



Europäisches Patentamt  
European Patent Office  
Office européen des brevets

(11) Publication number:

**0 174 213**  
**A3**

(12)

## EUROPEAN PATENT APPLICATION

(21) Application number: 85306388.1

(51) Int. Cl.<sup>3</sup>: B 43 M 3/04

(22) Date of filing: 09.09.85

(30) Priority: 07.09.84 US 648407

(43) Date of publication of application:  
12.03.86 Bulletin 86/11

(88) Date of deferred publication of search report: 23.09.87

(84) Designated Contracting States:  
CH DE FR GB LI SE

(71) Applicant: BELL & HOWELL COMPANY  
6800 McCormick Road  
Chicago Illinois 60651(US)

(72) Inventor: Hams, Kenneth A.  
2300 Lone Cedar Drive  
Easton Pennsylvania 18042(US)

(74) Representative: Smith, Philip Antony et al,  
REDDIE & GROSE 16 Theobalds Road  
London WC1X 8PL(GB)

### (54) Insertion machine with gripper arm control means.

(57) An insertion machine has a plurality of gripper arms (16), each gripper arm including jaw members (24, 26) between which inserts are engaged and from which engaged inserts are released in precise placement upon transport means

Each jaw (26) is actuated by actuating means (28) acting through linkage means (30) to perform the engagement and release operations. Upon insert engagement the activation of the actuating means (28) is controlled to be dependent upon the operating speed of the insertion machine. Upon insert release the activation of each actuating means (28) is controlled so that release is delayed by three release time delay components. A first release time delay component is occasioned by a master presettable release delay means (322) which delays the release operation actuating means (28) of all insert stations in accordance with a preset input value. A second release time delay component is dependent upon the operating speed of the insertion machine. A third release time delay component, which varies from insert station to insert station depending on insert size, is occasioned by individual station presettable release delay means (338) which delays the release operation of actuating means (28) for its insert station.

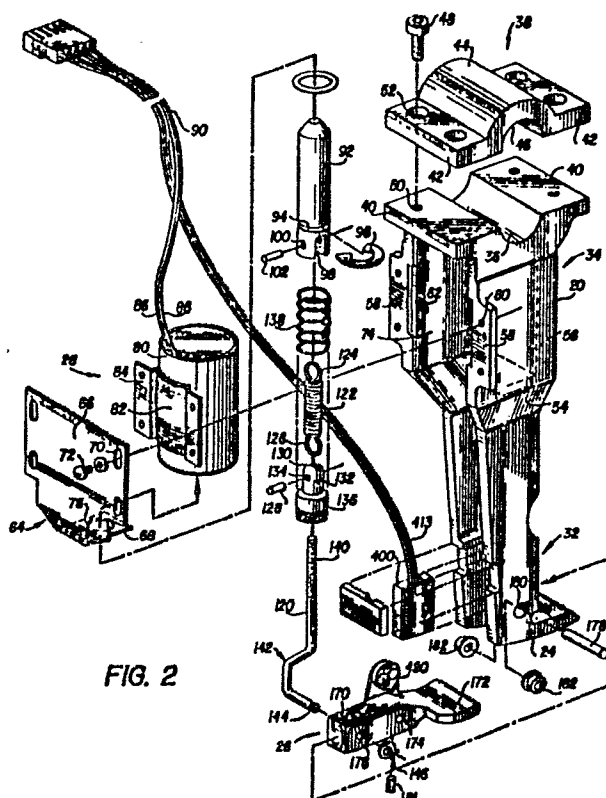


FIG. 2



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. 4)
D,X	US-A-2 325 455 (WILLIAMS) * Page 2, column 2, line 31 - page 3, column 2, line 43; page 5, column 1, line 22 - page 6, column 1, line 10; page 7, column 2, lines 20-67; page 27; column 2, lines 31-44; in particular page 5, column 2, lines 69-75 *	1	B 43 M 3/04 B 65 H 5/10
X	* IDEM, but in particular page 5, column 2, lines 69-75; page 7, column 2, lines 25-29; page 27, column 2, lines 39-44 *	6, 7, 9, 10	
Y	* IDEM *	2, 5, 8, 11	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
Y	--- US-A-4 288 966 (ATEN) * Column 1, line 1 - column 5, line 27 *	2, 5, 8, 11	B 43 M B 65 H
X	--- US-A-3 368 321 (SATHER et al.) * Column 1, lines 16-23, column 3, line 1 - column 5, line 74; in particular column 5, lines 59-74 *	1	
--- -/-			
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12-03-1987	Examiner VAN OORSCHOT J.W.M.
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			



EP 85 30 6388

DOCUMENTS CONSIDERED TO BE RELEVANT			Page 2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
P, X	US-A-4 511 130 (METROMAIL CORPORATION) * Column 1, lines 1-58; column 2, line 27 - column 4, line 16 *  -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12-03-1987	Examiner VAN OORSCHOT J.W.M.
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	