Nov. 9, 1926. 1,606,442

A. S. NICHOLS

PAINT AND VARNISH DRIER

Filed August 11, 1923 2 Sheets-Sheet 1

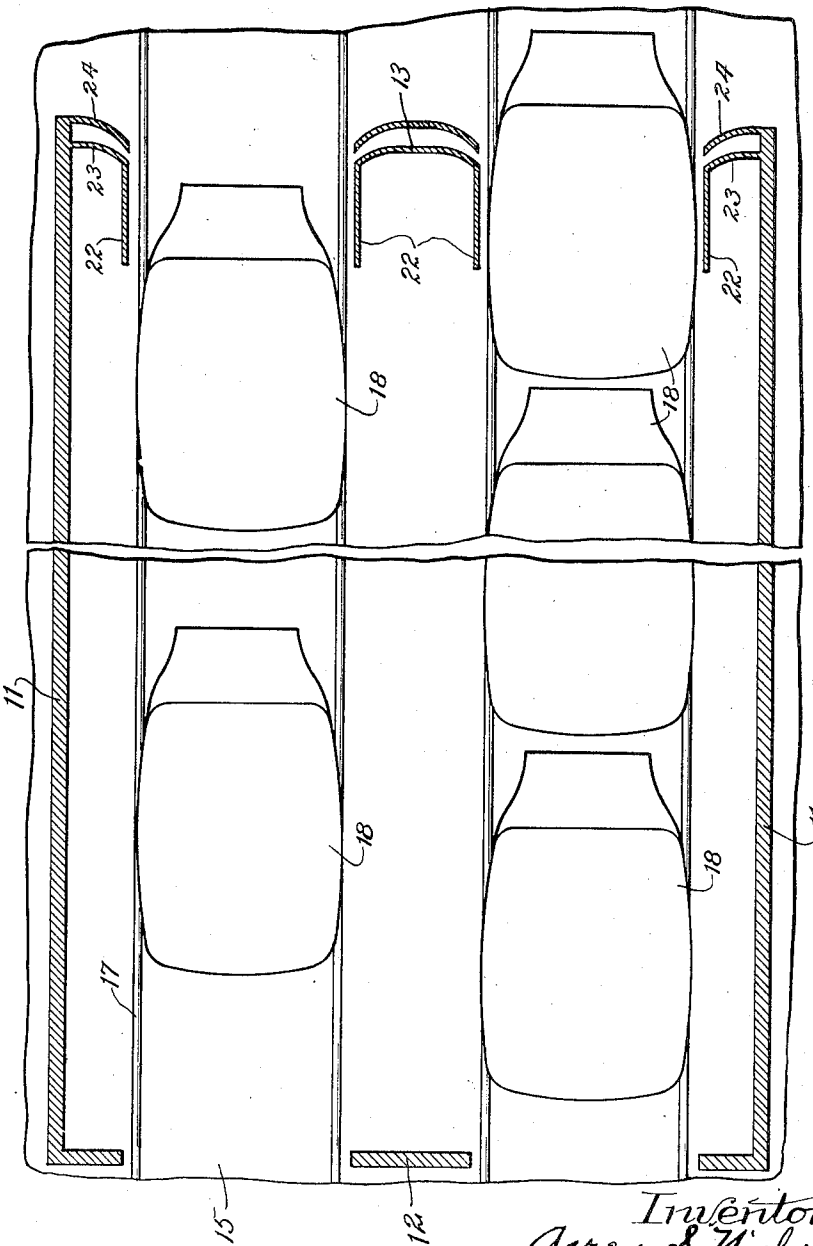

Fig. 1

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Fig-2

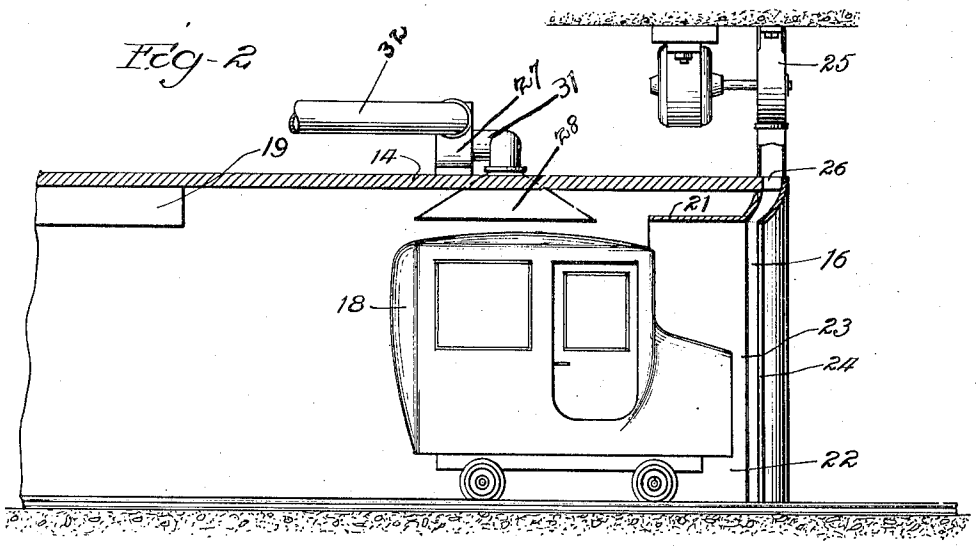
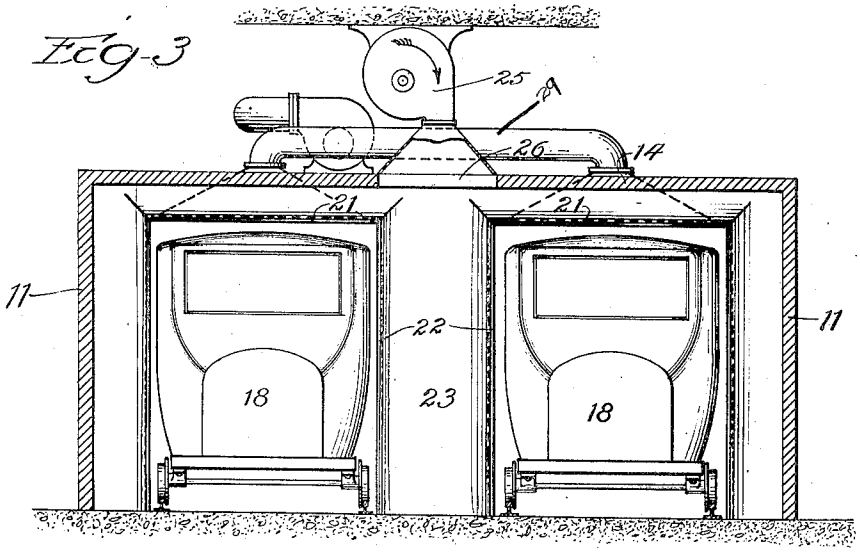


Fig-3



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UNITED STATES PATENT OFFICE.

AARON S. NICHOLS, OF NEW YORK, N. Y.

PAINT AND VARNISH DRIER.

Application filed August 11, 1923. Serial No. 656,873.

This invention relates to drying chambers, and has more particular reference to drying chambers for the drying of siccative coatings, as varnish, paint, and the like, on articles passing continuously therethrough.

A principle object of the invention is the provision of an effective, efficient, continuously operating drying chamber for automobile bodies, pianos and other coated articles, which will dry the coatings with extreme rapidity and which will require a minimum of conditioned air consistent with continuous operation.

Another important object of the invention is the provision of a continuous drying chamber wherein a cooling blast may be instantaneously, or for a short time, applied to the articles after they are dried and as they issue from the drying chamber.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a partial plan section of a drying room embodying my present invention;

Fig. 2 is a partial longitudinal vertical section through the same; and

Fig. 3 is a transverse vertical section through the same.

For the purpose of illustrating my invention I have shown on the drawing a drying room adapted for continuous operation and comprising side walls 11, end walls 12 and 13 and a top wall 14. This chamber has entrance openings 15 and exit openings or outlets 16. The drying chamber shown on the drawing is provided with two sets of tracks 17 extending through it on which the articles (shown for the purposes of illustration to be automobile bodies) may be continuously conveyed. The walls 11, 12, 13 and 14 encompass what may be termed the main drying chamber and an air conditioner 19, which may be of any standard or suitable form, is, or may be, provided that will introduce air conditioned, such as by warming, drying, washing, or preferably by providing heated air with a moisture content in excess of that of the normal atmospheric content of the chamber in order that quick drying or oxidation of the coating may be accomplished without checking.

Near the exits 16 a chamber or passageway is formed by top walls 21 and side walls 22 extending inwardly of the drying chamber and fitting rather closely about the articles being treated so that when the articles enter these passageways they act as partial shield or closure to prevent re-escape of the conditioned air within the chamber.

