

Jan. 6, 1925.

W. S. HIESTAND

1,522,186

GRAIN VENTILATOR

Filed June 22, 1921

Fig. 1.

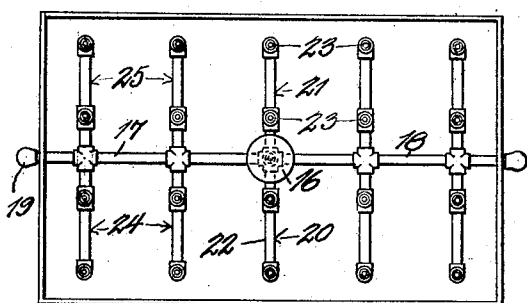


Fig. 3.

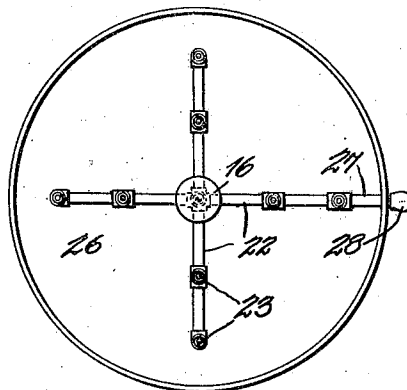


Fig. 2.

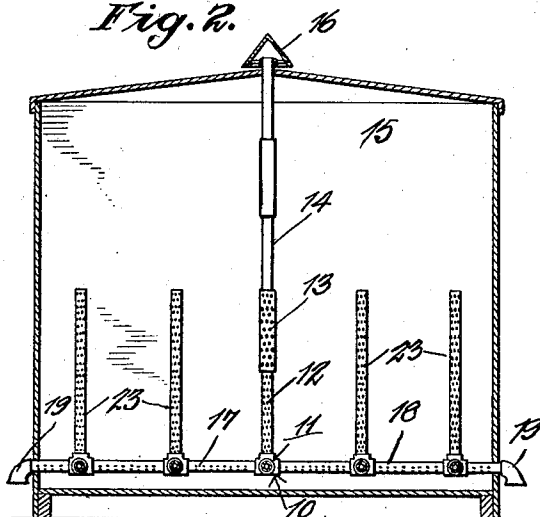


Fig. 4.

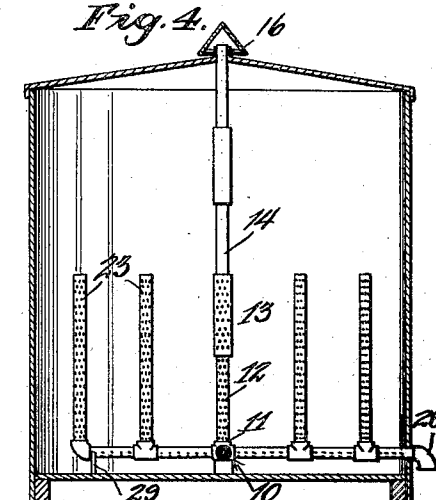
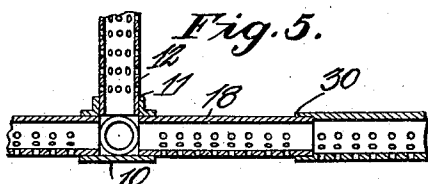


Fig. 5.



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Patented Jan. 6, 1925.

1,522,186

UNITED STATES PATENT OFFICE.

WILLIAM S. HIESTAND, OF YATES CENTER, KANSAS.

GRAIN VENTILATOR.

Application filed June 22, 1921. Serial No. 479,592.

To all whom it may concern:

Be it known that I, WILLIAM S. HIESTAND, citizen of the United States, residing at Yates Center, in the county of Woodson and State of Kansas, have invented certain new and useful Improvements in Grain Ventilators, of which the following is a specification.

My invention relates to improved means and devices to be used in connection with granaries and other storage compartments for grain and the like, to ventilate the grain by insuring a complete system of ventilation so as to prevent the same from spoiling due to the accumulation of moisture or becoming overheated due to spontaneous combustion.

The main object of my invention is to provide a ventilating system as above described that is convertible into different shapes and sizes so that it may be used to advantage in connection with storage places of varying diameters and sizes.

Various other objects and advantages of my invention will become apparent during the continuance of the following description.

In the drawings:—

Figure 1 is a view in top plan showing my invention as in its preferred embodiment and as used in connection with a storage space that is substantially oblong when viewed in top plan.

Figure 2 is a view in vertical cross section taken through the storage space or body showing my invention in side elevation.

Figure 3 is a view similar to Figure 1 of a modified form of my invention showing the same as used in connection with a circular container.

Figure 4 is a view similar to Figure 2 showing my invention as used in connection with a circular container.

Figure 5 is a detailed view in cross section showing the method of building up the several units of ventilating device.

