C. FESSLER.

METHOD AND APPARATUS FOR PROTECTING WORKMEN SANDPAPERING AUTOMOBILE BODIES.

APPLICATION FILED APR. 7, 1919.

1,392,870.

Patented Oct. 4, 1921.

4 SHEETS—SHEET 1.

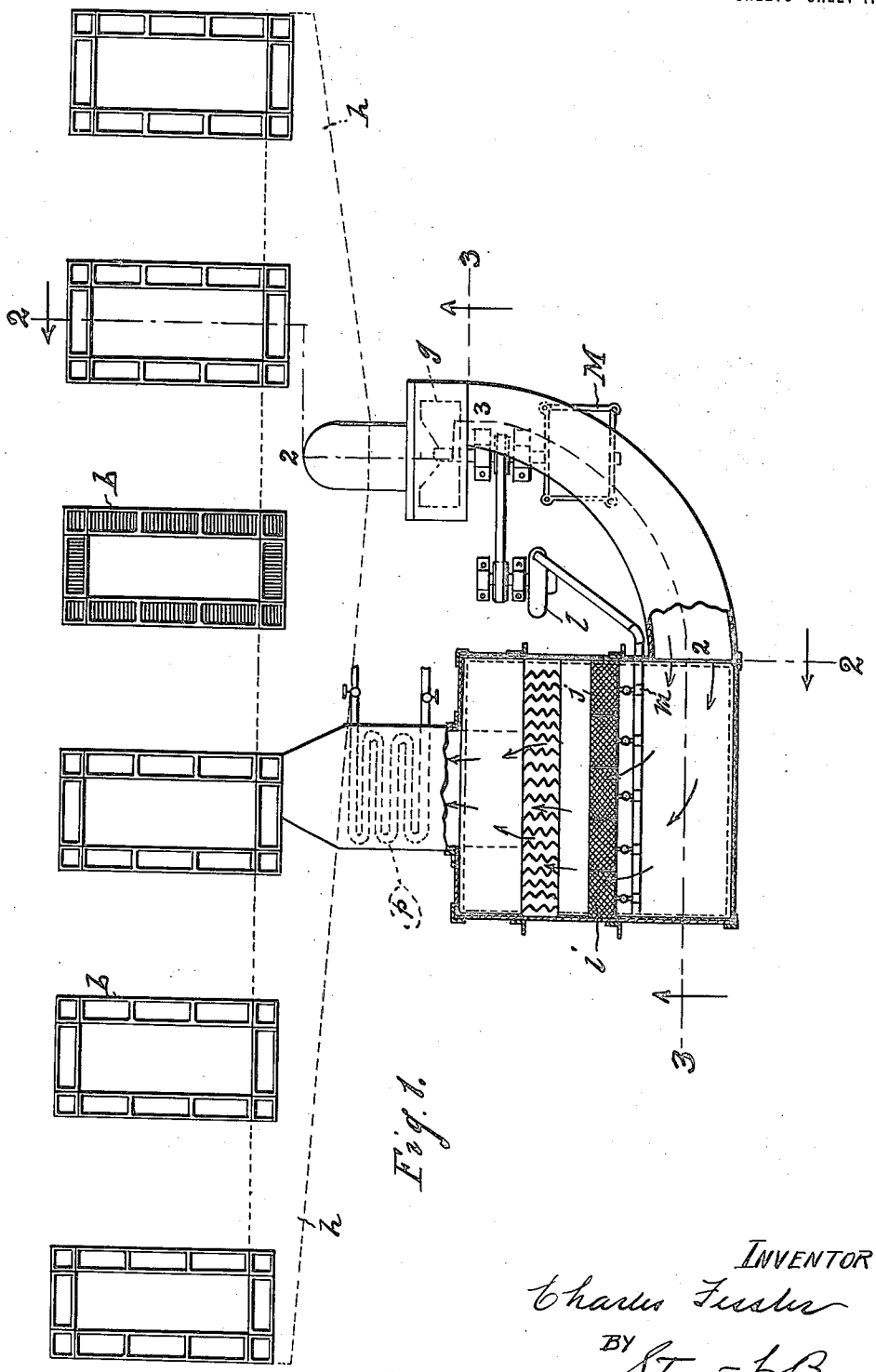


Fig. 1.

