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PRINTHEAD WET RECOVERY

HP INC

Printhead Wet Recovery

Abstract: An offline printhead servicing tool automatically recovers and preps multiple printheads simultaneously with minimal user intervention.

This disclosure relates to the field of printheads.

A technique is disclosed that provides an offline printhead servicing tool that automates the process of prepping a printhead before installation on a page-wide web press, and allows a single person to recover multiple printheads in parallel.

Certain thermal inkjet printheads, such as for example those used on a page-wide web press, are susceptible to blockages forming in the nozzles. When the ink in the printhead dries out, a hard plug is formed in the nozzle. Unfortunately, standard printhead servicing routines on a press are insufficient to clear these blockages. As a result, a soaking method must be used to recover such printheads. This involves soaking the silicon TIJ dice with de-ionized water while manually squeezing the sides of the printhead body to force ink in and out of the nozzles, then wiping the dice with a damp cleanroom towel. However, there are significant drawbacks to this approach. First, as the process often needs to be repeated a few times to fully recover a printhead, it can take ten or more minutes to perform. In addition, only one can be recovered at a time. Furthermore, squeezing the printhead risks damaging its internal components or cracking the TIJ dice, either of which would render the printhead non-functional.

According to the present disclosure, and as understood with reference to the Figure, the process to service a printhead has 3 stages. The first stage wets the printhead by soaking the nozzles in de-ionized water for approximately 40 seconds. The mechanism includes a 3-section collapsible water tray that holds the de-ionized water in which the printheads soak and in which the ink is spit into. The second stage pushes ink out through the nozzles through the use of a pump that pushes air through the blowprime port at the top of the printhead. The air in turn pushes ink out through the nozzles in order to push the plugs out. The third stage wipes the printhead via a web wipe cassette that comes in to wipe the surface of the nozzles.

In operation, the following steps are performed:

1. When the mechanism 10 is switched on, an actuator engages and extends a scissor lift 20 which unfolds the water tray as it is raised to the top of the enclosure.
2. The lid is lifted and each section of the water tray is filled with de-ionized water.
3. The lid is closed and the printheads 30 are set into premade pen pockets 40, and then latched closed.
4. The printheads 30 sit in the deionized water in the pockets 40 for approximately 40 seconds.
5. The pumps in the latches 45 push ink out through the nozzles of the printheads 30 for about 5 seconds. The latches 45 are pre-made latches similar to the ones in the print bars of the web press, but are equipped with a small pump that connects to ports in the latch that lines up with the blowprime port on the printheads 30.
6. The pumps are turned off, and the actuator retracts and lowers the scissor lift 20, and the water tray collapses upon reaching the bottom of the enclosure.
7. A timing belt 50 pulls a cart 60 on rollers 62 that contains a web wipe cassette 65 forward to wipe the nozzles of the printheads 30..

8. The timing belt 50 reverses and returns the cart 60 to its original position, where another smaller motor 70 advances the material on the web wipe cassette 65.

The disclosed technique advantageously provides an autonomous device to service the printheads. The user no longer performs manual servicing of the printheads, bur rather just starts up the mechanism and moves on to another task. It significantly reduces servicing time, typically by about 90%, and allows a user to service multiple printheads at the same time. Furthermore, elimination of the squeezing of the printhead that is done during manual operation eliminates the risk of damage to the printhead that can result from the squeezing.

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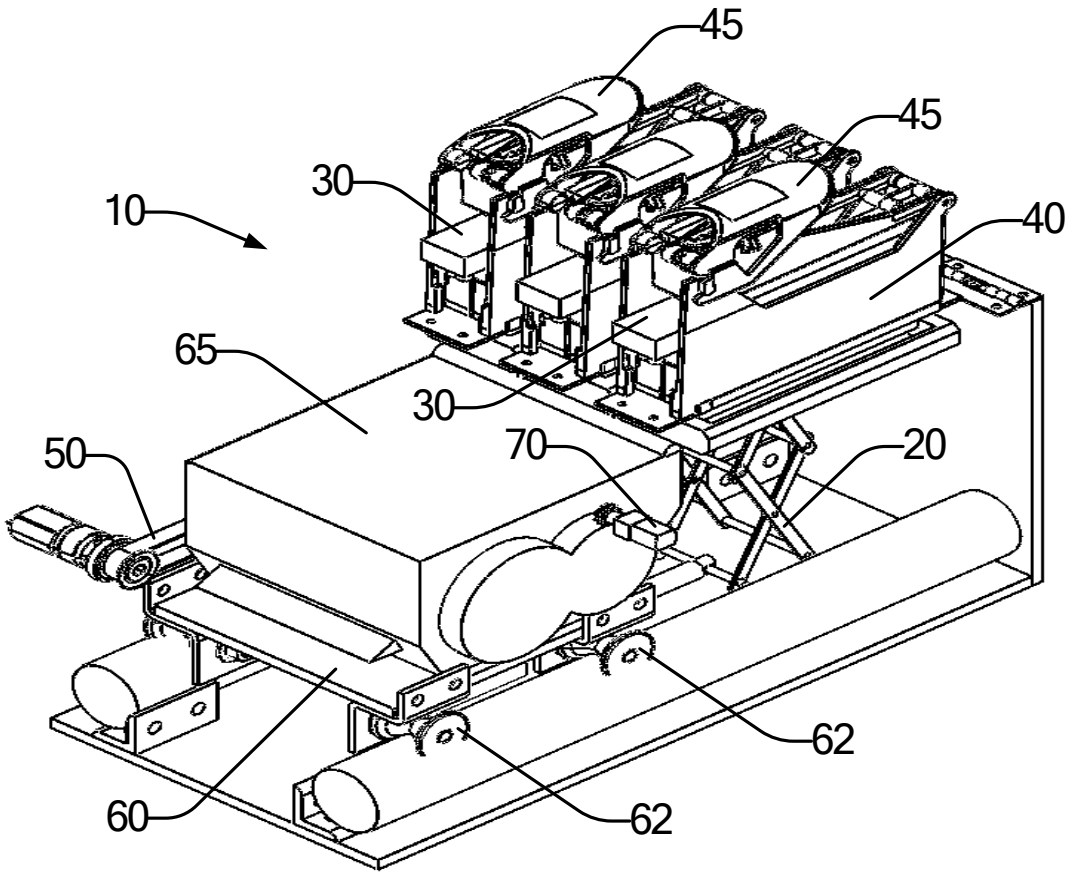
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