

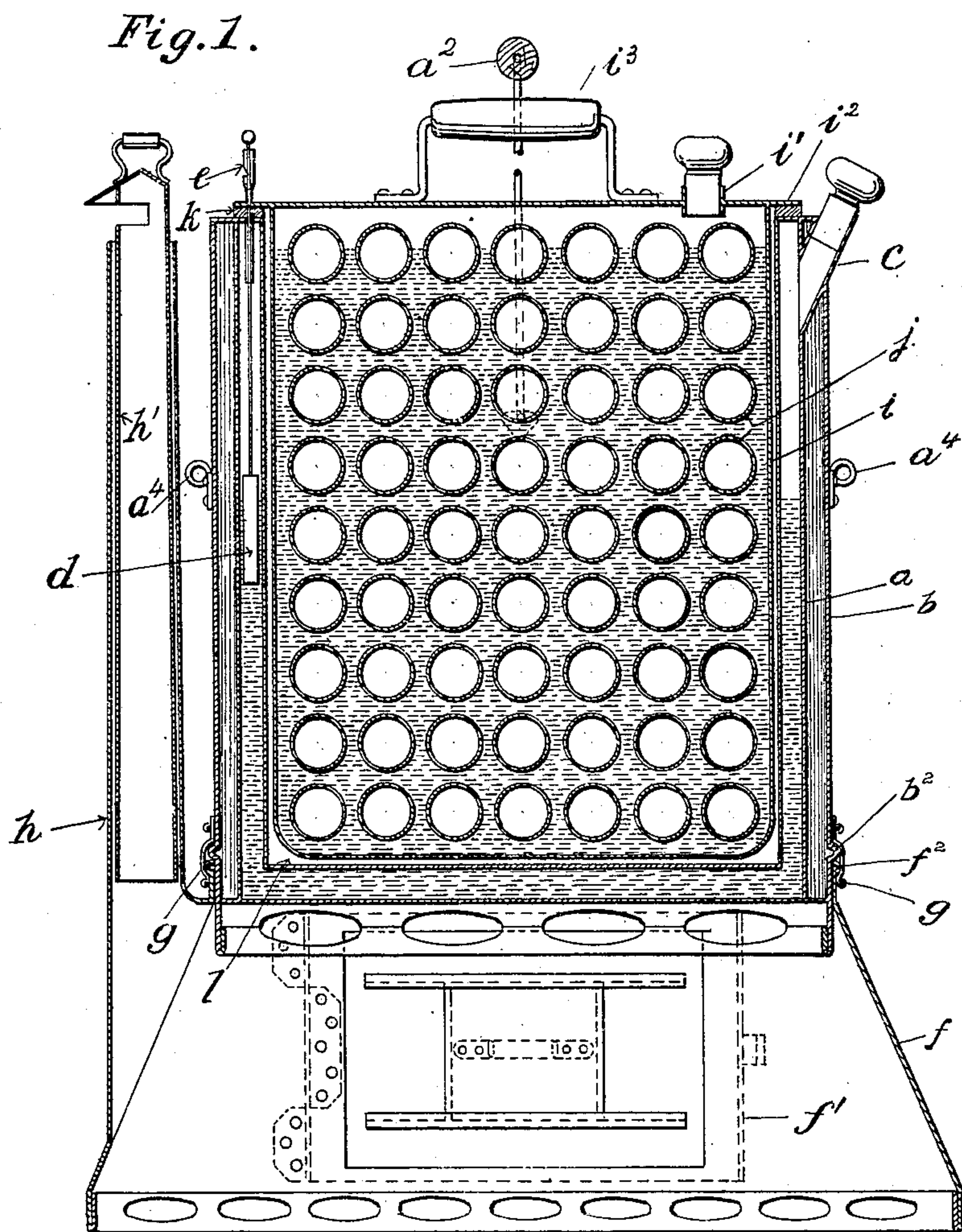
No. 859,154

PATENTED JULY 2, 1907.

