July 3, 1934. N. STRAMAGLIA 1,965,480

LAUNDRY APPARATUS

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Fig. 1.

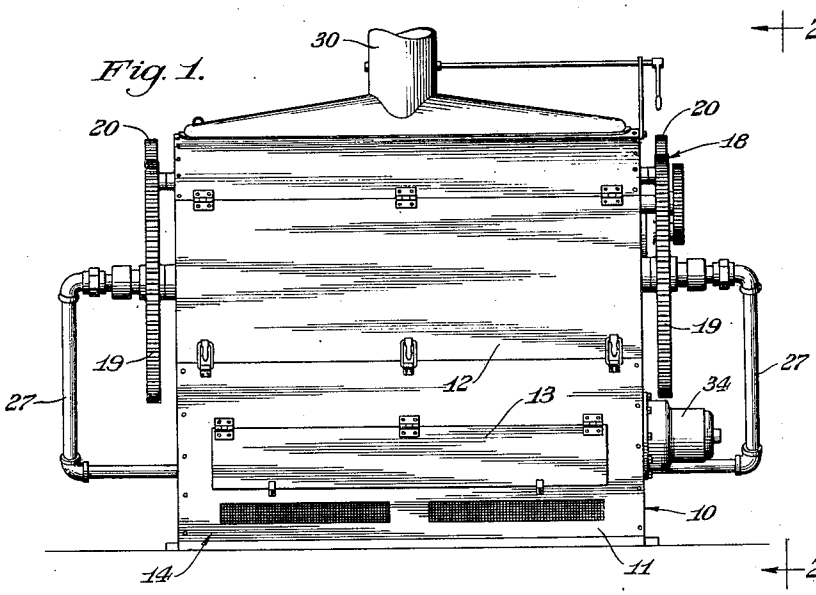


Fig. 2.

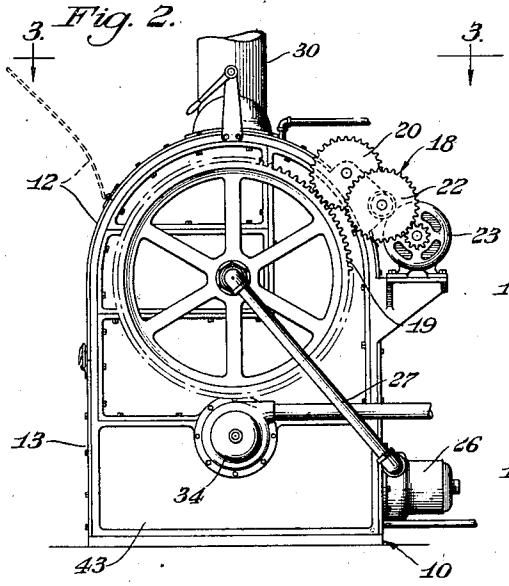
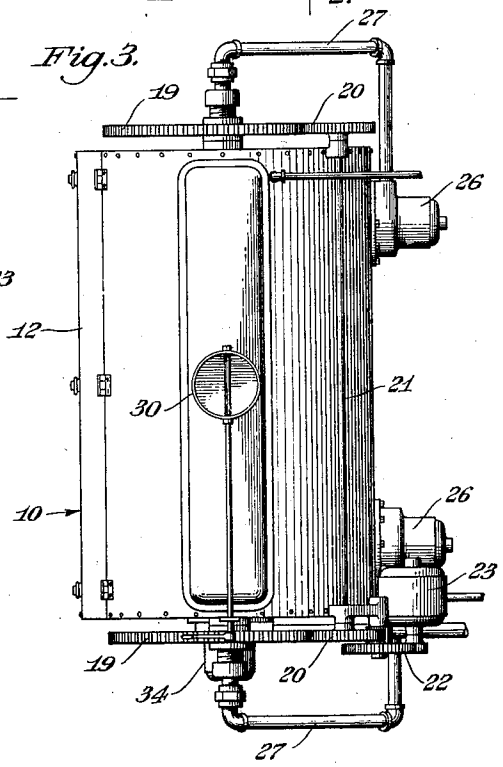


Fig. 3.



