

Sept. 9, 1958

L. LE B. LYONS III, ET AL

2,850,810

PORTABLE CLOTHES DRYER

Filed Nov. 13, 1956

5 Sheets-Sheet 1

FIG. 1

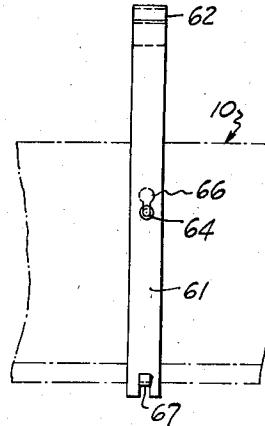
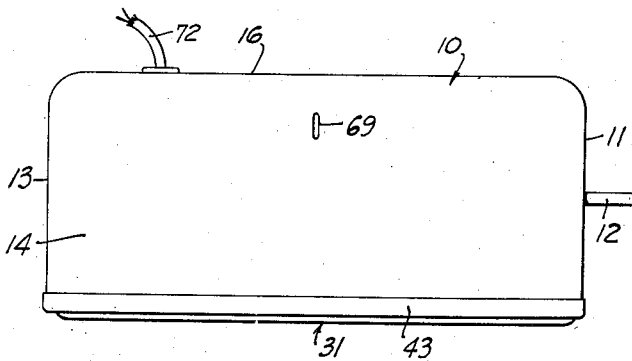


FIG. 3

FIG. 2

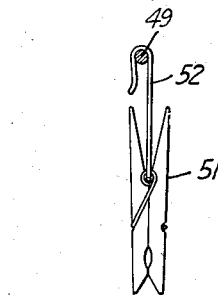
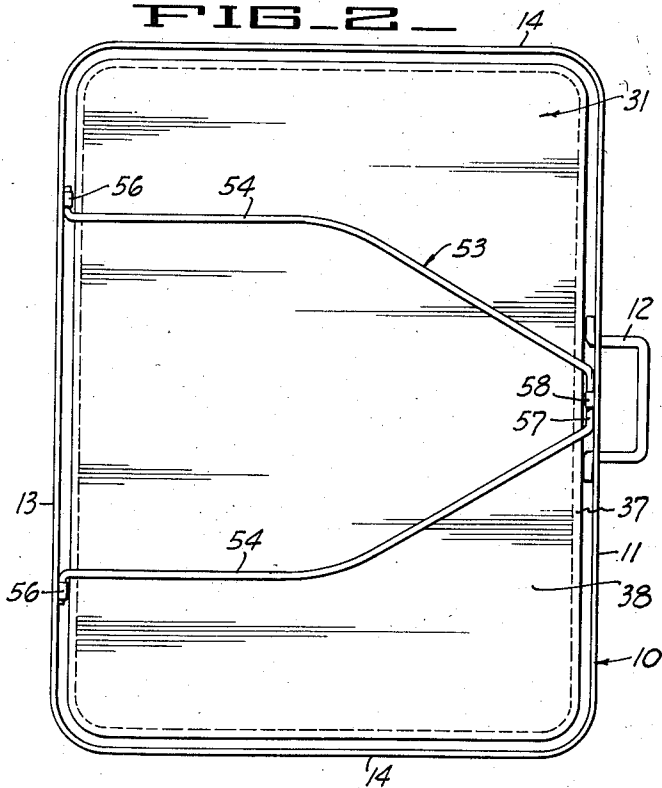


