July 1, 1930. A. H. ADAMS 1,769,009

LAUNDRY IRONING AND PRESSING APPARATUS

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Fig. 1.

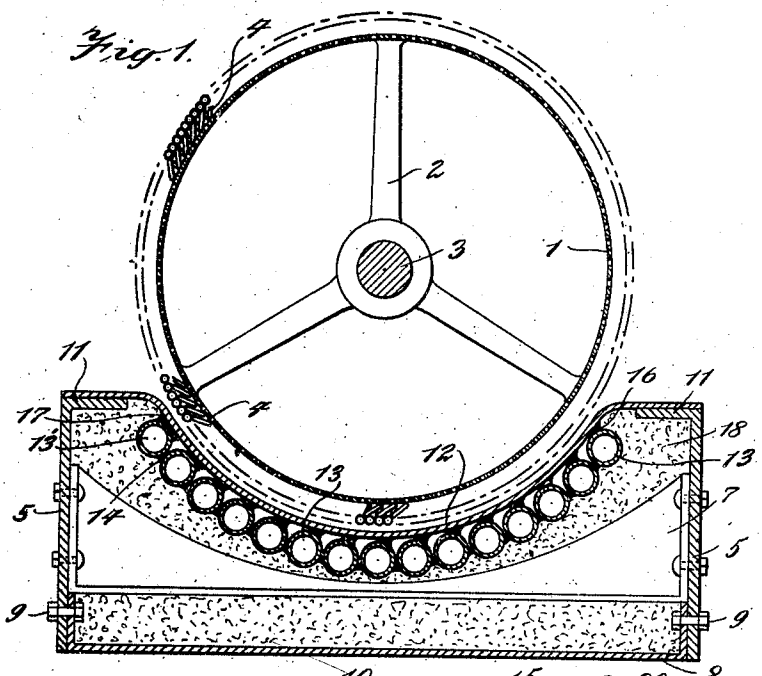

Fig. 2.

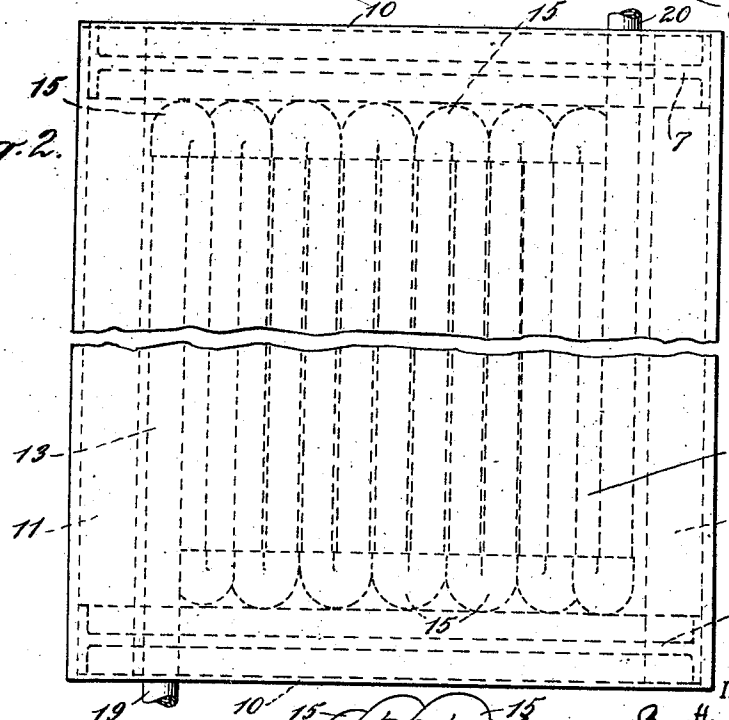

Fig. 3.

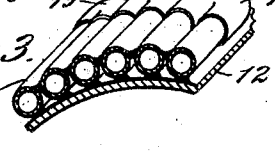

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Fig. 4.