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LAUNDRY APPARATUS

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Fig. 4.

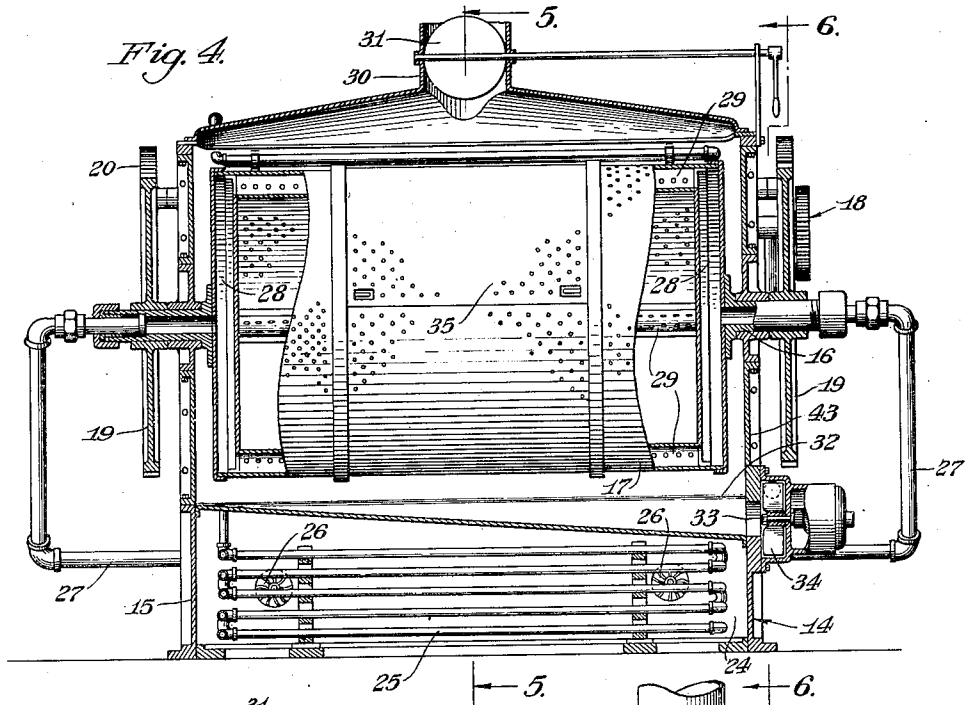

Fig. 5.

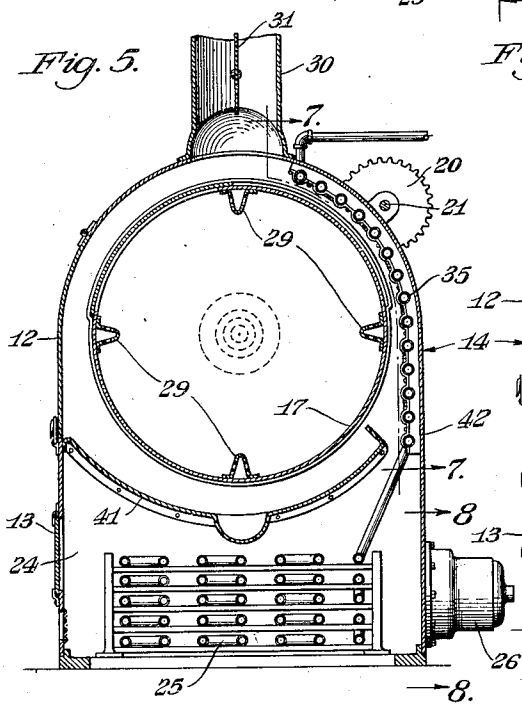

Fig. 6.

