



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : A22C 11/02	A3	(11) International Publication Number: WO 90/03114 (43) International Publication Date: 5 April 1990 (05.04.90)
--	-----------	--

(21) International Application Number: PCT/US89/04142
 (22) International Filing Date: 22 September 1989 (22.09.89)
 (30) Priority data:
 251,667 29 September 1988 (29.09.88) US
 251,668 29 September 1988 (29.09.88) US
 (71) Applicant: DELAWARE CAPITAL FORMATION, INC. [US/US]; 1100 Market Street, Suite 780, Wilmington, DE 19801 (US).
 (72) Inventors: EVANS, Alfred, J. ; 433 Millbrook Road, Raleigh, NC 27606 (US). DUNIGAN, R., Clay ; Route 1, Box 232G, Benson, NC 27504 (US).
 (74) Agents: NELSON, Jon, O. et al. ; Allegretti & Witcoff, Ltd., 10 South Wacker Drive, Chicago, IL 60606 (US).

(81) Designated States: AT (European patent), AU, BE (European patent), BR, CH (European patent), DE (European patent), DK, FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent).

Published

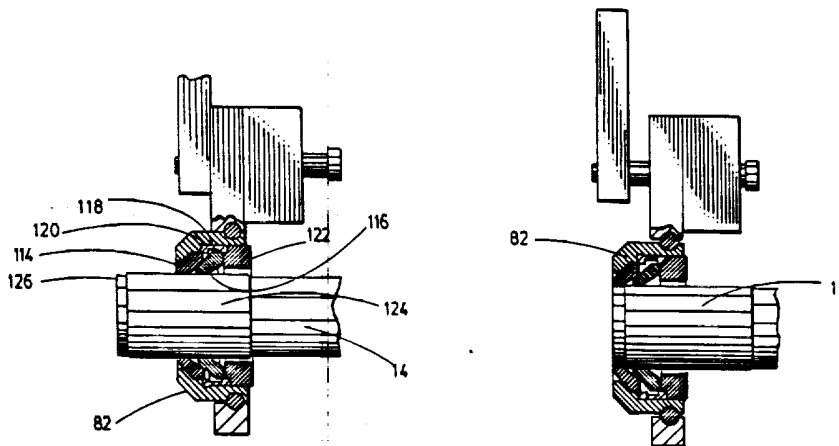
*With international search report.
 Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(88) Date of publication of the international search report: 4 April 1991 (04.04.91)

(54) Title: IMPROVED SEMI-AUTOMATIC STUFFING MACHINE, CASING BRAKE AND TURRET ASSEMBLY

(57) Abstract

An improved stuffing horn and casing brake combination (12) in a stuffing machine comprises a stuffing horn defining a second horn portion (126) with second-horn-portion outer dimensions reduced in comparison to the first-horn-portion dimensions of a first horn portion (124). A casing brake mechanism intermittently brakes the movement of casing from the stuffing horn past a horn discharge opening by applying tension to the casing on the horn, and has a first brake portion (114) and a second brake portion (116), where the brake portions have internal dimensions sized relative to the horn-portion dimensions for applying tension



to casing on the horn between both brake portions and only the first horn portion, or between only the second brake portion and the first horn portion, when either the second brake portion is, or both portions are, in a braking position relative to the first horn portion. A full braking is applied to the casing by both brake portions and a reduced braking is applied to the casing by only the second brake portion, which provides for full tension and braking during product stuffing and reduced tension and braking during product clipping. A stuffing horn turret assembly (12) includes a turret assembly body, and separate stuffing horns (14, 16, 18). A product discharge tray (26) is supported and its movement directed by a mechanical linkage.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	ES	Spain	MC	Monaco
AU	Australia	FI	Finland	MG	Madagascar
BB	Barbados	FR	France	ML	Mali
BE	Belgium	GA	Gabon	MR	Mauritania
BF	Burkina Fasso	GB	United Kingdom	MW	Malawi
BG	Bulgaria	GR	Greece	NL	Netherlands
BJ	Benin	HU	Hungary	NO	Norway
BR	Brazil	IT	Italy	PL	Poland
CA	Canada	JP	Japan	RO	Romania
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	LJ	Liechtenstein	SN	Senegal
CM	Cameroon	LK	Sri Lanka	SU	Soviet Union
DE	Germany	LU	Luxembourg	TD	Chad
DK	Denmark			TG	Togo
				US	United States of America