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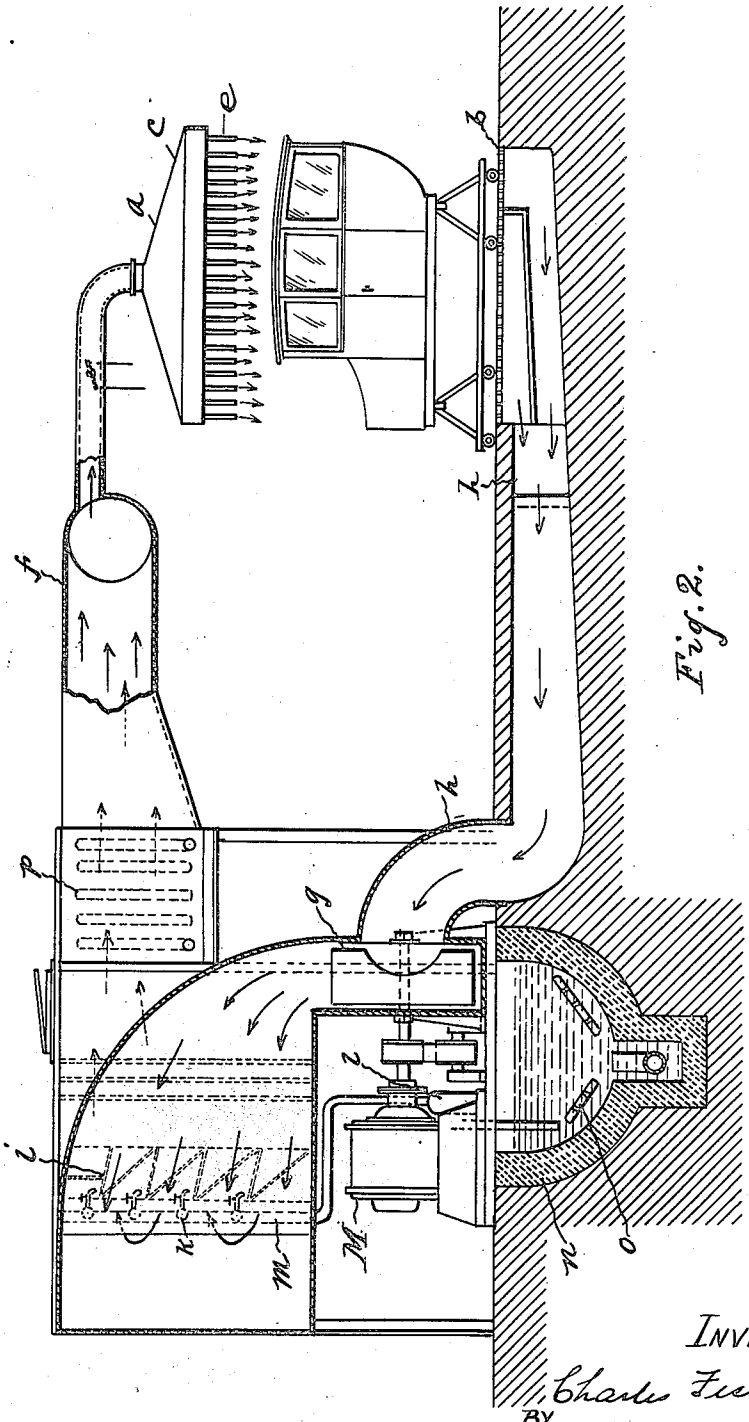


Fig. 2.

