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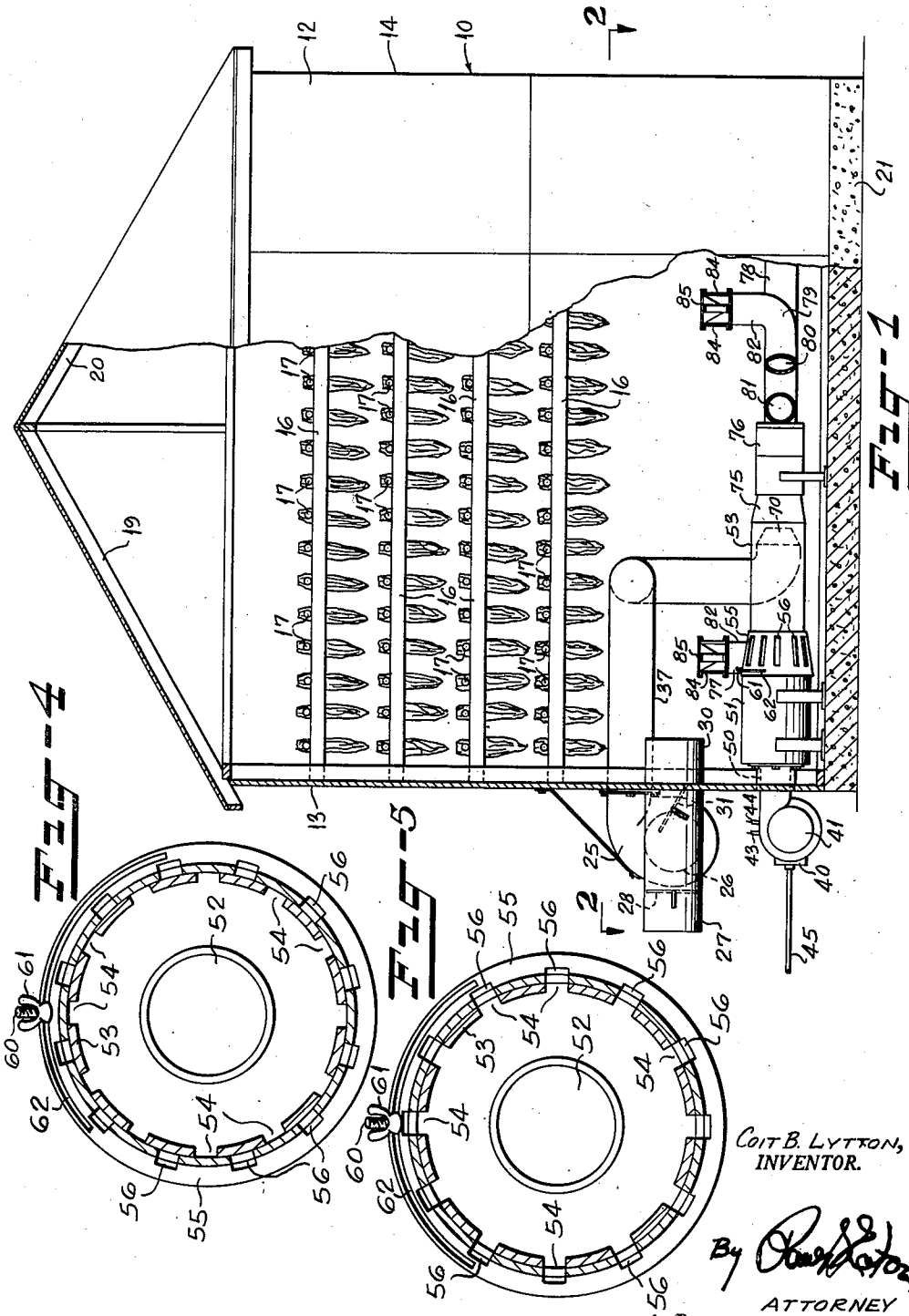
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HEATING AND VENTILATING APPARATUS FOR TOBACCO BARNS

