

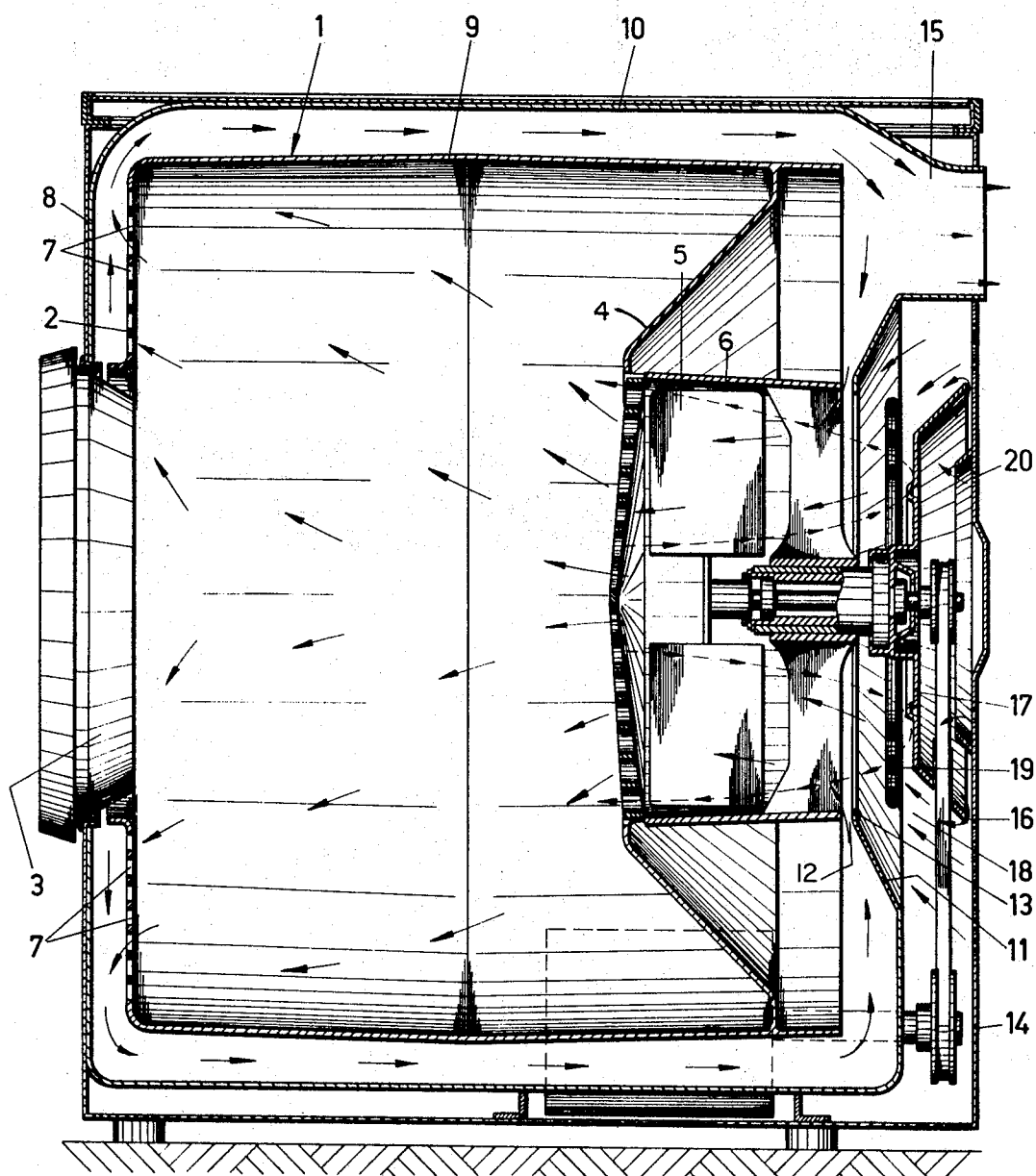
Nov. 2, 1971

F. A. SCHUURINK

3,616,547

DRYER

Filed Nov. 14, 1969



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3,616,547

DRYER

Fredrik Adolf Schuurink, 27 Fr. Rooseveltlaan,
Breda, Netherlands

Filed Nov. 14, 1969, Ser. No. 877,058

Claims priority, application Netherlands, Nov. 20, 1968,
6816567

Int. Cl. F26b 11/02

U.S. Cl. 34-133

5 Claims

ABSTRACT OF THE DISCLOSURE

A laundry dryer having a rotatable drum and a fan to force heated air into the center of the drum. The air enters the back of the dryer, passes around a sheet to a heater and into the fan. The air exits on the opposite side with passages being arranged to discharge part of it to the atmosphere and part is re-circulated by passing through a slit and back to the fan.

The invention relates to a dryer and more particularly to a dryer for laundry of the type with a drum rotatable about an axis in a stationary casing, in which the drying air is supplied to an enclosure surrounding a fan which blows the air through the central portion of one of the drum's walls and the drum is provided with apertures to discharge the drying air, the wall of the casing at the side of said drum's wall being provided with at least one opening for supplying fresh air and a heating device for the fresh air being provided between said openings and the fan.

