April 5, 1932. J. F. RAYNOLDS 1,852,374

PRESSING HEAD

Filed July 29, 1929 2 Sheets-Sheet 1

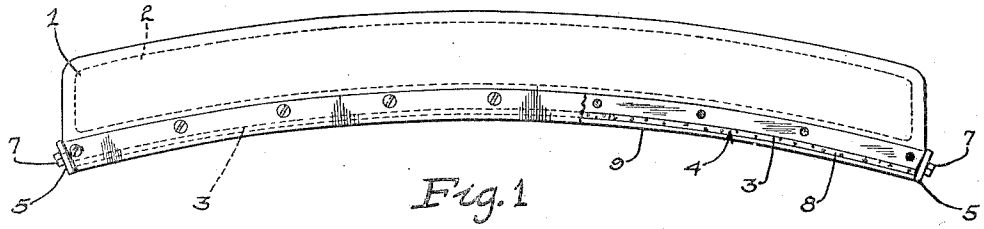
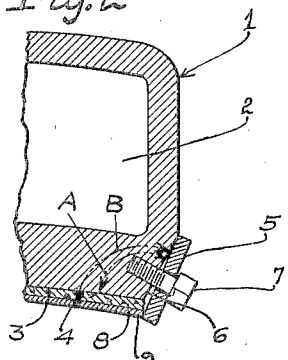


Fig. 1

Fig. 2



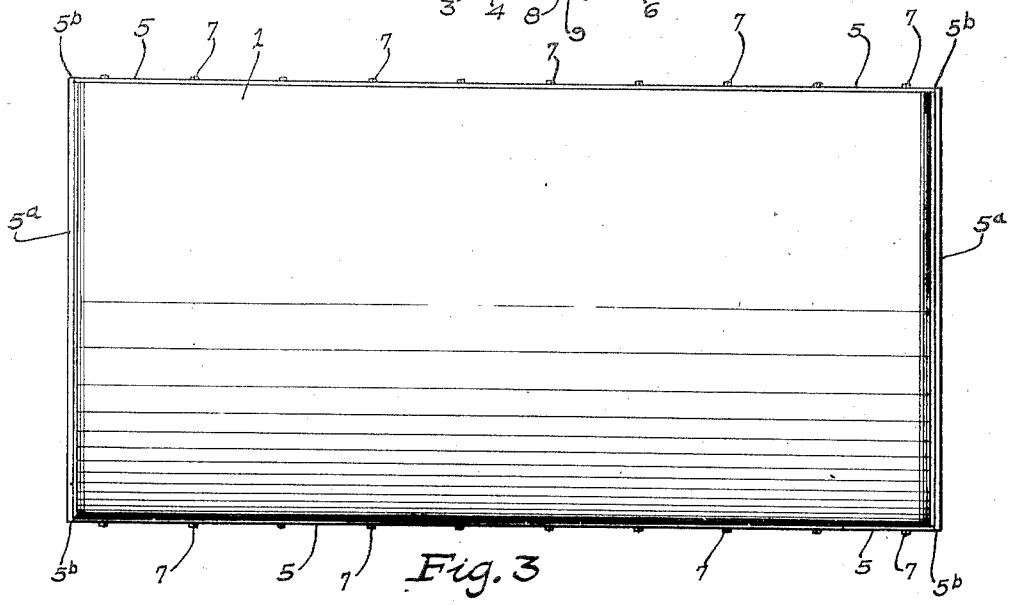


Fig. 3

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Filed July 29, 1929 2 Sheets-Sheet 2