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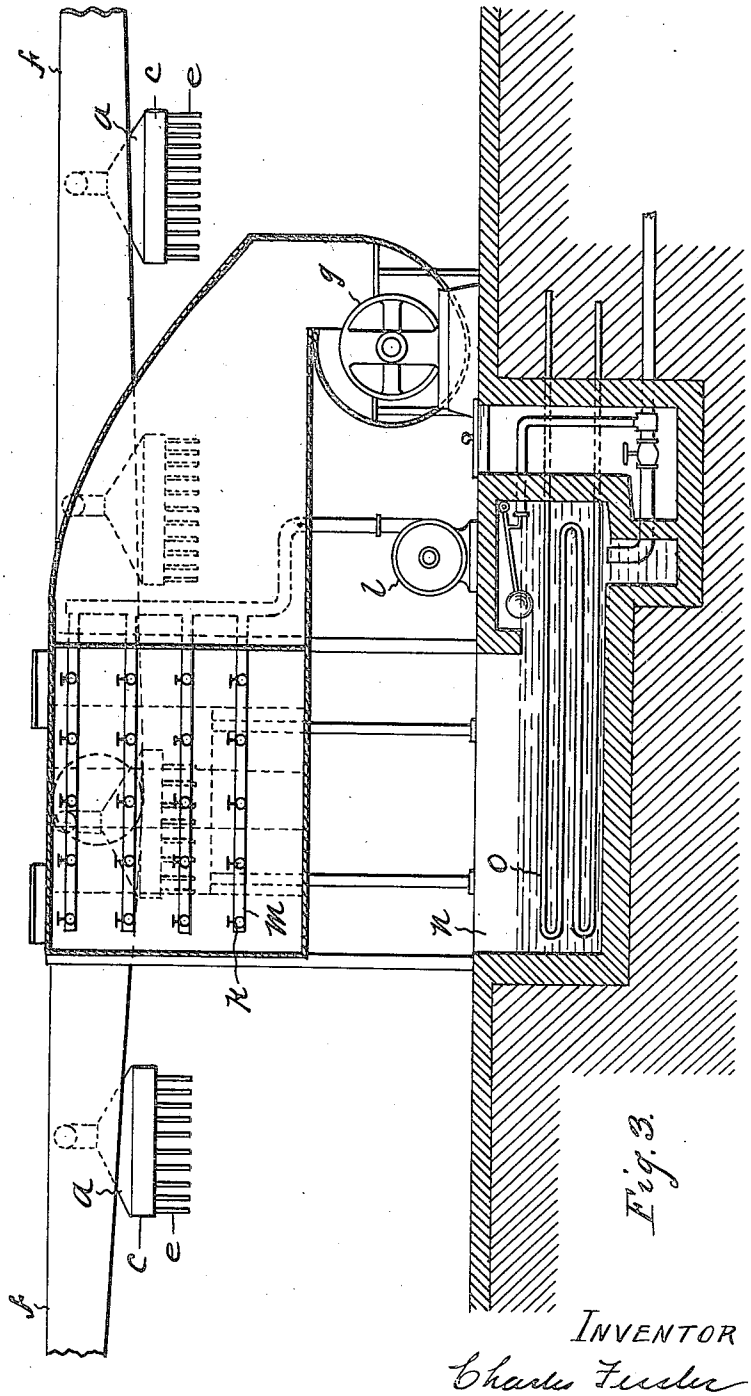


Fig. 3.

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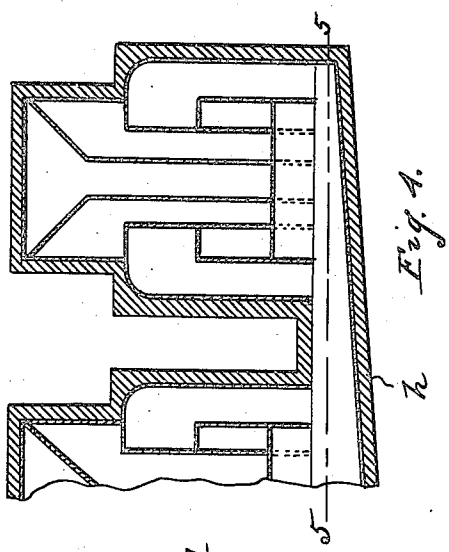


Fig. 4.

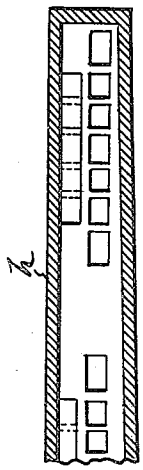


Fig. 5.

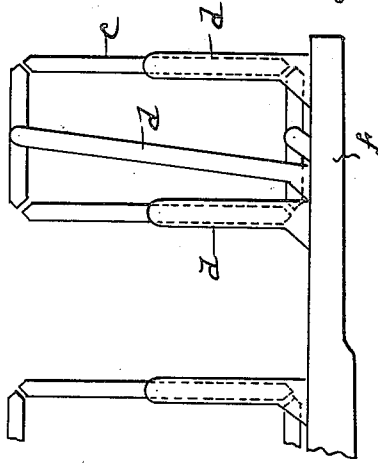


Fig. 6.

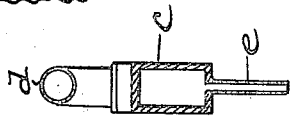


Fig. 8.

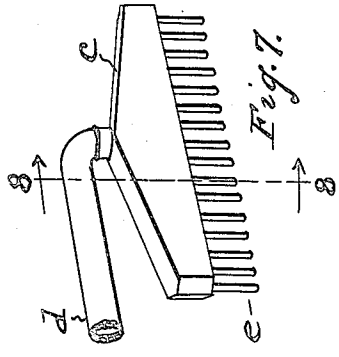


Fig. 7.