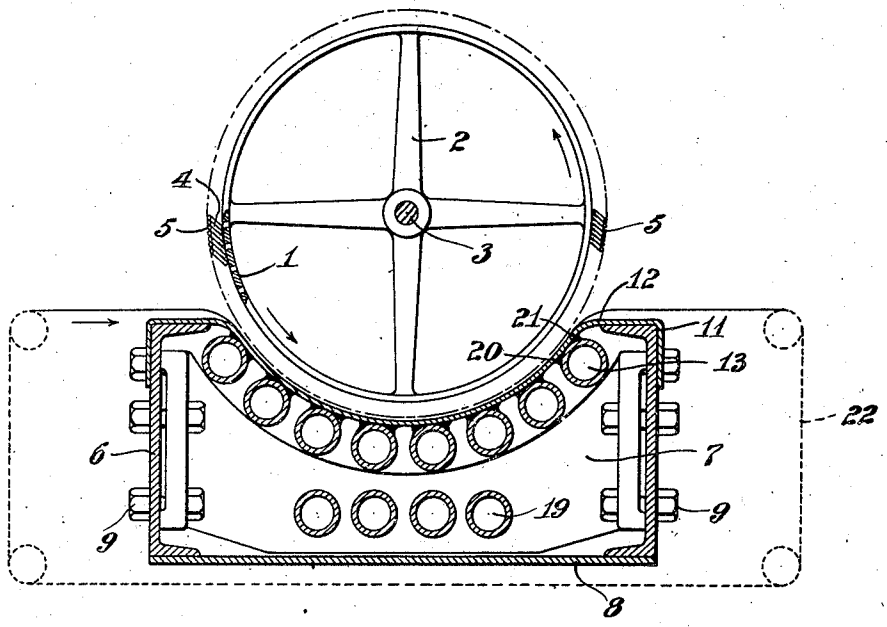


Fig. 5.

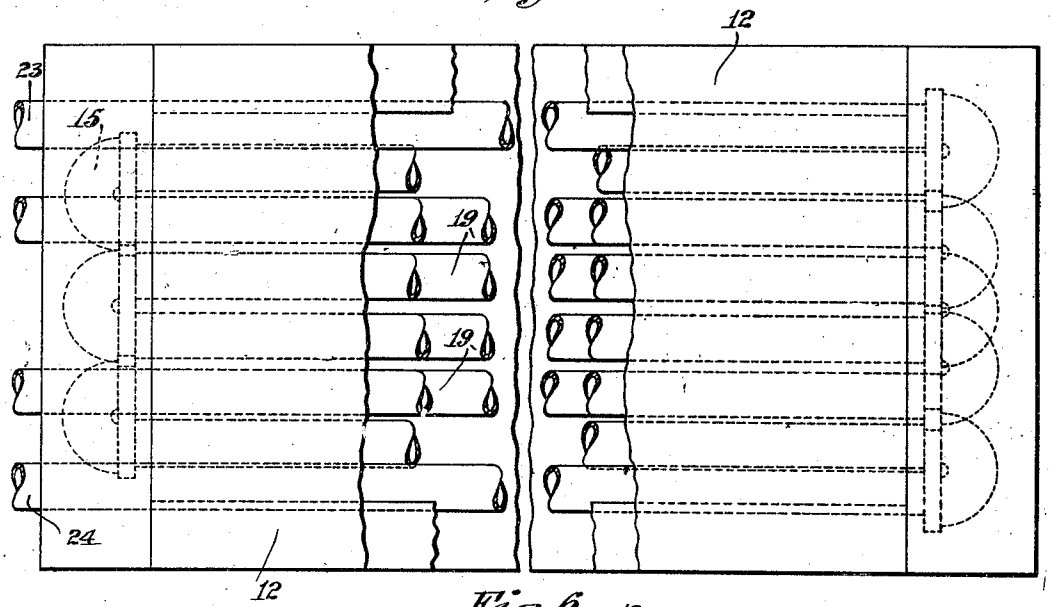
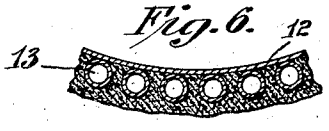


Fig. 6.



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UNITED STATES PATENT OFFICE

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LAUNDRY IRONING AND PRESSING APPARATUS

Application filed January 26, 1928. Serial No. 249,683.

This invention relates to laundry apparatus, especially to heating chests for laundry ironers and also to methods of manufacturing such chests.

One of the principal objects of the invention is to provide a heating chest which is efficient in operation, economical of manufacture and readily assembled in place in an ironing machine.

Another object of the invention pertains to an improved heating chest utilizing steam as the heating medium, said chest having an ironing surface which is of relatively thin metal capable of assuming and retaining a high polish and preferably non-corrosible in character.

A feature of the invention resides in a method of manufacturing and assembling the component parts of a steam chest, whereby in the process of assembly the ironing surface may be easily shaped to conform to the shape of an ironer roll with which it is to be used.

Another feature is to provide a heating chest for laundry ironing machines comprising a heating coil which is united directly to the ironing surface of the chest by materials of high thermal conductivity.

Heretofore in ironing machines of the fixed chest type, particularly those employing steam for heating, and having co-operating ironing rolls, it has been the practice to construct the chest out of cast metal with one or more longitudinal bores for the passage of steam. Chests of this type are very cumbersome, expensive to manufacture, and must be accurately machined to suit the particular ironing roll with which they are to be employed. It is therefore an outstanding feature of the invention that a heating chest is provided which is relatively light, is comparatively inexpensive to manufacture, is susceptible of being easily shaped without machining to correspond with the roll with which it is to co-operate, and is explosion-proof.

