United States Patent

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[54] **MEAT SMOKING APPARATUS**
3 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **126/59.5,** 99/259; 263/19
[51] **Int. Cl.** **A23b 1/04**
[50] **Field of Search** ..... 126/59.5; 99/259X; 263/19(AX)

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ABSTRACT: A meat smoking apparatus including a smoke generator, a smoke duct for conveying smoke from the generator to a smokehouse, an air duct connected to the smoke duct at an acute angle, and a blower in the air duct for blowing air from the air duct into the smoke duct in the direction of the smokehouse.

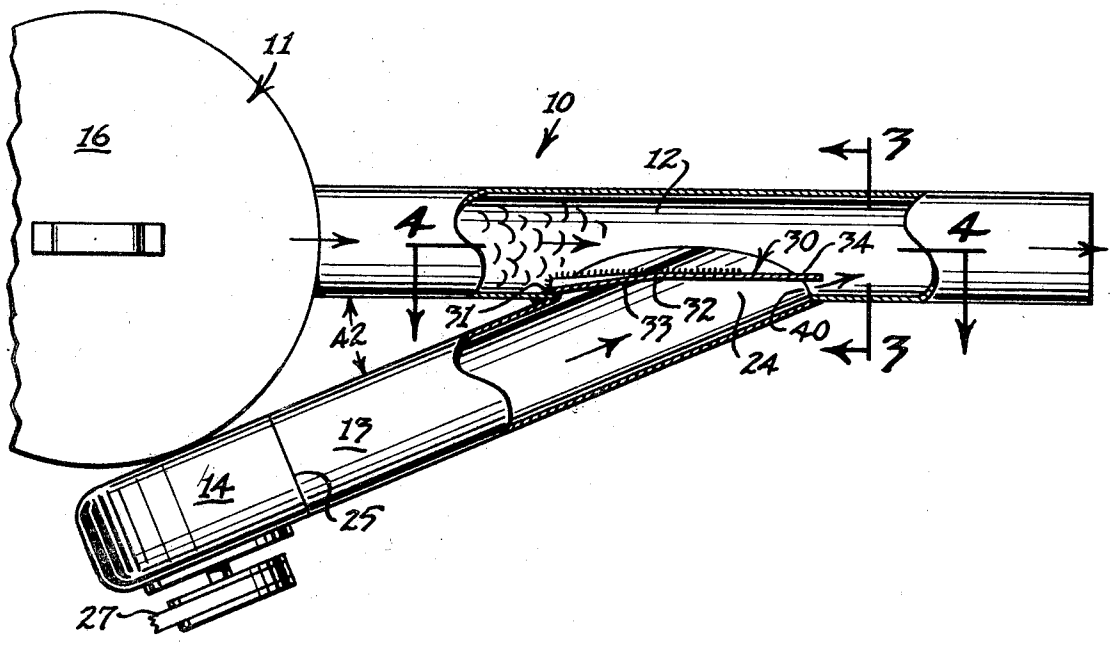
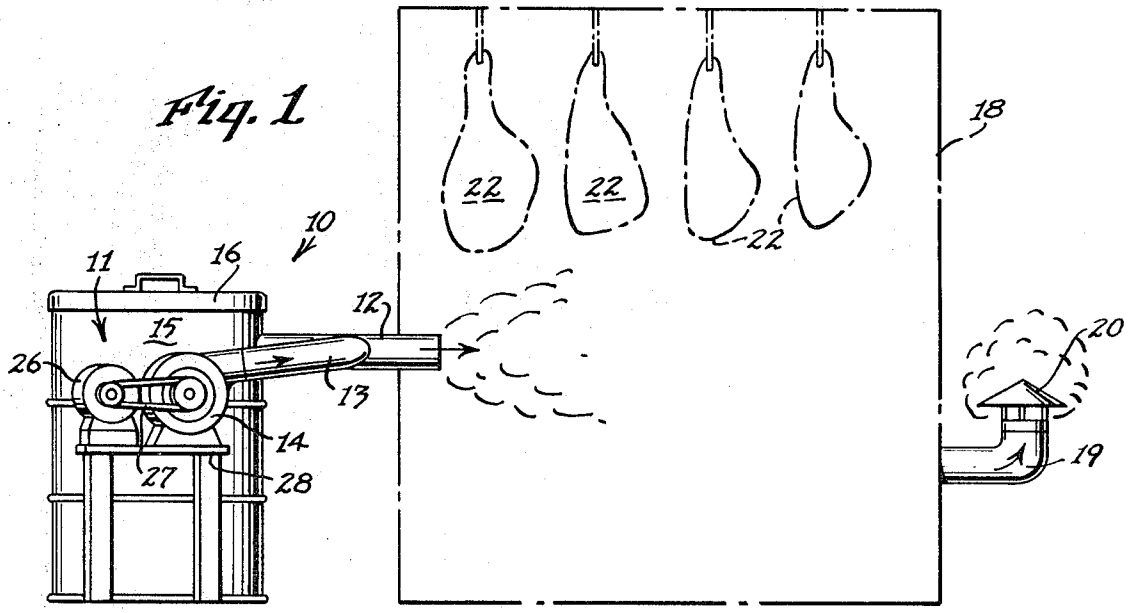


