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1215 (US). MITTAL, Ankush [IN/US]; 3600 West Lake Avenue, Glenview, IL 60026 (US).

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[Continued on next page]

(54) Title: IMPROVED SHEETING HEAD

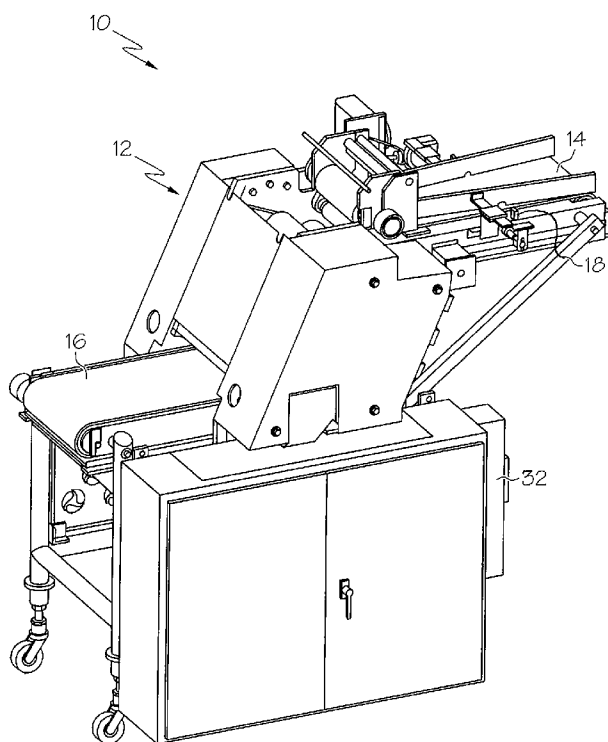


FIG. 1

(57) Abstract: Sheetting head apparatus (10) for rolling and flattening a quantity of dough, includes a sheeting head (12), an infeed conveyor (14), and an outfeed conveyor (16). The sheeting head (12) defines a dough path (44) therethrough and includes a plurality of opposed roller pairs (46, 48, 50, 52, 54, 56). The first roller of each roller pair (46, 50, 54) is mounted for rotation and for independent movement toward and away from, the dough path (44). The infeed conveyor (14) conveys a quantity of dough to the sheeting head (12). A sensor (28, 30), adjacent the infeed conveyor (14), senses an unduly thick or double quantity of dough being conveyed to the sheeting head (12). A control is responsive to the sensor (28, 30) and causes the sheeting head (12) to move the first roller of each roller pair (46, 50, 54) away from the dough path (44). Undesired jamming of the sheeting head (12) is prevented. Each of the rollers may be coated with a coating of polytetrafluoroethylene and nickel co-deposits in a high phosphorous electroless nickel matrix. The coating has a thickness of substantially between 0.002 inches and 0.003 inches, with a Rockwell hardness of substantially 65 to 75 on the C scale.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

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6 August 2009

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 074743-00010	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2008/078552	International filing date (day/month/year) 02/10/2008	(Earliest) Priority Date (day/month/year) 04/10/2007
Applicant ILLINOIS TOOL WORKS INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☐ the text is approved as submitted by the applicant
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
☒ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
b. ☐ none of the figures is to be published with the abstract

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Sheeting head apparatus (10) for rolling and flattening a quantity of dough, includes a sheeting head (12), an infeed conveyor (14), and an outfeed conveyor (16). The sheeting head (12) defines a dough path (44) therethrough and includes a plurality of opposed roller pairs (46, 48, 50, 52, 54, 56). The first roller of each roller pair (46, 50, 54) is mounted for rotation and for independent movement toward and away from the dough path (44). The infeed conveyor (14) conveys a quantity of dough to the sheeting head (12). A sensor (28, 30), adjacent the infeed conveyor (14), senses an unduly thick or double quantity of dough being conveyed to the sheeting head (12). A control is responsive to the sensor (28, 30) and causes the sheeting head (12) to move the first roller of each roller pair (46, 50, 54) away from the dough path (44). Undesired jamming of the sheeting head (12) is prevented. Each of the rollers may be coated with a coating of polytetrafluoroethylene and nickel co-deposits in a high phosphorous electroless nickel matrix. The coating has a thickness of substantially between .0002 inches and .0003 inches, with a Rockwell hardness of substantially 65 to 75 on the C scale.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A21C3/02

