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(54) Title: AUTOMATIC FIRE SPRINKLERS, SYSTEMS AND METHODS FOR SUPPRESSION FIRE PROTECTION OF HIGH HAZARD COMMODITIES INCLUDING COMMODITIES STORED IN RACK ARRANGEMENTS BENEATH CEILINGS OF UP TO FIFTY-FIVE FEET IN HEIGHT

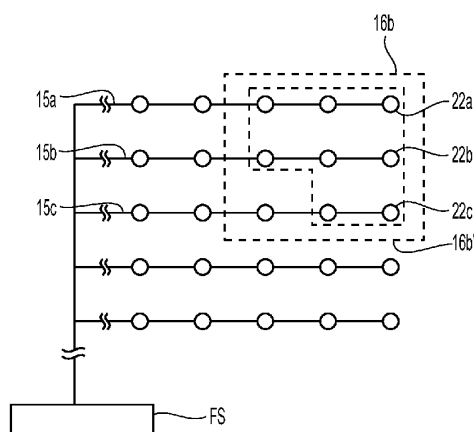


Fig. 3A

(57) Abstract: System and methods to provide ceiling-only suppression fire protection of up to fifty feet (50 ft.) of rack storage of cartoned unexpanded plastic commodities and less hazardous commodities, such as for example, Class 1, Class 2, Class 3, Class 4 and/or combinations thereof beneath a ceiling having a maximum ceiling height up to fifty-five feet (55 ft.). The systems and methods provide for hydraulic and system parameters that include a hydraulic design area based upon five to no more than twelve hydraulically most remote sprinklers spaced at a preferred sprinkler-to-sprinkler spacing of eight to ten feet (8-10 ft.) coupled to two to four branch lines tied to a common cross main supply pipe of firefighting fluid.

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