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STEAM-APPLYING DEVICE

2,676,239

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2 Sheets-Sheet 1

Fig. 1.

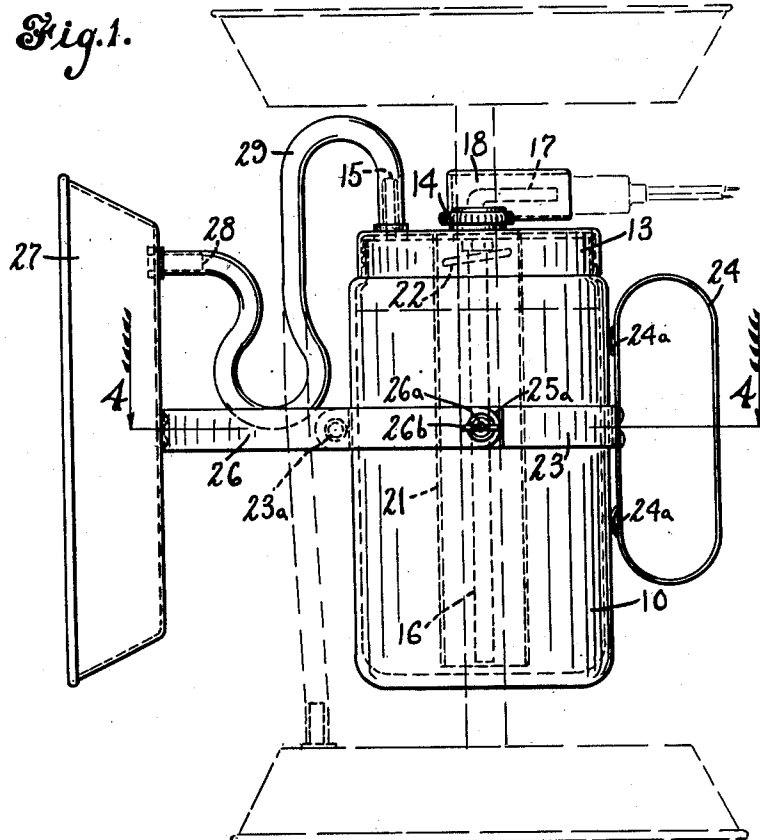
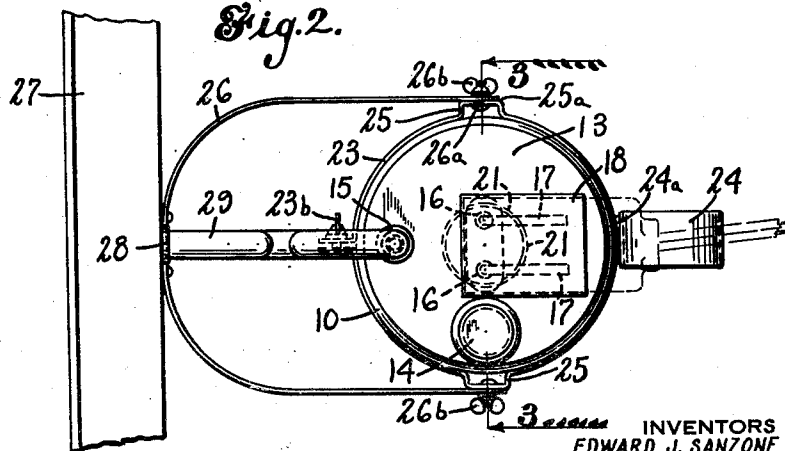


Fig. 2.



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Fig. 3.

