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(71) Applicant: **Quarry Service Srl**  
**54033 Carrara (IT)**

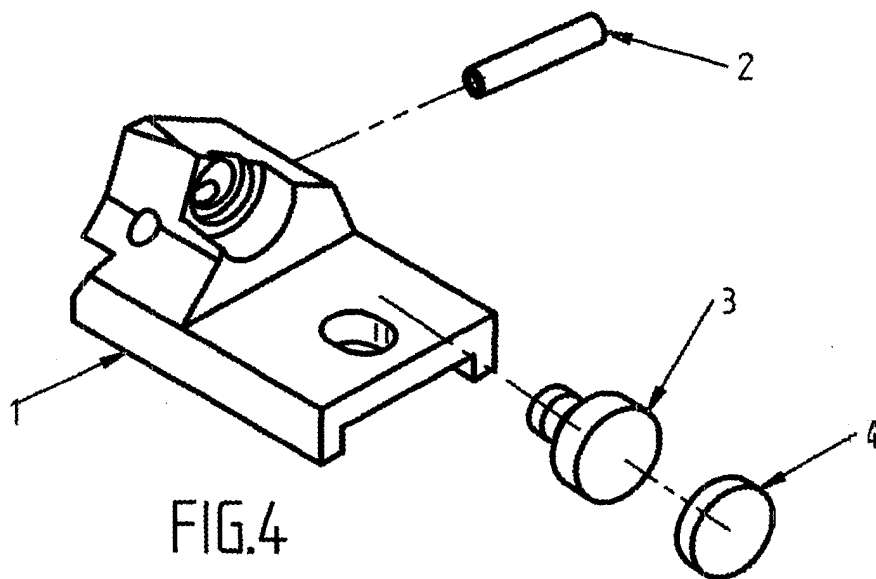
(72) Inventor: **Calzolari, Giancarlo**  
**54033 Carrara (MS) (IT)**

(30) Priority: **30.05.2002 IT MS20020004 U**

(54) **Tooth with diamond insert with mechanical fixing**

(57) The mechanical fastening of the fitted diamond plates, which are employed on chain saw devices for solid rock cutting, protects the cutting tool from thermal

shocks due to detachment and respective re-soldering; moreover, the machine standstill will be notably reduced by rotating the tool, thus allowing the utilization of the entire diamond plates circumference.



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## Description

**[0001]** With the inserts "stratapax" (diamonded) it is possible to execute cuts there where the normal inserts of hard metal (WIDIA) don't make it possible. In a lot of cases the employment of these materials is necessary to overcome, during the cut, "spots" of stone that are harder. Until today, the fixing system of these inserts foresees a direct welding of the insert on the insert holder or its stirruping through tightening with screw. The first system has the disadvantage that, in order to use the insert on the best way, it has to be turned various times to use the various cutting edges and each time it has to be unsolded and solded again. This brings to thermal shocks of the material that deteriorates so quickly.

**[0002]** Besides that the welding operation is very delicate and have to be executed in a proper place with the employment of particular equipments.

**[0003]** The fixing system through bracket and screw isn't optimal for what regards the vibrations to which it is exposed and they cause during the works often the loosening of the screw or the breakage of the bracket.

**[0004]** The system studied foresees a mechanical processing on the insert holder (pict. 4-part.1) in order to reach a seat of housing for the insert support (pict. 4-part 3) as well as a hole vertical to the axle of that support where an elastic pin is inserted in a forced way (pict. 4 - part. 2).

**[0005]** The insert support 3 has such a form to be inserted in the housing of the insert holder 1 and to be paired with the elastic pin 2 remaining so fixed.

