

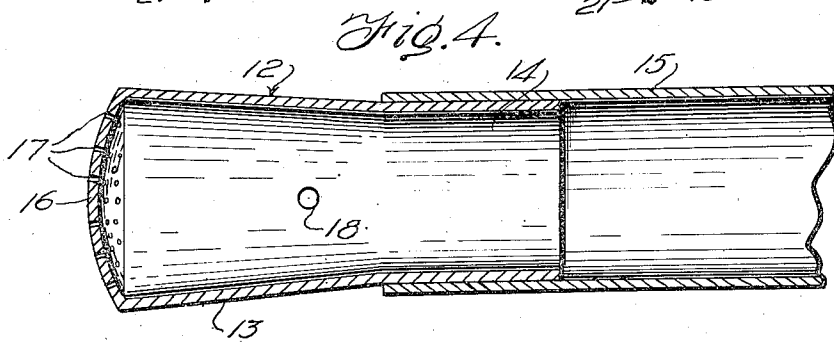
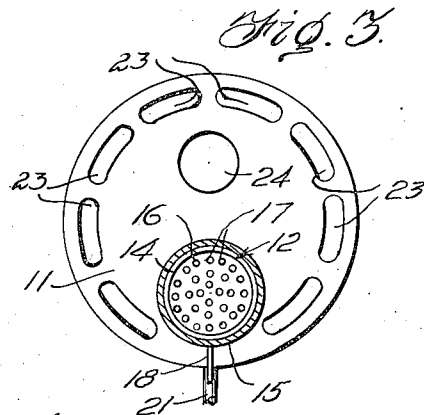
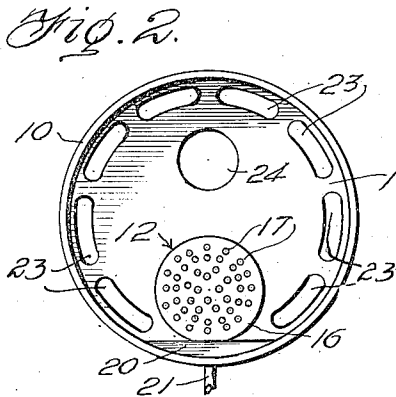
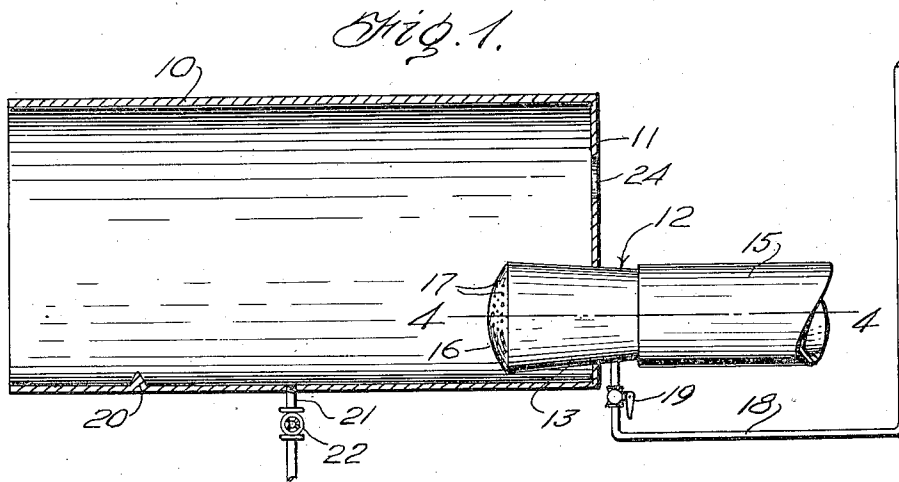
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2,465,166

HEATER FOR TOBACCO BARN

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# UNITED STATES PATENT OFFICE

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## HEATER FOR TOBACCO BARN

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3 Claims. (Cl. 263—19)

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This invention relates to liquid fuel burners and has special reference to a heater for use in tobacco barns such as are utilized in the curing of leaf tobacco.

When liquid fuel is used in the heating of such tobacco barns fires have frequently occurred causing the total destruction of the barn and the tobacco contained therein. Such fires are caused principally by the use of improperly designed burners.

One principal object of the present invention is to provide an improved construction of tobacco barn heater which will be so arranged that the accidental fires above mentioned will not occur.

One reason for the occurrence of such fires is that gases accumulate in the body of the heater because of the deficiency in properly providing for suitable air circulation in the heater. These accumulated gases explode and the flash of this explosion wrecks the heater and sets the tobacco on fire.

A second important object of the invention is to provide an improved construction of tobacco barn heater wherein a proper flow and circulation of air will be provided sufficient to prevent any accumulation of gases to the extent that an explosion of these gases will wreck the heater.

A third cause of such fires is the lack of proper means to allow any explosion which may occur to blow outward away from the barn and its contents and thus not set fire to the tobacco.

A third important object of the invention is to provide a novel and improved construction of tobacco barn heater having means to release any accidentally occurring explosion outwardly away from the barn and its contents.

With the above and other objects in view, as will presently be apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and particularly claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Figure 1 is a view, partly in section and partly in elevation, showing the general assembly of the invention along a vertical longitudinal plane passing centrally through the heater.

Figure 2 is an elevational view looking from the left side of Figure 1.

Figure 3 is an elevational view looking from the right side of Figure 1.

Figure 4 is an enlarged detail section on the line 4—4 of Figure 1.