INTERNATIONAL SEARCH REPORT

International Application No **PCT/US 89/04142**

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁴				
According to International Patent Classification (IPC) or to both National Classification and IPC				
IPC ⁵ : A 22 C 11/02				
II. FIELDS SEARCHED				
Minimum Documentation Searched ⁷				
Classification System	Classification Symbols			
IPC ⁵	A 22 C			
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸				
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹				
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³		
A	FR, A, 2089747 (NIEDECKER) 7 January 1972 see page 5, line 6 - page 6, line 27; page 7, lines 26-35; claims 6,7 --	1-5,7,8, 12,13		
A	DE, B, 2645714 (NIEDECKER) 10 November 1977 see column 6, lines 30-40; figure 2 --	5,6		
A	EP, A, 0275487 (TEEPACK) 27 July 1988 see column 14, line 18 - column 16, line 45 --	1,9-11		
A	EP, A, 0171849 (NIEDECKER) 19 February 1986 see the whole document --	5,6		
./.				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> ¹⁰ Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; border: none; vertical-align: top;"> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "A" document member of the same patent family </td> </tr> </table>			¹⁰ Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "A" document member of the same patent family
¹⁰ Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "A" document member of the same patent family			
IV. CERTIFICATION				
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report			
21st February 1991	- 4. 02. 91			
International Searching Authority	Signature of Authorized Officer			
EUROPEAN PATENT OFFICE	<div style="border: 1px solid black; display: inline-block; padding: 2px;">M. PEIS</div> M. Peis			

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, ** with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	DE, A, 3206674 (HAGEDORN) 1 September 1983 see the whole document --	1,7,8,10-12
A	DE, A, 3214018 (HOECHST) 20 October 1983 --	
A	DE, B, 1165480 (HAUSER) 12 March 1964 --	
A	DE, A, 3206675 (HEIMBOLD) 1 September 1983 --	
A	DE, U, 8712434 (HAGEDORN) 29 October 1987 --	
A	US, A, 4023238 (PHARES) 17 May 1977 cited in the application --	
A	FR, A, 2101614 (KOLLROSS) 31 March 1972 --	
A	US, A, 4766645 (LAMARTINO) 30 August 1988 --	
X	DE, A, 1632143 (STAPELFELDT) 10 December 1970 see the whole document --	14,15
A	US, A, 4142273 (GAY) 6 March 1979 see column 3, lines 6-48 cited in the application --	16,17
A	US, A, 4709450 (STANLEY) 1 December 1987 see column 8, line 32 - column 9, line 25 --	18,19,36
A	DE, A, 2122649 (NIEDECKER) 23 November 1972 see page 4, paragraph 2 --	18,19,34,36
A	EP, A, 0024790 (BERNARD MATTHEWS) 11 March 1981 see page 8, line 15 - page 9, line 5 -- ./.	18,36

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

- A US, A, 4142273 (GAY)
6 March 1979
cited in the application
- A US, A, 4675945 (EVANS)
30 June 1987
cited in the application
- A FR, A, 2101614 (KOLLROSS)
31 March 1972
- A FR, A, 2330064 (UNION CARBIDE)
27 May 1977

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. Claim numbers because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim numbers because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim numbers because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This International Searching Authority found multiple inventions in this international application as follows:

- 1.- Claims 1-13
- 2.- Claims 14-17
- 3.- Claims 18-36

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

The additional search fees were accompanied by applicant's protest.

No protest accompanied the payment of additional search fees.

