May 4, 1926.

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G. H. FELTHAUS

DRY CLEANING OR DRY DYEING ESTABLISHMENT

Filed August 15, 1924

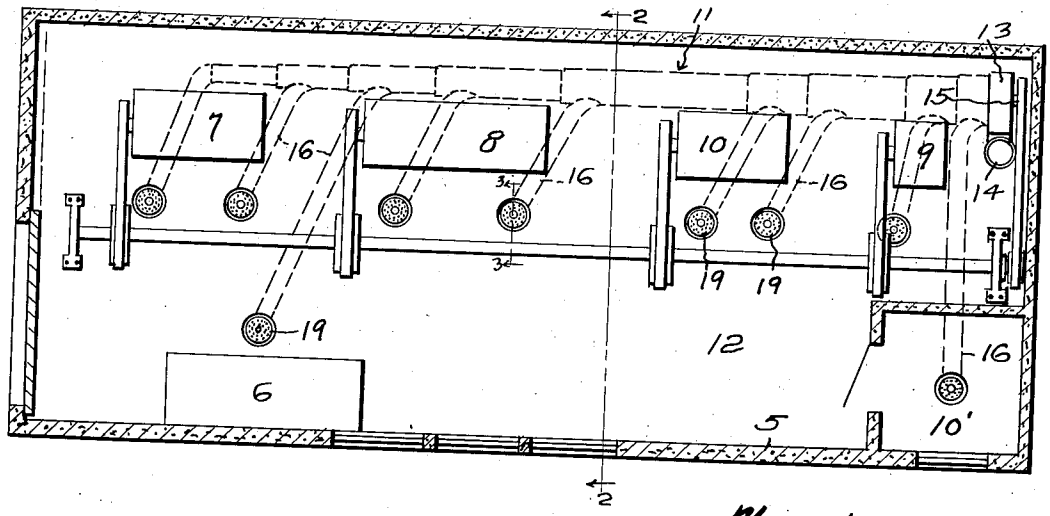



Fig. 1.

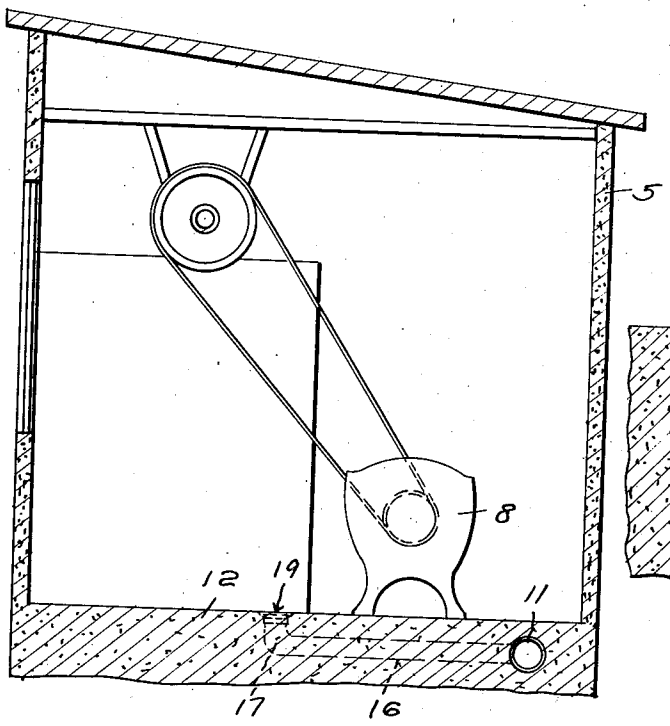



Fig. 2.

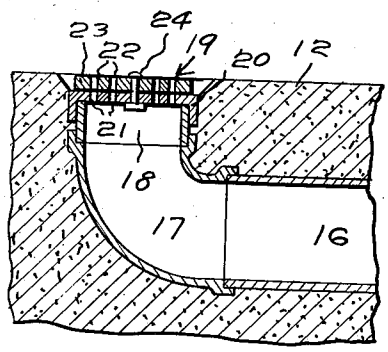



Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## DRY-CLEANING OR DRY-DYEING ESTABLISHMENT.

Application filed August 15, 1924. Serial No. 732,183.

*To all whom it may concern:*

Be it known that GEORGE H. FELTHAUS, citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, has invented certain new and useful Improvements in Dry-Cleaning or Dry-Dyeing Establishments, of which the following is a specification.

My invention relates to improvements in dry cleaning or dry dyeing establishments or garages, and has particular reference to means for adequately withdrawing the heavy combustible or dangerous gases, ordinarily accumulating adjacent to the floor of same.

As is well known, in dry cleaning and dry dyeing establishments combustible or dangerous gases, resulting from the use of gasoline, benzine, or other volatile hydrocarbons, accumulate in the same, adjacent to the floor. These gases frequently rise in the room of an establishment to such a height that they may be inhaled by the attendants, with considerable injury to the same. Further, explosions frequently occur in such establishments, due to these combustible gases. The fire hazard attendant upon the operation of such establishments is well recognized and a number of States have passed drastic laws attempting to relieve the situation. These laws provide generally that such establishments shall be fire-proof, and that adequate ventilating systems be employed, which will change the atmosphere at desired periods. Some States have gone so far as to require such establishments to be built in one story, without a basement, and to have walls formed solid, without air spaces therein.

