

Aug. 25, 1925.

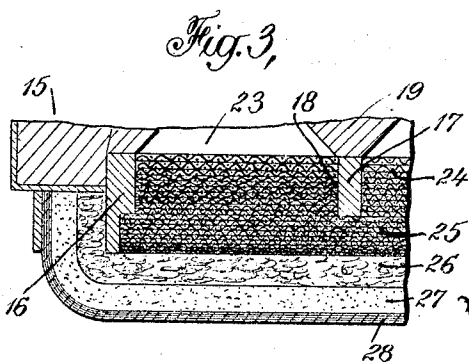
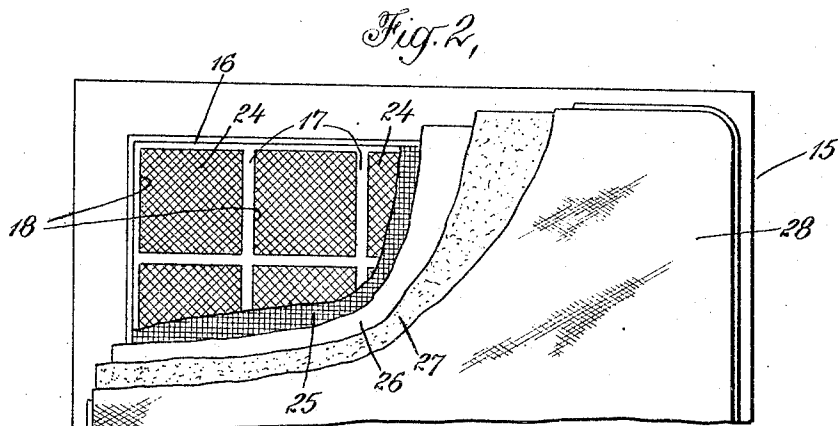
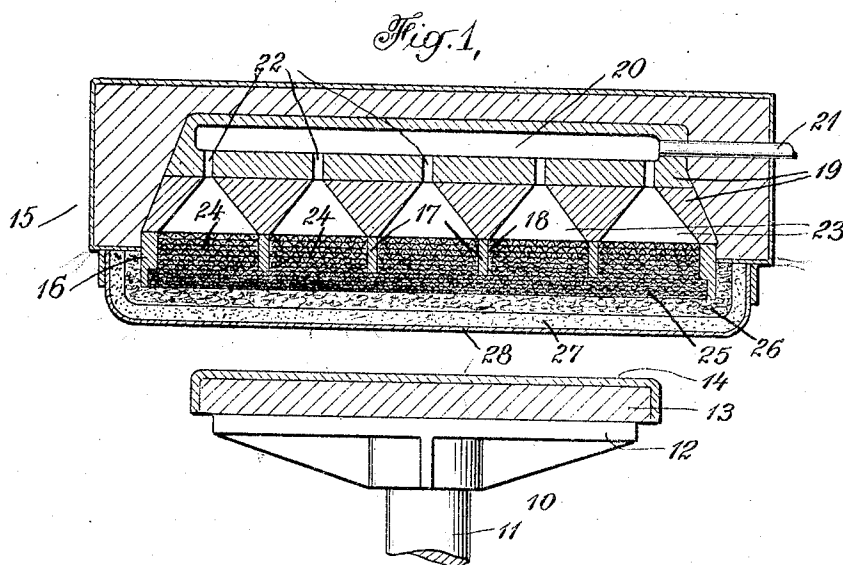
W. S. HADAWAY, JR

1,551,149

APPARATUS FOR HEATING AND DRYING

Filed July 26, 1917

2 Sheets-Sheet 1



Inventor
William S. Hadaway Jr.
By his Attorneys
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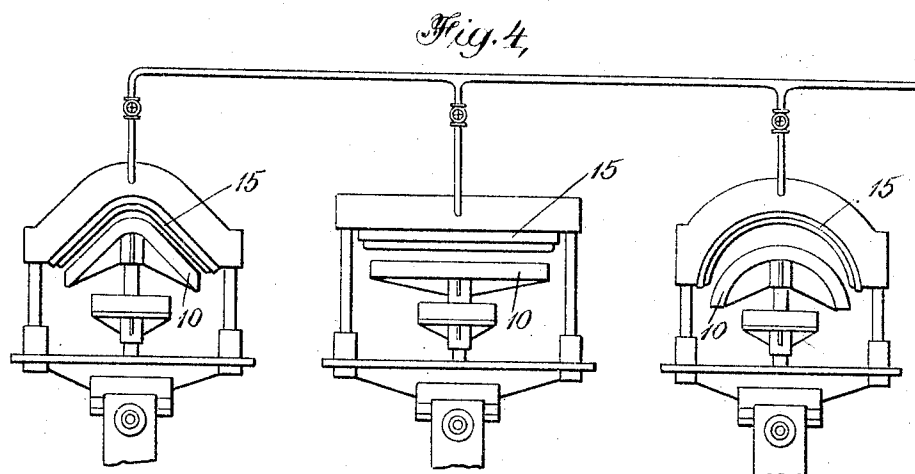
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UNITED STATES PATENT OFFICE.

