A. S. AUSTIN.

FIRE EXTINGUISHER.

No. 189,987. Patented April 24, 1877.

Fig 1.

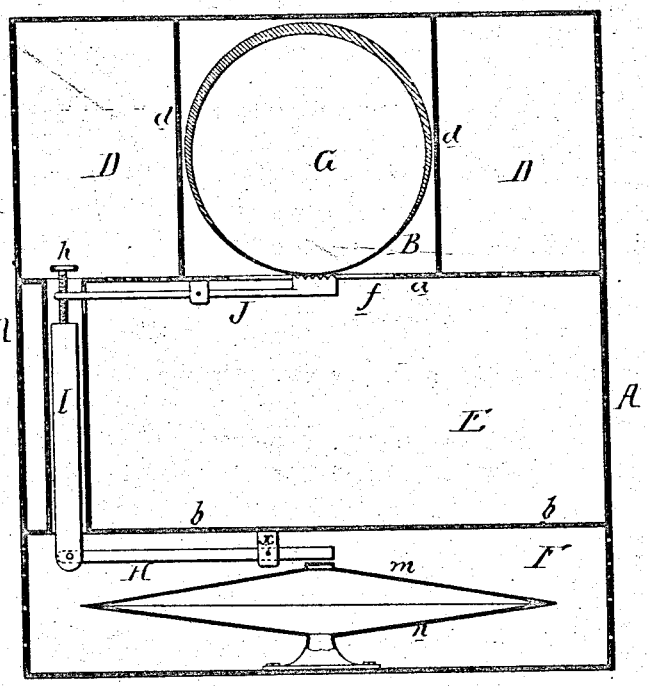


Fig 2.

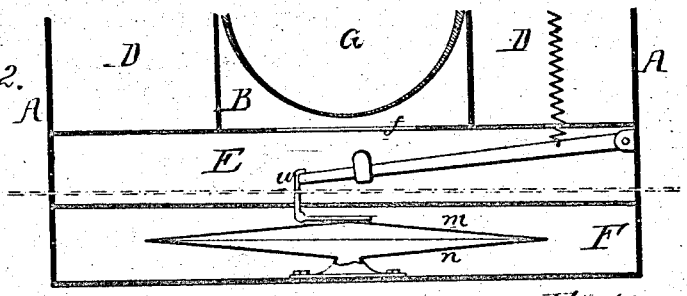


Fig 3

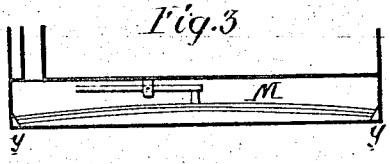
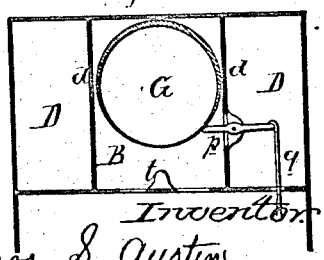


Fig 4



Witnesses.
Harry a. Crawford
Harry Smith

Inventor.
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by his Attorneys
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UNITED STATES PATENT OFFICE.

AMOS S. AUSTIN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. 189,987, dated April 24, 1877; application filed April 12, 1877.

To all whom it may concern:

Be it known that I, AMOS S. AUSTIN, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Fire-Extinguishers, of which the following is a specification:

The object of my invention is to make a fire-extinguisher the operation of which is due to the expansion of any object which will expand, or the shape of which will be altered under the influence of heat.

Figure 1 of the accompanying drawing is a vertical section of one form of apparatus.

In this case A, is a casing, which may be of cylindrical form, and which is separated into compartments B, D, E, and F by the two horizontal partitions *a* and *b* and a cylindrical partition, *d*.

The compartment B contains a glass vessel, G, which is, in the present instance, of a spherical form, and contains sulphuric acid, the vessel resting on the edge of an opening, *f*, in the partition *a*, and being steadied in its place by the fixed cylinder *d*.

On the partition *b* in the compartment E is deposited a mass of carbonate of lime.

Two elastic diaphragms, *m* and *n*, are secured together at their outer edges, and the lower diaphragm is attached to the base of the casing A, the space within the diaphragms being filled with sulphuric ether, or other substance which readily expands under the influence of a slight heat.

The apex of the upper diaphragm *m* is in contact, or nearly so, with one arm of a lever, H, which is pivoted at *x* to the partition *b*, the other arm of the lever being connected by a rod, I, to one arm of a second lever, J, which is pivoted to the partition *a*, and the other arm of which is armed with hardened teeth, the latter being in contact, or nearly so, with the bottom of the vessel G.

The apparatus is to be fixed in any room or cabin, especially such as contains objects or materials of an inflammable character. Should a fire occur it cannot make much headway before the sulphuric ether between the two diaphragms begins to expand, when the upper diaphragm will so act on the system of levers that the teeth on the lever J will fracture the glass vessel, the contents of which will be precipitated onto the carbonate of lime, and the result of this will be the generation of a gas, which passes through perforations in the partition *a* into the chamber D, and thence through perforations in the casing A into the room, thereby arresting the incipient conflagration.

A screw, *h*, permits such an adjustment of the levers in respect to the vessel G and the diaphragms as to insure proper action.

The levers, although I prefer to use them, may be dispensed with, and a guided rod may extend from the apex of the upper diaphragm to, or nearly to, the vessel G.

In place of the elastic diaphragms, and the ether between them, a bar, M, consisting of a strip of iron combined with a like strip of copper, may be used, the bar being confined between abutments *y y* at the opposite lower corners of the casing A. (See Fig. 3.)

The well-known difference in the expansion of the two metals under the influence of heat will cause the bar to rise in the middle, thereby imparting the desired movements to the levers, and causing the crushing of the vessel G.

Other objects or combinations of materials will readily suggest themselves as appropriate mediums through which the heat may be caused to actuate a device for crushing or fracturing the vessel G.

The vessel may be fractured by a spring-hammer, as shown in Fig. 2, and the power caused by the expansion of the object, instead of being exerted directly on the vessel, may have the less duty of simply operating a catch, *w*, so as to release the hammer to perform its duty, in a manner of which the diaphragm affords a sufficient explanation.

The vessel may be fractured by causing it to drop on a hard object, as shown in Fig. 4, the vessel being sustained in its compartment by a latch, *p*, and the latch being released by an arm, *q*, whose movement is dependent upon the heat, so that the vessel will fall against a projection, *t*, and will consequently be fractured.

Other equivalent plans of retaining the ves-

sel and causing it to fall will readily suggest themselves. It may, for instance, be suspended by a cord to be severed by a suitable knife or shears actuated by the force of an object expanding under the influence of heat.

I claim as my invention—

The combination, in a fire-extinguishing apparatus, of a friable vessel containing sulphuric acid, a chamber containing carbonate of lime, an object which will readily expand under the influence of heat, and devices, substantially as described, whereby the movement of the said object, when expanded, is caused to fracture the vessel, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AMOS S. AUSTIN.

Witnesses:

HERMANN MOESSNER,

HARRY SMITH.