FIG. 4

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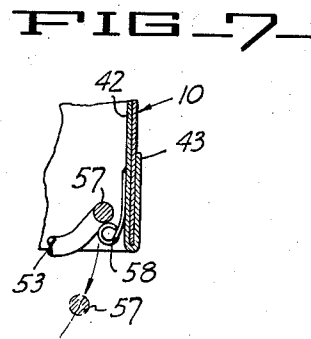
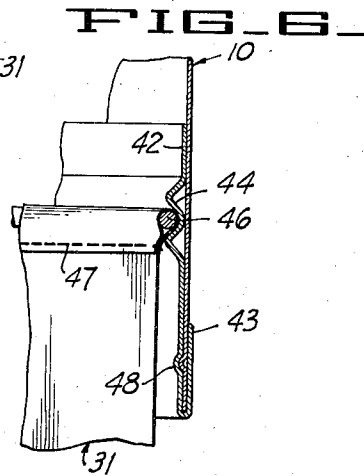
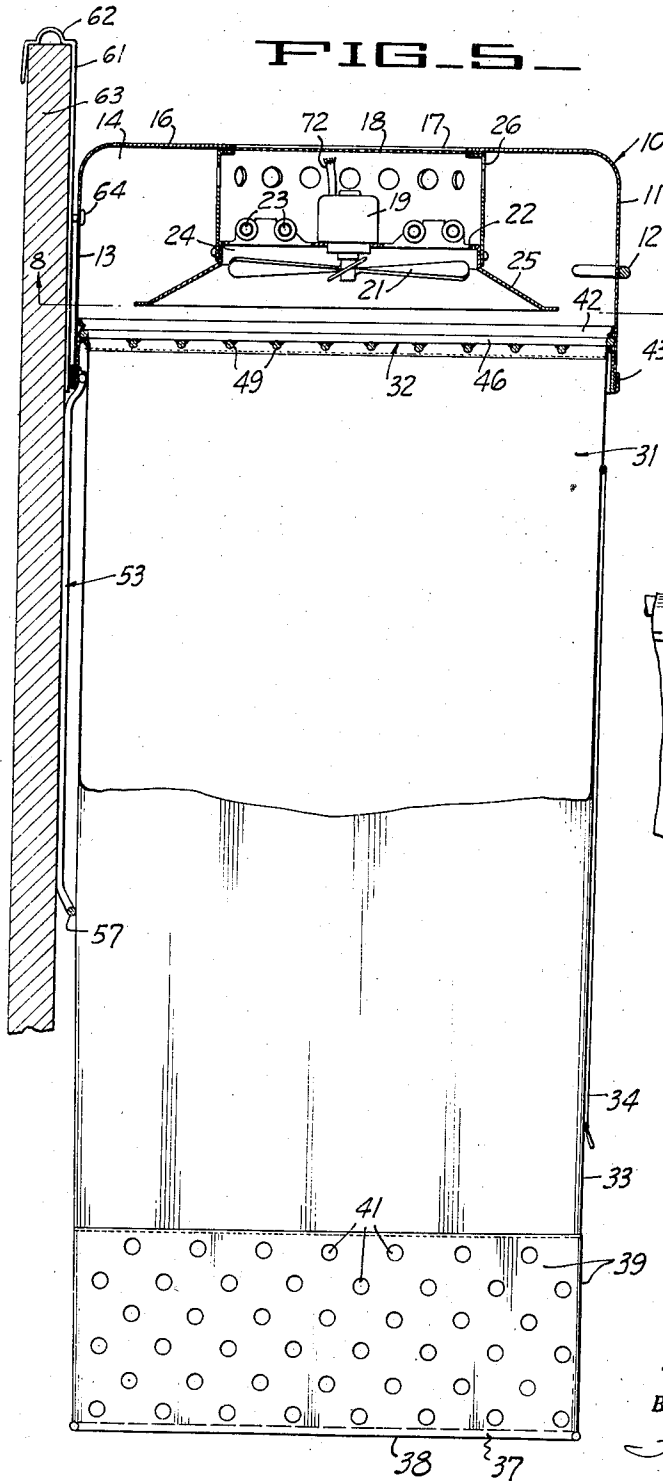
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PORTABLE CLOTHES DRYER

