June 16, 1942. C. T. JACKSON 2,286,206

TOBACCO CURING SYSTEM

Filed June 27, 1940 2 Sheets-Sheet 1

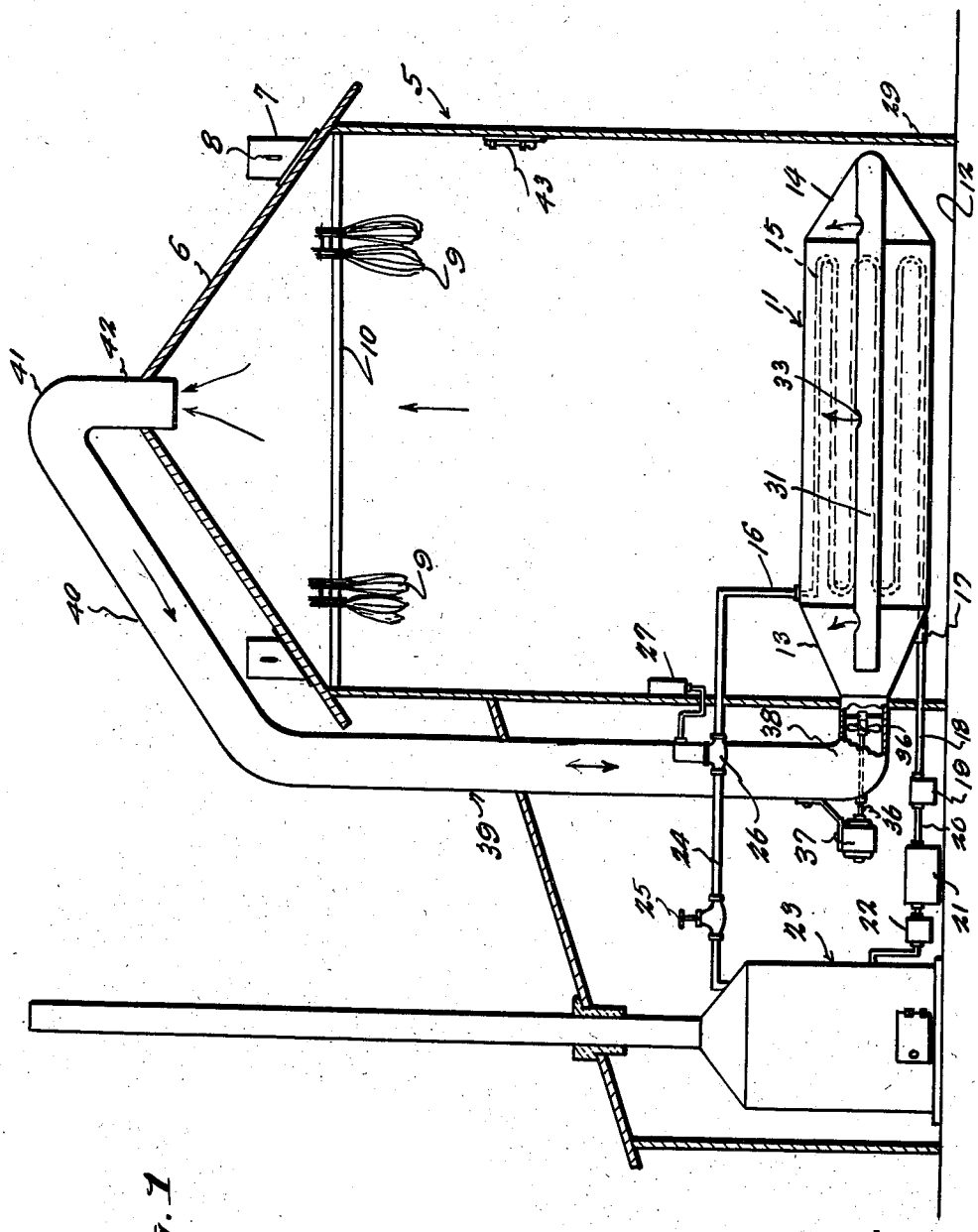


Fig. 1

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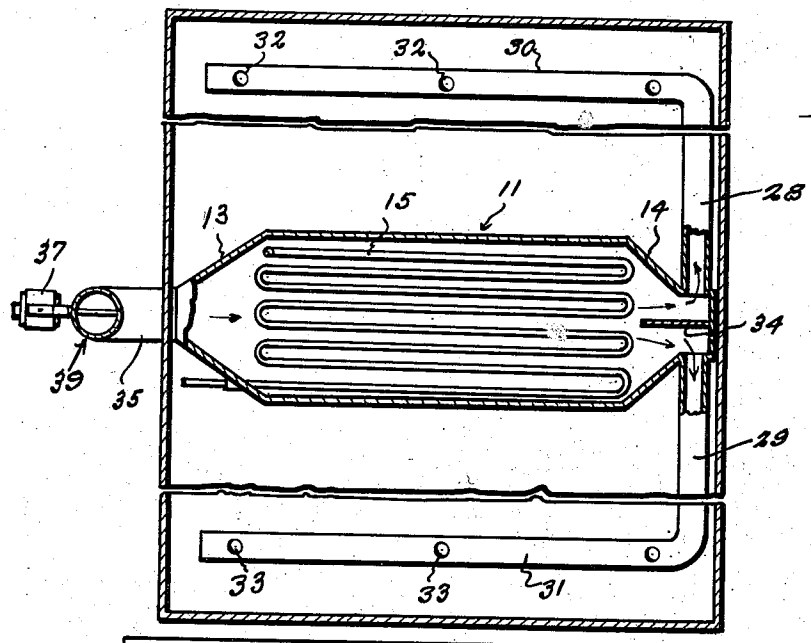