**[0006]** The diamond insert 4 is fixed to the support for insert 3.

**[0007]** The whole chain is composed of insert holders built and assembled as above described.

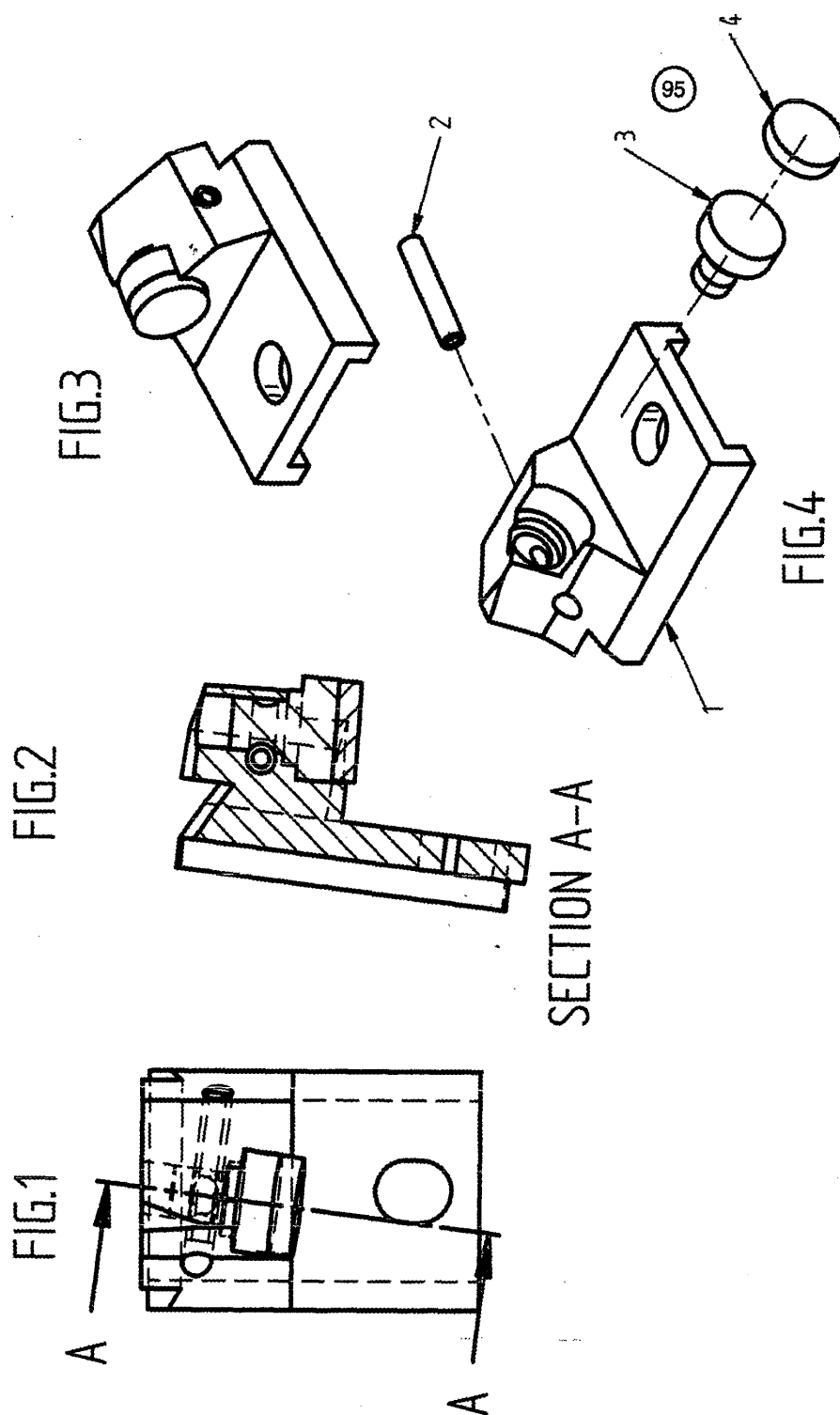
the insert in very short time.

5. The support with mechanical fixing protects the insert from the strokes, as it is elastically fixed. The so conceived invention susceptible of numerous improvements and variations, all included within the inventive concept, moreover all details can be substituted with others of the same technical value. The materials and the dimensions of the invention as above described, illustrated with the drawings attached and then vindicated, could be of each choice depending on the requirements.

## Claims

1. The mechanical fixing, compared with the usual fixing, foresees only one welding operation and maintains so the mechanical and hardness characteristics of the material of which the insert is built until the same is not completely consumed.
2. The support with mechanical fixing, allows, with the simple removal of the elastic pin, a higher rapidity of the turning of the insert, which can so be used on the whole cutting edge.
3. The support with mechanical fixing allows, with the simple removal of the elastic pin, to execute the operation directly on the place, this means in the quarry, reducing in a considerable way the time of remaining stationary of the machine.
4. The support with mechanical fixing allows, with the simple removal of the elastic pin, the substitution of

# DRAWING 1





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# EUROPEAN SEARCH REPORT

Application Number  
EP 03 42 5345

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 32 25 916 A (KORFMANN GMBH MASCHF) 12 January 1984 (1984-01-12) * page 4, line 25 - page 9, line 26; figures 1-3 *	1-5	B28D1/12
X	DE 19 22 510 U (BERTOLD KURZ) 2 September 1965 (1965-09-02) * page 3, line 65 - page 4, line 112; figures II,III *	1-5	B28D
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B28D
Place of search MUNICH		Date of completion of the search 28 October 2003	Examiner Frisch, U
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 42 5345

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The members are as contained in the European Patent Office EDP file on  
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28-10-2003

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82