C. L. WILL.

DEODORIZER.

APPLICATION FILED OCT. 19, 1921.

1,432,582. Patented Oct. 17, 1922.

Fig. 1.

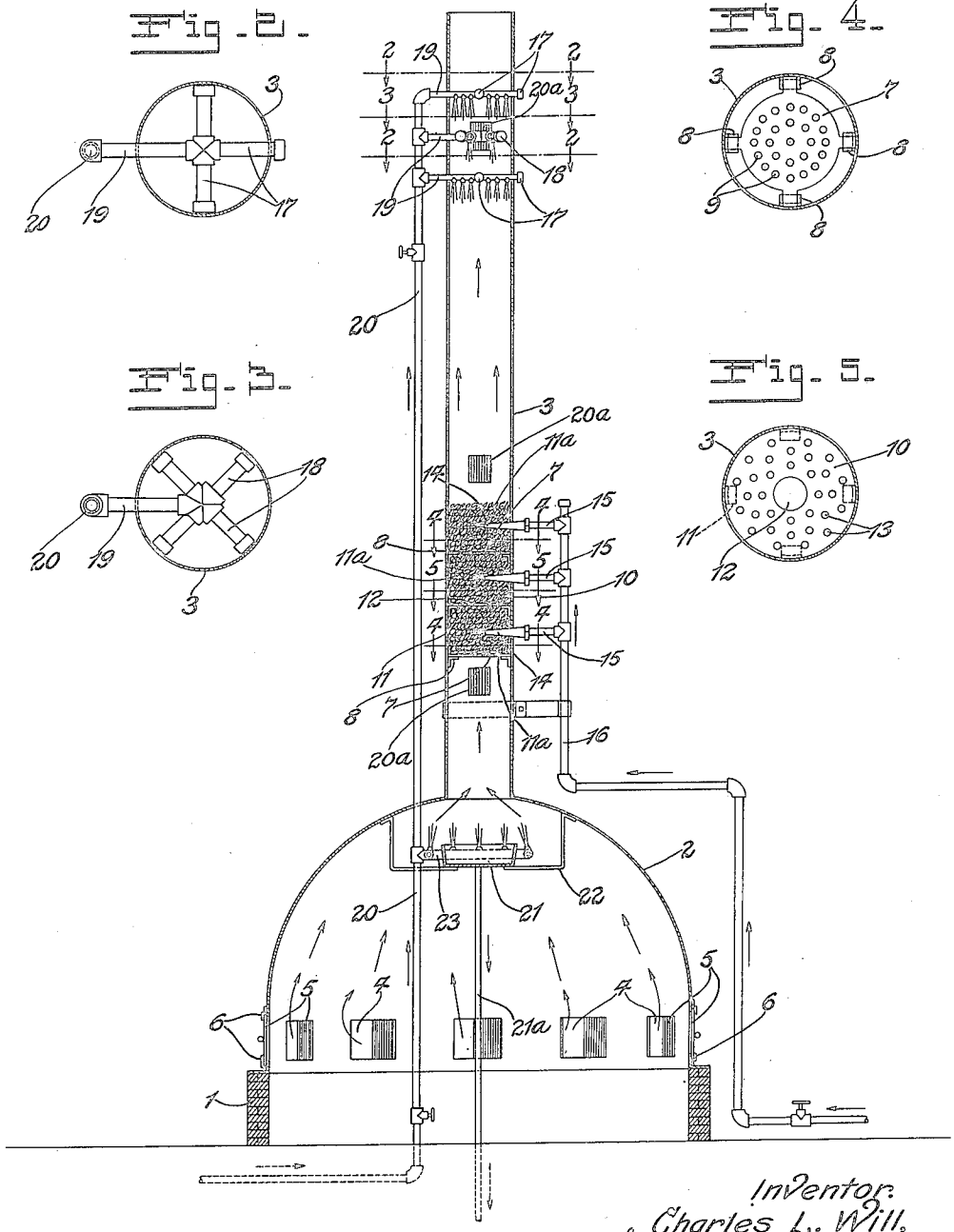


Fig. 2.

Fig. 4.

Fig. 3.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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DEODORIZER.

Application filed October 19, 1921. Serial No. 508,674.