Fig. 2.

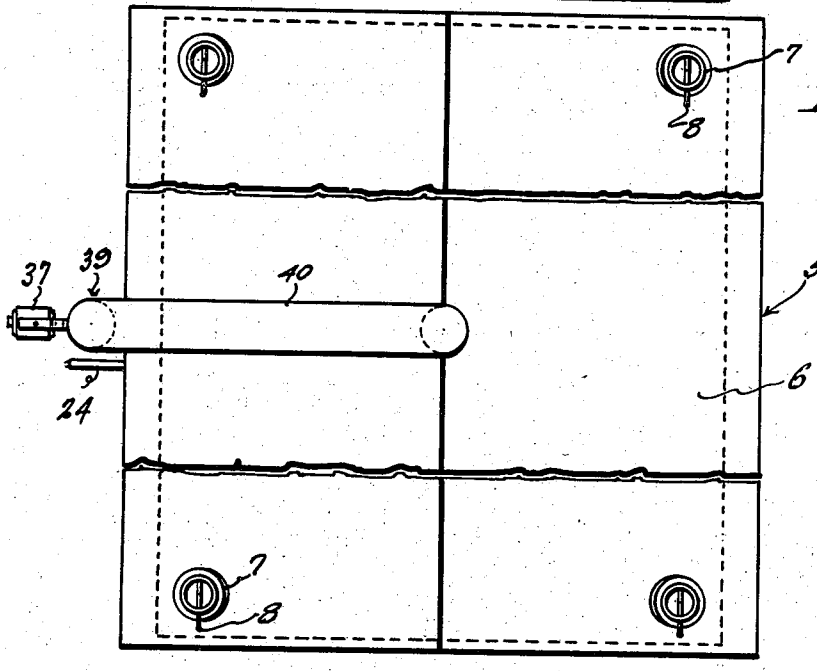


Fig. 3

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2,286,206

TOBACCO CURING SYSTEM

Charles T. Jackson, Greenville, N. C.