I am aware of the fact that attempts have heretofore been made to ventilate the room of such establishments, and it is the ordinary practice to install a power-driven fan at or near an opening, in one wall of the room, near the bottom, for withdrawing the gases. This method is unsatisfactory inasmuch as it causes the gases to circulate across the entire room, over and above the attendants, and, further, such a means will not properly ventilate the room or change the atmosphere of the same.

I have observed that it is the presence in the room of an accumulation of combustible gases, vapors and foul air, generated by the volatile liquids which, if not carried away instantaneously, result in fire, attendant with loss of life.

I have discovered that, in order to thoroughly ventilate the room of such an establishment, and to remove the combustible gases therefrom, it is necessary to arrange a number of outlets over the floor of the room, preferably in close relation to the different machines installed therein. These outlets are connected by means of pipes to a common suction pipe which may be imbedded in the floor of the room. The common suction pipe has its diameter increased at its union with the several pipes leading to the outlets, whereby the suction from the common pipe will be evenly distributed to the several outlets.

A system constructed along this line will substantially complete the removal of all the combustible gases and will completely change the atmosphere of the room at short intervals, and more frequently than required by the most rigid fire prevention statutes, thereby eliminating the fire hazard.

My system may be installed in a building when it is being constructed, or may be placed therein after construction without any considerable alteration in the building, whereby the cost of installation is reduced to the minimum.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a plan view of a system embodying my invention,

Figure 2 is a transverse section taken on line 2—2 of Figure 1, and

Figure 3 is an enlarged detailed section taken on line 3—3 of Figure 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates the room or building of a dry cleaning establishment, the walls of which are formed of fire-proof material, such as solid plastic blocks or the like. The walls are equipped with fireproof windows and door or doors, as desired. The entire room is fireproof. The several machines used in the dry cleaning process are arranged in this room. The numeral 6 designates a scrubbing bench, 7 a dry tumbler, 8 a washer, 9 a distill, 10 an extractor, and 10′ a dry room. The invention is, of course, not restricted to the precise arrangement of the machinery.

Extending longitudinally of the room, or

building, preferably adjacent to one side wall thereof, is a common suction pipe or conduit 11, which is preferably imbedded within the floor 12, which is ordinarily formed of concrete or the like. The common suction pipe 11 leads to the intake side of a rotary exhaust fan 13, having its outlet side in communication with the pipe 14, extending to the atmosphere, exteriorly of the room. The suction pipe 11 is preferably arranged behind the washer 8 and the other machinery, whereby the fan 13 will be brought generally beneath the line shaft for the several machines. This enables the pulley 15 of the fan to be conveniently driven by a belt from the line shaft. In the event that the fan 13 is to be driven by a separate motor, the fan is arranged exteriorly of the room, and the pipe 11 will pass into the room.

The numeral 16 designates branch vent pipes which lead to the common suction pipe 11, at points spaced longitudinally of the same. The pipe 11 has its diameter increased at its union with each branch pipe, the pipe 11 to be increased in diameter towards its discharge end. The function of this is to provide means whereby the suction in the several branch pipes will be substantially the same. The several branch pipes 16 extend to the various machines, such as the washer, etc., and terminate in proximity thereto. The intake end of each branch pipe 16 is preferably provided with an elbow 17, which is connected with an upstanding vertical tube 18. A valve structure or register 19 is mounted upon the upper end of each tube 18 and embodies a stationary cap 20, secured thereon, having openings 21, adapted to register with openings 22, formed in a pivoted valve or plate 23, secured to the cap 20 by means of a bolt 24. By turning the valve 23 the openings 21 may be covered or uncovered. The valve or plate 23 is preferably substantially flush with the upper surface of the floor, or may project a slight distance above the same. The valve structure here employed provides means whereby the tubes 18 may be completely closed at the intake ends, so that the water will not enter into the suction system when the plant is being cleaned or hosed out.

The distribution of the inlets or valve structures may be varied, depending somewhat upon the character of the machinery and the general plan of the workroom, but it is preferred that these inlets be arranged adjacent to the machinery, which produces or tends to produce the combustible gases, thereby quickly removing the gases as soon as evolved.

In the use of the system the rotary fan is constantly operating and a suitable suction is created within the common pipe 11, which is transmitted to the various branch pipes 16. The valve structures are suitably opened and as soon as the heavy combustible gases are discharged into the room, in proximity to the floor, they are at once removed.

The system also creates a thorough circulation of air within the chamber and thoroughly ventilates the room, changing the air frequently and much faster than is required by the most drastic State laws on the subject.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the size, shape, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

The combination with the room of a cleaning or dyeing establishment and the vapor discharging machinery therein, of a pipe extending longitudinally beneath the floor of the room and embodying sections which increase in diameter toward the discharge end of the pipe, a suction fan connected with the discharge end of the outlet pipe section, said floor having openings therein arranged near the machines, branch pipes connected with said pipe sections and leading to said openings, an apertured cap mounted upon the upper end of each branch pipe within said openings, and a pivoted apertured valve mounted upon each cap and adapted to cover and uncover the apertures of the cap, said pivoted valve being countersunk within the floor and having its upper surface substantially flush with the upper surface of the floor, said pivoted valve serving to prevent water or the like entering the branch pipe and also being out of the way so that it will not interfere with walking upon the floor.

In testimony whereof I affix my signature.

GEORGE H. FELTHAUS.