

UNITED STATES PATENT OFFICE.

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HEAT-RESISTING ALLOY.

No Drawing.

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This invention relates to iron alloys.

The object is to produce an alloy containing a preponderance of iron that is as readily machineable as grey iron and will not scale, warp or "grow" substantially as do ordinary iron or steel when subjected to high temperatures.

The alloy which is the subject of this application is intended particularly for use in internal combustion engines for parts that become highly heated in use, such as valve heads, and valve guides. It is, however, well adapted as material for other articles subject to high heat.

The alloy is composed of iron, carbon, silicon and phosphorus, in the proportions of 2.50 to 3.00% carbon, 3.00 to 3.50% silicon, 1.90 to 2.25% phosphorus and the remainder of iron. Sulphur and manganese may exist as impurities in amounts not over

.12% of sulphur and .80% of manganese.

A preferred composition consists of carbon 2.80%, silicon 3.25%, phosphorus 2.10% and the remainder iron.

The described alloy may be prepared by melting pig or other iron associated with the requisite proportions of carbon and silicon and introducing ferro-phosphorus in such quantities as to give a mixture of the predetermined proportions in a manner well understood by metallurgists:

I claim:

1. A heat resistant alloy composed of iron, 2.50 to 3.00% carbon, 3.00 to 3.50% silicon and 1.90 to 2.25% phosphorus.

2. A heat resistant alloy composed of iron and substantially 2.80% carbon, 3.25% silicon and 2.10% phosphorus.

In testimony whereof I affix my signature.

HARRY M. WILLIAMS.