April 21, 1931. A. W. PELPHREY 1,801,687

VACUUM HEAD AND DEODORIZER

Filed July 15, 1929 2 Sheets-Sheet 1

Fig. 1.

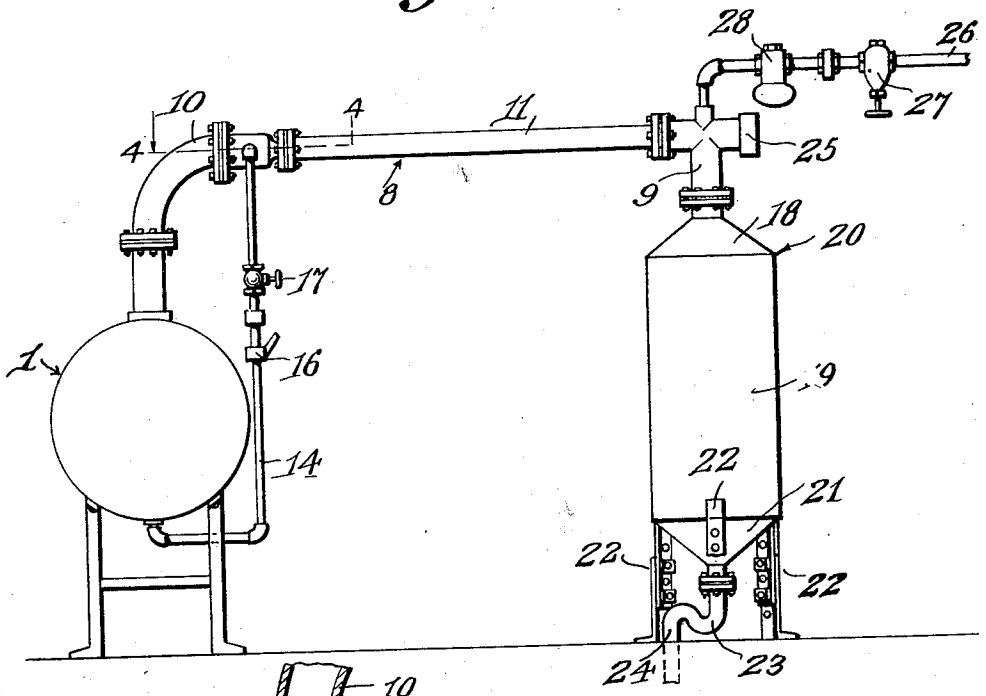


Fig. 3.

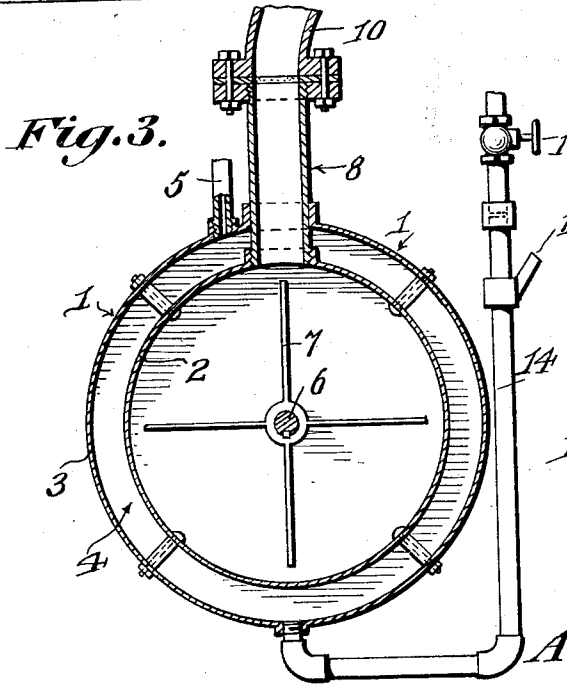
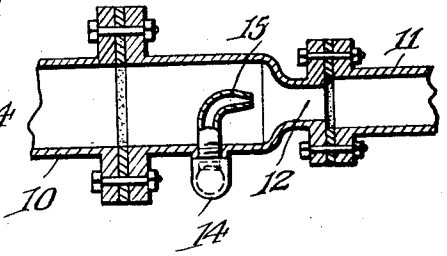


Fig. 4.



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Fig. 2.

