

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 569 661 A1

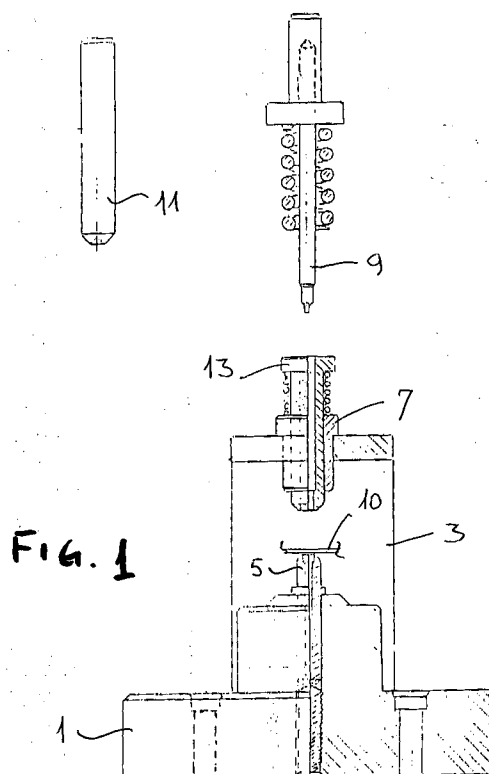
(12)

EUROPEAN PATENT APPLICATION(21) Application number: **93100668.8**(51) Int. Cl.⁵: **A44C 17/04**(22) Date of filing: **18.01.93**(30) Priority: **01.05.92 IL 101754**(43) Date of publication of application:
18.11.93 Bulletin 93/46(84) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IE IT LI NL PT
SE**(71) Applicant: **DUMAX LTD.**
27 Shoken Street
Tel Aviv 66532(IL)(72) Inventor: **Vulkan, David, c/o Dumax Ltd.**
27 Shoken Street
Tel Aviv 66532(IL)
Inventor: **Sharon, Endi, c/o Dumax Ltd.**
27 Shoken Street
Tel Aviv 66532(IL)(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano, Josif, Pisanty & Staub,
Baaderstrasse 3
D-80469 München (DE)(54) **Apparatus and method for setting gem stones.**

(57) The present invention relates to a method and to an apparatus practising said method for setting and securing a gem within jewellery. The method is semi industrial and enables setting of gem stones within sheet metal the thickness of which is between 0.7 mm and 0.10 mm.

The method for setting gem stones in metal for jewellery which comprises the steps of stamping and producing a hole in the respective metal sheet at a predetermined location where a stone is to be set and forming a roller like flange around said hole as a continuous operation of the stamping and making said hole and heating the metal part and placing a chosen gem stone within said hole which is provided with the said collar like flange and exerting pressure on said flange to close same around said stone.

The apparatus comprises a base member (1) from which extends a stamping die (5) and a support (3) in which is mounted a changeable guid (7) into which fit either stem of a hole producing tool (9) or the gem stone fixing tool (11).

**EP 0 569 661 A1**

The present invention relates to jewellery and more particularly to a method and apparatus for setting and securing gem stones in metal plates in general and in jewellery in particular.

There are known common or traditional methods of fixing and securing diamonds and precious stones in jewellery. These methods are carried out manually, and are limited to a minimal thickness of the metal sheet in which the gem stones are inserted. There does not exist any known method for securing a gem stone in a metal sheet the thickness of which is between 0.7 mm and 0.10 mm.

The present invention relates to a method and to an apparatus practising said method for setting and securing a gem within jewellery. The method is semi industrial and enables setting of gem stones within sheet metal the thickness of which is between 0.7 mm and 0.10 mm.

According to the invention there is provided a method for setting gem stones in metal for jewellery which comprises the steps of:

- a) stamping and producing a hole in the respective metal sheet at a predetermined location where a stone is to be set,
- b) forming a collar like flange around said hole as a continuous operation of the stamping and making said hole,
- c) heating the metal part,
- d) placing a chosen gem stone within said hole which is provided with the said collar like flange.
- e) exerting pressure on said flange to close same around said stone.

The invention further provides an apparatus for practising the method of setting the gem stones. The apparatus comprises a base member from which extends a stamping die, said base member is further provided with a support in which is mounted a changeable guide into which would fit either the stem of a hole producing tool or the gem stone fixing tool as will become apparent from the following description.

The invention will now be described with reference to the annexed drawings in which:

Fig 1 illustrates schematically the apparatus for practising the method according to the invention.

Fig 2 illustrates the said apparatus with a different tool.

