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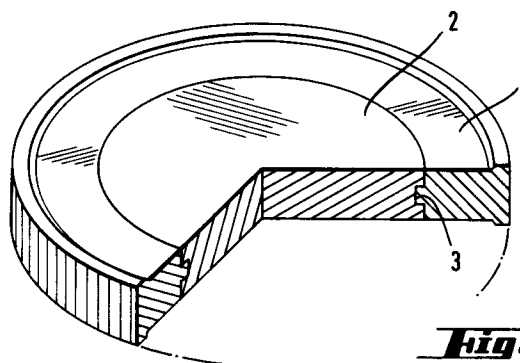
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(54) **Bimetallic coin blank and method for producing the same.**

(57) A bimetallic coin blank is made of two different parts: an inner part (2) circular in cross-section, and an annular part (1) compressed around it. A tight and solid juncture between the two parts of the blank is created by means of a continuous groove (3) formed in the inner part.



**Fig. 3**

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The present invention relates to a bimetallic coin blank and to a method for producing the same. A bimetallic coin blank is composed of two parts: of an inner part, circular in cross-section, and of an outer annular part surrounding it. A tight juncture between the two parts of the blank is created by means of a continuous groove provided in the innermost part.

The term 'coin blanks' is normally used of metal blanks which are manufactured, through minting, edging etc. procedures, into metal coins, used as metal money, tokens or medals, for example. A bimetallic coin blank is formed of two parts made of two different metals, which are interconnected by means of mechanical joining carried out in the process of minting.

From the EP patent 0,080,437, there is known a bimetallic coin blank for producing money and medals, as well as a method for manufacturing the blank. The coin blank is made of two separate metals, the inner of which is essentially circular in cross-section, and the outer is annular. The innermost circumference of the outer annular part is tapered so that the thickness of the inner edge of the annular part is only about one third of the thickness of the rest of the annular part. From this narrow edge, there are extended small teeth towards the center of the ring. The outer part is tightly compressed to around the inner part, so that the metal of the outer part is compactly pressed against the inner part. The purpose of the dent-like protrusions is to prevent sliding and any other reciprocal movements of the two elements of the blank.

In the EP patent application 0,312,436, there is also described a method for manufacturing a metal coin blank. In this method, the inner part is provided with single openings extending from the periphery inwards. When the outer annular part is compressed around inner part, the metal of the outer part is pressed into the openings of the inner part and thus creates a compact junction between the two parts.

According to the present invention, it is now discovered that the joining together of the parts of a piece composed of two different elements, such as a bimetallic coin blank, can be carried out in a remarkably simpler and more advantageous fashion than in the inventions described above. According to the invention, the junction between the different parts of the bimetallic coin blank is created by means of a continuous groove formed on the outer periphery of the inner blank part, so that in the compression carried out in connection with the minting, the metal of the outer part flows into the groove of the inner part. The essential novel features of the invention are apparent from the appended patent claims.

In the production of a coin blank composed of two parts, it is essential that the junction between the inner part and the annular part to be compressed around it becomes sufficiently tight. In the examinations carried out it was found out that the bond strength between the different parts of the coin blank of the invention is at least the same or better as with for instance the coin blanks referred to in the description of the prior art. From the point of view of tool production, however, it is a completely different matter if the annular part is provided with taperings and dentings and/or if the inner part is provided with single openings, compared to the case where these methods are replaced by a continuous groove provided on the outer periphery of the inner part. The production of a continuous groove in the inner part is remarkably more economical in costs as compared to the costs accumulated when manufacturing the prior art junctions described above.

The invention is also described with reference to the appended drawings in principle, which show how the junction is made.

Figure 1 illustrates an outer, annular part of a bimetallic coin blank;

figure 2 illustrates an inner, circular part of a bimetallic coin blank, and in

figure 3, the two parts are compressed together.

As is seen in figure 1, the annular part 1 is not provided with any taperings or protrusions deviating from the essentially vertical inner surface, i.e. it is principally smooth. This arrangement is remarkably advantageous from the point of view of tool-making.

From figure 2 it is apparent that on the outer periphery of the inner part 2 there is formed an annular, continuous groove 3 parallel to the outer circumference. The height of the groove with respect to the height of the whole inner part is about  $1/4 - 1/6$ , and the groove is advantageously located in the middle of the piece when seen in the vertical direction. If the groove is made too wide, it disturbs the smooth proceeding of the blanks in the minting machine, and if the groove is too narrow, it is difficult to create a sufficiently solid juncture.

In order to create an adequately solid juncture, it is important that the edges of the groove are sufficiently sharp, and that the groove is sufficiently deep. The depth of the groove is advantageously  $0.3 - 1$  times the height of the groove. In the production of coin blanks, minimum tolerances must also be applied in order to achieve a sufficient strength for the juncture. The use of several grooves was also experimented with, but the strength achieved with them remained poorer than with only one groove.

In figure 3, the two parts of the coin blank are interconnected, and it is seen that the metal of the

outer part is pressed, in the compression, to the groove of the inner part and thus forms the required juncture.

### Claims

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1. A bimetallic coin blank for producing metal coins, tokens and medals, which coin blank is composed of an outer, annular part (1), made of some other metal than the inner part (2), which is circular in cross-section, **characterized** in that the inner edge of the outer part (1) of the coin blank is essentially smooth, and that the outer periphery of the inner part (2) is provided with an annular, continuous groove (3) parallel to the outer circumference of that part.
 