Fig. 1



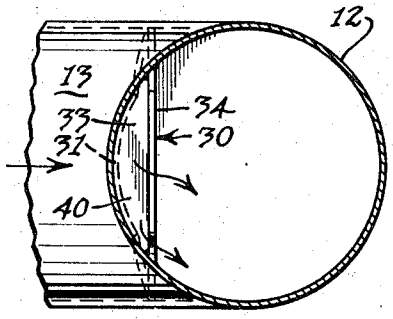


Fig. 3

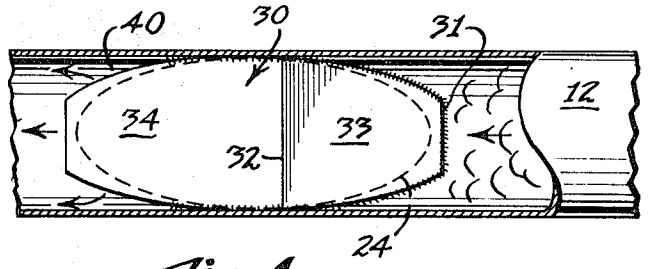


Fig. 4

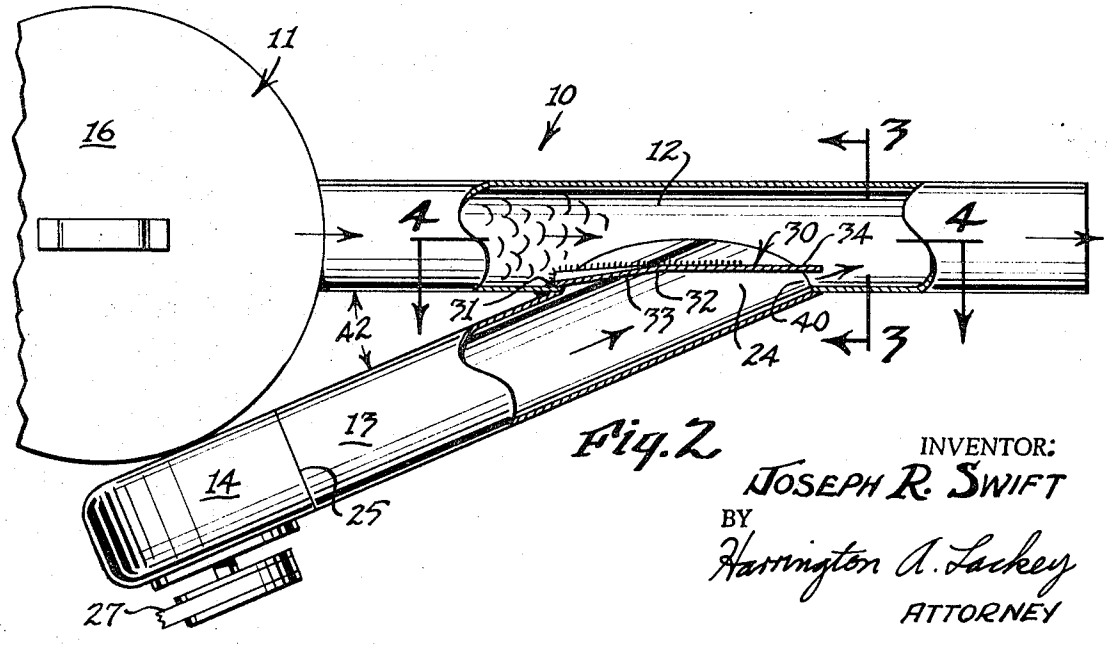


Fig. 2

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MEAT SMOKING APPARATUS

BACKGROUND OF THE INVENTION

Meat smoking devices currently in predominant use are rather large and expensive. Many such smoking devices include large smoke generators, located within the smokehouse which must be constructed relatively large in order to accommodate both the smoke generator and the product to be smoked.

The prior art also includes other types of meat smoking apparatus in which the smoke generator is located externally of the smokehouse and the smoke is conducted or forced through a duct or conduit into the smokehouse. Many of these types of apparatus are quite complicated and those which use blowers conduct all of the smoke through the blower even where fresh air is introduced into the smoke duct.

SUMMARY OF THE INVENTION

It is, therefore, an object of this invention to provide an improved meat smoking apparatus incorporating a smoke generator external of the smokehouse and communicating with the smokehouse through a smoke duct. The apparatus also includes a fresh air duct connected to the smoke duct. A blower, located in the air duct, forces air through the air duct into the smoke duct in the direction of the smokehouse in order to draw the smoke in a controlled manner from the generator into the smokehouse. In order to accomplish this function, the air blower is located solely in the air duct, and the air duct is connected to the smoke duct at an acute angle so that the air entering the smoke duct is moving away from the smoke generator.

An additional feature of this invention is to provide a baffle fixed inside the smoke duct and directed across and spaced from the outlet of the air duct to constrict the passage of air into the smoke duct and to direct the air away from the smoke generator.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevation of the meat smoking apparatus connected to a smokehouse shown schematically;

FIG. 2 is an enlarged top plan view of the apparatus disclosed in FIG. 1, with portions of the generator, air duct, and smoke duct broken away;