Fig 3, a-d illustrate the steps of securing a gem stone within a metal sheet.

Turning first to Fig. 1 the apparatus according to the invention comprises a base member 1 from which extends an upright support member 3 and a stamping die 5, said stamping die may be changed in accordance with the size of the gem stone to be set. Support 3 carries a guiding unit 7 which also is changeable in accordance with the specific requirements. The apparatus further comprises a hole

stamping tool 9 which is interchangeable with a securing tool 11 as will become apparent from the following.

The sheet metal 10 is placed over the stamping die 5. A member 13 which is part of guiding unit 7 is lowered to hold the metal sheet in position. Stamping tool 9 is lowered and passed via guide 7 to punch a hole 15 in sheet 10. The penetration of tool 9 through the metal forms a collar like flange 14 (see Fig. 3b) around the circumference of the hole 15. The metal sheet is now being heated to expand the hole, so to enable the insertion of the stone into hole 15. The metal sheet is placed again over die 5 and the gem is made fast and secured by clawing the member 13. Tool 11 is now lowered through member 13 urging the gem against the collar by means of flange 14 so enclosing the stone therein.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. A method for setting gem stones in metal for jewellery which comprises the steps of:
 - a) stamping and producing a hole in the respective metal sheet at a predetermined location where a stone is to be set,
 - b) forming a collar like flange around said hole as a continuous operation of the stamping and making said hole,
 - c) heating the metal part,
 - d) placing a chosen gem stone within said hole which is provided with the said collar like flange,
 - e) exerting pressure on said flange to close same around said stone.
2. An apparatus for practising the method claimed in claim 1 which comprises a base member from which extends a stamping die, said base member is further provided with a support in which is mounted a changeable guide into which would fit either the stem of a hole producing tool or the gem stone fixing tool.
3. A method for setting gem stones in metal or jewellery, substantially as hereinbefore described and with reference to the accompanying drawings.

4. An apparatus for setting gem stones in metal or jewellery, substantially as hereinbefore described and with reference to the accompanying drawings.

5

10

15

20

25

30

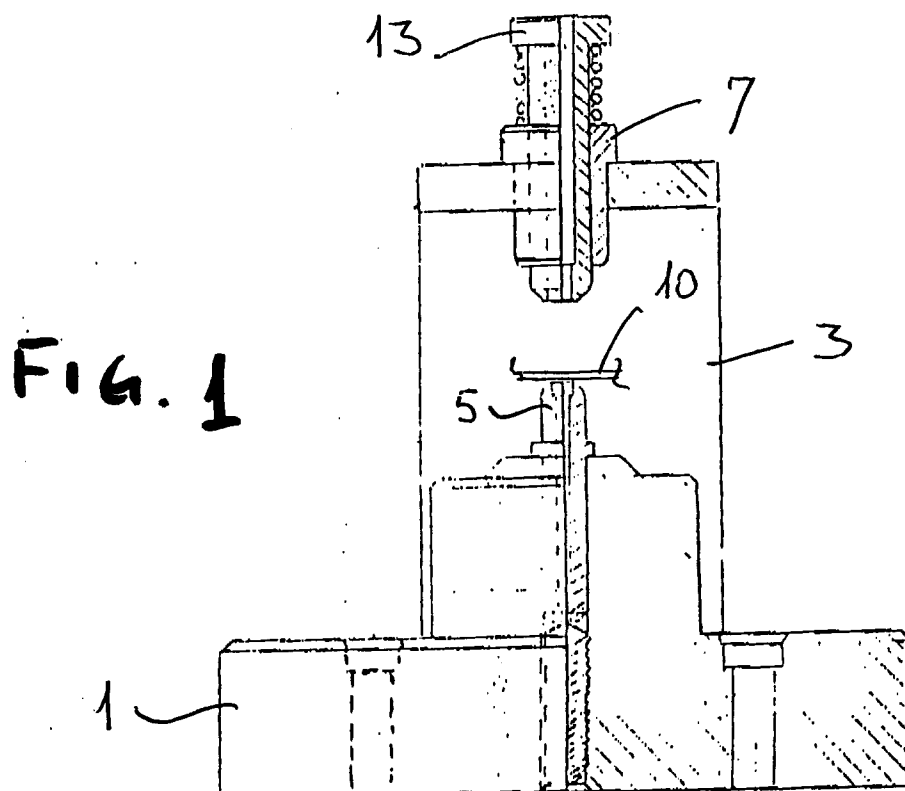
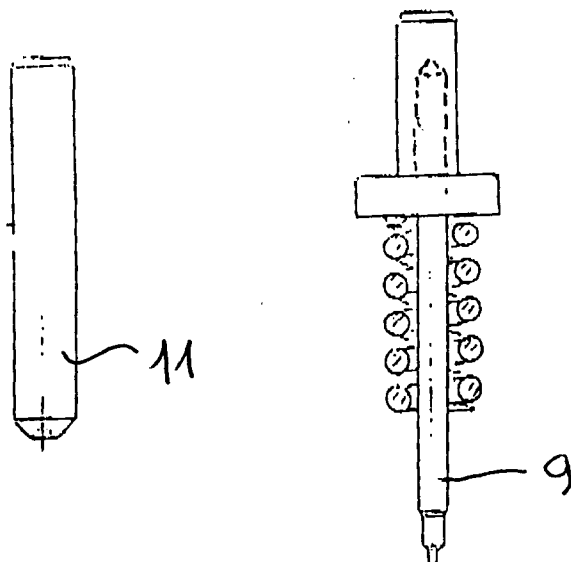
35

