

Sept. 4, 1928.

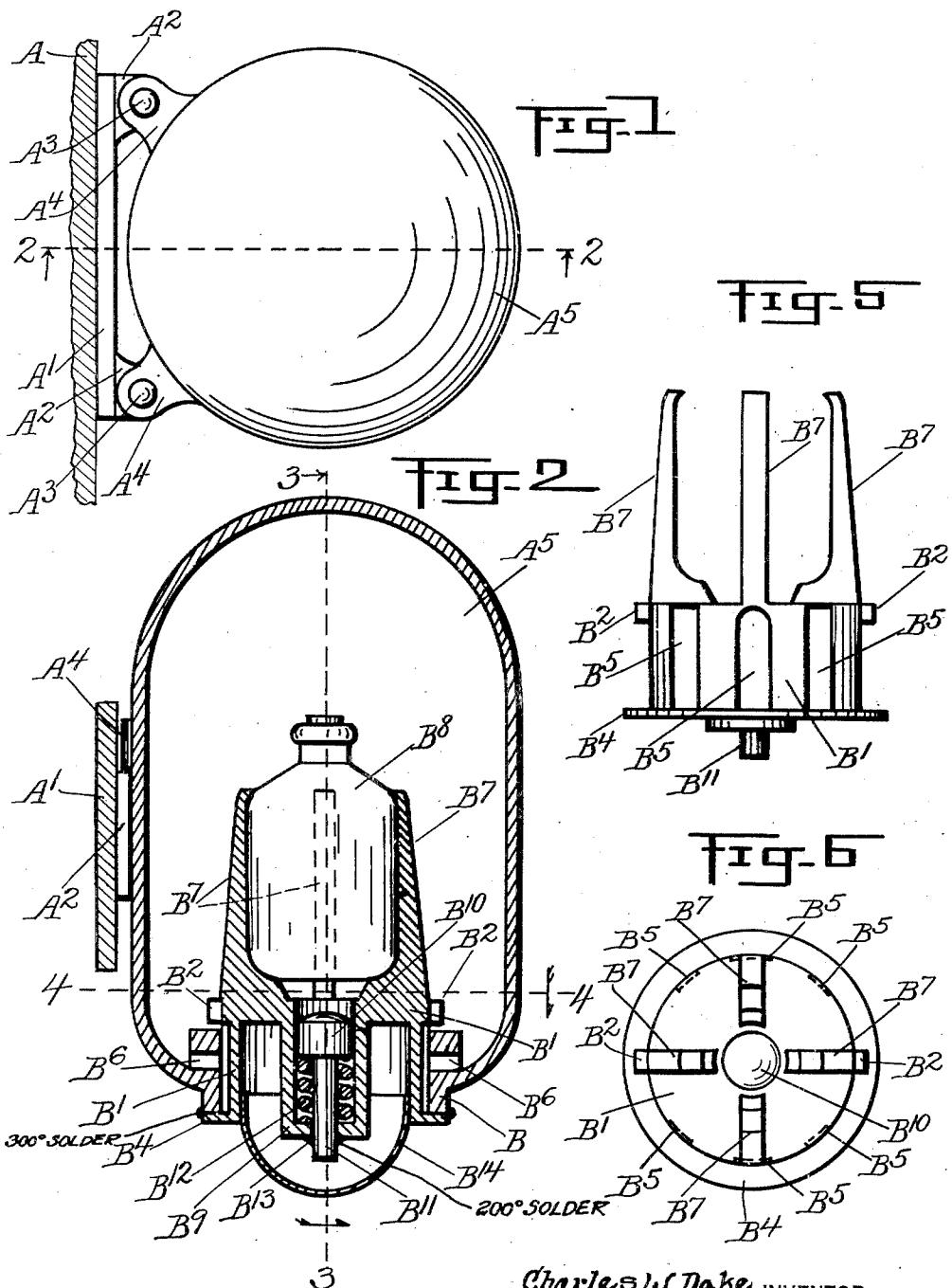
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C. W. DAKE

