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DEFROSTING DEVICE

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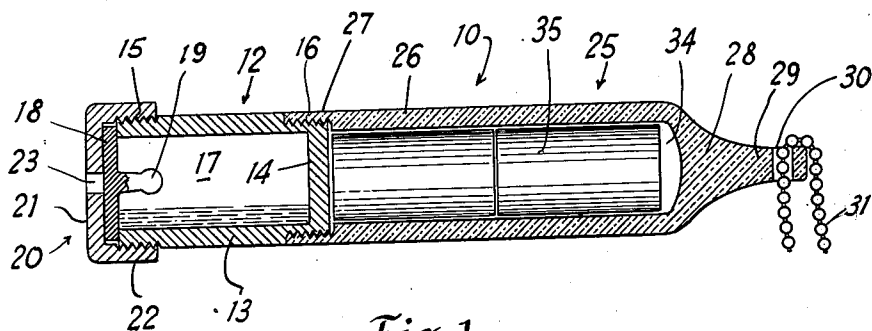


Fig. 1

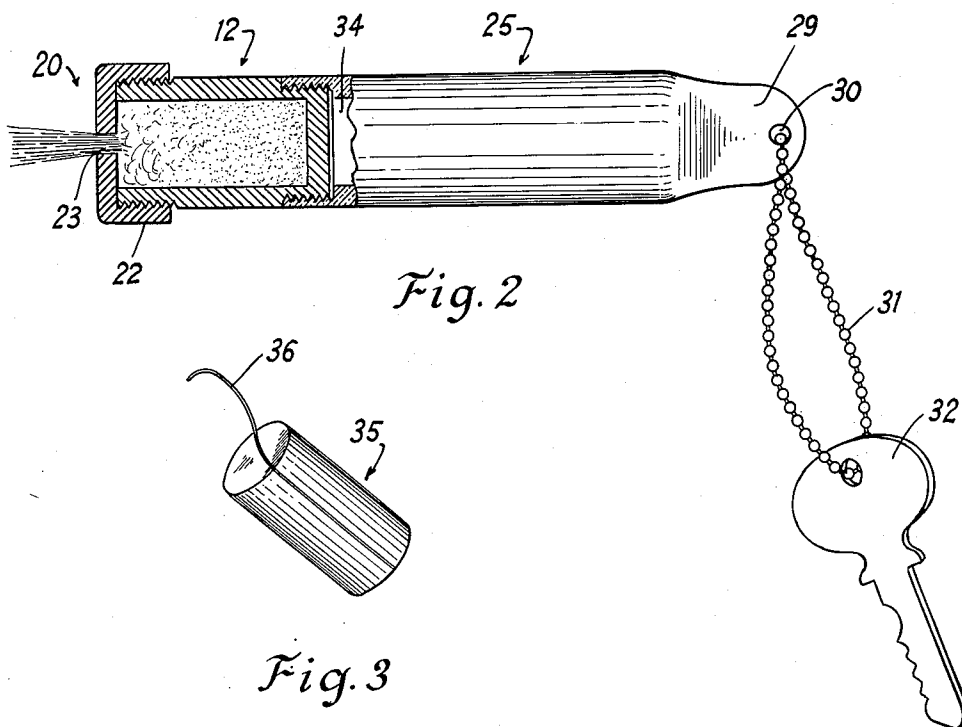


Fig. 2

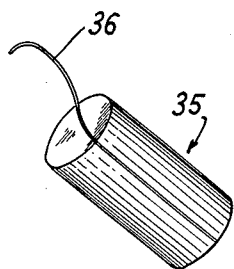


Fig. 3

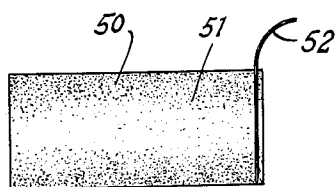


Fig. 4

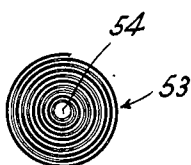


Fig. 5

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DEFROSTING DEVICE

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8 Claims. (Cl. 126-263)

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This invention relates to defrosting devices. It is particularly directed to a device for defrosting automobile locks.

It is well known that automobile locks very often in freezing weather tend to ice up and prevent a key from being inserted therein. Such iced or frozen locks have given motorists considerable trouble. Conditions are very adverse to heating said locks by an open flame to defrost.

It is therefore an object of the present invention to provide a defroster of the character described, which will defrost an automobile lock or any other lock without applying an open flame and without hurting the lock.

Another object of this invention is to provide a device of the character described, comprising a container formed with an orifice or nozzle and being formed with a chamber containing water into which is inserted exothermic material which will heat the water and produce hot vapor or steam which issues from the orifice or nozzle and which will melt the ice on a lock when the container is brought close to the lock, and the heated vapor can enter the key opening so as to melt any ice which is in the key cylinder.