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5 Sheets-Sheet 2



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PORTABLE CLOTHES DRYER

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5 Sheets-Sheet 3

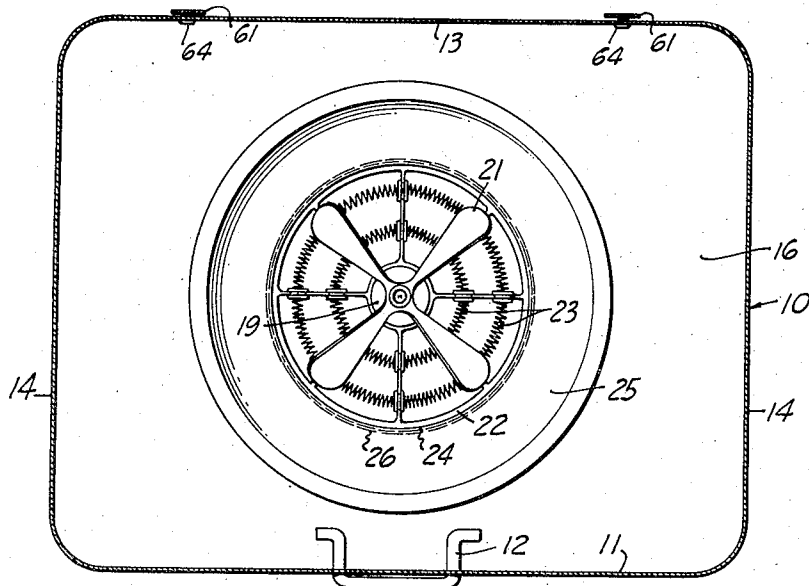


FIG. 8

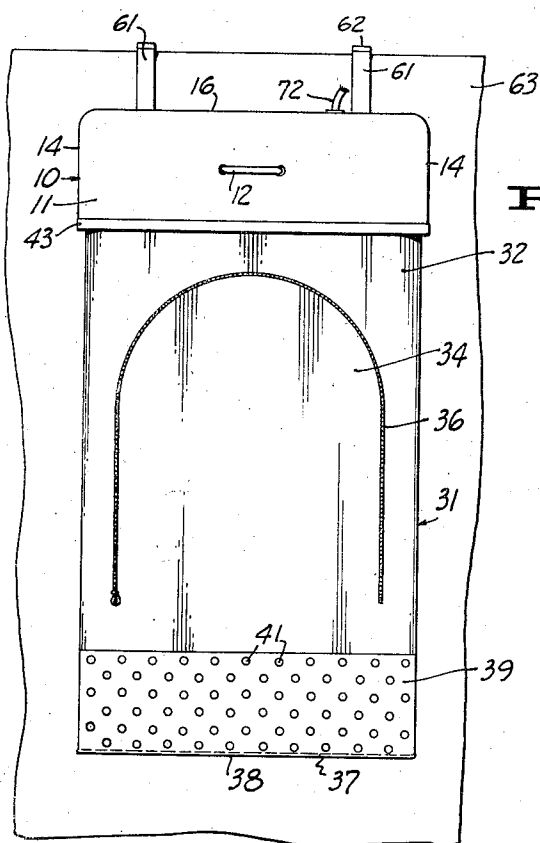
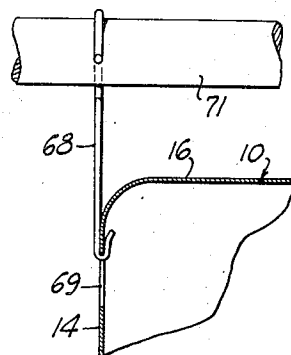


