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CORROSION PREVENTING AIR DRIER

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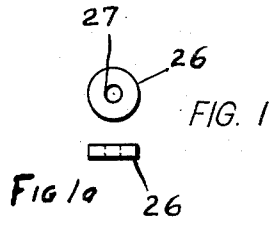

FIG. 1

FIG 1a

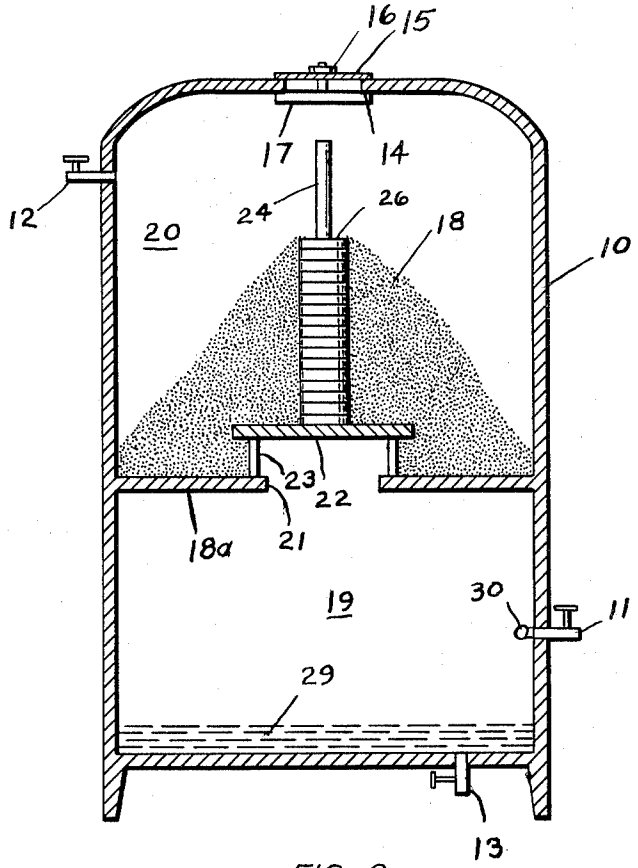

FIG. 2

INVENTOR
ORLO CLAIR NORTON

BY

Charles L. Lovenheath
Attorney

United States Patent Office

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1

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CORROSION PREVENTING AIR DRIER

Orlo Clair Norton, 544 Virginia Ave., Erie, Pa.

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1 Claim. (Cl. 55—281)

This invention relates to air driers and humidifiers and, more particularly, to the type of air drier commonly known as a deliquescent type air drier.

Air driers of the type disclosed herein wherein a chemical is utilized to remove the moisture from air are usually tanks made of steel and the chemicals used to remove the moisture are usually corrosive to the steel. It has been discovered that by utilizing metallic zinc in the air drier, the corrosive effect of the chemicals on the steel tank are reduced, if not eliminated.

A problem exists, however, in supporting the zinc so that it can be determined how much metallic zinc is remaining in the tank and in a position that it will be disposed at the center of the chemical materials and, therefore, be most effective.

It is, accordingly, an object of the present invention to provide an improved tank wherein metallic zinc can be supported to act as a rust inhibitor.

Another object of the invention is to provide an improved air drier.

A further object of the invention is to provide an air drier which is simple in construction, economical to manufacture, and simple and efficient in operation.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and more particularly pointed out in the appended claim, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

FIG. 1 is a top view of the shape of metallic zinc used in combination with the air drier disclosed herein;

FIG. 1*a* is a side view of the shape of metallic zinc; and

FIG. 2 is a longitudinal cross sectional view of the air drier according to the invention.

Now with more particular reference to the drawing, an air drier is shown having a generally cylindrical tank 10 with an inlet valve 11 and an outlet valve 12 for connecting to a compressed air line in which air is to be dehumidified. The tank 10 has a drain valve 13 at the bottom and a desiccant inlet opening 14 which is sealed by a removable cover 15 having a lock nut 16 which clamps it to a clamp bar 17 to seal the device air tight and to allow a chemical material 18 to be introduced to replenish it as it is used up.

A partition 18*a* extends completely across the tank 10 and divides it into an inlet chamber 19 and an outlet chamber 20. An opening 21 provides an air passage from the inlet chamber to the outlet chamber and a baffle 22 is supported on pedestal 23 which may have a screen wire around it to prevent the chemical material from falling down through the inlet chamber.

2

A post 24 is fixed at its lower end to the baffle 22 and extends upwardly therefrom. This post is received in the holes in metallic zinc members 26 which have a hole 27 therethrough so that the hole receives the post 24.

During operation, the inlet valve 11 and outlet valve 12 are connected in a compressed air line. When zinc members are to be added to replace those used up, the operator will remove the cover 15 and support the zinc metallic members 26 over the post 24. He will then fill a suitable amount of chemical 18 such as sodium chloride pellets impregnated with calcium chloride into the drier and turn the valves 11 and 12 on so that air will flow therethrough. Moisture from the air will collect on particles of the chemical and it will dissolve and a solution 29 of the chemical and water will collect in the bottom of the tank 10. This solution can be drained off as time goes by. A pipe 30 has a curved end so that the air will enter the tank at a tangent to the inside and a swirling action will be induced in the bottom of the tank and considerable moisture will be thrown out at this point.

The chemical may be any suitable soluble salt coated with calcium chloride or a similar hygroscopic material.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claim.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

An air drier comprising a tank having an inlet and an outlet spaced from each other, a partition between said inlet and said outlet dividing said tank into an inlet section and an outlet section, said partition having an opening therethrough, a baffle over said opening, a desiccant supported on said baffle, a desiccant inlet in the top of said tank, a removable cover on said tank closing said desiccant inlet, a post attached to said baffle and extending generally perpendicular therefrom, zinc metallic flat washers on said post, and a drain at the bottom of said tank for draining out the solution of desiccant and water removed from the air.

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