Jan. 22, 1957 W. L. KAUFFMAN II 2,778,124

DRYERS

Filed Jan. 15, 1954

2 Sheets-Sheet 1

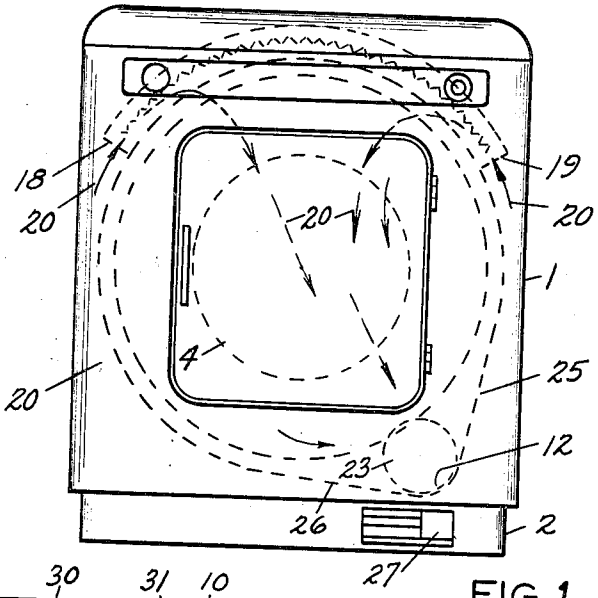


FIG. 1

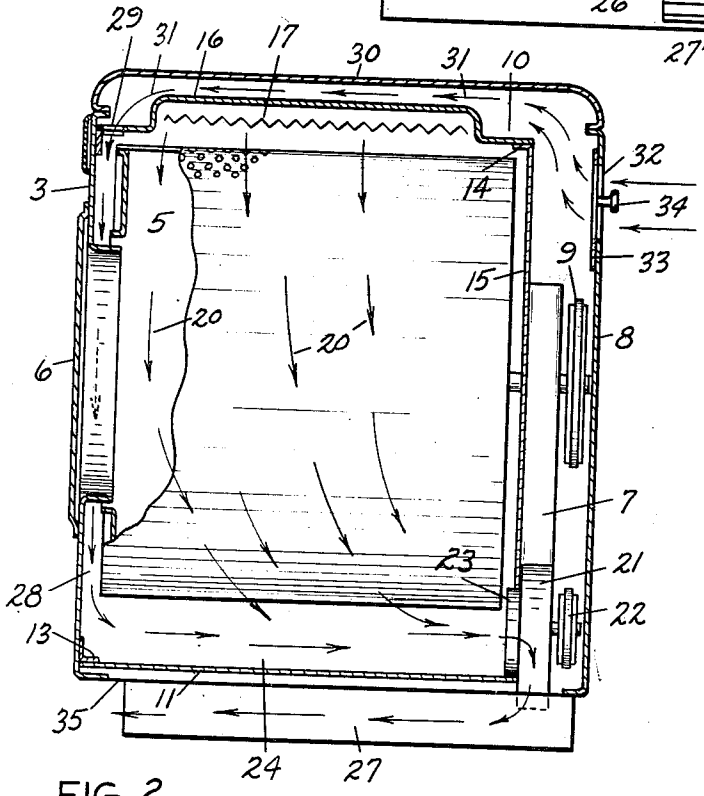


FIG. 2

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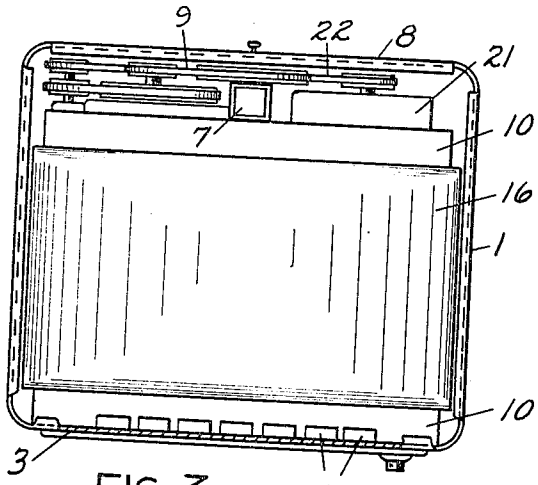