FIG. 9

FIG. 10



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PORTABLE CLOTHES DRYER

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FIG. 11

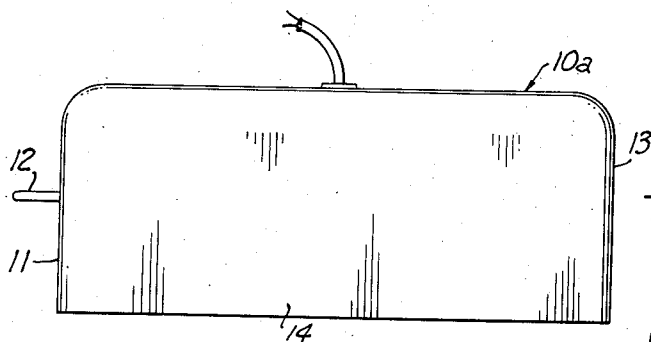


FIG. 13

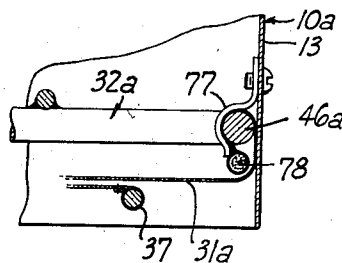


FIG. 12

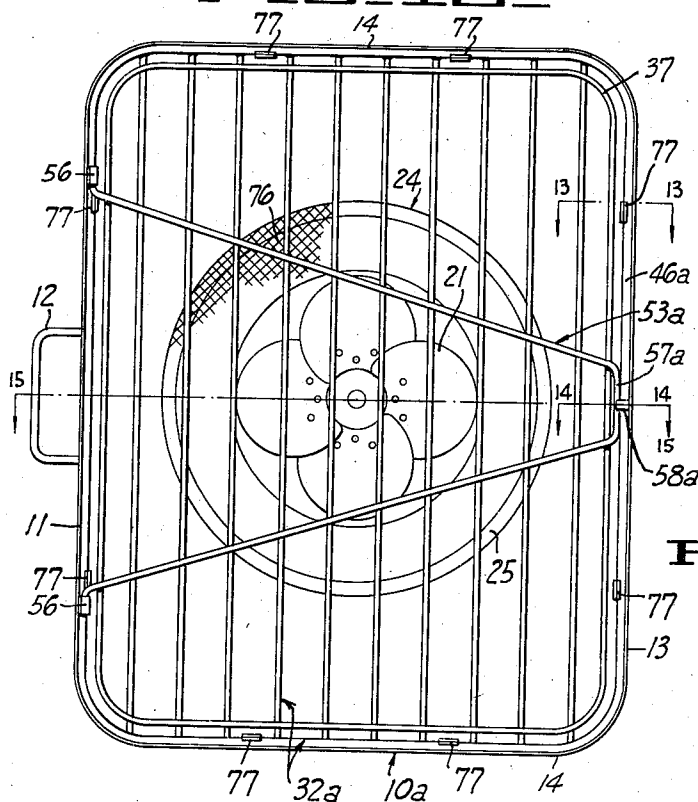
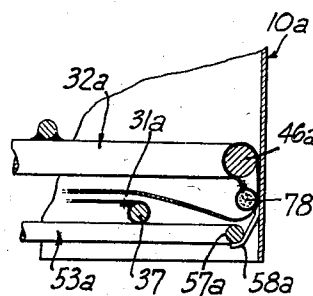


FIG. 14



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PORTABLE CLOTHES DRYER

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Application November 13, 1956, Serial No. 621,944

5 Claims. (Cl. 34—163)

This invention relates generally to devices of the portable type for the convenient drying of clothes and like objects.

It has been common to dry clothes in a closed compartment through which heated drying air is circulated. In general such devices have not been constructed in such a manner as to simplify storage when not in use, or for convenient carrying from place to place like a traveling case. Also the structural features employed have not been such as to facilitate low cost manufacture.

In general it is an object of the present invention to provide a clothes dryer which when collapsed occupies a small space whereby it may be carried like a traveling case.

Another object of the invention is to provide a clothes dryer of the above character which when extended forms an efficient clothes dryer.

Another object of the invention is to provide a portable clothes dryer of the above character having a bag for forming a closed drying space, the bag being readily replaceable with respect to the rest of the device, and being normally retained in a novel manner.

Another object of the invention is to provide a portable clothes dryer having a readily replaceable bag of thin plastic material forming a closed drying space.

