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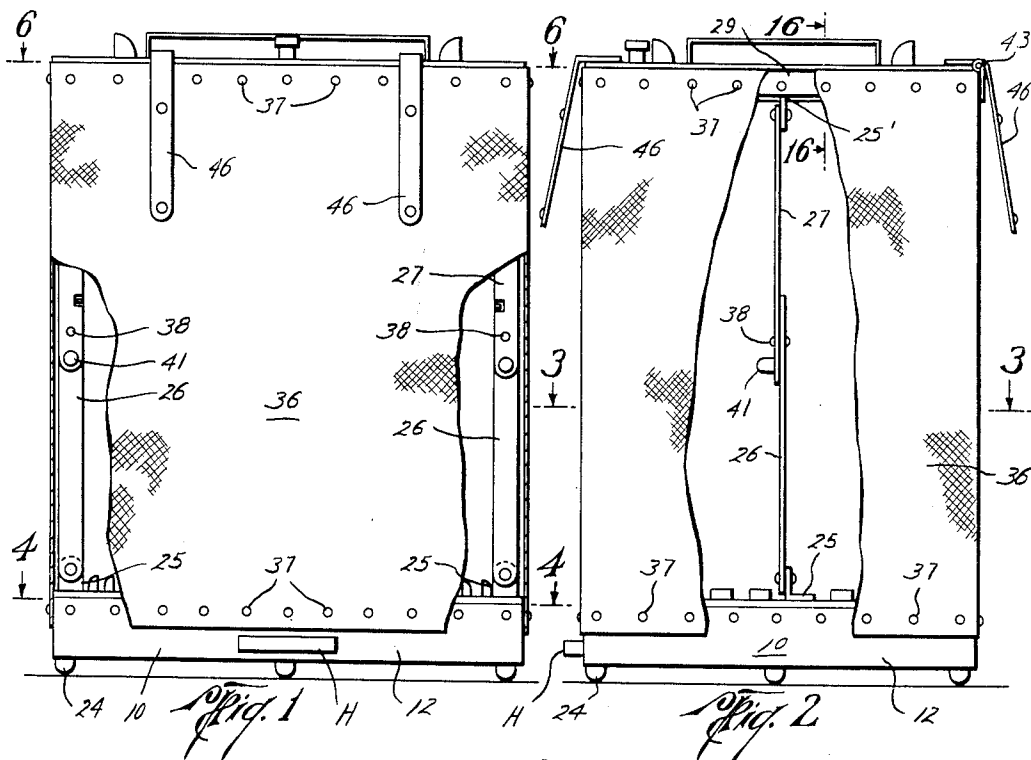
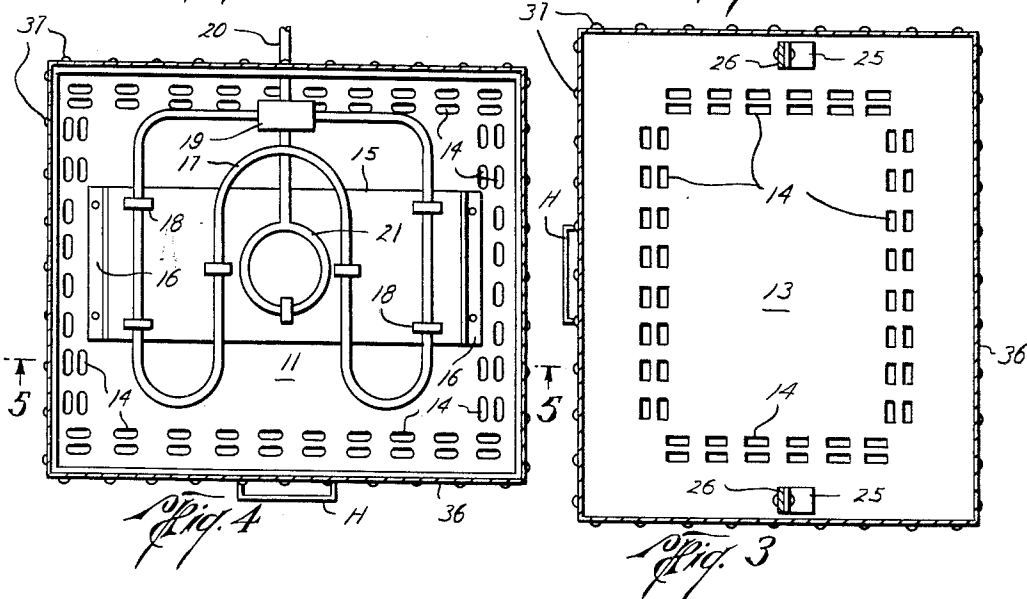
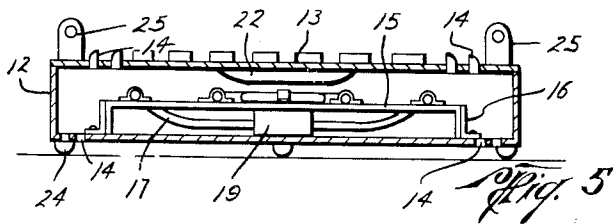
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2,728,996

