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SPRAY PAINTING BOOTH

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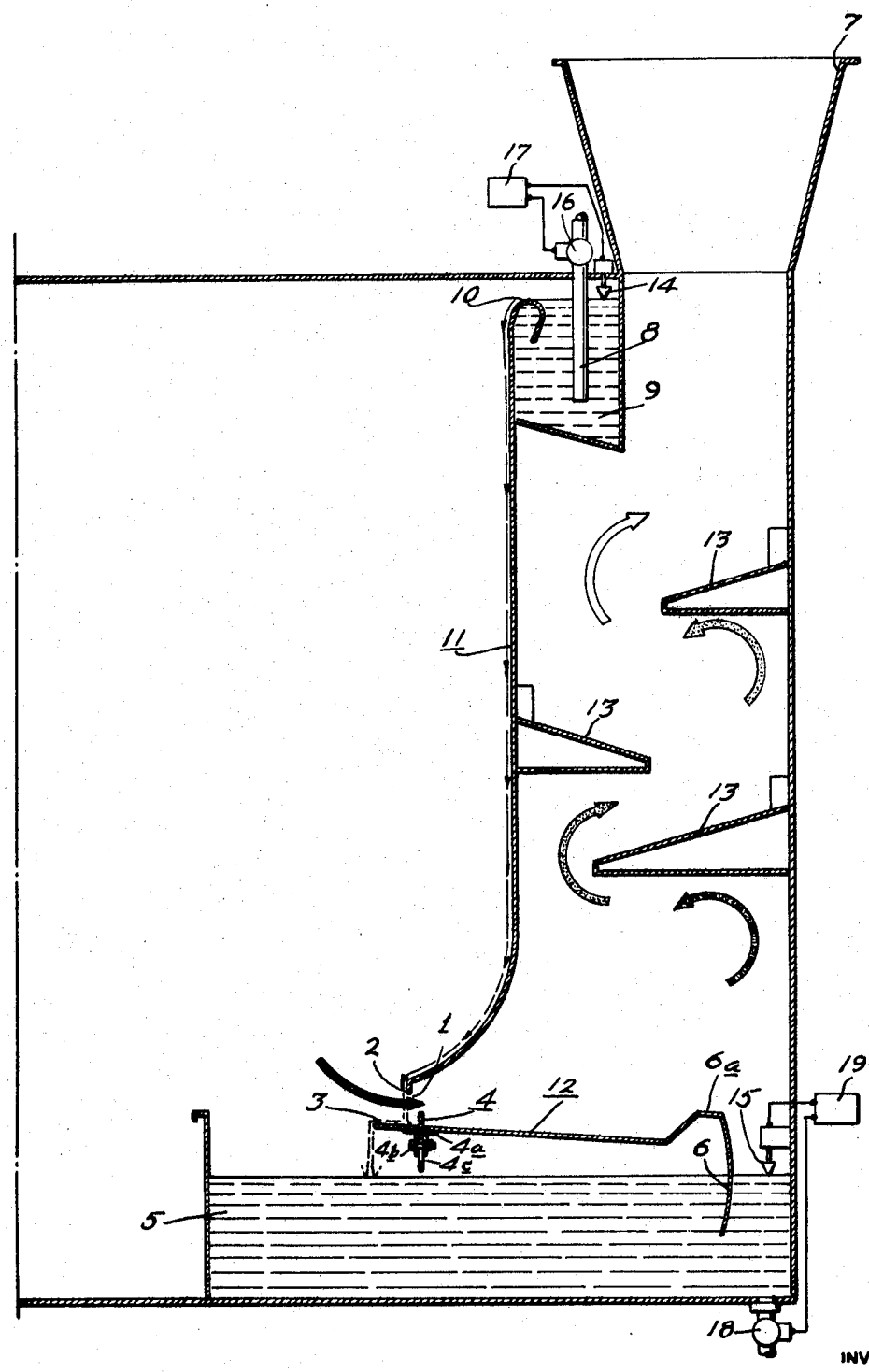

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SPRAY PAINTING BOOTH

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ABSTRACT OF THE DISCLOSURE

This patent discloses an extractor arrangement in a spray painting booth adapted to more efficiently and economically cleanse ventilating air which passes through the spray painting booth. The ventilating air is passed through a slot over which water is passed, the lower portion of the slot being provided with a splash plate which increases the ability of the water to combine with paint particles and the like being carried toward the slot from the paint booth.

Summary of the invention

The present invention relates to an arrangement in spray painting booths, in which supplied ventilating air is extracted to a subsequent drop collector through a horizontal slot. The slot is located at the bottom of the booth along and below one or more vertical or inclined internal walls sprinkled with water. The slot is formed between a lower edge of the internal wall which curves toward the booth, and a substantially vertical flange attached to a substantially horizontal plate disposed above a liquid tank underlying the internal wall.