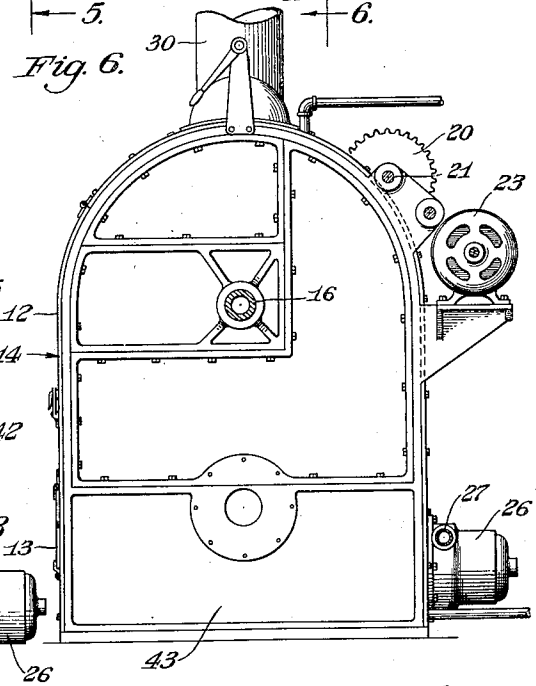

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Fig. 7.

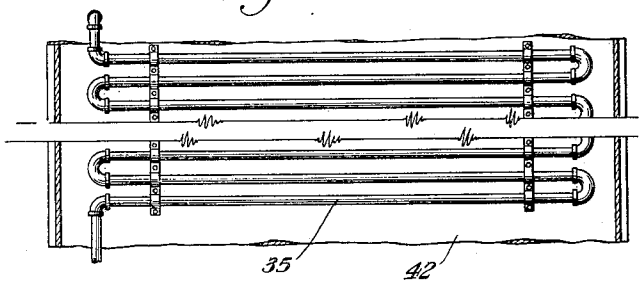


Fig. 8.

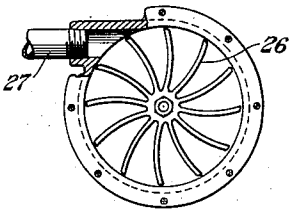
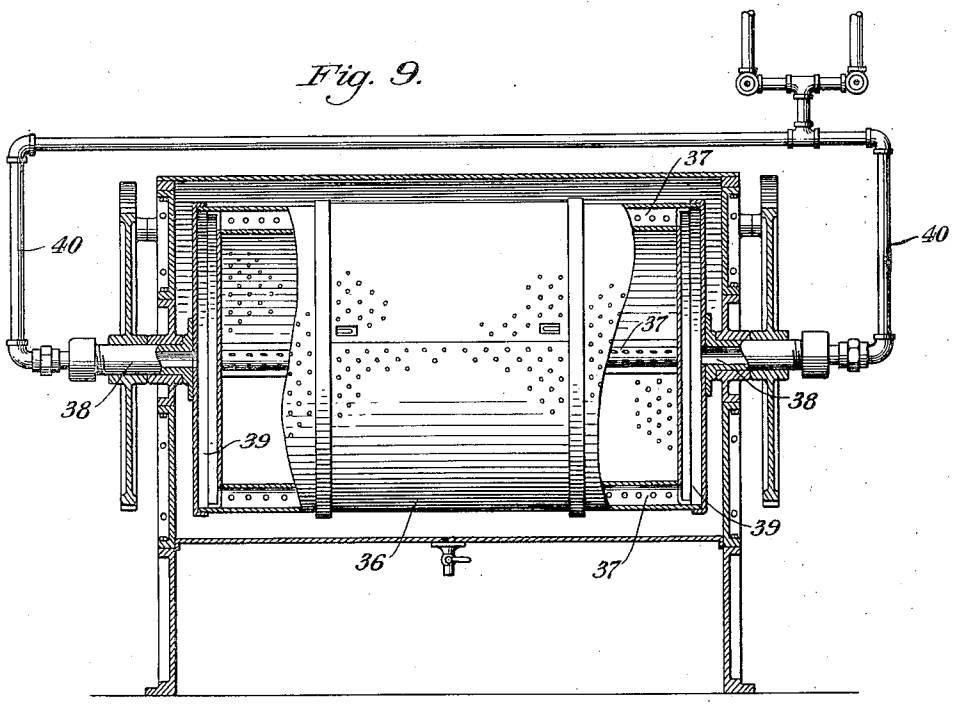


Fig. 9.