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2. The bimetallic coin blank of claim 1, **characterized** in that the continuous groove (3) is located, when seen in the vertical position, in the middle of the inner part (2).
 

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3. The bimetallic coin blank of claim 1, **characterized** in that the height of the continuous groove (3) is  $1/4 - 1/6$  of the height of the inner part, and that the edges of the groove are sufficiently sharp.
 

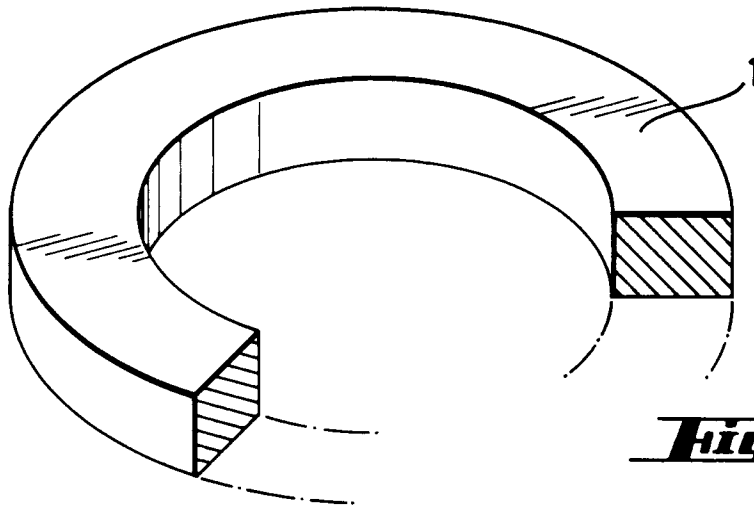
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4. The bimetallic coin blank of claim 1, **characterized** in that the depth of the continuous groove (3) is 0.3 - 1 times the height of the groove.
 

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5. A method for producing bimetallic coin blanks for metal coins, tokens and medals, wherein the coin blank is composed of two parts made of different metals, the outer part (1) thereof being annular and the inner part (2) round in cross-section, **characterized** in that the inner surface of the outer, annular part (1) of the coin blank is made essentially smooth, and that on the outer periphery of the inner part (2), there is provided a continuous groove (3) parallel to the circumference, to which groove the outer part is pressed while being compressed around it, thus creating a solid juncture.
 

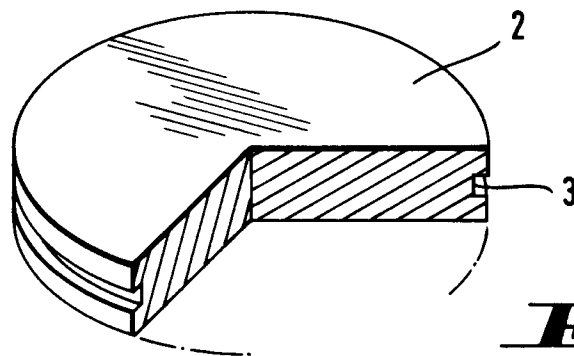
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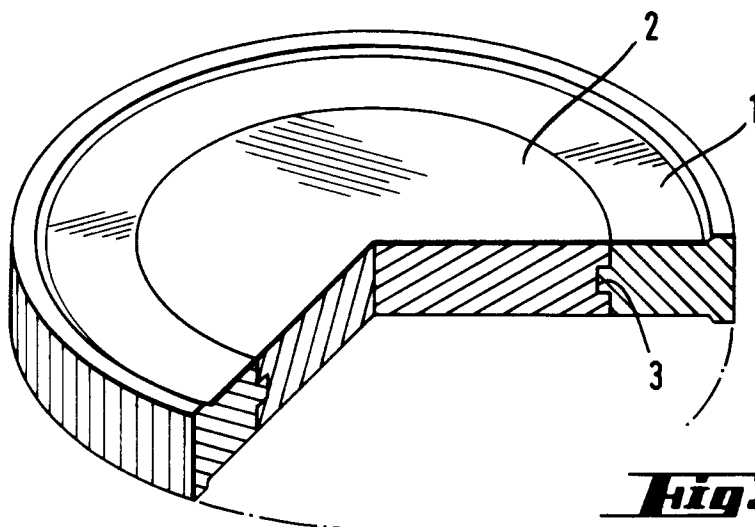
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**Fig. 1**



**Fig. 2**



**Fig. 3**



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## EUROPEAN SEARCH REPORT

Application Number

EP 92 11 3196

| 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.5) |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The Official Gazette of the United States Patent Office, Vol. 88, No. 11, 12 September 1899, Washington, DC, USA<br>* page 1994, right column, the part pertaining US-A-632938 (G.G.GREENBURG) * | 1-5                                                  | B44B5/00<br>A44C21/00<br>B21K25/00            |
| D,A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | EP-A-0 312 436 (ADMINISTRATION DES MONNAIES ET MEDAILLES)<br>* column 2, line 5 *<br>* column 2, line 44 - column 3, line 10 *<br>* figures 1-3 *                                                | 3,4,5                                                |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | US-A-1 334 051 (O.L. PRIME)                                                                                                                                                                      |                                                      |                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  |                                                      | TECHNICAL FIELDS SEARCHED (Int. Cl.5)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  |                                                      | B44B<br>B21K                                  |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                  |                                                      |                                               |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                  | Date of completion of the search<br>16 NOVEMBER 1992 | Examiner<br>MOET H.J.K.                       |
| <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>.....<br>& : member of the same patent family, corresponding document |                                                                                                                                                                                                  |                                                      |                                               |