

# UNITED STATES PATENT OFFICE.

HEINRICH OSTERMANN AND AXEL PRIP, OF GENEVA, SWITZERLAND.

## ALLOY.

SPECIFICATION forming part of Letters Patent No. 382,827, dated May 15, 1888.

Application filed February 16, 1888. Serial No. 264,250. (No specimens.)

*To all whom it may concern:*

Be it known that we, HEINRICH OSTERMANN, chemist, and AXEL PRIP, jeweler, both residing at Geneva, Switzerland, have invented a Metallic Alloy, of which the following is a specification.

Our invention relates to a non-magnetic metallic alloy to replace steel in the works of watches, and is especially intended for the different parts of watch-escapements. An alloy for said purpose should be ductile and malleable. Its hardness and its coefficient of linear expansion must be as nearly as possible the same as that of steel.

Our alloy is principally composed of platinum, to which are added in variable quantities nickel, cobalt, copper, wolfram, and cadmium.

The coefficient of linear expansion of our alloy varies from 0.001075 to 0.00115, and is therefore very nearly the same as that of steel, the coefficient of which varies from 0.00105 to 0.00115. The addition of wolfram and cobalt causes the alloy to have nearly the hardness of steel, and cadmium renders the alloy ductile and malleable.

We combine the metals in the proportions next mentioned: platinum, sixty to seventy parts; nickel, ten to twenty parts; copper, ten to twenty parts; wolfram, one to two parts; cobalt, one to two parts, and cadmium, one to one and one-half part.

To intimately combine the wolfram with the

other metals, we first melt the copper and wolfram by subjecting shavings of those two metals to a white heat. The alloy thus obtained is then melted with the corresponding quantities of nickel and cobalt specified and with one-half of the platinum. When these are melted, the second half of the platinum is thrown into the mass, and when the platinum is entirely melted then we add the specified quantity of cadmium. Part of the cadmium is volatilized.

Having thus described our invention, what we claim is—

1. An alloy composed of platinum, nickel, copper, wolfram, cobalt, and cadmium, for the purpose specified.

2. An alloy composed of platinum, sixty to seventy parts; nickel, ten to twenty parts; copper, ten to twenty parts; wolfram, one to two parts; cobalt, one to two parts, and cadmium, one to one and one-half part, substantially as described, and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HEINRICH OSTERMANN.  
AXEL PRIP.

Witnesses:

L. T. ADAMS,  
ELMER SCHNEIDER.