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E. F. GEIGER ET AL

2,014,840

SAFETY VENTILATING AND BOMBPROOF SYSTEM

Filed June 27, 1933

3 Sheets-Sheet 1

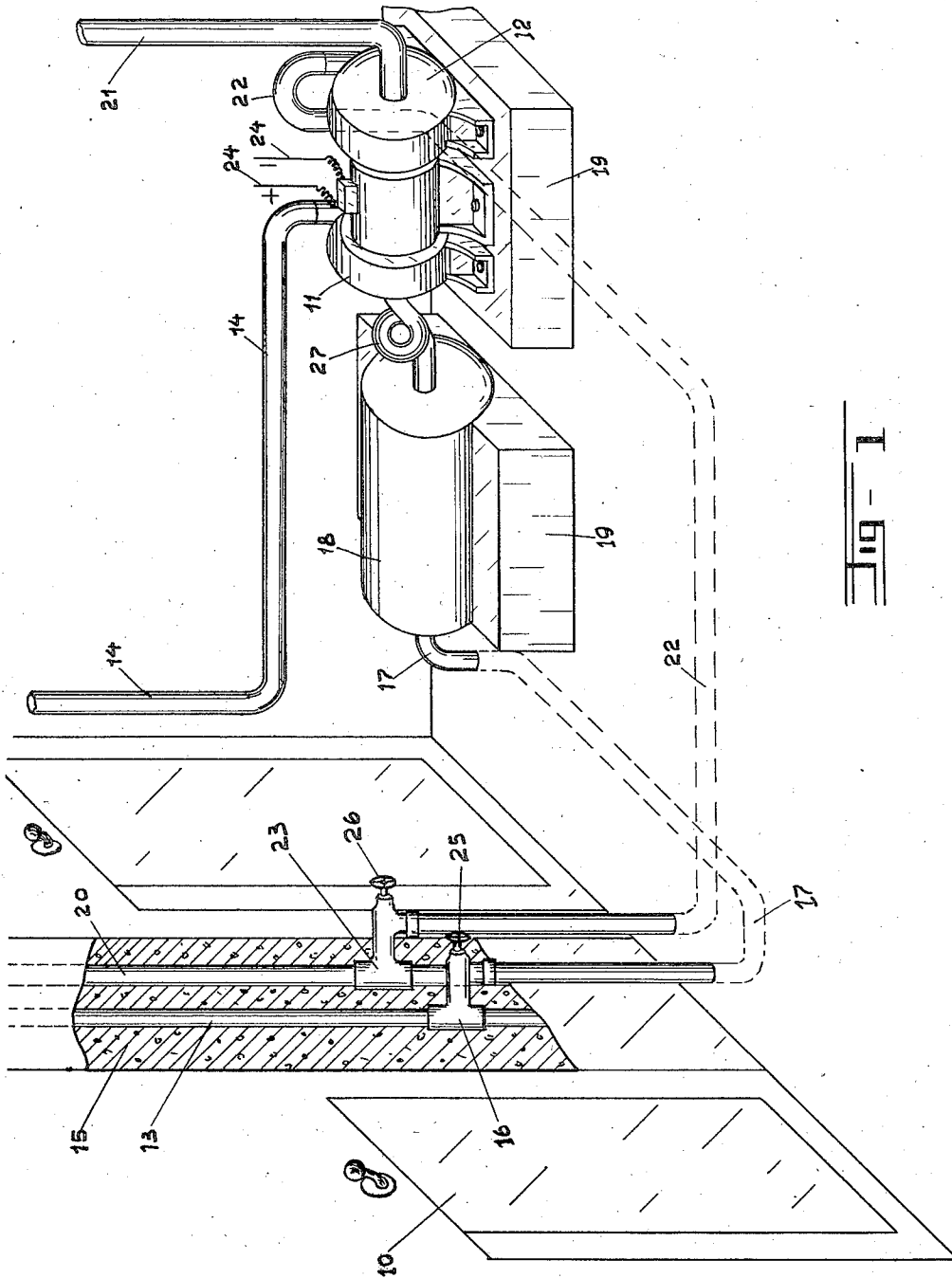