To all whom it may concern:

Be it known that I, CHARLES L. WILL, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and useful Deodorizer, of which the following is a specification.

This invention relates to deodorizers.

An object of the invention is to provide a deodorizer of novel and efficient construction for commercial use, including means for rendering the fumes combustible, and means for effecting combustion of the fumes and discharging the products of combustion to atmosphere.

Another object of the invention is to provide an improved deodorizer for commercial use, including a building or enclosure for confining the fumes, a stack or passage from the building or enclosure through which the fumes are caused to pass, means for rendering the fumes combustible during their passage through the stack, and means for effecting combustion of the combustible fumes and discharging the products of combustion to atmosphere.

Another object of the invention is to provide means for causing the fumes to pass through the passage in which combustion is effected.

Other objects will appear from the following description, reference being made to the drawing in which—

Fig. 1 is a vertical sectional view showing one embodiment of my improved deodorizer.

Fig. 2 is a cross sectional view of the stack on either of the lines 2—2 of Fig. 1.

Fig. 3 is a cross sectional view of the stack on the line 3—3 of Fig. 1.

Fig. 4 is a cross sectional view of the stack on either of the lines 4—4 of Fig. 1.

Fig. 5 is a cross sectional view of the stack on the line 5—5 of Fig. 1.

In the embodiment of the invention shown the building or enclosure for confining the odors comprises a supporting foundation 1 and a dome-like roof or cover 2 from the top of which a stack 3 extends upwardly to a desired height for the discharge of the products of combustion after the fumes have been burned. The wall of the dome or enclosure 2 has a number of ventilator openings 4 near the foundation for the admission of pure air in order to cause the fumes to rise to the top of the dome-like enclosure and to pass upwardly through the stack 3. The openings 4 may be opened or closed as desired and by any suitable means, as by a sliding door or doors 5 mounted in guides 6 and movable therein to and from positions to open and to close the air inlet openings 4.

Within the stack 3 some distance above the point at which the dome opens into the stack a number of grids, breaks or baffles are supported in order to break up the fumes and the vapors for more perfect mixture with the combustible chemical or other material which is injected into the stack for mixture with the fumes and vapors preparatory to combustion. As shown two of these grids, breaks or baffles are in the form of discs 7 supported within the stack by brackets or arms 8 in connection with the stack and engaging extended portions on the discs. Thus an annular space is left around each of the discs 7 between the peripheral edges of said discs and the wall of the stack 3. Each of the discs 7 is also formed with numerous perforations or holes 9 through which a part of the fumes or vapors pass, while the remainder of the fumes or vapors pass through the circular space between the discs and the stack wall.

Between the discs 7 another disc 10 is supported, as by brackets 11 in connection with the stack upon which the disc rests. The disc 10 is formed with a relatively large central opening 12 surrounded by series of smaller openings 13.

It is apparent that as the fumes pass upwardly through the stack 3 and through or around the grids, breaks or baffles, said fumes will become broken or separated and caused to circulate. Between the lower grids or baffles and above the upper one masses of fibrous or felt like material 11^a are located to aid in the circulation of the fumes and the mixing of the combustible chemical therewith. As the fumes circulate they are rendered combustible by the injection therein and mixture therewith of a combustible chemical or other material injected through nozzles 14 in connection with branches 15 opening into a supply pipe 16. The nozzles extend some distance into the stack and into the material 11^a above the respective grids, breaks or baffles so that while the fumes and odors are in circulation a complete mixture is effected.

At a suitable height along the stack 3 and above the chemical mixing device the combustion apparatus is located. The combustion apparatus may be of any appropriate

form, preferably as shown. In the embodiment shown the combustion apparatus is in the form of three burners, the upper and lower ones of which are substantially alike, each including crossed burner arms 17 having openings in their lower sides for the injection of the combustible gas. The intermediate burner comprises crossed burner arms 18 which, however, extend in different directions from the directions in which the burner arms 17 extend.

The burners are supported within the stack and are supplied with fuel from branches 19 extending from a fuel supply pipe 20.

Doors 20[a] may be provided in the stack for affording access to the inside to repair or give attention to any of the parts therein.

