May 5, 1942. J. F. ATKINSON 2,281,819

WALLPAPER REMOVING DEVICE

Filed April 11, 1940

Fig. 1.

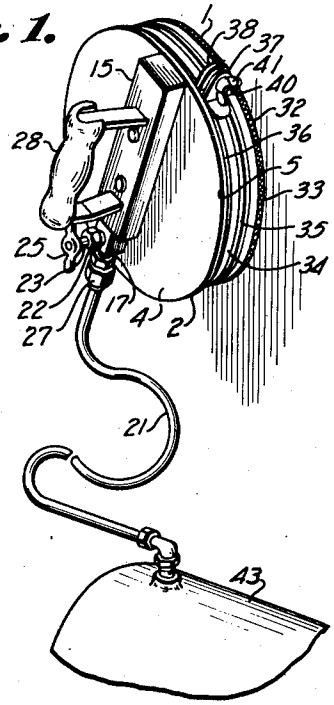


Fig. 2.

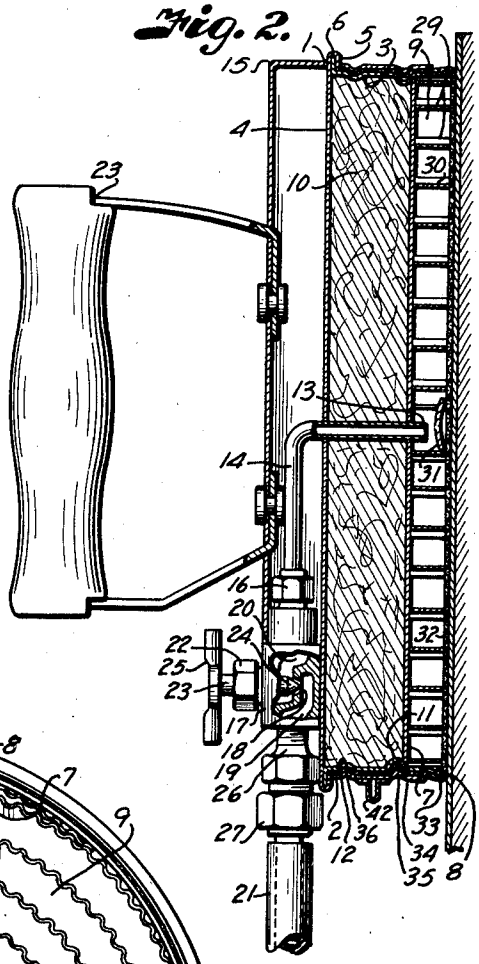
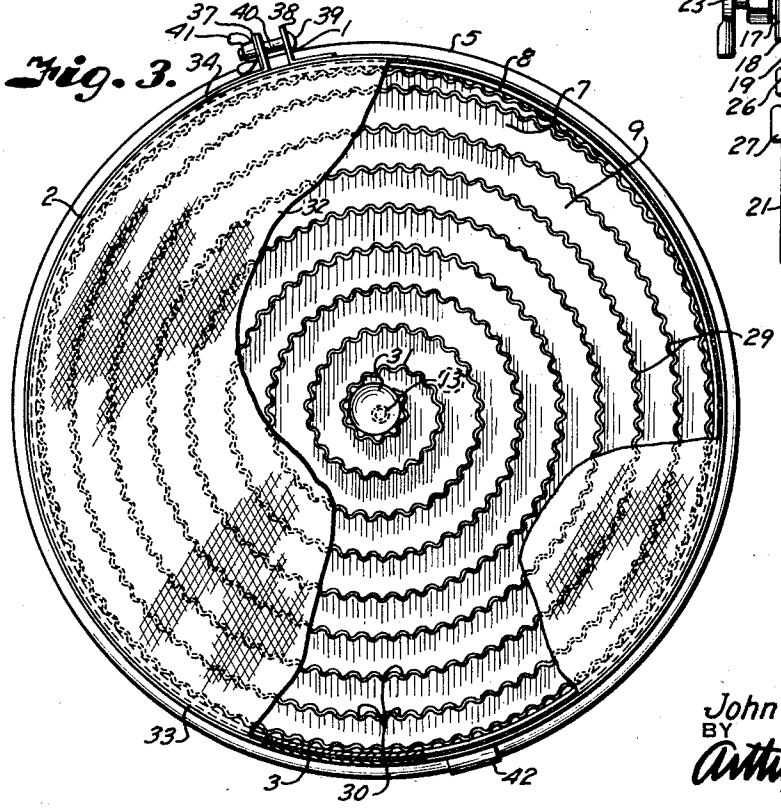


Fig. 3.



