

Diego Gonzalez Castillo

1) Family number: 73932735 (UA118916 C2)

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Title: A NOTE SORTER RENTGENOOPTYCHNYY GRAINS (Machine translation)

Abstract: Source: UA118916 C2 **Machine translation:** Declared invention relates to agricultural production, agro-industrial enterprises, as well as production of polymeric materials. A note sorter rentgenooptychnyy grain contains beds, tank vibrozhyvlynyk, italic trench, optical booth where CCD factoring- and N1R-camera, sources of visible and infrared radiation from reflektoramy background, gadgets recognition and electronic circuits of their implementation, the appliance to remove nekondytsynogo sensors, nipples to evacuate dedicated factions, in accordance with the invention, before optical cameras installed x-ray tube with kolimatorom, opposite which two L-shaped semiconductor detector design, electrically connected with the electronic circuit software means face nekondytsynogo grain. Technical result: the ability to sort the material is not only for makroposhkodzhennyamy, as well as mikroposhkodzhennyamy ferments germination of seeds and uniformity of growth and quality of the material.

Classifications:

International (IPC 8-9): B07C5/342 B07C5/36 G01N21/27 G01N21/85 G01N21/88

Family:

Publication number	Publication date	Application number	Application date
UA118916 C2	20190325	UA20170008343	20170814

Priority:

UA20170008343 20170814

Assignee(s): НАЦІОНАЛЬНИЙ НАУКОВИЙ ЦЕНТР "ІНСТИТУТ МЕХАНІЗАЦІЇ ТА ЕЛЕКТРИФІКАЦІЇ СІЛЬСЬКОГО ГОСПОДАРСТВА" НАЦІОНАЛЬНОЇ АКАДЕМІЇ АГРАРНИХ НАУК УКРАЇНИ

Inventor(s): АДАМЧУК ВАЛЕРІЙ ВАСИЛЬОВИЧ ; СТЕПАНЕНКО СЕРГІЙ ПЕТРОВИЧ ; ШВИДЯ ВІКТОР ОЛЕКСАНДРОВИЧ

2) Family number: 30735148 (US2004141641 AA)

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Title: SEED IMAGE ANALYZER

Abstract: Computer imaging systems are employed to image, analyze, classify and/or sort seeds and other agricultural items. The systems may be local and/or remote, serial and/or parallel processing, employing various classification schemes including Fisher Linear Discriminant processing and various hardware including a color, digital scanner. It is emphasized that this abstract is provided to comply with the rules requiring an abstract that will allow a searcher or other reader to quickly ascertain the subject matter of the application. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. 37 CFR 1.72(b).

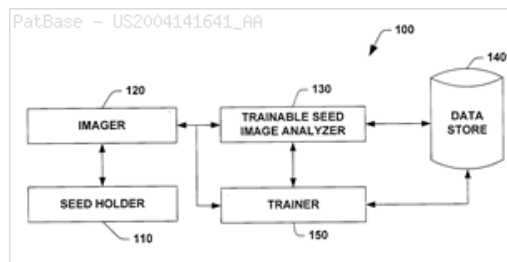
Classifications:

International (IPC 8-9): G06K9/00

International (IPC 1-7): G06F G06K9/00 G06K9/62

CPC: G06K2209/17 G06K9/00127

US: 382/141 382/141S 382/159 382/159P



Family:

Publication number	Publication date	Application number	Application date
US2004141641 AA	20040722	US20030348417	20030121
WO04066083 A2	20040805	WO2004US01464	20040121
WO04066083 A3	20041209	WO2004US01464	20040121

Priority:

US20030348417 20030121

Probable Assignee: OHIO STATE UNIV RESEARCH FOUNDATION

Assignee(s): (std): DAOUST TIMOTHY ; EVANS ANDREW F ; FUJIMORA KIKUO ; MCDONALD MILLER BAIRD JR ; UNIV OHIO STATE RES FOUND

Assignee(s): FUJIMURA KIKUO ; MCDONALD MILLER BAIRD ; OHIO STATE UNIV ; OHIO STATE UNIV RESEARCH FOUNDATION ; THE OHIO STATE UNIVERSITY RESEARCH FOUNDATION

Inventor(s): (std): DAOUST TIMOTHY ; EVANS ANDREW F ; FUJIMORA KIKUO ; FUJIMURA KIKUO ; MCDONALD MILLER BAIRD ; MCDONALD MILLER BAIRD JR

Inventor(s): ANDREW F EVANS ; KIKUO FUJIMURA ; MILLER BAIRD MCDONALD ; TIMOTHY DAOUST

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: MACHINE OBESKRYLIVANIYA, cleaning and sorting of SEEDS (Machine translation)

Abstract: Source: RU2008137103 A **Machine translation:** Obeskrylivaniya machine, cleaning and sorting of forest seeds, including the frame, on which are the hopper, the cylindrical brush obeskrylivatel with elements in the form attached to the shaft obeskrylivatelya radial rod holders with pencils pile of length equal to the length obeskrylivatelya, Air line systems, sieve Drum-sorter, a fan, sedimentary camera mechanism for cleaning the drum-sorter, wherein the mechanism for cleaning the drum-sorter is in the form of elastic-elastic roller mounted on the outside of the drum-sorter parallel to the longitudinal axis of the drum-sorter.

Classifications:

International (IPC 8-9): A01C1/00 B07B1/18

Family:

Publication number	Publication date	Application number	Application date
RU2008137103 A	20100327	RU20080137103	20080917

Priority:

RU20080137103 20080917

Probable Assignee: SHABUNIN ANDREY

Assignee(s): SHABUNIN ANDREY ; SVIRIDOV LEONID TIMOFEEVICH ; СВИРИДОВ ЛЕОНИД ТИМОФЕЕВИЧ ; Свиридов Леонид Тимофеевич (RU) ; ШАБУНИН АНДРЕЙ ВЛАДИМИРОВИЧ ; Шабунин Андрей Владимирович (RU)

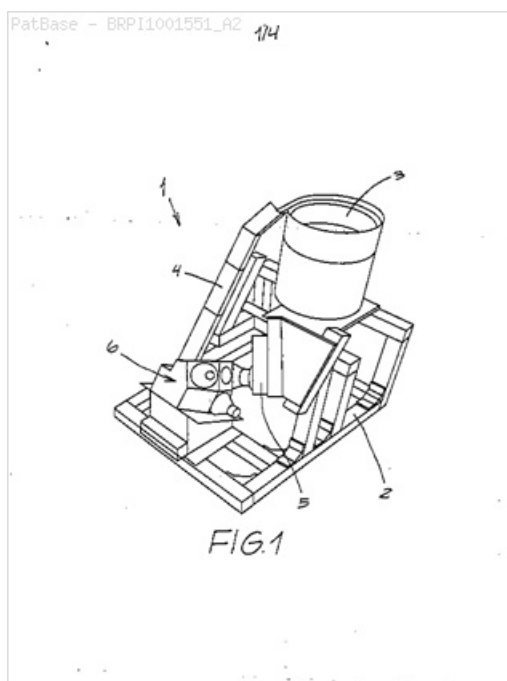
Inventor(s): СВИРИДОВ ЛЕОНИД ТИМОФЕЕВИЧ ; Свиридов Леонид Тимофеевич (RU) ; ШАБУНИН АНДРЕЙ ВЛАДИМИРОВИЧ ; Шабунин Андрей Владимирович (RU)

Title: Grains sorter equipment for establishing quality (Machine translation)

Abstract: Source: BRPI1001551 A2 **Machine translation:** Qualified teams of grain for quality establishment. (1) That provides queuing, spacing and orientation of grains (G) allowing them to be examined individually and in free fall, besides the analysis of all the grain surface (G), made possible because the grain (G) go through a period of free fall and allows greater precision in the results of the analysis, specific configurations and get the very special member of the software tools of the camera (5), entitled "Job ", with advantages such as three-dimensional analysis of the grain (G) providing greater precision, elimination of subjectivity exists in the traditional process of classification, analysis of samples without the need to weigh, ability to undertake analysis of several types of features, such as defects staining, polishing grade and size, and in the case of classification of rice grains, the same equipment can be used for classification of white rice and parboiled; regularity in grade, and greater flexibility in setting fixes the beneficiation process.

Classifications:

International (IPC 8-9): B03B13/00



Family:

Publication number	Publication date	Application number	Application date
BRPI1001551 A2	20120124	BR2010PI01551	20100520

Priority:

BR2010PI01551 20100520

Probable Assignee: SELGRON IND LTDA

Assignee(s): (std): SELGRON IND LTDA

Assignee(s): SELGRON INDUSTRIAL LTDA

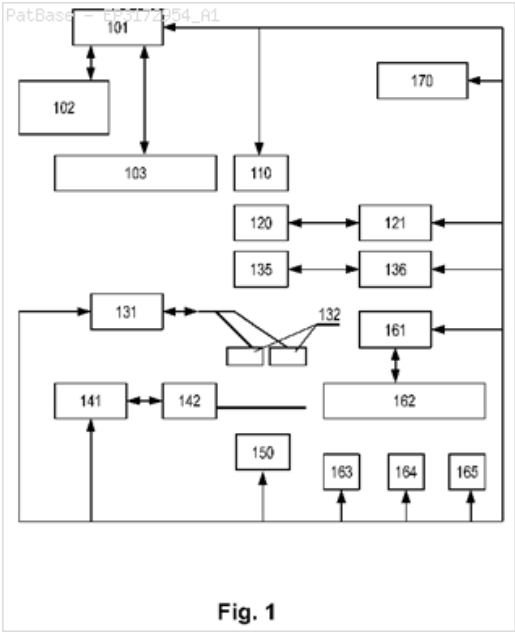
Inventor(s): (std): BIEGING CARLOS AUGUSTO
Inventor(s): CARLOS AUGUSTO BIEGING

5) Family number: 65818949 (EP3172954 A1) © PatBase

Title: A SYSTEM FOR AUTOMATIC SCARIFICATION AND ASSESSMENT OF VITALITY OF SEEDS AND A METHOD FOR AUTOMATIC SCARIFICATION AND ASSESSMENT OF VITALITY OF SEEDS

Abstract: A system for automatic scarification and assessment of viability of seeds, characterized in that it comprises an input container (102) for the seeds, connected to an input of a seed transportation path that comprises the following elements arranged in the following sequence: a feeder (103), a length and orientation detector (110), a rotator (120), a positioner (135), a gripper (132), a scarifier (142), a mummification changes detector (150) and a sorter (162) at the output of the path and coupled with seed containers (163, 164, 165).

