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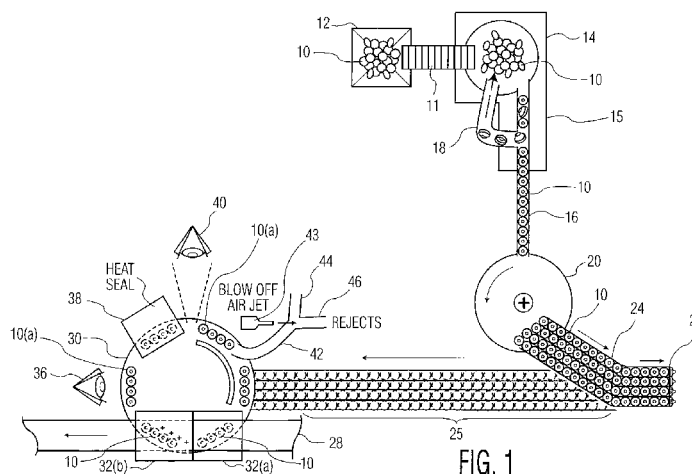
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(54) Title: METHOD OF MAKING SHOULDER/NOZZELS WITH FILM BARRIER LINERS



(57) Abstract: The method comprises an automated technique for making and inserting flexible laminate film barrier liners into the shoulder/nozzles of product tube packaging. The shoulder/nozzles are made and oriented with the shoulder opening to be facing the laminate film. The film is fed to a station that forms the nozzle aperture, die cuts the laminate film to fit into the shoulder of the shoulder/nozzle, and inserts this laminate film into the shoulder/nozzle. The laminate film can be heat bonded to the shoulder/nozzle at this station or in a subsequent sealing station. After the shoulder/nozzle leaves the station that forms and inserts the laminate film into the shoulder/nozzle there can be a detection station to determine if the laminate film is properly aligned in the shoulder/nozzle. There also can be a detection station after a subsequent sealing station. Shoulder/nozzles with sealed laminate film liner are then sent to tube making. The laminate film will have a polymer layer and a barrier layer comprising ethylene vinyl alcohol copolymers, polyethylene terephthalate polymers, polyethylene naphthalate polymers and acrylonitrile methyl-acrylate copolymers. The tube packages produced using these shoulder/nozzles are very useful for products which contain flavorants, such as dentifrices.