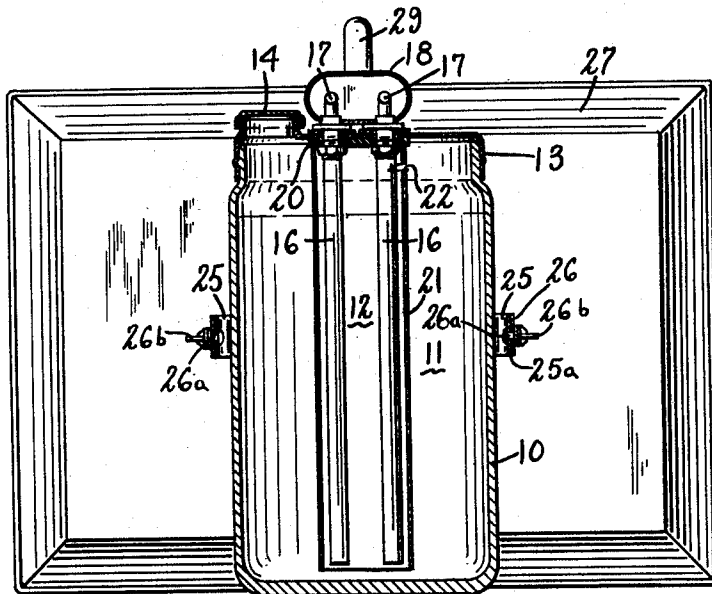


Fig. 4.

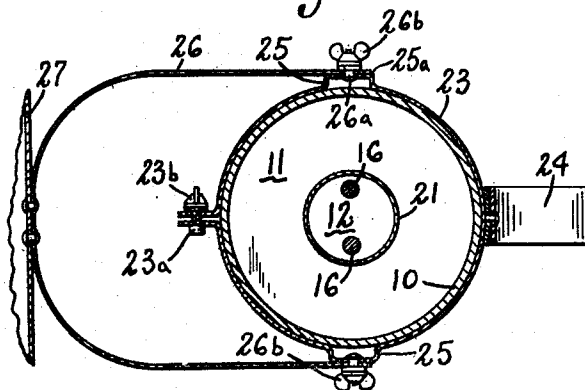
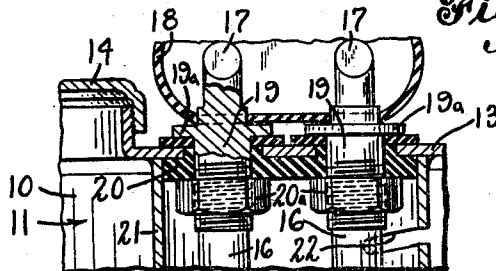


Fig. 5.



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STEAM-APPLYING DEVICE

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2 Claims. (Cl. 219—40)

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This invention relates to steam-applying devices, and more particularly to portable devices for softening wallpaper, paint, varnish, and the like by the application of steam preparatory for the removal of these finishes, whether they be on walls, ceilings, or floors.

The primary object of the invention is the provision of a device for the purposes mentioned which is unitary and self-contained.

Another object of the invention is the provision of a device for the purposes described which embodies therein a container for the water from which the steam is to be generated, and means for applying the steam at multiple angles to the container.

A further object of the invention is the provision of a device for the purposes described which can be used on sloping and irregular surfaces.

A still further object of the invention is the provision of a device for the purposes described which quickly generates steam electrically and is entirely safe, comprised of a few strong, simple and durable parts, which are inexpensive to manufacture, and which will not easily get out of order.

Other objects and advantages of the invention reside in certain novel features of construction, combination and arrangement of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming part of this specification.

In the accompanying drawings:

Fig. 1 is a side elevation of a steam-applying device embodying the present invention;

Fig. 2 is a top plan view of the device, certain parts being broken away;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a section on line 4—4 of Fig. 1; and

Fig. 5 is a sectional detail of a portion of the steam generator.

In the drawings, the numeral 10 designates a cylindrical container in which are located, in the assembled device, a reservoir 11 for water and a heating chamber 12. The container may be of light metal or other suitable material having a threaded neck portion. The neck portion of the container is engaged by a screw cap 13 of sheet metal or other suitable material. The screw cap is provided with a neck adjacent a portion of the cap perimeter and the neck is engaged by a threaded filler cap 14. The screw cap 13 is also provided with a steam outlet adjacent a portion of the cap perimeter. The steam outlet is constituted by a sleeve 15 extending through the

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cap. The sleeve has a shouldered portion engaging the upper surface of the cap and fixed thereto, as by welding. The cap 13 is provided with two apertures adjacent its center through which electrodes 16, comprising the heating element, are extended downwardly into the container to a point adjacent the bottom thereof. The electrodes may be of any material having the property of electrical resistance. In the preferred form of the invention the electrodes are made of stainless steel. Terminals 17, in the form of prongs, are located at the upper ends of the electrodes. In the present form, the terminals 17 are elbowed so that their plug-contacting portions are horizontally disposed. A horizontal electric-plug retainer 18 is associated with the terminals and suitably fastened to the screw cap 13.

