



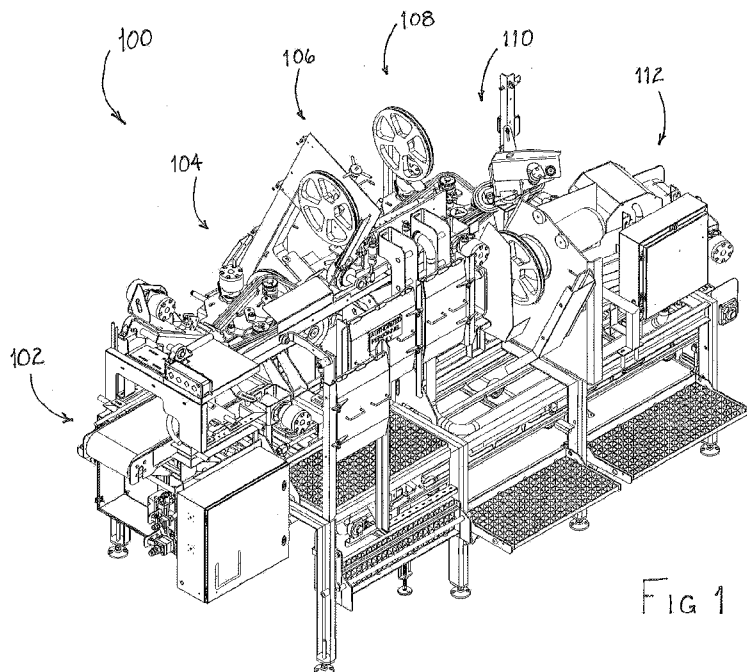
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR PROCESSING A NECK BONE



(57) Abstract: A system and method that is adapted to remove portions of a neck-bone that are useful for meat recovery systems. These most useful portions of the neck bone structure are the outer edges distal from the core of the bone that have meat attached to them. The useful portions on the outer edges distal from the core can be safely removed and subsequently processed in downstream processes such as mechanical separators (bone cannons) or hand trimmed. The overall system contains series sub systems to process neck-bones. The subsystems includes, a Product Infeed; a Chain Drive System; a Cutting Apparatus; a Cat Chain; a Core Extractor System; and a Conveyor Washing System.

FIG 1



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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18 October 2012

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/24586

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A22C 17/04 (2012.01) USPC - 452/180 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) USPC:452/180 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC:452/135, 149, 177, 178, 179; A22C17/00, 17/02, 17/04 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST: PGPB,USPT,EPAB,JPAB,DWPI,TDBD; Google Scholar Search Terms: bone, meat, carcass, slaughter, animal part, conveyor, guide, rod, rail, featherbone, neck, sprocket wheel, flange, align, spring load, saw, blade, drive, chain		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,639,972 A (Martin et al.) 03 February 1987 (03.02.1987) entire document, especially fig 1, 2; col 3, ln 16-37	1-20
A	US 5,746,648 A (Boeyen et al.) 05 May 1998 (05.05.1998) entire document, especially fig 1, 2; col 3, ln 7-50	1-20
A	US 6,152,815 A (Meerdink et al.) 28 November 2000 (28.11.2000) entire document, especially fig 1; col 2, ln 23-42	1-20
A	US 7,635,294 B2 (Tomcak et al.) 22 December 2009 (22.12.2009) entire document, especially fig 3, 4; col 7, 57-col 8, ln 48	1-20
A	US 6,354,933 B1 (Archambault et al.) 12 March 2002 (12.03.2002) entire document, especially fig 2, 3; col 5, ln 6-40	1-20
A	US 4,918,788 A (Passchier) 24 April 1990 (24.04.1990) entire document.	1-20
A	US 4,987,642 A (Villemin et al.) 29 January 1991 (29.01.1991) entire document.	1-20
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		
* 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 09 August 2012 (09.08.2012)	Date of mailing of the international search report 17 AUG 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: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/24586

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,750,231 A (Schreuder) 07 August 1973 (07.08.1973) entire document.	1-20
A	US 4,424,608 A (Martin) 10 January 1984 (10.01.1984) entire document.	1-20
A	US 5,425,668 A (Martin et al.) 20 June 1995 (20.06.1995) entire document.	1-20
A	US 5,045,024 A (Diesing) 03 September 1991 (03.09.1991) entire document.	1-20
A	US 6,023,296 A (Lee et al.) 08 February 2000 (08.02.2000) entire document.	1-20
A	US 5,938,517 A (Vineyard et al.) 17 August 1999 (17.08.1999) entire document.	1-20
A	US 6,811,478 B2 (Van den Nieuwelaar et al.) 02 November 2004 (02.11.2004) entire document.	1-20
A	US 7,500,910 B2 (Sorensen et al.) 10 March 2009 (10.03.2009) entire document.	1-20
T	US 8,231,443 B1 (Tomcak et al.) 31 July 2012 (31.07.2012) entire document.	1-20

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 continuation 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.:
1-20

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.

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Continuation of Box III:

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.

Group I: claims 1-20 directed to an apparatus for processing a neck bone for meat recovery

Group II: claims 21, 23 directed to a method for processing a neck bone for meat recovery

Group III: claims 24-25 directed to an apparatus for processing a neck bone for meat recovery

The groups of inventions above 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 feature of the Group I claims is a set of guide rods laterally spaced and gradually reducing in spacing, which is not present in the claims of Group II or III.

The special technical feature of the Group II claims is flattened guide rails vertically spaced and parallel and saws, which is not present in the claims of Group I or III.

The special technical feature of the Group III claims is a cat chain with lateral flanges and cleats forming a capture space, which is not present in the claims of Group I or II.

Groups I-III share the technical feature of a conveyor for neck bones. This generic feature does not avoid the prior art, as evinced by US 2008/0026684 A1 to Tomcak et al which notably teaches a meat and bone processing facility having conveyor and guide means for handling neck bones (para [0072]).

Therefore, the listed inventions lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.