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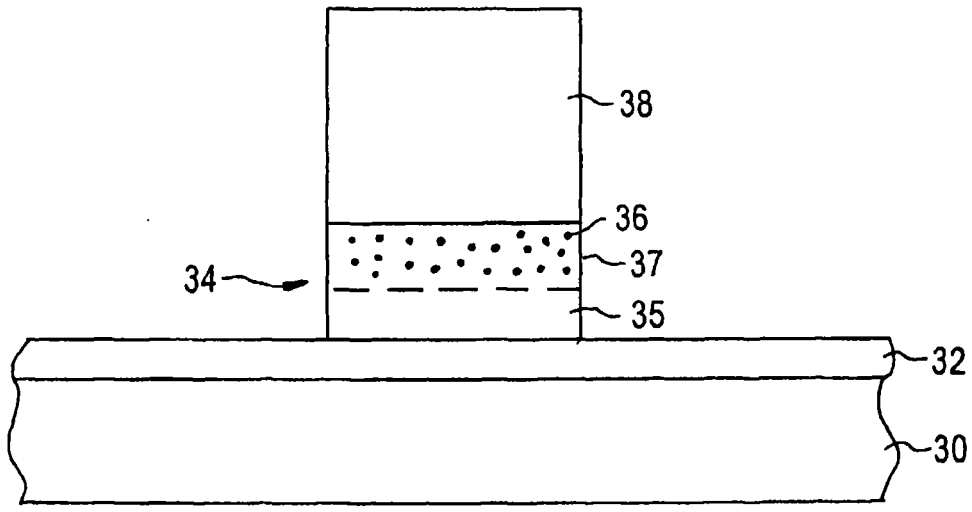
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(54) Title: METAL GATE STACK WITH ETCH STOP LAYER IMPROVED THROUGH IMPLANTATION OF METALLIC ATOMS



(57) Abstract: A metal gate structure and method of forming the same introduces metal impurities (36) into a first metal layer (34), made of TiN, for example. The impurities (36) create a surface region (37) of greater etch selectivity that prevents overetching of the TiN (34) during the etching of an overlying tungsten gate (38) during the formation of the metal gate structure. The prevention of the overetching of the TiN (34) protects the gate oxide (32) from undesirable degradation. The provision of aluminium or tantalum as the metal impurities (36) provides adequate etch stopping capability and does not undesirably affect the work function of the TiN (34).

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ACTION

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