UNITED STATES PATENT OFFICE.

WALTER LOTHAR EDUARD EILENDER, OF REMSCHEID, GERMANY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CHEMICAL FOUNDATION, INC., A CORPORATION OF DELAWARE.

HIGH-SPEED STEEL.

1,337,209. Specification of Letters Patent. Patented Apr. 20, 1920.

No Drawing. Application filed March 6, 1917. Serial No. 152,724.

To all whom it may concern:

Be it known that I, WALTER LOTHAR EDUARD EILENDER, a subject of the German Emperor, and residing at Remscheid, Germany, have invented certain new and useful Improvements in High-Speed Steels Free from Tungsten for Average Cutting Capacity, of which the following is a specification.

This invention relates to improvements in steel alloys especially useful for cutting tools, known as "high speed" tool steel, and aims to provide improvements therein.

The invention provides a tool steel which can be made without the use of tungsten.

The tool steel of my invention has the following composition:—

Carbon	.5–.8	per centum.
Manganese	.2–.4	" "
Silicon	.2–.4	" "
Molybdenum	6.–10.	" "
Chromium	3.–6.	" "

The tool steel having the foregoing composition gives the same cutting effect as the well known high speed steel with 12–17 per cent. of tungsten.

The steel may be produced by melting, in crucibles, bar steel containing the required content of carbon, manganese, and silicon, and adding thereto the requisite amount of the metals molybdenum and chromium, viz., 6 to 10 per cent. molybdenum and 3 to 6 per cent. chromium, and after proper fusion the melted metal is poured from the crucibles into suitable ingot molds, from which it is obtained in the form of ingots.

What is claimed is:—

A steel-alloy for use as high speed steel of an average cutting-capacity consisting of iron and 0.5–0.8 p. c. C, 0.2–0.4 p. c. Mn, 0.2–0.4 p. c. Si, 6.0–10.0 p. c. Mo. and 3.0–6.0 p. c. Cr.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WALTER LOTHAR EDUARD EILENDER.

Witnesses:

HELEN NUFER,

FRANCES M. NUFER.