Classifications:
International (IPC 8-9): A01C1/02 A01C1/06 G01N1/04 G01N35/00
CPC: A01C1/025 G01N35/0099



Family:

Publication number	Publication date	Application number	Application date
DE602015015405 D1	20180927	DE201560015405T	20151130
EP3172954 A1	20170531	EP20150196982	20151130
EP3172954 B1	20180829	EP20150196982	20151130
PL228904 B1	20180530	PL20150414969	20151129
PL3172954 T3	20190329	PL20150196982T	20151130
PL414969 A1	20170605	PL20150414969	20151129

Priority:

PL20150414969 20151129 EP20150196982 20151130

Probable Assignee: AKADEMIA GORNICZO HUTNICZA IM STANISLAWA STASZICA W KRAKOWIE

Assignee(s): (std): AKADEMIA GORNICZO HUTNICZA IM STANISLAWA STASZICA W KRAKOWIE ; PRZEMYSLOWY INST MASZ ROLNICZYCH ; UNIV ROLNICZY IM HUGONA KOLLATAJA W KRAKOWIE

Assignee(s): AKADEMIA GORNICZO-HUTNICZA IM. STANISLAWA STASZICA W KRAKOWIE ; PRZEMYSLOWY INST MASZYN ROLNICZYCH ; PRZEMYSLOWY INSTYTUT MASZYN ROLNICZYCH ; UNIWERSYTET ROLNICZY IM HUGONA KOLLATAJA W KRAKOWIE ; UNIWERSYTET ROLNICZY IM. HUGONA KOŁŁATAJA W KRAKOWIE

Inventor(s): (std): ADAMCZYK FLORIAN ; FRACKOWIAK PAWEŁ ; JABLONSKI MIROSLAW ; JABLONSKI ZBIGNIEW ; JULISZEWSKI TADEUSZ ; KIELBASA PAWEŁ ; KLOCEK JAKUB ; MIKRUT ZBIGNIEW ; PILAT ADAM ; PRZYBYŁO JAROMIR ; SZCZEPANIAK JAN ; TADEUSIEWICZ RYSZARD ; TURNAU ANDRZEJ ; TYLEK PAWEŁ ; WACHALSKI GRZEGORZ ; WALCZYK JOZEF

Inventor(s): FRACKOWIAK PAWEŁ ; JABŁOŃSKI ZBIGNIEW ; JABŁOŃSKI, MIROSLAW ; KIELBASA PAWEŁ ; PIŁAT ADAM ; PRZYBYŁO JAROMIR ; TYLEK PAWEŁ ; WACHALSKI GRZEGORZ

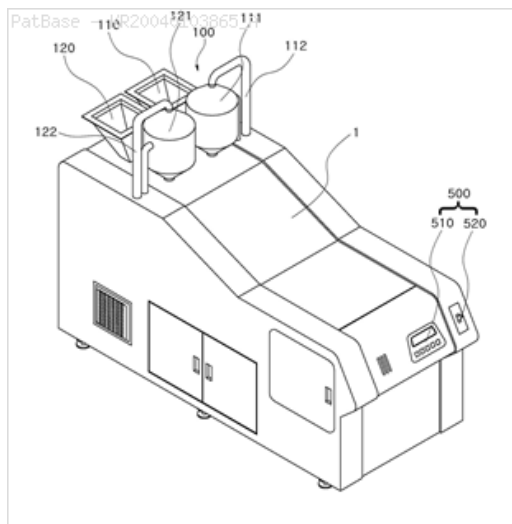
Agent(s): KANCELARIA EUPATENTPL SP ZOO

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

6) Family number: 33881522 (KR20040103865 A) © PatBase

Title: GRAIN SORTER FOR SORTING BAD QUALITY GRAINS USING CAMERA AND AIR BLOWER

Abstract: PURPOSE: A grain sorter is provided to minimize a failure rate of sorting, to finally sort only bad quality grains, and to prevent damage of grains by conveying them using air blow. CONSTITUTION: The grain sorter includes a supply device(100), a carrying device, a sorting device, an air circulation device, and control device(500). The supply device has first and second hoppers(110, 120) and first and second storage tanks(111, 121) to supply grains. The carrying device aligns and carries the grains transferred through a screen and a magnetic sorter by use of a conveyor. The sorting device checks whether the grains dropped from the conveyor are of bad quality using a camera and if detected, it sorts the detected grains using an air gun. The air circulation device sucks the sorted grains through a blower and carries the same to the second storage tank. The control device controls an operation of the operational speed of the conveyor and an operation of the magnetic sorter and the blower.

Classifications:**International (IPC 8-9):** B07B4/00 B07B4/02 B07B7/00 B07B7/12**International (IPC 1-7):** B07B4/02 B07B7/12**CPC:** B07B13/04 B07B13/16 B07B4/02 B07B7/12**Family:**

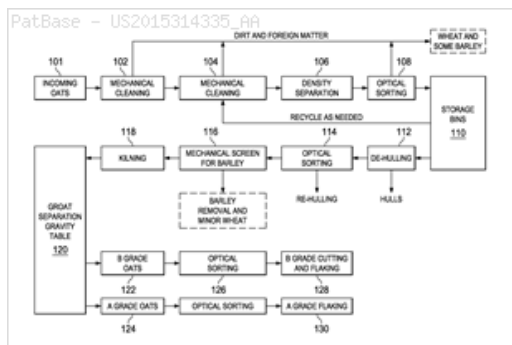
Publication number	Publication date	Application number	Application date
KR100650306 B1	20061206	KR20040094454	20041118
KR20040103865 A	20041209	KR20040094454	20041118

Priority:

KR20040094454 20041118

Probable Assignee: RICE IND CO LTD**Assignee(s):** (std): JUNG SI HO ; RICE IND CO LTD ; RICE INDUSTRY CO LTD**Assignee(s):** (주) 라이스산업 ; RICE IND CO ; 정시호 ; 주 라이스산업**Inventor(s):** (std): JUNG SI HO**Inventor(s):** 정시호**Agent(s):** 박해봉**7) Family number: 60721567 (US2015314335 AA)**

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Title: METHOD AND SYSTEM FOR PRODUCING REDUCED GLUTEN OAT MIXTURE**Abstract:** A method and system is disclosed which uses a combination of optical and mechanical separation processes to remove gluten-containing grains from a mixture of oat kernels.**Classifications:****International (IPC 8-9):** A23L1/168 A23L7/10 A23L7/143 B02B1/02 B02B5/02 B07B13/02 B07B13/11 B07B15/00 B07B9/00 B07C5/342 B07C5/36**CPC:** A23L7/197 B07B13/113 B07B15/00 B07B9/00 B07C5/3425 B07C5/363 B07B13/02 B07C2501/0018**US:** 1/1 209/3.1 426/482**Family:**

Publication number	Publication date	Application number	Application date
AU2015252972 AA	20161222	AU20150252972	20150501
AU2015252972 BB	20170112	AU20150252972	20150501
BR112016025217 A2	20170815	BR20161125217	20150501
CA2947286 AA	20161027	CA20152947286	20150501
CA2947286 C	20170404	CA20152947286	20150501
DE602015040371 D1	20191114	DE201560040371T	20150501
EP3139771 A1	20170315	EP20150785796	20150501
EP3139771 A4	20180425	EP20150785796	20150501
EP3139771 B1	20191023	EP20150785796	20150501
US10034490 BB	20180731	US20150308565	20150501
US2015314335 AA	20151105	US20150701205	20150430
US2017079315 AA	20170323	US20150308565	20150501
US9364866 BB	20160614	US20150701205	20150430
WO15168495 A1	20151105	WO2015US28698	20150501

Priority:

US20140987835P 20140502

US20150701205 20150430

WO2015US28698 20150501

EP20150785796 20150501

US20150308565 20150501

Probable Assignee: QUAKER OATS CO**Assignee(s):** (std): QUAKER OATS CO

Assignee(s): DAVIS BRIAN ; DREES BRIAN ; GRIEBAT JOSEPH ; QUAKER OATS CO CHICAGO
Inventor(s): (std): BRIAN DAVIS ; BRIAN DREES ; DAVIS BRIAN ; DREES BRIAN ; GRIEBAT JOSEPH ; JOSEPH GRIEBAT
Inventor(s): DAVIS BRIAN CEDAR RAPIDS ; DREES BRIAN CEDAR RAPIDS ; GRIEBAT JOSEPH MECHANICSVILLE
Agent(s): CARSTENS AND CAHOON LLP; COLIN P; GOURLEY JAMES R; JAMES R; JENKINS PETER DAVID; MACRAE AND CO; SPRUSON AND FERGUSON; WILSON PETER DAVID GEORGE
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

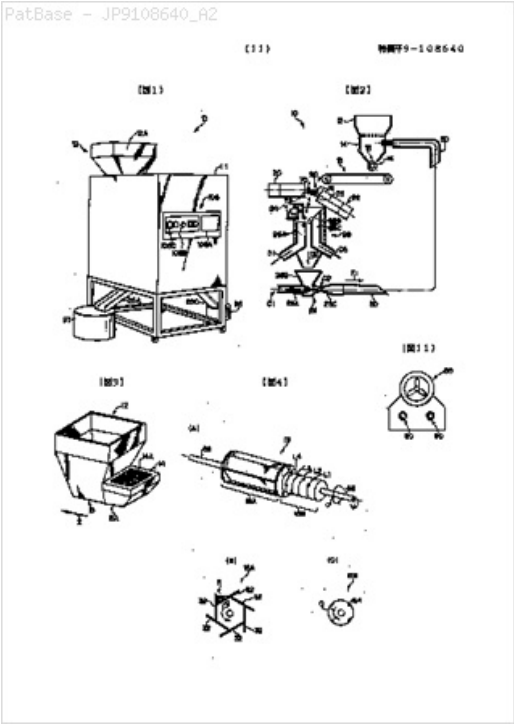
8) Family number: 12545958 (JP9108640 A2) © PatBase

Title: GRAIN SORTER

Abstract: PROBLEM TO BE SOLVED: To improve sorting accuracy by making it possible to distinctly pickup the images of grains, etc. SOLUTION: The front and rear surfaces of the grains 90, etc. are respectively photographed by a front camera 20 and a rear camera 22 when the grains 90, etc. fall down to a prescribed position F from a belt conveyor 18. At this time, U-shaped fluorescent lamps 70, 74 are disposed in front of the front camera 20 and the rear camera 22. The grains 90, etc. arriving at a position F are, therefore, uniformly and evenly illuminated with a sufficient light quantity by the light emitting regions 72A, 72B, 76A, 76B facing each other of the fluorescent lamps 70, 74. The front and rear surfaces of the grains 90, etc. are distinctly photographed by the cameras 20, 22 through the spacings 72C, 76C of the fluorescent lamps 70, 74 under this illumination.

Classifications:

International (IPC 8-9): B07C5/34 B07C5/342 G01J3/46 G01N21/85
International (IPC 1-7): B07C5/342 G01J3/46 G01N21/85



Family:

Publication number	Publication date	Application number	Application date
JP2862822 B2	19990303	JP19950271558	19951019
JP9108640 A2	19970428	JP19950271558	19951019

Priority:

JP19950271558 19951019

Probable Assignee: YAMAMOTO MFG

Assignee(s): (std): YAMAMOTO MFG

Assignee(s): YAMAMOTO MFG CO LTD ; YAMAMOTO SEISAKUSHO KK ; 株式会社山本製作所

Inventor(s): (std): GOTO TSUNEYOSHI ; YAMAMOTO SOICHI ; YUKI TSUNEMI

Inventor(s): YUKI TSUNEMI ; 山本 惣一 ; 後藤 恒義 ; 結城 恒美

9) Family number: 31552161 (US2005040082 AA) © PatBase

Title: SORTING APPARATUS, SORTING METHOD AND ALIGNMENT APPARATUS

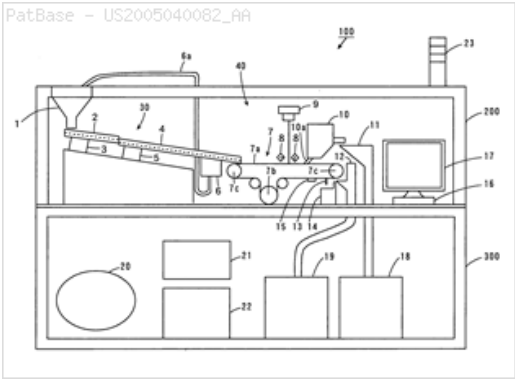
Abstract: This invention provides a seed-sorting apparatus that includes an alignment trough having a plurality of grooves into which the seeds are distributed, a line sensor camera for inspecting the seeds, a nozzle device having a number of nozzles that is the same as the number of grooves on the upper surface of the alignment trough, and a control unit. The control unit, through a series of calculations, is capable of differentiating between different types of seeds and can direct a seed sorting and sucking device to suck the seed.

