No. 735,293. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

EUGEN POLTE, OF MAGDEBURG-SUDENBURG, GERMANY.

PROCESS OF MAKING ARTICLES OF WOLFRAM AND LEAD.

SPECIFICATION forming part of Letters Patent No. 735,293, dated August 4, 1903.

Application filed April 15, 1903. Serial No. 152,697. (No specimens.)

To all whom it may concern:

Be it known that I, EUGEN POLTE, a subject of the King of Prussia, German Emperor, residing at Magdeburg-Sudenburg, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements Relating to Processes of Manufacturing Metal Articles of Wolfram and Lead, of which the following is a full, clear, and exact description.

As is well known, wolfram cannot except in rare cases be alloyed with metals.

Owing to the fact that the respective melting-points of wolfram and lead are so widely separated, it has not been heretofore possible to combine them by fusion into a firm homogeneous body except by specially troublesome processes.

In order to avoid the difficulties attending the production of a wolfram-lead alloy, it has been tried repeatedly to combine wolfram and lead in the form of powder by means of pressure. The articles produced in this manner have, however, been shown to possess so little cohesion or solidity that their use for technical purposes has hitherto not been practicable.

The importance of putting into practical use the high specific gravity of wolfram, notably in combination with lead, has given rise to the following process, forming the subject of the present invention:

Lead and wolfram, both in a finely-divided pulverulent state, are mixed together in the desired proportions by weight or quantity. The mixture is then made to combine uniformly, molecule with molecule—*i. e.*, is intimately compounded—by means of drop-hammers, rollers, mortar-mills, ball-mills, or such like—that is to say, by means of such appliances as render it possible to bring the particles of lead and wolfram into mechanical combination or interlacement, while at the same time the air is expelled. The compound of the two metals prepared in this manner is then given the desired shape by pressing under as high pressure as possible either in a cold or warm condition.

Wolfram in a powdered form has attached to it a number of salts soluble in water, likewise oxid of iron, clay, and compounds of lime and magnesia. These foreign substances must be removed by boiling, scrubbing, skimming, &c., before using the wolfram.

The lead-wolfram combination produced in accordance with the above process is intended to be employed principally for the manufacture of ammunition, although it is also adapted for other purposes.

What I claim as my invention, and desire to secure by Letters Patent, is—

A process for the production of solid articles from purified wolfram and lead, consisting in forcing together, or intimately compounding, the particles of the metals in a disintegrated, granulated or pulverulent form, and subsequently giving them the desired shape by pressing them.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EUGEN POLTE.

Witnesses:

WOLDEMAR HAUPT,

HENRY HASPER.