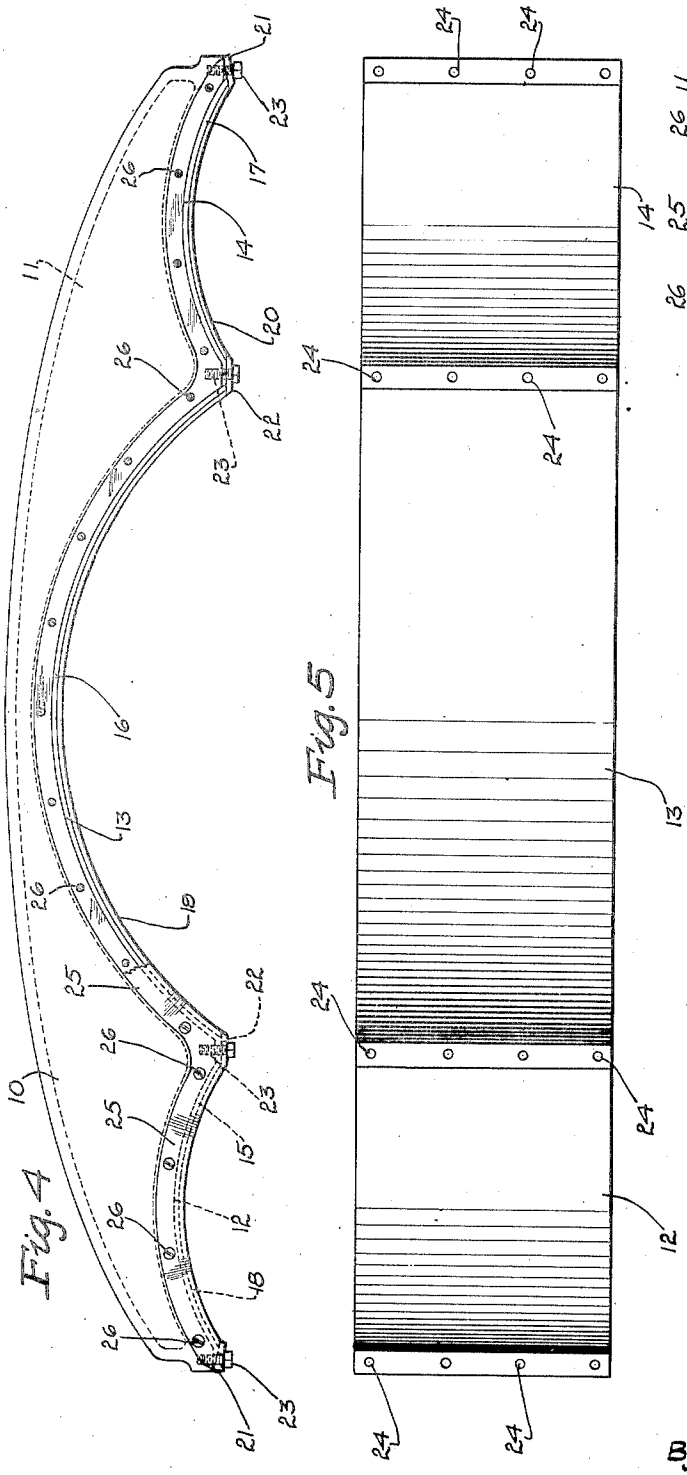

Fig. 4

Fig. 5

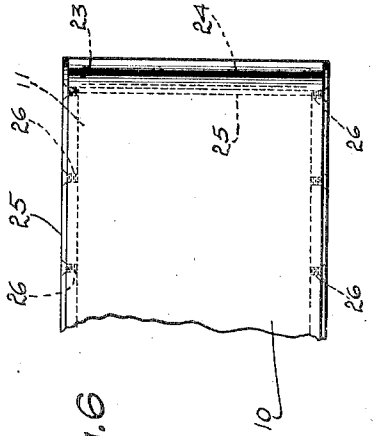

Fig. 6

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1,852,374

UNITED STATES PATENT OFFICE

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PRESSING HEAD

Application filed July 29, 1929. Serial No. 381,772.

This invention relates to improvements in pressing heads, or steam chests, for laundry machines, and has among its objects to produce a cheap device having a finely finished or polished working surface; to produce such a surface cheaply and yet maintain a maximum of conductivity from the steam chest through the material of the surface; to provide such a surface without the usual planing or milling operations; to provide such a surface by attaching a plate to the working surface of a comparatively rough-surfaced casting in a manner to maintain intimate contact between the engaged surfaces throughout their entire areas; to interpose heat conducting material between the working face of the casting and the finishing plate to obtain more intimate heat-conducting contact; and to provide means whereby the surfacing plate is held under compression against the heat conducting layer.

In order to make clear the reasons for the decided economic gains resulting from the practice of the present invention (which halves the cost of production), a discussion of prior methods of production is thought necessary. The pressing heads of laundry machines, for example of garment presses, are ordinarily cast from iron, each with a concave pressing or working surface, and a hollow steam chamber, the heat from which can be conducted to said surface. These castings are quite heavy, and to provide each with the properly finished working surface, must be either planed or milled or otherwise machined, then polished, then plated, and then repolished. Plating of cast iron is not satisfactory for the present purpose and it is difficult (if not impossible) and always expensive (and therefore not commercially feasible) to obtain a casting in which the grain is close enough to allow the production of a smooth and highly polished working surface.