Classifications:

International (IPC 8-9): A01C1/00 B07B1/00 B07C5/00 B07C5/02 B07C5/04 B07C5/10 B07C5/342 B65G47/74 G06T7/00

International (IPC 1-7): A01C1/00 B07B1/00 B07C5/02 B07C5/10 B07C5/342 G06T7/00

CPC: B07C2501/009 B07C5/10 B07C5/3422 B07C5/3425
US: 198/445 209/1 209/539 209/541 209/576 209/577 209/643
209/644



Family:

Publication number	Publication date	Application number	Application date
EP1661631 A1	20060531	EP20040771413	20040803
EP1661631 A4	20100818	EP20040771413	20040803
JP2005058038 A2	20050310	JP20030289940	20030808
JP2005058853 A2	20050310	JP20030289939	20030808
JP3983723 B2	20070926	JP20030289940	20030808
US2005040082 AA	20050224	US20030705090	20031110
US7111740 BB	20060926	US20030705090	20031110
WO05014190 A1	20050217	WO2004JP11426	20040803

Priority:

JP20030289939 20030808 JP20030289940 20030808 US20030705090 20031110
WO2004JP11426 20040803

Probable Assignee: KANEBO LTD

Assignee(s): (std): DAIICHI JITSUGYO VISWILL CO LT ; HIRAHARA SATOKO ; KANEBO LTD ; OGAWA FUMIHIRO ; TAKII SHUBYO KK ; TSUTSUMI KOJI

Assignee(s): DAIICHI JITSUGYO VISWILL CO ; DAIICHI JITSUGYO VISWILL CO LTD ; KANEBO LIMITED ; カネボウ株式会社 ; タキイ種苗株式会社 ; 第一実業ビスワイル株式会社

Inventor(s): (std): HIRAHARA SATOKO ; OGAWA FUMIHIRO ; TSUTSUMI KOJI

Inventor(s): 堤 浩司 ; 小川 文弘 ; 平原 聡子

Agent(s): MORGAN AND FINNEGAN LLP; 福島 祥人

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

10) Family number: 33142039 (JP2006153567 A2)

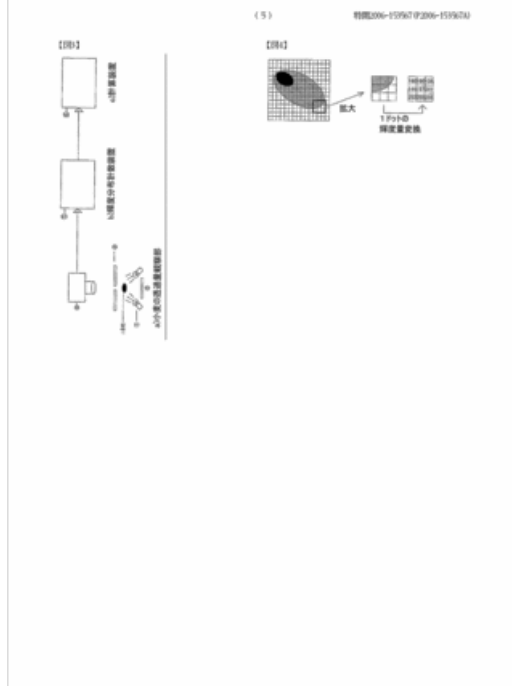
PatBase

Title: AUTOMATIC SETTING DEVICE OF SORTING SET VALUES FOR WHEAT GRAIN SORTER

Abstract: PROBLEM TO BE SOLVED: To provide a simple automatic setting device of the sorting set value of a wheat grain sorter, capable of setting the sorting set values in a short time. SOLUTION: The automatic setting device of the sorting set value of the wheat grain sorter is constituted of a light source (1) for irradiating the wheat grains with near infrared rays with a specific range of a wavelength from below, a camera box (4) for receiving the light transmitted through the wheat grains in the irradiating light, to convert the received transmitted light into the electrical signal corresponding to the quantity of the transmitted light to output the electrical signal, a luminance distribution counter (5) for receiving the electrical signal, corresponding to the quantity of the transmitted light from the camera box and measuring the same by luminance to form the histogram to the brightness and a calculator (6) for newly calculating the estimated sorted set value of wheat grains measured in transmitted light quantity distribution, using the correlation of a known quantity value of transmitted light with the sorting set value corresponding to actual conforming product limit.

Classifications:

International (IPC 8-9): G01N21/31 G01N21/35 G01N21/359
G01N33/02 G01N33/10

**Family:**

Publication number	Publication date	Application number	Application date
JP2006153567 A2	20060615	JP20040342315	20041126

Priority:

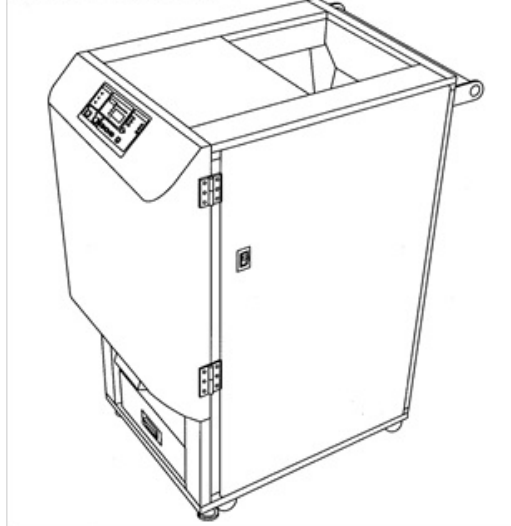
JP20040342315 20041126

Probable Assignee: ANZAI SOGO KENKYUSHO KK**Assignee(s):** (std): ANZAI SOGO KENKYUSHO KK**Assignee(s):** 株式会社安西総合研究所**Inventor(s):** (std): ANZAI KENICHI ; KOSHIRO TOMOKO ; SHIBAYAMA AKIRA**Inventor(s):** 安西 賢一 ; 小城 知子 ; 芝山 明**Agent(s):** CHIBA AKIO; KOBAYASHI YASUSHI; MASUI CHUJI; SHAMOTO ICHIO; TOMITA HIROYUKI; 千葉 昭男; 増井 忠式; 富田 博行; 小林 泰; 社本 一夫**11) Family number: 49868858 (JP1376395 S)**

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Title: Grain sorter (Machine translation)

Abstract: Source: JP1376395 S **Machine translation:** The article of a grain of rice, grains such as sorter for sorting the grain sorting mechanism of", "as shown in reference diagram from the hopper chute to slide down along the grain is detected by the sensor camera or the defective sorting nozzle by the air blown is injected from the outside of the filtering. Monitoring window is transparent.

Classifications:**Locarno class:** 15/03 08/05**Family:**

Publication number	Publication date	Application number	Application date
CN301217270 S	20100519	CN200930192879F	20090715

JP1376395 S	20091221	JP20090000582F	20090115
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Priority:

JP20090000582F 20090115

Probable Assignee: KUBOTA CORP

Assignee(s): (std): KUBOTA CORP ; KUBOTA LTD

Assignee(s): KUBOTA CORPORATION ; 株式会社 Kubota ; 株式会社 久保田

Inventor(s): 松井 昭男

Agent(s): 中国国际贸易促进委员会专利商标事务所 11038
; 原田 洋平; 森本 義弘; 王会卿
; 笹原 敏司

12) Family number: 54703299 (KR101303661 B1)

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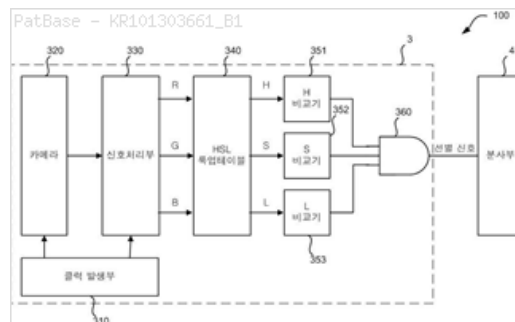
Title: COLOR SORTER FOR CEREAL

Abstract: PURPOSE: A color sorter for grains is provided to minimize times for a converting process by converting the data of red (R), green (G), and blue (B) into the data of hue (H), saturation (S), and lightness (L). CONSTITUTION: A color sorter (100) for grains comprises a camera (320), a signal processor (330), a memory, a first comparator, a second comparator (352), a third comparator (353), and an AND gate (360). The camera films the surface of the grain and outputs an image signal. The signal processor converts the image signal outputted from the camera into the data of RGB and outputs the same. The memory stores the data of HSL previously outputted relative to all RGB data into a lookup table. The first comparator outputs the result comparing the color data outputted from the memory and the predetermined color selecting range. The second comparator outputs the result comparing the saturation (S) data outputted from the memory and the predetermined saturation selecting range. The third comparator outputs the result comparing the lightness (L) data outputted from the memory and the predetermined lightness range. The AND gate outputs the result by the AND operation of outputted signals of the first, second, and third comparators. [Reference numerals] (310) Clock generating unit; (320) Camera; (330) Signal processing unit; (340) HSL lookup table; (351) H comparator; (352) S comparator; (353) L comparator; (4) Spraying unit; (AA) Selected signal

Classifications:

International (IPC 8-9): B07C5/342 G01N21/35

CPC: B07C5/3422 B07C5/3425



Family:

Publication number	Publication date	Application number	Application date
KR101303661 B1	20130904	KR20120114138	20121015

Priority:

KR20120114138 20121015

Probable Assignee: COMAS CO LTD

Assignee(s): (std): COMAS CO LTD

Assignee(s): COMAS ; 주식회사 코마스

Inventor(s): (std): JANG KYUNG UN ; PARK SE HYUN

Inventor(s): 박세현 ; 장경언

Agent(s): 특허법인대동

13) Family number: 62777679 (CN205341318 U)

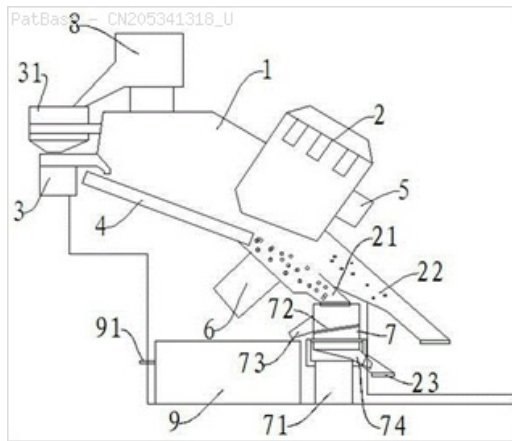
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Title: AUTOMATIC CLEAN COARSE CEREALS COLOR SORTER

Abstract: The utility model provides an automatic clean coarse cereals color sorter, includes quick -witted case, quick -witted case on be equipped with the look and select the device, feeding device, the slide, the controller with blow the material device, the look selects and is equipped with the high frequency light source in the device, the camera, laser sensor and optical lens, the feeding device top is equipped with the feed bin, it is equipped with food grains other than rice and wheat feed opening no. 1 and foreign matter feed opening to blow material device below, machine case top is equipped with clean ball and stores the storehouse, clean ball is stored the storehouse and has been placed clean ball, storehouse and last feed bin intercommunication are stored to clean ball, a food grains other than rice and wheat feed opening below is equipped with the sieve and fights, the sieve has the electromagnetic shaker through the leg joint bottom fighting, a sieve fill intermediate position is equipped with the filter screen. The utility model overcomes prior art's is not enough, the smooth ashless dirt in the institute food grains other than rice and wheat that select surface, simultaneously clean ball can reduce the wearing and tearing that food grains other than rice and wheat flow in the slide, guarantee food grains other than rice and wheat the integrity.