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2 Sheets-Sheet 1



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Fig-2

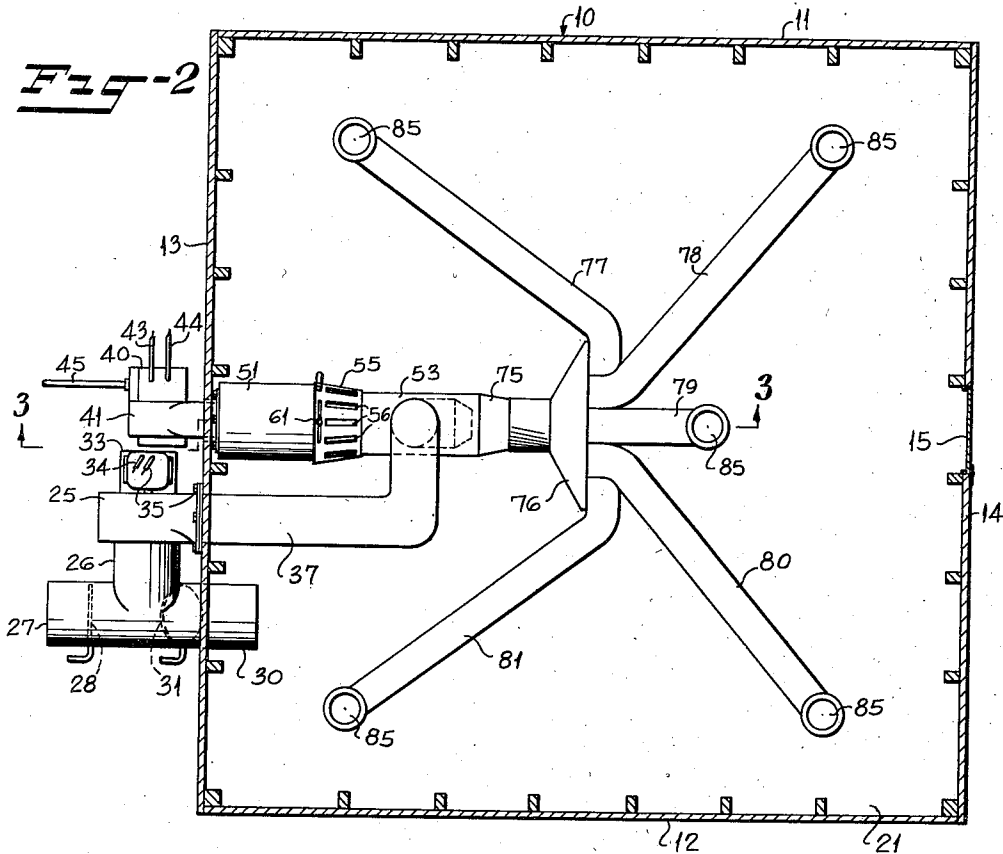


Fig-3

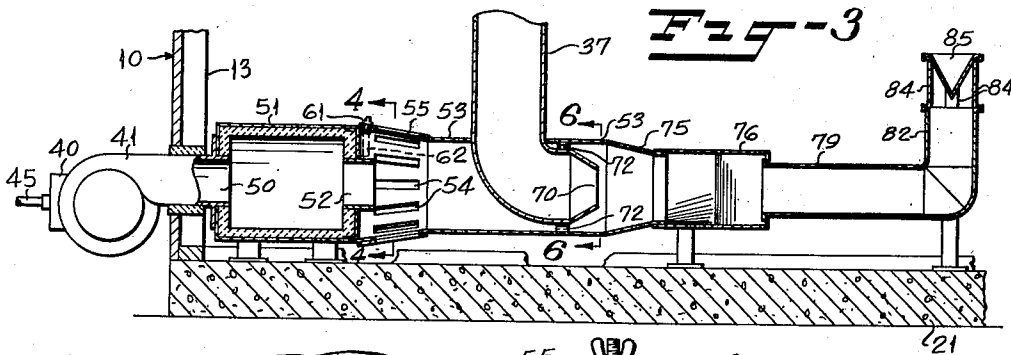


Fig-6

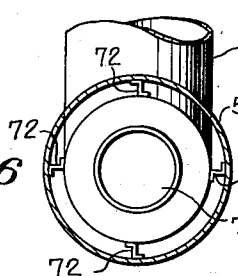
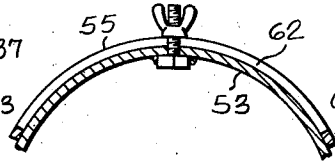


