E. H. ASCROFT.

DRIER.

No. 79,623. Patented July 7, 1868.

Fig. 1.

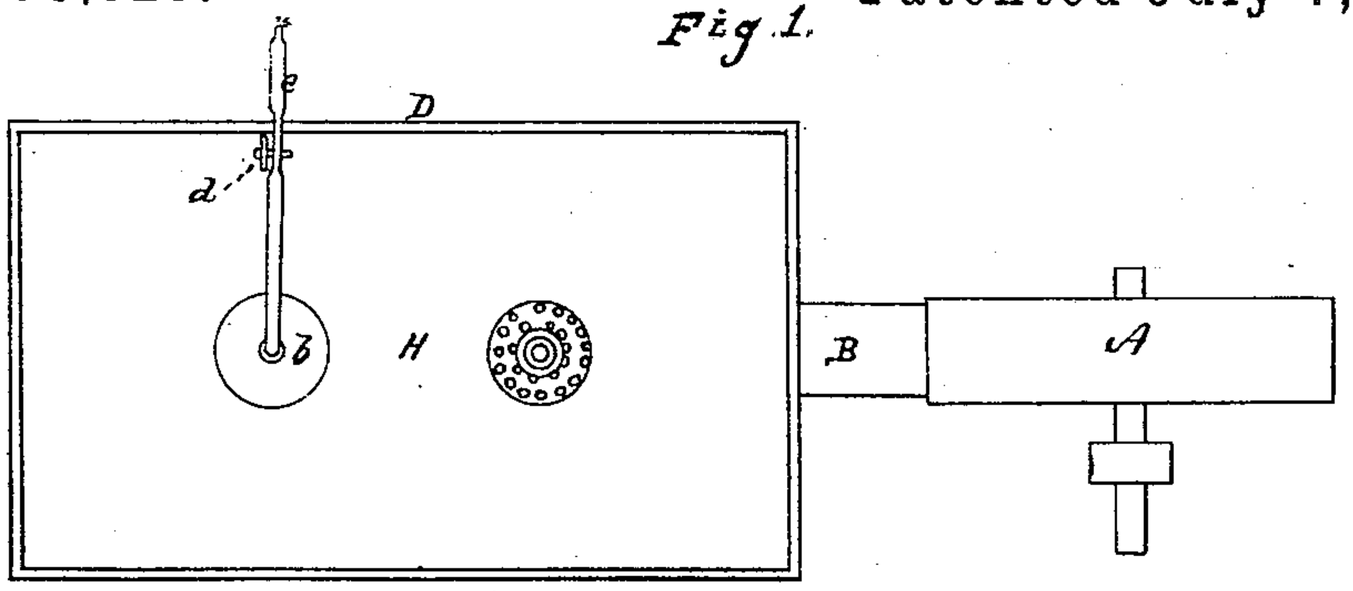


Fig. 2.

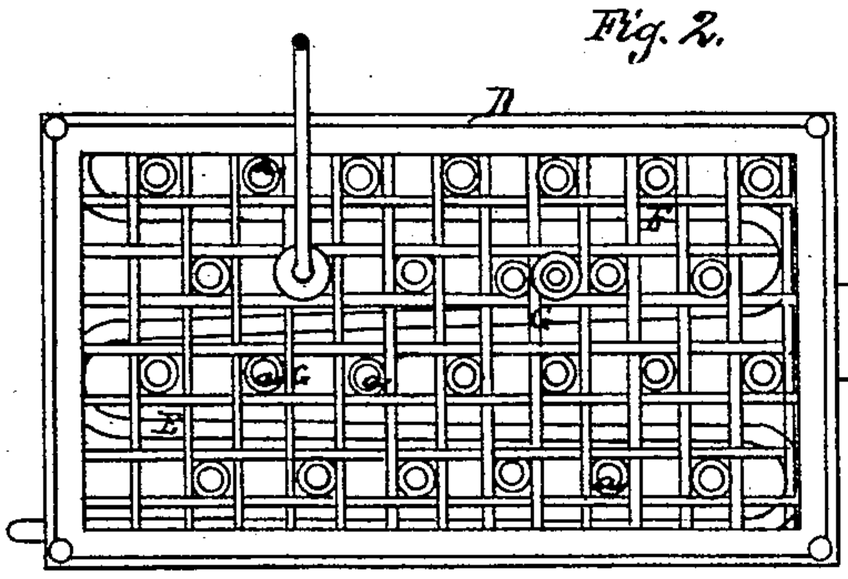


Fig. 4.