Classifications:

International (IPC 8-9): B07C5/342 B08B1/02



Family:

Publication number	Publication date	Application number	Application date
CN205341318 U	20160629	CN201521124990U	20151231

Priority:

CN201521124990U 20151231

Probable Assignee: HEFEI GROWKING OPTOELECTRONIC TECH CO LTD

Assignee(s): (std): HEFEI GROWKING OPTOELECTRONIC TECH CO LTD

Assignee(s): HEFEI GROWKING OPTOELECTRONIC TECHNOLOGY CO ; HEFEI HIGH OPTOELECTRONICS TECHNOLOGY CO LTD ; 合肥高晶光电科技有限公司

Inventor(s): (std): CHENG JIE ; HUANG JIAWEI ; SHEN ZHENDONG ; TANG YI ; WANG YONGYAN ; ZHANG SHENG

Inventor(s): 唐义 ; 张胜 ; 沈振东 ; 王永言 ; 程杰 ; 黄佳伟

14) Family number: 67391314 (CN107309182 A)

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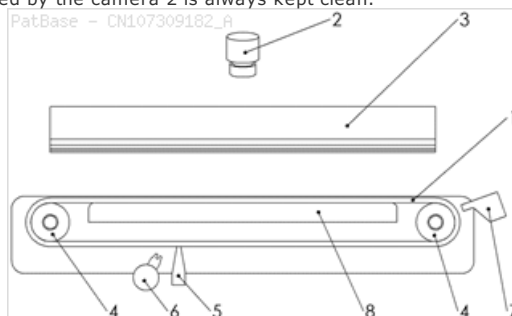
Title: IMAGING DEVICE OF COLOR SORTER

Abstract: The invention relates to the technical field of color sorting, and in particular, discloses a background device of a color sorter. The device comprises a dust removing module, an annular belt 1, a camera 2, a background lamp 3 and a transmission shaft 4 respectively arranged on a frame 9; the annular belt 1 peripherally rotates around the transmission shaft 4 and a background support plate 8; the dust removing module and the annular belt 1 form relative movement; and the dust removing module comprises a cleaning brush 5, a water nozzle 6 and an air nozzle 7. A lens of the camera 2 is pointed to a belt surface of the annular belt 1; and the belt surface forms a signal acquiring background of the camera 2. The color of the annular belt is the background color needed by materials to be sorted; and the belt surface reinforces reflecting light through the background lamp. After the color sorter works by a period of time, some dust and sand grains can drop on the belt surface of the annular belt 1; in order to not influence signal acquisition of the camera 2, the annular belt 1 is driven by rotation of the transmission shaft 4 to peripherally rotate, and the lower part is sprayed by the water nozzle 6, cleaned by the cleaning brush 5 and dried by the air nozzle 7; and the cleaned and dried annular belt 1 is continuously fed in a working area for circulation, so that the working surface of the annular belt 1 pointed by the camera 2 is always kept clean.

Classifications:

International (IPC 8-9): B07C5/342 B08B1/02

CPC: B07C5/3422 B08B1/02



Family:

Publication number	Publication date	Application number	Application date
CN107309182 A	20171103	CN201710635145	20170730

Priority:

CN201710635145 20170730

Probable Assignee:

HAN YUEYANG

Assignee(s): (std):

HAN YUEYANG

Assignee(s):

韩岳扬

Inventor(s): (std):

HAN YUEYANG

Inventor(s):

韩岳扬

15) Family number: 69260288 (JP1330146 S)

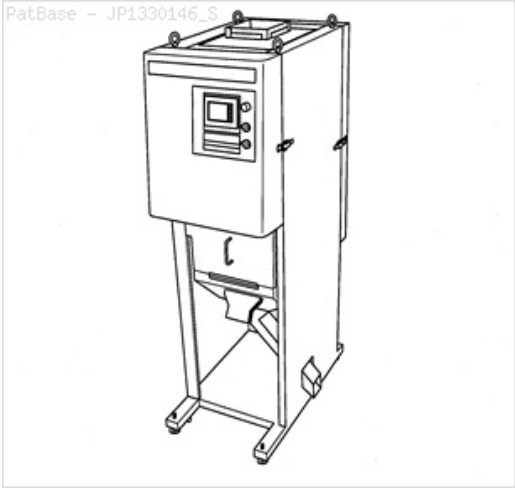
© PatBase

Title: Grain sorter (Machine translation)

Abstract: Source: JP1330146 S **Machine translation:** The last stage of the article is a line arranged such as a grain of rice,

grains such as grain sorting mechanism sorter to filter the reference description shown in the figure, the grain sorting, it is dropped from the chute is detected by the sensor camera or the defective sorting nozzle by the air injected from the fall path blowing outward from.

Classifications:
Locarno class: 08/05



Family:

Publication number	Publication date	Application number	Application date
JP1330146 S	20080519	JP20070023629F	20070831

Priority:
JP20070023629F 20070831

Probable Assignee: KUBOTA LTD

Assignee(s): (std): KUBOTA LTD

Assignee(s): KUBOTA CORP ; KUBOTA CORPORATION ; 株式会社クボタ

Inventor(s): 岡 慎太郎 ; 松井 昭男

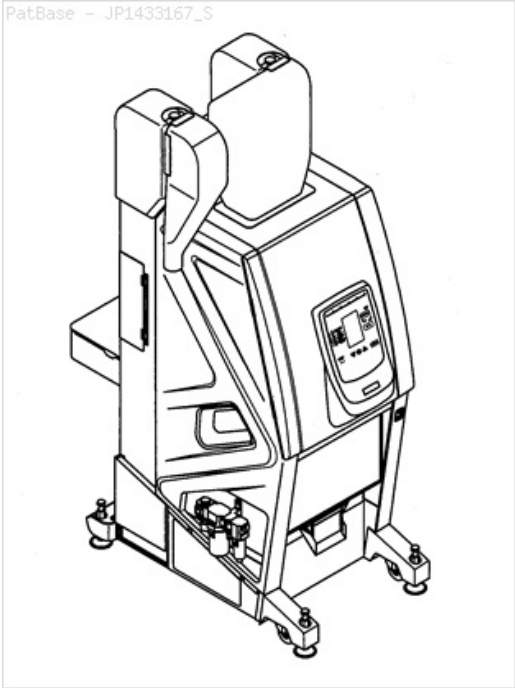
Agent(s): 原田 洋平 ; 板垣 孝夫 ; 森本 義弘 ; 笹原 敏司

16) Family number: 69444844 (JP1433167 S) © PatBase

Title: Grain sorter (Machine translation)

Abstract: Source: JP1433167 S **Machine translation:** The article of a grain of rice, grains such as sorter for sorting, sorting the grain along the grain to slide down the chute is detected by the sensor camera or the defective sorting nozzle by the air blown is injected from the outside of the filtering. The left and right monitoring window monitoring window is transparent.

Classifications:
Locarno class: 08/05



Family:

Publication number	Publication date	Application number	Application date
JP1433167 S	20120206	JP20110012510F	20110602

Priority:

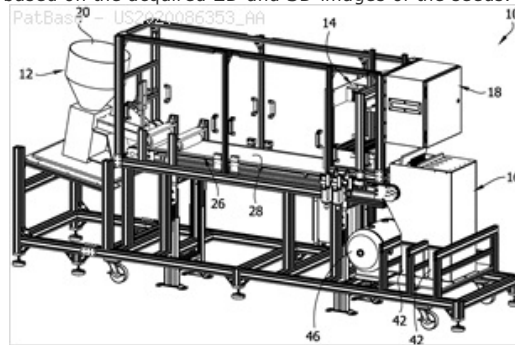
Probable Assignee: KUBOTA LTD
Assignee(s): (std): KUBOTA LTD
Assignee(s): KUBOTA CORP ; KUBOTA CORPORATION ; 株式会社クボタ
Inventor(s): 中西 忍 ; 山原 成晃 ; 松井 昭男 ; 池田 直人
Agent(s): 特許業務法人森本国際特許事務所

17) Family number: 71313484 (US2020086353 AA)

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Title: SEED SORTER

Abstract: A seed sorting system for sorting seeds includes a seed transfer station configured to move seeds through the system. An imaging assembly includes a 2D camera configured to acquire 2D images of the seeds as the seeds move through the system and a 3D camera configured to acquire 3D images of the seeds as the seeds move through the system. A sorting assembly is configured to sort the seeds into separate bins based on the acquired 2D and 3D images of the seeds.

Classifications:**International (IPC 8-9):** B07C5/04 B07C5/342 G06T7/60**CPC:** B07C2501/0018 B07C2501/0081 B07C2501/009 B07C5/04 B07C5/3425 B07C5/361 G06T7/60**Family:**

Publication number	Publication date	Application number	Application date
AR111297 AA	20190626	AR2018P100659	20180321
BR112019019384 A2	20200414	BR20191119384	20180321
CA3057544 AA	20190920	CA20183057544	20180321
EP3600701 A1	20200205	EP20180772212	20180321
IN201917038034 A	20191206	IN201917038034	20190920
PH2019502166 A	20200608	PH20190502166	20190920
US2020086353 AA	20200319	US20180496883	20180321
WO18175555 A1	20180927	WO2018US23528	20180321

Priority:

US20170474389P 20170321 WO2018US23528 20180321 US20180496883 20180321

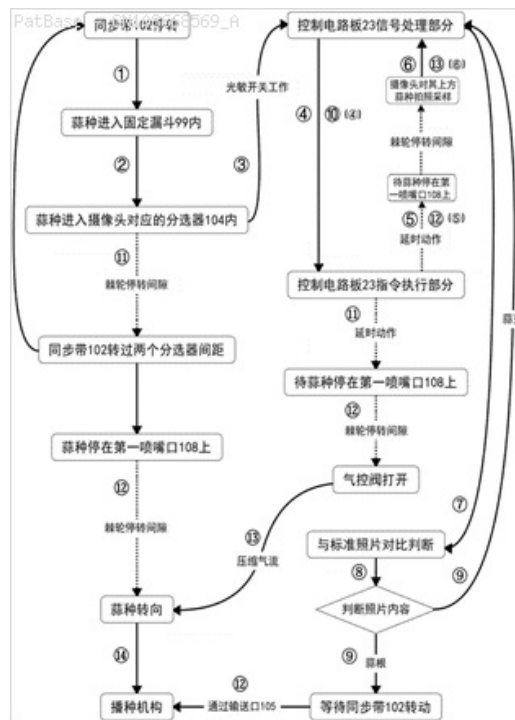
Probable Assignee: MONSANTO TECHNOLOGY LLC**Assignee(s):** (std): MONSANTO TECHNOLOGY LLC**Assignee(s):** BECKER JENNIFER L ; BORROWMAN ERIC L ; CEGLENSKI JARRETT R ; CHAUDHARY GOVIND ; DEPPERMAN KEVIN L ; FAN XIAOFEI ; KOHNE JEFFREY L ; WHITE BRAD D ; ZHANG CHI**Inventor(s):** (std): BECKER JENNIFER L ; BORROWMAN ERIC ; BORROWMAN ERIC L ; BRAD D WHITE ; CEGLENSKI JARRETT R ; CHAUDHARY GOVIND ; CHI ZHANG ; DEPPERMAN KEVIN L ; ERIC L BORROWMAN ; FAN XIAOFEI ; GOVIND CHAUDHARY ; JARRETT R CEGLENSKI ; JEFFREY L KOHNE ; JENNIFER L BECKER ; KEVIN L DEPPERMAN ; KOHNE JEFFREY L ; WHITE BRAD D ; XIAOFEI FAN ; ZHANG CHI**Agent(s):** JORDAN JAMAAL R ET AL; OSLER HOSKIN AND HARCOURT LLP; UEXKUELL AND STOLBERG**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**18) Family number: 71557111** (CN108668569 A)

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Title: GARLIC ROOT POSITION DISTINGUISHING METHOD FOR MULTIFUNCTIONAL GARLIC SOWER

Abstract: The invention discloses a garlic root position distinguishing method for a multifunctional garlic sower. The garlic root position distinguishing method comprises the following specific steps: S1, putting garlic seeds into a sorter; S2, photographing and acquiring images of the garlic seeds in the sorter by a light-supplementing camera arranged on the inner side of an image acquisition port; S3, comparing the photographed images with sample images stored in a control circuit board; S4, if the images are determined to be matched with the sample images of garlic buds, driving the sorter by a first synchronous belt to rotate to a position right above a first nozzle, spraying out high-pressure gas from the first nozzle through a gas pipe so as to blow the garlic seeds into a ninth conveying pipe right above the sorter; S5, if the images are determined to be matched with the sample images of garlic roots, enabling the garlic seeds to move onto a conveying port along with the sorter on the synchronous belt and enter an eighth conveying pipe through the conveying port. By the garlic root position distinguishing method, the problem of distinguishing the garlic roots and the garlic buds in direction is effectively solved, and subsequent manpower-assisted film puncturing is not required, so that the labor intensity of garlic farmers is reduced.