Within the dome-like enclosure 2 and below the opening in the stack 3 a pan or receptacle 21 is supported upon brackets 22 in order to receive and retain any substances dropping from the stack. A drain pipe 21[a] extends downwardly from a drain opening in the bottom of the pan 21 to drain off the contents or accumulations. The pan 21 is encircled by a burner 23 communicating with and supplied with gas by the pipe 20.

The burner 23 located near the top of the room or enclosure formed by the dome 2 and near the opening into the stack cooperates with the burners 17 and 18 near the top of the stack in order to create a draft to cause the fumes to rise into the stack and to circulate through the grids, breaks or baffles, to become mixed with the chemicals injected through the nozzles 14, and to pass on through the burners near the top of the stack where deodorization is completed. The pure air admitted into the room through the openings 4 and under control of the closures 5 aids the operation, as pure air is admitted to replace the air bearing the fumes that rises through the stack and is discharged in a purified and deodorized condition therefrom.

From the foregoing it will be seen that my invention completely obtains all of its intended objects and purposes. It is practicable for commercial use and may be used satisfactorily in connection with any enterprise (packing houses for instance) in which obnoxious fumes are created. The fumes being subjected to heat and incineration are purified so that when the air passes from the stack all obnoxious characteristics are completely eliminated.

It is apparent that my invention may be widely varied in the construction and arrangement of the parts without departure from the nature and principle thereof. I contemplate such variations as may be necessary or desirable to adapt the invention to various uses, or for use in connection with various enterprises and industries.

I do not restrict myself unessentially, but what I claim and desire to secure by Letters Patent, is:—

1. A deodorizer, comprising a room for confining the fumes, a stack terminating at the top of and opening into said room for receiving the fumes from the room and conducting the fumes upwardly, a number of perforated plates supported within the stack in spaced relationship, fibrous material between said plates, pipes for conducting a combustible substance into said fibrous material, and a burner within the stack above said plates and said fibrous material.

2. A deodorizer, comprising a room for confining the fumes, a stack rising from the top of the room for conducting the fumes upwardly, a passage for discharging a combustible substance or vapor into the stack for mixture with the fumes, means for effecting a mixture of the fumes with the combustible substance or vapor, a burner within the stack above said means, and a burner within the room near the opening into the stack.

3. A deodorizer, comprising a room for confining the fumes, a stack terminating at the top of and opening into said room for receiving the fumes from the room and conducting the fumes upwardly, a number of perforated plates supported within the stack in spaced relationship, fibrous material between said plates, pipes for conducting a combustible substance into said fibrous material, a burner within the stack above said plates and said fibrous material, a burner within the room below the lower open end of the stack, and means for admitting pure air into the room.

4. A deodorizer, comprising a room for confining the fumes, a stack rising from the top of the room for conducting the fumes upwardly, means for effecting a mixture of the fumes with a combustible substance or vapor, a burner within the stack above said means, a burner within the room near the opening into the stack, and means for admitting pure air into the room below said last-named burner.

5. A deodorizer, comprising an enclosure for confining fumes, a stack having its lower end opening through and terminating at the top of the enclosure and opening from and rising above said enclosure, a burner located in the enclosure near and below the opening into the stack above the open lower end thereof, elements in the stack for causing circulation of the fumes passing through the stack, means for injecting combustible substance or vapor into the circulating fumes, and a burner located above said elements.

6. A deodorizer, comprising an enclosure for confining the fumes, a stack having its lower end opening through and terminating

at the top of the enclosure and for conducting the fumes from the enclosure, elements in the stack above the open lower end thereof for causing the circulation of the fumes, means within the enclosure below the open lower end of the stack for creating a draft toward the opening into the stack from the enclosure, and a burner located in the stack above said elements.

7. A deodorizer, comprising an enclosure for confining the fumes, a stack having its lower end opening through and terminating at the top of the enclosure and opening from the enclosure for conducting the fumes therefrom, means within the enclosure below the open lower end of the stack for causing the fumes to pass into the stack, means within the stack above the open lower end thereof for causing circulation of the fumes therein, means for injecting combustible vapor into the fumes during circulation thereof, and a burner for incinerating the fumes after the mixture has been effected.

CHARLES L. WILL.