Fig. 1

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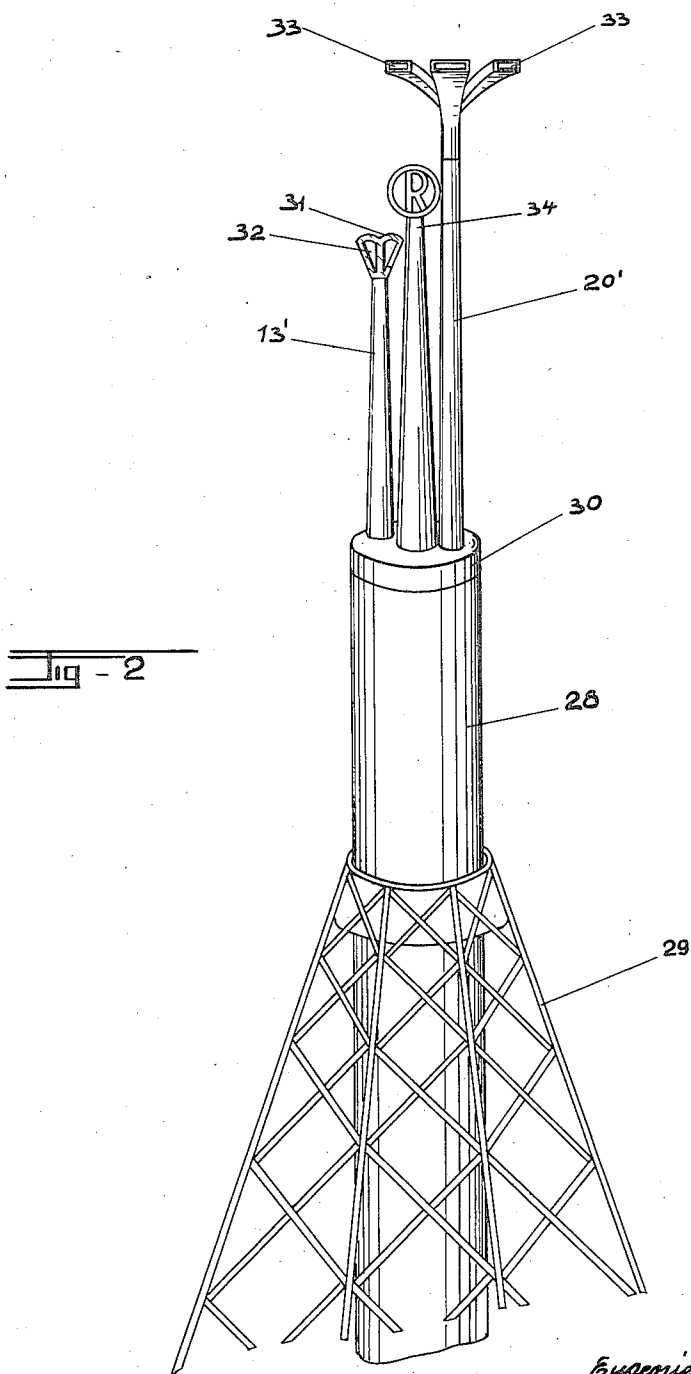
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SAFETY VENTILATING AND BOMBPROOF SYSTEM