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Patented July 3, 1934 1,965,480

UNITED STATES PATENT OFFICE

1,965,480

LAUNDRY APPARATUS

Nicola Stramaglia, Chicago, Ill.

Application January 17, 1933, Serial No. 652,235

2 Claims. (Cl. 34—5)

This invention relates to certain novel improvements in laundry apparatus, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

An object of this invention is to provide a new and improved laundry dryer of the perforated drum tumbler type.

Another object of the invention is to provide a new and improved laundry washer of the perforated drum tumbler type.

One common form of laundry drier now in use in the art, is the perforated cylindrical drum tumbler through the perforations in which heated air is driven by blowers arranged below the tumbler so as to drive the heated air upwardly through the perforations in the tumbler. This arrangement has not been satisfactory in the art, among other reasons, because when the drum tumbler is in operation the wet clothes therein gravitate to the bottom of the tumbler, closing the perforations in the bottom of the tumbler, and thus preventing the heated air from being driven upwardly through the perforations in the bottom of the tumbler and through the clothes therein.

It is, therefore, another object of this invention to overcome the foregoing objectionable feature of the prior art tumbler driers and to provide a new and improved arrangement for circulating the heated air through the tumbler so as to improve the efficiency of the drier in effecting the drying operation.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, showing the preferred form of construction and in which:

Fig. 1 is a front elevational view of a preferred form of the new drier;

Fig. 2 is an end elevational view on line 2—2 in Fig. 1;

Fig. 3 is a top plan view of the same;

Fig. 4 is a vertical longitudinal sectional view of the new drier;

Fig. 5 is a transverse vertical sectional view of the new drier;

Fig. 6 is an end elevational view on line 6—6 in Fig. 4;

Fig. 7 is a sectional detail view on line 7—7 in Fig. 5;

Fig. 8 is a sectional detail view on line 8—8 in Fig. 5; and

Fig. 9 is a vertical longitudinal sectional view of a modification of the invention showing the new tumbler drum constructed for use as a washer.

The new drier is generally indicated at 10, in Figs. 1 to 8, inclusive, of the drawing, and includes a casing or housing 14 having a front wall 11 in which are arranged doors 12 and 13. These doors 12 and 13 provide access to the upper and lower compartments 32 and 24, respectively, into which the housing is divided by a partition 41 having a trough 41' formed therein which is semi-circular in cross-section and inclined downwardly toward an exhaust opening 33.

Rotatably journaled in suitable bearings in the end walls 15 and 16 (Fig. 4) of the housing 14 are hollow trunnions 16 of the new perforated cylindrical drum tumbler 17 which is arranged in the upper compartment 32 of the housing 14. Means for operating the tumbler are generally indicated at 18 and include driven gears 19, one fast on each of the trunnions 16; driving gears 20 arranged upon a common shaft 21; and a pinion gear 22 associated with one of the gears 20 and with a conventional reversible motor 23 by means of which the drum or tumbler 17 may be oscillated, or tumbled, which is the customary manner of operating this type of drier.

In practicing my invention I arranged in the compartment 24 below the tumbler 17, a heating element which, as shown, takes the form of steam coils 25. Arranged in the compartment 24 are blowers 26 and leading from the compartment 24 are fluid conducting conduits or pipes 27 which open at their upper ends (Fig. 4) into the hollow trunnions 16. Each of the trunnions 16 open at their inner ends (Fig. 4) into false heads or compartments 28 one of which is formed in each end of the drum or tumbler 17. These false heads 28 in turn communicate with perforated hollow tumbler vanes or rib members 29 which are formed in, and extend longitudinally or axially of the drum 17, on the inner side thereof.

The housing 14 has a dry air inlet 30 at the top thereof, controlled by a damper 31. Opening out of the bottom of the upper compartment 32 of the housing 14 is a damp exhaust inlet 33 with which is associated an exhauster 34 for withdrawing damp air from the housing 14 during the drying operation. Additional steam coils 35 are preferably extended up from the coils 25 through the housing 14, between one side wall of the housing and the drum 17 (Figs. 5 and 7).

