Nov. 26, 1940. W. B. DOWLESS 2,223,301

TOBACCO DRYING AND CURING MEANS

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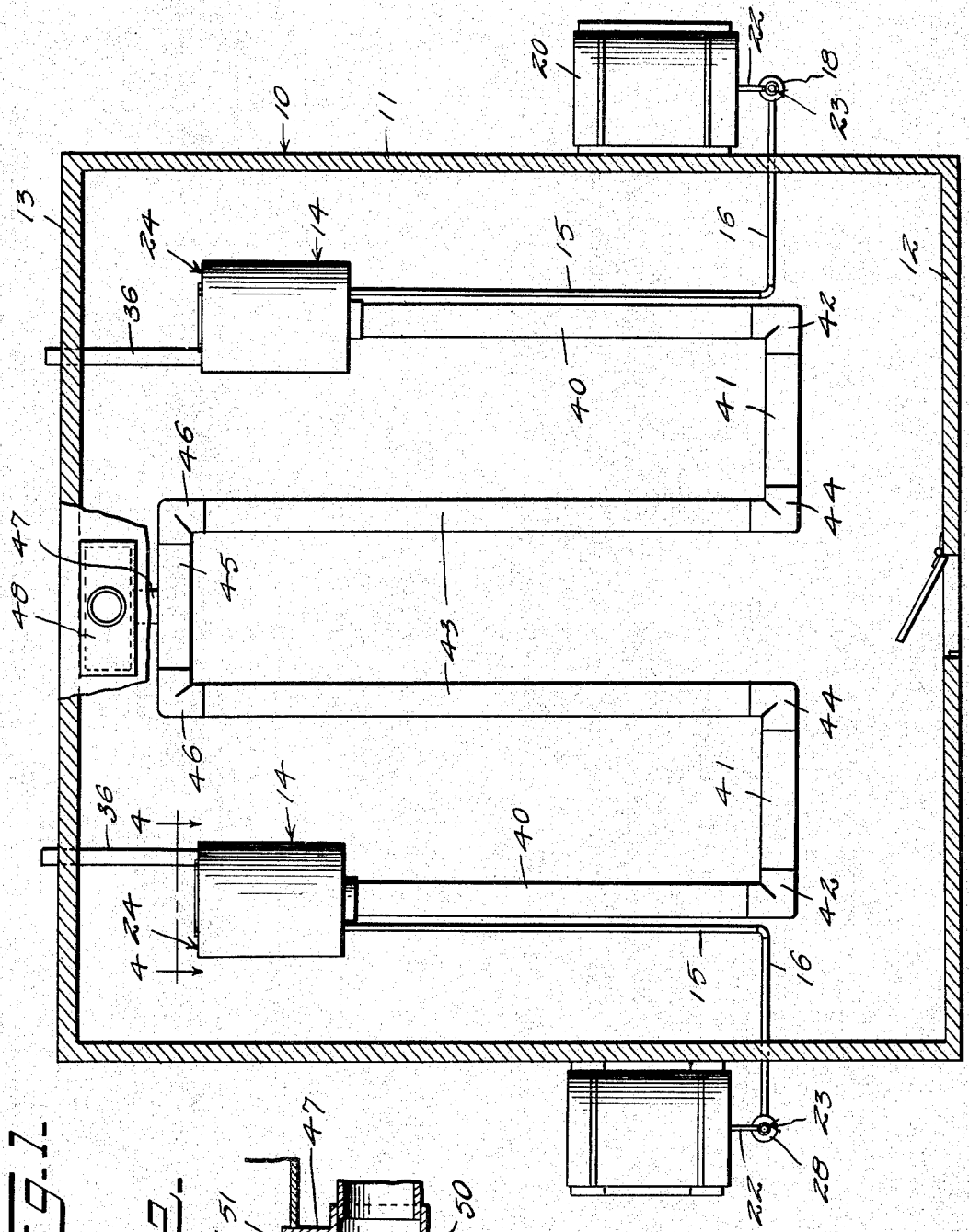


FIG. 1.

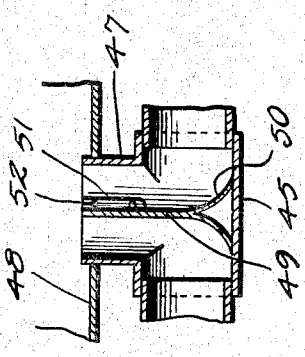


FIG. 2.

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Fig. 3.