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

US 8904142
SA 31324

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on 22/02/91
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 2089747	07-01-72	AT-B- 328318	10-03-76
		CH-A- 536749	29-06-73
		DE-A, C 2018454	04-11-71
		NL-A- 7104959	19-10-71
		SE-B- 395596	22-08-77
		US-A- 3872543	25-03-75
		US-A- 3748690	31-07-73
DE-B- 2645714	10-11-77	None	
EP-A- 0275487	27-07-88	US-A- 4709450	01-12-87
		US-A- 4773128	27-09-88
		JP-A- 63258709	26-10-88
		JP-A- 63181943	27-07-88
		AU-A- 2224888	18-05-89
EP-A- 0171849	19-02-86	DE-A- 3525587	06-02-86
DE-A- 3206674	01-09-83	None	
DE-A- 3214018	20-10-83	None	
DE-B- 1165480		None	
DE-A- 3206675	01-09-83	None	
DE-U- 8712434	29-10-87	CH-A- 675947	30-11-90
		DE-A- 3819705	23-03-89
US-A- 4023238	17-05-77	AU-A- 1261176	06-10-77
		CA-A- 1058957	24-07-79
		CH-A- 603058	15-08-78
		DE-A, C 2614184	20-10-77
		FR-A, B 2333444	01-07-77
		GB-A- 1535381	13-12-78
		JP-A, B, C52070067	10-06-77
FR-A- 2101614	31-03-72	AT-B- 333141	10-11-76
		AU-B- 465659	02-10-75

EPO FORM P009

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

US 8904142

SA 31324

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 22/02/91. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 2101614		AU-A- 3558671	17-05-73
		BE-A- 769166	03-11-71
		CH-A- 554138	30-09-74
		DE-A, B 2124282	30-11-72
		GB-A- 1311443	28-03-73
		NL-A- 7109603	17-11-72
		US-A- 3805329	23-04-74
US-A- 4766645	30-08-88	JP-A- 63283534	21-11-88
DE-A- 1632143	10-12-70	None	
US-A- 4142273	06-03-79	CA-A- 1109728	29-09-81
		CH-A- 632647	29-10-82
		DE-A, C 2826596	10-05-79
		FR-A, B 2407672	01-06-79
		GB-A- 1602798	18-11-81
		JP-A, B, C 54067079	30-05-79
		SE-A- 7807042	05-05-79
US-A- 4709450	01-12-87	EP-A- 0275487	27-07-88
		JP-A- 63258709	26-10-88
		JP-A- 63181943	27-07-88
		US-A- 4773128	27-09-88
DE-A- 2122649	23-11-72	AU-A- 4183672	08-11-73
		NL-A- 7205994	09-11-72
		US-A- 3872543	25-03-75
EP-A- 0024790	11-03-81	AT-T- 1518	15-09-82
		AU-B- 535823	05-04-84
		AU-A- 5949480	08-01-81
		CA-A- 1150094	19-07-83
		CA-C- 1188563	11-06-85
		GB-A, B 2056251	18-03-81
		JP-A, B, C 56029947	25-03-81
		JP-A- 63164865	08-07-88
		US-A- 4407830	04-10-83
		US-A- 4481872	13-11-84

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

US 8904142
SA 31324

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 22/02/91. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0024790		US-A- 4663170	05-05-87
US-A- 4142273	06-03-79	CA-A- 1109728	29-09-81
		CH-A- 632647	29-10-82
		DE-A, C 2826596	10-05-79
		FR-A, B 2407672	01-06-79
		GB-A- 1602798	18-11-81
		JP-A, B, C54067079	30-05-79
		SE-A- 7807042	05-05-79
US-A- 4675945	30-06-87	None	
FR-A- 2101614	31-03-72	AT-B- 333141	10-11-76
		AU-B- 465659	02-10-75
		AU-A- 3558671	17-05-73
		BE-A- 769166	03-11-71
		CH-A- 554138	30-09-74
		DE-A, B 2124282	30-11-72
		GB-A- 1311443	28-03-73
		NL-A- 7109603	17-11-72
		US-A- 3805329	23-04-74
FR-A- 2330064	27-05-77	US-A- 4044426	30-08-77
		AT-B- 358942	10-10-80
		AU-B- 502517	26-07-79
		AU-A- 1915176	04-05-78
		BE-A- 847868	29-04-77
		CA-A- 1085227	09-09-80
		CH-A- 610493	30-04-79
		DE-A, C 2649249	12-05-77
		GB-A- 1565356	16-04-80
		JP-A, B, C52056690	10-05-77
		NL-A- 7612058	03-05-77
		SE-B- 428629	18-07-83
		SE-A- 7612072	01-05-77