J. TREEN.
SAFETY EXPLOSIVE HEATER.

APPLICATION FILED SEPT. 15, 1906.


2 SHEETS--SHEET 1.



WITNESSES:

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INVENTOR

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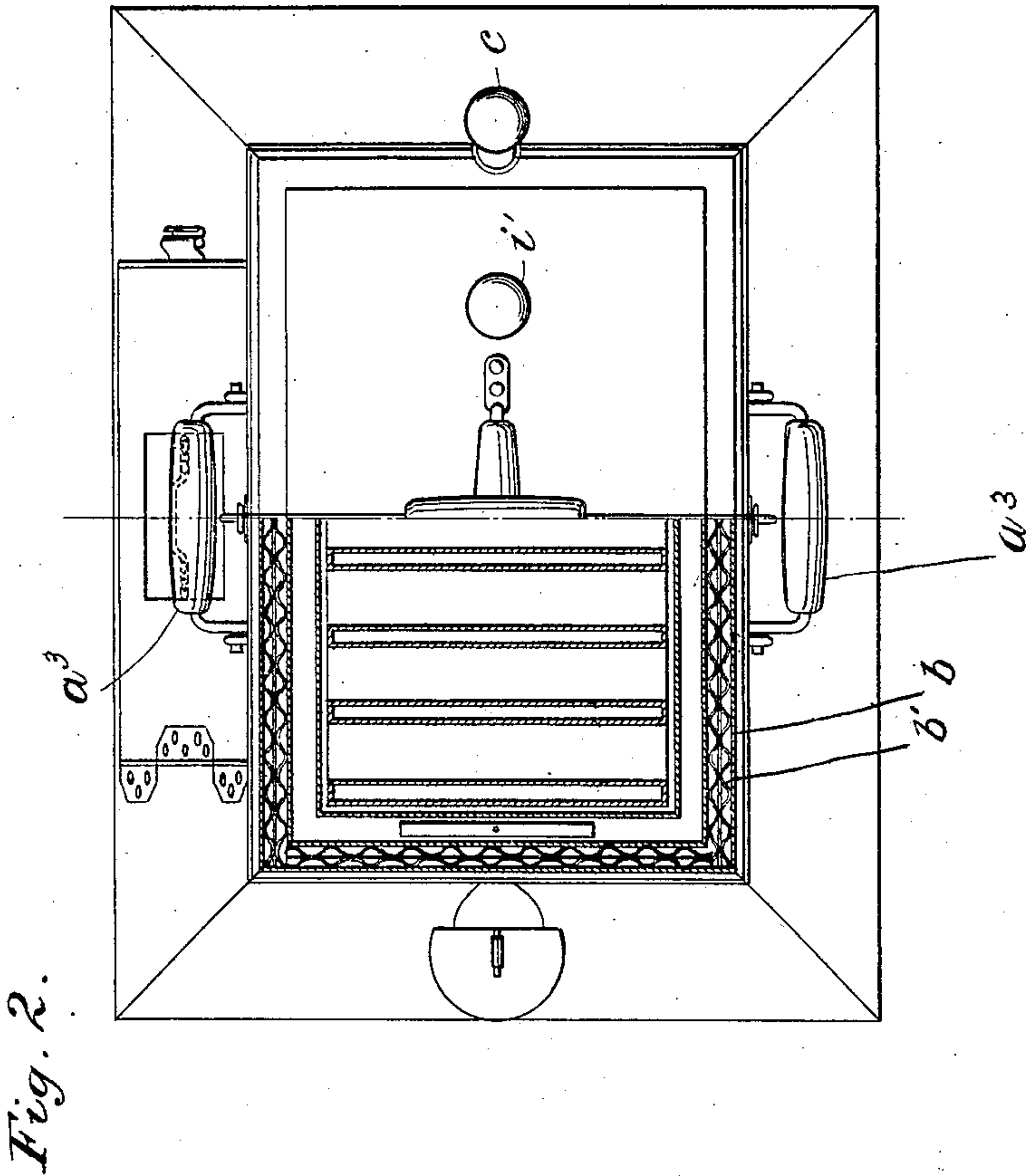
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JEFFERSON TREEN, OF NEW YORK, N. Y.