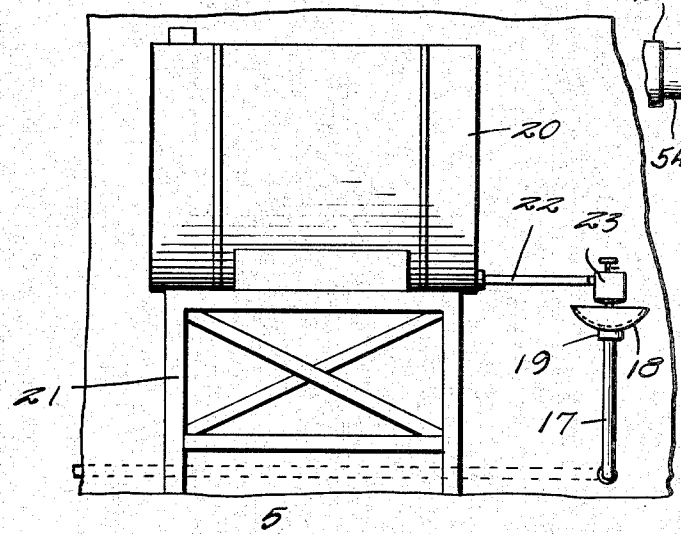


Fig. 8.

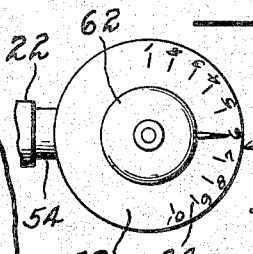


Fig. 9.

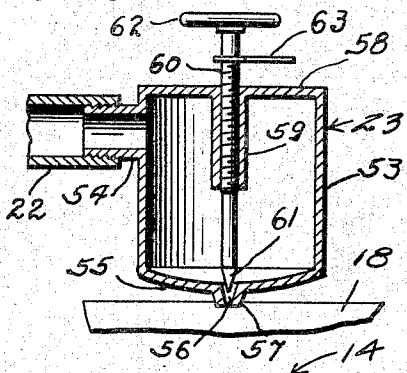


Fig. 4.

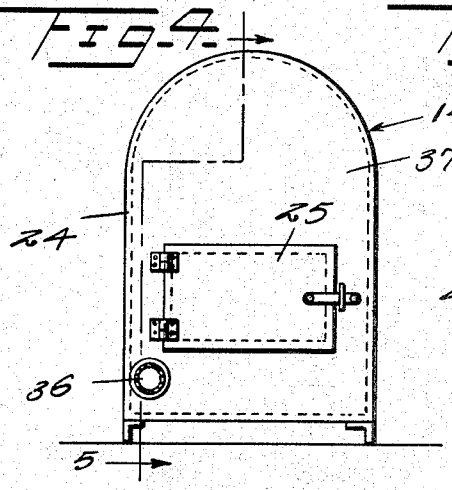


Fig. 5.

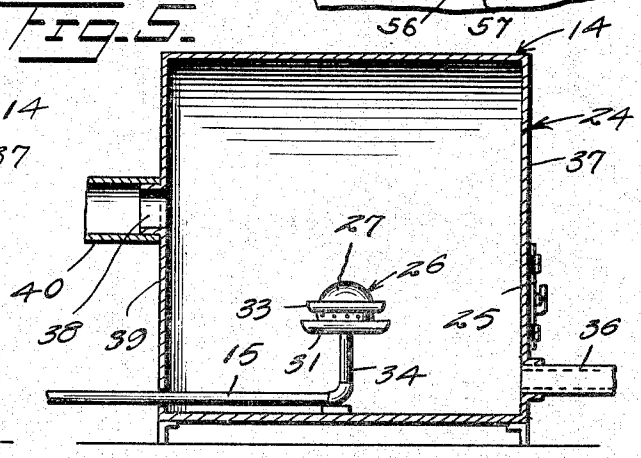


Fig. 7.

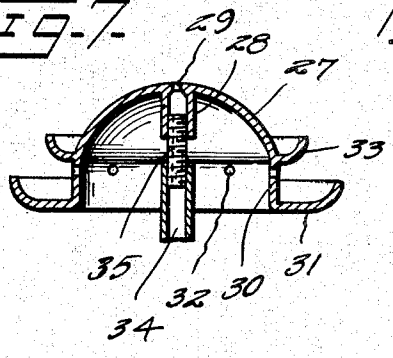
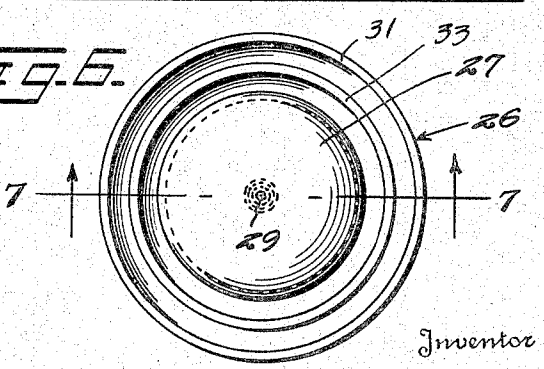


Fig. 6.