Yet another object of this invention is to provide a device of the character described, wherein the front end of the container is in the form of a metal hot plate which may be placed against the lock so that heat generated in the chamber will heat the hot plate and transmit heat there-through to the lock by direct contact.

Still another object of this invention is to provide a device of the character described, comprising a tubular container which may be readily held in the hand and being formed at its front end with a chamber wherein exothermic material may be mixed with water, and being formed at its rear end with an additional chamber to hold an additional supply of exothermic material in the form of capsules or cartridges.

Yet a further object of this invention is to provide a device of the character described, comprising a tubular container made of metal, open at its front end, and said front end being closed by a cap formed with an opening, a removable washer being provided to close the opening and seal the container, so that a supply of water may be kept within said container, and a second tubular container made of synthetic plastic, removably attached to the rear end of the metal container and coaxial therewith, and adapted to contain one or more capsules or cartridges of exothermic material, the arrangement being such that when it is desired to defrost the lock, the rear container is detached from the front container, a capsule or cartridge of exothermic mate-

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rial is removed from the rear container, the cap at the front end of the metal container is detached, the washer is removed, the exothermic material is inserted into the front container, the cap is reattached and heat will be generated in the metal container to produce hot vapor or steam which issues through the uncovered opening in the cap to defrost the lock.

Yet another object of this invention is to provide a strong, rugged and durable defroster of the character described, which shall be relatively inexpensive to manufacture, easy to manipulate, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is a longitudinal cross-sectional view of the defroster embodying the invention;

Fig. 2 is a side elevational view of the device embodying the invention with parts broken away and in cross-section and showing the heating chamber in use;

Fig. 3 is a perspective view of one of the cartridges or capsules of exothermic material;

Fig. 4 is a top plan view of a sheet containing exothermic material which may be employed to make a capsule;

Fig. 5 is a top plan view of a capsule made from the structure shown in Fig. 4.

Referring now in detail to the drawing, 10 designates a defroster embodying the invention. The same comprises a metal cylindrical container 12, comprising a cylindrical wall 13, and an end wall 14 at its rear end. The container 12 is open at its front end. It is formed adjacent its front end with an externally screw threaded portion 15, for the purpose hereinafter appearing.

At its rear end, it is formed with an externally screw threaded portion 16 of reduced diameter. Within the cylindrical member 12 is formed a generating chamber 17. Said chamber is closed by a washer 18 which may be made of heat resisting material and which is preferably formed with a central projection or stud 19 projecting into chamber 17 when the defroster is not in use. The washer 18 contacts the front edge of the cylindrical wall 13.

Screwed to the externally screw threaded por-

tion 15 is a cap 20 likewise preferably made of metal. The cap 20 has a front wall 21 and a cylindrical internally screw threaded wall 22 extending rearwardly therefrom. The front wall 21 is formed with a central opening or nozzle 23, for the purpose hereinafter appearing.

Screwed to the externally screw threaded portion 16 of container 12 is a container 25 preferably made of a synthetic plastic material or any other suitable non-metallic material. The container 25 comprises a cylindrical wall 26 which may have the same external diameter as the cylindrical wall 13. It is formed at its front end with a counterbored internally screw threaded portion 27 screwed to the externally screw threaded portion 16. At the rear end of member 25 is an end wall 28 which may have a tapered projection 29 formed with a through opening 30 to receive a chain 31 on which a key 32 may be hung. Within member 25 is a chamber 34 which may store a plurality of capsules 35 of exothermic material.

Capsules 35 may comprise an outer wrapper of porous paper or perforated paper and may contain any suitable exothermic material. Attached to the capsule is a string 36 having a free end so as to facilitate removing the capsule from the chamber 34 and also to remove the same from the chamber 17.

Any suitable exothermic material may be used. One mixture may comprise the following:

Manganese chloride.....	Oz. 3.3
Sodium acetate.....	94.0
Ethylene glycol.....	2.7

Another mixture may comprise the following:

	Oz.
Aluminum powder.....	1.5
Potassium chlorate.....	2.0
Copper sulphate.....	1.0
Fuller's earth.....	4.0

Another mixture which might be used is:

	Parts
Potassium permanganate.....	10
Silicon	2
Iron	83
Carbon	317

An addition of a small amount of water to the above mixtures will generate heat.

Another mixture which might be used is the following:

	Oz.
Potassium chlorate.....	.90
Aluminum powder.....	1.30
Anhydrous sulphate of copper.....	.15
Kaolin	2.00
Pumice	2.00

Another mixture which might be used is:

	oz.
Powdered iron.....	17
Manganese hydroxide.....	1
Graphitic carbon.....	30
Ferric chloride.....	30
Ferrous sulphate.....	30

Another mixture which will produce heat upon addition of water is:

	Parts
Sodium acetate.....	87
Sodium hyposulfite.....	8½
Glycerol	3½
Calcium chloride.....	1

While some samples of exothermic materials have been given, applicants are not limited to any one mixture, as any suitable mixture may be employed.