In its preferred embodiment my invention consists of a main or central portion from which the different ventilator sections extend or radiate. In other words, in the different forms of the invention, a common center or body portion is used and the ventilator sections are so made whereby they can be connected to the body portion or arranged in connection therewith to best ventilate the grain according to the nature and contour of the container.

In the accompanying drawings, I describe two different forms of my invention and each form will be described separately.

In that form of my invention shown in detail in Figures 1 and 2, 10 designates a master joint which has four openings in a horizontal plane and an upper opening 11 in which is inserted the lower end of a ventilator member 12. The ventilator member 12 is perforated circumferentially about its entire length and, as shown in Figure 2, is connected to a second ventilator member 13 that is also perforated. An outlet pipe 14 extends upwardly from the second ventilator member 13 and outwardly through the top of the container 15 where it is provided with a protecting hood or cover 16.

In this embodiment, the master joint 10 carries oppositely extending main or carrying pipes 17 and 18 both of which project through the sides of the container 15 and are provided at their outer ends with air intake nozzles 19. The pipes 17 and 18 are perforated about their under side as clearly shown in Figure 2 in order to thoroughly ventilate the grain lying underneath the same and at the same time presenting a smooth supporting surface to the grain arranged thereabout.

The other two openings of the master joint 10 carry oppositely arranged ventilator sections 20 and 21 respectively and each ventilator section comprises a horizontal pipe 22 on which is arranged vertical ventilator pipes 23. The vertical pipes 23 are perforated circumferentially throughout their length but the horizontal pipes are perforated only on the under side as clearly shown.

The horizontal pipes 17 and 18 also carry a series of ventilator sections 24 and 25 throughout their length as clearly shown in Figure 1, so as to provide proper ventilating circulation for the grain in the container. The ventilator sections 24 and 25 are of the same construction as the ventilator sections 20 and 21.

From the above, it will be observed that the grain within the container 15 will be thoroughly ventilated and that there will be a continual circulation of air inwardly through the pipes 17 and 18 to the ventilator sections 12 and 13 and outwardly through the pipe 14. This will thoroughly ventilate the grain and keep the same from becoming moldy and spoiling from that cause.

In that form of my invention shown in

Figures 3 and 4, the ventilator sections as indicated by the numerals 20 and 21, and 24 and 25 in Figures 1 and 2 are connected directly to the main or master joint 10 so that they radiate from the central ventilator member 12 and are especially adapted for use in connection with a circular container such as shown at 26. In other words, the horizontal portions of the ventilator sections are connected directly to the openings of the master joint. In this form, one of the ventilator sections has its horizontal member extended as shown at 27 so as to project through the side of the container and the projecting end thereof is provided with an air intake nozzle 28 so as to provide an air intake for the ventilating device. In this form it is also desirable to provide suitable supports such as shown at 29 whereby the device may be maintained in a horizontal position within the container.

In Figure 5, I have shown in detail the method of connecting the horizontal pipes to the main or master joint 10 and the method of perforating the horizontal and vertical pipes. It is also pointed out that the horizontal pipes such as shown at 17 and 18 in Figures 1 and 2 may be made in sections and joined together as shown at 30 in Figure 5.

In view of the above, it is believed that the advantages and novel features of my invention will be readily understood and therefore further detailed description is deemed unnecessary.

What is claimed is:—

1. A grain ventilator for a closed storage bin comprising a master joint located near the floor of the bin, horizontal ventilating pipes radiating from opposite sides of the said master joint, vertically disposed ventilating pipes carried by the said horizontal pipes and being in communication there-

with, a central vertical ventilating pipe extending upwardly from the top opening in the said master joint, said vertical ventilating pipes being perforated circumferentially throughout their length and said horizontal ventilating pipes being perforated only on the undersides thereof, an air-intake nozzle on the outside of the said bin and connected to one of the said horizontal ventilating pipes and an imperforated air-vent pipe having its inner end telescoped in said central vertical ventilating pipe and its outer end projected exteriorly of the top of the said bin.

2. A grain ventilator comprising a master joint having a top opening and four side openings, a pair of elongated horizontally disposed ventilating pipes extending oppositely from two of the said side openings of the master joint, an air-intake nozzle at the outer end of each of the elongated pipes, a short ventilating pipe extending horizontally from each of the two remaining side openings of the said master joint, a series of short ventilating pipes carried by each of the said elongated pipes and projecting oppositely therefrom in spaced parallel relation with the said short ventilating pipes of the master joint, a series of vertically disposed ventilating pipes carried by each of the said short pipes, said vertically disposed ventilating pipes being perforated circumferentially throughout their length and the said horizontal ventilating pipes being perforated only on their undersides and an air-vent leading upwardly from the said top opening of the master joint, said air-vent being perforated only for a portion of its inner end.

In testimony whereof I affix my signature.

WILLIAM S. HIESTAND.