

April 7, 1931.

R. R. JONES

1,799,375

METHOD FOR SEALING DRYING CHAMBERS AND THE LIKE

Filed June 1, 1927

2 Sheets-Sheet 1

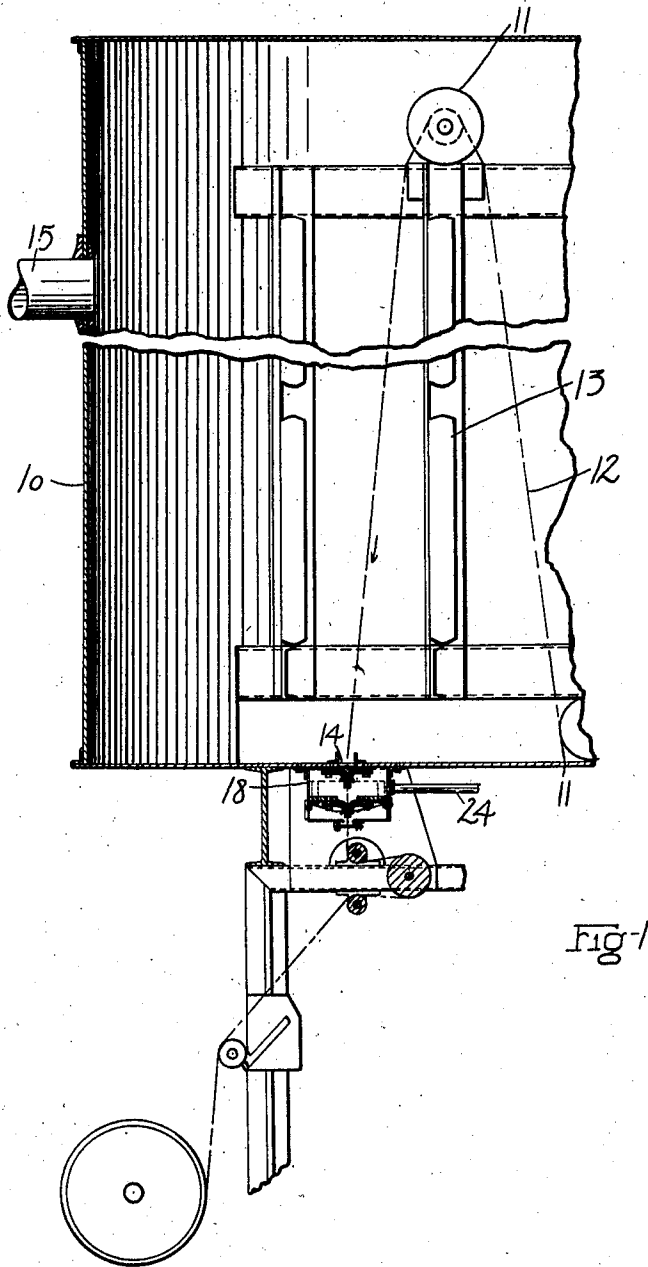


Fig. 1

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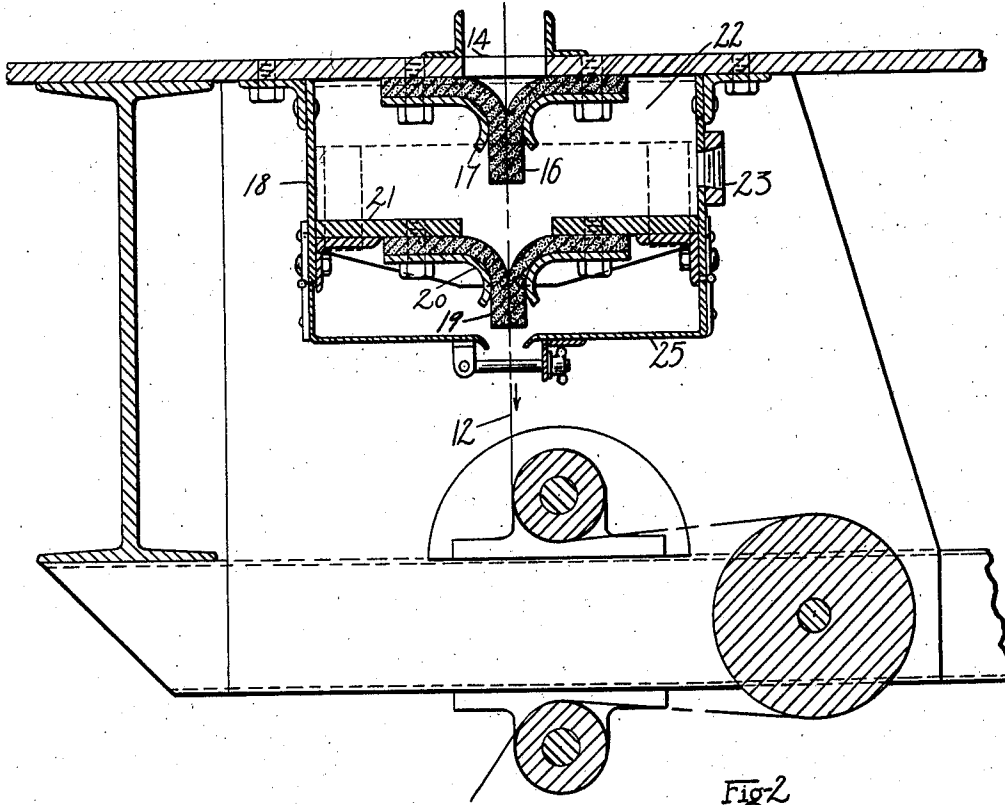