FIRE EXTINGUISHER

Filed May 11, 1925

2 Sheets-Sheet 1



Charles W. Dake, INVENTOR

BY Parker + Carter

ATTORNEYS

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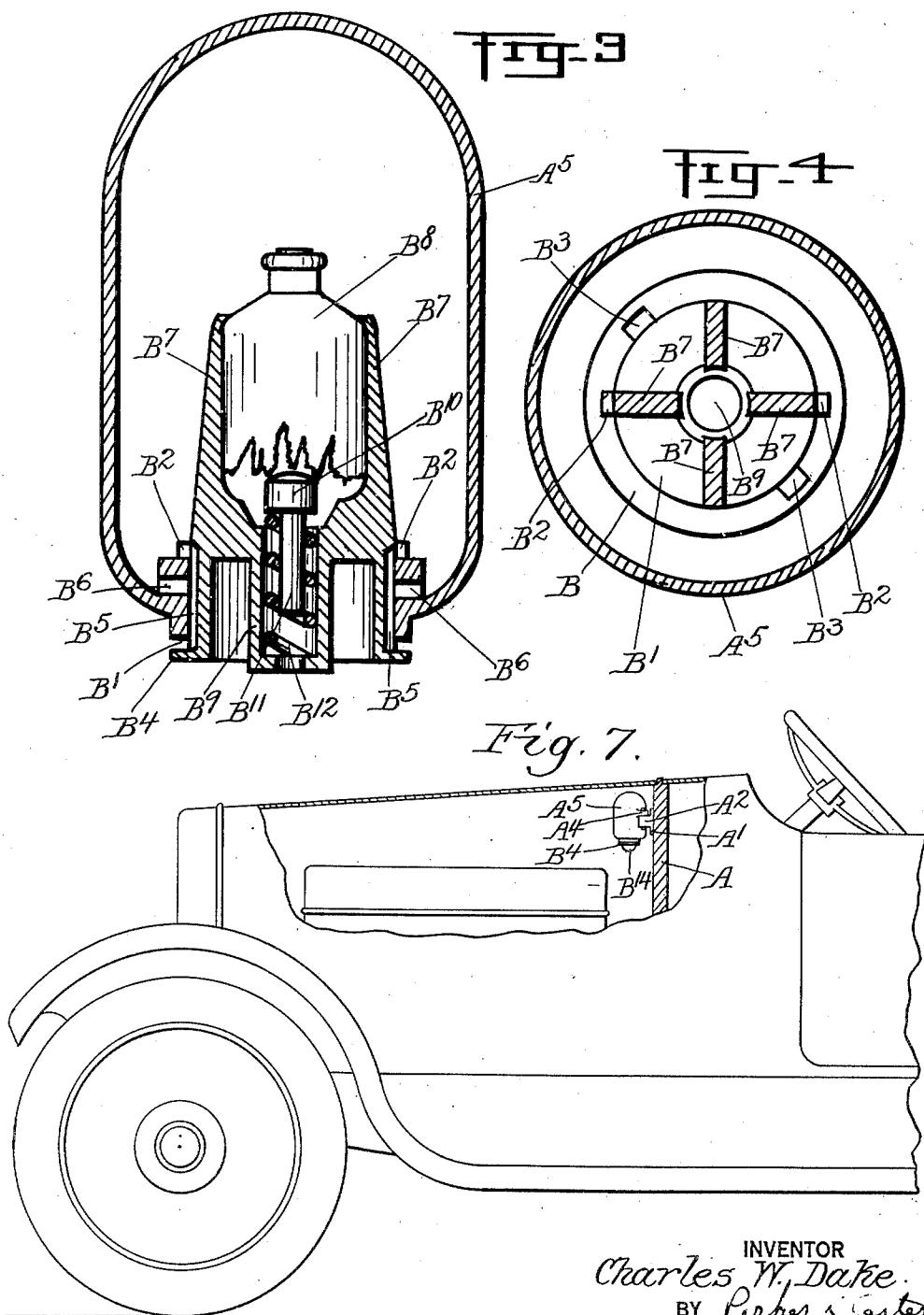
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INVENTOR  
Charles W. Dake  
BY Parker Carter

ATTORNEYS

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# UNITED STATES PATENT OFFICE.

CHARLES W. DAKE, OF CHICAGO, ILLINOIS.

## FIRE EXTINGUISHER.

Application filed May 11, 1925. Serial No. 28,291.

My invention relates to improvements in fire extinguishers and particularly to a fire extinguisher which will go into operation when a predetermined temperature has been reached. My extinguisher is particularly adapted for use in connection with automobiles and is primarily intended to be located under the hood of an automobile, in immediate juxtaposition to the engine so that in the event that a fire starts at that critical point the extinguisher may automatically go into action even before the operator is aware of it. Other objects of my invention will appear from time to time throughout the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a plan view;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is a section along the line 3—3 of Figure 2, showing the fire extinguisher after it has gone into operation;

Figure 4 is a section along the line 4—4 of Figure 2;

Figure 5 is an elevation of the combined plug and bottle support;

Figure 6 is a top plan view of the support shown in Figure 5;

Figure 7 is a diagrammatic showing in section of an automobile hood with engine and extinguisher in place.

Like parts are indicated by like characters throughout the specification and drawings.

A is an automobile dash board. A<sup>1</sup> is a bracket bolted or otherwise attached to the front side thereof within the hood enclosing the engine. A<sup>2</sup> A<sup>2</sup> are lugs projecting forwardly from the bracket or plate A<sup>1</sup> having

pins A<sup>3</sup> projecting upwardly therefrom and adapted to be engaged by and support perforate ears A<sup>4</sup> A<sup>4</sup> projecting from the housing A<sup>5</sup>, which housing rests against the lugs A<sup>2</sup>.

