



US005520560A

# United States Patent [19]

[11] Patent Number: **5,520,560**

Schiabel et al.

[45] Date of Patent: **May 28, 1996**

[54] **COMBINATION OF MATERIALS FOR MERCURY-DISPENSING DEVICES, METHOD OF PREPARATION AND DEVICES THUS OBTAINED**

4,464,133 8/1984 Buhner ..... 445/9

### FOREIGN PATENT DOCUMENTS

0091297 10/1983 European Pat. Off. .... 7/18  
0307037 3/1989 European Pat. Off. .... 61/28  
201360 11/1984 Japan .

[75] Inventors: **Antonio Schiabel**, Garbagnate; **Claudio Boffito**, Rho, both of Italy

*Primary Examiner*—Kenneth J. Ramsey  
*Attorney, Agent, or Firm*—Hickman Beyer & Weaver

[73] Assignee: **Saes Getters S.p.A.**, Milan, Italy

### [57] ABSTRACT

[21] Appl. No.: **393,543**

A mercury-dispensing combination suitable to release an amount of mercury higher than 60% during the activation step, even after partial oxidation, includes a mercury-dispensing intermetallic compound A with Hg and a second metal selected among Ti, Zr and mixtures thereof, as well as a promoting alloy or intermetallic compound B including Cu and a second metal selected among Sn, In or Ag or combinations thereof. There is also disclosed a mercury-dispensing device containing a combination of materials A and B, in addition to a process for introducing mercury into electron tubes consisting in the introduction of one of said devices inside the open tube and then heating thereof at a temperature between 550° and 900° C. after the tube sealing in order to get Hg free.

[22] Filed: **Feb. 23, 1995**

### [30] Foreign Application Priority Data

Feb. 24, 1994 [IT] Italy ..... MI94A0341

[51] Int. Cl.<sup>6</sup> ..... **H01J 9/395**

[52] U.S. Cl. .... **445/9; 252/181.3**

[58] Field of Search ..... **445/9, 19; 252/181.3**

### [56] References Cited

#### U.S. PATENT DOCUMENTS

3,318,649 5/1967 Keller, Jr. et al. .... 445/9  
3,722,976 3/1973 Porta et al. .... 445/9  
3,733,194 5/1973 Della Porta et al. .... 75/0.5  
4,105,910 8/1978 Evans ..... 313/490

**24 Claims, 2 Drawing Sheets**