It is, therefore, among the objects of this invention to provide a method for cheaply producing a device of the class herein described, in which a superior finish for the working surface is provided, and in which a maximum heat conduction from the steam chest to this surface is obtained.

Other objects of the invention are to use sheet heat conducting, non-corrosive, heat resisting, highly polishable material for producing the working surface; to provide a device with a concave working surface, and to secure the sheet to this surface by force applied edgewise in a manner to cause the face of the sheet to be held under pressure against, and in intimate contact with the working face of the head, or in like contact with an interposed heat conducting layer, which layer is formed or may be formed from plastic or self-hardening material.

Features of the invention include the ideas of applying a finish to the working surface of the presser head, without the necessity for machining or polishing the surface directly; the idea of using a liner sheet as a surfacing means; the idea of interposing a heat conducting material between the liner sheet and the working surface of the head; the idea of holding the surfacing sheet under compression against this heat conducting material; and generally to all details of construction disclosed.

Objects, advantages and features of the invention will appear in the description of the drawings forming a part of this application, and in said drawings

Figure 1 is an end elevation of a pressing head constructed according to the teachings of this invention, with part of a facing strip broken away;

Figure 2 is a detail section showing the manner of applying force to secure the facing plate in arched condition;

Figure 3 is a view of the form illustrated in Figure 1, looking at the top side and illustrating the relation of the locking or tensioning strips, to those of the finishing cement layer-retaining strips which extend longitudinally of the device;

Figure 4 is an elevation showing the invention applied to a presser head having a plurality of working surfaces, with part of a facing strip broken away;

Figure 5 is a face view of Figure 4, with the facing elements removed; and

Figure 6 is a fragmentary plan view of the form of the invention illustrated in Fig-

ures 3 and 4, showing that side opposite the working face, and illustrating the relation of the clamping strips to the finishing strips.

In carrying out my invention, I form the head 1 in any preferred manner, as by casting, to provide the usual steam space 2, and a concave working face 3. Heretofore this working surface 3 has been machined as by planing or milling, and has then been polished and buffed, and then nickel-plated and finally polished. This old method is a very expensive one in which the heavy casting must be frequently handled, and which, if the surface is milled, requires a special miller having a working surface conforming to the curvature of the working surface of the head. If a planing operation is used, the planer must swing on an axis the center of which corresponds to the center of curvature of the working surface to be formed. Even after the working face has been produced by means of one of these old and expensive processes, the finished surface was not as perfect as could be desired. One of the difficulties, is that the texture of the metal used in casting is not sufficiently fine to allow the production of as smooth a working surface as is desired.

In the present method there is first applied to the rough cast surface 3, a plastic self-hardening material 4, having a highest possible heat-conducting ability. Strips or moldings 5 are then disposed longitudinally against the beveled surfaces 6, and secured by means of suitable fastening devices, in this instance headed screws 7. It will be noted that these plates project outwardly beyond the opposite parallel edges of the working surface, and when thus projected act as guides for a leveling device (not shown) by means of which the plastic material 8 is smoothed and leveled before application of the metal facing sheet 9. A straight edge may be used as a scraper, engaged against and moving along the projecting edge faces of the strips 5, in a manner to bridge the working face, and engage and remove that portion of the plastic material projecting beyond the strips. A facing substance of plastic cement-like nature is iron cement containing about ninety-five per cent of iron.

For the finishing work-surface-producing material, the face of the section of sheet metal is laid directly against the cement, and then this plate is pressed against the filling layer 8 by means of the elements 5 which are caused to clampingly engage the edges of the sheet as shown. When pressure is applied by the screws, the sheet is buckled or arched to compressively engage the layer. The locking strips 5 project slightly beyond the surface of the facing plate. This concave formation of the working face of the chest and the arrangement of the locking plates causes the sheet to act to compressively seal, and retain the cement or filler. This is a valuable feature. Maximum heat conduction from the chest through the layer and through the polished plate is thus obtained. By the use of the cement the depressions of the rough cast surface are filled, and by means of the leveling operation the outer surface of the layer is smoothed to receive the facing plate, and assure intimate surface contact throughout.

The ends of the chest or presser head may be finished with strips or mouldings 5^a like the strips 5, to improve the appearance of the head.

The angular relation of the face of each locking plate 5 to the corresponding face of the edge of the finishing plate 9 is such that the plate is only compressed in a direction substantially parallel with its working surface, but the engaged edge is prevented from moving outwardly due to the angular abutting relation of the parts. This is a feature.

