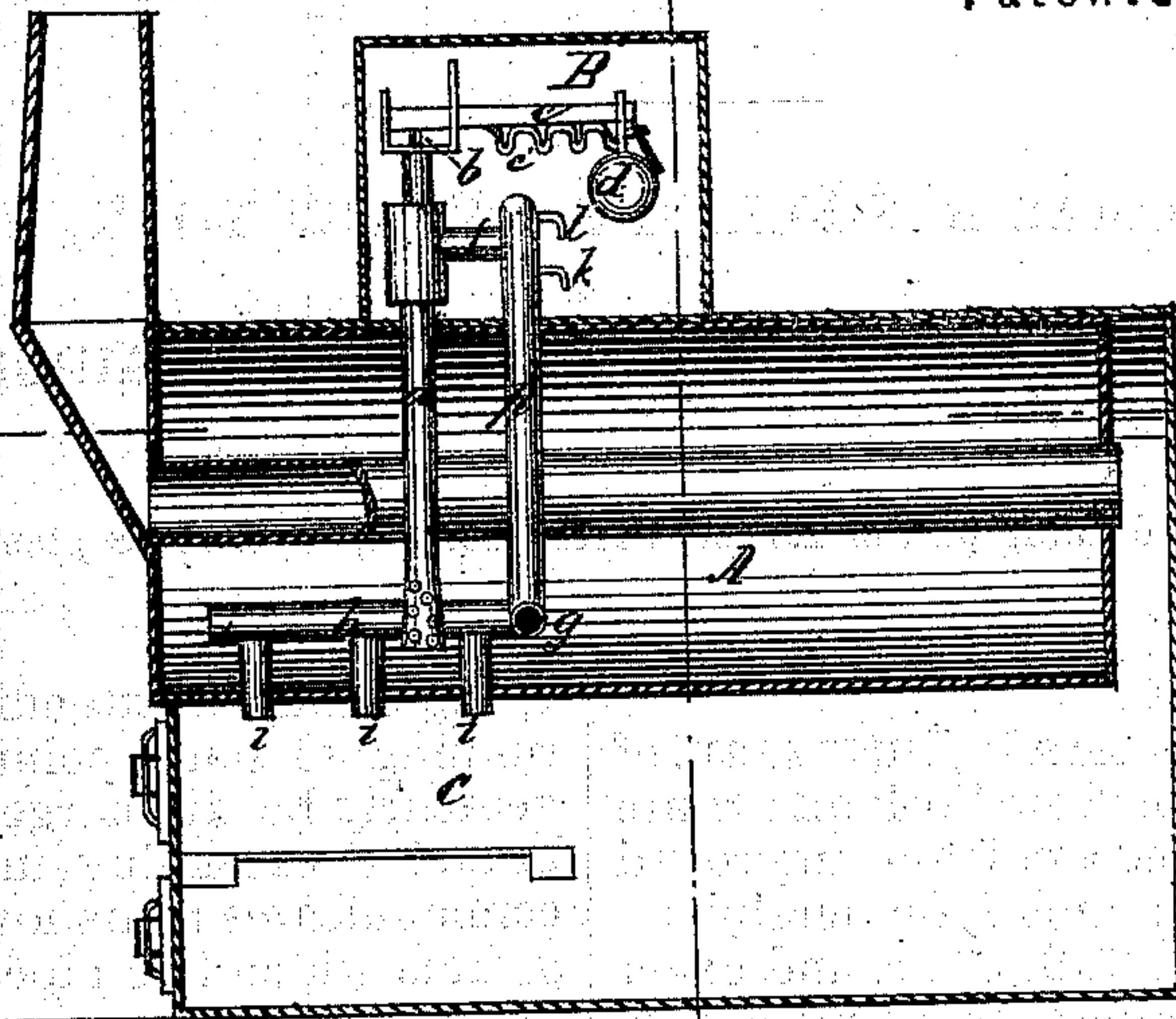


FIG. 2.

