14, is connected to an outlet opening 56 at the top of the exit section 26 of the atomizer chamber 16.

In the operation of the coating apparatus 10, air and lubricant are fed to the atomizer 28 which generates lubricant droplets in the entrance section 24 of the atomizer chamber 16. The lubricant droplets fall to the bottom of the entrance section 24 where they are picked up by air admitted into the entrance section 24 through the inlet port 46. The lubricant droplets are carried by the air under the baffle 22 and up the exit section 26 to the outlet opening 56. The air carried lubricant droplets then flow through the pipes 18 and 20 to the nozzles 14 where they are directed onto the surfaces of a disc 56 passing between the nozzles 14.

As stated in the Lock et al application, it has been found that lubricant droplets of a size of 2 to 15 microns will achieve the desired thickness of 250–300 Angstroms of lubricant layer on the disc 56. However, the atomizer 28 generates a variety of sizes of lubricant droplets which range from submicron to about 20 microns in size. In the coating apparatus 10, the larger undesired droplets are removed from the flow by the baffle 22 and by controlling the flow of the air entering the port 46. The baffle 22 causes all of the lubricant droplets to pass downwardly close to the bottom of the chamber 16 where they must be lifted upwardly again to flow from the outlet opening 56. By controlling the air flow, only the smaller, lighter lubricant droplets will be carried upwardly through the exit section 26. The larger, undesired lubricant droplets will drop to the bottom of the chamber 16 and will be carried off through the drain outlet 52 and pipe 54 back to the reservoir 36. Thus, the flow of air into the chamber 16 must be low enough so that it carries only the smaller and lighter lubricant droplets out of the outlet opening 56 but must be high enough to carry the lubricant droplets to and through the nozzles 14 with sufficient inertia to impinge on the disc 56.

In a chamber 16 which is 6 inches in diameter and 10 inches high having a baffle 22 extending 5½ inches from the top, air at a pressure of 0.75–1 psig at a flow rate of about 1.5 cubic feet/min. was found to provide the desired flow of the appropriate size lubricant particles to properly coat a disc 56.

What is claimed is:

1. A method for coating a disc with a thin film of a lubricant comprising the steps of:

generating droplets of the lubricant at the top of one section of a chamber which is divided into two sections, which sections are connected together along the bottom of the chamber,

admitting air under pressure into said one section of the chamber above the connection between the two sections of the chamber to carry said lubricant droplets into the other section of the chamber and to carry at least some of the droplets upwardly through the other section to an outlet at the top of the other section, controlling the flow of the air into the one section so as to control the size of the lubricant droplets carried upwardly through the other section, and directing the air-carried lubricant droplets flowing from the outlet onto the surface of a disc to be coated.

2. A method in accordance with claim 1 in which the lubricant droplets are generated by atomizing the lubricant with air.

3. An apparatus for coating a disc with a thin film of a lubricant comprising:

a chamber having a baffle extending thereacross and vertically downwardly from the top of the chamber to a point spaced from the bottom to divide the chamber into two sections, one on each side of the baffle, which are connected together at the bottom of the chamber,

means at the top of one of the sections for generating droplets of the lubricant and directing the droplets toward the bottom of the one section,

means in said one section for admitting air under pressure into said one section at a level above the bottom of the baffle, said air adapted to carry the lubricant droplets under the baffle into the other section and to carry at least some of the lubricant droplets upwardly through said other section,

means for controlling the flow of air into the chamber so as to permit the control of the size of the lubricant droplets which are carried up through the other section,

an outlet at the top of the other section to allow air-carried lubricant droplets to flow out of the chamber, and

means connecting the outlet to means for applying the lubricant droplets to a surface of a disc.

4. An apparatus in accordance with claim 3 in which the means for generating the droplets of the lubricant is an atomizer mounted at the top of the one section, said atomizer having an air outlet port connected to a source of air under pressure and a lubricant inlet port connected to a supply of the lubricant.

5. An apparatus in accordance with claim 4 including a drain outlet in the bottom of the chamber, said drain outlet being connected to the lubricant supply.

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