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L. H. ZEUN

DRYING APPARATUS

Filed Dec. 23, 1924

2 Sheets-Sheet 1

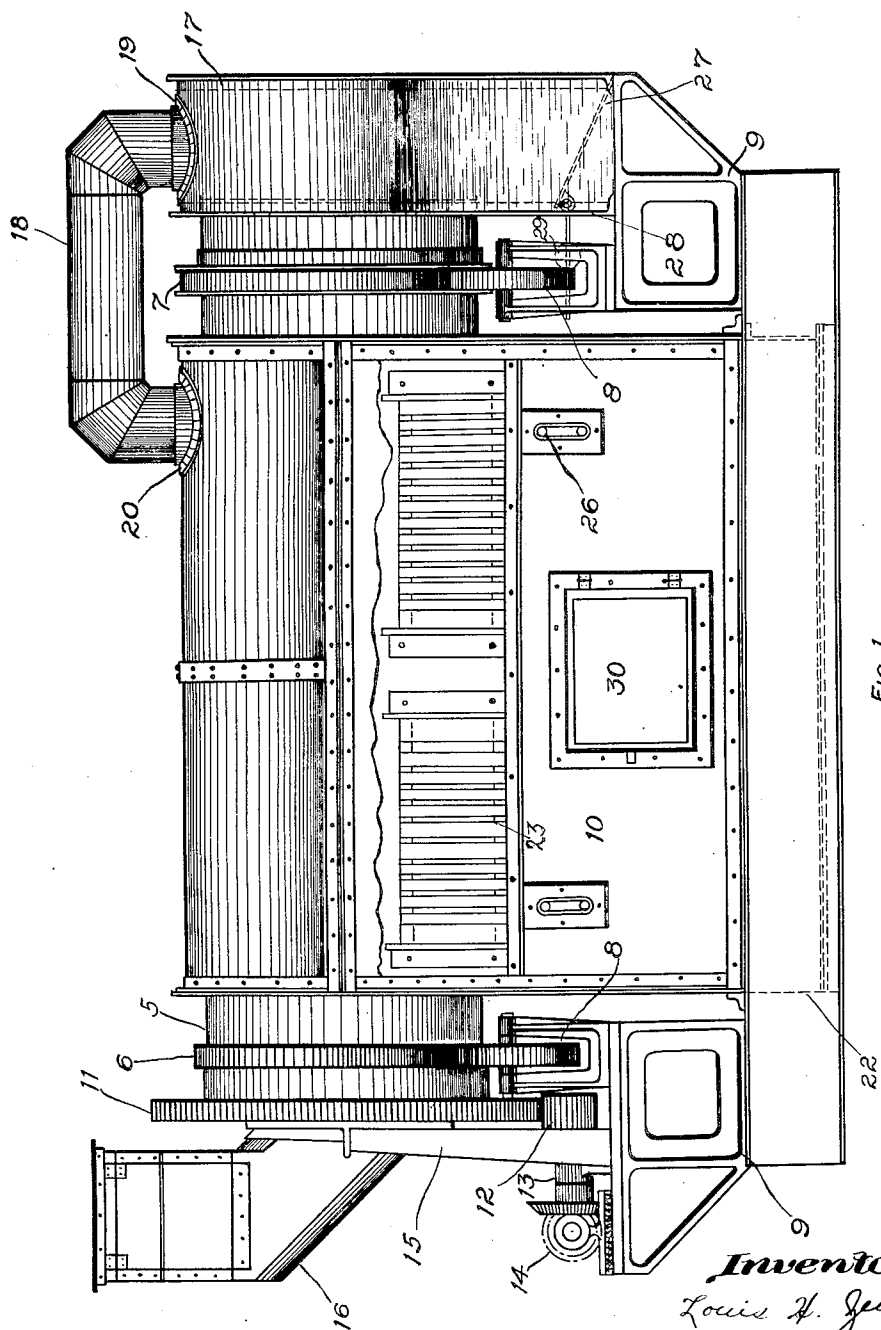


Fig. 1

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May 24, 1927.