Classifications:**International (IPC 8-9):** A01C7/00 H04N5/235**CPC:** A01C7/00 H04N5/2354



Family:

Publication number	Publication date	Application number	Application date
CN108668569 A	20181019	CN201810492977	20180522

Priority:

CN201810492977 20180522

Probable Assignee: LIANG XUEFENG

Assignee(s): (std): LIANG XUEFENG

Assignee(s): BEAM XUEFENG ; 梁雪峰

Inventor(s): (std): LIANG XUEFENG

Inventor(s): 梁雪峰

Agent(s): 北京华仲龙腾专利代理事务所(普通合伙) 11548; 李静

19) Family number: 11448174 (WO9956127 A1)

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Title: METHOD AND APPARATUS FOR DETERMINING SEED QUALITY BY FLUORESCENCE

Abstract: The invention relates to a method and apparatus for analysing pre-germinating, germinated, germinating and germinated seeds and an apparatus for sorting such seeds and for determining the stage of (pre-)germination and the quality of the seeds by measuring the quantity of chlorophyll fluorescence. The invention makes it possible to construct a sorter apparatus in which the seeds are selected on the basis of the quantity of chlorophyll. As the intensity of the chlorophyll fluorescence is directly related to the conversion of the chlorophyll into chlorophyll, it will now be possible to sort the seeds as to the stage of germination and quality. It is now possible to construct an analysis apparatus in which the chlorophyll fluorescence is measured of pre-germinating, pre-germinated, germinating and germinated seeds and a distribution is made of these fluorescence signals. Tests with pepper seeds are described.

Classifications:

International (IPC 8-9): A01C1/00 A01C1/02 A01G7/00 G01N21/64 G01N33/48 G01N33/52

International (IPC 1-7): A01C1/00 A01C1/02 A01C1/2 A01G7/00 G01N21/64 G01N33/48 G01N33/52

CPC: A01C1/00 A01C1/025 G01N33/52

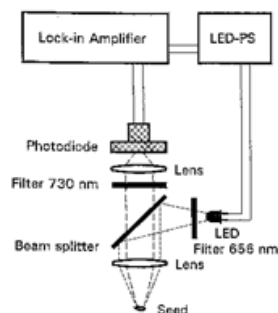


Figure 1. Schematic representation of the used apparatus.

Family:

Publication number	Publication date	Application number	Application date
AU199935393 A1	19991116	AU19990035393	19990426
BRPI9910569 A	20010116	BR1999PI10569	19990426
CA2330276 AA	20001026	CA19992330276	19990426
EP1076822 A1	20010221	EP19990917234	19990426
IL139183 A0	20011125	IL19990139183	19990426
JP2002512816 T2	20020508	JP20000546237T	19990426
NL1009006 C2	19991028	NL19981009006	19980427
WO9956127 A1	19991104	WO1999NL00244	19990426

Priority:

NL19981009006 19980427 WO1999NL00244 19990426

Probable Assignee: PLANT RESEARCH INT BV**Assignee(s):** (std): BINO RAOUL JOHN ; CPRO DLO ; CT VOOR PLANTENVEREDELINGS END ; CT VOOR PLANTENVEREDELINGS ENR ; JALINK HENDRIK ; SCHOOR ROB V D**Assignee(s):** CENTRUM VOOR PLANTENVEREDELINGS EN REPRODUKTIEONDERZOEK ; CENTRUM VOOR PLANTENVEREDELINGS EN REPRODUKTIEONDERZOEK CPRO ; CENTRUM VOOR PLANTENVEREDELINGS EN REPRODUKTIEONDERZOEK CPRO DLO ; CENTRUM VOOR PLANTENVEREDELINGS END REPRODUKTIEONDERZOEK CPRO DLO ; CENTRUM VOOR PLANTENVEREDELINGS ENREPRODUKTIEONDERZOEK (CPRO DLO) ; PLANT RESEARCH INT BV ; SCHOOR ROB VAN D ; VAN DER SCHOOR ROB ; プラント リサーチ インターナショナル ビービー**Inventor(s):** (std): BINO RAOUL JOHN ; JALINK HENDRIK ; SCHOOR ROB VAN D ; SCHOOR ROB VAN DER ; VAN DER SCHOOR ROB**Inventor(s):** HENDRIK JALINK ; RAOUL JOHN BINO ; ROB VAN D SCHOOR ; ROB VAN DER SCHOOR ; ビノ、ラオウル、ジョン ; ファン、デル、ショール、ロブ ; ヤリンク、エンドリク**Agent(s):** KIRBY EADES GALE BAKER**Designated states:** AE AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG US UZ VN YU ZA ZW**20) Family number: 29954750 (US6646264 BA)**

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Title: METHODS AND DEVICES FOR ANALYZING AGRICULTURAL PRODUCTS**Abstract:** The present invention relates to a device and method for analyzing agricultural products. More particularly, the present invention relates to a device and method for real time, non-destructive analysis of the physical and chemical characteristics of one or more seeds.**Classifications:****International (IPC 8-9):** A01H1/04 B07C5/34 G01B11/02 G01B11/24 G01J3/36 G01N21/13 G01N21/25 G01N21/27 G01N21/31 G01N21/35 G01N21/892 G01N33/483**International (IPC 1-7):** A01H1/04 B62D17/00 C12N15/85 G01B11/02 G01B11/24 G01N21/27 G01N21/31 G01N21/35 G01N21/892 G01N33/00 G01N33/483**CPC:** B07C2501/009 G01N2021/8466 G01N21/3563 G01N21/359**US:** 250/339.07 250/339.12 356/305 356/326 356/328

Title: Method and apparatus for sorting wood chips

Abstract: A wood chip sorter comprises a shell (22) which at least partially defines a substantially cylindrical sorting chamber (26) into which wood chips are introduced. The shell (22) has a plurality of rotatable shafts (28) mounted thereon with the axes (72) of the shafts (28) being circularly arranged about a central axis (24) of the shell (22). Each shaft (28) has a plurality of discs (80) mounted at spaced intervals thereon with discs of adjacent shafts (28) intermeshing radially to form essentially axial spaces (84) therebetween. A drive and transmission system (30) revolve the shell (22) about the central axis (24) of the shell (22). A planetary gear system (32) facilitates rotation of the shafts (28) about their axes (72) as the shell (22) revolves. The discs (80) are shaped to have greatest axial width at central portions thereof, and taper to a lesser axial width at their circumference. The discs (80) are formed from an abrasion-resistant material. Compressible spacer members (82) are mounted between adjacent discs on a shaft. An inlet (34) is configured to include a helically threaded feed member (46) which extends into the shell (22) and along the central axis (24) thereof. The inlet (120) facilitates input of the wood chips so that chips in a desired thickness range have the opportunity to pass through the axial spaces (84) existing between intermeshing, (80) discs of adjacent shafts (28).

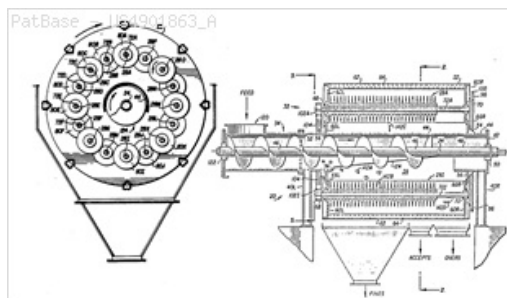
Classifications:

International (IPC 8-9): B07B1/12 B07B1/14 B07B1/15 B07B1/18 B07B1/22 B07C5/344 D21B1/00 D21B1/02

International (IPC 1-7): B07B1/14 B07B1/22 B07C5/344 G06F15/20

CPC: B07B1/15 B07B1/22 D21B1/023

US: 209/288 209/296 209/664 209/672



Family:

Publication number	Publication date	Application number	Application date
CA1323332 A1	19931019	CA19890589451	19890127
CA1323333 A1	19931019	CA19880578372	19880926
US4901863 A	19900220	US19870101422	19870928

Priority:

US19870101422 19870928 CA19880578372 19880926 CA19890589451 19890127

Probable Assignee: MAC MILLAN BLOEDEL LTD

Assignee(s): (std): LANCASTER JAMES G ; MAC MILLAN BLOEDEL LTD

Assignee(s): ARDEN TERENCE JAMES ; CAE ELECTRONICS LTD CAE ELECTRONIQUE LTEE ; CAE INC ; CAE NEWNES LTD ; CAE WOOD PRODUCTS GP ; COE NEWNES MCGEHEE INC ; COE NEWNES MCGEHEE ULC ; MACMILLAN BLOEDEL LIMITED ; USNR KOCKUMS CANCAR CO

Inventor(s): (std): ARDEN TERENCE J ; LANCASTER JAMES G

Inventor(s): ARDEN TERENCE JAMES

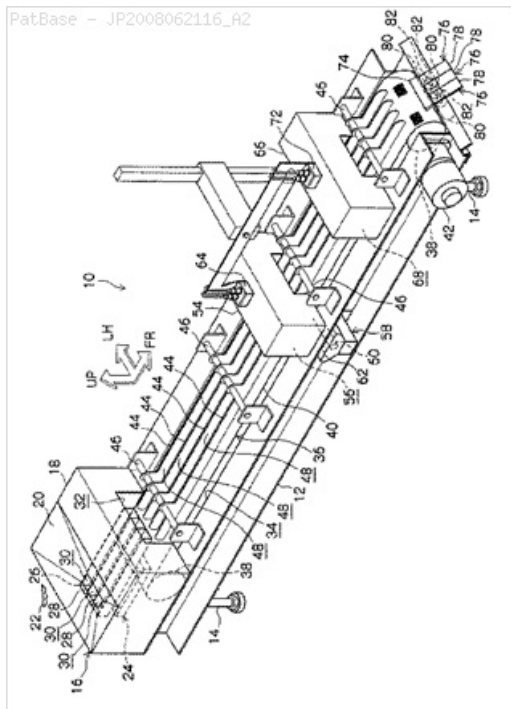
Agent(s): FASKEN MARTINEAU DUMOULIN LLP; KIRBY EADES GALE BAKER

Title: POD SORTER

Abstract: PROBLEM TO BE SOLVED: To provide a pod sorter for suitably sorting pods containing seeds according to their grades. SOLUTION: In the pod sorter 10, pods 22 containing seeds are transferred through a transfer path 48 disposed on a belt 40 and falls onto a leaf spring 78 of a flapper ejector 76. Further, the pods being transferred through the transfer path 48 are imaged by a transmitted light camera 64 to judge their grades. The pods 22 judged to be bad are sprung out by the leaf spring 78 and thus the pods 22 are sorted into good ones and bad ones. Since the belt 40 herein is reticulately formed, a lamp stabilizer 58 can irradiate the pods 22 with transmitted light through the belt 40 and enables the transmitted light camera 64 to suitably image the pods 22 by virtue of the transmitted light passing therethrough, and thereby the pods 22 can be suitably sorted.