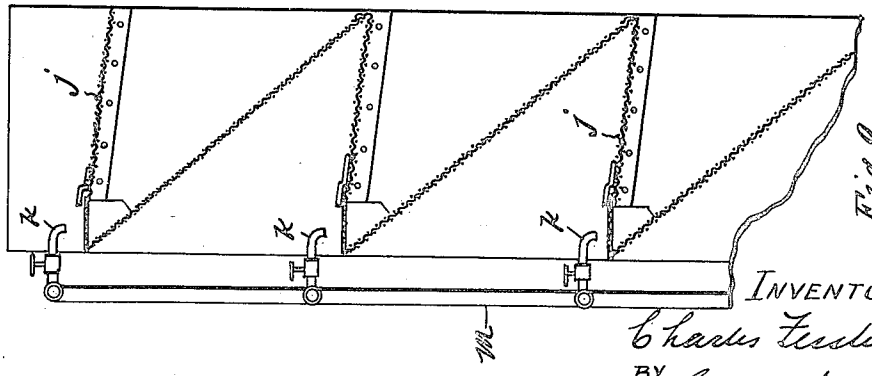


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES FESSLER, OF DETROIT, MICHIGAN, ASSIGNOR TO FISHER BODY CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF NEW YORK.

METHOD AND APPARATUS FOR PROTECTING WORKMEN SANDPAPERING AUTOMOBILE-BODIES.

1,392,870. Specification of Letters Patent. Patented Oct. 4, 1921.

Application filed April 7, 1919. Serial No. 288,415.

To all whom it may concern:

Be it known that I, CHARLES FESSLER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Methods and Apparatus for Protecting Workmen Sandpapering Automobile-Bodies, of which the following is a specification.

This invention relates to a method and apparatus for protecting workmen who sandpaper automobile bodies.

In automobile body making a coat of white lead is first applied to the body to fill up the pores in the metal. This is known as the putty coat. This is then sandpapered off and it is this work that has been very injurious to health and often deadly. White lead dust is extremely poisonous and the workmen contract what is known as painters' colic and a great many of them have died of this.

It is the object of this invention to ensheath the entire automobile body with a sheet of air and to utilize both suction and propulsion to effect the travel of this air current and at the same time depend upon gravity and the large specific gravity of the lead particles to eliminate this deadly menace to the health. The air before it is returned to the air nozzles is air-washed, filtered, and heated, the former two operations to eliminate all the poisonous particles and the latter to prevent cold drafts which will injure the health of the workmen.

In the drawings,—

Figure 1 is a plan view of the apparatus (the air showers being omitted) showing floor registers for accommodating six automobile bodies at a time.

Fig. 2 is a cross section through the apparatus showing an automobile body in position under what may be figuratively termed the air shower (taken on the line 2—2 of Fig. 1).

Fig. 3 is a vertical section on the line 3—3 of Fig. 1.

Fig. 4 is a plan view of the conduit branches under one rectangle of registers.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a plan view of the air shower pipes.

Fig. 7 is a perspective of one of the air shower heads.

Fig. 8 is a section on the line 8—8 of Fig. 7.

Fig. 9 is a vertical section through the air washer.

Referring to Fig. 2, the automobile will be seen under the air shower *a* and above the rectangular set of registers *b*. These are shown in plan view, Fig. 1. The rectangular set is calculated so that the rectangle will just nicely take an automobile body. This is also true of the air showers *a* above, which are in the form of rectangular air heads *c* having flexible cloth nozzles *e*, while four pipes *d* (Fig. 6) furnish air from the air main *f* to the four separate heads *c*. These shower heads and the air registers are set in rectangles that are substantially in registry. This forms almost a perfect sheathing of air along the vertical sides of the automobile body.

This in connection with the natural tendency of the heavy particles of white lead to gravitate, effects almost a sure elimination of the deadly white lead dust that is set free from the body during the sandpapering operation.