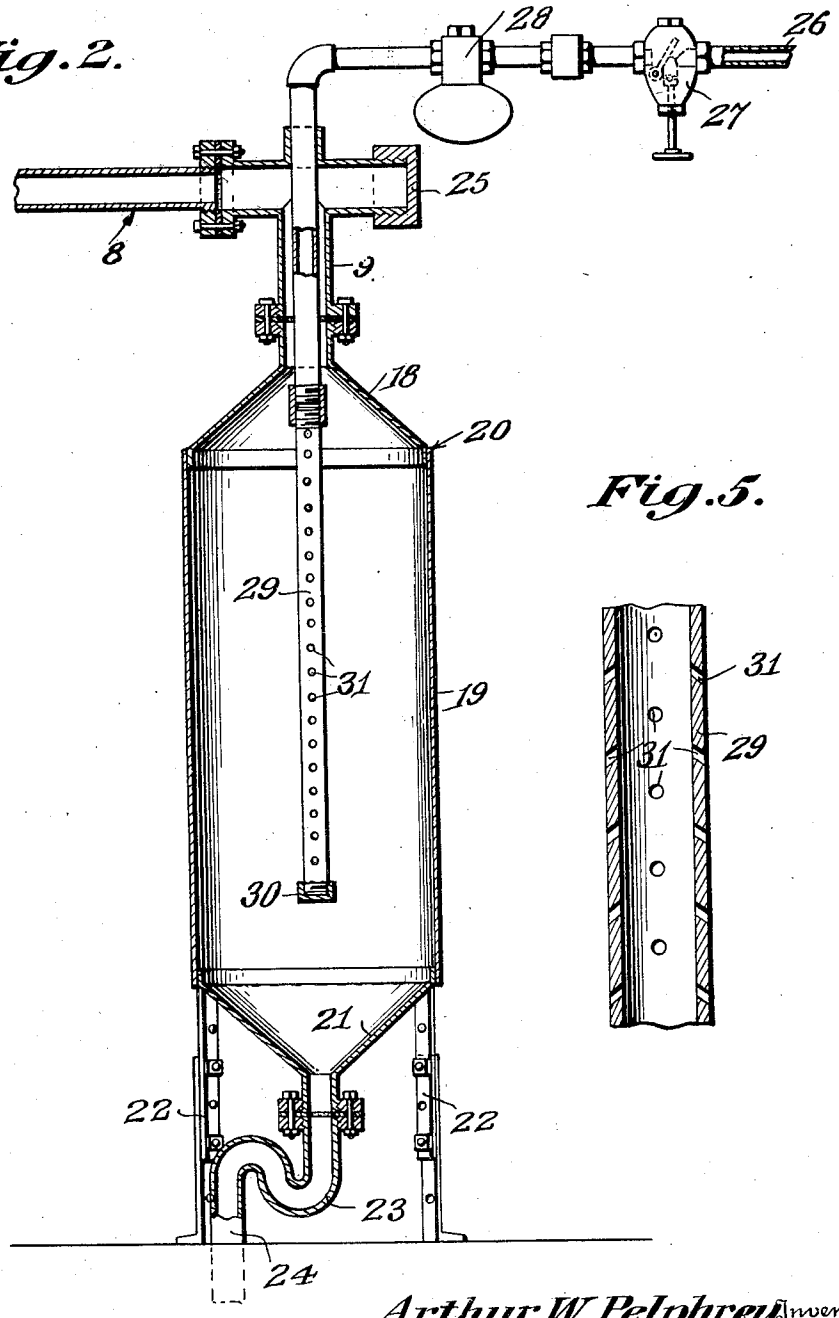


Fig. 5.

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1,801,687

UNITED STATES PATENT OFFICE

ARTHUR WHEELER PELPHREY, OF LOS ANGELES, CALIFORNIA

VACUUM HEAD AND DEODORIZER

Application filed July 15, 1929. Serial No. 378,513.

This invention aims to provide novel means whereby a stench proceeding from a drier may be done away with, especial reference being had to driers in which blood, tankage, fish meal, grain, and the like, are handled. The invention aims to provide a deodorizer of novel construction, and to provide novel means for supplying fluid pressure to the conduit that carries the vapors and the like from the drier to the deodorizer.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that sort to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made in the precise embodiment of what is shown by the invention herein disclosed, within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Figure 1 shows in elevation, a device constructed in accordance with the invention;

Figure 2 is a longitudinal section through the deodorizer;

Figure 3 is a transverse section through the drier;

Figure 4 is a fragmental section on the line 4—4 of Figure 1;

Figure 5 is a fragmental longitudinal section of one of the nozzles.