With a chest proportioned like that shown in Figure 1, the locking strips 5 extend longitudinally of the ends of the chest. Other laterally arranged transversely extending strips 5^a are employed, and the strips 5 are extended laterally as shown at 5^b, Figure 3, so as to overlap the finishing and retaining strips 5^a. The strips 5 and 5^a act together to retain the cement, the strips 5 acting also to apply the force to hold the facing plates in arched condition compressively against the working face, or against a layer of heat-conducting material engaging that face.

By the use of the method herein stock sheet metal may be used. Non-corrosive metal may be used, or other kinds of metal which are not corrosive can be used after being coated with some non-corrosive material, and given a high finish by polishing.

As illustrated in Figures 4, 5 and 6, the invention may be applied to a presser head having a plurality of concave working surfaces. In this case at least one of the locking strips acts to apply the thrust to buckle two facing plates and secure them in arched condition with their face surfaces in intimate contact with the corresponding surface of the head, or of an interposed filling layer. The numeral 10 indicates the head, 11 the steam chamber and 12, 13 and 14 the concave working surfaces. The filler layers are indicated at 15, 16, 17 and the facing plates at 18, 19, 20. The locking strips or mouldings are indicated at 21 and 22, and the fastening devices for these strips at 23. After the casting is completed, the threaded openings are provided at 24 with which the fastening devices 23 are engageable. The centers of curvature of the surfaces 12, 13 and 14 lie on a common line.

In that form of the invention shown in Figures 4, 5 and 6, plates corresponding to facing plates 5^a are used a portion of one of the

plates being illustrated in side view in Figure 4. The plates may be made in sections so as to be separately removable to expose the edges of only one of the arch plates. These plates are designated 25 and are secured by suitable fastening devices 26. Figure 6 shows the relation of the strips or mouldings 21—25, in which the latter overlap the former. These strips cooperate in the same manner as strips 5 and 5a to form a kind of boxing to retain the iron cement when that is used.

It will be understood that the present invention provides means whereby the finishing plate is held in a manner to have substantially every portion of its facing surface intimately and compressively engaged under pressure with the corresponding surface of the heat conducting layer of plastic material which faces the concave surface of the steam chest or pressing head. In this manner, maximum heat conduction from the steam chest through the head and its facing layers is obtained. It will be understood that other means may be employed to secure the facing plate and maintain the pressure contact.

Referring to Figure 2, (and again to the angular abutting relation of parts 5 and 9), it will be seen that the angle A which the beveled surface 6 makes with the curved surface 3 of the casting 1 is somewhat greater than 90°, as is also the angle B between the inner surface of the element 5 and the working surface of the finishing plate 9 at point of contact with plate 5. Therefore, the angular relations are such that pressure is applied at the edge of the plate 9 in a manner to always push it upwardly toward the surface 3 throughout all its portions, and a wedge is thus formed to prevent movement of that edge which is engaged by the clamping plate 5, in a direction away from the surface 3 and filler material 8. This is an important feature of the invention.

I claim as my invention:

1. A pressing head having a concave working face, a facing coat of molded heat conducting material of substantially uniform thickness applied to said face, a finishing plate, and means applying force against a pair of opposite edge faces of said plate to arch it and cause it to compressively and flatly engage said heat conducting material.

2. A pressing head having a concave working face, a coat of heat moldable conducting material of substantially uniform thickness applied to said face, a finishing plate, and means applying force against a pair of opposite edge faces of said plate to arch it and cause its face to intimately contact the face of said heat conducting material.

3. A method for producing a pressing head which has a highly polished working surface, which consists in producing a casting having a curved face, applying moldable heat-conducting material to said curved face to form a layer of substantially uniform thickness, finishing and polishing one face of a plate of flexible metal while flat, and then flexing the plate and causing it to engage and conform to the surface of the plastic material, with the polished face of the plate facing outwardly.

4. A pressing head having a curved face, a coat of plastic heat conducting material of substantially uniform thickness covering said surface, a flexed plate of thin metal in facial contact with said material, and means applying pressure to said plate to hold it in flexed condition and compressively against said coat and secure it to said head, said plate having an exposed working face which is finished and polished, and said pressure-applying and securing means being arranged laterally of said plate and head and acting against the edge faces of the plate.

5. A pressing head having a concave face, a finishing plate, and means applying force substantially perpendicular to a pair of opposite edge faces of the plate to arch it and cause it to compressively and flatly engage said concave face.

In witness whereof, I have hereunto set my hand this 23rd day of July, 1929.

JOHN F. RAYNOLDS.