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問1.

[0006]

With regard to the above-described ceiling section structure of the conventional fluidization roasting furnace, it becomes impossible to support full weight of refractory bricks serving as the ceiling section structure as the irregular bricks 8, the cylindrical side plate, and the shelf boards 9 attached to the uppermost portion of the cylindrical side plate deteriorate with age, and it becomes necessary to newly produce the whole fluidization roasting furnace.

[0007]

In addition, with regard to the labyrinth function that is possessed by the irregular bricks 8 of the conventional fluidization roasting furnace and that is a function to prevent internal combustion gas from being discharged from the inside of the fluidization roasting furnace to the atmosphere, joint spaces between bricks widens and the labyrinth function deteriorates drastically as the irregular bricks 8 deteriorates with age.

[0008]

The present invention aims to overcome such problems that the conventional ceiling section structure has, and an object of the present invention is to continuously perform the labyrinth function that is a function to prevent internal combustion gas from being discharged from the inside of the fluidization roasting furnace to the atmosphere, with no need to newly produce the whole fluidization roasting furnace in a case where the irregular bricks 8, the cylindrical side plate 10, and the shelf boards 9 attached to the uppermost portion of the cylindrical side plate 10 of the fluidization roasting furnace deteriorate with age.

問2.

[0038]

(1) Sharpening Process

A first base material 11 used in the present embodiment is a steel plate material such as SK steels. A flat bar having an appropriate area corresponding to the size of a blade 1 to be produced is prepared as the first base material 11. The number of the flat bar necessary to obtain the single blade 1 may be one, but in the present embodiment, two rectangular flat bars, that is, a first flat bar 11A and a second flat bar 11B are used as illustrated in FIG. 3A and FIG. 3B. Note that, here, the first flat bar 11A and the second flat bar 11B are together referred to as a flat bar 11A (11B) since a process of forming a cutting edge portion 17 on the first flat bar 11A is the same as a process of forming the cutting edge portion 17 on the second flat bar 11B.

[0039]

Before forming the cutting edge portion 17, the flat bar 11A (11B) is a rectangular plate material having a constant thickness as illustrated in FIG. 2A. A sharpening process is a process of forming the cutting edge portion 17 by processing the plate material. In other words, in the sharpening process, the cutting edge portion 17 is formed by performing a process of sharpening the flat bar 11A (11B) from a middle portion to one end in a width direction as illustrated in FIG. 2B.

[0040]

The flat bar 11A (11B) subjected to the sharpening process has a base portion 16 and the cutting edge portion 17. The base portion 16 has the constant thickness, but the cutting edge portion 17 gets thinner as getting farther away from the base portion 16 (in other words, the cutting edge portion 17 gets thinner toward an outside in the width direction of the flat bar 11A (11b)). The cutting edge portion 17 has a cutting edge 17a on its tip. The cutting edge portion 17 has a double bevel, which is obtained by processing both side edges of the flat bar 11A (11B). In other words, the cutting edge portion 17 has the tip (cutting edge 17a) that is substantially aligned on a middle line of the flat bar 11A (11B), the middle line dividing the flat bar 11A (11B) almost in half in the thickness direction.

[0041]

Examples of the method of sharpening the flat bar 11A (11B) include a method of grinding one of the side edges by using an abrasive grinding wheel, a method of squashing the flat bar 11A (11B) into a thin shape by applying pressure on one of the side edges through forging or the like.

[0042]

(2) Heat Treatment Process and Grinding Process

After the sharpening process, the flat bar 11A (11B) is subjected to a heat treatment process. Examples of the heat treatment process include quenching and tempering. The quenching is rapid cooling of the flat bar 11A (11B) from a high-temperature state. The tempering is reheating of the quenched flat bar 11A (11B).

[0043]

After the heat treatment process, the cutting edge portion 17 is ground again to be sharpened more. This is because the tip (cutting edge) of the cutting edge portion 17 becomes dull due to the above-described heat treatment process and it is necessary to make the cutting edge sharp again after the heat treatment process. At this time, a sharpening stone with a finer grit that the abrasive grinding wheel is desirably used.

問3.

WHAT IS CLAIMED IS:

1. A timepiece with a lunar location/age display mechanism, the timepiece comprising:

a planisphere plate (4) that is a disc displaying major stars and constellations, that is driven by a timepiece mechanism while its rotation axis is a celestial north pole direction or a celestial south pole direction, that rotates in synchronization with diurnal motion of starts, and that displays

ecliptic (4a) having an eccentric ring-like shape,

dates in a year indicating a position of the sum on the ecliptic, and

a zone (4b) indicating a track of a moving moon near the ecliptic (4a); and

a moon plate (3) that rotates at a predetermined rotation ratio relative to the planisphere plate (4), and that displays, on its circumference,

an index (3a) indicating a lunar location within the zone where the moon may exits, and

a lunar age (3b) depending on the date.

2. The timepiece with the lunar location/age display mechanism according to claim 1, wherein

the zone indicating a track of a moving moon is displayed in the zone (4b) that has a band-like shape and that has a predetermined width inside/outside the ecliptic(4a), and

the index (3a) indicating the lunar location on the moon plate (3) has a predetermined angular width with respect to a center of the moon plate (3).