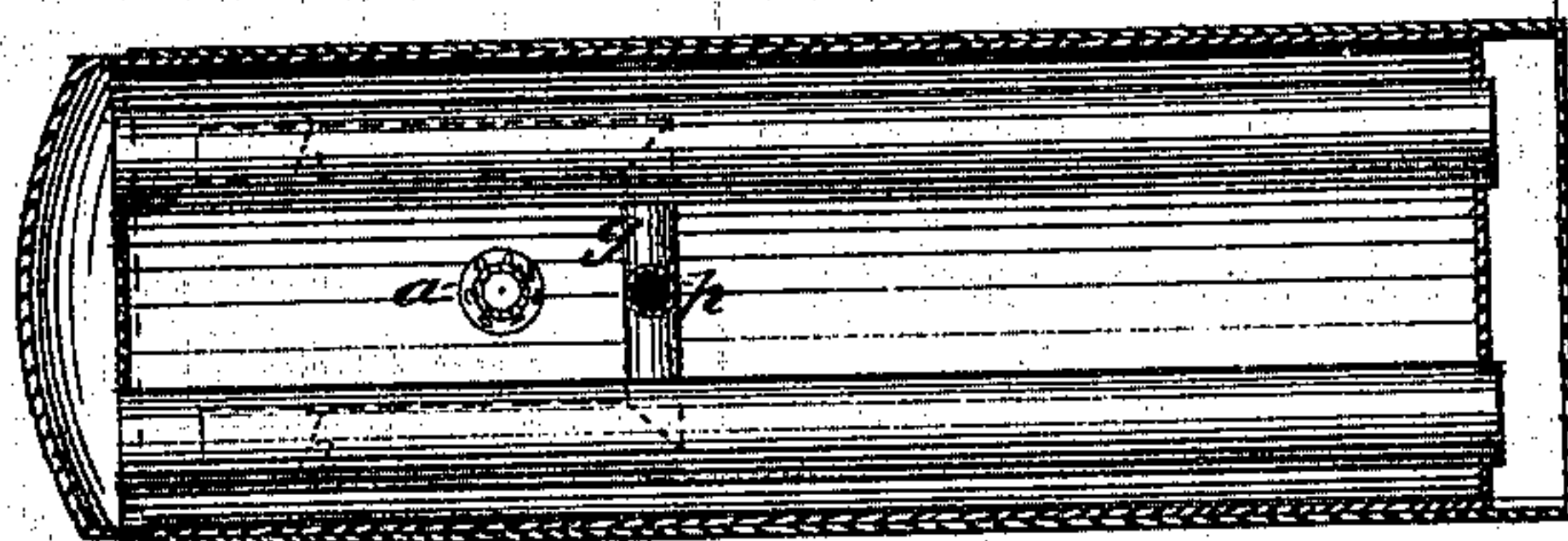
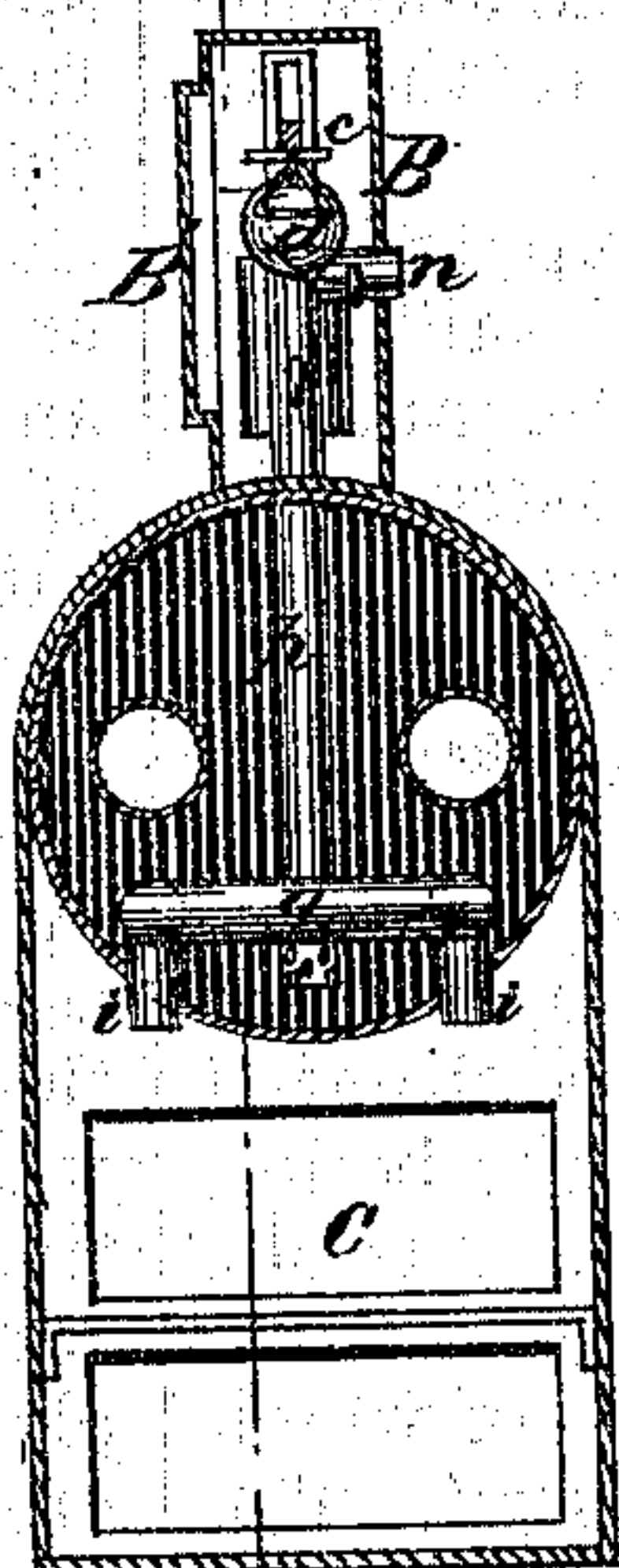


FIG. 3.