WILLIAM S. HADAWAY, JR., OF NEW ROCHELLE, NEW YORK.

APPARATUS FOR HEATING AND DRYING.

Application filed July 26, 1917. Serial No. 182,816.

To all whom it may concern:

Be it known that I, WILLIAM S. HADAWAY, Jr., a citizen of the United States of America, and a resident of New Rochelle, county of Westchester, and State of New York, have invented certain new and useful Improvements in Apparatus for Heating and Drying, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to methods and apparatus for heating and drying and has special reference to drying and finishing operations in which laundry presses, and the like are employed.

One object of my invention is to provide a simple and effective method of drying and finishing laundry articles or the like that shall avoid the well known difficulties which have hitherto arisen on account of the saturation of the pads or blankets utilized as a part of the drying and finishing apparatus.

Another object of my invention is to provide a relatively simple and compact press head structure or the like that shall be adapted to constitute the heating and drying member and act as an elastic pad at the same time.

Another object of my invention is to provide a press member through which steam, or other suitable vapor which has been heated to a relatively high temperature, may percolate, or pass slowly therethrough, to the working face whereby a large quantity of heat may readily be given up to the work which is placed in the press.

Another object is to provide a press head adapted to act like a resilient pad in pressing the work against a finishing member, but which shall be maintained in a dry condition when the press is in operation.

Laundry presses and other drying and finishing apparatus of like nature as hitherto constructed, have comprised a heated member in the form of a smooth or highly polished plate which constitutes the finishing member and a pad made up of layers of felting and muslin or blankets. The goods to be finished or dried were laid upon the padding and the finished surface plate becomes the boiler which converts the moisture in the goods into steam. This is taken up by the pad which acts in the capacity of a condenser. In this way the pads rapidly become saturated with moisture and

decrease the effectiveness of the machine. The padding when saturated becomes non-elastic so that it does not perform its function of pressing the goods firmly and evenly against the polished heater.

According to my present invention I do away entirely with an absorbent member which acts like a condenser and I utilize an elastic pad as a source of heat so that the member having the finishing surface becomes the condenser although as herein-after explained, it only acts in this capacity for a brief period when cold goods are placed in the press.

For supplying heat through the pad I prefer to utilize dry steam of high temperature which may be considerably superheated and which is adapted to take up a great quantity of moisture.

In order that the polished surface finishing member may not conduct away the heat I prefer, if possible as in the case of a laundry press, to construct it in the form of a thin metal shell with a backing of heat insulated material.

I also provide a press head structure which distributes the heated vapor or dry steam, with substantial uniformity, over the surface of the press, thereby insuring that the central portions of the pad will dry first as the moisture is driven out transversely and escapes at the edges of the pad. By this means a permanent flexible padding is secured which is always dry and the form is preserved against any possibility of damage by heat.

In order that my invention may be thoroughly understood, I will now proceed to describe the same in the following specification, and then will point out the novel features thereof in appended claims.

Referring to the drawings:

Figure 1 is a sectional elevation of a heating and drying press suitable for laundry work, arranged and constructed in accordance with my invention and adapted for practicing the same.

Figure 2 is a bottom plan view of the upper press head of Figure 1, with the surface coverings broken away to disclose the interior construction of the head.

Figure 3 is a partial section showing in detail the formation of the surface pad of the pressure head, drawn to a larger scale.

Figure 4 illustrates a group of laundry presses to which my invention is applied.

Having special reference to Figures 1, 2 and 3, 10 designates a movable press member comprising a plunger 11, a frame 12, a block 13 of heat insulating material, and a relatively thin plate 14 having its outer surface highly polished to constitute the working surface of the press. This movable member cooperates with a stationary member 15 which comprises a body frame 16 having webs 17 which divide the frame into relatively small rectangular openings which are clearly shown in Figure 2 and are designated 18. Secured to the frame 16 at the back is a distributing member 19 having a chamber 20 to which hot vapor is supplied through a pipe 21, and a plurality of passages 22 having flaring openings 23 communicating respectively with the chambers 18.

The spaces or chambers 18 are filled with masses 24 of wire screen or some other suitable porous structure through which the hot vapor may percolate. Beyond the webs 17 wire screens 25 or the like are stretched over the entire frame 16 and outside of the wire screens 25 is an inner pad 26, the outer pad 27, and a surface covering 28 of cloth.

The details of the structures 24 and 25 and of the pads 26 and 27 are clearly brought out in Figure 3.

