Aug. 30, 1960 G. C. TERRY 2,950,669

BLOWER UNIT FOR CHARCOAL GRILLS

Filed June 18, 1958

FIG. 1

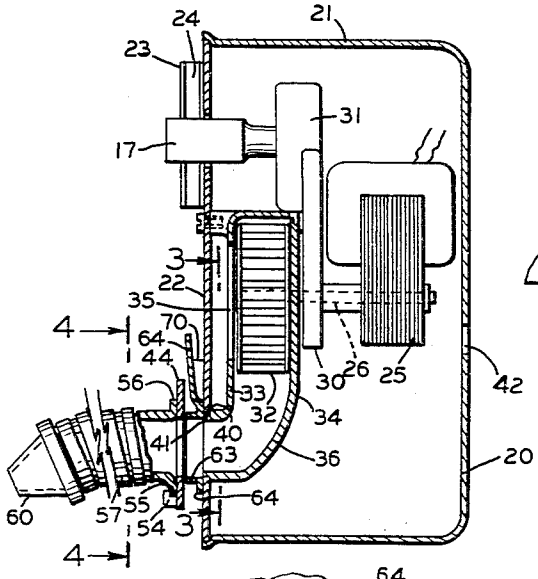


FIG. 2

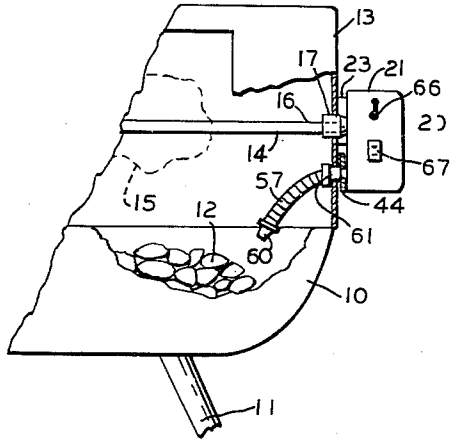


FIG. 3

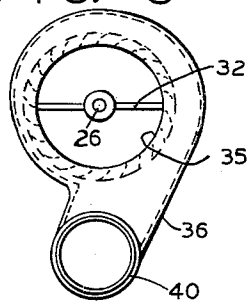


FIG. 4

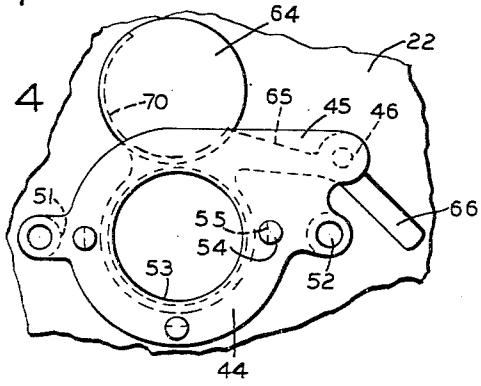


FIG. 5

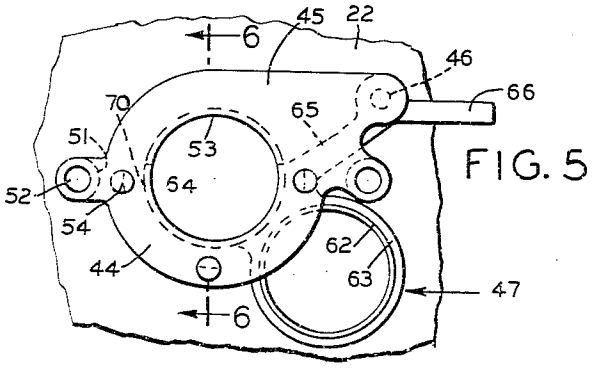
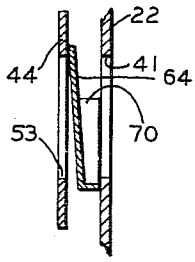


FIG. 6



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2,950,669

Patented Aug. 30, 1960

2,950,669

BLOWER UNIT FOR CHARCOAL GRILLS

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Filed June 18, 1958, Ser. No. 742,888

4 Claims. (Cl. 99—421)

This invention relates to outdoor grills and relates more particularly to a novel blower unit for accelerating the burning of the fuel, such as charcoal, after the same has been suitably ignited in order that the charcoal may be prepared for cooking in a relatively short time and without the danger attendant upon using gasoline or other explosive fluids for increasing the rate of combustion.

