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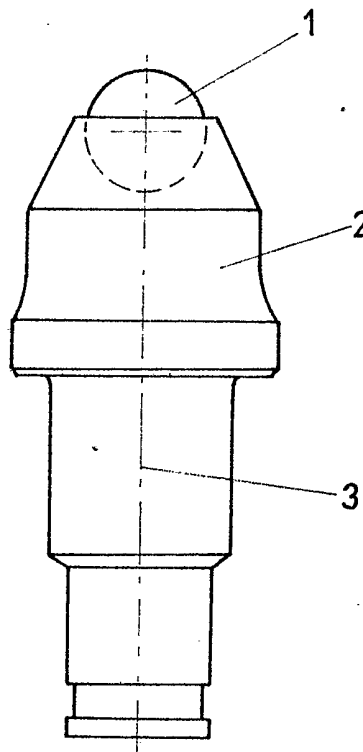
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(54) **A tool for cutting rocks, ores and minerals**

(57) A tool for cutting rocks, ores and minerals, the tool comprising a

spherical cutter bit (1) embedded in a cutter body (2). The cutter bit (1) can be rigid with the cutter body (2) or it can be freely movable in relation to the cutter body (2).

FIG. 1



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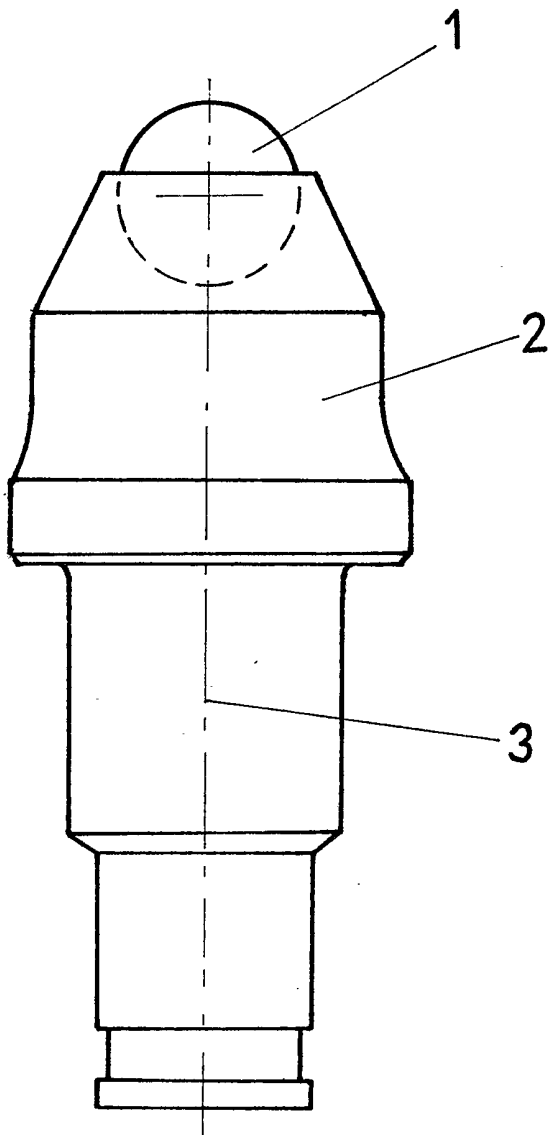