Fig. 2

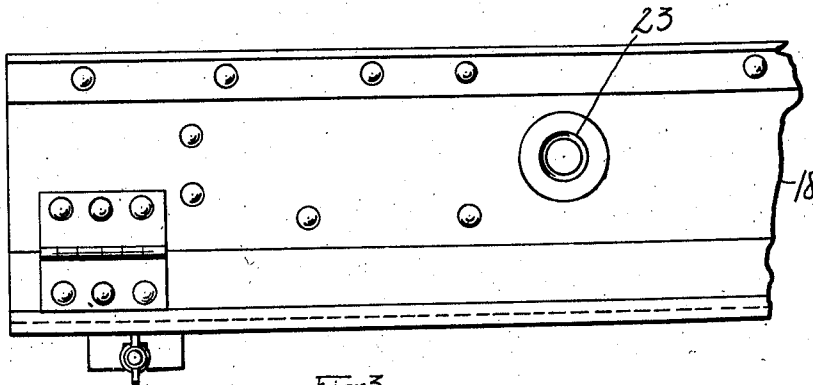


Fig. 3

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UNITED STATES PATENT OFFICE

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METHOD FOR SEALING DRYING CHAMBERS AND THE LIKE

Application filed June 1, 1927. Serial No. 195,694.

This invention relates to methods of and apparatus for sealing chambers used in drying, heating or otherwise treating web or strip material.

An object of the invention is to devise a method of sealing the inlet or outlet of the drying or heating chamber through which the material is conducted for treatment in order to prevent leakage of air into or vapors out of the chamber at these points, said method comprising maintaining around the inlet or outlet a body of an inert gas at a pressure greater than that within the chamber and greater than atmospheric. A further object is to provide an additional, mechanical means for sealing the passages, and for confining the inert gas about the inlet or outlet at a pressure greater than that within the chamber.

The foregoing and other objects are obtained by the device illustrated in the drawings and by the method and apparatus described below. It is to be understood that the invention is not limited to the specific form thereof disclosed herein.

Of the accompanying drawings:

Figure 1 is a vertical section at the outlet of a drying chamber illustrating a sealing device embodying the principles of the invention;

Figure 2 is an enlarged sectional end detail of the sealing device; and

Figure 3 is a side elevation thereof.

For purposes of illustration, the seal embodying the invention will be described in use on a known type of drying chamber for removing the volatile and explosive solvent from a web of fabric which has been coated or saturated with a rubber solution. In the drawings, the numeral 10 designates a chamber or tank in which is mounted a series of guide rollers 11 for carrying a web of coated fabric, indicated by a dotted line at 12, in a circuitous path past a number of heating coils 13, the fabric passing out of the tank through an elongated slot 14 and on to a plurality of suitable guide rolls and a reeling device. In order to carry off the vapors from the tank, an inert gas is introduced at inlet 15 and circulated past the fabric, forming a non-explosive mixture with the solvent va-

pors, which mixture is then withdrawn for recovery of the solvent and inert gas. The slot 14 is closed by a pair of abutting felt pads 16, between which the fabric 12 is adapted to pass, the pads being supported by plates 17 attached to the floor of the tank. This closure alone, however, is incapable of preventing leakage of vapors from the tank to the atmosphere or leakage of air into the tank to form an explosive mixture. An elongated box 18 is accordingly affixed to the tank about slot 14, and an additional pair of abutting felt pads 19 attached with supporting plates 20 to a divided, intermediate partition 21 mounted in the box, the abutting edges of pads 19 as well as pads 16 being downwardly turned to provide a broad sealing surface and to facilitate the passage of the fabric therethrough. Into the chamber 22, thus closed by wiper pads 16 and 19, is introduced an inert gas, such as carbon dioxide, nitrogen, or the like, the gas being maintained in the chamber at a pressure greater than that within the tank, whereby if any leakage past pads 16 occurs, it will be only the inert gas flowing from chamber 22 into the tank. It is preferable also to maintain the pressure in chamber 22 at a pressure higher than atmospheric to prevent the admission of air into chamber 22 past closure pads or wipers 19, so that leakage at this point would merely consist in the escape of the inert gas into the atmosphere. The inert gas is introduced into the chamber through one or more ports 23 therein from a supply pipe 24, and its pressure as well as the tank pressure is indicated on suitable manometers or gauges (not shown). The lower portion of box 18 has attached thereto a pair of hinged cover plates 25 for forming a final partial closure for the fabric passageway and also serving to protect the wiper pads.

It will be understood that the sealing apparatus is also adapted for use at the inlet end of the tank, and that modifications may be made in the structures herein disclosed without departing from the spirit of the invention or the scope thereof as defined by the appended claims.

What is claimed is:

1. The method of preventing leakage of vapors at the inlet or outlet passageways of drying apparatus for continuous strip material, which comprises maintaining a body
5 of inert gas about said passageway at a pressure greater than that of the vapors within the apparatus and greater than atmospheric pressure.
- 10 2. The method of preventing intermingling of air and solvent vapors at the inlet or outlet passageways of apparatus for drying coated strip material, which comprises providing a double seal at the passageway, and
15 supplying an inert gas to said seal above atmospheric pressure causing leakage of a portion of said gas into said apparatus and into the atmosphere from the seal.

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