Classifications:

International (IPC 8-9): B07C5/04 B07C5/10 B07C5/342 G01B11/02 G01B11/24 G01B11/30 G01N21/85

**Family:**

Publication number	Publication date	Application number	Application date
JP2008062116 A2	20080321	JP20060239338	20060904

Priority:

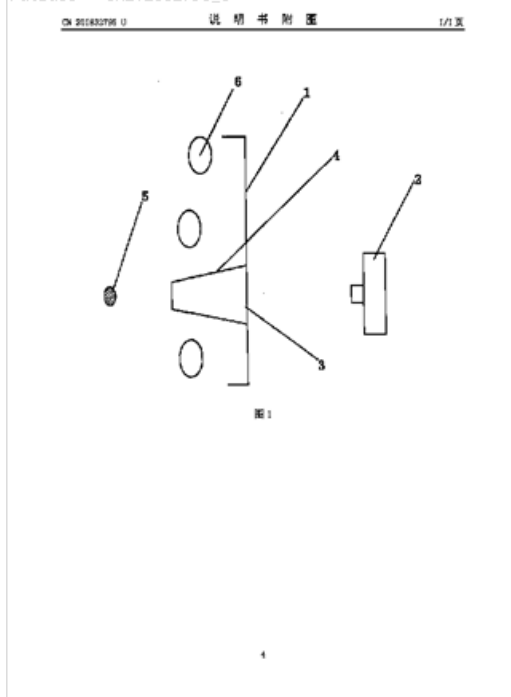
JP20060239338 20060904

Probable Assignee: AKITA PREFECTURE**Assignee(s):** (std): AKITA PREFECTURE ; YAMAMOTO AND CO LTD**Assignee(s):** YAMAMOTO CO LTD ; 株式会社山本製作所 ; 秋田県**Inventor(s):** (std): CHO JIYUKAI ; GOTO TSUNEYOSHI ; KATAHIRA MITSUHIKO ; NISHIDA YUKIHIRO ; OIZUMI TAKAHIRO**Inventor(s):** 大泉 隆弘 ; 張 樹槐 ; 後藤 恒義 ; 片平 光彦 ; 西田 幸弘**23) Family number: 48935654 (CN201832796 U)**

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Title: Lampshade for color sorters

Abstract: The utility model discloses a lampshade for color sorters, which comprises a light barrier, a camera is arranged at one side of the light barrier, the light barrier is provided with a light hole, a lampshade body covers the light hole on the other side of the light barrier, and the camera is aimed at the light hole and the lampshade body. The utility model solves the problem that other light resources generate unnecessary light interference in the lampshade, grains with different colors can be accurately selected, and the selecting precision of a color sorter is increased.

Classifications:**International (IPC 8-9):** B07C5/342

Family:

Publication number	Publication date	Application number	Application date
CN201832796 U	20110518	CN201020548533U	20100927

Priority:

CN201020548533U 20100927

Probable Assignee: ANHUI JIEXUN OPTOELECTRONIC TECHNOLOGY CO LTD**Assignee(s):** (std): ANHUI JIEXUN OPTOELECTRONIC TECHNOLOGY CO LTD**Assignee(s):** ANHUI JIEXUN OPTOELECTRONIC TECHNOLOGY CO ; 安徽捷迅光电技术有限公司**Inventor(s):** (std): DEZHONG JIANG ; PING LU ; XIAORONG GAO ; ZHIPING WANG**Inventor(s):** GAO XIAORONG ; JIANG DEZHONG ; LU PING ; WANG ZHIPING ; 卢萍 ; 王志平 ; 蒋德忠 ; 高小荣**24) Family number: 67530184** (JP1591391 S)

© PatBase

Title: Grain sorter (Machine translation)

Abstract: Source: JP1591391 S **Machine translation:** The article of a grain of rice, grains such as sorting and filtering, "grain sorting mechanism of reference diagram as shown in "sorting chute to slide down along the grain is detected by the sensor camera or the defective sorting nozzle by the air blown is injected from the outside of the filtering. The left and right of the monitoring window is transparent. Is a heavy object in the bottom view thereof is omitted.

Classifications:**Locarno class:** 15/03**Family:**

Publication number	Publication date	Application number	Application date
JP1591391 S	20171120	JP20170003868F	20170228

Priority:

JP20170003868F 20170228

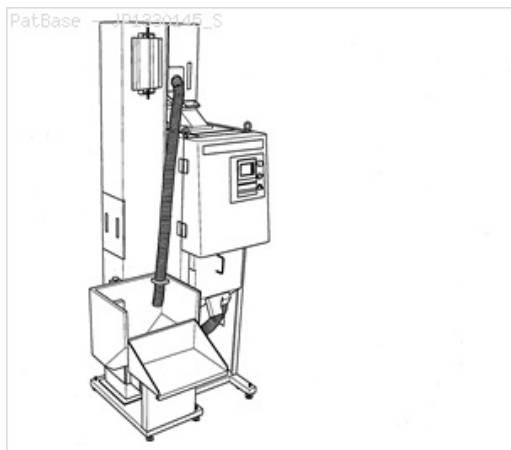
Probable Assignee: KUBOTA LTD**Assignee(s):** (std): KUBOTA LTD**Assignee(s):** KUBOTA CORP ; KUBOTA CORPORATION ; 株式会社クボタ**Inventor(s):** 井上 浩典 ; 前田 剛志 ; 満森 美香 ; 砂畠 睦巳**Agent(s):** 特許業務法人森本国際特許事務所**25) Family number: 69260290** (JP1330145 S)

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Title: Grain sorter (Machine translation)

Abstract: Source: JP1330145 S **Machine translation:** The article of a grain of rice, grains such as grain sorting mechanism sorter to filter the reference description as shown in the figure, via a supply chute hopper to lift from, it is dropped from the chute sensor camera sorting grain grain is detected by the defective sorting nozzle by the air injected from the fall path blowing outward from. Intermediate product defective product including a re-sorting to the elevator, it is possible to recirculate.

Classifications:
Locarno class: 08/05



Family:

Publication number	Publication date	Application number	Application date
JP1330145 S	20080519	JP20070023628F	20070831

Priority:

JP20070023628F 20070831

Probable Assignee: KUBOTA LTD

Assignee(s): (std): KUBOTA LTD

Assignee(s): KUBOTA CORP ; KUBOTA CORPORATION ; 株式会社クボタ

Inventor(s): 岡 慎太郎 ; 松井 昭男

Agent(s): 原田 洋平 ; 板垣 孝夫 ; 森本 義弘 ; 笹原 敏司

26) Family number: 69508537 (JP1497476 S)

© PatBase

Title: Grain sorter (Machine translation)

Abstract: Source: JP1497476 S **Machine translation:** The article of a grain of rice, grains such as sorter for sorting the grain hopper chute, is selected from the sensor camera slides down along the grain grain is detected by the defective sorting nozzle by the air blown is injected from the outside of the filtering. Red colored with a portion other than the portion to receive as partial design design it is a part. Viewing window monitoring window is transparent. and defective products. Parts by weight, bottom view thereof is omitted.

Classifications:
Locarno class: 08/05



Family:

Publication number	Publication date	Application number	Application date

Priority:

JP20130021373F 20130917

Probable Assignee: KUBOTA LTD

Assignee(s): (std): KUBOTA LTD

Assignee(s): KUBOTA CORP ; KUBOTA CORPORATION ; 株式会社 Kubota

Inventor(s): 松井 昭男 ; 桑江 淳太 ; 池田 直人 ; 満森 美香 ; 砂島 睦巳

Agent(s): 特許業務法人森本国際特許事務所

27) Family number: 70257308 (KR20180072195 A)

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Title: A QUALITY DETERMINING APPARATUS USING IMAGES OF GRAINS FALLING AFTER HORIZONTAL MOVEMENT

Abstract: The present invention relates to an apparatus for measuring a grain quality by using a camera image. When a target object changes a posture while moving at an end of a horizontal transfer device such as a feeder or a conveyor for transferring grains in a grain processing device such as a grain color sorter, the apparatus determines a grade of a grain by measuring optical properties of the target object or acquiring stereoscopic image information of the target object to effectively measure a quality of a target grain. The apparatus for measuring the grain quality includes: a measurement device for optically measuring properties of a target object; a feeder for transferring a measurement target object in a substantially horizontal direction, so that the measurement device measures the object at a transfer end portion; and a light source for illuminating the object. Most of color sorters used in rice processing complex (RPC) before a final packaging stage is additionally provided with a quality determination function without damaging a function of the color sorter, so that the quality determination function is able to create a synergy effect with a determination function of an existing color sorter or is used independently, thereby displaying the quality grade of a rice to be shipped more accurately.

Classifications:

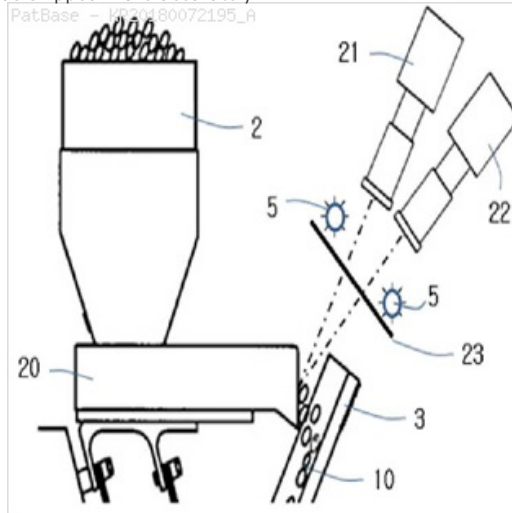
International (IPC 8-9): E06B9/42 G01N21/88 G01N21/89

G01N21/892 G01N21/956 G01N33/02

CPC: E06B9/42 G01N2021/8887 G01N21/8851 G01N21/8914

G01N21/892 G01N21/956 G01N33/02

PatBase - KR20180072195_A



Family:

Publication number	Publication date	Application number	Application date
KR20180072195 A	20180629	KR20160175506	20161221

Priority:

KR20160175506 20161221

Probable Assignee: IGSP CO LTD

Assignee(s): (std): IGSP CO LTD

Assignee(s): IGSP CO ; LTD AIJI ESPY ; 주식회사 아이지에스피

Inventor(s): (std): CHOI BYUNG JOON

Inventor(s): 최병준

28) Family number: 7325823 (US4992949 A)

© PatBase

Title: Color sorting of lumber

Abstract: A system for sorting lumber using a scanning camera that generates separate red, green and in some cases blue outputs to scan selected length increments along the surface of a piece of lumber and such data collected for each color is each separately histogrammed to produce a frequency distribution of color intensity. The data is analyzed to determine the mean values for each color in the selected lengths and the lengths characterized based on these mean values into specific colors. The lumber pieces may be automatically severed into pieces having significant differences in color and the pieces of significantly different colors may be automatically collected in different groupings. In an alternative arrangement the histogram for selected color is analyzed to determine the frequency distribution and degree of frequency variability to determine if it is to be classified as vertical or flat grained. The lumber pieces may be automatically severed into pieces whenever their classification changes between flat and vertical grain and the pieces of flat grain may be automatically collected separate from those of vertical grain.