Application June 27, 1940, Serial No. 342,814

5 Claims. (Cl. 34—48)

My invention relates to improvements in tobacco curing systems, and the primary object of my invention is to provide an arrangement of this character whose effective temperature for curing purposes can be efficiently predetermined and automatically maintained, whereby superior curing of the tobacco is achieved.

Other important objects and advantages of my invention will be apparent from a reading of the following description taken in connection with the drawings, wherein for purposes of illustration I have shown a preferred embodiment of my invention.

In the drawings:

Figure 1 is a general transverse vertical sectional view taken through an embodiment of the invention and showing the operative relation of the main component parts thereof.

Figure 2 is a contracted horizontal sectional view taken through the lower part of Figure 1.

Figure 3 is a contracted top plan view of the barn per se.

Referring in detail to the drawings, the numeral 5 generally designates a tobacco curing barn of generally rectangular floor plan and having the gable roof 6 provided in all four corners with upstanding ventilator stacks 7 provided with dampers 8 operated by suitable means to aid in the control of the temperature and moisture conditions within the barn and affecting the curing of the tobacco 9 which is strung on a suitable type of tobacco support 10.

In accordance with the present invention, the means which supplies heat and circulates heated air into and through the barn and out of the barn comprises the preferably sheet metal rectanglar cross section casing 11 which is disposed transversely of the approximate middle of the barn just above the floor 12, the opposite ends of the casing terminating in a tapered air inlet 13 and a tapered air outlet 14. The space between the longitudinally inward ends of the inlet and outlet is taken up by the steam pipe coils 15 which are relatively closely spaced together and are arranged longitudinally, with one terminal of the coils rising from one of the upper coils and through the top of the adjacent end of the casing at 16. The opposite terminal of the steam pipe leads off one of the lowermost steam coils and through the lower part of the same end of the casing at 17. The horizontal portion 18 of the steam coil which leads from the point 17 enters a trap 19 which is connected at 20 to a return tank 21, whence the condensed steam is drawn by the injector 22 and injected into the steam boiler 23. The boiler is fired by any suitable means and has the steam outlet pipe 24, controlled by a hand valve 25, and connecting with the steam coils at the point 16. Between the point 16 and the hand valve 25 is an adjustable automatic termostatic valve 26 which has its heat-affected element 27 mounted within the lower part of the barn in the region of the heating element, so that when the thermostatic valve 26 has been set for a certain temperature, a rise of the barn temperature above that point will produce automatic cutting off of the supply of steam from the boiler through the pipe 24 and to the steam coils until such time as the barn temperature falls below the stated point and the supply of steam is restored to the coils.

The air outlet terminal 14 of the heater casing 11 has opening thereinto lateral arms 28 and 29, also preferably of sheet metal and extending in horizontal positions along the adjacent wall of the casing 5, with right angular extensions 30 and 31, respectively, extending across the barn as shown in Figure 2 near the opposite ends of the barn, the extensions being provided at suitable intervals with heated air discharging openings 32 and 33. A vertical baffle 34 traversing the air outlet terminal 14 divides the heated air stream equally between the two conduits 28 and 29 to produce uniform distribution of the heated air in the barn.

As shown in Figure 1, the extensions 30 and 31 of the conduits 28 and 29 lie in a horizontal plane below the top of the casing 11.

The air intake terminal 13 of the casing 11 has a cylindrical extension 35 which passes through a conforming opening in the adjacent wall of the barn and has operating therein a blower fan 36 whose shaft 37 extends to the outside of the conduit and is operatively connected to a suitable motor 37 having appropriate controls. The longitudinally outward end of the conduit extension 36 merges into an elbow 38 from which rises the return air conduit 39 whose major portion extends vertically alongside the barn and whose upper end merges into an angulated portion 40 which terminates at its upper end in an elbow 41, the latter terminating in a vertically depending part 42 which enters the top of the barn through the apex portion of the gable roof 6 at the approximate middle of the barn.

