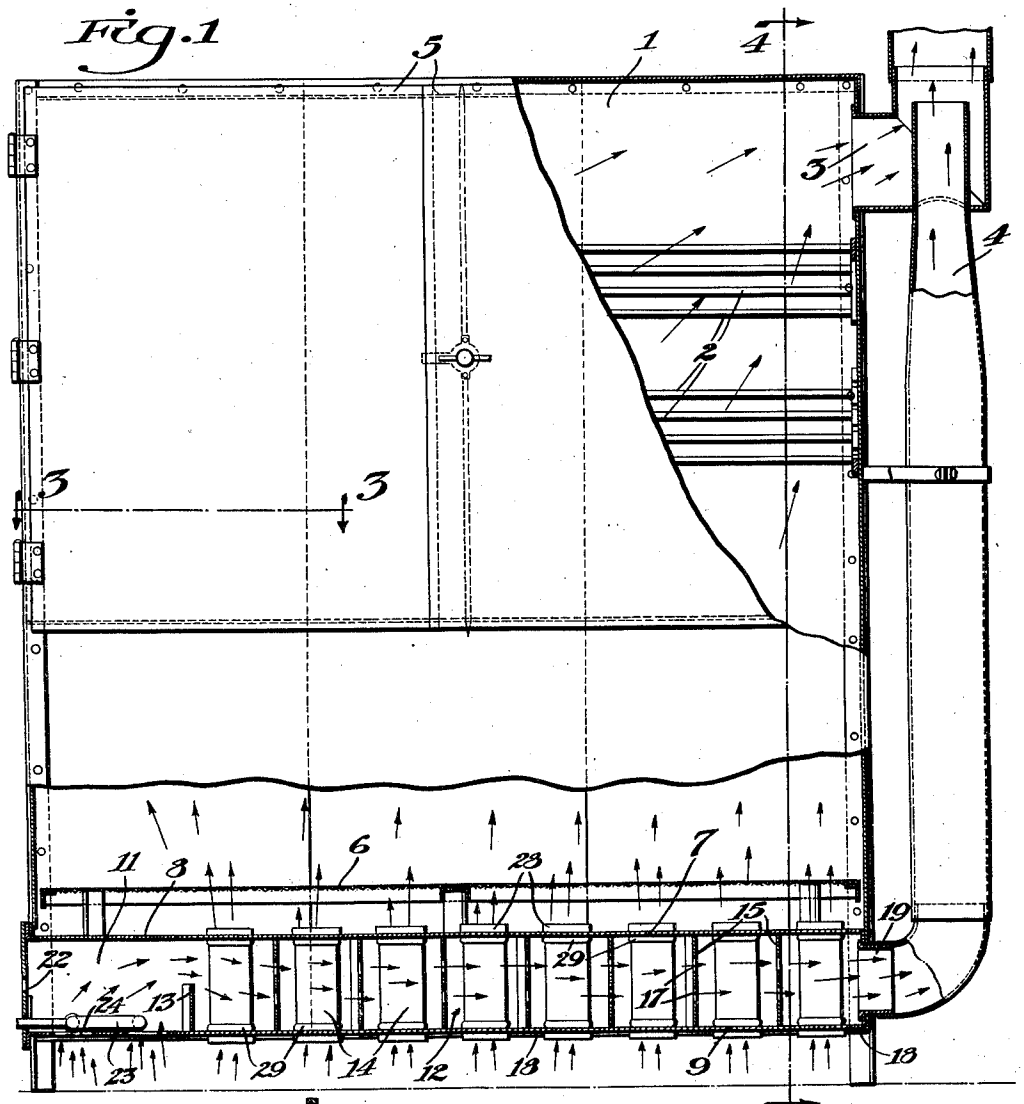
Sept. 22, 1925. 1,554,666

J. J. TAYLOR

LAUNDRY DRIER

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Fig. 1



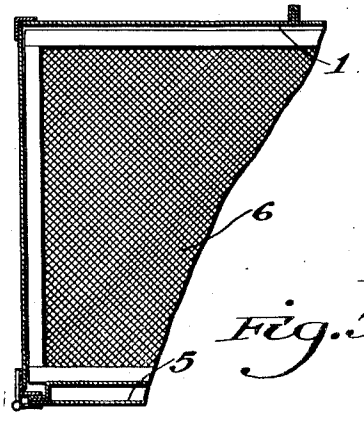




Fig. 3

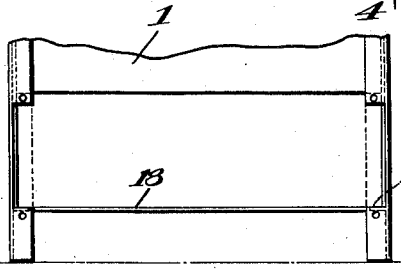



Fig. 2