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WALLPAPER REMOVING DEVICE

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7 Claims. (Cl. 126—271.1)

This invention relates to a wall paper removing device and has for its principal objects to provide a device of this character for confining steam and moisture under sufficient pressure to effect thorough wetting and penetration of the paper without escape thereof into the room; to provide for control of condensation by regulating the amount and rate of expansion of the steam admitted to the device; and to provide means for distributing the condensate or hot water and steam over the area covered by the device.

A further object of the invention is to provide the paper remover with a tortuous steam passageway having a plurality of pockets for retaining the condensate and spreading it over the surface of the paper to be wetted thereby.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a paper remover constructed in accordance with the present invention, the steam generator being shown in fragment.

Fig. 2 is an enlarged section through the paper remover showing its application to a wall.

Fig. 3 is a face view of the paper remover, part of the fabric facing being broken away to better illustrate the tortuous steam passageway and the corrugations to collect and distribute the moisture.

Referring more in detail to the drawing:

1 designates a wall paper remover constructed in accordance with the present invention, including a substantially disk-shaped head 2 having a circular wall 3 carrying a cover plate 4, having the periphery thereof interlocked as at 5 with an outwardly extending, annular flange 6 of the wall. Cooperating with the cover plate 4 is a partition plate 7, inset from the rim 8 of the wall to form a steam distributing space or chamber 9 and an insulation containing space 10. The plate 7 is seated against an inwardly extending annular rib 11 of the wall and is preferably secured thereto by soldering or the like to form a pressure-tight joint. The wall is provided with a second annular corrugation or rib 12 for a purpose later described.

Steam is admitted to the center of the head through a nozzle 13 extending through the plates 4 and 7 and projecting slightly into the steam chamber 9, as shown in Fig. 2. The nozzle 13 further includes a radially extending portion 14 that is enclosed within a housing 15 which extends diametrically across the exterior side of the cover plate 4. The portion 14 of the nozzle connects by a union 16 with a regulating valve 17. The valve 17 is fixed to the end of the housing 15, as shown in Fig. 2, and includes a valve body having a port 18 connecting passageways 19 and 20 respectively communicating with a flexible steam supply duct 21 and the nozzle 13. Extending through a packing nut 22 of the valve body is a valve stem 23 terminating in a cone-shaped valve face 24 for controlling flow of steam through the port 18. The valve stem is actuated by a T-shaped handle 25. The flexible duct 21 is connected with the valve body through a nipple 26 and a packing union 27. Secured to the housing 15 is a handle 28 by which the device may be manipulated over a wall, ceiling, or other papered surface.

In order to provide a tortuous passage for flow of steam in the chamber 9, the chamber is provided with a spirally wound strip of metal 29, having the convolutions thereof spaced apart to provide a continuous spiral passageway from the center of the chamber to the outer periphery thereof where the end of the strip is suitably secured to the inner face of the wall 4. The strip is preferably provided with a series of pockets or troughs in the form of corrugations 30 extending transversely of the strip and in which condensate collects, for distribution over the surface of the wall. Carried by the first convolution of the strip is a deflector plate 31 for diverting the steam laterally and directing start thereof through the tortuous passageway.

Covering the open side of the chamber 9, and in contact with the planar rim of the circular wall 3 and with the edges of the spiral strip, is a permeable cover 32, preferably a loosely woven fabric cloth, so that the meshes are sufficiently large to allow free passage of moisture and steam therethrough into contact with the paper to be loosened, but having sufficient body when pressed between the edges of the strip and wall to resist leakage of steam from the tortuous passage. The covering, therefore, not only provides means for uniformly distributing the steam and moisture, but it also performs the important function of a gasket to retard leakage of steam from one passageway to the next, and to retain condensate in the concave portions of the corrugations. The covering is sufficiently large so that the periphery thereof may be brought upwardly about the wall 4, as indicated at 33, and clampingly secured thereto by a band 34. The band 34 has spaced, annular corrugations 35 and 36 for pressing the

covering into the corrugations of the wall when the band is contracted thereabout.

In order to contract the band, the ends thereof preferably overlap and are provided with laterally extending brackets **37** and **38**, one of which carries a fastening device **39** having a shank **40** extending loosely through an opening of the other bracket and provided with a wing-nut **41** to draw the brackets toward each other when the nut is tightened thereon. To facilitate removal of the band, the opposite diametrical side thereof is provided with a finger grip in the form of a lug **42**.

The flexible conduit or tube **21** is connected with a suitable source of steam supply, such as a generator, indicated at **43**, the generator being of sufficient generating capacity to maintain steam at approximately 250° F. temperature. The flexible conduit **21** is of relatively small diameter, for example approximately $\frac{3}{16}$ of an inch, so that a small supply of steam is delivered under approximately fifteen pounds gauge pressure to the valve, which is open sufficiently to admit the desired quantity of steam so that it may expand and be reduced in temperature to approximately 212° F. while moving through the passageway. However, sufficient steam is maintained to effect penetration through the paper which is wetted with the condensate so that when the steam condenses against the relatively cool surface of the plaster, the adhesive securing the paper is softened and the paper readily peels from the wall.