It is thought obvious that with a supply of steam in the steam coils 15 and with the fan 36 operating, hot air will be moved through the casing 11 in contact with the steam coils 15 and the air having been heated to the required tem-

perature will pass out through the conduits **28** and **29** and rise through the interior of the barn from the holes **32** and **33** on the conduit extensions **30** and **31**, into contact with the tobacco **9** strung in the barn, until the air reaches the lower end of the part **42** of the air return conduit. The suction created by the fan **36** in the return conduit draws this air downwardly through the said conduit and forces the same again through the heater. The operation of the thermostatic control has already been explained. Suitable places in the interior of the barn are fitted with thermometers **43** enabling the attendants to have another accurate check on the temperature conditions within the barn during the curing process.

Although I have shown and described herein a preferred embodiment of my invention, it is to be understood that I do not wish to limit the application of the invention thereto, except as may be required by the scope of the subjoined claims.

Having described the invention, what is claimed as new is:

1. A tobacco curing system comprising a substantially closed barn in the upper part of which the tobacco to be cured is adapted to be suspended, a heater in the lower part of the barn, said heater comprising a relatively large cross section horizontal casing extending across the barn, smaller cross section horizontal heated air conduits extending laterally from the forward end of the casing, said heated air conduits being formed with heated air discharging openings spaced therealong, longitudinal steam heating coils occupying a major portion of the interior of said casing between the ends thereof, a steam supply for said coils, an air return conduit supported exteriorly of the barn, said return conduit having its upper end in communication with the upper part of the barn above the location of the suspended tobacco and having its lower end connected with the rear or air intake end of said casing, and an air circulating fan in the lower part of said return conduit acting to draw air from said return conduit and force the air through said casing in contact with the steam heating coils and into the interior of the barn through the openings in said heated air conduits.

2. A tobacco curing system according to claim 1 wherein said steam supply comprises a steam discharge pipe connected to one of the uppermost steam heating coils, an adjustable automatic thermostatic valve connected in said steam discharge pipe, said valve having its temperature affected element located within the lower part of said barn.

3. A tobacco curing system acording to claim 1 wherein said steam supply comprises a boiler having a steam discharge pipe connected to one of the uppermost steam heating coils, said steam supply further comprises a return pipe leading from one of the lowermost steam heating coils to said boiler, said return pipe having connected therein a steam trap, a return tank and an injector for injecting the condensate in said tank into the boiler.

4. A tobacco curing apparatus comprising an enclosure in the upper part of which the tobacco to be cured is suspended, a horizontally elongated heater casing extending centrally across and substantially from side to side of the lower part of said enclosure, said heater casing being of relatively large cross section and having its opposite ends tapered, an air pipe having its upper end in intake relation to the interior of said enclosure at a point above the suspended tobacco, means connecting the lower end of said air pipe in communication with one end of said heater casing, a blower in said means acting to draw air down said air pipe and force the air forwardly through said heater casing, air heating means contained by said heater casing and arranged to be contacted by air passing forwardly in said casing, and relatively small cross section heated air conduits projecting laterally from opposite sides of the apex of the forward tapered end of said casing and formed with holes to discharge the heated air.

5. A tobacco curing apparatus comprising an enclosure in the upper part of which the tobacco to be cured is suspended, a horizontally elongated heater casing extending centrally across and substantially from side to side of the lower part of said enclosure, said heater casing being of relatively large cross section and having its opposite ends tapered, an air pipe having its upper end in intake relation to the interior of said enclosure at a point above the suspended tobacco, means connecting the lower end of said air pipe in communication with one end of said heater casing, a blower in said means acting to draw air down said air pipe and force the air forwardly through said heater casing, air heating means contained by said heater casing and arranged to be contacted by air passing forwardly in said casing, and relatively small cross section heated air conduits projecting laterally from opposite sides of the apex of the forward tapered end of said casing and formed with holes to discharge the heated air, said heater casing being of substantially the same rectangular cross section between the tapered ends, and said air heating means consisting of coils of steam coils arranged longitudinally in said casing, said steam coils comprising horizontal pipes.

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