Oct. 7, 1952 W. L. KAUFFMAN, II 2,612,705

TUMBLER CLOTHES DRIER

Filed Aug. 8, 1947 2 SHEETS--SHEET 1

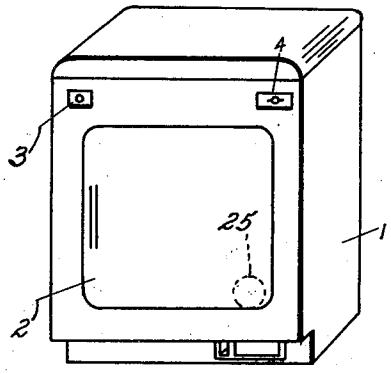
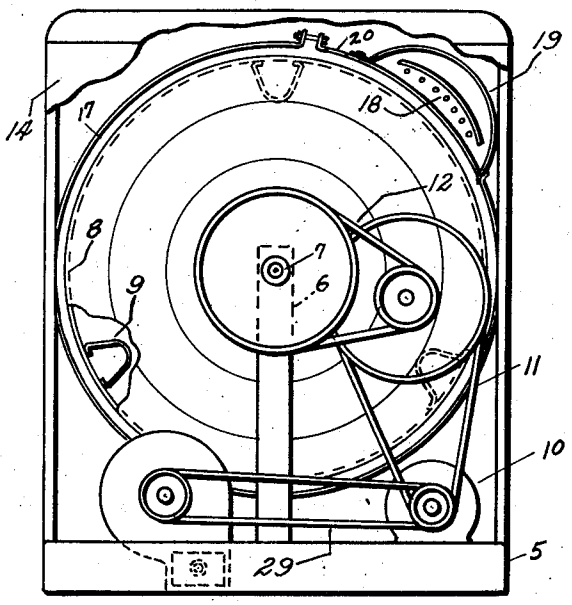


FIG. 1

FIG. 2



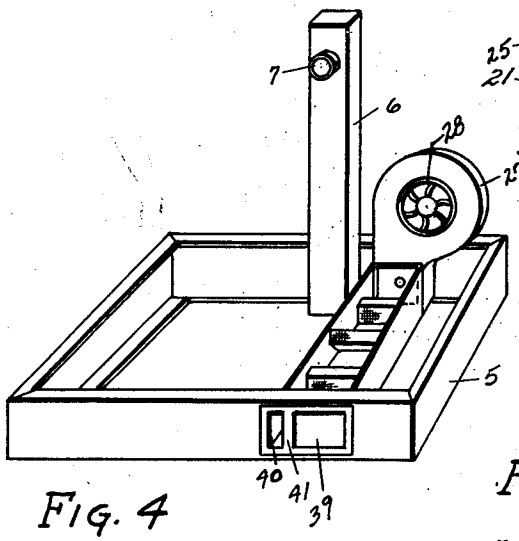


FIG. 4

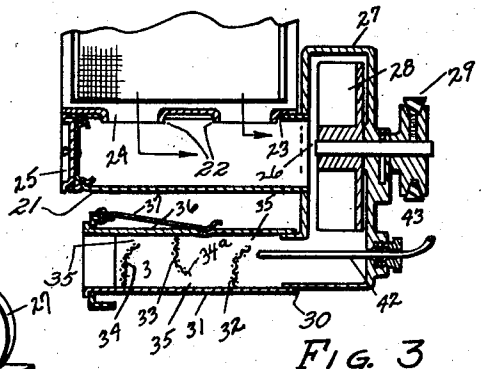


FIG. 3

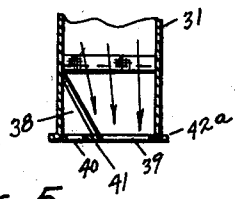


FIG. 5

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Oct. 7, 1952 W. L. KAUFFMAN, II 2,612,705

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Filed Aug. 8, 1947 2 SHEETS—SHEET 2