Other features and advantages will be apparent upon a consideration of the following detailed description and the appended claims. For this purpose only so much of an ironing machine will be disclosed hereinafter as is necessary to a clear understanding of one mode of practising the invention.

Accordingly, Fig. 1 shows an end section of a chest and co-operating ironing roll embodying the inventive idea.

Fig. 2 shows a plan view of the chest shown in Fig. 1.

Fig. 3 is a perspective view showing the manner in which the heating elements may be united to the ironing face of the chest.

Fig. 4 shows a modification of the chest of Fig. 1.

Fig. 5 is another view of the chest shown in Fig. 4.

Fig. 6 illustrates an alternative manner of attaching a heating element to the ironing face.

Referring particularly to Fig. 1 there is shown a cylindrical ironing roll 1 which is mounted by means of appropriate spiders 2 upon the shaft 3. As shown, roll 1 is preferably of openwork structure and may be made from lattice or grille-like material which is sufficiently strong for the purpose of ironing and offers little or no obstruction to the passage of steam or vapor therethrough. Roll 1 is provided with a resilient padding comprising preferably a skewed helical spring 4 which is wrapped spirally around the roll 1, and is fastened thereto in any suitable manner. Padding 4 is provided with a covering preferably of one or more layers of finely woven spring cloth or the like, to present a uniform ironing surface to the garments being ironed. A padding and covering of the above character are shown and described in detail in co-pending application of Arthur H. Adams, Serial No. 245,180, filed January 7, 1928, to which reference may be had for details of the structure and function thereof.

Beneath the ironing roll is securely mounted in the framework of the machine a heating chest comprising longitudinally extending side walls 5, which may take the form of inverted L-shaped channel bars, as shown, fastened in any suitable manner to the cross-members 7. A suitable bottom 8 is fastened as by bolts 9 to the walls 5, and suitable sheet metal coverings 10 may be applied to the ends. While one particular construc-

tion of chest is shown in Fig. 1, it will be understood that the drawing is illustrative in this respect, the important feature being that a chest as shown is economical of manfuacture and is easily assembled and dis-assembled. As schematically represented in Fig. 2, the chest frame work is of sufficient length to correspond to the length of the roll 1 and is in effect a metal box having a longitudinal opening in the top thereof, said opening being of about the same width as the diameter of the padded ironing roll.

The inwardly extending flanges 11 of the walls 5 serve as supports for the ironing face plate 12 which is preferably of steel or Monel metal with the exterior or concave surface highly polished. As clearly shown in the drawing the plate 10 has its central portion shaped to conform to the curvature of the ironing roll, while the edges of said plate are straight and secured to the flanges 9 preferably by welding, although other fastening means may be employed. Plate 12 is preferably formed from relatively thin sheet metal, for example, of the order of ¼ inch, in order that it may be readily shaped in accordance with the curvature of the ironing roll with which it co-operates. Employing a plate of this character for the ironing face also has the advantage that heat is more quickly and efficiently transferred to the garments that pass through the ironer.

For the purpose of heating the plate 12 there is provided a heating coil comprising a plurality of longitudinally extending pipes 13 which are united directly to the plate 12 preferably by welding thereto. As indicated by the numerals 14, the lengths of pipe are also attached or welded to each other either throughout their length or at any desired portions thereof, in order to prevent relative displacement of said pipes and for maintaining the plate 10 in its conformed shape.

Pipes 13 may be connected either in series or in multiple by suitable manifolds such as the U-bends 15. A source of steam under pressure or other heating fluid may be connected to the inlet 19, while end 20 may be dead-ended or connected to a suitable outlet as desired. For the purpose of insuring that the heat from the coils 13 is substantially all transferred to the plate 12, the entire unoccupied space within the chest may be packed with heat insulating material 18 such as rock wool or the like.

While in ironer steam chests according to the prior art it has been the practice to employ large, heavy and expensive castings having longitudinal bores for the circulation of steam, the present invention has as one of its characteristics the employment of relatively light and inexpensive materials. Accordingly the side walls 5 and bottom 8 may consist of relatively light iron castings since the chest acts simply as an enclosure for the heat resisting material 18, and as a support for the plate 12 and coils 13.

A general description having been given of the arrangement and constitution of the parts making up the chest of Fig. 1, a detailed description will now be given of the method of manufacture and assembly.