Classifications:

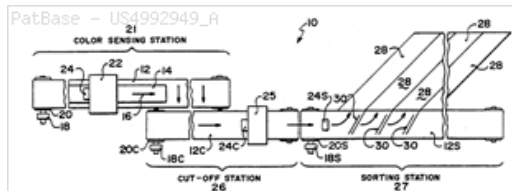
International (IPC 8-9): B07C5/34 B07C5/342 G01N21/88 G01N21/89

International (IPC 1-7): B07C5/342 G01N21/88 G01N21/89 G01R27/00 G06F15/20

CPC: B07C5/3422

US: 209/518 209/582 250/559.46 250/563 356/237 356/237.1 700/223 702/180 364/478

PatBase - US4992949_A



Family:

Publication number	Publication date	Application number	Application date
JP3179244 A2	19910805	JP19900017626	19900126
US4992949 A	19910212	US19890367622	19890616

Priority:

US19890302337 19890127 US19890367622 19890616

Probable Assignee: KOCKUMS CANCAR CO

Assignee(s): (std): MAC MILLAN BLOEDEL LTD

Assignee(s): ABLECO FINANCE LLC ; BANK OF NEW YORK ; CAE ELECTRONICS LTD ; CAE ELECTRONICS LTD CAE ELECTRONIQUE LTEE ; CAE INC ; CAE WOOD PRODUCTS GP ; COE NEWNES MCGEHEE INC ; COE NEWNES MCGEHEE ULC ; KOCKUMS CANCAR CO ; MACMILLAN BLOEDEL 1075 WEST GEORGIA STREET VANCOUV ; MACMILLAN BLOEDEL 1075 WEST GEORGIA STREET VANCOUVER BRITISH COLUMBIA V6E 3R9 CANADA LTD ; MACMILLAN BLOEDEL LIMITED ; USNR KOCKUMS CANCAR CO

Inventor(s): (std): ARDEN TERENCE J ; JIYAN ERIKU OONU ; TERENSU JIEEMUSU AADEN

Inventor(s): ジャン エリク オーヌ ; テレンス ジェームス アーデン

29) Family number: 54354966 (KR101288858 B1)

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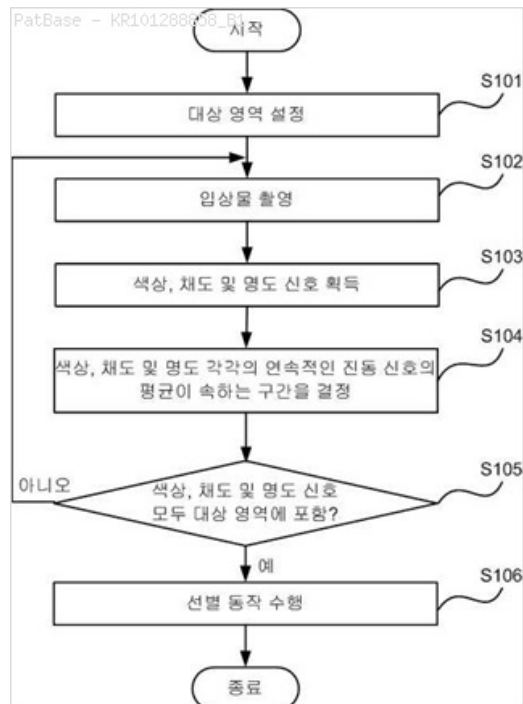
Title: COLOR SORTING METHOD OF COLOR SORTER FOR GRAINS

Abstract: PURPOSE: A method to detect faults of a color sorting machine for grains is provided to prevent malfunction where a blank section is recognized as the fault by omitting a fault detecting process with respect to the blank section through a pre-processing process. CONSTITUTION: A method to detect faults of a color sorting machine for grains comprises the steps of: setting a target area to detect the fault on color flat surface displaying with data of hue (H), saturation (S), and lightness (L) (S101); continuously filming the surface of granularity flowing through a supply unit and a discharging unit by a camera (S102); continuously obtaining the data of H, S, and L from an image signal continuously filming the surface of the granularity (S103); determining a section where the average of H, S, and L signals continued for a predetermined section belongs in a HSL section (S104); and performing predetermined operation to sort the fault when H, S, and L of the granularity belongs in the target are. [Reference numerals] (AA) Start; (BB) No; (CC) Yes; (DD) End; (S101) Set a target area; (S102) Film granularity; (S103) Obtain signals of H, S, and L; (S104) Determine a section where the average of each continued vibration signal of the H, S, and L belongs; (S105) All of the H, S, and L signals belong to the target area?; (S106) Perform a selecting movement

Classifications:

International (IPC 8-9): B07C5/342 G01N21/35

CPC: B07C5/3422 B07C5/3425

**Family:**

Publication number	Publication date	Application number	Application date
KR101288858 B1	20130723	KR20120114135	20121015

Priority:

KR20120114135 20121015

Probable Assignee:

COMAS CO LTD

Assignee(s): (std):

COMAS CO LTD

Assignee(s):

COMAS ; 주식회사코마스

Inventor(s): (std):

JANG KYUNG UN ; PARK SE HYUN

Inventor(s):

박세현 ; 장경언

Agent(s):

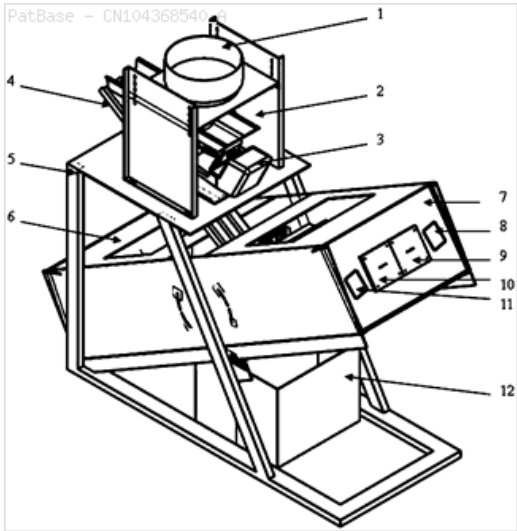
특허법인태동

30) Family number: 58558673 (CN104368540 A)

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Abstract: The invention relates to the field of grain safety detection, and provides a double-wavelength automatic grain sorter based on near infrared technology. According to the technical scheme, in a detection acquisition system of the sorter, an information acquisition camera comprises at least two near infrared detector linear array cameras and two visible light detector linear array cameras arranged about mirror symmetry; and an illumination device comprises a visible light wavelength light source and an infrared wavelength light source. The linear array near infrared detector cameras acquire information of two characteristic wavelengths of grains within a near infrared band and a visible light band, and a microcontroller processes and analyzes the detected data, so that moldy grains with visible surfaces can be identified, grains of which inner parts are moldy can also be judged, and the problem of poor identification effect in the traditional technology is solved. Meanwhile, the sorter has relatively high working efficiency and accuracy and relatively low cost, and can meet the requirements of people for modern grain and food safety.

Classifications:
International (IPC 8-9): B07C5/342



Family:

Publication number	Publication date	Application number	Application date
CN104368540 A	20150225	CN201410568122	20141022
CN104368540 B	20170412	CN201410568122	20141022

Priority:

CN201410568122 20141022

Probable Assignee: UNIV CHINA AGRICULTURAL

Assignee(s): (std): CHINA AGRICULTURAL UNIV ; UNIV CHINA AGRICULTURAL

Assignee(s): 中国农业大学

Inventor(s): (std): CHU XUAN ; LIU SHENGQUAN ; WANG WEI ; XI MINGJIE ; YUAN YING ; ZHAO LITING ; ZHAO XIN

Inventor(s): 刘声泉 ; 喜明杰 ; 王伟 ; 袁莹 ; 褚璇 ; 赵昕 ; 赵立婷

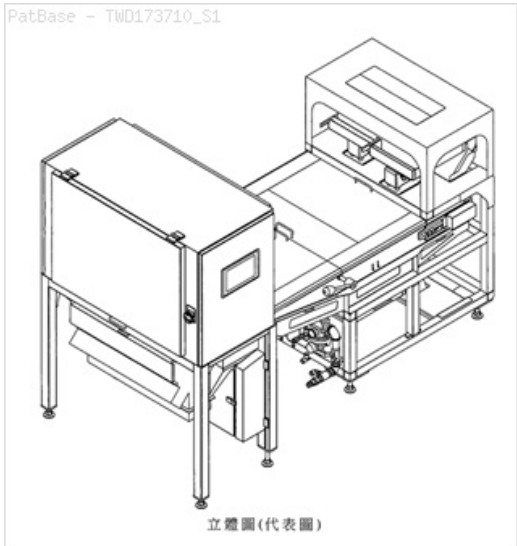
Agent(s): 北京路浩知识产权代理有限公司 11002; 薛晨光

31) Family number: 59101251 (TWD173710 S1) © PatBase

Title: BELT TYPE OPTICAL SORTER

Abstract: Source: TWD173710 S1 **Machine translation:** [Items purposes]; the design of the article is a belt-type optical sorting machine can be cereals, legumes, seafood, seeds, sheet-like food, resin particles and recovery of plastic and other particulate matter, according to the color and other optical way sorting the belt-type optical sorting machines.; [Description]; the front of the housing portion of the optical detector; this article has a conveyor belt type of transport, the transport conveyor transport terminals, has filled in the CCD camera and LED light source, optical detector side, install the operating unit.; In the "thin ink and hatched until translucent and transparent view of the portion" and "hatched a plan view of the transparent portion", the hatched portion is transparent, thin ink partially translucent.

Classifications:
US: D15/10
Locarno class: 15/99 15/03 08/05 15-99



Family:

Publication number	Publication date	Application number	Application date
AU358702 S	20141112	AU20140015404F	20141027
CN303288580 S	20150715	CN201430434749F	20141107
IN267077 S	20150724	IN20140267077F	20141029
JP1510912 S	20141110	JP20140009951F	20140509
TWD173710 S1	20160211	TW20140306464F	20141105
USD756419 S1	20160517	US20140507625F	20141029

Priority:

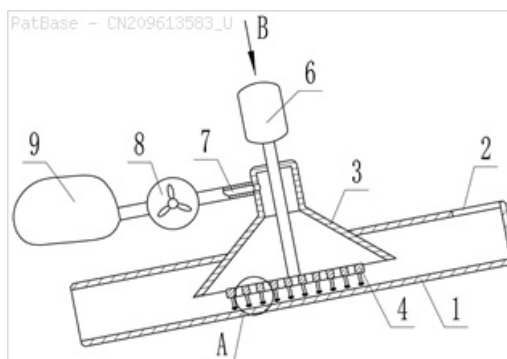
JP20140009951F 20140509

Probable Assignee: SATAKE ENG CO LTD**Assignee(s):** (std): SATAKE ENG CO LTD**Assignee(s):** SATAKE CORP ; SATAKE CORPORATION ; 佐竹股份有限公司 ; 株式会社サタケ ; 株式会社佐竹**Inventor(s):** (std): KAKUTANI RYO ; MARUKAWA RYO ; TATEISHI YOSHIKAZU**Inventor(s):** 丸川 良 ; 立石 芳和 ; 角谷 亮**Agent(s):** TAFT STETTINIUS AND HOLLISTER LLP ; 中国国际贸易促进委员会专利商标事务所 11038 ; 林志刚 ; 贾金岩**32) Family number: 76487451 (CN209613583 U)**

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Title: DEDUSTING AND DISCHARGING DEVICE FOR GRAIN COLOR SELECTOR

Abstract: The utility model relates to a dedusting and discharging device for a grain color sorter, which effectively solves the problem that dust in the existing color sorter is large. According to the technical scheme, the device comprises a slideway, one end of the slideway is of a square tubular structure obliquely arranged downwards, the lower end of the slideway is open, and an upward feeding port is formed in the other end of the slideway; a conical shell is mounted in the middle of the slideway; the axis of the shell is perpendicular to the bottom surface of the slideway, and the large end faces downwards; a rotary disc coaxial with the shell is installed in the shell, vertical rods with downward vertical disc faces are densely distributed on the lower surface of the rotary disc, the lower ends of the vertical rods are close to the bottom face of the shell, the upper surface of the rotary disc is connected with a motor through a rotary shaft, the upper end of the shell is connected with an exhaust fan through an exhaust pipe, and a dust collecting bag is installed at an air outlet of the exhaust fan. According to the utility model, dust and powder in grains can be effectively reduced, raised dust in the color sorting bin is reduced, the influence on material distinguishing of the color sorting camera is reduced, the misoperation of the air nozzle is reduced, and the color sorting precision is improved.