SAFETY EXPLOSIVE-HEATER.

No. 859,154.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed September 15, 1906. Serial No. 334,738.

To all whom it may concern:

Be it known that I, JEFFERSON TREEN, a citizen of the United States, residing at 156 West Forty-fifth street, in the borough of Manhattan, city, county, and State of New York, have invented a new and useful Improvement in Safety Explosive-Heaters, of which the following is a specification.

This invention relates to means for thawing dynamite, giant powder, and other high explosives, the object of my improvements being to render the application of heat thereto governable and safe, also to provide convenient means for performing the thawing operation, and for handling the explosive.

In brief my invention consists of a receptacle in which sticks of dynamite and the like may be horizontally and individually contained, water surrounding the individual compartments, and the receptacle fitting removably within a boiler formed by a rectangular casing having hollow walls.

An air or heat retarding space is provided between the receptacle and casing, to lower the temperature communicated from the boiler to the dynamite container, and the outer wall of the boiler is packed with asbestos to prevent loss of heat by radiation.

My invention also includes the various details of construction and arrangement of parts which will be described hereinafter and pointed out in the claims.

In the drawings accompanying this application, Figure 1 is a vertical sectional elevation of my improved apparatus, and Fig. 2 is a top plan view partly in horizontal section.

In carrying out my improvements, I provide a rectangular shell, as *a*, open at its top, but having its walls and bottom hollow, to contain water, thereby serving as a boiler. A jacket *b* extends about the walls of said shell, inclosing a space which contains non-conducting material, as asbestos, to prevent loss of heat from the boiler by radiation.

In the drawing I have shown a double sheet of corrugated asbestos *b'* as confined by jacket *b*, this furnishing a satisfactory non-conductor.

c indicates a neck by which the boiler may be filled with water, *d* a float to indicate the level of the water, and *e* a whistle to announce the boiling point.

The boiler fits removably upon or within a hollow base, as *f*, that may contain an oil or other stove, or be fitted with a grate (not shown); a swing door, as *f'*, being provided for said base. Convenient means for connecting the boiler to and disconnecting it from the base are employed as follows: The jacket *b* has a horizontal bead *b²*, which rests upon the beaded upper edge *f²* of base *f*. Two or more clasps, as *g*, secured to the jacket *b*, are adapted to engage below the bead *f²* to effect the connection. A chimney *h*, extending upwardly from the base, serves to carry off the burned products from the base when an oil stove or the like

is used, and said chimney is provided with a slidable tube *h'*, which may be withdrawn to a desirable extent to lengthen the chimney when wood or other fuel is burned in a grate.

The explosive receptacle, which may be removably fitted within the boiler, consists of a rectangular, closed casing *i*, having a series of horizontally disposed tubes *j*, whose ends are lodged in openings therefor in opposite walls of said casing. Thus said tubes are individually surrounded by water, introduced at opening *i'*, with which the casing is filled. The top of the casing *i* is provided with a projecting flange *i²*, whereby the explosive receptacle, when inserted within the boiler, is supported upon the top of wall *a*, a packing *k* of felt or the like, interposed between said flange and wall, serving to effect an air tight joint. The explosive receptacle, when thus supported within the boiler is centered therein in non-contacting relation therewith, a clearance, or air space *l*, existing at the sides and bottom. The purpose of this air space is to form a heat retarder, to prevent the maximum heat from the boiler being communicated to the explosive receptacle.