FIG. 3 is an enlarged fragmentary section taken along the line 3–3 of FIG. 2; and

FIG. 4 is a fragmentary section taken along the line 4–4 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in more detail, and particularly FIGS. 1 and 2, the meat smoking apparatus 10 includes a smoke generator 11, a smoke duct 12, an air duct 13, and a forced air blower 14. The smoke generator 11 can be of any convenient or conventional type capable of generating smoke. The generator 11 is disclosed in the form of a large, cylindrical can 15 with a top cover 16. A wood fire may be located in the bottom of the can 15, and the smoke generated, because of a limited oxygen supply, will pass through the smoke duct 12 into a smokehouse 18, as disclosed in FIG. 1. The smokehouse 18 may be provided with a smoke outlet 19, having a bonnet 20. Suspended from the top and within the smokehouse 18 may be a plurality of meat products 22.

In order to connect air duct 13 to the smoke duct 12, an opening having a substantially elliptical cross section is cut into the side of the smoke duct 12 in any convenient location between the smoke generator 11 and the smokehouse 18. The outlet end 24 of the air duct 13 has its edges shaped to meet the corresponding edges of the smoke duct opening, and the edges may be soldered or welded together to form a completely airtight seam. The connection of the ducts 12 and 13 is such that the longitudinal axis of at least the outlet end portion 24

of the air duct 13 will be at an acute angle to the longitudinal axis of the smoke duct 12, the acute angle being on the same side of the air duct 13 as the smoke generator 11. In this manner, air moving through the air duct 13 towards its outlet end 24 will pass into the smoke duct 12 in a direction away from the smoke generator 11.

Connected to inlet end 25 of the air duct 13 is the forced air blower 14. As disclosed in FIG. 1, the blower 14 is driven by any convenient motor means, such as the electric motor 26 through a transmission belt 27. As disclosed in FIG. 1, both the motor 26 and the blower 14 may be mounted on a blower support 28.