Such a dryer is known from the Dutch Pat. 109,682. In this known dryer during the drying process the laundry will pass before said central portion of said drum's wall, where it will be blown apart and dried by the heated air blown into the drum by the fan. Though the drying effect of this known dryer is very good, it appeared that this dryer has the disadvantage that lint deposits inside the casing due to the fact that in the presence of laundry before the fan air will flow back in the middle of the fan taking along lint falling at the rear-side of the dryer.

The general object of the invention is to remove said disadvantages. To this end the dryer of the invention is characterised in that coaxially with the axis of the fan and spaced from said wall of the casing there is provided a sheet around which the fresh air is supplied.

By this means air backflow caused by laundry obstructing the air fan, is stopped and can be drawn again inside the drum at a greater distance from the axis of the fan thus preventing lint deposits inside the casing.

Preferably the heating device is arranged between the sheet and the fan. In this way said sheet also serves to reduce the temperature of the outer wall of the casing. Besides, because the fresh air is supplied through openings in the outer wall into the space between the sheet and the outer wall, the heated sheet is cooled by said air in this way improving the efficiency of the heating device.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing.

The drawing is a side view in section showing the drum within its casing.

A drum 1 of the dryer rotatable about its horizontal axis has in its front wall 2 a filling opening 3, the rear wall 4 being formed as a frustum of a cone.

In the space formed by the conical rear wall 4 of the drum there is provided a pressure fan 5 with an enclosure 6, said fan 5 bearing in said rear wall 4 and air

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being blown with a certain overpressure through said enclosure into the drum 1.

The air is discharged from the drum 1 through apertures 7 in the front wall 2 alongside the filling opening 3 and is then passed through the spaces between the portion of the front wall 2 of the drum 1 provided with apertures 7 and the wall 8 of the stationary casing, between the cylindrical wall 9 of the drum 1 and the wall 10 of the casing, and between the rear wall 4 of the drum and an intermediate wall 11 of the casing to an annular slit 12 between the rear end of the enclosure 6 and the inner edge 13 of intermediate wall 11 of the casing. From there the air passes again through the enclosure 6 into the drying space.

In the intermediate wall 11 and the rear wall 14 of the casing there is provided an opening 15 communicating the space between the rear wall 4 of the drum and the intermediate wall 11 of the casing with the atmosphere, through which a portion of the drying air is driven to the atmosphere.

The opening formed by the inner edge 13 in the intermediate wall 11 communicates through openings 20 in the rear wall 14 of the casing, an annular opening 16, formed by sheet 17 provided in the casing and the rear wall 14 of the casing, and an annular duct 18 formed by the sheet 17 and the intermediate wall 11 in communication with the atmosphere. Between the sheet 17 and the fan 5 an electrical heating device 19 is provided serving to heat the fresh air suctioned along by the air passing through the slit 12 as in an ejector.

The path of the air passing through the device is indicated by full arrows. In the embodiment shown the laundry will come before the central portion of the rear wall of the drum where it is blown apart and dried by the air blown inside the drum by means of the fan 5, this giving an excellent drying effect. At the moment, however, that there is laundry before the central portion of the rear wall 4 the air will flow back. Because there is always lint in the air during a period of the drying process this should result in deposition of lint in the casing against its rear wall 14. This is, however, according to the invention prevented by the sheet 17, because the air flowing back is stopped by it and then drawn again inside the drum with the fresh air by the fan 5, as indicated by dotted lines.

Consequently the lint, always present during the last phase of the drying process as appeared from tests, is again passed through the dryer and is removed through the opening 15 from the dryer, as also appeared from tests. To receive said lint the opening 15 can be provided with a lint filter.

Sheet 17 not only makes frequent cleaning of the dryer unnecessary, but also gives a protection from heat radiation of the rear wall if the heating device 19 is provided at the given position. Besides the heat of sheet 17 will be removed by the fresh air entering the openings 20 in this way improving the heat efficiency of the dryer.

The invention is not limited to the specific form disclosed, but can also be applied to all dryers in which flowing back of the air might occur.

I claim:

1. A dryer, especially for laundry, having a drum rotatable about an axis in a stationary casing, in which the drying air is supplied to an enclosure surrounding a fan which blows the air through the central portion of one of the drum walls the drum being provided with apertures to discharge the drying air, the wall of the casing at the side of said drum wall being provided with at least one opening for supplying fresh air, a sheet coaxial with the axis of the fan and spaced from said wall of the casing around which fresh air is supplied and

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a heating device for the fresh air positioned between said sheet and said fan.

2. A drying tumbler comprising:

- (a) a drum rotatable about an axis in a stationary casing; 5
- (b) a fan to blow air through the central portion of said drum with an enclosure surrounding said fan;
- (c) apertures in said drum to discharge the drying air;
- (d) at least one opening in the wall of the casing for supplying fresh air; 10
- (e) a sheet covering but spaced from said at least one opening so that incoming air must flow around it;
- (f) heating means;
- (g) an intermediate wall between said heating means and said fan, said wall having an opening for air 15 to pass from the heating means to the fan and presenting a slit for entry of re-circulated air;

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(h) duct means to conduct air from said apertures to both said slit and a discharge outlet so that if back-flow is caused by laundry within the drum the back-flowing air will be deflected by said sheet and re-circulated by the air coming through the slit.

3. The device according to claim 2 in which the drum, fan, sheet and intermediate wall are arranged coaxially.

4. The device of claim 3 wherein said slit is annular and is also arranged coaxially.

5. The device according to claim 2 in which said sheet is in the form of a truncated cone.

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