A. L. RADLEIN & J. W. MURPHY.

CHEMICAL HEATER.

APPLICATION FILED SEPT. 23, 1912.

1,088,926. Patented Mar. 3, 1914.

Fig. 1.

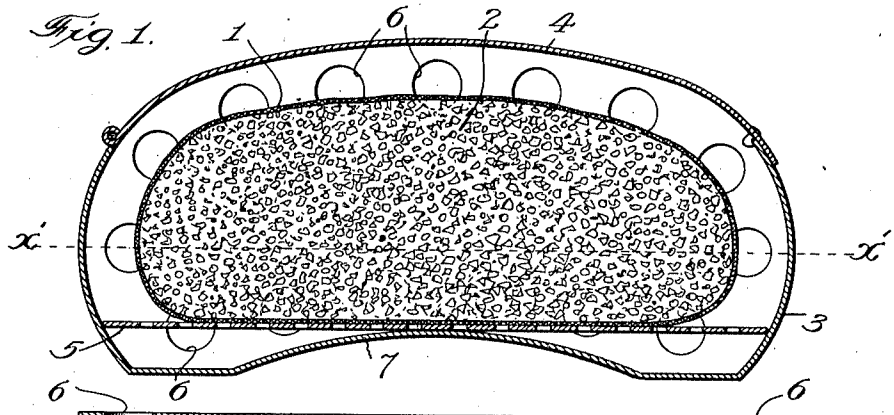
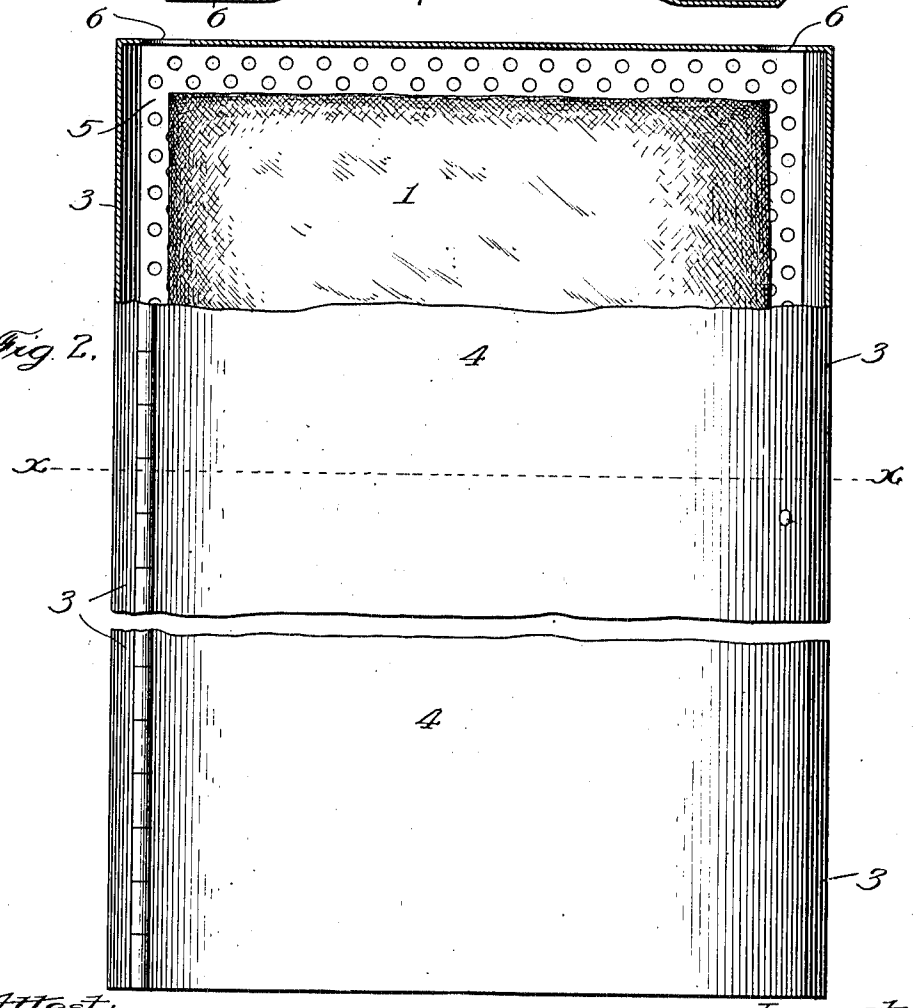


Fig. 2.