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UNITED STATES PATENT OFFICE

2,223,301

TOBACCO DRYING AND CURING MEANS

William B. Dowless, Abbottsburg, N. C.

Application March 27, 1939, Serial No. 264,433

3 Claims. (Cl. 34—19)

This invention relates to an improved means for drying tobacco.

An object of this invention is to provide an improved heating means which is adapted to be mounted in a barn or building in the lower portion thereof below the tobacco which is suspended within the building for the purpose of providing the desired heat within the building to properly cure or dry the tobacco.

Another object of this invention is to provide a heating means of this kind which may be regulated from the exterior of the building in such a manner that the temperature within the building can be very finely controlled.

A further object of this invention is to provide a heating means of this kind wherein the fuel for the burner is adapted to move toward the burner under gravity, the fuel discharging into a cup connected to a fuel pipe line, the cup being positioned on the exterior of the building.

A still further object of this invention is to provide an improved burner for burning the liquid fuel, the burner being mounted within a casing positioned within the building and connected to a hot air flue which is adapted to extend about the interior of the building.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and as shown in the accompanying drawings wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a horizontal section partly in detail of a tobacco curing shed or building having a heating means constructed according to an embodiment of this invention mounted therein,

Figure 2 is a fragmentary sectional view of the connection between a pair of these heating devices and the smokestack.

Figure 3 is a fragmentary side elevation of the building showing the fuel supply tank and controlling means for the liquid fuel,

Figure 4 is a sectional view taken on the line 4—4 of Figure 1,

Figure 5 is a sectional view taken on the line 5—5 of Figure 4,

Figure 6 is a plan view of the burner structure,

Figure 7 is a fragmentary sectional view of the burner,

Figure 8 is a detail top plan of the fuel controlling valve, and

Figure 9 is a fragmentary vertical section of the valve.

Referring to the drawings, the numeral 10 designates generally a building of suitable construction which is adapted to house a quantity of tobacco, the tobacco being suspended in the conventional manner above the floor or bottom of the building. The building 10 comprises side walls 11, a front wall 12 and a rear wall 13. In order to provide a suitable means whereby the suspended tobacco in the building 10 may be heated for curing thereof, I have provided a burner generally designated as 14 which is mounted within the interior of the building 10. The burner 14 is connected by a pipe 15 having a branch 16 connected to a vertically disposed branch 17 which is positioned on the exterior of the building 10. The branch 17 at its upper end is provided with a cup 18 having a flange 19 threaded onto the upper end of the pipe or branch 17. A fuel supply tank or reservoir 20 is mounted on the supporting structure 21 above the cup 18 and is provided with an outlet pipe 22 having a valve 23 interposed therein. The pipe 22 is open at its outer end and is positioned above the open upper end of the cup 18 so that the fuel discharged from the pipe 22 will drip into the cup 18. The number of drops may be determined so that the quantity of fuel supplied to the burner 14 can be very accurately regulated and visibly determined from the exterior of the building. Preferably, the cup 18 is positioned above the burner 14 so that the fuel will gravitatingly flow from the cup 18 to the burner 14.

The burner 14 comprises a housing 24 provided with a hinged door 25 in one wall thereof and a burner member 26 is positioned within the housing 24. The burner 26 comprises an inverted cup-shaped member 27 provided with a nipple 28 in the upper central portion thereof. An opening 29 is provided in the cup-shaped member 27 which communicates with the nipple 28. The cup-shaped member 27 is provided with a substantially cylindrical portion 30 terminating at its lower end in a well or upturned flange 31. A plurality of openings 32 are provided in the cylindrical portion 30 through which air is adapted to pass. An upturned upper flange 33 is carried by the cup-shaped member 27 above the lower flange or well 31 and over which the liquid fuel is adapted to flow. The nipple 28 is connected to a vertically disposed pipe 34 which is connected

to the fuel pipe 15 by means of a connecting pipe or nipple 35.

