UNITED STATES PATENT OFFICE.

FRANK F. HANSEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HANSEN-HALLIBURTON MFG. COMPANY, OF CHICAGO, ILLINOIS.

ALLOY FOR ELECTRICAL RESISTANCE.

1,375,455. Specification of Letters Patent. Patented Apr. 19, 1921.

No Drawing. Application filed September 19, 1919. Serial No. 324,985.

To all whom it may concern:

Be it known that I, FRANK F. HANSEN, a citizen of United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Alloys for Electrical Resistance, of which the following is a full, clear, concise, and exact description.

This invention relates to improvements in alloy for electrical resistance.

This invention relates to improvements in those alloys used for electrical heating resistance units, as for instance in flat irons, electric stoves, toasters, etc., and the object of the invention is to provide such a resistance as will have a very high fusing point, which will be relatively inexpensive to manufacture and able to compete commercially with other resistance alloys.

In carrying out my invention, I combine chromium, tungsten and aluminum, the chromium being employed in a preponderating quantity because of its cheapness and low conductivity. The tungsten is used in small per cents. and the aluminum in an appreciably less per cent. than the tungsten.

I have found the following proportions to be preferable where the alloy is to be used for the purpose hereinbefore indicated.

Chromium	93% to 95%
Tungsten	2% to 6%
Aluminum from	.25% to 1%

The best proportions, taking into consideration all factors of cost, fusing point, conductivity and length of life, I have found to be

Chromium	95%
Tungsten	4%
Aluminum	1%

An alloy of these proportions has a fusing point of approximately 1300° centigrade, is comparatively inexpensive to manufacture and is entirely suitable for drawing out into wire and use in all devices where electrical heating units are employed.

I claim:

1. An electrical resistance alloy containing, chromium, tungsten and aluminum, the chromium being in preponderating amount compared with the combined amount of tungsten and aluminum, and the amount of tungsten being greater than the amount of aluminum.

2. An electrical resistance alloy containing, chromium, tungsten and aluminum, the tungsten and aluminum together constituting less than seven per cent. of the whole and the tungsten being in greater quantity than the aluminum.

3. An electrical resistance alloy containing, chromium from 93% to 95%, tungsten from 2% to 6%, aluminum from .25% to 1%.

4. An electrical resistance alloy containing, chromium approximately 95%, tungsten approximately 4%, aluminum approximately 1%.

In witness that I claim the foregoing I have hereunto subscribed my name this 2d day of Sept., 1919.

FRANK F. HANSEN.

Witness:
META SCHMIDT.