FIG. 3

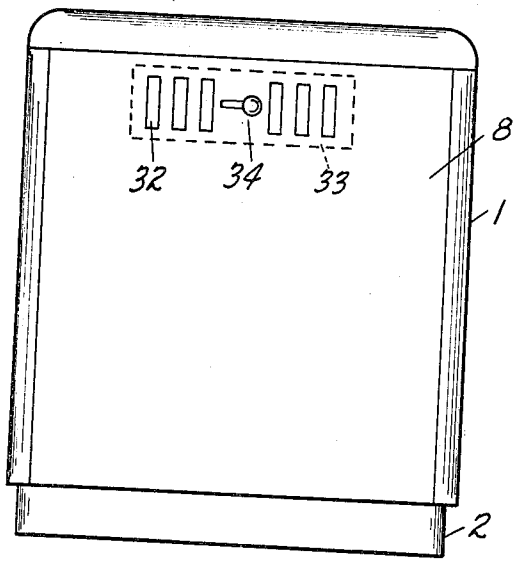


FIG. 4

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2,778,124

DRYERS

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3 Claims. (Cl. 34—133)

In domestic clothes dryers much ironing of flat work such as sheets and pillow-cases can be eliminated by folding the dried articles and stacking on a heated surface so the residual moisture can set the fibers in a smooth wrinkle-free condition. This invention is intended to provide such a heated surface on the top of a dryer cabinet and to provide means for cooling the surface when it is not in use. In a preferred form the surface is cooled by air which is used to scavenge lint collecting in the dryer fan intake.

In the accompanying drawings, Fig. 1 is a front view of a dryer, Fig. 2 is a sectional side elevation, Fig. 3 is a top view with the cabinet cover removed and Fig. 4 is a back view.

Referring to the drawings, there is shown a dryer cabinet 1 mounted on a base 2 and having in its front wall 3 a flanged opening 4 through which clothes are loaded into a horizontal drum 5. During drying the opening 4 is normally closed by a door 6. The drum is journaled in an upright 7 mounted on the base 2 inside the cabinet back wall 8 and driven by a belt and pulley drive 9. The drum is housed within a generally cylindrical housing comprising an upper semi-cylindrical section 10 and a lower section 11 which deviates from a semi-cylindrical shape in that it has a generally square corner 12 in a lower quadrant. The sections 10 and 11 are respectively fastened to supporting rings 13 on the front wall 3 and 14 on a back sheet 15 fixed to the post 7. The supporting rings 13 and 14 obviously conform to the shape of the sections 10 and 11. The semi-cylindrical section 10 has at its central portion a raised section 16 having a recess within which is located an electrical heating element 17. Because the ends of the raised section 16 are open, inlet openings 18 and 19 are provided through which air is drawn in over the heating element 17 and through the perforated periphery of the drum 5 as indicated generally by arrows 20. This air picks up heat from the heating element 17 and as it flows through the tumbling clothes picks up moisture to dry the clothes. The air is discharged from the dryer by a fan 21 driven by a belt 22 and having its inlet opening 23 extending through the back sheet 15 within the generally square corner 12 in the lower semi-cylindrical section 11. The inlet opening 23 is generally within the horizontal and vertical projection of the drum and the square corner 12 provides an inlet duct 24 of such shape that it is essentially self-cleaning. The generally vertical wall 25 of the inlet duct 24 is kept free from lint by gravity. The generally horizontal wall 26 of the inlet duct has a slight downward inclination and the eddy currents set up by the rotation of the drum 5 tend to sweep any lint accumulations into the corner where they are usually drawn into the suction and intake 23 and discharged out through a lint trap 27 in the base of the dryer.

While the shape of the inlet duct 24 is such that it is essentially self-cleaning due to the absence of any sharp corners with articles having an excessive amount of lint such as tufted bedspreads, it has been observed that lint