Another form of capsule for exothermic material is illustrated in Figs. 4 and 5. In Fig. 4 there is shown a sheet 50 of absorbent material, such as paper. Covering the upper surface of the sheet 50 is an exothermic material 51 which may be in powdered form and adhered to the sheet 50 by adhesive or in any suitable manner. A string 52 may have one end glued to the sheet 50. The sheet 50 may then be rolled into a cylindrical capsule 53 formed with a central opening 54. The central opening 54 may be formed by wrapping the sheet 50 about an arbor.

Fig. 1 illustrates the device when not in use. Preferably a small quantity of water is retained in the chamber 17 and since the chamber is closed and sealed by the washer, the water should not evaporate. When it is desired to defrost the lock of an automobile or anything else, container 25 is first unscrewed and one of the capsules 35 removed, after which the container 35 may be rescrewed in place. The cap 20 is then unscrewed from the container 12, and the washer 18 pulled out. Capsule 35 is then inserted into the chamber 17 and the cap 20 rescrewed into place without the washer. The water in the chamber 17 reacting with the exothermic material in the capsule 35 will start and exothermic reaction which produces heat and changes the water into vapor or steam which issues through the opening 23. Either capsule 35 or 53 may be used or any other suitable exothermic material in any suitable form may be used.

It will be noted that the cap 20 being made of metal is heated and forms a hot plate so that if the cap is held against the lock, heat will pass by conduction to the lock. Furthermore, hot vapor or steam will enter the key opening in the lock and therefore will penetrate the key cylinder and de-ice the latter.

The plastic container 25 serves as a handle and since plastic is not a good conductor of heat, the device may be comfortably held in the hand even with the exothermic reaction taking place.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, we claim as new and desire to secure by Letters Patent of the United States:

1. In a heating device of the character described, a casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of water through the aperture when the device is not in use.

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2. In a heating device of the character described, a casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of the water through the aperture when the device is not in use and a handle carried by the rear end of the casing.

3. In a heating device of the character described, a metal casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of the water through the aperture when the device is not in use and a handle carried by the rear end of the casing, said handle being tubular and forming a housing for storing the exothermic material to be placed in the casing.

4. In a heating device of the character described, a casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of the water through the aperture when the device is not in use and a handle carried by the rear end of the casing, said handle being formed of plastic material and being of substantially the same outer dimensions as the casing.

5. In a heating device of the character described, a metal casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of the water through the aperture when the device is not in use, and a handle having its forward end detachably attached to the rear end of the casing, said handle being formed of plastic material and hollow and providing a storage chamber for the exothermic material before the latter is placed in the casing.

6. In a heating device of the character described, a metal casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured

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metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap and a removable seal interposed between the apertured cap and the open forward end of the casing to prevent the discharge of the water through the aperture when the device is not in use, the rear end of the casing being reduced and externally threaded, and a handle having its forward end internally threaded for detachable engagement with the threaded rear end of the casing, said handle being hollow and providing a storage chamber for the exothermic material before the latter is placed in the casing, said handle being elongated and of substantially the same outer dimensions as the casing and formed of insulating material.

7. In a heating device of the character described, a metal casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap, the rear end of the casing being reduced and externally threaded, and a handle having its forward end internally threaded for detachable engagement with the threaded rear end of the casing, said handle being hollow and providing a storage chamber for the exothermic material before the latter is placed in the casing, said handle being elongated and of substantially the same outer dimensions as the casing and formed of insulating material.

8. In a heating device of the character described, a metal casing open at its forward end and adapted to contain a supply of water and to receive exothermic material, an apertured metallic cap removably secured on the open forward end of the casing, and adapted to be heated by the heat generated in said casing when the water and exothermic material intermix, the vapors produced by such action in the casing being emitted through the aperture in the cap, and a handle having its forward end detachably attached to the rear end of the casing, said handle being formed of plastic material and hollow and providing a storage chamber for the exothermic material before the latter is placed in the casing.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
197,542	Carman	Nov. 27, 1877
382,191	Redington	May 1, 1888
769,615	Kosansvich	Sept. 6, 1904
929,842	Eckart	Aug. 3, 1909
1,624,327	Friedman	Apr. 12, 1927
1,774,505	Deppeler	Sept. 2, 1930
2,051,063	Winkel	Aug. 18, 1936
2,077,703	Little	Apr. 20, 1937
2,289,425	Hogan	July 14, 1942
2,352,951	Geria	July 4, 1944
2,381,207	Coleman	Aug. 7, 1945
2,488,611	Stallings	Nov. 22, 1949