In using the device, it is gripped by the handle and the head is moved slowly over the surface of the paper, with the cover in contact therewith so as to maintain a substantial seal between the edge of the wall and the edges of the convolutions, whereby the steam is forced to travel through the passageway for distribution through the meshes of the cloth covering. The condensation occurring incidental to expansion of the steam and contact of the steam with the corrugated surfaces collects within the trough-like pockets of the spiral and flows through the ends thereof into contact with the paper. The amount of condensation and pressure of the steam may be controlled by manipulating the valve. The condensation occurring when the device is used on a wall is readily distributed upon the corrugated surfaces by slow rotational movement thereof so that an excessive amount does not collect in any one place so as to cause dripping. However, when the device is used on ceilings, the condensation may become excessive and collect too rapidly, in which case the tortuous passage is readily cleared of the excess water by turning the fabric side so that the excessive water may be emptied therefrom.

I have found in actual practice that only approximately one-third of a gallon of water is used per hour, whereas other paper removing devices of which I have knowledge require the consumption of approximately four gallons per hour.

From the foregoing it is obvious that I have provided a paper remover which is efficient in operation and capable of removing paper with a minimum amount of water heat, and steam pressure.

What I claim and desire to secure by Letters Patent is:

1. A wall paper removing device, including an applicator member having an open side chamber, a corrugated strip arranged in said chamber to form a spiral passageway with said corrugations extending transversely of said passageway to provide condensate collecting troughs, a permeable member closing the open side of said chamber and having sealing contact with an edge of said strip and forming an applicatory face through which steam from said passageway and condensate from said troughs are discharged into contact with a papered surface, means for supplying steam to said passageway, and a valve in the steam supply means for controlling flow of the steam admitted to the passageway.

2. A wall paper removing device, including an applicator member having an open side chamber, means forming a spiral passageway in said chamber and having corrugations extending transversely of said passageway to provide condensate collecting troughs, a permeable member closing the open side of said chamber and having sealing contact with an edge of said passageway forming means, said permeable member providing an applicatory face through which steam from said passageway and condensate from said troughs permeate into contact with a papered surface, means for supplying steam to said passageway, and a valve in the steam supply means for controlling flow of the steam admitted to the passageway, said steam supply means being of smaller capacity than said passageway.

3. A device of the character described, including a disk-shaped applicator member having an open side chamber, a cloth closing the open side of said chamber, spirally arranged means to form a spiral passageway in said chamber and having troughs for feeding condensate through said cloth, and means supplying steam to said passageway.

4. A device of the character described, including a disk-shaped applicator member having an open side chamber, a spirally arranged strip to form a spiral passageway in said chamber and having corrugations forming troughs for feeding condensate through said cloth, an axially arranged nozzle, a deflector supported in alignment with the nozzle for diverting steam admitted from said nozzle into said passageway, and a permeable cover member closing the open side of said chamber forming an applicatory face through which steam and moisture are discharged from said chamber.

5. A device of the character described including, an applicator member having an open side chamber, means forming a spiral-like passageway in said chamber and open in plane of the open side of said chamber, said spiral means having an edge face in the plane of said open side of the chamber, a permeable member closing the open side of said passageway and forming an applicatory face through which steam and moisture pass from said passageway, said permeable member having contact with said edge face for sealingly separating the convolutions of the spiral-like passageway whereby a separate supply of moisture is retained in each convolution of the passageway, a valve supported by the applicator member, tubular means connecting the valve with said spiral passageway, and a flexible duct connected with the valve for supplying steam to said passageway under control of the valve.

6. A device of the character described including, an applicator member having an open side chamber provided with a planar encircling rim, means forming a tortuous passageway in said chamber and having an edge portion in the plane of said rim, a permeable member closing the open side of said chamber and forming an applicatory face through which steam and moisture are

discharged from said passageway, said permeable member having sealing contact with the rim and with said edge of the tortuous passageway forming means, and means for supplying steam to said chamber for flow through the passageway, said passageway having downwardly curved portions for collecting and directing condensate from said steam through the permeable member.

7. A device of the character described including, an applicator member having an open side chamber provided with a planar rim extending about said open side, means in said chamber forming a spiral passageway and having an edge face in the plane of said rim, a permeable member closing the open side of said chamber and having sealing contact with said rim and the edge face of said passageway forming means and providing an applicatory face through which steam and moisture are discharged from said passageway, means for supplying steam to said passageway, and a valve in the steam supply means for controlling flow of steam admitted to the passageway.

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