It is quite important to the proper performance of this process and the operation of the apparatus that the air sheathing shall nicely conform to the shape of the body for in this way it is not blown in the face of the workman, which might make it more deadly than with no air current at all. The air simply drapes down the side of the car with little or no tendency to spread out. This is due to the fact that not only is the air blown down in a sheet, ensheathing the body, but a powerful pull is exerted through the register with the aid of the suction fan *g* in the air return main *h*. This not only acts as a suction fan but as a fan for propelling the air through the washer *i* and back through the air main *f* to the air

showers. The washer and filter detailed in Fig. 9 comprise a plurality of horizontal and also inclined fine mesh screens *j* arranged one above the other and each adapted to receive a stream of water from the faucet *k*. These faucets are in a water line *m* which runs from the water pump *l* that takes its water from the concrete well *n* into which the water from the screens falls. A number of steam coils *o* are provided in this well to keep this water in the well fairly hot so that moisture will rise therefrom to furnish a suitable amount of moisture in the air. Steam coils *p* are provided in the opening of the air main leading out of the washer to warm the air as it is blown over the automobile body.

In Figs. 4 and 5 there is detailed the arrangement of under conduits for a rectangular set of registers. It will be seen that nearly all the registers have a separate conduit connecting with the return main *h*. Hence the pull on the individual registers is equalized as much as possible to avoid a strong air current on one portion of the body and a weak one at another portion. M designates an electric motor for operating both the fan and the pump.

The operation of the apparatus and the method is very simple. The rectangular sets of registers *b* are located flush with the floor and the bodies are rolled on their trucks directly over a set of registers and brought under the air showers so that the air is blown and sucked in an ensheathing sheet over the sides of the car and substantially flush therewith. This sheet being blown over the sides substantially flush therewith has no tendency to spread and to diffuse the poisonous lead particles but clings closely to the surface of the car taking off all the lead particles that are set free by the sandpapering operation and carrying them off through the registers, through the fan, into the air washer, and into the screen where they are separated by the action of the water and the screen.

What I claim is:

1. The method of protecting workmen sandpapering automobile bodies, which comprises, passing a current of air along the surface being sandpapered, substantially parallel therewith to carry off the particles set free by the sandpapering.

2. The method of protecting workmen sandpapering automobile bodies, which comprises, the ensheathing of the body in a vertical and downwardly traveling sheet of air traveling substantially parallel and contiguous to the sides of the body to carry away particles set free by the sandpapering operation.

3. The method of protecting workmen sandpapering automobile bodies, which comprises, circulating air in a cycle which includes passing the current parallel with and contiguous to the surface being sandpapered, and the filtering of said air current after the same has passed said surface and before it returns to said surface.

4. The method of protecting workmen sandpapering automobile bodies, which comprises, circulating air in a cycle which includes passing a current parallel with and contiguous to the surface being sandpapered and filtering and washing said air after the same has passed the surface and before it has again returned to the surface.

5. The method of protecting workmen sandpapering automobile bodies, which comprises, the circulating of a heated air current in a cycle which includes passing the current parallel with and contiguous to the surface being sandpapered and subjecting the current to an action for eliminating the dust particles before the same has again returned to the surface.

6. An apparatus for protecting workmen sandpapering automobile bodies, having in combination, a substantially rectangular air shower above the body and a substantially rectangular set of air registers under the body, the said rectangular shower and registers being arranged to substantially register with the outline of the body and means for forcing air through the air shower and into the registers under the body.

7. An apparatus for protecting workmen sandpapering automobile bodies, having in combination, a substantially rectangular shower above the automobile body, a set of registers under the body and means for causing a stream of air to travel from the air shower ensheathing the sides of the body and exhausting through the registers.

8. An apparatus for protecting workmen sandpapering automobile bodies, having in combination, an air shower comprising air eduction members arranged to emit a sheet of air traveling vertically and downwardly, and of an outline to encircle an automobile body, registers through which said air is exhausted and means for propelling said air through the air shower and into the registers.

9. An apparatus protecting workmen sandpapering automobile bodies, having in combination, an air shower provided with a plurality of eduction parts arranged to emit a sheet of air above the body of substantially the outline of the body, registers located under where the body is to rest for exhausting the air and means for taking the exhausted air, eliminating the particles set free by the sandpapering operation and returning same to the air shower under propulsion.

10. An apparatus for the purpose of protecting workmen sandpapering automobile bodies, having in combination an air shower

arranged to deliver a vertical and downwardly traveling sheet of air having substantially the outline of an automobile body in top plan view, registers for location under the body into which the air is exhausted, and means for taking the air from said registers heating the same, eliminating the particles set free by the sand papering operation, and returning the said air under propulsion to the air shower.

In witness whereof I have hereunto set my hand on the 17th day of March, 1919.

CHARLES FESSLER.