Fig-7



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HEATING AND VENTILATING APPARATUS
FOR TOBACCO BARNS

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3 Claims. (Cl. 263—19)

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This invention relates to a new and improved apparatus adapted to be placed in tobacco barns for the curing of tobacco disposed therein, and one of the primary objects of the invention is to provide ventilation of air within the barn and also selectively operable means for withdrawing the air from the barn or from the exterior for mixing with the heated air being forced into the barn, together with selectively operable means for inducing a draft from within the barn into the heating system so as to cause some of the air from the interior of the barn to be drawn into the heated air emanating from a heater to be admixed therewith to circulate through the barn.

It is a well known fact that in the curing of tobacco, hot air is generated within the barn or generated within a furnace and forced into the barn, and this air becomes dry and it is necessary to ventilate the barn and allow an escape of the air from the top thereof in order to admit fresh air into the barn. This results in increased cost of operation in having to heat newly admitted air and, furthermore, some means should be provided for inducing the air within the barn to be admixed with the air being heated and forced into the barn, and it is an object of this invention to provide such an apparatus comprising a heater and a forced draft for forcing the products of combustion into the barn and conducting it to various stations within the barn and at the same time admixing therewith air from the barn so that it will be used over and over again in a drying operation.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

Figure 1 is an elevation of a tobacco barn with portions thereof broken away and showing the apparatus in installed position;

Figure 2 is a sectional plan view taken substantially along the line 2—2 in Figure 1;

Figure 3 is a vertical sectional view taken substantially along the line 3—3 in Figure 2;

Figure 4 is a vertical sectional view taken substantially along the line 4—4 in Figure 3;

Figure 5 is a view similar to Figure 4 but showing the parts in a different position;

Figure 6 is a vertical sectional view taken along the line 6—6 in Figure 3;

Figure 7 is a fragmentary vertical sectional view through the adjusting slot and bolt between parts 53 and 55.

Referring more specifically to the drawings, the numeral 10 indicates broadly a tobacco barn

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having side walls 11 and 12, a rear wall 13, and a front wall 14 having an access door 15 therein. The tobacco barn has a plurality of tier poles 16 therein on which tobacco sticks 17 having tobacco thereon are hung. The barn also has suitable gable roof sections 19 and 20. The side walls and front and rear walls rest on a suitable foundation 21.

Outside the rear wall, I mount a suitable air blower 25 which has an air intake pipe 26 at one side of the blower portion thereof, which has an outside air inlet pipe 27 provided with a damper 28 therein, and an inside branch pipe 30 having a damper 31 therein, whereby, by manipulation of the dampers 28 and 31, air can be drawn into the blower mechanism 25 either from the inside or the outside of the barn. The blower mechanism is driven by a suitable electric motor 33 which has wires 34 and 35 leading therefrom to a suitable source of electrical energy, not shown. Leading from the blower 25 is a pipe 37 which extends to the interior of the barn and is bent laterally and downwardly, and is associated with the heat generating mechanism to be presently described.

On the exterior of the barn, I mount a suitable oil burner 40 having a blower 41 associated therewith which is driven by electrical current passing through wires 43 and 44, and an oil line 45 leads from a source of fuel to the oil burner 41. The burner 41 has a pipe 50 extending through the rear wall 13 of the building into a heating chamber 51 which has a passageway 52 leading into a pipe 53 which is gradually constricted and has a plurality of slots 54 therein. An annular member 55 is rotatably mounted around the sloping portion of pipe 53 and has a plurality of slots 56 therein adapted to coincide with the slots 54 in the restricted portion of pipe 53. The pipe 53 has fixedly mounted therein a bolt 60 with a nut 61 thereon which projects through a slot 62 in the annular member 55, and by means of which the annular member 55 can be adjusted to cause the slots 56 in the annular member and the slots 54 in the pipe 53 to coincide or not to coincide as desired, to regulate the inflow of air through the slots into the pipe 53.