A plate 12 of sheet steel or Monel metal or other non-corrosible material of the order of ¼ inch in thickness is formed with a circular depression throughout its length, the curvature of said depression being in general the same as that of the padded roll. The ironing face of plate 12 is preferably smooth and highly polished to give the necessary gloss or finish to the garments. The heating coil is then united to the convex surface of plate 12, preferably as follows: A length of pipe 13 of the proper length and diameter is tack-welded at a point midway of its length, to the convex surface of plate 12 using a material of high thermal conductivity such as bronze or the like. This length of pipe is then welded at the ends and in succession at other intermediate points as may be desired. The next length of pipe is similarly welded to plate 12 and so on until the entire working area of the plate is covered, it being understood that the pipes are connected as desired by suitable unions 15 prior to the welding operation. Wedges may then be inserted between the lengths of pipe in order to properly shape the surface 12, whereupon the end pipe 13′ is welded to plate 12 at its outer edge 17. The pipes themselves may then be welded to each other, using the process already described, namely, tack-welding at the middle first, and successively at the desired intermediate points. Thus a rigid and highly efficient heating unit is provided which is capable of transferring heat efficiently to the ironing plate 12.

The face 12 with the heating coil fastened thereto is next welded to the flanges 11, and the interior of the chest packed with insulating wool 18, whereupon the cover 8 is bolted in place. Instead of attaching the heating coil to the ironing face by welding, the coil previously assembled to conform to the curvature of said plate, may be secured by imbedding it in a layer of metallic cement or other similar material possessing high thermal conductivity, as shown in Fig. 6 in which the numeral 12 represents a section of the ironing plate, numeral 13 represents a portion of the heating coil and 14 represents the body of cement. With this manner of attaching the coils, a relatively light heating element is provided having the desired degree of heat inertia, which may be increased by increasing the thickness of the layer of cement in which the coils are embedded or by using heavier and larger pipes. If desired the pipes may be welded as shown in Fig. 1 and the spaces between the pipes filled with a

metallic cement to increase the heat conductivity and incidentally the heat inertia also.

Referring to Figs. 4 and 5 there is shown an alternative embodiment of the invention in which similar numerals designate parts corresponding to those of Figs. 1 and 2. The structure of the chest of Fig. 4 is substantially similar to that of Fig. 1 except that the cross-members 7 are wider and extend to the bottom 8. Members 7 are also provided with holes through which pass the supplemental heating coils 19, having an inlet 23 and an outlet or dead end 24 in the event that high pressure steam is employed. The main heating coils 13 instead of being welded together throughout their length are separated as shown, and are welded to the plate 12 throughout their length or at any desired number of points as represented by the numerals 20 and 21. It will be noted that the upper edges of the members 7 are shaped to correspond to the curvature of the chest face and preferably bear against the pipes 13 to act as an additional support therefor.

In laundry ironers of the type disclosed it is the usual practice to convey the garments through the ironing machine by means of an endless apron schematically represented in Fig. 4 by the numeral 22, it being understood that any well-known means are provided for supporting and moving the apron. While the apron with its charge of damp garments is passing through the machine between the padded roll and the face 12 it absorbs some of the moisture from the gaments and unless means are provided, such as the supplementary heating coils 19, the apron may become sufficiently wet to interfere with the proper ironing of the garments. Accordingly as shown in Fig. 4 the apron is suitably arranged so that during a portion of its travel it passes in proximity to the lower face of the chest where the heat from the coils 19 effects a thorough drying of the said apron before it reaches the point at which it is charged with fresh garments.

The various modifications that have been described hereinabove in connection with Figs. 1 and 2 also apply to the embodiment disclosed in Figs. 4 and 5. For example instead of welding the heating coils directly to the face 12, they may be fastened by a suitable metallic cement and may be of any size required to give the requisite heat inertia.

From the foregoing it will be seen that a heating chest is provided which is of simple and economical structure and while steam has been described as the preferred heating fluid, other well known fluids may be employed. Furthermore instead of employing separate lengths of pipe a single continuous coil of the desired conformation may be employed without departing from the spirit and scope of the invention.

What I claim is:

1. In combination, a resiliently padded ironing surface, a heating chest having an ironing surface cooperating with said padded surface, an apron for conveying garments toward and away from the ironer, a heating coil having a portion attached to said ironing surface and having a portion in proximity to said apron for heating and drying it out.

2. In combination, a laundry ironing machine, an apron for continuously conveying garments toward and away from the machine, and a heating chest having a plurality of spaced heating units, certain of said units being positioned adjacent to the garments being ironed and other of said units being positioned adjacent said apron to heat and dry the same during its travel.

3. A heating chest for laundry ironers, an apron cooperating with said heating chest, means for passing said apron around said chest, said apron serving to carry damp garments as it passes over the upper face of said chest, a plurality of spaced heating units in said chest, one of said units being attached to the upper wall of said chest and another of said units being positioned adjacent the lower wall of said chest, the latter unit serving to heat and dry out said apron during its passage near said lower wall.

In testimony whereof, I have signed my name to this specification, this 21st day of January, 1928.

ARTHUR H. ADAMS.