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IMPROVEMENT IN BOILER FIRE EXTINGUISHERS.

Specification forming part of Letters Patent No. 119,190, dated September 19, 1871.

To all whom it may concern:

Be it known that I, THOMAS R. SINCLAIRE, of New York, in the county of New York and State of New York, have invented a new and Improved Boiler Fire Extinguisher; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a longitudinal vertical section through the case, boiler, and furnace. Fig. 2 is a horizontal section through the boiler above the horizontal pipes; and Fig. 3 is a transverse vertical section through the case, boiler, and furnace.

This invention relates to a means for enabling a boiler to put out its own fires when steam is raised in it to a point beyond the permitted limit, by means of a system of pipes connecting the boiler and furnace, and provided with a safety water-valve, which, when the pressure is sufficient to raise its weight, rises, thus allowing water to be forced from the boiler to the furnace.

Referring to the drawing, *a* is a pipe, placed within a boiler, *A*, the lower end of said pipe being perforated, so as to admit water and exclude dirt or particles that might obstruct the proper working of the valve, and extending to a point that shall always be below the level of water in the boiler. The pipe *a* leads in any convenient direction through the boiler, and passes into a case, *B*, that, in this instance, is represented as attached to the top of the boiler, but may, for that matter, as well or better be situated at some point above or away from the boiler, where it is accessible and generally visible. That part of the pipe *a* that is within the case *B* is provided with a safety water-valve, of which *b* is the stem, *c* the lever, and *d* the weight. The lever *c* is provided with a sufficient number of eyes, *c'*, to receive the bolt of the lock, which confines the weight *d* at any particular point. In adjusting the said weight *d* due allowance should be made for the height of the safety water-valve from the level of water in the boiler. A second pipe, *f*, of say equal capacity with *a*, connects branch pipes *n* and *p* with the said pipe

a, the branch *n* extending through the case and running to some point where water may conveniently be discharged from its end, and the branch *p* extending into the boiler, wherein it communicates at its lower end with a cross-pipe, *g*, from which two pipes, *h*, more or less, extend along the boiler, from each of which pipes *h* tubes *i*, three, more or less, in number, extend downward, opening directly into the furnace *C*. The pipe *f* and branch *p* should each be of at least equal capacity with the cross-pipe *g*, and the cross-pipe *g* should be of at least the capacity of all the pipes *h*, and each of these latter should be of at least equal capacity to all its branches *i*. The case *B* is provided with a door, *B'*, having a window in it. This door is furnished with a lock, the key of which should be in the hands of the captain of the vessel, owner of the factory, or other proper person, never in the hands of the engineer. As regards the key of the weight *d*, that should be in the hands of the boiler inspector. The branches *n* and *p* of the pipe *f* are furnished with cocks *l* and *k*, one at each side of the connecting-pipe *f*. After an inspection of the boiler by the proper officer, the weight *d* should be set at the point of maximum pressure and locked there. On the inside of the window of the door *B'* the inspector may paste a certificate showing the number of pounds pressure allowed by him on the day of inspection. The cock *k* should be opened and the cock *l* closed. Then the door *B'* must be also locked. Whenever the pressure in the boiler is allowed to exceed the amount for which the weight *d* is set, the safety water-valve in the pipe *a* will rise and water will flow through the pipes *a f p g h i* into the furnace and extinguish the fire. The knowledge by the engineer that this is sure to take place in the event of the pressure exceeding the prescribed limit will make him careful to keep the pressure within due bounds. If the cock *k* be closed and the cock *l* be opened, the water, when the safety water-valve is raised, will flow through the branch *n* of the pipe *f*, and, by the issue of water therefrom, information will be conveyed of the proper working of the valve without extinguishing the fire. This trial should be made at stated intervals by the person in charge

of the key of the case B, and a record kept of such trial.

This apparatus, it will be seen, renders it impossible for the engineer to prevent the extinguishment of the fire whenever the pressure is excessive. The branch pipe *p* need not, in all cases, pass through the boiler, but may be carried outside the same to the fire-front or other convenient point, and the water injected from thence into the fire.

Having thus described my invention, what I

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

The apparatus, arranged substantially as herein described, whereby steam in a boiler causes water to flow from the boiler to the furnace whenever the pressure in the boiler is sufficient to raise the safety water-valve that regulates such flow.

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