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WALL PANELS FOR LAUNDRY DRYERS

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Fig. 1

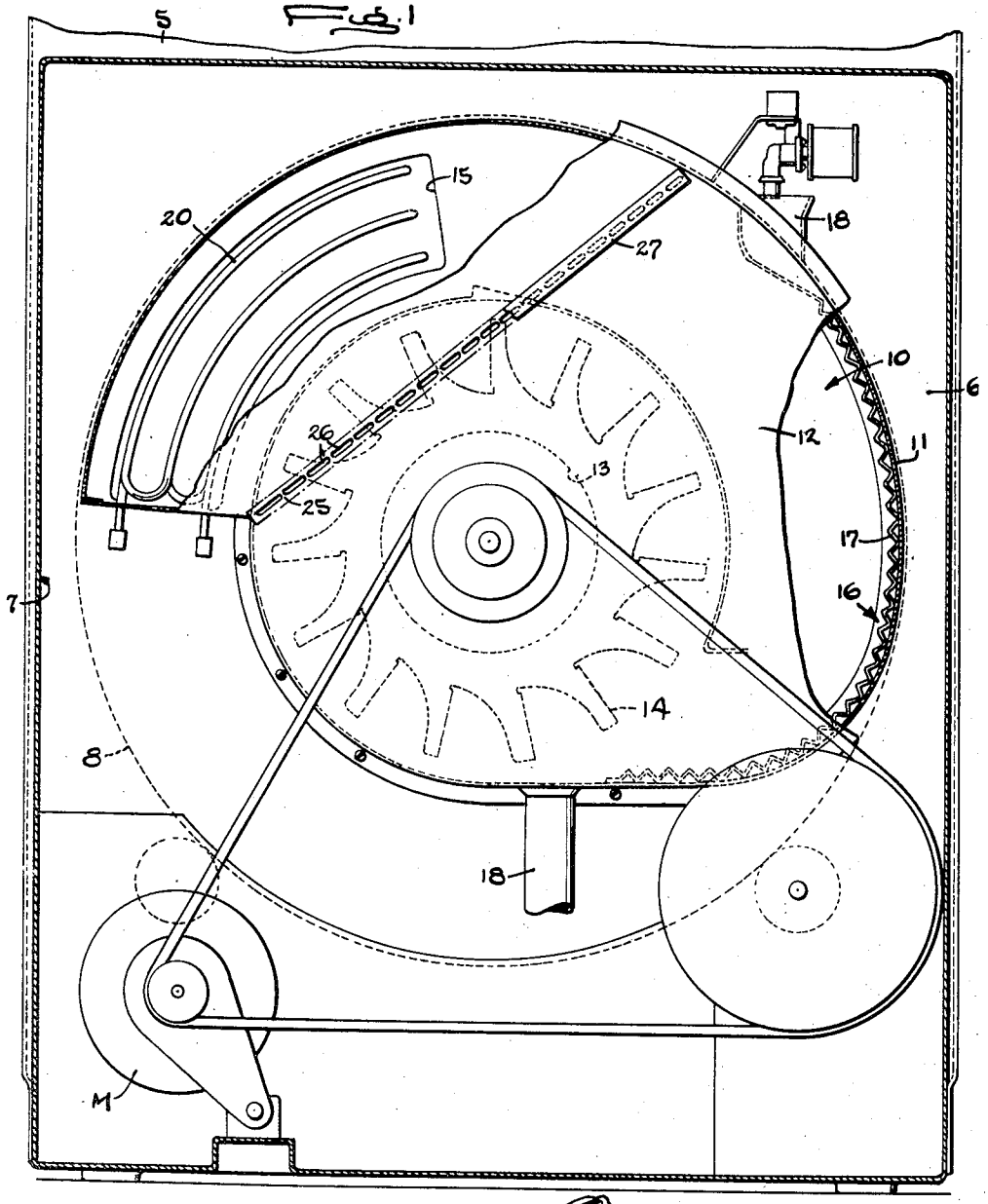
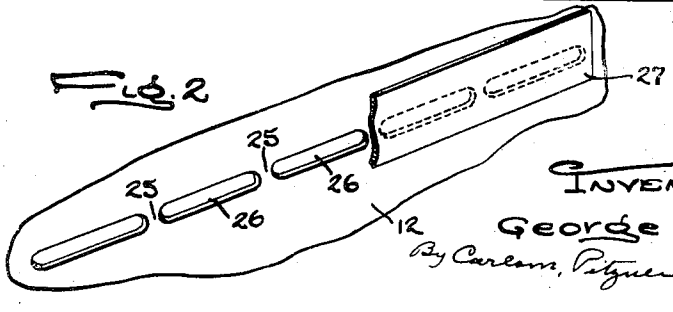


