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## DISPENSING POWDER FROM A CARTRIDGE IN A SINGLE SUPPLY STATION TO MULTIPLE INTERMEDIATE TANKS

HP INC

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**Dispensing Powder from a Cartridge in a Single Supply Station  
to Multiple Intermediate Tanks**

**Abstract:** One powder supply station is used to fill plural intermediate powder tanks of an additive manufacturing printer by diverting powder to the proper tank based on the material type of the cartridge installed in the supply station.

This disclosure relates to the field of additive manufacturing.

A technique is disclosed in which one powder supply station is used to fill plural intermediate powder tanks of an additive manufacturing printer.

Some additive printers use a fuseable powder as the material for fabricating parts. Currently, when dispensing powder into additive printers one powder supply station is used per intermediate tank available. This results in multiple locations where a powder cartridge needs to be installed. Customers need to ensure that the correct cartridge (for example, new powder or recycled powder) is installed in the correct location (i.e. the intermediate tank for new powder or recycled powder). Furthermore, only the one material type can be offloaded from the intermediate tank.

According to the present disclosure, and as understood with reference to the Figure, one supply station 10 is used to fill multiple intermediate tanks 20, 30 of a printer-40. The tanks 20, 30 may contain different types of powder. The powder is automatically diverted to the proper tank depending on the type of the cartridge 50 inserted in the supply station 10.

As illustrated, the presently installed cartridge 50 contains new powder, and the supply station 10 diverts the powder to the new hopper 20. If the cartridge 50 is changed to a recycled powder cartridge, then the supply station 10 diverts the powder to the recycled hopper 30.

The offload-capable supply station 10 is centered in the printer 40 such that powder can be dispensed to the multiple intermediate tanks 20, 30. Furthermore, any intermediate tank 20, 30 can be offloaded regardless of the material type therein.

By using one supply station to fill multiple intermediate tanks, the disclosed technique advantageously improves the user experience since there is only one location in which to install a cartridge, regardless of the type of material in the cartridge. As such, it eliminates the possibility of improper cartridge placement by the user. This in turn increases system reliability due to fewer parts, decreases direct material cost, and improves functionality as offloading powder from any intermediate tank is possible regardless of the powder type. Furthermore, the additional space created by elimination of a powder supply station per intermediate tank allows larger intermediate tanks to be used, thus increasing powder capacity of the printer.

***Disclosed by Sam Sing and Jerrod Houston Tyler, HP Inc.***