The pipe 53 has an opening therein through which the pipe 37 projects, and the pipe 37 has a right angularly bent portion extending in the direction of flow of the air currents in the pipe 53 and is constricted as at 70 and is supported therein by means of V-shaped braces 72 so as to introduce air from the blower 25 into the pipe 53 and to produce an induced draft to aid in

pulling the heated air currents from the heating chamber 51. The pipe 53 is again constricted as at 75 and joins a manifold 76 from which a plurality of pipes 77, 78, 79, 80 and 81 lead and each of these pipes has an upright portion 82 on which is mounted a plurality of supports 84 which support a funnel-shaped member 85 for the purpose of deflecting the air currents laterally into the barn between the supports 84. Each of these funnel-shaped members 85 and the supports 84 are identical and like reference characters will apply to various outlets for the pipes 77 to 81, inclusive.

It is thus seen that with both dampers 28 and 31 closed and the blower 25 not in operation but the oil burner 41 in operation, the annular member 55 can be turned to positions to cause admission of air into the pipe 53 which will cause it to be admixed with the heated draft coming from the oil burner and forced to various parts of the barn.

If it is not desired to bring the air through the slots 55, then this annular member 55 can be moved to where no air will be admitted through the slots therein, and damper 31 can be opened to cause air to be admitted by the blower 25 through the pipe 30, or if desired, damper 31 can be closed and damper 28 opened to mix outside air with the heated air being forced into the barn from the oil burner. Or if desired, a certain amount of air can be admitted through the slots 54 and a certain amount of air can be admitted through the damper 31 or damper 28 or both of them, and in which event, any desired mixture of air can be effected by manipulation of dampers 28, 31 and annular member 55 to suit various conditions of the tobacco being cured within the barn.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. In a tobacco curing system comprising a tobacco barn and an oil burner disposed on the outside of the barn and having a duct leading therefrom into the barn, a pipe leading from said duct further inwardly into the barn and a manifold on the end of the pipe remote from the oil burner, and a plurality of branch pipes leading from the manifold, and each pipe having an upturned end provided with a funnel-shaped diverting member on its upper end, means for admitting air to the pipe between the oil burner and the manifold and a second means for admitting air into the pipe comprising a pipe extending to the exterior of the barn and a blower mounted on the exterior of the barn and connected to the outer end of said last-named pipe and said blower having an intake pipe leading therefrom having a pair of branch pipes connected thereto, one extending to the exterior of the barn and one extending to the interior of the barn, and each of said pair of branch pipes having a damper therein for controlling the flow of air either from the interior of the barn or from outside the barn into the blower.

2. Heating apparatus for the interior of a

building comprising an oil burner disposed on the exterior of a building and extending to the interior thereof, a heating chamber connected to the oil burner at one end, the other end of the heating chamber having a pipe extending therefrom and a plurality of branch pipes extending from the last-named pipe and each of the branch pipes having upturned ends with a funnel-shaped member therein for diverting the air laterally within the building, the pipe leading from the oil burner into the building having a plurality of slots therein and a slotted annular member mounted for rotation around the pipe and also having a plurality of slots therein and whereby the annular member around the pipe and over the slots therein can be adjusted to admit air from within the barn into the pipe to be admixed with the heated air coming from the oil burner, a blower fan mounted on the exterior of the building and having a pipe projecting into the building and connected with said pipe leading from the oil burner, a pipe extending from the intake side of the blower and having two branch pipes, one extending to the inside of the building and the other opening outside the building and each of said branch pipes being provided with a damper for controlling the admission of air into the blower either from the inside of the building or from the outside of the building, said blower having a pipe leading from the exhaust side thereof into the building and into the pipe disposed between the oil burner and the interior of the barn for forcing the air from the blower into the pipe leading from the oil burner to the interior of the barn.

3. In a tobacco curing system comprising a tobacco barn and an oil burner disposed on the outside of the barn and having a duct leading therefrom into the barn, a pipe leading from said duct further inwardly into the barn and a manifold on the end of the pipe remote from the oil burner, and a plurality of branch pipes leading from the manifold, and each pipe having an upturned end, means for admitting air to the pipe between the oil burner and the manifold and a second means for admitting air into the pipe comprising a pipe extending to the exterior of the barn and a blower mounted on the exterior of the barn and connected to the outer end of said last-named pipe and said blower having an intake pipe leading therefrom having a pair of branch pipes connected thereto, one extending to the exterior of the barn and one extending to the interior of the barn, and each of said pair of branch pipes having a damper therein for controlling the flow of air either from the interior of the barn or from outside the barn into the blower.

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