The end wall 13 is preferably of two parts or wall members 23 and 24 forming flue spaces open around the openings 16. Above the wall or otherwise suitably located is a fan or blower 25 communicating at 26 with this flue space or supplemental air chamber. The blower 25 forces unconditioned cooled air between wall members 23 and 24 and blows it out under pressure in excess of that of the pressure in the drying room across and about opening 16 and on to the articles as they pass therethrough. The walls 23 and 24 are preferably arranged so that the air in leaving the flue spaces between them is directed back through the passageways formed by walls 21 and 22. This air also serves as a partial seal to prevent the escape of conditioned air and quickly cools the dried articles, facilitating the hardening of the coating. An exhaust fan 27 is preferably provided to take air from the chambers through outlets 28 arranged just inwardly of or at the end of the passageways formed by walls 21 and 22, these outlets being connected by branches 29 with a duct 31 leading to the exhaust fan 27. A duct 32 is or may be provided to convey the exhaust air away, or, if desired, to an air conditioner of any suitable type to be conditioned for recirculation. The exhaust fan draws air both from the main drying space and from the exit passageways, in the latter instance acting in cooperation with the fan 25 to maintain a draft.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A drying chamber through which coated articles are intended to be moved continuously, means for conditioning air in said drying chamber, a confined exit passage at

an end of said chamber, and means at said confined portion for projecting atmospheric air directly upon and about said articles.

2. A drying chamber through which coated articles are intended to be moved continuously, means for introducing conditioned air into said chamber, an extended exit passageway from said chamber adapted to be substantially filled by an article passing therethrough, and means for projecting atmospheric air upon said article at said passageway.

3. In a drying chamber, the combination of encompassing walls, one of said walls having an opening and a flue at said opening, and means projecting air between the wall and out of said flue upon articles passing through the opening.

4. In a drying chamber, the combination of encompassing walls, one of said walls having an opening and a flue about said opening, and means projecting air between the wall and out of said flue upon articles passing through the opening.

5. A drying chamber, comprising, encompassing walls having inlet and outlet openings, one of said openings being surrounded for a distance inwardly of said drying chamber by a partition closely fitting about an article passing through the chamber, whereby said article itself acts as a partial seal for said opening to prevent escape of air from the chamber.

6. An end wall for a drying chamber, comprising spaced wall parts having an opening through them, blower means for forcing air between said spaced wall parts and out between said wall parts across said opening.

7. A drying chamber through which articles to be dried are adapted to be moved continuously, and having inlet and outlet openings, one of said openings being surrounded by a chamber wall of substantially less sectional area than the sectional area of the chamber away from said opening whereby the articles passing through said wall provide a partial seal for said opening to prevent escape of air from the chamber.

8. A drying chamber, comprising, a main portion, means for maintaining conditioned air under pressure within said portion, a supplemental portion at an end thereof and adapted to project unconditioned air across the opening from said main chamber, and means for supplying air to said supplemental chamber at a pressure greater than that in the main chamber.

9. In a drying chamber, the combination of encompassing walls, one of said walls having an opening and a flue about said opening, said flue having an outlet directing the air into the chamber.

10. In a drying chamber, the combination of encompassing walls having inlet and outlet openings, one of said openings surrounded for a distance inwardly of said drying chamber by an enclosure closely fitting about an article passing through the chamber and partitioning the space therein, and means for directing air inwardly in the direction of said drying chamber through the partitioned outlet.

11. A drying chamber, comprising, a main portion, means for maintaining air in said portion, a supplemental portion at the end thereof and adapted to project unconditioned air across the opening from the main chamber and inwardly of the main chamber, and means for supplying air from said supplemental chamber at a pressure greater than from the main chamber.

12. A drying chamber, comprising, a drying space, means for delivering conditioned air to the interior of said space, means for delivering unconditioned air to the interior of said space, and a common means for collecting and removing said conditioned and unconditioned air.

13. In a drying chamber, the combination of encompassing walls having an outlet opening, means supplying conditioned air to the space within said walls, and an exhaust device for drawing unconditioned air through the opening and conditioned air from said drying space.

14. In a drying chamber, the combination of encompassing walls having an outlet opening, a flue adapted to deliver air onto articles passing through said opening, and a plurality of co-operating means, one acting to force air into said flue and the other to draw air out of said flue.

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