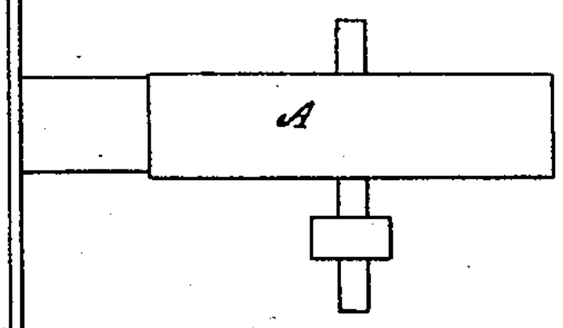
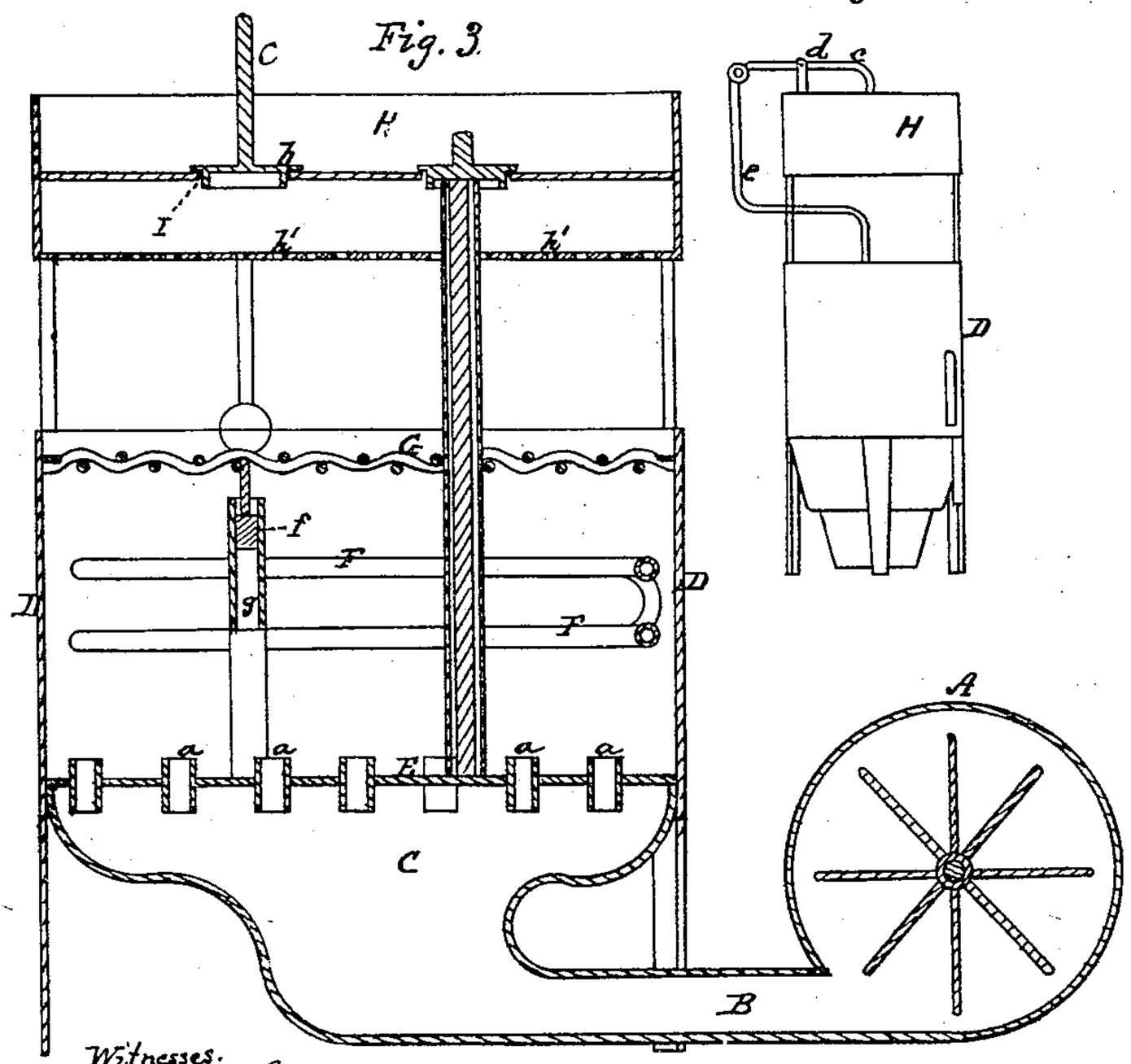


Fig. 3.



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Letters Patent No. 79,623, *dated July* 7, 1868.

IMPROVEMENT IN DRIERS.

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

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, E. H. ASHCROFT, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Machines or Apparatus for Drying Various Articles; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a top view of the invention.

Figure 2, a top view, with the water-tank removed.

Figure 3, a vertical and longitudinal section; and

Figure 4 an end view of the said invention.

This invention is an improvement in machines for drying various articles, chiefly wool, and relates to means for extinguishing fire which may accidentally take place in such machine from spontaneous combustion of substances contained therein, or from ignition of its contents from any cause.