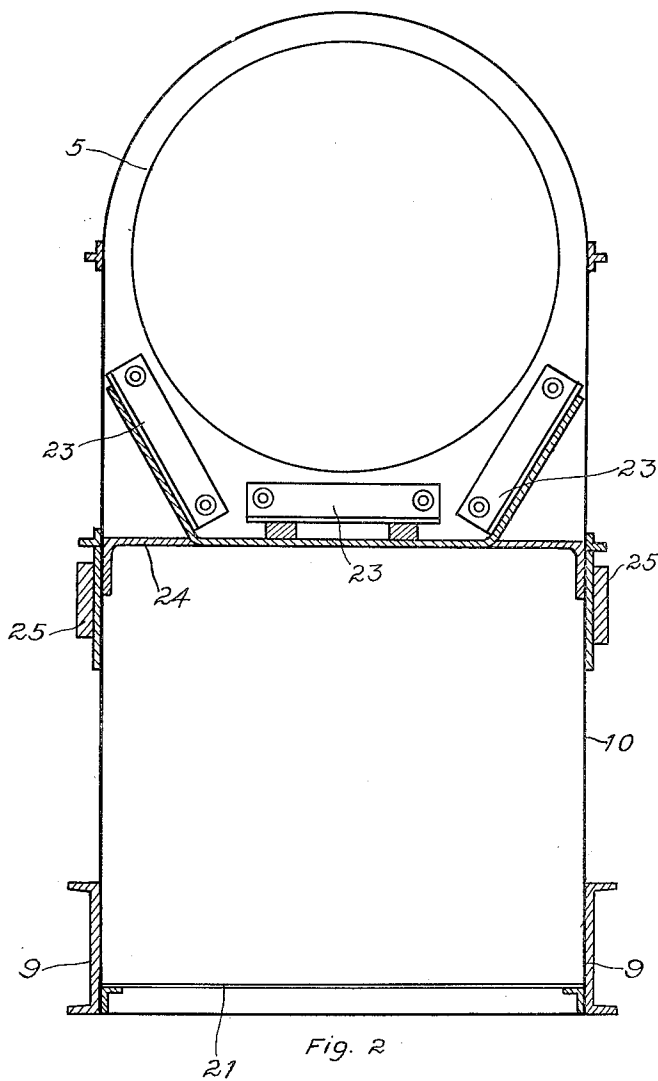
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2 Sheets-Sheet 2



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DRYING APPARATUS.

Application filed December 23, 1924. Serial No. 757,648.

This invention relates to certain new and useful improvements in a drying apparatus and particularly to that type illustrated in Patents No. 1,057,912 and No. 1,255,843, dated April 1, 1913, and February 12, 1918, respectively, and its object is to generally improve the heating method as will be pointed out in the detailed description which will hereinafter appear.

A further object of the invention is to provide a drying apparatus for tobacco and like material, with a heating unit of such construction as to render it possible to manufacture the machine at a comparatively small cost.

A still further object is to provide a drying apparatus with a rotating drum located in a heat chamber directly over a heating unit, and means for conveying heated air from the heat chamber about said drum to and through said drum, and an exhaust means for said used heated air.

With these and other objects in view, the invention consists in certain novel features, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the drawings, and pointed out in the claims hereto appended.

In the drawings,

Figure 1 is a side elevation of my improved drying apparatus, partly broken away and in dotted lines to illustrate certain features of this invention.

Figure 2 is an end elevation, partly in section, of my improved dryer.

Referring to the drawings, the numeral 5 indicates a rotating drum provided at its receiving and delivering ends with friction bands 6 and 7, which rest on supporting rollers 8 mounted in a frame 9. The frame 9 constitutes a supporting base for the drum housing 10, the drum housing extending from the frame 9 upward and about said drum.

The drum 5 is provided at its receiving end with a tooth annulus 11, which meshes with a spur-gear 12 carried by a shaft 13, which is rotated through an operating means 14, such as a motor or the like.

The elements just described form no part of this invention and are simply illustrated to disclose the usual method for rotating the drum 5.