FOLDABLE ELECTRIC CLOTHES DRIERS

Filed May 21, 1953

2 Sheets-Sheet 1



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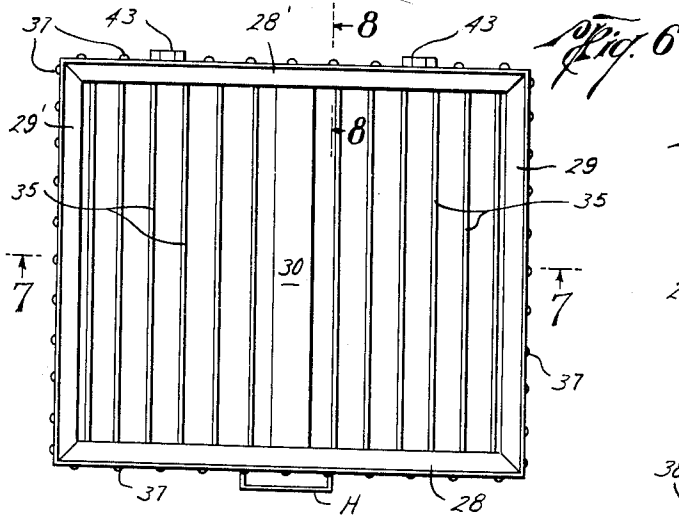
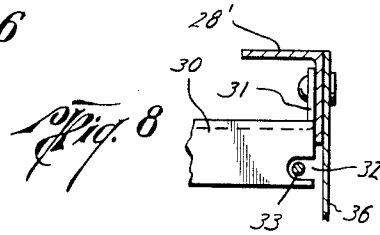
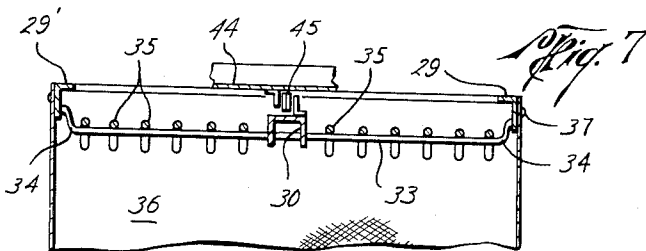
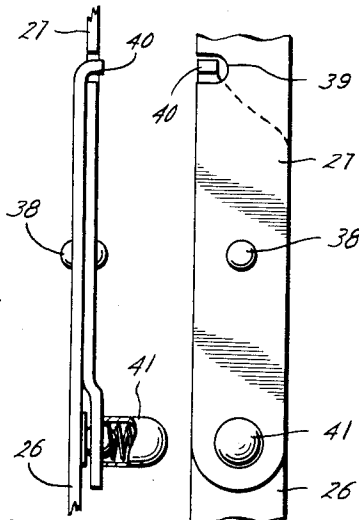
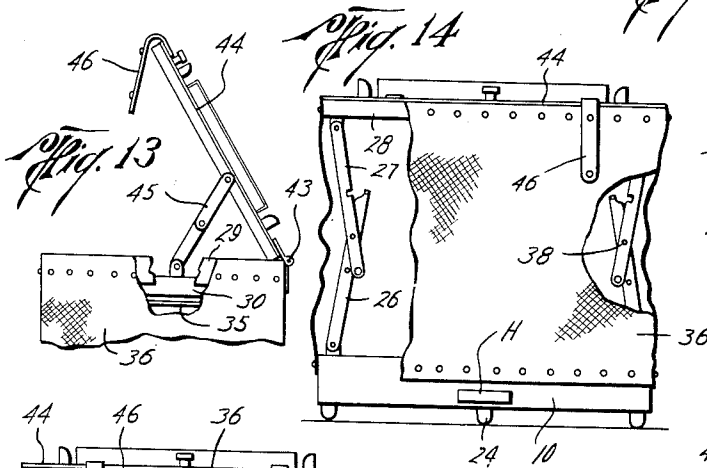
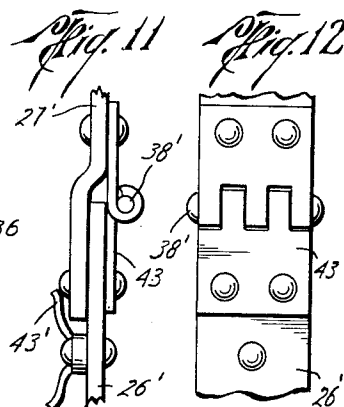
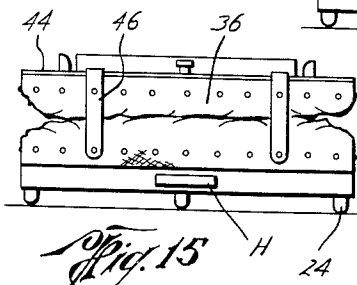
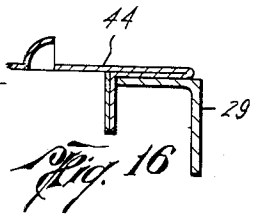
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FOLDABLE ELECTRIC CLOTHES DRIERS