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LAUNDRY DRIER

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Fig. 4

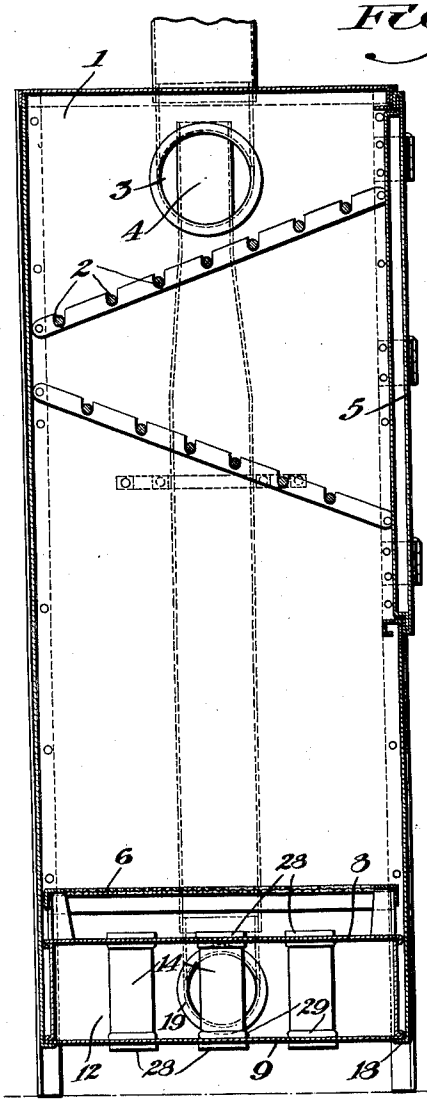



Fig. 7

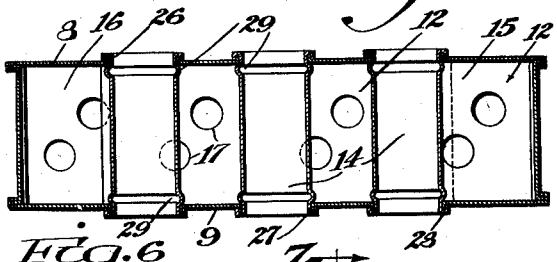
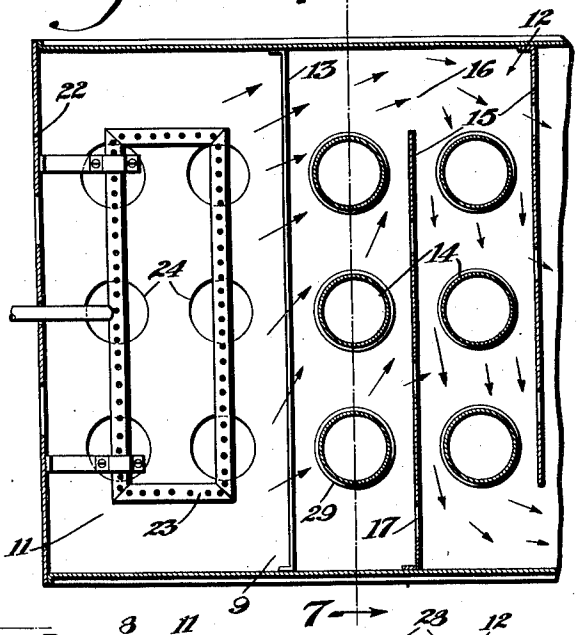