FIG. 6

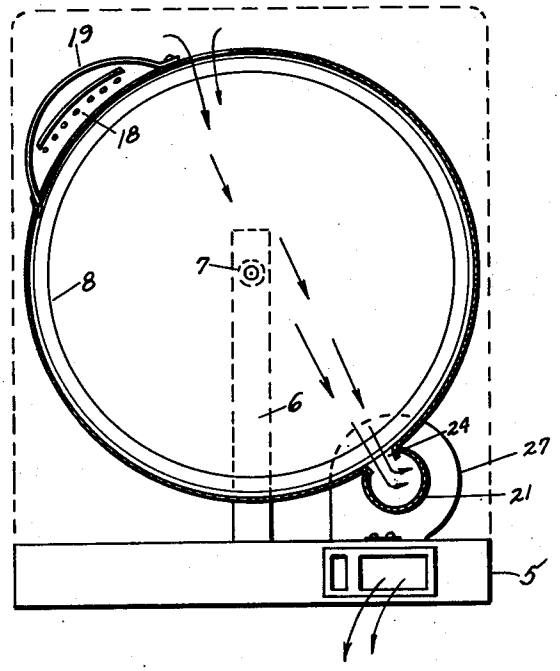
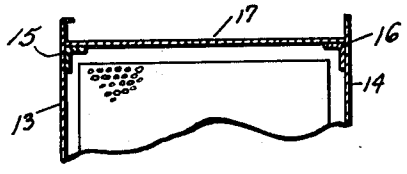


FIG. 7



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UNITED STATES PATENT OFFICE

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TUMBLER CLOTHES DRIER

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Application August 8, 1947, Serial No. 767,616

1 Claim. (Cl. 34—85)

1

This invention is intended to handle the lint in tumbler type driers so as to eliminate any fire hazard and to prevent interference with the control. It involves a design preventing accumulation of lint except at points at which the accumulation may be easily removed. Further objects and advantages appear in the specification and claims.

In the drawings, Fig. 1 is a perspective of a drier; Fig. 2 is a back view with the back wall of the cabinet broken away; Fig. 3 is a section through the fan intake and exhaust; Fig. 4 is a perspective of the base showing the fan and lint trap mounted thereon; Fig. 5 is a top sectional view through the front end of the lint trap; Fig. 6 is a transverse section through the center of the drier and Fig. 7 is a fragmentary section through the drum casing.

The invention is shown applied to a drier having a cabinet 1 with a door 2 at the front for loading and unloading clothes, a pilot light 3 and a control knob 4. The cabinet is mounted on a channel section base 5 having at its back a post 6 carrying a bearing 7 for a perforated drum 8 rotatable on a horizontal axis to tumble the clothes. Suitable baffles 9 are indicated to assist the tumbling action. The drum is driven by a motor 10 mounted on the lower back corner of the base and driving the drum through a double V-belt reduction 11, 12. As shown in Fig. 7, the cabinet has front and back walls 13, 14 to which are fixed circular flanges 15, 16 receiving a wrap around sheet 17 enclosing the periphery of the drum and in effect providing a casing around the drum. In an upper corner of the drier is located an electric heating element 18 having an associated reflector 19 directing the heat against the outer surface of the drum. The reflector is substantially a continuation of the wrap around sheet and with the wrap around sheet provides a complete enclosing casing for the drum except for an air intake slot 20 at the upper edge of the reflector. The parts so far described are or may be of common construction.