An important object of the present invention is to provide a blower unit which is driven by the motor used for driving a constantly rotating spit, the blower being used to direct a stream of air on the ignited charcoal mass until such time as the coals are in proper condition for broiling, after which a novel valve structure is actuated for the purpose of cutting off the stream of air to the fire and forming a curtain of ascending air between the motor unit and the hood which encloses the fire and supports the rotating spit.

In the drawing:

Fig. 1 is a central section taken through a blower unit embodying the present invention.

Fig. 2 is a broken front elevation of an outdoor grill equipped with the blower unit of the present invention.

Fig. 3 is a section taken on line 3—3 of Fig. 1 and showing a front elevation of the air impeller housing and air outlet duct.

Fig. 4 is a section taken on line 4—4 of Fig. 1 and showing a broken front elevation of the closure plate for the housing enclosing the motor and blower unit and showing the valve mechanism in one position.

Fig. 5 is similar to Fig. 4 but shows the parts in a second position.

Fig. 6 is a broken section taken on line 6—6 of Fig. 5.

A common type of charcoal grill is shown in Fig. 2 which includes a fire bowl 10 supported by legs 11 and containing the mass 12 of charcoal or other fuel. A sheet metal hood 13 forms a housing for the grill and this housing provides a bearing (not shown) for one end, i.e., the lefthand end, of a rotating spit 14 on which a roast, shown at 15, may be mounted. The spit has a non-circular end portion 16 which is received within a motor driven socket 17 so shaped as to form a driving connection with the spit.

The motor driven blower unit of the present invention is enclosed within a housing 20 formed with a continuous side wall 21 and provided with a removable closure plate 22. Means for mounting the unit on the hood may comprise a mounting bracket 23 secured to the closure plate which is received on a complemental fixture (not shown) secured to the hood. The bracket has opposed vertical trackways 24 which receive appropriate portions of the fixture.

The mechanism includes an electric motor 25 having a drive shaft 26 which passes into a housing 30 for a speed reducing unit 31 and the driving socket 17 is mounted on the final shaft (not shown) of the gear train. A rotary impeller 32 is also mounted on the motor shaft, the impeller being mounted within a housing formed in

two sections 33 and 34, the latter of which is associated with housing 30 for the reducing gears and may be integral therewith. The other housing section 33 has an air intake opening 35 which faces closure plate 22. As indicated in Fig. 3, the impeller is mounted eccentrically of the circular portion of housing 33 and the two sections are shaped to provide an air outlet duct 36 having an annular recess 40 received within an opening 41 in closure plate 22. The housing is provided with air intake openings 42 and cool air from the outside of the housing is drawn in through said opening, past the motor and reduction gears and into the impeller housing.

The valve structure includes a generally circular valve plate 44 having a side extension 45 for a pivotal support 46, for a valve member 47. The plate may be cast in a single piece including a plurality of bosses 51 on its inner face which are used for mounting the plate in spaced relation to closure plate 22 and units 52 pass through the bosses and into the closure plate. The valve plate has an opening 53 which is aligned with opening 41 in the closure plate (Fig. 6). Finally the valve plate has a number of arcuately arranged mounting studs 54 with undercut recesses 55 (Fig. 1) which receive and support an annular flange 56 secured at one end of a flexible conduit 57 having a restricted nozzle 60 at its opposite end. This conduit is thus removably mounted on the valve plate and passes through an opening 61 in hood 13 (Fig. 2). It is normally bent downwardly at about the angle shown in Fig. 2 to direct a jet stream of air on that portion of the charcoal mass close to the blower unit but it may be raised or swung horizontally to direct the stream on any other part of the mass.