Fig. 6



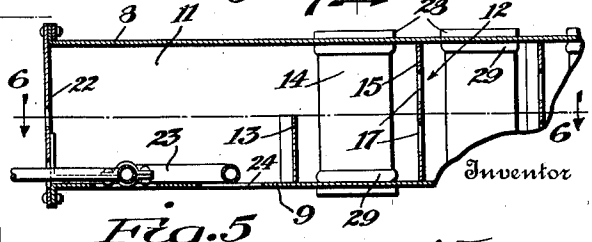




Fig. 3

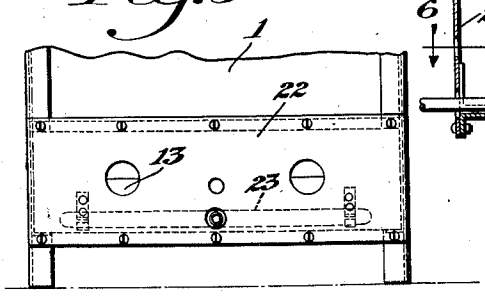



Fig. 5

Inventor

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Patented Sept. 22, 1925. 1,554,666

# UNITED STATES PATENT OFFICE.

JAMES J. TAYLOR, OF WYOMING, OHIO.

## LAUNDRY DRIER.

Application filed April 27, 1925. Serial No. 25,983.

*To all whom it may concern:*

Be it known that I, JAMES J. TAYLOR, a citizen of the United States, and residing at Wyoming, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Laundry Driers, of which the following specification is a full disclosure.

My invention relates to a laundry drier and the object of the improvement is to simplify the device to a structural minimum and at the same time to increase the heating and drying efficiency by a particular manipulation of the products of combustion in relation to the drying compartment and the conduits for introducing the air currents into the drying compartment.

The features of the invention are more fully set forth in the description of the drawings forming a part of this application, in which:

Figure 1 is a front view of my improved laundry drier with certain parts broken away to show the inner construction.

Figure 2 is a fragmentary end view showing the opening through which the heating chamber or unit is inserted into the base of the drier.

Figure 3 is a plan sectional view taken on line 3—3, Fig. 1, showing the corner construction and the screen.

Figure 4 is a sectional view taken on line 4—4, Fig. 1.

Figure 5 is a sectional view taken longitudinally of the heating chamber at the burner end thereof.

Figure 6 is a plan sectional view taken on line 6—6, Fig. 5, showing the arrangement of the inlet tubes and the partitions for directing the heated air around the tubes.

Figure 7 is a sectional view taken on line 7—7, Fig. 6, detailing the tube construction.

Figure 8 is a fragmentary end view, taken the same as Fig. 2, showing the heating chamber in place.

The invention herein disclosed may be conveniently embodied in the conventional design of laundry drier as regards material and general structure, which, as disclosed in the drawing for illustration, comprises a sheet metal box or cabinet 1 constituting the drying compartment provided with the usual hanger racks 2, the air outlet 3 at the upper end of the compartment and communicating preferably with the flue pipe 4 which leads upwardly from the combustion chamber at the bottom of the compartment. The usual doors 5 are provided and the usual horizontal screen 6 is placed at the base of the drier compartment, for preventing any clothes touching the heater unit if accidentally dropped from the racks.

The heater chamber 7 is immediately below the drying chamber and corresponds therewith in area. This chamber is constituted by the walls of the structure, the upper horizontal plate or sheet 8 and the base plate or sheet 9 positioned slightly above the floor, the entire device being supported within the frame of the drier so that there is an air space extending completely under the heating chamber.

This heater chamber 7 may be regarded as comprising the burner chamber 11 and the communicating air heating or heater chamber 12 which lies intermediate the burner chamber and the flue pipe 4. The burner chamber is separated slightly at its lower portion from the air-heating chamber by means of the low vertical partition 13 allowing the products of combustion to flow upwardly and over this partition and into the first quasi-compartment of the air-heating chamber.

This air-heating chamber is for the purpose of utilizing the products of combustion for heating the air which is to be admitted into the drier, and this function is provided through the placing in the air-heating chamber of a series of vertical air tubes 14 which extend through the top and bottom plates 8, 9, so as to pass air from the room through the heater chamber and into the lower portion of the drying compartment.

These vertical air tubes are preferably arranged in parallel horizontal rows, separated by a series of partitions 15 which are alternately secured at opposite ends respectively to the opposite end or side walls of the structure, thus providing alternately upon opposite sides of the air-heating chamber the serially disposed air passages 16 which thus define a zigzag course of travel for the products of combustion in regular order and uniform manner around walls of the vertical tubes whereby they are uniformly heated.