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2 Sheets-Sheet 2



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2,728,996

## FOLDABLE ELECTRIC CLOTHES DRIERS

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Application May 21, 1953, Serial No. 356,571

4 Claims. (Cl. 34—234)

This invention relates to improvements in clothes driers and has reference in particular to a foldable electric clothes drier for household use.

Washing machines are available in moderate sizes suitable for small houses and/or apartments. The increased populations of our large cities makes it impractical to continue the old system of each family having a separate residence on a large lot and the use of multi-family units or apartments is the inevitable result.

The washing of clothes is no longer a serious problem for apartment dwellers but the drying of the clothes is more difficult. Expensive electric clothes driers are available to those that can afford them but they occupy much space and are therefore not suitable for use in small apartments and residences.

It is the object of this invention to produce an electric clothes drier that can be marketed at a very moderate price compared to the large driers now on the market and which can be folded into a small package when not in use so that it may be stored in a small closet or under the bed.

Another object is to produce a clothes drier of such construction that it can be quickly unfolded and folded which operations require very little strength and can be performed by the ordinary housewife.

A further object is to produce a drier that has a large capacity for its size and which can be loaded and unloaded from the top.

The above and any other objects that may become apparent as the description proceeds are attained by means of a construction and an arrangement of parts that will now be described in detail for which purpose reference will be had to the accompanying drawings in which the invention has been illustrated and in which

Figure 1 is a front elevational view of the drier showing the same in operative position, portions of the walls having been removed to facilitate the description;

Figure 2 is a side elevation looking towards the left in Figure 1, portions of the wall having been removed to show certain structural features;

Figure 3 is a section looking downwardly along line 3—3 Figure 1;

Figure 4 is a view looking downwardly through plane 4—4 Figure 1 and shows the arrangement of the heating elements;

Figure 5 is a section taken on line 5—5, Figure 4;

Figure 6 is a top plan view, with the cover removed, looking downwardly in Figure 7;

Figure 7 is a section taken on line 7—7, Figure 6, showing a short section of the upper portion of the drier;

Figure 8 is a detail to approximately full size, taken on line 8—8, Figure 6;

Figures 9 and 10 are respectively an edge and a side view of the toggle hinge;

Figures 11 and 12 are respectively an edge and a side view of another form of hinge;

Figure 13 is a fragmentary side elevational view showing the upper end of the drier with the cover in raised position;

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Figure 14 is a front elevational view to a smaller scale, showing the position of the parts at the beginning of the folding movement, portions of the wall having been removed to disclose the toggle hinges.

Figure 15 is a front elevational view showing the drier in folded position and

Figure 16 sectional detail taken on line 16—16, Fig. 2.