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3 Sheets-Sheet 2



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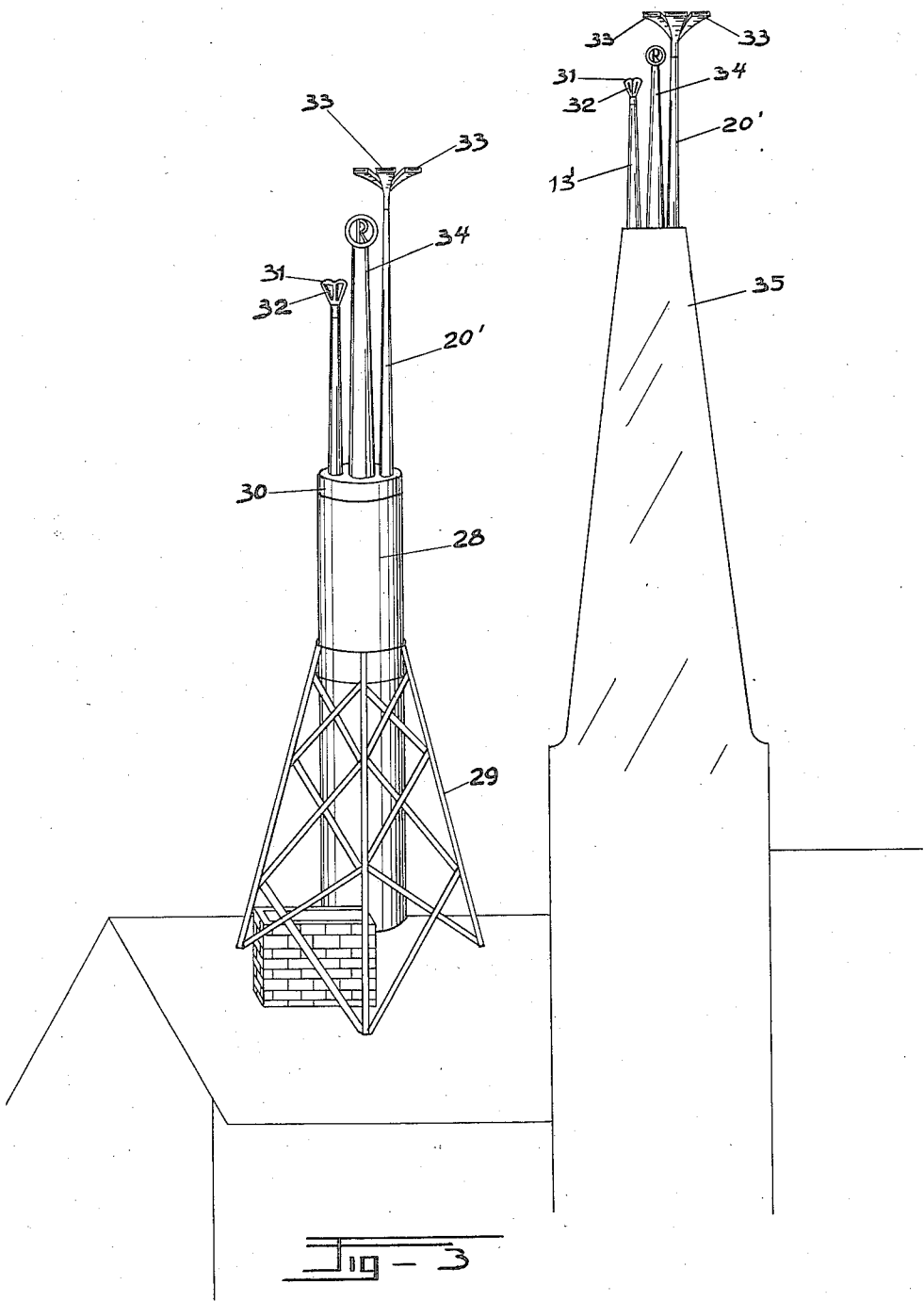
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SAFETY VENTILATING AND BOMBPROOF SYSTEM

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3 Sheets-Sheet 3



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SAFETY-VENTILATING AND BOMBPROOF
SYSTEMEugenie F. Geiger and Josef Geiger,
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5 Claims. (Cl. 98—33)

This invention relates to new and useful improvements in means for the protection of the civilian population against aerial bombing, poison gases and bacteriological warfare, and it has for its object especially to protect such vulnerable spots, or places, upon which aerial bombing would naturally center, and where at any rate the relatively greatest damage might be done.

While some of the improvements, as herein described and disclosed, might very well be used independently of each other, it will be obvious that a combination of the said improvements will in a most desirable manner fully solve this important and vital problem.

It is also evident that the means for the purposes herein stated may be installed in any suitable building in a comparatively short period of time.

As the construction of the said improvements is rather simple, the cost of the installation should be proportionately small, and not form a prohibitive obstacle.

With the above and other objects in view, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed and illustrated in the accompanying drawings forming part of this specification, and in which similar characters of reference indicate corresponding parts in all views, and in which:

Figure 1 shows in a side elevation part of our devised means.