Another object of the invention is to provide a portable dryer of the above character which is so constructed as to facilitate low cost manufacture.

Additional objects and features of the invention will appear from the following description in which the preferred embodiment has been set forth in detail in conjunction with the accompanying drawing.

Referring to the drawing:

Figure 1 is an end view illustrating a device incorporating the present invention.

Figure 2 is a bottom plan view of the device shown in Figure 1.

Figure 3 is a detail illustrating a bracket of the type that can be attached to the device, to facilitate supporting the device on a door.

Figure 4 is a detail illustrating a clothes attaching device such as can be used with our invention.

Figure 5 is an elevational view in section illustrating our device attached to a door and with the bag extended.

Figure 6 is a cross sectional detail illustrating the manner in which the bag is attached to the housing.

Figure 7 is a cross sectional detail illustrating the manner in which the bag engaging means is held in bag engaging position.

Figure 8 is a cross sectional view taken along the line 8—8 of Figure 5.

Figure 9 is a front view of the device with the bag extended, and supported on a door.

Figure 10 is a detail in section illustrating another means for supporting the device.

Figure 11 is an end view similar to Figure 1, but illustrating another embodiment of the invention.

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Figure 12 is a bottom plan view of the device shown in Figure 11.

Figure 13 is a cross sectional detail on a large scale taken along the lines 13—13 of Figure 12.

5 Figure 14 is a cross sectional detail on an enlarged scale taken along the line 14—14 of Figure 12.

Figure 15 is a section in elevation taken along the line 15—15 of Figure 12.

Our device consists generally of a housing or casing 10 which is made of suitable material, such as drawn sheet metal. The side wall 11 is provided with a handle 12, and when the device is being carried this wall forms the top of the assembly. The side wall 13 forms the bottom of the device when being carried, and as will be presently explained, is provided with means to facilitate attachment 15 to suitable supporting means. The side walls 14 are joined at right angles to the walls 11 and 13, and in general all of the walls are joined whereby in appearance the device simulates a traveling case.

20 The top wall 16 (Figure 5) is provided with an air inlet opening 17, normally covered by the perforated wall or screen 18. An electrical fan is disposed within the housing adjacent to screen 18, and can consist of the electric motor 19 and the bladed propeller 21. The motor is shown carried by the mounting spider 22, which also serves to mount the electrical heating elements 23. Spider 22 is in turn carried by the annular shell 24 which has a conical shaped portion 25 forming a divergent discharge passage for the fan. The fan may, if desired, be 25 protected by suitable screening (not shown) extending across the conical portion 25. Shell 24 is shown attached to a perforated cylindrical wall 26 that is mounted on wall 16.

30 That side of the housing opposite the top wall 16 is completely open. Mounted within this open side there is a bag 31 and a clothes supporting grille 32. The bag can be made of a suitable pliable plastic material, such as polyethylene, polyvinyl, or Pliofilm. It is generally rectangular in section when extended in the manner shown 35 in Figure 5. The front wall 33 of this bag is provided with an access closure 34 (Figure 9) which can be retained in place by the attaching means 36 of the "zipper" type. A rectangular shaped metal hoop 37 (Figure 5) is disposed in the bottom of the bag, and serves to retain 40 the bottom wall 38 distended in a substantially flat plane. The lower portions 39 of the bag are preferably provided with perforations 41 for the discharge of air.

In this embodiment the mouth of the bag is attached to the housing 10 by means such as shown in Figure 6. A sheet metal insert 42 is constructed for insertion into the open side of the housing. The edge 43 of this insert is doubled back upon itself to engage about the marginal edge of the housing. A portion of the insert is offset to provide the groove 44. This groove accommodates the 45 rectangularly shaped metal hoop 46, about which the adjacent material of the bag is folded. As shown in Figure 6 the folded over edge of the bag may be secured by suitable stapling devices 47. Normally the insert 42 is fixed within the housing, and to provide suitable retention 50 portions of the insert may be struck out as indicated at 48, to engage complementary struck out portions formed on the housing. In practice it is desirable to form insert 42 of two halves, which when inserted into the housing form the effect of a single insert. However when the insert is removed the halves can be separated from the 55 hoop 46, thus permitting a new bag and hoop to be applied.