The numeral 1 designates a drier of the kind used for drying grain, blood, fish meal, tankage, and the like. The drier 1 includes a receptacle 2 about which is located a shell 3, the space between the shell 3 and the receptacle 2 constituting a steam jacket 4. The shell 3 is supplied with a steam inlet pipe 5 discharging into the steam jacket 4.

A shaft 6 is journaled for rotation in the drier 1 and carries a rotatable agitator 7 which may comprise paddles. The numeral 8 designates a conduit leading from the receptacle, at the top thereof, to the deodorizer 20, which will be described hereinafter. The conduit 8 may be made, for the most part, out of stock materials. The part 10 of the conduit 8 which is immediately adjacent to the drier 1 is somewhat greater in diameter than the part 11 which is adjacent to the deodorizer 20. At the place where the parts 10 and 11 of the conduit 8 are joined together, there is a reduced throat 12, shown in Figure 4. The numeral 14 designates a fluid pressure pipe which may carry steam from any desired source, compressed air, etc. In the present embodiment of the invention, however, the lower end of the fluid pressure pipe 14 communicates with the steam jacket 4 of the drier 1. At its upper end, the steam pressure pipe 14 has a nozzle 15 located in the part 10 of the conduit 8 and discharging into the throat 12. A strainer 16 is located in the pipe 14. In the pipe 14 is disposed a valve 17 which is under the control of an operator. The part 11 of the conduit 8 is connected to one end of a T 9, the vertical branch of the T 9 being connected to the tapered upper end 18 of the cylindrical body 19 of the deodorizer 20. On the outer end of the horizontal branch of the T 9 there is a detachable cap 25, which may be removed to permit an operator to get at the conduit 8 and clean it out.

The body 19 of the deodorizer 20 has a tapered lower end 21 discharging through a trap 23 into a pipe 24 which may lead to a sewer (not shown). The deodorizer 20 is supported on longitudinally adjustable legs 22.

The numeral 26 designates a water supply pipe in which is interposed a valve 27 under the control of an operator. A strainer 28 is located in the pipe 26. The pipe 26 extends downwardly through the vertical branch of the T 9, into the body 19 of the deodorizer 20. The lower end of the pipe 26 is connected to a tubular nozzle 29, the lower end of which is closed by a cap 30. The nozzle 29 may be located at the axis of the body 19 and the deodorizer 20. The nozzle 29 is provided with openings 31 arranged in longitudinal lines, as shown in Figure 2. Openings are staggered around the nozzle 29, as Figure 5 will show. The openings 31 in the nozzle 29 slant

downwardly and outwardly, as can be seen in Figure 5.

The cap 25 can be removed, and then the nozzle 15 and the throat 12 of Figure 4 will facilitate the cleaning of the conduit.

In practical operation, the material to be dried is placed in the receptacle 2 of the drier. The steam in the jacket 4 has a pressure of from forty pounds to eighty pounds to the square inch with a temperature of 220° F. up, and the moisture in the material in the drier is driven off, the moisture running from 30 to 80 percent by weight. The agitator 7, of course, keeps the material in the drier stirred up whilst the drying operation is going on. When the moisture becomes hot enough, it rises in the drier and goes over through the conduit 8, the passage of the vapor through the conduit 8 being accelerated because fluid pressure is discharged from the nozzle 15 into the throat 12, the pressure fluid, in the present embodiment of the invention, being steam from the steam jacket 4 of the drier. Water from the pipe 26 flows outwardly through the holes 31 in the nozzle 29 and is discharged into the body 19 of the deodorizer 20, the vapors entering the deodorizer by way of the T 9. The water discharged from the nozzle 29 absorbs the moisture that the deodorizer has received from the conduit 9 and the waste water runs away through the trap 23 and the pipe 24 to a sewer (not shown).

The construction is such that the rank-smelling vapor proceeding from the drier is taken care of, there being no objectionable odor in and about the entire apparatus. The device is simple in construction and may be manufactured at a small cost.

Having thus described the invention, what is claimed is:

In a device of the class described, a deodorizer comprising a tubular body having an outlet, a T connected to the top of the body and having oppositely disposed branches, one of which is connected to a source of gas to be deodorized, a water supply pipe and a nozzle extended down through the T, the nozzle discharging into the body, a conduit connected to said one of said oppositely disposed branches of the T, a removable cap on the other of said oppositely disposed branches of the T, a reduced throat in the conduit, and a fluid pressure pipe entering the conduit and discharging through the throat directly toward the removable cap, the throat and the fluid pressure pipe accelerating the flow of gas to be deodorized, when the cap is in place, and facilitating a cleaning of the conduit when the cap is removed.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

ARTHUR WHEELER PELPHREY.