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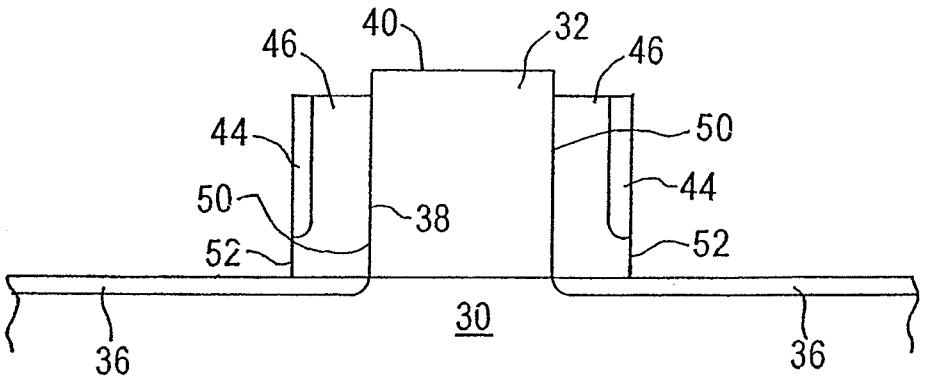
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(54) Title: A METHOD FOR FORMING RECTANGULAR-SHAPE SPACERS FOR SEMICONDUCTOR DEVICES



(57) Abstract: A semiconductor device and method of making the same forms a spacer (46) by depositing a spacer layer (34) over a substrate (30) and a gate electrode (32) and forms a protective layer (42) on the spacer layer (34). The protective layer (42) is dry etched to leave a thin film sidewall on the spacer layer (34). The spacer layer (34) is then etched, with the protective layer (42) protecting the outer sidewalls of the spacer layer (34). This etching creates spacers (46) on the gate that have substantially vertical sidewalls (52) that extend parallel to the gate electrode sidewalls (38). The I-shape of the spacers (46) prevent punch-through during the source/drain ion implantation process, providing an improved source/drain implant dose profile.

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