Automated String Hoppers Machine for The Small and Medium Scale Enterprises

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Abstract

String hoppers are a popular food in South India, Sri Lanka, Singapore, Malaysia, and other countries. They are mainly prepared manually and in some situations they are made with automatically operated machines. However, there are various drawbacks in existing systems, such as, requiring a lot of human labor and consuming more time for production. Basically a string hopper making machine has a separate steamer. The size of the steamer is limited, and the tray mold needs frequent changing. To avoid such drawbacks, an automatically operated string hopper making machine with an integrated steamer has been designed and developed to remove existing drawbacks. The developed machine mainly consists of a feeding unit to feed tray moulds to the system, an extruder unit to deposit string hopper mixture as form of strings to tray moulds, steamer chamber to steam the string hoppers and guiding mechanisms to guide tray moulds through each main component. Steam chamber is made up of three rotating metal trays at three different elevation and size of the chamber was selected to maintain 12 minutes residence time inside the chamber. Therefore, by customizing the size of the chamber production rate can also be customized. The developed machine capable of producing cooked string hoppers continuously after an initial 12 minutes. This prototype machine has the ability to produce nearly 300 cooked string hoppers per hour. By including an integrated steamer in the system, itself, this machine has been designed and developed in such a way that all the production functions can be achieved with a single machine ensuring continuous operation, avoiding the need to use separate steamer.

Keywords: *String hoppers making machine, automatic operation, steamer*