As can be seen in Fig. 5 of the drawings, the electrodes 16 are provided with enlarged portions 19 which are threaded and have upper circumferential projections 19^a which engage insulating washers located between the projections and the upper surface of the cap 13. The enlarged portions of the electrodes terminate a short distance below the underside of the screw cap. An insulating disk 20 is located at the underside of the screw cap and is fitted over the enlarged portions of the electrodes. The disk is provided with insulating sleeves which extend through the apertures in the cap. Nuts 20^a engage the threads on the enlarged portions of the electrodes to firmly position the disk and secure the electrodes to the cap.

A hollow cylindrical sleeve member 21, which may be made of metal or other heat-resistant material, is welded to, or made integral with, the screw cap 13 and is disposed over the electrodes so as to be adjacent thereto but not in contact therewith. The lower end of the cylindrical member 21 is open to provide for the introduction of water into the interior of the member. The open end of the cylindrical member is somewhat below the lower ends of the electrodes 16. The upper portion of the cylindrical member is slotted, as at 22. The cylindrical member and the electrodes provide the heating chamber 12 from which steam, generated therein, will pass out of the chamber through the slot 22 in the cylindrical member.

Encircling the container 10, is a detachable sheet metal clamp 23 having its ends adjustably fastened together by a bolt 23^a engaged by a wing nut 23^b. A vertically disposed handle 24, provided by a loop of sheet metal, is riveted to the

clamp diametrically opposite the adjustable fastening means comprised of the bolt 23^a and the nut 23^b. As can be seen in Fig. 1, the handle has projections 24^a by which it engages the cylindrical wall of the container to provide a rigid handle structure.

Midway between the adjustable fastening means and the handle, the clamp is provided with two radially outward projections 25 having perforated planar surfaces 25^a outermost, the projections of the clamp being diametrically opposite each other. Pivotally fastened to the planar surfaces of the projections 25 are perforated end portions of a sheet metal U-shaped bracket 26 of substantial length, the fastening means comprising two bolts 26^a having their shanks extended outwardly through the respective perforations in the projections and end portions of the U-shaped bracket, and also comprising wing nuts 26^b engaging the outer ends of the bolts.

Midway between the ends of the bracket 26 is an outwardly facing steam pan 27 of conventional design. The steam pan is made of sheet metal and is of generally rectangular shape having side walls flared outwardly from a planar bottom. The pan is rigidly fastened to the bracket by any suitable means. In the form shown, the bracket is riveted to the bottom of the pan. The bottom of the pan is perforated and a sleeve 28 extends through the perforation. The sleeve has a shouldered portion engaging the pan and secured thereto, as by welding. The ends of a flexible hose 29 of rubber or synthetic material are fitted snugly over the outer protruding portions of the sleeves 15 and 28, respectively, forming a steam conduit interconnecting the container or steam generator and the interior of the pan.

From the foregoing, the operation of the device should be readily apparent. The filler cap is removed and the container is filled with water to a level slightly below the slot 22 in the cylindrical wall of the heating chamber. During this operation, water will flow into the heating chamber through its open lower end so that the water level in the heating chamber will remain even with the water level in the reservoir or area surrounding the chamber. A small quantity of some ionizable substance is added to the water to facilitate the passage of current between the immersed electrodes. The filler cap is then replaced and the device plugged into an electric circuit. Within a short interval of time, the water within the heating chamber and adjacent the electrodes is brought to a boil, and produces steam which passes out of the heating chamber at low pressure through the slot 22 in the upper portion of the cylindrical wall of the chamber. Steam is collected in the upper portion of the container exteriorly of the heating chamber. Then at low pressure, steam passes through the steam outlet 15 in the screw cap and is conducted to the steam inlet in the steam pan by means of the flexible hose 29 interconnecting the steam generator and the interior of the pan.