Fig. 2



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WALL PANELS FOR LAUNDRY DRYERS

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3 Claims. (Cl. 34—77)

The invention relates to laundry dryers of the type in which heated air is circulated continuously and successively through an air tempering chamber and a drying chamber and it is more particularly concerned with improvements in the casing or wall structure defining the air tempering chamber.

The invention is particularly applicable to dryers in which the air tempering chamber has two different temperature zones, one containing some means for heating the circulating air, the other including a relatively cold surface operative to condense moisture from the air. The primary object of the invention is to provide a simple, inexpensive panel structure for defining one or more of the walls of the air tempering chamber which effectively reduces transfer of heat by conduction from the heating zone to the condensing zone of the chamber.

Another object is to provide a wall panel of the above general character constructed and arranged to reduce heat conduction through the panel from one area to another.

Other objects and advantages of the invention will become apparent from the following detailed description of the preferred embodiment illustrated in the accompanying drawing, in which—

Figure 1 is a partially sectioned rear view of a laundry dryer equipped with a wall panel embodying the features of the invention.

Fig. 2 is an enlarged fragmentary perspective view of a portion of the panel showing the construction utilized to reduce heat conduction through the panel.

While a preferred form of the invention has been shown as applied to a specific type of laundry dryer, by way of illustration, this is not intended to limit the invention to the particular form or application disclosed. On the contrary, the intention is to cover all modifications, adaptations and applications falling within the spirit and scope of the invention as expressed in the appended claims.

Referring to the drawing, the laundry dryer selected to illustrate the invention comprises a casing **5** having its forward portion partitioned off as by a sheet metal wall **6** to define a drying chamber **7**. Clothes or other material to be dried are placed in a cylindrical drum **8** supported in the chamber **7** for rotation about a horizontal axis. During a drying operation the drum **8** is rotated to agitate or tumble the material while air is circulated through the drum and through an air tempering chamber **10** in succession. In the latter chamber the circulating air is passed over a relatively cold surface to reduce its moisture content and then directed over a heating element to raise its temperature to an efficient drying value.

In the particular dryer illustrated, the air tempering chamber is mounted directly in the drying chamber wall **6** which accordingly forms one end wall of the tempering chamber. The tempering chamber in this instance has a general spiral configuration defined by a spirally bent strip **11**, one end of which partitions the chamber internally and the other end of which constitutes the peripheral or side wall of the chamber. The other end wall of the

tempering chamber is formed by a flat panel **12** described in greater detail hereinafter.

Air enters the chamber **10** centrally through an opening **13** in the wall **6** substantially concentric with the drum **8**, being sucked from the drying chamber **7** by a fan **14**. The fan blows the air through the tempering chamber to an outlet opening **15** in the wall **6** through which it is discharged under slight pressure into the drying chamber adjacent the periphery of the drum. In its passage through the chamber **10**, the air is initially directed over a relatively cold condensing surface **16** to reduce its moisture content. In the exemplary embodiment the condensing surface is provided by a corrugated metal strip **17** suitably secured along the inner surface of the peripheral wall member **11**. Cold water admitted through an inlet **18** flows along the back of the strip to keep it cool, the water passing out of the chamber through an outlet pipe **18** opening from the bottom of the chamber.

After passing the condensing surface **17** the relatively cool dry air is heated before it is discharged into the drying chamber by directing it over a heating element **20** provided in the tempering chamber adjacent the discharge opening **15**. The heating element shown is of the conventional metal encased resistance type. It is suitably supported on a wall of the tempering chamber and is provided with terminals for connection with a source of electric current.