Figure 2 shows a correlated arrangement, illustrating projecting tubes at the top of a building while

Figure 3 is a view similar to Figure 2, and showing varied embodiments of the safety-system.

While various modifications may be made, and sizes and measurements decided, according to the respective surroundings, the illustrations herein are made, and thought, to clearly set forth the principles of our safety-system.

Referring more particularly to the drawings, in Figure 1 has been shown an adequately airtight room, the entrance to which is protected by double doors, one of which has been shown at 10; the said doors should be arranged in such a manner, that one is always closed, when the other is open. The windows should be protected by inside strong shutters.

In the said room are arranged two electrically operated blower-fans; one 11 for the intake of fresh air, and the other 12 for the exhaust; the said fans and the mechanical construction of the latter being of the well known kind. A tube, preferably of metal, and conveniently mounted in

the elevator-shaft, is indicated by 13, and has for its purpose to convey a fresh supply of air, which is distributed to the number of rooms desired by means of the blower-fan 11, and the distributing tube 14; the air is conveyed from the pipe or tube 13 through the wall 15 of the room by means of a short pipe 16; the latter pipe connects with a hose 17, which conveys the air through a tank 18, containing chemical neutralizing means; and from the said tank the air is finally by means of another hose 27 brought into contact with the blower-fan 11 for the purpose of distribution.

The said tank and fans may be mounted on a suitable table or stand 19, as shown.

An exhaust tube 20, similar to the tube 13, but of a slightly smaller diameter, is also shown in Figure 1.

The exhaust is drawn by the fan 12 from different rooms by means of a tube 21, and is by means of the hose 22, which connects with a short pipe 23 extending through the wall 15, carried out into the exhaust tube 20. An electric wire for connecting the apparatus with a source is shown at 24.

The short pipes 16 and 23 are provided with valves, or closing means, as indicated at 25 and 26, in order to prevent an inflow of foul or polluted air, if the hoses of the apparatus are disconnected.

The dual system, thus shown, may be conveniently installed in large as well as smaller buildings.

In skyscrapers elevator-shafts may be used, one for each purpose, respectively, as described; air-pipes are in this case mounted in the upper parts of the said shafts, while hoses are connected to the lower parts of these, respectively.

In Figure 2 has been shown the relative arrangement of the outside communication, or communicating means of this system. Thus 28 indicates a buffer-tube for the protection of the elongated and outside extending portions of the fresh-air inlet and exhaust tubes 13' and 20', respectively. This buffer-tube has in turn its lower end nearest the roof supported by a trestle-framework 29 in order to give it more stability, and resistance against the effect of any damage and shock, by means of vibration, to which it may be exposed through exploding bombs; in like manner said buffer-tube will in turn lend protection to the fresh-air inlet and exhaust tubes, for a considerable distance of the length these tubes project above the roof of a building.

The buffer-tube itself may have the spaces around the pipes 13' and 20' filled with suitable protecting material, such as sand, or steel shav-

ings, while a cap 30, formed with the appropriate openings therein, closes the tube.

The air pipe 13' extends a considerable distance above the buffer-tube, as shown, and has its mouth closed by a hood-member 31 formed with appropriate side-openings 32 therein for the inlet of fresh air. The exhaust pipe 20' extends a little distance above the fresh air pipe and has its end portion terminated into several divergent radially extending tubes 33, open at their ends and serving the purpose of letting out the exhaust.

At the center of the cap 30 suitable arrangements are made for the erection of radio receiving means shown at 34.

In Figure 3 has been elaborately shown the varied embodiments to which this safety-system may be susceptible. Thus in case of a church, the tower 35 may take the place of the buffer-tube 28.

It is obvious that changes may be made in the form, construction and arrangement of the several parts, as shown, within the scope of the appended claims, without departing from the spirit of the invention, and we do not therefore wish to limit ourselves to the construction and arrangement shown and described herein.