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In the form of the invention as herein shown there is provided an outer shell or drum forming a casing. This casing is open at its inner end and has a head at its outer end, the body of the casing being indicated at 10 and the head at 11. This casing may be of any preferred shape, a cylindrical shape being well adapted to manufacture.

Through the head 11, at the lower part thereof, there extends a tubular member 12 having its inner portion 13 of frusto-conical form so that it flares within the casing. The outer end 14 of the tubular member is of cylindrical form so that an extension pipe or tube 15 may be joined to or removed from the tubular member by simple sliding movement. The pipe 15 is to extend well outwardly of the tobacco barn in which this heater is used so as to supply the interior of the member 12 with an ample quantity of fresh air. The inner and large end of the portion 13 of this member 12 is closed by a segmental-spherical head 16 provided with a multiplicity of fine perforations some of which lie close to the side wall of the portion 13, these perforations being indicated at 17. Part of the frusto-conical portion 13 projects outwardly of the head and to the bottom of this part is connected a liquid fuel supply pipe 18 which receives the fuel from an elevated tank or other receptacle (not shown). The pipe 18 is preferably provided with a control valve 19. With this arrangement, any liquid fuel entering the member 12 will have an extensive ignition surface because the said member extends inwardly of the casing and has an inclined bottom along which the fuel flows.

Spaced from the open end of the member 10 but between that end and the inner end of the member 12 a dam 20 is provided on the bottom of said member 10 so that, if any fuel in liquid form flows from the combustion chamber into the casing proper, it cannot flow out of the open end of the casing where it might catch fire and the fire thus be communicated to the barn or tobacco. In order to prevent excess of fluid fuel from overflowing the dam a drain pipe 21 extends from the bottom of the casing 12 at a point between the dam and the inner end of the member 12. A valve 22 may, if desired, be provided in the drain pipe 21.

In order to provide against any sudden flaring of flame in the body of the casing from being violently ejected through the open end of the casing and thus endangering the barn and tobacco, the head 11 has formed therein an arcuate series of slots 23 arranged close to the upper and

side edge portions of the head. Also the head 11 is provided with a door or opening 24 somewhat above its center. By this means any flaring of fuel in the body of the casing will be allowed, in great part, to escape through the openings 23 and 24. At the same time the ample supply of air entering these openings while the device is in normal operation prevents the casing itself from becoming too hot and thus endangering the barn and tobacco.

In the operation of this heater a quantity of fuel is admitted into the combustion chamber and lit. This may be done by disconnecting the pipe 15 and lighting the fuel from the outer end of the member 12, fuel being gradually supplied by manipulation of the valve 19 until the member 12 becomes hot enough to properly vaporize the fluid which flows in. The pipe 15 is then replaced. Another way in which the heater may be lit is to allow sufficient liquid fuel to accumulate behind the dam and lighting the fuel from the open end of the casing. This will also heat the combustion chamber so that liquid fuel entering that chamber will be vaporized. Once the entering fuel is being vaporized a suitable setting of the valve 19 will supply just enough fuel to keep it burning to the desired heat so that the products of combustion mixed with the air entering through the pipe 15 will pass through the small perforations 17 and through the casing to flow out the open end thereof and into the barn so that the latter is kept at the proper curing temperature. It will be noted that, by reason of the mixture of the products of combustion and air having to pass through the small perforations all flame will be kept in the combustion chamber and thus cannot come in contact with the tobacco or any part of the barn. Also by the provision of the openings 23 and 24 the casing can never become so hot as to ignite a tobacco leaf or the like falling on this casing.

What is claimed as new is:

1. A heater for tobacco barns and the like including an outer shell forming a casing, said shell being open at its inner end and having a head at its outer end, a tubular member extending through the lower part of said head and flaring outwardly in said casing toward the open end of the shell, said tubular member forming a combustion chamber and having a head at its inner end provided with a multiplicity of fine perforations, means to supply said combustion chamber with liquid fuel, said casing having a series of slotted openings in its head, said openings being arranged around the head of the casing adjacent its edge, the head of the casing being also provided with a door above its center, said openings and door serving to admit air to the casing and to minimize explosive effects in the casing, and an extension member leading from said tubular

member for supplying air from outside the barn to the combustion chamber.

2. A heater for tobacco barns and the like including an outer shell forming a casing, said shell being open at its inner end and having a head at its outer end, a tubular member extending through the lower part of said head and flaring outwardly in said casing toward the open end of the shell, said tubular member forming a combustion chamber and having a head at its inner end provided with a multiplicity of fine perforations, means to supply said combustion chamber with liquid fuel, means to supply said casing with air at the outer end of the casing, an extension member leading from said tubular member for supplying air from outside the barn to said combustion chamber, a dam extending across the lower part of the casing between its open end and the head of the combustion chamber, and a drain pipe leading from the bottom of the casing between the dam and the combustion chamber.

3. A heater for tobacco barns and the like including an outer shell forming a casing, said shell being open at its inner end and having a head at its outer end, a tubular member extending through the lower part of said head and flaring outwardly in said casing toward the open end of the shell, said tubular member forming a combustion chamber and having a head at its inner end provided with a multiplicity of fine perforations, means to supply said combustion chamber with liquid fuel, said casing having a series of slotted openings in its head, said openings being arranged around the head of the casing adjacent its edge, the head of the casing being also provided with a door above its center, said openings and door serving to admit air to the casing and to minimize explosive effects in the casing, an extension member leading from said tubular member for supplying air from the outside of the barn to the combustion chamber, a dam extending across the lower part of the casing between its open end and the head of the combustion chamber, and a drain pipe leading from the bottom of the casing between the dam and the combustion chamber.

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