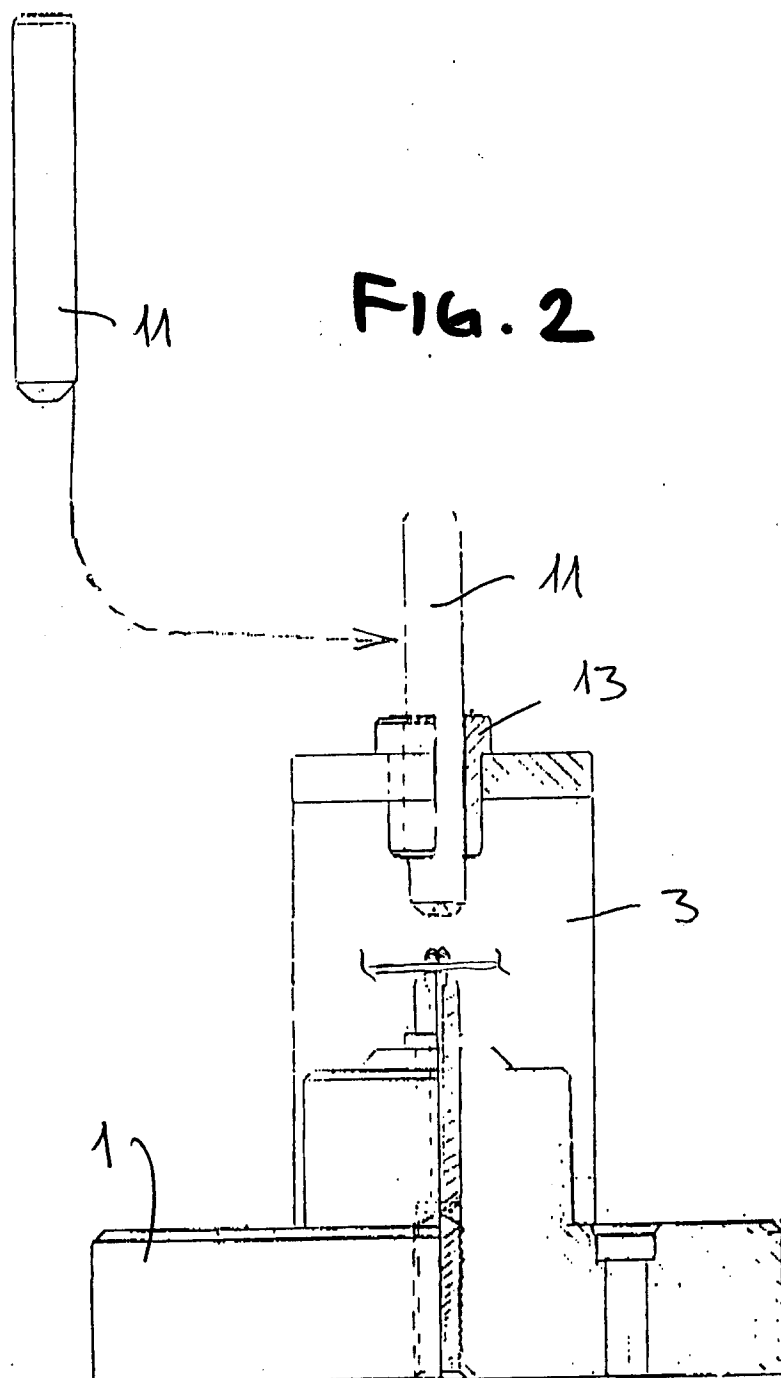
40

45

50

55





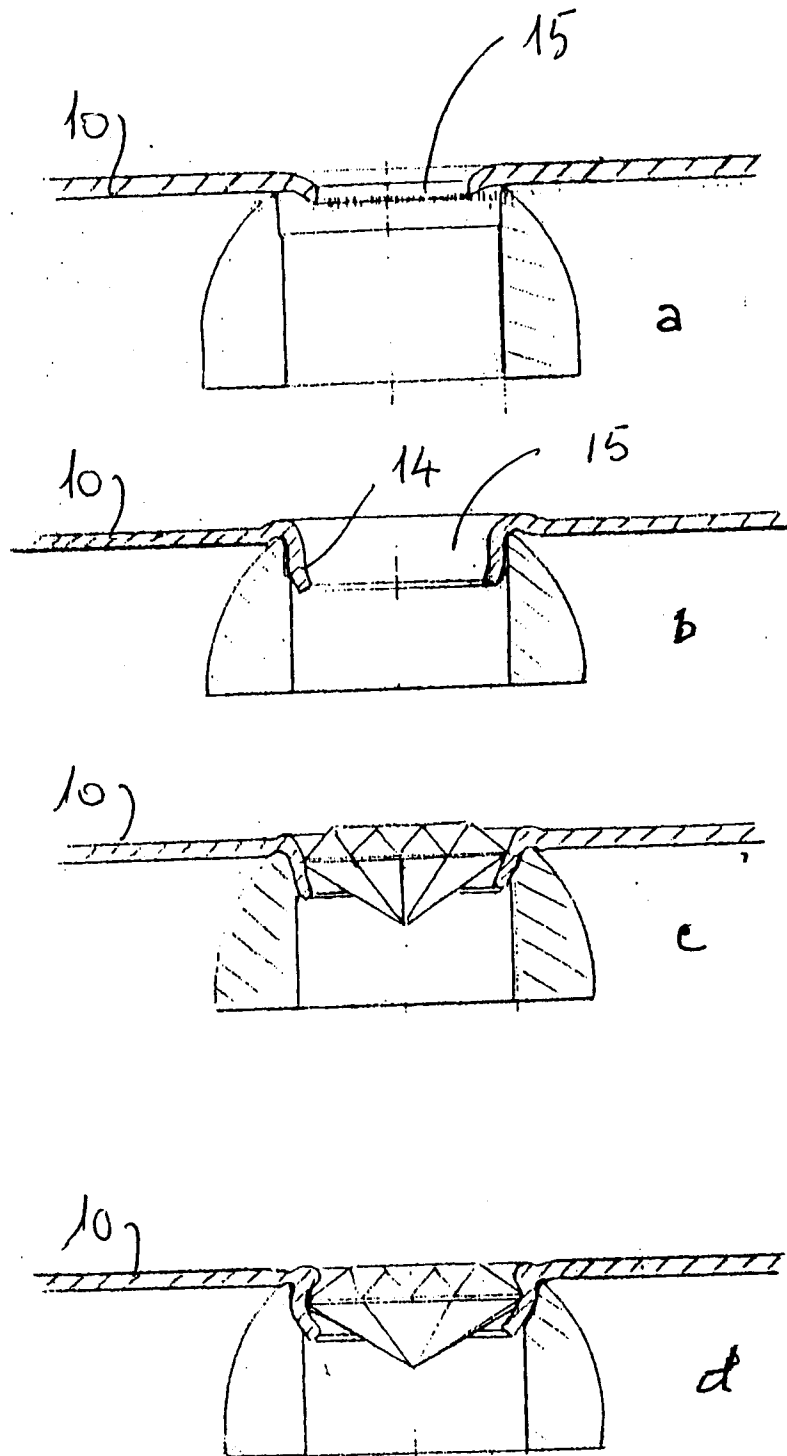


FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 93 10 0668

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)
A	EP-A-0 306 425 (DIAMANT APPLICATIONS SOCIÉTÉ) * claim 1; figure 1 * ---	1,2	A44C17/04
A	US-A-1 135 576 (H. E. GRABAU) * figures 5,7 * ---	1,2	
A	US-A-2 734 190 (R. D. DEUTSCH) * figures 1-5 * ---	1	
A	GB-A-795 965 (A. ANTHONY COAKLEY) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A44C B21D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 AUGUST 1993	Examiner FAIRBANKS S.A.
CATEGORY OF CITED DOCUMENTS 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 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 & : member of the same patent family, corresponding document			