

**BEFORE THE CONTROLLER OF PATENT
PATENT OFFICE, NEW DELHI
The Patents Act, 1970
(Section 15)**

In the matter of Patent Application no. 7203/DELNP/2012

WEIR MINERALS AUSTRALIA LTD, Australia - Applicant

GROSER & GROSER - Agent for the applicant

DECISION

The Application No. 7203/DELNP/2012 was filed on 17/08/2012 on behalf of the applicant WEIR MINERALS AUSTRALIA LTD, Australia for an invention having title "HARD METAL MATERIALS". FER was issued on 29/08/2018 and subsequently objection was raised by this office. Agent of the applicant filed the reply of FER on 28/05/2019. After re-examination by the Examiner, the case was put-up to the controller. Hearing U/S 14 offered to the agent of the applicant on 16/08/2021 regarding the objections:

Objections:

Clarity and Conciseness:

1. Inventive features should be characterized in the claim-1 incorporating the all essential novel inventive constructive features described therein.

Formal Requirement(s):

1. Assignment dated 28/05/2019 is out of prescribed time limit by the Act.
2. Extra fee need to pay for extra pages/claims.

Invention u/s 2(1)(j):

1. claims 1-20 does not constitute an invention u/s 2(1) (j) (a) for the lack of inventive step in view of documents D1: WO9411541A1, D2: JPS60169515A, D3: US6013141A, D4: US5030519A, D5: DE4419996A1, D6: US20040060742A1, which is as follow, Document D1 discloses a method of making an engineering ferrous metal comprising the steps of adding to liquid engineering ferrous metal solid alloy carbide particles and thereafter permitting the ferrous metal to solidify. The alloy carbide particles are coated with iron or an iron alloy to allow wetting to occur between the powder and the liquid ferrous metal and the particles have a density which matches that of the ferrous metal to provide a uniform distribution of the carbide particles in the ferrous metal. A roll may be made having at least a shell made of metal by such a method by centrifugal casting or electroslog remelting. Document D2 discloses a molten cast iron contg. 2.5-5.0% C, <=10% Ni, Cr, Co or other element substituted for part of Fe is cast, <=0.05% powder of W carbide such as WC and W2C is inoculated into the molten cast iron in a

melting furnace, during charging into a casting mold or in the casting mold. Fine lump WC of 5-100µm grain size is uniformly crystallized and dispersed by 15- 75vol% in the matrix of the resulting casting. Thus, a casting with very high hardness and superior wear resistance is obtained. It is suitable for use as the material of a roll for rolling. Document D3 discloses a indefinite chill roll alloy composition is disclosed containing carbon ranging from 2.5 to 4.0% by weight of the alloy and the carbon is present as free graphite in an amount ranging from 2-7%, preferably 3-6%, of the total carbon. The composition further includes niobium which ranges from 0.3-6.0 % and is present essentially as discrete niobium carbide particles in the alloy. The present invention further includes a chill roll shell formed from the alloy and produced by a method including the steps of providing a molten indefinite chill roll composition, adjusting the composition by adding niobium in an amount sufficient to produce a molten batch containing 0.3 to 6.0% niobium based on the total weight of said molten batch, providing a stoichiometric amount of excess carbon to form niobium carbide and casting the molten batch to form the chill roll shell. The method of the present invention may be useful to form indefinite chill roll containing significant quantities of carbides from other element that form carbides having low carbide solubilities near the eutectic point of the iron alloy, while maintaining sufficient free graphite in the alloy to produce an alloy having the properties required for chill roll applications. Document D4 discloses a matrix-bonded carbide-containing material of high hardness is prepared using a mixture containing a matrix alloy having a composition in weight percent of from about 15 to about 45 percent chromium, from 0 to about 3 percent silicon, from about 2 to about 6 percent boron, from about 3 to about 11 percent titanium (either as metal or as a compound), balance iron and impurities, and a mass of tungsten carbide particles, the tungsten carbide particles preferably being present in an amount of from about 15 to about 60 percent by weight of the total mixture and the matrix alloy preferably being present in an amount of from about 85 to about 40 percent by weight of the total mixture. The matrix alloy is melted to produce a flowable mixture having a liquid phase and solid tungsten carbide particles, and thereafter solidified. During melting, the tungsten carbide particle size is reduced by interaction with the liquid phase. The melting can be accomplished by a conventional melt casting procedure, or by welding or other technique that produces a liquid matrix phase. The fine tungsten carbide particles produced during melting exhibit little if any settling, so that the final solidified product is macroscopically homogeneous. Document D5 discloses a highly wear-resistant composite material for cutting tools containing a proportion of vanadium carbide, which, owing to the high hardness of vanadium carbide, has an abrasion resistance superior to that of the composite materials of the other special carbides. According to the invention, the object is achieved by vanadium carbides having a grain size of less than 30 microns being embedded in a proportion by volume of from 15 to 18% in a steel matrix having a grain size of from 1 to 20 microns and a hardness of from 62 to 66 HRC, consisting of from 0.4 to 0.9 per cent by weight of C from 0.3 to 0.8 per cent by weight of Mn from 0.4 to 1.0 per cent by weight of Si from 2.8 to 8.0 per cent by weight of Cr from 0.0 to 5.0 per cent by weight of Mo from 0.0 to 15.0 per cent by weight of Co remainder: Fe. The invention is used, for example, in coating paper cutting knives with the composite material for increasing the abrasion resistance. Document D6 discloses a new composition for forming a matrix body which includes spherical sintered tungsten carbide and an infiltration binder including one or more metals or alloys is disclosed. In some embodiments, the composition may include a Group VIII B metal selected from one of Ni, Co, Fe, and alloys thereof. Moreover, the composition may also include cast tungsten carbide. In addition, the composition may also include carburized tungsten carbide.

Agent of the applicant attended the hearing as on scheduled date and time i.e. on 16/08/2021 and accordingly agent of the applicant submitted the submission regarding the objections raised in the hearing notice and then complied the objections raised in the hearing notice. All formal and technical requirements now met.

The application is in order for grant. Hence, Patent is granted.

Dated this 17th day of September, 2021

-sd-

(Ashfaque Ahmad)
Assistant Controller of Patents & Designs