Looking at Figure 6, for instance, it will be seen that as the air flows from the burner chamber into the first subdivision of the air-heating chamber, the products of combus-

tion move through the left-hand passage and then flow to the extreme right and out the passage at the other end into the next subdivision and so on, which of course provides for the escaping products of combustion along this path of travel, possible within the limitations of the air-heating chamber and from which it results that the greatest maximum heating efficiency of the products of combustion is imparted to the walls of the air tube.

From practical experience I have found that the heating of the tubes is facilitated by providing in addition to the alternate transverse passages or zigzag general direction of travel of the products of combustion, additional air passages in the nature of orifices 17 placed at appropriate intervals in these partitions, as shown in Figs. 7 and 6, which permits of minor or intersecting currents of air passing around and in contact with the air tubes.

While it is not essential to the principles of this invention, I have found that in a structural sense and in an assembly sense, it is desirable to constitute the unitary burner and air-heating chamber in the nature of a removable drawer, as shown in Figs. 1 and 2. This may be done by forming the flanges 18 at the bottom of the casings forming a rest for the heating chamber drawer and in which event the inside end of this drawer adjacent the flue pipe would be formed with a flanged annulus 19 for fitting into the lower end of the flue pipe 4 so as to be removable with the drawer and the door member 22 being provided at the opposite end of the drawer. The burner 23 is of the usual construction and receives air through the orifices 24 in the bottom plate of the heating chamber directly below the burner and the gas connections could be made detachable in relation to the burner for the ready removal of the unitary burner and air-heating chamber.

In the preferred construction I have shown a means for very rigidly securing the air tubes in relation to the top and bottom plates or sheets which construction, illustrated in Fig. 7, is very desirable in such cases as where I employ the other preferred though optional embodiment, namely, of making the burner and air-heating chamber a unit in the nature of a removable drawer fitting into the general drier casing. To effect this rigidity, I preferably provide the registering orifices in the top and bottom plates respectively and so form these orifices that I strike annular flanges 26, 27, upwardy and downwardly from the plane of the top and bottom plates respectively so that they project beyond the plates, forming securance collars or annuli for the vertical air tubes.

Accordingly, the upper and lower ends of these vertical tubes extend beyond the extremities of these annuli 26, 27, and are preferably bent over to form the cupping annular flanges 28 inter-engaging or interlocking with the annuli 26, 27. Immediately adjacent the top and bottom plates, respectively, I preferably provide the annular tubes with the bead extensions 29 which reinforce these plates transversely, thereby adding to the rigidity, and the whole structure is extremely compact and stiffened, inasmuch as the tubes are thus secured to the top and bottom plates between the beads 29 and the annular cups 28.

While I have shown the several preferred embodiments as illustrative of the best method of carrying out the invention, it is obvious that these may be modified or omitted without departing from the scope of the disclosure except in so far as such preferred constructions are made the subject matter of the specific claims.

Having described my invention, I claim:

1. In a laundry drier, a casing comprising a combustion compartment in the base and a super-posed clothes drying compartment, parallel horizontal plates in said casing constituting the top and bottom members of the combustion chamber, a burner at one end of said chamber, a flue pipe at the other end, a series of air conduits intersecting a portion of said chamber intermediate the burner and flue pipe admitting fresh air into the drying compartment, partitions in the combustion chamber defining a devious escape passageway for the products of combustion in relation to the conduits, and a vent from the drier compartment communicating with the flue pipe.

2. In a laundry drier, a casing comprising a combustion chamber in the base and a super-posed clothes drier compartment, parallel horizontal plates in said casing constituting the top and bottom members of the combustion chamber and formed with vertically aligned apertures, a burner at one end of said combustion chamber, a flue pipe at the other end, a series of air conduits in the combustion chamber communicating with said top and bottom apertures to form fresh air inlets into the drier compartment, said conduits being arranged in parallel rows, partitions in said combustion chamber forming a zigzag passageway among the conduits leading the products of combustion into the flue pipe, and a vent in the drier compartment communicating with the flue pipe.

3. In a laundry drier, a casing comprising a combustion chamber in the base and a super-posed clothes drier compartment, parallel horizontal plates in said casing constituting the top and bottom members of the combustion chamber and formed with vertically aligned apertures, a burner at

one end of said combustion chamber, a flue pipe at the other end, a series of air conduits in the combustion chamber communicating with said top and bottom apertures to form fresh air inlets into the drier compartment, said conduits being arranged in parallel rows, partitions in said combustion chamber forming a zigzag passageway among the conduits leading the products of combustion into the flue pipe, said partitions being formed with apertures forming openings for the products of combustion intersecting said main escape passageway, and a vent in the drier compartment communicating with the flue pipe.