As here shown I prefer to utilize screens of coarser mesh at the back, and build up finer and finer mesh screens in order to combine the strength and rigidity of the heavier screens with the small openings of the fine screen.

The pads are porous so that the hot vapor steam, which is admitted through the pipe 21 and through the passages 22, percolates through the pads after it passes through the screen bodies. The working surface of the stationary press head is formed of one or more sheets of cloth or the like of proper texture dependent upon the use to which the press is to be put.

The press head to which heat is supplied can readily be kept hot by supplying low temperature steam to the pipe 21, and since the heat capacity of the press is not large it responds very quickly when high temperature steam is supplied. In other words, the standby losses are low and the apparatus may always be kept in condition for use.

The form of the stationary press head instead of being square or rectangular, as shown in Figures 1, 2 and 3 and at the center in Figure 4, may be curved or shaped in any suitable manner as shown at the left and at the right in Figure 4.

I will describe the operation of the invention as applied to laundry presses and my improved method of drying and finishing goods thereon.

Assuming that high temperature steam is supplied to the pipe 21 so that it fills the chamber 20, flows through the distributing

passages 22 into the chambers 23, and percolates through the screens and pads, escaping slowly at the surface of the press head; if an article to be finished is laid on the movable press head plate 14 in a rough-dry condition and the press actuated, the high temperature steam coming in contact with the cold goods will first be condensed, moistening the goods and then increasing their temperature and drying and finishing them. The dry steam absorbs the moisture and passes out through the pad transversely, escaping at the edges thereof. The flow of superheated steam is continued until both the goods and the pad are thoroughly dried.

This is accomplished in a very brief period of time, and there is no necessity of moistening or dampening the clothes or other articles to be pressed.

The result is that the elastic pad formed by the screens and coverings of the stationary press head, retain their elasticity and remain in a dry condition while the movable member of the press which constitutes the finishing member is momentarily moistened to a very slight extent when the cold goods are laid upon it and the steam brought in contact therewith. It thus constitutes a condenser in cooperation with the cold goods for a brief period, but the moisture is not absorbed by the finishing member, because its surface is a polished metal surface and it is quickly vaporized because its temperature is increased to the temperature of the steam.

The temperature of the incoming steam is sufficiently high so that it is not only dry but preferably superheated and in this condition it is particularly adapted to absorb moisture.

Various advantages will suggest themselves to those skilled in this art, and I intend only such limitations as are indicated in the appended claims.

What I claim is:

1. A press head comprising a steam chamber having an open side, a porous mass extending into the steam chamber and over the open side thereof, said mass comprising closely assembled wire screens of varying mesh, the coarser ones being inside the steam chamber and the finer ones extending over the open side thereof, and a cloth pad stretched over said porous mass to form an elastic press surface.

2. A press head comprising a frame subdivided into a plurality of steam pockets, a porous mass in each pocket, and a porous pad extending over the masses and constituting an elastic surface pad, said mass and pad being arranged to provide for the passage of high temperature steam in one direction and said pad being arranged for the escape of vaporized moisture there-through.

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3. A press head comprising a rectangular frame having transverse webs providing a plurality of independent pockets, a distributing steam chamber, distributing passages connecting the chamber to the various pockets, and a porous mass forming the working surface of the press head and extending into the openings of the pockets.

4. A press comprising a rectangular frame having transverse webs providing a plurality of independent pockets, a distributing steam chamber, distributing passages connecting the chamber to the various pockets, a porous mass in each pocket, a porous pad extending over the masses in close contact therewith and constituting an elastic surface pad, and a non-absorbent plate adapted to maintain an article in intimate contact with said porous pad whereby moisture in said article is vaporized, said pad being arranged to provide a path for the escape of said vapor.

5. A press head comprising a rectangular frame having transverse webs providing a plurality of independent pockets, a distributing steam chamber, distributing passages connecting the chamber to the various pockets, a mass of wire screens in

each pocket, and a surface pad extending over the frame in close contact with the mass of screens in the pockets.

6. A press comprising a hollow frame having a steam distributing chamber and a plurality of steam pockets connected thereto, porous masses in the pockets, a porous pad forming a continuation of the masses in the individual pockets and constituting an elastic surface member, and a non-absorbent cooperating member adapted to support an article in intimate contact with said porous pad whereby moisture in said article is vaporized, said porous pad and porous masses being arranged to permit passage of said vapor and said pad being arranged to provide a path for the escape of said vapor.

7. A press head comprising a frame subdivided into a plurality of steam pockets, a relatively coarse mesh porous mass in each pocket, and a fine mesh porous pad extending over the masses and constituting an elastic surface pad, said meshes forming a path of escape for condensed steam.

In witness whereof, I have hereunto set my hand this 20 day of July, 1917.

WILLIAM S. HADAWAY, JR.