Attest:

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UNITED STATES PATENT OFFICE.

ALBERT L. RADLEIN AND JAMES W. MURPHY, OF CHICAGO, ILLINOIS.

CHEMICAL HEATER.

1,088,926. Specification of Letters Patent. Patented Mar. 3, 1914.

Application filed September 23, 1912. Serial No. 721,861.

To all whom it may concern:

Be it known that we, ALBERT L. RADLEIN and JAMES W. MURPHY, citizens of the United States of America, and residents of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Chemical Heaters, of which the following is a specification.

This invention relates to that class of chemical heating compositions used in foot warmers and like heating appliances, and which are adapted to generate a constant and long continued heat by a corresponding chemical reaction between the component elements of the composition. And the present improvement has for its object to provide a cheap and efficient heat generating composition adapted to afford the required constant and long continued heating effect, without liability to rapid chemical reaction and the consequent production of a high and injurious temperature in actual use, all as will hereinafter more fully appear.

In the accompanying drawing: Figure 1, is a transverse section on line x—x, Fig. 2, illustrating the application of the present invention to a foot warmer for motor vehicles and the like. Fig. 2, is a plan view partly in section on line x'—x', Fig. 1.

Similar reference numerals indicate like parts in both views.

The present heat generating composition comprises a dry mixture of iron in a comminuted state, preferably in the form of iron borings, and ordinary sal-ammoniac or chlorid of ammonium, in the proportions of five pounds of iron borings to one ounce of sal-ammoniac. Said proportions, however, may be varied in accordance with the practical requirement of a more or less rapid chemical action and a corresponding rapidity in the production of heat.

In actual use the heating action of the composition will be started by the application of moisture in any usual and suitable manner, and preferably by the special means hereinafter described, and such heating action is due to the rapid oxidation of the iron particles under the combined influence of moisture and the sal-ammoniac of the composition.

In the preferred form of the present invention the above described composition will be inclosed in a bag or housing of flexible and absorbent material that is adapted to hold the required amount of moisture, when water is applied thereto. By a kneading action on said bag or housing and its contents, the moisture is brought into contact with the inclosed materials to start the chemical reaction and heat generation above described, and which when started will continue until the moisture is exhausted by long continued operation.

In the accompanying drawings, 1 represents the bag or housing above described, and 2 the filling of the chemical heat generating composition.

3 is a protecting casing of metal or like material, in which the filled bag or housing 1 above described is disposed to form a foot warmer or like appliance. Said casing is preferably of an oblong box form, having rounded sides and provided with a hinged cover 4, affording access to the interior of the casing.

5 is a perforated partition, arranged horizontally within the casing 3, and adapted to provide a support for the bag or housing 1 in position free from contact with the top, bottom, side and end walls of the casing 3, and so that the atmospheric air may freely circulate around all parts of the said bag or housing 1, to carry off the heat as generated.

6 are a series of orifices formed in the end walls of the casing 3 for the escape of the heated air.

In the preferred form of the casing 3, illustrated in Fig. 1, the bottom plate of the casing is formed with an upwardly curved or arched central portion 7, to provide a central support for the perforated partition 5, as well as to afford a firm bearing for the casing 3 upon uneven floor surface.

Having thus fully described our said invention what we claim as new and desire to secure by Letters Patent, is:

1. A chemical heater, comprising a mixed mass of iron in a comminuted state and chlorid of ammonium, and a housing of water absorbent material inclosing said mass, substantially as set forth.

2. A chemical heater, comprising a mixed mass of iron in a comminuted state and chlorid of ammonium, and a housing of flexible water absorbent material inclosing said mass, substantially as set forth.

Signed at Chicago, Illinois, this 21st day of September, 1912.

ALBERT L. RADLEIN.
JAMES W. MURPHY.

Witnesses:
ROBERT BURNS,
IVA L. CRANE.