In order to move a greater quantity of smoke through the smoke duct 12 in comparison with the amount of air moving from the air duct 13 into the smoke duct 12, a baffle 30 is mounted in the smoke duct 12 to extend across the outlet end 24 of the air duct 13. The rear, or upstream, end 31 of the baffle 30 is fixed in sealing engagement to the sidewall of the smoke duct 12 on the rear, or generator, side of the outlet end 24. The baffle 30 may be in a form of a substantially planar plate comprising a bend 32 dividing the baffle plate 30 into a rear, or upstream, portion 33 and a front, or downstream, portion 34. The bend 32 is substantially vertical, and the front plate portion 34 is also in a substantially vertical plane and directed substantially parallel to the longitudinal axis of the smoke duct 12. The rear plate portion 33 is directed at a slight angle from the sidewall of the smoke duct 12 toward the center of the smoke duct 12. In this manner, the front plate portion 34 is spaced slightly away from the sidewall of the smoke duct 12 and away from the outlet end 24 of the air duct 13 to form a narrow outlet passage 40. The constricted opening 40 is formed by the downstream edge of the baffle plate 30 and the sidewall of the smoke duct 12 on the downstream side of the air duct outlet 24. The size of the constricted passage 40, as disclosed in FIGS. 2 and 3, is small enough to admit a much smaller quantity of air into the smoke duct 12, than the volume of smoke passing through the smoke duct 12. The forcing of air through the passage 40 creates a Venturi effect, producing a suction, which draws large quantities of smoke through the duct 12 from the generator 11 and into the smoke house 18. The volume rate of smoke will, of course, depend upon the volume rate of air 13 which can be controlled by the speed of the blower 14.

The location and construction of the baffle 30 in the intersection of the ducts 12 and 13 permits large quantities of smoke to be forced into the smoke house 18 with a minimum amount of air. However, if more fresh air is desired, the baffle 30 may be mounted so that it has a greater acute angle with the longitudinal axis of the smoke duct, thereby making the passage 40 larger to introduce more air volume relative to the smoke volume.

It should also be noted that the blower 14 is located solely in the air duct 13, so that no smoke passes through the blower. In this manner, the blower 14 may be kept clean and will be operated for longer periods of time, continuously, and with a minimum of maintenance.

In the preferred form of the invention, the acute angle 42 between the smoke duct 12 and the air duct 13 is approximately 23°.

It has been found from actual operations that the meat smoking apparatus 10 made in accordance with this invention can be used to smoke various types of meats, such as hams, bacon, sausage and other products at a low initial cost of construction, with a minimum of installation time, particularly for an existing smokehouse, and with a minimum of operating time and expense. Not only does the apparatus 10 occupy a minimum of space, but it is also adapted to be located externally of the smokehouse 18 so that maximum use of the space within the smokehouse 18 is devoted to the actual smoking of the products 22.

I claim:

1. A meat smoking apparatus comprising:

a. A smoke generator;

b. a smoke duct communicating with said generator;

c. an air duct having an outlet end and an inlet end;
d. said outlet and communicating with said smoke duct at an acute angle, so that the direction of air moving through said outlet end into said smoke duct is away from said smoke generator;
e. blower means connected to said inlet end for forcing air through said air duct toward said smoke duct,
f. means for connecting said smoke duct to a smokehouse;
g. a baffle plate in said duct having an upstream end and a downstream end, said upstream end being fixed to the wall of said smoke duct upstream of said outlet end; and
h. said baffle plate opposing and diverging downstream from said outlet end, to constrict said smoke duct and said outlet end and guide the air from said air duct into a substantially colinear path with said smoke in said smoke duct, away from said generator.

2. The invention according to claim 1 in which said baffle plate comprises a bent joint substantially perpendicular to the longitudinal axes of said smoke duct and said air duct, and dividing said baffle plate into an upstream, angular portion forming an acute angle with the longitudinal axis of said smoke duct and a downstream portion spaced from said outlet end and extending substantially parallel to the longitudinal axis of said smoke duct.

3. The invention according to claim 1 in which the downstream end of said baffle plate extends to a position radially opposite the sidewall of said smoke duct downstream of said outlet end, to provide a relatively narrow orifice for the discharge of air from said outlet end into said smoke duct.