Title (en)

Cutter device mounted on casting breaking apparatus, and method of enhancing the hardness of cutter device

Title (de)

Auf einer Gussbrechvorrichtung montierte Schneidevorrichtung und Verfahren zum Verbessern der Härte der Schneidevorrichtung

Title (fr)

Dispositif de découpe monté sur un appareil de coupure de moulage et procédé pour améliorer la dureté du dispositif de découpe

Publication

EP 1990093 A1 20081112 (EN)

Application

EP 07251968 A 20070511

Priority

EP 07251968 A 20070511

Abstract (en)

In a related art, fixed and movable cutter units (casting breaking apparatus) having open top and bottom are composed of fixed and movable cutter supporting parts, fixed and movable cutter plates (referred to as "fixed and movable cutter plates") provided in the fixed and movable cutter supporting parts, a number of ridged fixed and movable cutters provided in the fixed and movable cutter plates so as to project therefrom and having a mutually fitting relationship, and a cylinder capable of moving the movable cutter plates, and sliding surfaces of both sides of the movable cutter supporting part and/or movable cutter plate advances or retreats along the inner surfaces of side plates. To explain the crushing and breaking operation (method) of this casting breaking apparatus, during advancement or retreat of the movable cutter plate, a casting waste is loaded through a loading opening formed between the movable cutter plate and the fixed cutter plate, the movable cutter plate is caused to advance or retreat via the cylinder, and the casting waste is broken using the fitting and/or pressing relationship between the movable cutter of the movable cutter plate and the fixed cutter of the fixed cutter plate. The sliding surfaces of the movable cutter plate advance or retreat so as to come into sliding contact with the side plates of the casting breaking apparatus. This advancement causes a casting waste loaded into the casting breaking apparatus to be broken, and the retreat causes the broken casting waste piece to be discharged by natural drop through a discharge port between the movable cutter plate and the fixed cutter plate. In this type of casting breaking apparatus, the toughness and wear resistance of the fixed cutter plate and/or fixed cutters are required. Therefore, there are adverse effects that deposit welding and the operation of giving impact to the deposit welding are performed after casting of the fixed cutters, advanced skill and labor are required, operation becomes complicated, working hours are required, and the like. In consideration of the above circumstances, in the invention, high-manganese steel is mixed in the fixed cutter plate and/or fixed cutters. This eliminates a structure of performing deposit welding and giving impact to the deposit welding, thereby ensuring toughness and wear resistance after casting of the fixed cutters. Thereby, for example, advanced skill and labor required for welding and/or deposit operation is eliminated, operation is simplified, and working hour is shortened. Also, the fixed cutters can be made into a structure which is not broken, loss of the fixed cutters can be avoided, and mixing of chips of high-manganese steel constituting the fixed cutters into a regenerated casting is eliminated (mixing of high-manganese steel by wear does not become a hindrance so much). Also, quality deterioration of a regenerated casting is avoided.

IPC 8 full level

B02C 1/10 (2006.01)

CPC (source: EP)

B02C 1/10 (2013.01)

Citation (search report)

- [DY] EP 0919283 A1 19990602 - OKUYA YASUAKI [JP]
- [Y] DE 19721637 A1 19981126 - KRONENBERGER ERNST JOSEF [DE], et al
- [Y] US 3804345 A 19740416 - DE DIEMAR R
- [AY] US 5601782 A 19970211 - KUNIOKA SABURO [JP], et al

Cited by

CN101850491A; CN108907090A; CN108344606A; CN102527462A; CN105750005A; CN108339594A; CN108344605A

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK RS

DOCDB simple family (publication)

EP 1990093 A1 20081112; WO 2009027808 A2 20090305; WO 2009027808 A3 20090813

DOCDB simple family (application)

EP 07251968 A 20070511; IB 2008002248 W 20080509