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)
A21C

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005/027645 A (APV SYSTEMS LTD [GB]; HILES DAVID ROBERT [GB]; FRANCIS ROBERT [GB]; AN) 31 March 2005 (2005-03-31) figure 1 page 1, line 2 - line 5 page 1, line 16 - line 19 page 3, line 3 - line 4 page 3, line 15 - line 18 page 7, line 11 - page 8, line 21 page 9, line 16 - line 18 page 10, line 18 - line 19 ----- -/--	1, 2, 10

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* 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 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.

G document member of the same patent family

Date of the actual completion of the international search

9 March 2009

Date of mailing of the international search report

25/06/2009

Name and mailing address of the ISA/

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Hauck, Gunther

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/078552

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 164 600 A (TWEEDY OF BURNLEY LTD TWEEDY OF BURNLEY LTD [GB]) 26 March 1986 (1986-03-26) page 1, line 5 - line 7 page 1, line 84 - line 97 page 1, line 126 - page 2, line 4 figure 1	1,10
A	EP 0 182 563 A (NABISCO BRANDS INC [US]) 28 May 1986 (1986-05-28) page 1, line 2 - line 5 page 7, line 9 - page 8, line 25 page 11, line 2 - line 5 page 12, line 10 - line 30 page 13, line 23 - page 14, line 13 figure 1	1,10
A	US 3 476 058 A (WATKIN DAVID ANTHONY ET AL) 4 November 1969 (1969-11-04) column 1, line 32 - line 53 column 2, line 12 - line 20 column 2, line 52 - column 3, line 3 column 3, line 28 - line 62 column 4, line 12 - line 24 column 4, line 70 - column 5, line 2 figure 1A	1,2, 10-12
A	WO 95/28087 A (APV PLC [GB]; COBB WILLIAM CHARLES [GB]; SNELL RICHARD ERNEST [US]) 26 October 1995 (1995-10-26) page 1, line 1 - line 3 page 1, line 27 - page 2, line 23 page 4, line 24 - page 5, line 24 page 6, line 10 - page 7, line 18 figures 1,3	1,10
A	EP 0 270 497 A (SEEWER AG MASCHF [CH]) 8 June 1988 (1988-06-08) column 1, line 1 - line 16 column 1, line 47 - line 50 column 3, line 20 - line 28 figures 1,3-6	1,10
A	NL 9 402 026 A (WERNER & PFLEIDERER HATON BV [NL]) 1 July 1996 (1996-07-01) figure 2 page 1, line 1 - line 9 page 1, line 37 - page 2, line 10	1,10

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 additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an 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 reportcovers 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.:

1-6, 10-14

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 10-14

Sheeting apparatus with variable gaps between roller pairs
controlled by infeed sensor

2. claims: 7-9

Sheeting head featuring rolls with a coating of
polytetrafluoroethylene and nickel co-deposits

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/078552

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2005027645	A	31-03-2005	NONE	
GB 2164600	A	26-03-1986	NONE	
EP 0182563	A	28-05-1986	AU 4901085 A ES 8800822 A1 JP 61181332 A	29-05-1986 16-02-1988 14-08-1986
US 3476058	A	04-11-1969	DE 1532320 A1 GB 1166454 A	29-10-1970 08-10-1969
WO 9528087	A	26-10-1995	AU 2218195 A	10-11-1995
EP 0270497	A	08-06-1988	AU 598609 B2 AU 8168387 A CA 1302789 C DE 3641286 A1 JP 63148926 A PT 86254 A US 4876098 A	28-06-1990 09-06-1988 09-06-1992 16-06-1988 21-06-1988 01-01-1988 24-10-1989
NL 9402026	A	01-07-1996	NONE	