4. In a laundry drier, a casing comprising a drawer compartment at the base and a super-posed clothes drier compartment, a unitary drawer structure fitting into said base compartment and removable therefrom, a burner in said drawer compartment, a flue pipe, a member in said drawer communicating with the flue pipe, and a series of air conduits in said drawer between the burner and the flue pipe for admitting fresh air through the drawer into the drier compartment and disposed in the path of travel of the products of combustion to the flue pipe.

5. In a laundry drier, a casing comprising a drawer compartment at the base and a super-posed clothes drier compartment, a unitary drawer structure fitting into said base compartment and removable therefrom, a burner in said drawer compartment, a flue pipe, a member in said drawer communicating with the flue pipe, a series of air conduits in said drawer between the burner and the flue pipe for admitting fresh air through the drawer into the drier compartment and disposed in the path of travel of the products of combustion to the flue pipe, and partitions in said drawer defining a devious passageway for the escape of products of combustion in relation to the conduits.

6. In a laundry drier, a casing comprising a drawer-like compartment at the base and a super-posed drier compartment, a flue pipe, a removable drawer fitting in said compartment, a member in said drawer communicating with the flue pipe, a burner in the other end of said drawer, air conduits in the top and bottom members constituting said drawer, said top and bottom members having interlocking surfaces rigidly securing the conduits unitarily to the drawer, said conduits admitting air through the drawer into the drier compartment, and a vent in the drier compartment communicating with the flue pipe.

7. In a laundry drier, a casing comprising a drawer compartment at the base and a super-posed drier compartment, a drawer fitting in said drier compartment and comprising top and bottom members having aligned apertures, a burner in one end of the drawer, a flue pipe extending vertically to the base of the casing, a member in the other end of the drawer communicating with said flue pipe and constituting an end member of the drawer, and a series of conduits in said drawer between the burner and flue pipe member rigidly secured at top and bottom to the top and bottom drawer members.

8. In a laundry drier, a casing comprising a drawer compartment at the base and a super-posed drier compartment, a drawer fitting in said drier compartment and comprising top and bottom members having aligned apertures, a burner in one end of the drawer, a flue pipe extending vertically to the base of the casing, a member in the other end of the drawer communicating with said flue pipe and constituting an end member of the drawer, a series of conduits in said drawer between the burner and flue pipe member rigidly secured at top and bottom to the top and bottom drawer members, and partitions in said drawer between the burner and flue pipe member providing a devious passageway for the product of combustion from the burner to the flue pipe for heating said conduits.

9. In combination with a drier compartment, its support with a flue pipe, a removable drawer constituting a unitary combustion chamber under the drier, comprising a burner therein, a coupling member detachably engaging the flue pipe, and a series of air conduits between the burner and coupling member intercepting the products of combustion and transmitting air through the bottom of the drawer into the drier.

10. In combination with a drier compartment, its support with a flue pipe, a removable drawer constituting a unitary combustion chamber under the drier, comprising a burner therein, a coupling member detachably engaging the flue pipe, a series of air conduits betwen the burner and coupling member intercepting the products of combustion and transmitting air through the bottom of the drawer into the drier, and baffles unitarily secured within the drawer in spaced relation to the air conduits.

11. In combination with a drier compartment, its support, a flue pipe, a removable box under the drier comprising top and bottom plates and supporting walls, a burner therein, a wall coupling member detachably engaging the flue pipe, a series of air conduits between the burner and flue, rigidly connected to the top and bottom members of the drawer and positioned to intercept the products of combustion, and being formed to transmit air through the bottom of the drawer into the drier.

12. In combination with a drier compartment, its support, a flue pipe, a removable

box under the drier comprising top and bottom plates and supporting walls, a burner therein, a wall coupling member detachably engaging the flue pipe, a series of air conduits between the burner and flue, rigidly connected to the top and bottom members of the drawer and positioned to intercept the products of combustion, being formed to transmit air through the bottom of the drawer into the drier, and a series of baffles supported by the walls within the drawer positioned in spaced relation to the air conduits.

In witness whereof, I hereunto subscribe my name.

JAMES J. TAYLOR