

exhaust line 44 of the cyclone 46 connects to that outlet. The booth floor 234 serves as inner collection means (similar to the said inner collection means 34.2 of FIG. 1) for removal of surplus powder across the entire inner horizontal cross section of booth 4.

In the booth wall 10, on its bottom end on which the booth floor 234 borders, a second powder outlet 268 is formed which extends horizontally around the entire booth 4 and connects to the second powder exhaust line 74 of filter system 50. The second powder outlet 268 serves as an outer collection means (similar to outer collection means 34.1 of FIG. 1) for suction removal of surplus powder dropping off the wall inside surface 40 of booth wall 10 during the spray coating operation and/or cleaning of booth 4. The second powder outlet 268 consists in the preferred embodiment illustrated in FIG. 8 and 9, in exhaust airflow direction, successively of an annular slot 270 in the booth wall 10 around the entire booth 4 and a manifold pipe 172 arranged outside the booth wall 10, which by way of numerous holes 274 communicates fluidically with annular slot 270 while connected to the second powder exhaust line 74.

Contained in the powder exhaust line 44 of the cyclone 46 and in powder exhaust line 47 of filter system 50 is a closure element 74.3, or 74.2, each, for instance an on/off valve, an adjustable throttle plate, a cock or a similar device. The two powder lines 44 and 74 can thus be selectively opened or closed, individually or both. In a preferred embodiment, the closure element 74.3 of the cyclone 46 is during a spray coating operation of longer duration opened and the closure element 74.2 to the filter system 50 closed; both closure elements 74.3 and 74.2 are closed while the booth is being cleaned, so that a stronger airflow can be sucked out of booth 4, with the speed of rotation of exhaust blower 52 being raised during cleaning.

Another operating mode is possible for spray coating operation of short duration or with frequent change of one powder type for another: the entire booth floor 234 is sealed by a lid, the closure element 74.3 of the cyclone 46 is closed, and closure element 74.2 of the filter system 50 is opened, so that the blower 52 can suck powder out of the spray booth 4 only through the annular slot 270 of the powder outlet 268. The annular slot 270 sucks air from the spray booth 4 at a right angle to its center axis 16. In a modified embodiment, the two powder exhaust lines 44 and 74 are connected to separate vacuum supplies or exhaust blowers.

It will be appreciated that various modifications and changes may be made to the above described preferred embodiment of without departing from the scope of the following claims.

We claim:

1. A spray coating booth for use in spray coating articles with powder, said booth containing a side wall which surrounds the perimeter of the booth to define and enclose a coating space, and a floor connected to said side wall and forming a bottom for the coating space, said floor including an outer collection means arranged around the perimeter of said booth and along said side wall to collect and remove surplus powder dropped onto said floor along said side wall, and an inner collection means positioned on said floor and spaced interiorly of said side wall to collect and remove surplus powder dropping onto said floor interiorly of said side wall, where surplus powder dropping around the perimeter of said booth and along said side wall is collected by said outer collection means, and surplus powder dropping interiorly of said side wall is simultaneously collected by said inner collection means, thereby enabling a separation of the surplus powder dropping on the interior of said floor

from the surplus powder dropping on said floor near the side wall so that the surplus powder collected by said inner collection means can be reused.

2. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and further including powder exhaust means connected to said inner collection means for suction removal of surplus powder and exhaust air collected by said inner collection means.

3. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and further including a coating means for spray coating articles in the booth with the powder, and means for returning surplus powder collected by said inner collection means to said coating means.

4. A booth adapted for use in spray coating articles with powder, as set forth in claim 2, and further including a first powder separator having an inlet connected to receive exhaust air and powder from said inner collection means, said first powder separator having a powder outlet and an exhaust air outlet, a second powder separator adapted to remove powder from a flow of air, means for passing air from said first separator exhaust air outlet through said second powder separator, and means for passing exhaust air and powder from said outer collection means through said second powder separator.

5. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and wherein said inner collection means includes a downwardly tapering hopper which forms the interior of said booth floor, said hopper having a powder outlet opening.

6. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and wherein said outer collection means includes a powder suction outlet along said side wall to extend around the perimeter of said booth, and suction means for exhausting air and entrained powder through said powder suction outlet.

7. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and wherein said side wall has a circular shape in horizontal section.

8. A booth adapted for use in spray coating articles with powder, as set forth in claim 1, and further including means for removing powder from the surfaces of said side wall.

9. A booth adapted for use in spray coating articles with powder, as set forth in claim 8, and wherein said powder removing means causes powder removed from the surfaces of said side wall to fall to said outer collection means without entering said inner collection means.

10. A method of spray coating articles with powder from a spray booth, said booth containing a side wall which surrounds the perimeter of the booth to define and enclose a coating space, and a floor connected to said side wall and forming a bottom for the coating space, said floor including an outer collection means arranged around the perimeter of said booth and along said side wall to collect and remove surplus powder dropped onto said floor along said side wall, and an inner collection means positioned on said floor and spaced interiorly of said side wall to collect and remove surplus powder dropping onto said floor interiorly of said side wall, comprising spray coating articles with the powder in the booth with a coating means, collecting surplus powder dropping around the perimeter of said booth and near said side wall with said outer collection means, and simultaneously collecting surplus powder dropping interiorly of said side wall with said inner collection means, thereby separating the surplus powder dropping on the interior of said floor from the surplus powder dropping on said floor around the perimeter of said booth along the side wall so that the surplus powder collected by said inner collection means can be reclaimed.