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(54) Title: HIGH SPEED SLICING MACHINE

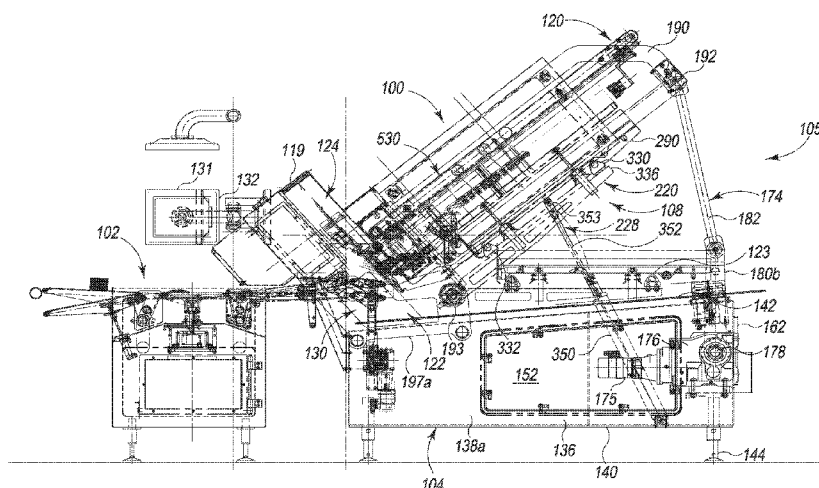


Fig. 1

(57) Abstract: A high speed food article slicing machine with a slicing station, a moveable frame supporting a food article feed mechanism frame, a food article gate, and a safety guard system for detecting an intrusion into the machine. Food articles are loaded onto a lift tray and raised to a staging position where food articles are in contact with a food article gate. The lift tray is located inline with the food article feed paths such that lateral shifting of food articles into the feed paths is not needed. Food article grippers, individually driven along feed paths by an overhead conveyor, move food articles over the food article gate towards the slicing station. The food article gate functions to assist in removal of food article end portions. The slicing machines utilizes a horizontally radiating laser intrusion detector to shut down systems when an unwanted intrusion is sensed.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/034866

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - B26D 7/06 (2011.01) USPC - 83/409 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8) - B26D 5/20, 7/06 (2011.01) USPC - 83/268, 279, 282, 409, 932 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/0120256 A1 (PASEK) 14 May 2009 (14.05.2009) entire document	6-17, 20-23, 25-26, 47, 51
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Y		1-5, 18-19, 24, 27-46, 48-50, 52-71
Y	DE 3,912,445 C2 (PREISENHAMMER) 01 August 1996 (01.08.1996) entire document	1-5, 18-19, 24, 34-46, 49-50, 54-71
Y	US 2005/0199111 A1 (SANDBERG et al) 15 September 2005 (15.09.2005) entire document	1-5
Y	US 5,191,820 A (HARTMANN) 09 March 1993 (09.03.1993) entire document	5
Y	US 2004/0055439 A1 (LINDEE et al) 25 March 2004 (25.03.2004) entire document	27-33
Y	US 4,583,435 A (FESSLER) 22 April 1986 (22.04.1986) entire document	40-42, 46, 48-49, 52-53, 59, 63, 65
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 application or patent 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 when the document is taken alone "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 "&" document member of the same patent family		
Date of the actual completion of the international search 20 December 2011		Date of mailing of the international search report 27 JAN 2012
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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

- 1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

- 2. Claims Nos.:
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. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

See extra sheet.

- 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
- 2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
- 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
- 4. 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 claims Nos.:
1-71

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

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This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-71 are drawn to a food article slicing machine.

Group II, claims 72-83 are drawn to an arrangement for minimizing slack in pneumatic tubing for pneumatically operated grippers.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical features of Group I, a knife blade and a knife blade drive driving the blade along a cutting path; and a food article feed apparatus, are not present in Group II; and the special technical features of Group II, a weighted roller moveable along a longitudinal guide slot, said weighted roller in contact with pneumatic tubing, are not present in Group I.

Since none of the special technical features of the Groups I and II inventions is found in more than one of the inventions, unity is lacking.