The hoop 46 preferably carries a plurality of parallel 60 wires or bars 49, which in effect form the grille 32. Clothespins 51 of the spring type (Figure 4) can be provided with hooks 52, for engaging over the bars 49.

In Figures 1 and 2 it is assumed that the bag is in collapsed position. To collapse the bag it is only necessary to fold the pliable side walls inwardly, while the bottom of the bag is lifted to a position where it is accommodated within the open side of the housing. Suitable means is provided for holding the bag in this collapsed position. As shown in Figure 2 this means consists of a keeper in the form of a bail 53. The two branches 54 of this bail have hinge connections 56 with the wall 13 of the housing, adjacent the open side of the same. The other end portion 57 of the bail is adapted to snap over and be retained by the spring latch 58 (Figure 7). It will be evident that this keeper or bail holds the collapsed bag against the grille bars 49, thereby simulating one side of the housing, and providing a neat appearance.

Various means can be used for supporting the housing in a positions such as shown in Figure 5, whereby the bag can be dropped to extended position for use. The means illustrated consist of a pair of brackets 61 having their upper ends 62 hook shaped, to engage over a door 63 or like household object. The brackets are provided with hooks or headed studs 64, which are adapted to engage in the keyhole shaped openings 66 (Figure 3) formed in the wall 13. The lower ends of the bracket 61 are shown formed with hooks 67, for engaging the adjacent edge of the housing. In place of such a supporting means it is evident that the housing can be engaged with screws or like fastening devices, to support it in horizontal position on the wall of a room.

Figure 10 shows the use of hooks 68 (one on each side of the housing) having bent ends for engaging in slots 69. Such hooks can engage over a horizontal support rod 71.

Operation of our device is as follows: Assuming that it has been hung from a door in the manner illustrated in Figure 5, the bail 53 is released to permit the bag to drop down and form a space for enveloping clothes. The closure 34 is removed by unfastening the zipper, and the clothes to be dried are hung on the grille rods 49. The electrical cord 72 which makes connections with the motor of the fan and the electrical heating elements 23, is then plugged into the conventional current supply system, whereby the fan forces the heated air downwardly through the bag and between the clothes. When the device is not in use, the bag can be collapsed in the manner previously described and the bail 53 latched over the bottom of the bag in the manner shown in Figures 1 and 2.

It will be evident from the foregoing that we have provided a device which can be handled in the same manner as an ordinary traveling case, and which can be readily installed to function as a clothes dryer. When the bag is collapsed the device is compact and neat in appearance, and the bag is protected against accidental injury.

In the embodiment of Figures 11-15 inclusive the housing or casing 10a is similar to the housing 10 described above, except for structural features to be presently described. The motor 19 and fan propeller 21, together with the electrical heating elements 23 and associated parts, are similar to the corresponding parts illustrated in Figure 5. The flared or conical portion 25 of the shell 24 is provided with a screen 76, which prevents any portions of the articles being dried from being drawn up into the zone of operation of the propeller.

Simplified means illustrated particularly in Figures 13 and 14, serves to retain the bag 31a with respect to the casing 10a, and the grille 32a. The hoop 46a, forming a part of the grille, is fitted within the open face of the housing and is detachably retained by a plurality of spring metal tabs 77. The upper edge of the bag is shown folded over the hoop 46a, whereby the tabs not only retain the hoop 46a and grille in proper position, but in addition retain the bag attached to the hoop 46a and the housing. As illustrated in Figure 13, the edge of the bag

can be provided with a cord or other type of reinforcement 78, which aids in retaining the bag in the manner illustrated in this figure. When it is desired to remove the grille and the bag it is only necessary to apply sufficient force to pull the grille out of engagement with the spring tabs 77, after which a new bag can be applied about the hoop 46a, and the hoop again engaged with the tabs 77.