One of the advantages of the present device is the rapidity with which steam is produced after the generator has been connected to an electric circuit. Heat given off by the electrodes is contained within a small area bounded by the cylindrical wall of the heating chamber, and, as only a small volume of water may be present within the chamber, the liquid content is quickly brought to a boil, producing steam.

Another advantage of the device is that, as the process of generating steam continues, heat given

off by the electrodes to a large extent remains localized to the centrally disposed heating chamber and no appreciable amount of heat is transmitted by the reservoir to the container and the operating handle for the device. There is little danger of the aforementioned handle becoming hot and causing burns on the hands of the operator.

It should be noted that as the liquid content of the heating chamber is evaporated, the chamber is fed from the reservoir by gravity, which equalizes the water levels. When the level of the liquid contents of the generator sinks below the electrodes, the electric circuit is broken, preventing overheating. For this reason and for reasons noted above, the container may be made of glass.

The screw cap 13 of the container may be easily removed for the purpose of cleaning, repairing or replacing parts of the generator. In this regard, it should be observed that the screw cap and the cylindrical wall of the heating chamber may be formed of a heat-resistant plastic and made integral with each other. Should the screw cap be removed while the electrodes are connected to a source of current, the cylindrical wall of the heating chamber acts to preclude inadvertent arcing of the electrodes likely to cause shocks and fires.

The clamp 23 encircling the container may be readily removed from the generator without first removing the U-shaped bracket 26 fastened to the clamp. This operation requires loosening the wing nut 23^b engaging the bolt 23^a extending through the ends of the clamp. The flexible hose may be disconnected from the generator by slipping it from its connection to the screw cap. Should the occasion arise, one steam generator may be substituted for another. It may also be pointed out that the U-shaped bracket may be removed from the clamp with little difficulty. Thus the steam generator may be used apart from the steam pan.

Owing to the flexible connection between the steam pan and the generator, the steam pan may be positioned at multiple angles to the generator for the purpose of applying steam to wall, ceiling or floor surfaces to soften wallpaper or paint preparatory for its removal. The pan is manually positioned by first loosening the wing nuts which engage the bolts extending through the ends of the U-shaped bracket and then swinging the pan to the desired angle. In this operation, the bolts 26^a act as pivots. When the wing nuts are tight, the pan is rigidly supported from the generator. The pan may be positioned at any point on an arc of more than 180°. The bracket is so dimensioned that it clears the cap structure and the lower portion of the generator. Thus the pan may be positioned so that it faces upwardly, laterally or downwardly. It will be apparent that the pan may be positioned so that steam may be applied to sloping or irregular surfaces.

It has been noted that the device may be used for the purpose of applying steam to floors preparatory for removing paint and varnish finishes. This is important inasmuch as heretofore unitary and self-contained wallpaper steamers have been unsuitable for use on floors.

Our portable steam-applying device is unitary and self-contained. It is light in weight and may be easily lifted and moved from place to place by means of a handle provided for this purpose. The device consists of few parts. The parts are durable and inexpensive to manufacture. In ad-

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dition, the device will not easily get out of order.

The illustrated construction is by way of example only, and various changes in the organization of parts and in the details may be made without departure from the principles of the invention or the scope of the claims.

What we claim is:

1. In a steam-applying device, the combination of a generally cylindrical container for water from which steam is generated, a handle-carrying attaching clamp connected to said container, a U-shaped bracket having its ends adjustably connected to said clamp, an outwardly facing steam pan rigidly connected to the U-shaped bracket midway between the ends of the bracket, and a flexible steam conduit interconnecting said container and the interior of said pan, said adjustable connection between the bracket and the clamp permitting said pan to be positioned upwardly, downwardly or laterally from said container.

2. In a steam-applying device, the combination of a generally cylindrical container for water from which steam is generated, a handle-carrying attaching clamp connected to said container and carrying two outwardly disposed bolts, a U-

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shaped bracket having its ends connected to said clamp by means including said bolts, an outwardly facing steam pan rigidly connected to said U-shaped bracket midway between the ends of the bracket, and a flexible steam conduit interconnecting said container and the interior of said pan, the connection between said bracket and said clamp permitting said pan to be positioned at multiple angles to said container.

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