In accordance with the invention the wall panel **12** of the air tempering chamber **10** is constructed in a novel manner which conserves power for both heating and cooling the circulating air and thus materially increases the operating efficiency of the dryer. For reasons of economy and durability, the panel **12** is desirably made of sheet metal. To reduce heat transfer from the heating zone of the chamber **10** to the cooling zone by conduction, the panel is formed with two sections respectively located and dimensioned so as to overlie the two zones of the chamber. The sections are joined together at their adjacent edges by integral webs or links **25** of relatively small cross-sectional area spaced apart, as shown in Fig. 2, to define gaps **26** between the edges of the section.

The sectionalizing of the panel may be effected in any suitable manner, as by drilling or punching a row of closely spaced apertures in the panel with the row extending transversely across the panel substantially from one edge of the panel to the other.

While the apertures **26** may be of any desired shape and size, relatively long narrow punched slots have been shown in the exemplary panel. The slots are spaced so as to leave a series of narrow webs **25** of small cross section connecting the sections of the panel. By way of example, the panel **12** may be formed with slots so dimensioned that the cross sectional area of the connecting webs is reduced to approximately 10% of the total cross-sectional area of the sheet measured along the row of apertures. Heat transfer through the webs **25** is correspondingly reduced thus allowing both the heating element **20** and the condensing strip **17** to function with maximum efficiency. Power consumption of the heating element is materially reduced and the condenser is enabled to operate with a minimum flow of cooling water.

To enable the panel to serve efficiently as a wall of a chamber through which air is forcibly circulated, provision is made for preventing leakage of air through the apertures **26** without appreciably increasing the heat conduction between the panel sections. For this purpose the apertures are covered by an elongated narrow strip **27** of material having poor heat conducting properties cemented or otherwise suitably secured to one face of the panel. The strip **27** may be of any suitable material, as, for example, tightly woven fiber glass tape. Moreover, the

strip may be secured to the panel by any suitable adhesive. For convenience of application, it is preferred to employ a strip coated with a pressure sensitive adhesive coating. It is also preferred to apply the strip to the outer face of the panel.

It will be apparent from the foregoing that the invention provides a sheet metal panel of novel and advantageous construction. When used to form a wall of a chamber having both heating and cooling zones, the panel effectively closes the chamber yet minimizes heat transfer between the zones to allow the elements in each zone to function efficiently without interfering with each other. Moreover, the invention enables this improved efficiency to be attained without sacrifice of the economy and durability afforded by panels of sheet metal.

I claim as my invention:

1. In a laundry dryer in combination, a chamber having air tempering means defining relatively high temperature and low temperature zones, and means for circulating air through the chamber, a sheet metal panel forming one wall of the chamber and overlying both of said zones, the portion of said panel between said zones having a row of closely spaced apertures dividing it into two sections connected by integral webs of relatively small cross section and having correspondingly reduced heat conductivity, and a strip of low heat conductive material secured to one face of said panel in a position to cover said apertures.

2. In a laundry dryer, in combination, a chamber having air tempering means defining relatively high temperature and low temperature zones, means for circulating air through the chamber, a sheet metal panel forming one wall of the chamber, said panel having one section overlying the hotter zone of the chamber and another section overlying the cooler zone of the chamber, a series of narrow webs integral with and connecting the two panel sections, said webs being spaced apart by elongated gaps between the panel sections, and a strip of low heat conductive material secured to one face of said panel in a position to cover the gaps between said webs.

3. In a laundry dryer, in combination, a chamber having air tempering means defining an air heating zone and an air cooling zone, means for circulating air through the chamber, a sheet metal panel forming one wall of the chamber, said panel having one section overlying the heating zone of the chamber and another section overlying the cooling zone of the chamber, a series of narrow webs integral with and connecting the two panel sections, said webs being spaced apart by elongated gaps between the panel sections, and a strip of woven fiber glass tape adhesively secured to one face of said panel in a position to close the gaps between said webs.

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