The dangerous practice of placing high explosives of the nature described in pails containing hot water is still followed because no practical safety appliance for this purpose has been placed on the market. As at 180° F. the nitro-glycerin separates from its earthy base, and the water used is frequently at as high a temperature as this, the pail itself becomes coated or impregnated with explosive and has sometimes been the cause of a serious explosion. Deterioration in the quality of the explosive likewise results from over heating. The range of temperature within which thawing of these high explosives may be conducted without separation is between 122° F. and 160° F. and it has been my aim to produce an apparatus to effect heating within this range, but to prevent heating the explosive in excess thereof. Therefore the stove, boiler, and explosive receptacle are in separate units, and may be handled either separately or unitedly. The explosive receptacle has a handle *i³* by which it may be carried separately. The boiler has a swinging handle *a²* for carrying by one man, and also has side handles *a³* *a³*, so that when attached to the base or stove portion, its weight may be borne by two men. The boiler is also provided with eyelets *a⁴* *a⁴* for the attachment of strap clasps, whereby the boiler may be slung on the back of a workman for portability.

In using my improved apparatus, I fill the receptacle *i* and boiler *a* with water and apply heat from base *f* to boil the water, the whistle *e* indicating that the boiling point is reached. By this time the water in receptacle *i*, which is surrounded by the boiler, will be at about 160° F., and, as the heat in the boiler will be maintained by the asbestos jacket, the stove may be extinguished or the boiler and explosive receptacle together

removed from base *f*. If the receptacle *i* had not previously been charged with sticks of dynamite or the like, it can now be removed from the boiler for that purpose, after which it can be replaced within the boiler
5 to carry on the thawing operation.

It will be observed that by the use of my improved apparatus the sticks of dynamite and the like, while each surrounded in their individual tubes by hot water, to thaw them, are kept out of direct contact with each
10 other and with the water; that the sticks are maintained in a horizontal position, and therefore subjected to even heat throughout their length, and that by means of the air space separating the dynamite receptacle from the boiler, the water in said receptacle cannot attain
15 heat in excess of 160° F. without giving an audible alarm.

The separating air space between the dynamite receptacle and boiler may if desired be filled with a suitable heat retarding material.

20 I claim:

1. In a thawing apparatus for dynamite and the like, a shell having hollow walls and bottom forming a boiler and receiving space, and a heat-retarding-jacket surrounding said shell, together with a closed, water-containing receptacle, having a number of horizontal tubes therein supported by and opening through opposite walls thereof, said receptacle fitting removably within said space and being supported therein in manner to leave an intermediate heat-retarding space between said boiler and receptacle.
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2. In a thawing apparatus for dynamite and the like, a shell having hollow walls and bottom forming a boiler and a receiving space, and a heat-retarding-jacket surrounding said shell, together with a closed, water-containing receptacle, having a number of horizontal tubes therein supported by and opening through opposite walls thereof, said
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receptacle fitting removably within said space and being supported therein in manner to leave an intermediate heat-retarding-space between said boiler and receptacle.

3. In a thawing apparatus for dynamite and the like, a shell having hollow walls and bottom forming a boiler and a receiving space, and a heat-retarding-jacket surrounding said shell, together with a closed, water-containing receptacle, having a number of horizontal tubes therein supported by and opening through opposite walls thereof, said receptacle fitting removably within said space and being supported therein in manner to leave an intermediate heat-retarding-space between said boiler and receptacle, and means for heating said boiler.
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4. In a thawing apparatus for dynamite and the like, a shell having hollow walls and bottom forming a boiler and a receiving space, and a heat-retarding-jacket surrounding said shell, together with a closed, water-containing receptacle, having a number of horizontal tubes therein supported by and opening through opposite walls thereof, said receptacle fitting removably within said space and being supported therein in manner to leave an intermediate heat-retarding-space between said boiler and receptacle, and a separable heating base for said boiler.
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5. In a thawing apparatus for dynamite and the like, a shell having hollow walls and bottom forming a boiler and a receiving space, and a heat-retarding-jacket surrounding said shell, together with a closed, water-containing receptacle, having a number of horizontal tubes therein supported by and opening through opposite walls thereof, said receptacle fitting removably within said space and being supported therein in manner to leave an intermediate heat-retarding-space between said boiler and receptacle, means for heating said boiler, and means for indicating the attainment of thawing temperature in said receptacle.
60 65

JEFFERSON TREEN.

In presence of—

FREDERICK C. BONNY,
F. W. BARKER.