What we claim as new, and desire to secure by Letters Patent of the United States, is:

1. A safety ventilating system of the class described, comprising air-inlet and air-outlet tubes, air-inlet and exhaust fans, hoses connecting said tubes to the fans, and transverse pipes as an intermediate connection between the said hoses and tubes, and means of control associated with the said transverse pipes, a cylindrically shaped vessel, containing purifying chemicals and co-operating with the intake fan, the said tubes terminating in elongated portions above the roof of a building, and a cylindrical buffer-tube surrounding the lower outside projecting parts of the said tubes, the buffer-tube being closed by a cap formed with openings therein for projection of the tubes there-through, substantially as and for the purpose set forth.

2. A safety ventilating system of the class described, comprising a substantially air-tight room, the relative arrangement therein of an intake and an exhaust blower-fan, two elongated tubes leading to the outside, pipe connections from the said tubes through a wall, a control valve arranged upon each of the said pipe connections, hoses mounted upon the free ends of the latter and being attached one to the exhaust blower-fan, and the other to the intake blower-fan, a chemical container cooperating with the latter, the said tubes protruding through the top of a building structure, a cylindrical buffer-tube encircling the said tubes at the bottom of their outside protruding portions, a cap-member closing the buffer-tube and being formed with openings therein adapted to receive the said elongated tubes, the latter comprising an exhaust-tube and a fresh air-intake tube, the exhaust-tube being higher than the fresh air-intake tube, terminating in a plurality of exhaust openings, the intake tube being closed at its top, and having openings provided at the side thereof.

3. In a safety ventilating system of the class described, the combination in a building, having substantially airtight rooms, of two blower-fans, an air-inlet tube connected with one of said

blower-fans, and an exhaust tube connected with the other blower-fan, said tubes being arranged in elevator shafts, respectively, of the building, the air-inlet tube connecting by means of a short pipe through the wall of the building with a substantially airtight room, a tank having neutralizing chemicals therein, a hose attached to the short pipe and connecting with the tank for conveying air to the rooms of said building; an exhaust fan, a tube connected to the latter, and said tube with a hose, an outlet-tube arranged in the elevator shaft, and a short pipe connecting said tube with said hose, and safety valves disposed in said short pipes for preventing the inflow of foul air, the tubes protruding through the top of the building, and a cylindrical buffer-tube encircling the tubes at the bottom of their outside protruding portions, said buffer-tube being provided with a closure member at its top encircling said tubes, the exhaust tube being higher than the fresh air-intake tube, terminating in a plurality of exhaust openings, the intake-tube being closed at its top, and having openings provided at the side thereof, substantially as shown and described.

4. In a safety ventilating system of the class described, the combination in a building, having substantially airtight rooms, of two blower-fans, an air-inlet tube connected with one of said blower-fans, and an exhaust tube connected with the other blower-fan, said tubes being arranged in elevator shafts of the building, respectively, and terminating at the top of the latter in a plurality of pipes protruding at a different distance above said building, the air-intake pipe being situated at a distance from the exhaust pipe to secure a zone of relatively fresh air, a short pipe through the wall of the building for connecting the air-inlet tube within the building with a substantially air-tight room, a tank having neutralizing chemicals therein, and a hose connecting with said pipe for conveying air through the tank, a safety valve disposed in said short pipe for preventing the inflow of foul air, and a buffer-tube for protecting the ends of the outside projecting pipes, substantially as and for the purpose set forth.

5. In a safety ventilating system of the class described, the combination in a building of a plurality of blower-fans for the intake and exhaust of air, respectively, an air-tight room, two elongated tubes leading to the outside, one of these, the higher one, being an exhaust tube and terminating in a plurality of exhaust openings, and the other and shorter tube being the fresh-air intake tube, closed at its top and having openings provided at the side thereof, pipe connections from the said tubes through a wall, a control valve arranged upon each of the said pipe connections, hoses mounted upon the free ends of the latter and being attached one to the exhaust blower-fan, and the other to the intake blower-fan, a chemical container co-operating with the latter, the said tubes protruding through the top of a building structure, a cylindrical buffer-tube encircling the said tubes at the bottom of their outside protruding portions, and a cap-member closing the buffer-tube and being formed with openings therein adapted to receive said elongated tubes, the exhaust tube of the upper section of the building being separated into a pipe provided with three end pieces.

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