FIG. 1

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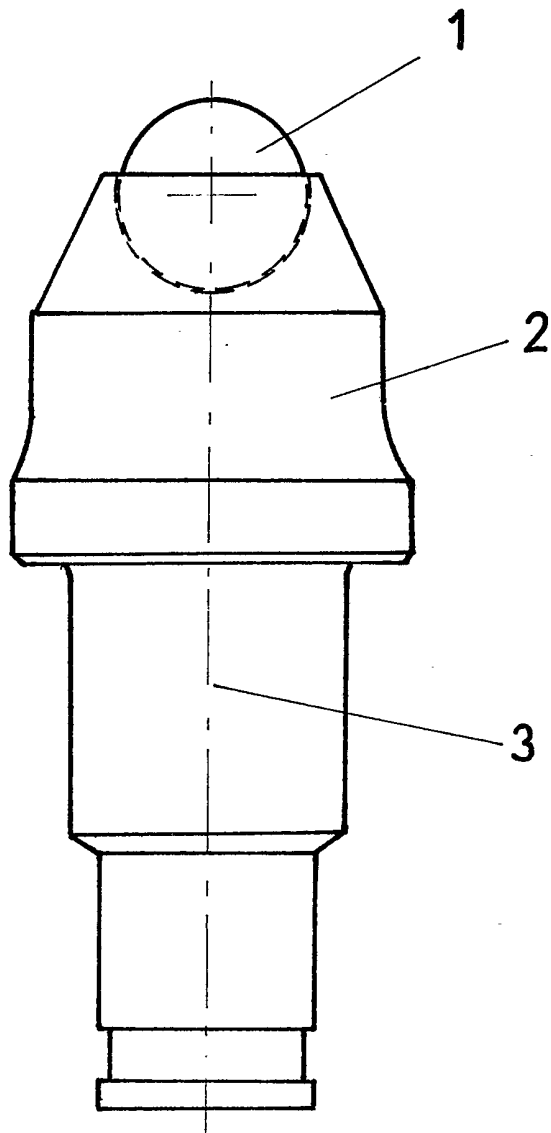


FIG. 2

SPECIFICATION

A tool for cutting rocks, ores and minerals

The invention relates to a tool for cutting rocks, ores and minerals.

- 5 Cutting tools of various shapes and sizes have been proposed for use in mining machines. In these previously proposed tools, the exposed portion of the cutter bits are cone-shaped with sharp or rounded apices or chisel-shaped with
- 10 straight or rounded edge surfaces. These cutter bits are not very resistant to dynamic forces generated in cutting operations, particularly when cutting rocks, ores or minerals which are difficult to disintegrate.
- 15 These dynamic forces cause the exposed portion of the cutter bit to be destroyed whereupon the destruction of the whole cutter including cutter holders occurs rapidly if the cutter bits are not replaced in time.
- 20 According to the present invention there is provided a tool for cutting rocks, ores and minerals, the tool comprising a cutter body and a spherical cutter bit, a major portion of spherical cutter bit being embedded in the cutter body.
- 25 Further according to the present invention there is provided a tool for cutting rocks, ores and minerals, the tool comprising a spherical cutter bit embedded in a cutter body.
- 30 Tools embodying the invention will now be particularly described, by way of example with reference to the accompanying diagrammatic drawings in which Figures 1 and 2 are side views of tools for cutting rocks, ores and minerals.
- 35 The illustrated tool (Fig. 1) comprises a cutter body 2 which is rotatable about its longitudinal axis 3. A spherical cutter bit 1 of a hardened material is rigidly embedded in the cutter body 2. The said longitudinal axis 3 passes centrally through the cutter bit 1.
- 40 In another embodiment of the cutting tool (Fig. 2) the spherical cutter bit 1 is slidable within a recess in the cutter body 2. More than half of the

- spherical cutter bit 1 is accommodated in the recess in the cutter body 2. In this embodiment, the cutter bit 1 is able to turn in any direction about its centre in the course of a cutting operation.

- A spherical body has the greatest mass to surface area ratio of all bodies. Therefore a spherical cutter bit 1 is better able to withstand dynamic shocks or forces than conventional cutter bits which have sharp or slightly rounded cutting tips.

- The above described tools are advantageous in that they are very resistant to dynamic forces generated during the cutting of rocks, ores and minerals. Therefore they are very efficient, particularly in the cutting of rocks, ores and minerals which are difficult to disintegrate.

60 CLAIMS

1. A tool for cutting rocks, ores and minerals, the tool comprising a cutter body and a spherical cutter bit, a major portion of spherical cutter bit being embedded in the cutter body.
- 65 2. A tool according to claim 1, wherein the spherical cutter bit is rigid with the cutter body.
3. A tool according to claim 1, wherein the spherical cutter bit is slidable in relation to the cutter body.
- 70 4. A tool according to any one of claims 1 to 3, wherein the cutter body is rotatable about an axis which passes centrally through the spherical cutter bit.
5. A tool according to any one of claims 1 to 4, wherein the cutter bit is made of hardened material.
- 75 6. A tool for cutting rocks, ores and minerals, the tool comprising a spherical cutter bit embedded in a cutter body.
- 80 7. A tool for cutting rocks, ores and minerals substantially as hereinbefore described, with reference to Figures 1 and 2 of the accompanying drawings.