Referring now to the drawing, reference numeral 10 designates the base which is a closed box having a bottom 11, four vertical sides 12 and a top 13. Both the bottom and the top are provided with rows of louvers 14 which are of ordinary construction and provide openings through which air flows. Supported on the bottom is a shelf 15 held in place by angle brackets 16. An electric heating element 17 is attached to the top of the shelf by clamps 18. The ends of the heating element terminates in junction box 19 to which current is supplied by conductors (not shown) passing through conduit 20. A smaller heating element 21 is supported on the shelf and receives current through conductors positioned in conduit 20. The top 13 of the base is imperforate except for the inwardly dispersed louvers 14 which are positioned along the four edges thereof to direct the heated air inwardly above the base, thus providing for an even distribution of heated air thereabove. The top 13 thus serves as a baffle to retard the rate of flow of the air in order to increase the heat thereof. In addition, a convex deflector 22 is positioned at the central, imperforate portion of the top wall to deflect the heated air outwardly toward the louvers 14. The base 30 is supported on lugs or sliders 24. Attached to the top 13, one on each side, are angle brackets 25 to which the lower links 26 of the toggles are attached by pivots as shown. The upper links of the toggle have been designated by numeral 27 and their upper ends are pivoted to angle brackets 25' as shown most clearly in Figure 2.

Angle brackets 25' are attached to a rectangular frame having front and rear angle iron sides 28 and 28' and right and left sides 29 and 29' respectively. A channel shaped brace 30 connects the front and rear frame members 28, 28' and is attached to the frame members by rivets that pass through them and through the web ends 31.

From Figure 8 it will be seen that the flanges of the channel have notches 32 that embrace rods 33 whose ends 34 are offset as shown, and project through openings in the vertical flanges of angle bars 29 and 29'. A plurality of bars 35 serve as supports for moist clothes that are to be dried. A heavy canvas wall 36 is attached at its bottom to base 10 and at its top to the angle iron frame, shown in Figures 6 and 7, by means of snap fasteners which have been designated by numeral 37, and are provided in such numbers and such spacings as may be deemed desirable. The vertical length of the canvas walls is such that the canvas will be taut when the toggles are at their greatest length and therefore, although the top frame is supported on its center line by the toggles it will not rock on the toggle pivots to any appreciable extent. The toggles may be of any construction that will effect the desired purpose. Two specifically different toggle constructions have been shown. The toggles at present used are constructed as shown in Figures 1, 2, 9, 10 and 14 in which the toggle arms move about pivots perpendicular to their wide surfaces, and are interconnected by pivot 38 as shown most clearly in Figures 9 and 10. Arm 27 has a notch 39 and the upper end of arm 26 has a projection 40 that engages the bottom of the notch when the toggle is in slightly over-set position. The lower end of toggle arm 27 is provided with a well known spring detent 41 that engages in opening 42 to hold toggle in extended position. The other type of toggle has been illustrated in Figures 11 and 12 which shows the arms connected by a hinge 43 whose pivot 38' corresponds to pivot 38 in Figures 9 and 10. A turn knob 43' serves to hold the toggle in extended position. The

upper and lower ends of the toggles are hinged to turn about pivots parallel to pivots 38'. Any other toggle construction can be used.