Operation of the form of the invention shown in Figs. 1 to 8, inclusive

The wet clothes to be dried are inserted into the tumbler 17 through a conventional sliding door 35 thereon and the motor 23 and gears 22—20—19 and shaft 21 operated to oscillate the tumbler 17 in a rotary motion upon its hollow trunnions 16. Steam being blown through the coils 25, and the blowers 26 operated, heated air is forced out of the compartment 24, through the hot air pipes or conduits 27, through the hollow trunnions 16, through the false drum heads 28, and thence into the perforated vanes or ribs 18, from which the heated air emerges into the tumbler 17 to circulate therethrough and dry the wet clothes therein.

When the drum or tumbler 17 is in operation the clothes therein, carried or tumbled by the ribs 29, naturally gravitate to the bottom of the same, but since the ribs or vanes 19 are radially arranged about the inner side of the drum or tumbler, the hot air will circulate readily through the drum 17 and clothes therein from all directions that are radial relative to the trunnions 16, and the circulation of the heated air will not be obstructed by the clothes in the bottom of the drum as it is in the prior art devices in which the hot air is blown upwardly through the perforations in the drum.

The damp air, lint, etc., are withdrawn from the compartment 32 by the exhauster 34, the operation of which also causes fresh dry air to enter the compartment 32 of housing 14 through the inlet 30; the compartments 32 and 24 having communication by reason of the fact that the partition 41 between the compartments 24 and 32 does not extend to the rear wall 42 of the housing 14 (Fig. 5).

Construction and operation of the modification shown in Fig. 9

In the modification shown in Fig. 9, the new apparatus is adapted for use as a washer, rather than as a drier, and comprises a drum or tumbler 36 that is exactly the same in construction as the drum 17; having perforated tumbler vanes or ribs 37 similar to the ribs or vanes 29; hollow trunnions 38 the same in construction as the trunnions 16; and false drum heads or compartments 39 similar to the false drum heads or compartments 28. However, instead of leading hot air conduits or pipes into the trunnions 28 in the modification of Fig. 9, as is done in the form shown in Figs. 1 to 8, inclusive, water-conducting pipes 40 are led into the hollow trunnions 38.

When the drum 36 is oscillated, water from the pipes 40 circulates through the trunnions 38, through the false drum heads 39, and thence into the perforated vanes or ribs 37, from which the water circulates freely through the clothes and drum since the water emerges into the drum from all directions that are radial relative to the trunnions 38 and the longitudinal axis of the drum. This I found a more effective way of circulating the water through the drum during the washing or rinsing operation than by means of an overhead spray or other device now used in conjunction with drum washers.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. A laundry apparatus comprising in combination a casing divided into upper and lower compartments and having a dry air inlet communicating with the upper compartment and an exhaust opening communicating with the lower compartment, a tumbler within the upper compartment including drum heads at opposite end portions and perforated agitating ribs extending longitudinally of the tumbler with end portions in communication with the drum heads, hollow trunnions supporting the tumbler within the upper compartment, a heating coil within the lower compartment and communicating with the trunnions and having a coil section extending upwardly into the upper compartment adjacent the tumblers and exposed to said tumbler, and means for oscillating said tumbler.

2. A laundry apparatus comprising in combination a casing, a partition in said casing having an inclined trough and dividing the casing into upper and lower compartments and said casing having a dry air inlet communicating with the upper compartment and an exhaust outlet communicating with the trough at its lowest point thereof, a tumbler within the upper compartment including drum heads at opposite end portions and perforated agitating ribs extending longitudinally of the tumbler with end portions in communication with the drum heads, hollow trunnions supporting the tumbler within the upper compartment, a heating coil within the lower compartment and communicating with the trunnions and having a coil section extending upwardly into the upper compartment adjacent the tumblers and exposed to said tumbler, and means for oscillating said tumbler.

NICOLA STRAMAGLIA.