The supporting frame 9 is provided at its forward end with uprights 15, which sup-

port and have secured thereto, a feeding hopper 16, the end of the feeding hopper 16 being in direct communication with the interior of the rotating drum 5. This hopper also constitutes an exhaust stack for the heating air passing through the drum, which will be hereinafter more fully described.

A compartment 17 is secured on the opposite end of the frame 9 and has rotatably mounted therein the free end of the drum 5, and this compartment constitutes a discharging compartment to receive the dried material being delivered from the drum 5.

The housing 10 is in communication with the compartment 17 through the medium of a pipe 18 or stack, which has its ends secured respectively to the compartment as at 19, and the housing as at 20, respectively.

The bottom wall 21 of the drum housing 10 is arranged at a predetermined space from the floor or support upon which it rests, and air is drawn through a regulating door 22 secured in the side wall of the housing 10 at the forward end thereof and is suitably heated by a heat unit 23 mounted within the housing and is conveyed about said drum through stack 18 in the compartment 17 and thus drawn through the drum by the natural draft of the hopper 16 where it is exhausted.

The heating units 23 are here shown as electrical resistance and they are mounted upon supporting brackets 24, which may be raised and lowered through adjusting brackets 25 secured exteriorly to the housing 10. The supporting brackets 24 are held in position by any suitable means, such as lug screws 26, extending horizontally through the adjusting brackets 25 and engaging the opposite ends of the brackets 24.

It is to be understood that the heating units 23 may be electrical units or may be of a gas type, such as burners or the like, the particular fuel used not forming a part of this invention, the principal feature being the use of a heating unit mounted upon a bracket in close proximity to the rotating drum 5.

The compartment 17 has its lower end open, which open end is controlled by a discharge valve 27 mounted on hinges 28 to the side walls thereof. This valve is normally closed and is held closed by a weight 29 secured thereto, and it only opens when sufficient material has been fed from the ro-

tating drum into the compartment 17 to over-balance the weight 29, permitting the material to be discharged from the compartment 17. As soon as the load is released
5 from the valve 27, the weight 29 automatically returns it to closed position.

One side wall of the housing 10 is provided with a hinged door 30, which is particularly adapted to permit access to the interior of
10 the housing should any trouble warrant entrance into the housing, such as changing the heating units or the like.

The particular operation of this device is as follows: The material is fed from the
15 hopper 16 into the drum 5, which has been properly heated through the medium of the heating units 23, the material hitting the sides of the rotating drum is thoroughly dried due to the fact that there is a continuous flow of dried air about the drum and
20 passing through the stack 18 into the compartment 17 whence it is driven through the drum 5, thoroughly mixing with the material therein until it is discharged through the receiving hopper 16.

Having thus described my invention, what I claim as new is:

1. In a drying apparatus, a support, a housing mounted on said support, a rotary
30 drum having a material inlet and air outlet at one end, a material outlet at the opposite end, said drum mounted in said housing, a heating unit mounted in said housing directly beneath the drum, means for deliver-

ing air into said housing and said drum, and means for conducting said air from said drum through said air outlet. 35

2. In a drying apparatus, a support, a housing mounted on said support, a drum rotatably mounted in said housing and upon
40 said support, said drum having a material inlet and air outlet at one end and a material outlet at the opposite end, means for controlling said material outlet, a heating unit located in said housing beneath said drum,
45 an air inlet for said housing, means for conducting said air about and into said drum, and a discharging means for said air.

3. In a drying apparatus, a support, a housing mounted on said support, a drum
50 rotatably mounted in said housing and upon said supports, and an electrical heating unit located in said housing.

4. In a drying apparatus, a support, a housing mounted on said support, a drum
55 rotatably mounted in the housing and upon said support, a heating unit, and means for adjustably supporting the heating unit within the housing beneath the drum.

5. In a drying apparatus, a support, a housing mounted on said support, a drum
60 rotatably mounted in said housing, a heating unit located in said housing, and means secured to said housing to support said heating unit within close proximity to said drum. 65

In testimony whereof he hereunto affixes his signature.

LOUIS H. ZEUN.