Diagonally opposite the heating element 18 is a fan intake duct 21 extending axially along the wrap around sheet and fastened thereto by flanges 22 on the wrap around sheet projecting through openings 23 in the side wall of the duct 21. The flanges 22 provide openings 24 leading from the wrap around sheet into the duct. At the front end of the duct is a clean out cover 25 accessible upon opening the door 2. The back end of the duct telescopes into the inlet 26 of a fan casing 27. Within the fan casing is an

2

impeller 28 driven by the motor through a V-belt 29. The fan is located at one side of the cabinet and the motor is located at the opposite side of the cabinet so that the motor is protected from heating by the air flowing through the fan. This prevents overheating of the motor. The fan casing has a discharge nozzle 30 telescoped into the back end of a lint trap 31. Extending across the side walls of the lint trap are screens 32, 33, 34 which intercept the air stream discharged through the nozzle and trapped lint. Each of the screens has a section 34a inclined forwardly into the air stream and between the forward edge of the screen and the adjacent wall of the lint trap is a by-pass passage 35 through which the air flows when the filter screen is clogged. The screens are staggered so as to compel a sinuous flow of air through the by-pass passages after the screens are clogged. This substantially prevents flow of unfiltered air through the by-pass passage until the filter screens are clogged. Such unfiltered air as flows through the by-pass passage associated with one of the screens is intercepted by a succeeding screen. The top wall of the lint trap is closed by a cover 36 held in place by a spring 37 when the lint trap is in the drier. Upon removing the lint trap the cover may be opened to permit ready removal of the lint trapped in the filter screen. At the front of the lint trap is a deflector 38 which directs the air through an outlet 39 giving the air a sidewise motion which tends to prevent recirculation of the heated air through the drier. Opposite the deflector 38 is an opening 40 providing access to an upright post 41 on the front end plate 42a of the lint trap. The lint trap may be conveniently removed by gripping the post 41.

In the operation of the drier, air is admitted into the space between the cabinet and the wrap around sheet 17 through suitable inlet openings not shown. This room temperature air circulates around the motor and is partially preheated by contact with the outer surface of the wrap around sheet. The air flows through the slot 20 diagonally across the drum through openings 24 into the fan inlet duct 21 and is discharged through the nozzle 30 into the lint trap 31. During the flow across the drum the air picks up moisture from the tumbling clothes and has its temperature increased by heat radiated from the heating element 18. The temperature of the exhaust air bears a direct relationship to the dryness of the clothes having relatively sharp increase in temperature as the clothes approach

complete dryness. The drier may be automatically controlled by a thermostat responsive to the exhaust air temperature. The details of such automatic control are not illustrated because these are well known. It has been found that the accumulation of lint on the thermostat tends to interfere with the control by causing a false temperature response. This is prevented in the present construction by having a thermostat bulb 42 project through a wall 43 into the discharge nozzle 30 in the direction of air flow through the nozzle. At this point the velocity of the air is sufficient to prevent adherence of lint to the thermostat bulb and any lint momentarily adhering to the bulb is quickly removed by the air flowing along the surface of the bulb. This location of the thermostat permits a more reliable control of the drier in response to the exhaust air temperature.

It has been found that there is substantially no tendency for lint to collect in the space between the drum and the wrap around sheet 17. In this space there is sufficient turbulence to prevent collecting of the lint. The fan intake duct is arranged to discourage the collection of lint but any accumulation may be easily removed through the clean out cover 25. There is no observable collection of lint within the fan casing. The fan exhausts directly to a lint trap which is designed to operate satisfactorily and provide the necessary air circulation even after the filter screens are clogged. If the operator neglects cleaning the lint trap there will be a collection of lint on the floor in front of the lint trap outlet 39. This will provide sufficient warning to the operator that cleaning of the lint trap is necessary.

What I claim as new is:

In a drier, a horizontal drum for receiving and tumbling clothes and rotatable on its axis, a wrap around sheet surrounding the periphery of the drum, an axially extending duct on the outside of the sheet extending from front to back, said duct and wrap around sheet having contiguous walls with registering openings therein, the openings in the wrap around sheet being flanged and the flanges thereof projecting through the registering openings in the duct, a clean out cover for the front end of the duct, and a fan having an intake receiving the back end of the duct.

WALTER L. KAUFFMAN, II.

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