State of the prior art

In earlier known designs, the water flowing down the internal wall, which is not entrained in the air stream, flows past or through the slot and down into the underlying tank. In such arrangements, a large part of the water is not utilized for intermixing with the paint- or dust-laden air.

The invention

A primary object of the present invention is to eliminate the above-mentioned disadvantage by mixing a greater percentage of the water with the paint- or dust-laden air. This is achieved essentially by providing an extension on the horizontal plate in front of the extraction slot.

The improved technical effect is mainly due to the fact that the water which flows past the slot and down onto the splash plate is dispersed by impingement, as it drops on the same. In this manner, a number of droplets of water will be carried away into the slot orifice, and at the same time, the lower part of the slot becomes wet and assists in increasing the intake of water through the slot.

Other objects and a fuller understanding of the invention may be had by referring to the following specification and claims taken in conjunction with the accompanying drawing which shows a fragmentary cross-section through a spray painting booth embodying the present invention.

In the drawing, the spray painting booth is provided with an internal upstanding side wall **11** curving inwardly of the both at its lower end and overlying a substantially horizontal plate **12** disposed in spaced relation above a tank of liquid **5** which underlies the wall. A slot **1** is

formed between a depending lip **2** at the lower terminus of the wall **11** and a substantially vertical flange **4**, which is attached to the plate **12**.

In accordance with the invention, the plate **12** extends inwardly of the booth and forms a splash plate **3** in front of the slot **1**. Ventilating air passes through the slot **2** laden with paint particles which bind to water droplets passing over the lip **2**. Thereafter, the heavier agglomerate of paint and water mix is extracted, whence the clean air, after passing by the baffles **13**, is discharged through an opening **7**. In order to prevent the air from entering the collector outside of the slot, the plate **12** is provided with a baffle **6**, extending down into the liquid tank **5**, and having an upward extension **6***a* joining the plate **12** to define a trough. As illustrated, the upstanding side wall **11** is sprinkled with water from a tank **9**, to which water is supplied automatically through a nozzle **8**, as by a control valve **16** and a water-level responsive control means **17**. Water runs over the top edge **10** of the tank **9** and down along the side wall **11** to the slot orifice **1**. As shown in the drawing, the water level in the tank **5** is controlled by a float **15** connected to a level control means **19** operable to actuate a dump valve **18**.

In accordance with another feature of the invention, the substantially vertical flange **4** is provided with an adjustment means to permit variation in the slot opening. To this end, the adjustment means may comprise brackets **4***a*, one being connected to the plate **12** and the other being connected to the splash plate **3**, between which is sandwiched the flange **4**. As illustrated, the flange may be slotted as at **4***c* so as to permit in-plane displacement thereof simply by loosening and tightening a bolt and nut **4***b*.

Although the invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be made without departing from the spirit and the scope of the invention as hereinafter claimed.

I claim:

1. Apparatus for removing paint particles and the like from ventilating air comprising a spray paint booth, said spray paint booth having an upstanding side wall and means for sprinkling water over the top of and down along the inwardly-facing surface of said side wall, said upstanding side wall curving inwardly of the booth at its lower end and terminating in a depending lip, a substantially horizontal plate underlying said side wall, an upstanding substantially vertical flange connected to said horizontal plate and vertically spaced from said lip to form a slot therebetween dimensioned to increase the velocity of the ventilating air as it is discharged through the slot, said increase being effective to eject and atomize water flowing toward the slot, and a splash plate projecting inwardly of the booth from said flange and slot so that water, running down said side wall passes over said lip and impinges upon said splash plate.

2. Apparatus in accordance with claim **1** including adjustment means connecting said flange to said horizontal plate, said adjustment means adapted to permit said flange to be displaced towards and away from said lip to effect variations in slot opening.

3. Apparatus in accordance with claim **1** wherein said horizontal plate is sloped downwardly away from said slot as viewed in the direction of ventilating air flow and including an upward extension to form a trough with said horizontal plate.

4. Apparatus in accordance with claim 1 including a liquid tank underlying said horizontal plate and a baffle, depending from said horizontal plate, and extending into said liquid tank.

5. Apparatus according to claim 1 including a liquid tank underlying said horizontal plate, the liquid level in said tank being spaced below said horizontal plate, said splash plate being vertically spaced above said liquid level, and wherein further said vertical flange is laterally spaced from said lip outwardly of said booth to insure impingement of the water passing over the lip upon said splash plate inwardly of said flange.

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