The invention consists in combining with such machine a tank of water, and connected therewith in such manner that upon taking fire of the contents of the machine from any accidental cause, an opening shall be created for the passage of the water to the interior of the machine, for the purpose of flooding such interior and its contents, in manner and to operate as hereinafter explained.

In the drawings above mentioned as accompanying this specification, and illustrating my invention, A denotes a "blower," or air-forcing engine, of any suitable construction, such blower being connected by a conduit, B, with an air-receiver or chamber, C, such air-chamber constituting the lower part of a rectangular room or structure, D, the floor, E, of which is foraminous, or provided with a plurality of short upright pipes, *a a*, &c., for passage of air to the interior of such structure from the blower or air-chamber.

The interior of the structure D is provided with a coiled, zigzag, or serpentine steam-pipe, F, the inlet and outlet of which is outside of the structure, the purpose of this steam-pipe being to heat the interior of the structure and the blast of air passing upward through it from the air-chamber.

A foraminous floor, G, is disposed across the upper part of the structure D, and surmounting the steam-pipe, such floor being for reception of the wool, or other material to be dried.

A tank, H, is disposed above the structure D, and is provided with an orifice or valve-opening, I, for permitting flow of water contained in the tank to the interior of the structure below, such orifice being closed at ordinary times by a valve, *b*, this valve being secured to the lower end of or making part of a right-angular rod, *c*, such rod being fulcrumed, as shown at *d*, at about the middle of its horizontal portion, to a post, *d*, extending upward from one side of the tank, the outer extremity of such rod being pivoted to the upper end of a second bent rod, *e*, which extends from the rod *c* to the interior of the structure D, the lower end of the last-mentioned rod resting upon and being upheld by a fusible plug, *f*, confined within a pipe, *g*, or recessed post, which is fixed to the floor of the structure in a suitable manner, the weight of the rod *e* being sufficient to more than counterbalance the weight of the rod *c* and its valve *b*. The plug *f* is to melt at a temperature of 212° Fahrenheit.

The operation of the above-described arrangement of parts is as follows, it being understood that a mass of wool, or other material to be dried, is placed upon the foraminous floor, G, of the structure, and a blast of air impinging against and surrounding it, as will be evident from the description before given:

Should fire accidentally take place within the structure, by means of spontaneous combustion from oily matter, or other refuse from the material to be dried, or from any cause, the heat induced by such fire will melt the fusible plug *f*, before mentioned as supporting the rod *e*, and cause a fall of such rod.

This falling of the rod *e* will so actuate the rod or lever *c* as to raise the valve *b* and allow the water contained in the tank to flow through the orifice I into the structure *g*, and preferably through a perforated floor or shelf, *h*, disposed below the floor of the water-tank, as shown in the accompanying drawings. The effect of the falling water will be to immediately and automatically extinguish any fire within the structure, as will readily manifest itself to intelligent persons.

The employment of the perforated floor *h'* causes the water to be discharged into the structure in a fine spray, which is eminently calculated to produce the desired effect.

I would remark that in place of the fusible plug and the two rods *c* and *e*, arranged as before described, for operating the valve *b*, I have contemplated supporting the valve upon a post fixed to the floor of the structure, and disposing below such valve an expansible pipe or rod, of such material and of such length, that the heat imparted from the fire within the structure shall lengthen the expansible pipe or rod, and, by raising the valve, open the orifice I to the flow of the water.

The device above mentioned constitutes an automatic safety-guard against destruction, by accidental fire, of wool-drying machines, which now frequently takes place by reason of spontaneous combustion of inflammable substances which accumulate, to a greater or less extent, in the process of drying the wool.

I claim, in combination with a machine for drying various materials or substances, a tank of water, when the discharge of water from such tank is effected by the action of fire accidentally taking place in such machine, for the purpose substantially as before described.

I also claim operating the valve and opening the discharging-orifice of the water-tank, or of regulating the flow of water to the structure, by means of a fusible plug connected therewith by any suitable means which accomplish the desired result.

I also claim the combination and arrangement, with the structure D and water-tank H, of the discharging-orifice I, valve *b*, rods *c* and *e*, and fusible plug *f*, the whole being combined, arranged, and operating as before described.

I also claim a rod-pipe, or its equivalent, combined with the discharging-orifice I and valve *b*, in such manner that upon expansion of such rod, or its equivalent, by reason of fire within the structure, the valve shall recede from and open the orifice to the discharge of water to the structure, essentially as hereinbefore described.

I also claim the general combination and arrangement of the blower A, air-chamber C, with the structure D, and its perforated or foraminous floors E and G, and steam-coil or pipe F, the water-tank H, and the apparatus for discharging water therefrom, the whole being arranged and operating substantially as hereinbefore described.

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Witnesses:

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