The bag 31a illustrated in Figure 15 is essentially the same as the bag of Figure 5. The opening 34a is attached to the main part of the bag by suitable means such as a fastener of the zipper type, and the lower portion 39a is provided with openings 41a.

As shown particularly in Figure 12, means similar to that shown in Figure 7 is employed for releasably retaining the bail 53a. Thus the bail portion 57a is adapted to engage and be retained by the metal latch or tongue 58a that is attached to the adjacent wall of the housing. The bail can be sprung a sufficient amount to pass the free end of this tongue, thus permitting the bail to swing to either bag-retaining or out-of-the-way positions.

This application is a continuation-in-part of abandoned applications Serial 441,502 filed July 6, 1954, and Serial 514,826 filed June 13, 1955 for "Portable Clothes Dryer."

We claim:

1. In a portable clothes dryer, a rigid housing formed of a top and four side walls and having a handle on one side wall, said housing forming a traveling case, an electric fan mounted within the housing, the top wall of the housing having an opening therein forming an air inlet for the fan, the opposite side of the housing being open for discharging air delivered from the fan, electrical heating means mounted in the housing for heating air circulated by the fan, a bag of pliable material having a disengageable access closure on one side of the same, a clothes supporting grille mounted within said housing, said bag being foldable to a position adjacent said grille, said grille having a hoop portion about which the bag is engaged to thereby retain the bag upon the housing, said bag being capable of extension to hang below the housing to thereby provide an enclosed space for receiving articles to be dried, and means for releasably retaining said bag in said folded position.

2. In a portable clothes dryer, a rigid housing formed of a top and four side walls and having a handle on one side wall, said housing forming a carrying case, an electric fan mounted within the housing, the top wall of the housing having an opening therein forming an air inlet for the fan, the opposite side of the housing being open for discharge of air, electrical heating means mounted within the housing for heating air circulated by the fan, a bag of pliable material adapted to form a drying space, a clothes supporting grille having an outer hoop portion adapted to be positioned within the open side of the housing, the mouth portion of the bag being disposed about said outer hoop portion, means carried by the housing for releasably engaging said hoop portion and said open mouth portion of the bag whereby both said grille and said bag are removably retained with respect to the housing, said bag being foldable to a position within the housing adjacent said grille with its bottom extending across said open side of the housing or being capable of extension to hang below the housing to provide an enclosed space for receiving articles to be dried.

3. A clothes dryer as in claim 2 in which said means carried by the housing for detachably engaging the hoop portion of the grille includes a plurality of spring clips.

4. A portable clothes dryer as in claim 2 in which said means carried by the housing for detachably engaging the hoop portion of the grille consists of a grooved insert removably fitted within the housing, said hoop portion being accommodated within the groove of said insert.

5. In a portable clothes dryer, a rigid housing formed of a top and four side walls and having a handle on one side wall, said housing forming a carrying case, an elec-

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tric fan mounted within the housing, the top wall of the housing having an opening therein forming an air inlet for the fan, the opposite side of the housing being open for delivering air discharged from the fan, electrical heating means mounted within the housing for heating air circulated by the fan, a shell generally embracing the fan within the housing, said shell having a divergent portion interposed between the fan and said open side of the housing, a screen extending over said divergent portion, a clothes supporting grille having a hoop portion, a bag of pliable material having its mouth portion engaging about said hoop portion, a plurality of spring tabs attached to the housing, said tabs being disposed to detachably engage said hoop portion to thereby detachably secure the hoop portion to the housing and to retain the mouth of the

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bag with respect to both the hoop portion and the housing, said bag being collapsible to a position within the housing with its bottom extending across the open side of the housing or being capable of extension to hang below the housing to provide an enclosed drying space, one side of the bag having means of access into the interior thereof, at least one wall of the bag adjacent the bottom of the same being provided with perforations for the discharge of air.

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