The valve member 47 may also be cast in a single piece and includes a short duct section 62 having a flange 63 at its inner end, and a baffle plate 64, both mounted on one arm 65 of a bell crank lever, the other arm of which forms a handle 66 to manipulate the valve member. It will be noted that the baffle lies at an acute angle to the face of closure plate 22 with its upper end disposed farther from the plate than its lower end. The baffle also has a peripheral flange 70 facing closure plate 22 and extending over substantially its lower half when the baffle is in its downward position of Fig. 5. In this position air from the housing passing through opening 41 in the closure plate 22 encounters the diagonally and outwardly inclined baffle and the air stream, instead of being conducted to the flexible duct 57 and thence to the fire, encounters the baffle and is directed upwardly to form a curtain of cool air between the relatively hot hood 13 and the motor-blower housing.

The arrangement is very efficient since the impeller, which requires a very small amount of power, is constantly rotating and the stream of air produced thereby is successively used for encouraging combustion and for cooling the motor. When the handle is manipulated from the position of Fig. 5 to the position of Fig. 4 the duct section 62 of the valve member becomes aligned with outlet port 41 and the fitting of the parts, as shown in Fig. 1, is sufficiently close so that substantially all the air is directed to the fire.

The housing for the unit is shown as completed with an off-on switch 66 and a utility receptacle 67.

While there have been described herein what are at present considered preferred embodiments of the invention, it will be obvious to those skilled in the art that many modifications and changes may be made therein without departing from the essence of the invention. It is therefore to be understood that the exemplary embodiments are illustrative and not restrictive of the invention, the scope of which is defined in the appended claims, and that all modifications that come within the meaning

and range of equivalency of the claims are intended to be included therein.

What I claim is:

1. A blower unit for a charcoal grill or the like and including a housing, an air impeller and a driving motor therefor mounted within the housing, a casing enclosing the impeller and a duct leading therefrom through the housing, a valve support plate having an opening aligned with said duct mounted in spaced relation to the housing, a flexible duct removably mounted on said plate at the opening for directing air in the direction of the grill, a valve pivoted on said plate and provided with a duct directing an air stream from the impeller duct to the plate opening and a baffle carried by the valve member which interrupts said air stream when the valve member is in a second position and directs it upwardly to form an air curtain along one side of the blower unit.

2. The combination with an outdoor grill having a rotating spit, of a motor-blower unit comprising a housing, a socket for one end of the spit and forming a driving connection therewith, a train of speed reducing gears connected between the motor and said driving socket, an air impeller connected with said motor, a casing enclosing the impeller and provided with a duct leading out of the housing, a valve plate mounted on the housing and provided with means for mounting a flexible duct leading to the grill, said plate having an opening aligned with the impeller duct, a valve member pivoted on the valve plate and formed with a duct directing an air stream from the impeller housing to the flexible duct, and an inclined baffle carried by the valve member which interrupts said air stream and directs it upwardly to form an air curtain between the blower unit and the grill.

3. The combination with a charcoal grill having a rotating spit, of a motor-blower unit comprising a housing, a motor, a member driven by the motor and forming a driving connection with the spit, an air impeller connected with said motor, a casing enclosing the impeller and provided with a duct leading out of the housing, a plate mounted on the closure plate and provided with means for mounting a flexible duct leading to the heating chamber of the grill, said plate having an opening aligned with the impeller duct, a valve member pivoted on the valve plate and formed with a duct which in one position of said member directs an air stream from the impeller housing to the flexible duct, and an inclined baffle carried by the valve member which in another position interrupts said air stream and directs it upwardly to form an air curtain between the blower unit and the grill.

4. A motor driven blower unit for outdoor grills with a rotating spit, said unit comprising a housing provided with a closure plate and attaching means for mounting said plate on the grill, a driving socket extending through said plate, a motor within the housing, a train of speed reducing gears connected between the motor and said driving socket, an air impeller connected with said motor, a casing enclosing the impeller and provided with a duct leading out of the housing, a valve plate mounted on the closure plate and provided with means for mounting a flexible duct leading to the grill, said plate having an opening aligned with the impeller duct, a valve member pivoted on the valve plate and formed with a duct directing an air stream from the impeller casing to the flexible duct, and a baffle carried by the valve member which interrupts said air stream and directs it upwardly to form an air curtain along one side of the blower unit.

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