To baffle the flow of air for maximum drying efficiency, the drier is provided with a cover 44 attached to frame member 28' by hinges 43. A toggle 45 extends from the cover to channel brace 30 and serves to hold the cover open while the clothes are applied and removed. The cover may be constructed in any desired manner, preferably from sheet aluminum, and must have an ample supply of louvers or openings to permit the free escape of air.

When the drier is not in use it is folded into a package like that shown in Figure 15 and is held in that position by straps 46. When the drier is to be folded the toggles are broken inwardly as shown in Figure 14 and the canvas walls are folded inwardly to form a neat package.

When the drier is to be used straps 46 are detached from the base and the top frame raised to the limit of the toggles which are then latched. The clothes are draped over bars 35; the cover closed and the heaters connected with the electric current supply. The heated air flows upwardly and absorbs the moisture from the clothes. Deflectors symbolized by member 22 spread the air outwardly and produce a uniform distribution.

Attention is called in particular to the fact that the drier does not use a central support to hold the parts extended but employs two toggles for this purpose; this gives a clean space for the clothes and simplifies the construction. The canvas wall is suspended from the top frame and is quite taut when the device is in use.

After the drier has been folded into the position shown in Figure 15 which figure shows the top of the folded drier as it rests on a supporting surface. The base portion is provided with a handle H shown in Figure 15 and in some of the other figures. The part that is at the bottom on Figure 15 is provided with knobs 24 shown at the top of Figure 6 and on the right side of Figure 2.

After the drier has been folded it may be supported in vertical position as shown in Figure 15 or it may be lying on the supporting surface.

What is claimed as new is:

1. An electric clothes drier comprising in combination, a base of box form having horizontal top and bottom walls and four side walls, said bottom wall being foraminated and said top wall having a central, imperforate, heat-deflecting portion and a plurality of louvers adjacent the outer edges thereof, said louvers being positioned to direct the flow of air inwardly above said base, an electric heating element mounted below said imperforate central portion, a rectangular top frame of substantially the same

size and shape as said base, a pair of opposite disposed toggle members, each of said toggle members being pivotally mounted at its lower and upper ends to the base and frame, respectively, for releasably supporting the frame a fixed distance above the base, and a drying chamber comprising a fabric wall attached at its top and bottom to the periphery of said top frame and said base, respectively, said fabric wall being of a length substantially equal to the distance between the top frame and base when said toggles are extended.

2. A clothes drier as defined in claim 1 including means comprising a cover hinged to one side of the top frame to retard the flow of air through said drying chamber.

3. An electric clothes drier comprising in combination, a base of box form, said base having a foraminated bottom wall and a top wall having louvers adjacent the four edges thereof to direct the flow of air inwardly above said base, a first electric heating element mounted in said base and overlying the major portion of said bottom wall, a second heating element mounted within said base and disposed in overlying relationship to the central portion of said bottom wall, a convex deflector element mounted within said base above said second heating element for directing the heated air outwardly towards said louvers, a rectangular top frame of substantially the same size as said base, means comprising a pair of toggle members pivotally attached at their lower and upper ends to the base and top frame, respectively, for releasably supporting the frame a fixed distance above the base, a drying chamber comprising extensible and collapsible side walls secured at their bottoms and tops to the peripheries of said base and said top frame respectively, and means including a cover hinged to said top frame to retard the flow of air through said drying chamber.

4. A clothes drier as defined in claim 3 wherein the maximum distance of the top frame from the base is so related to the height of the extensible side walls that said side walls are under tension when said toggle members are extended.

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