An air intake pipe 36 is connected at its inner end to the rear wall 37 of the casing 24 and extends through the rear wall 13 and is open at its outer end to the atmosphere so that air may freely flow through the intake pipe 36 into the interior of the housing 24. An outlet nipple 38 is carried by the opposite end wall 39 of the casing 24 and a hot air flue 40 is connected at one end to the nipple 38. The flue 40 has a branch 41 connected to the opposite end thereof by an elbow or pipe connection 42 and a second flue 43 positioned parallel with the flue 40 is connected to the branch 41 by an elbow or connection 44. The hot air and gases in the flue 43 are discharged into a branch 45 which is connected to the flue 43 by an L or pipe connection 46. A relatively short nipple 47 is connected to the branch 45 and discharges into a stack or chimney 48.

In the present instance, there are disclosed two of these burners 14 in the building 10 with similar hot air flues 40, 41 and 43. The branch 45 is connected to a second pipe connection 46 and forms a T at the inner end of the nipple 47. The T 45 on the interior thereof is provided with a partition or dividing plate 49 having arcuate inner end portions 50 which are adapted to be secured to the inner portions of the T member 45. Laterally projecting flanges 51 are carried by the partition 49 and are secured by fastening means 52 to the interior of the nipple 47.

The fuel valve 23 comprises a housing 53 provided with a nipple 54 which is threaded into the pipe 22. The bottom 55 of the housing 53 is provided with a discharge port 56 through an extension 57 carried by the bottom wall 55. The top wall 58 of the housing 53 is provided with an inwardly projecting internaly threaded sleeve 59 in which a stem 60 having a needle valve member 61 on its inner or lower end engages, and an operating handle 62 is mounted on the upper end of the stem 60. A pointer 63 is secured to the stem 60, and the top wall 58 of the valve housing is provided with graduations 64 indicating the amount of fuel discharging through the port 56.

Through the use of a valve structure of this kind, the weight of the fuel in the reservoir 20 is taken off from the burner 26 so as to thereby provide a substantially smaller pressure to the fuel, this pressure depending on the quantity of fuel which is discharged in the cup 18.

In the use and operation of this drying device, the flow of the fuel is controlled by means of the valve 23. The fuel will gravitatingly flow to the burner 26 in the burner member 14 and may be lighted through the medium of the door 25. The heat generated by the burner 26 will pass through the outlet 38 which is positioned above the intake 36 and will then flow through the flue comprising the pipe members 40, 41, 43 and the T 45 into the stack 48. The heating flue is of such a length that the heat generated by the burner 14 will be dissipated on the interior of the building and will then rise upwardly between the suspended tobacco leaves.

This heating device has been placed in actual operation and by means of the drip controlling valve 23, the temperature of the air in the interior of the building 10 can be very accurately regulated so as to secure the desired drying and curing of the tobacco. This device can be easily and quickly mounted in the present drying sheds or barns and the fuel used for heating purposes can be any suitable fuel, which if desired, may be a relatively heavy or low grade fuel that will properly burn within the burner structure 14.

What I claim is:

1. In a tobacco curing and drying building, a pair of spaced parallel U-shaped horizontally disposed heating medium conducting flues disposed within the building, an outlet stack, means for connecting corresponding ends of said flues together and for independently establishing communication between the said ends and said stack, horizontally disposed heating medium generating structures disposed within the building connected to the other ends of and discharging into said flues, each of said structures including means extended therefrom and through a wall of the building for establishing communication between its associated structure and the atmosphere, and each of said structures including means extended therefrom for conducting liquid fuel thereto.

2. In a tobacco curing and drying building, a pair of spaced parallel U-shaped horizontally disposed heating medium conducting flues disposed within the building, an outlet stack, means for connecting corresponding ends of said flues together and for independently establishing communication between the said ends and said stack, horizontally disposed heating medium generating structures disposed within the building connected to the other ends of and discharging into said flues, each of said structures including means extended therefrom and through a wall of the building for establishing communication between its associated structure and the atmosphere, and each of said structures including means extended therefrom for conducting liquid fuel thereto, said outlet stack being arranged between and rearwardly of said structures and rearwardly of and parallel to said means for connecting the said corresponding ends of said flues together.

3. In a tobacco curing and drying building, a drying means comprising a horizontally disposed burner casing within and disposed in proximity to a wall of the building, a burner in said casing, an air intake pipe connected to one end of said casing and extending outwardly through said wall, an outlet stack at said wall, a horizontally disposed U-shaped flue within the building having one of its ends opening into the casing through the other end of the latter, means for establishing communication between the other end of the flue and said stack, and a liquid fuel supply line extending into the building through another wall thereof passing into the casing through the said other end of the latter and opening into said burner.

WILLIAM B. DOWLESS.