can bunch up at the front of the inlet duct. While the most of the lint collection will be drawn into the suction fan intake 23, some of the lint may remain on the bottom of the duct. This objectionable lint collection can be avoided by scavenging air flowing through a passageway 28 between the front of the drum and the front wall 3 of the cabinet. Scavenging air admitted at this point which is at the extreme front end of the duct 24 or the end most remote from the suction fan inlet 23 tends to sweep any lint accumulation at the front of the duct along the bottom wall of the duct and into the suction fan intake thereby keeping the duct essentially clean. The scavenging air for keeping the fan inlet duct 24 clean is preferably drawn from the upper part of the dryer cabinet down through openings 29 in the sheet 10 and the ring 13 and flowing down between the front wall 3 of the cabinet and the front of the drum and around the flanged opening 4 into the passageway 28 leading to the front of the duct 24. By this arrangement, the scavenging air does not interfere with the drying action of the clothes which is primarily effected by the air entering the inlet openings 18 and 19 at each end of the raised section 16. The air entering the openings 29 flows primarily through the space between the section 16 and the top 30 of the cabinet as indicated by the arrows 31. If the air entering this space is preheated by contact with the exterior of the casing surrounding the drum, the top of the cabinet will be relatively hot e. g. 150–200 degrees and will provide an ideal heated surface upon which folded articles can be stacked so that the residual moisture will set the fibers in a wrinkle-free condition. On the other hand, if the top 30 of the cabinet is not to be used as a heated surface, it is desirable that the top be kept cool. This is accomplished by louvers 32 at the top of the cabinet back wall 8 controlled by a manual slide 33 having a handle 34. When the louvers 32 are opened, cool air is drawn directly into the space between the section 16 and the top 30 of the cabinet and flows down through the openings 29 and the space between the front wall 3 of the cabinet and the drum and into the inlet duct 24. This cool air which has the function of scavenging the inlet duct 24 to keep it free from lint accumulation also keeps the top 30 and the front wall 3 of the cabinet cool so that neither has such a high temperature as to be objectionable to touch. However, when the slide 33 is moved to the position closing the louvers 32, the air which flows through the space between the top 30 of the cabinet and the raised section 16 above the heating element 17 enters the cabinet through openings 35 in the closed space at the front of the cabinet and is preheated by contact with the outside of the casing surrounding the drum. Because this air is preheated, the cooling effect on the top 30 of the cabinet is eliminated and the top accordingly provides the desirable heated surface upon which folded articles can be stacked. Since in either position of the slide 33 the air which flows across the underside of the top wall 30 of the cabinet is used primarily to scavenge lint out of the inlet duct 24, there is discernible change in drying efficiency in either position of the slide 33. The slide 33 does, however, give the operator choice of having a heated top surface upon which folded articles can be stacked or a cool top which will be at a temperature low enough so as to be unobjectionable to touch.

What is claimed as new is:

1. In a clothes dryer, a drum, a cylindrical casing surrounding the drum, a cabinet housing the casing, said cabinet having a top wall above the casing, a front wall spaced in front of the drum and forming the front wall of the casing and a back wall spaced to the rear of the casing, a front wall spaced in front of the drum and forming the front wall of the casing and a back wall spaced to the

rear of the casing, means for heating air and circulating the heated air through the drum including a fan at the lower rear part of the cabinet having intake duct means extending toward the front of the cabinet and communicating with the interior of the casing along the length of the duct, a discharge duct for the fan leading outside the cabinet, said casing having an opening to the cabinet in the top of the casing at the front communicating with the space between the drum and the front wall of the cabinet, louvers in the top of the back wall of the cabinet for conducting cooling air between the top wall of the cabinet and over the top of the casing to said opening, and manually operable means for closing the louvers to shut off the flow of cooling air so the top wall of the cabinet will become a heated surface on which folded articles can be stacked.

2. In a clothes dryer, a drum, a cylindrical casing surrounding the drum, a cabinet housing the casing, said cabinet having a top wall above the casing, a front wall spaced in front of the drum and a back wall spaced to the rear of the casing, means for heating air and circulating the heated air through the drum including a fan at the lower part of the cabinet having intake duct means extending toward the front of the cabinet and communicating with the interior of the casing along the length of the duct, a discharge duct for the fan leading outside the cabinet, said casing having an opening to the cabinet in the top of the casing at the front communicating with the space between the drum and the front wall of the cabinet, louvers in the top of the back wall of the cabinet for conducting cooling air between the top wall of the cabinet and over the top of the casing to said passageway, and manually operable means for closing the louvers to shut off the flow of cooling air so the top wall of the cabinet will become a heated surface on which folded articles can be stacked.

3. In a clothes dryer, a drum, a cylindrical casing surrounding the drum, a cabinet housing the casing, said cabinet having a top wall above the casing, a front wall spaced in front of the drum and forming the front wall of the casing and a back wall spaced to the rear of the casing, a support for the cylindrical wall of the casing including a ring attached to said front wall of the cabinet, means for heating air and circulating the heated air through the drum including a fan at the lower rear part of the cabinet having intake duct means extending toward the front of the cabinet and communicating with the interior of the casing along the length of the duct, a discharge duct for the fan leading outside the cabinet, the cylindrical wall of the casing at the top of said ring having an opening leading from the cabinet to the space between the drum and the front wall of the cabinet, louvers in the top of the back wall of the cabinet for conducting cooling air over between the top wall of the cabinet and the top of the casing to said opening, and manually operable means for closing the louvers to shut off the flow of cooling air so the top wall of the cabinet will become a heated surface on which folded articles can be stacked.

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