The housing A<sup>5</sup> is closed at the top and has at the bottom an open mouth surrounded by a flange or collar B. Slidable in this flange or collar B is a cylindrical plug B<sup>1</sup> having lugs B<sup>2</sup> adapted to pass through channels B<sup>3</sup>

in the collar B to permit the plug to be placed in position, the plug being then rotated to move the lugs B<sup>2</sup> out of line with the channels B<sup>3</sup> to limit downward movement of the plug. The plug B<sup>1</sup> is flanged at B<sup>4</sup> and slotted at B<sup>5</sup>. The flange B<sup>4</sup> is normally

soldered in place in engagement with the underside of the collar B to hold the parts in inoperative position. The collar B is perforated at B<sup>6</sup> and these perforations register with the slots B<sup>5</sup> so that when the plug is in the lower position shown in Figure 3 there is a passage through the perforations B<sup>6</sup>, the slots B<sup>5</sup> and the space between the flange B<sup>4</sup> and the lower wall of the collar B whereby fire extinguishing fluid may pass out from the interior of the container A<sup>5</sup> and be discharged from the receptacle in a generally horizontal direction. Projecting upwardly from the plug B<sup>1</sup> are fingers B<sup>7</sup> adapted to hold and support a bottle B<sup>8</sup> which may contain an acid or other suitable chemical. The plug has a downwardly extending cup B<sup>9</sup> perforate at the bottom and open at the top. Slidable in this cup is a plunger B<sup>10</sup> having a stem B<sup>11</sup> traveling in the perforation at the bottom of the cup. A spring B<sup>12</sup> is contained within the cup surrounding the stem and compressed between the plunger and the bottom of the cup being held under compression by a solder seal B<sup>13</sup> which holds the plunger and stem in the retracted position with the spring under compression. Closing the bottom of the cup and protecting the plunger is a thin cap B<sup>14</sup> which is placed there in order to protect the stem and the solder during installation and while the device is in the inoperative position.

The housing itself contains a chemical which when mixed with the chemical in the glass bottle exerts a pressure and forms an inert or fire extinguishing gas or liquid or foam as the case may be. The solder holding the stem in place is adapted to melt when a temperature of approximately two hundred degrees is reached. The solder holding the plug in place is adapted to melt when a temperature of three hundred degrees is reached. The solder seal holding the plug in place is of such strength that when the glass bottle is broken the chemicals mixing will set up a pressure sufficient to break the solder seal and permit the plug to drop down and allow liquid or gas to rush out from the container or housing.

This container as a unit assembled in the relation shown in Figure 2 may be placed under the hood of an automobile or in any other suitable place where fire protection is desired. The cap at the bottom protects the pin or stem and the solder from accidental

release or distortion. If the temperature surrounding the fire extinguishing unit reaches a point sufficient to melt the solder or other material holding the stem in the re- tracted position, the seal is broken, the spring is then released and the plunger is thrown violently upward into the position shown in Figure 3 breaking the bottle which is of glass or other suitable material and allowing the two chemicals to mix. The pressure ex- 5 ereted is sufficient to force the plug down breaking the outer solder seal, the chemicals from the container then rush out through the space surrounding the plug and are dis- charged in a horizontal position at the bottom 10 of the plug. Leakage of the chemical through the center of the plug is prevented because the plunger is normally at all times in contact with the cup and the pressure ex- 15 ereted upon the plug will only tend to com- press the spring. The fire extinguishing chemical thrown out violently in a generally horizontal direction will of course be effec- 20 tively distributed throughout the area sur- rounding the fire extinguisher and if this fire extinguisher is located in an automobile hood, it will fill the hood with a non-combus- 25 tible gas putting out the fire and at the same time bringing the engine to a stop because the automobile engine which draws its air to support combustion from beneath the hood will under such conditions instead of drawing in air will draw in the inert gas 30 which extinguishes the fire and will not sup- port combustion in the engine. Thus the 35 fire is put out and the driver is automatical- ly apprised of the fact that something has gone wrong.

I claim:

1. In an automatic fire extinguisher, an outer casing, and means for supporting it, said casing having an aperture in the lower part thereof, a closure for said aperture and a securing means therefor, a container, mounted within said outer casing, and a fire extinguishing substance therein, means for releasing said substance in response to a pre- determined rise in temperature, said sub- stance, when released, being adapted to create sufficient pressure to break the securing means and release the closure.

2. In an automatic fire extinguisher, and outer casing, and means for supporting it, said casing having an aperture in the lower part thereof, a closure for said aperture and a securing means therefor, a container, mounted within said outer casing, and a fire extinguishing substance therein, means for releasing said substance in response to a pre- determined rise in temperature, said sub- stance, when released, being adapted to create sufficient pressure to break the securing means and release the closure means on said closure for setting a predetermined limit to its movement after release and lateral deflect- 60 ing means on said closure adapted laterally to discharge the fire extinguishing substance passing through the closure.

Signed at Chicago, county of Cook and State of Illinois, this 24th day of April, 1925.

CHARLES W. DAKE.