Classifications:**International (IPC 8-9):** B07C5/02 B07C5/342 B08B1/02 B08B15/00**Family:**

Publication number	Publication date	Application number	Application date
CN209613583 U	20191112	CN201920264329U	20190302

Priority:

CN201920264329U 20190302

Probable Assignee: FENGQIU YUFENG METAL PRODUCTS CO LTD**Assignee(s):** (std): FENGQIU YUFENG METAL PRODUCTS CO LTD**Assignee(s):** FENGQIU COUNTY HENAN FENG METAL PRODUCTS CO LTD ; FENGQIU YUFENG METAL PRODUCTS CO ; 封丘县豫封金属制品有限公司**Inventor(s):** (std): MA DA ; MA WEI**Inventor(s):** 马伟 ; 马大**Agent(s):** 北京卓恒知识产权代理事务所 特殊普通合伙 11394 ; 张权**33) Family number: 24141248 (JP2002312762 A2)**

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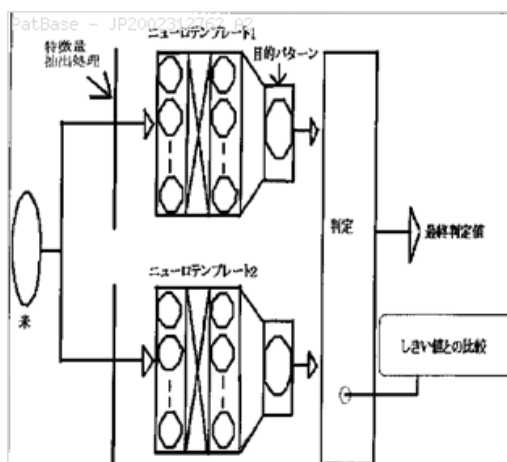
Title: GRAIN SORTING APPARATUS UTILIZING NEURAL NETWORK

Abstract: PROBLEM TO BE SOLVED: To use a neuro template matching sorting method as an algorithm loaded on a color sorter newly in order to solve the problem that the sorting rate of rice is changed by the amount of handled rice because the color sorter for rice sorting used in a rice cleaning plant or the like at present sorts the rice by using a certain fixed threshold. SOLUTION: In a grain sorting apparatus utilizing a neural network, template are prepared for the number of the kinds of the rice, the neural network is used for the neuro template matching sorting method as the constitution method of a system and high performance sorting is enabled even for fuzzy images. Also, the image of the grains falling in a state without a break is picked up by a camera, a fixed image frame is constituted and a plurality of rice images are segmented for each grain from the constituted image and turned to the object of the sorting system.

Classifications:**International (IPC 8-9):** B07C5/342 G01N15/10 G01N21/25 G01N21/27 G01N21/85 G06T1/00 G06T1/20 G06T1/40 G06T7/00

H04N7/18

International (IPC 1-7): B07C5/342 G01N15/10 G01N21/27
G01N21/85 G06T1/00 G06T1/40 G06T7/00 H04N7/18



Family:

Publication number	Publication date	Application number	Application date
JP2002312762 A2	20021025	JP20010114125	20010412

Priority:

JP20010114125 20010412

Probable Assignee: SEIREI IND

Assignee(s): (std): SEIREI IND

Assignee(s): SEIREI IND CO LTD ; SEIREI INDUSTRY CO LTD ; セイレイ工業株式会社

Inventor(s): (std): HAMAGUCHI TADASHI ; KADOTA HIROSHI ; SHIMAUCHI SATOSHI ; TSUZUKI TAKEO

Inventor(s): 島内 聡 ; 浜口 正 ; 都築 建夫 ; 門田 浩

34) Family number: 42601998 (CN101279321 A)

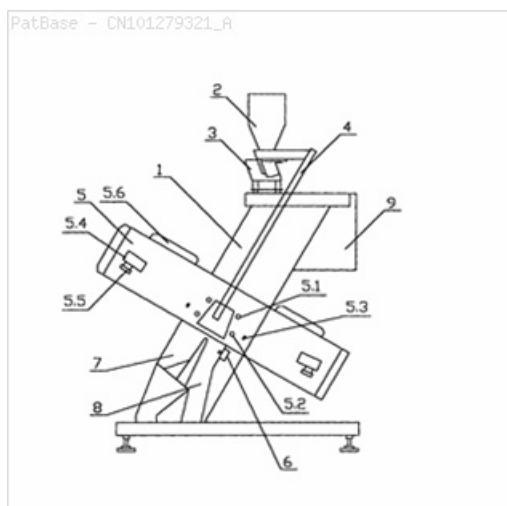
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Title: Granular material optical color sorter

Abstract: The invention relates to a grain material optical color selector which comprises a discharge chute, an image collecting system, a blowing system as well as an information treating control system. The observing area of the image collecting system is arranged on a material moving track limited by the discharge chute; the information treating control system is respectively connected with the image collecting system and the blowing system in a signaling way used for identifying the grains with different colors according the image digital signals of the image collecting system and controlling the blowing system to carry out corresponding blowing actions. The blowing system is provided with a plurality of blowing nozzles; the blowing path of each blowing nozzle passes through the material moving track limited by the discharge chute; the crossing position of the blowing paths and the material moving track is arranged below the observing area of the image collecting system. The image collecting system preferentially selects a CCD camera of area array CCD imaging or linear array CCD imaging. The color selector has large treating amount, simple structure and accurate judgment to the grains with different colors, which can automatically remove the grains with different colors in the material and is mainly used for sorting the grain materials, such as rice, etc.

Classifications:

International (IPC 8-9): B07C5/342



Family:

Publication number	Publication date	Application number	Application date
CN101279321 A	20081008	CN200810106686	20080514
CN101279321 B	20121010	CN200810106686	20080514

Priority:

CN200810106686 20080514

Probable Assignee: HEFEI OPTOELECTRONIC TECHNOLOGY CO LTD

Assignee(s): (std): DAHONG XU ; HEFEI OPTOELECTRONIC TECHNOLOGY CO LTD

Assignee(s): XU DAHONG ; 合肥泰禾光电科技股份有限公司 ; 许大红

Inventor(s): (std): DAHONG XU ; JIANGTAO SHI ; NING DONG ; TIANXIN YAN

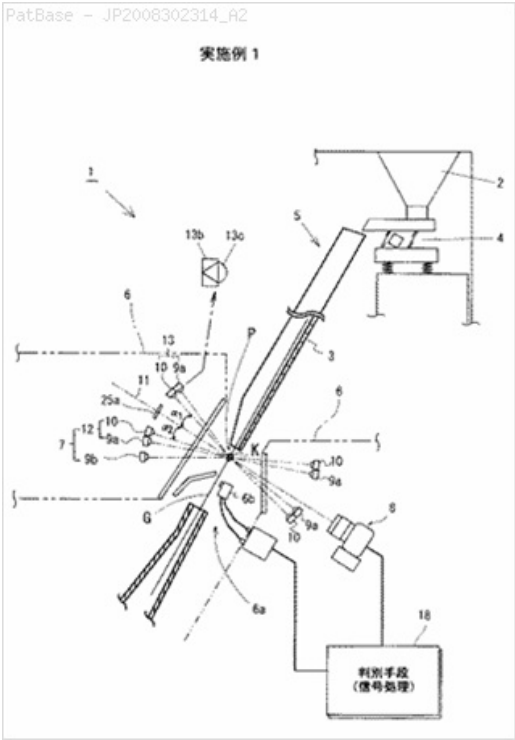
Inventor(s): DONG NING ; SHI JIANGTAO ; XU DAHONG ; YAN TIANXIN ; 石江涛 ; 董宁 ; 许大红 ; 颜天信
Agent(s): 北京市卓华知识产权代理有限公司 11299; 陈子英

35) Family number: 42817504 (JP2008302314 A2) © PatBase

Title: OPTICAL RICE GRAIN SORTER

Abstract: PROBLEM TO BE SOLVED: To provide a multi rice sorter capable of efficiently discriminating colored grains, foreign particles, and cracked grains mixed in a raw material (raw material rice grains K) by a pass treatment. SOLUTION: Using a light irradiating part 7 for irradiation with a first wavelength light (green light), a second wavelength light (red light) and a third wavelength light (near infrared light), and a first, second and third CCD sensors corresponding to the irradiating beams of light respectively (in a CCD camera 8) as an optical detecting means, the colored grains and foreign particles are discriminated according to an amount of the first wavelength light received, the cracked grains are discriminated according to an amount of the second wavelength light received, and further the foreign particles which are not differentiable as conforming grains on account of colors are discriminated according to an amount of the third wavelength light received. A blower separates these from the conforming grains if these are discriminated from the raw material at an optical detecting position P.

Classifications:
International (IPC 8-9): B07C5/342 G01N21/85



Family:

Publication number	Publication date	Application number	Application date
JP2008302314 A2	20081218	JP20070152793	20070608

Priority:

JP20070152793 20070608

Probable Assignee: SATAKE ENG CO LTD
Assignee(s): (std): SATAKE ENG CO LTD
Assignee(s): SATAKE CORP ; 株式会社サタケ
Inventor(s): (std): HARA MASAZUMI ; HOSOFUJI SHINJI ; ITO TAKAFUMI
Inventor(s): 伊藤 隆文 ; 原 正純 ; 細藤 慎司

36) Family number: 50083560 (KR200454677 Y1) © PatBase

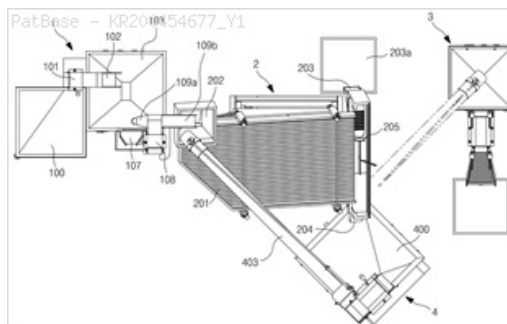
Title: Milling apparatus (Machine translation)

Abstract: Source: KR200454677 Y1 **Machine translation:**

The present design is only a shell talpigi and curvature of milling the rice to brown rice to Rice Washer, are provided between the support and the movable divider laid by placing the sorter grains during the milling of the desired state can be selectively carried out, grain milling device is made as a supply container 100 to specific elevator 101 is a lift device (103) is connected to the outlet 102 and the grain inside the escape symbol de skin 104 and screening through 105 and blower 106, de-skin 107 is formed in a non-bent lip outlet outlet 109 Elevator elevator 108 outlet device with (109a)(109b) on both sides will be able to choose the outlet (1) and the electric vibration device a grain break screening plate 201 having a 200 is formed on top of the feed tube 202 supplied through outlet 203 and the outlet 204 on the opposite side is formed with a microscopic air regulator 205 laid, and the brown rice lay in collection vessel (203a), the device outlet (2) and (3) provided with a screening regretted and sorting information made separately from the reservoir 400 is connected to the outlet 204 laid laid low when the wheel (400a), the device is, in the mobile, the camera 401 is stored in the lift to the top of inner cylinder therein through the lifting device which is driven by a motor bucket conveyor, the apparatus and the elevator guide tube 403 is connected to the outlet 402 of the dispenser (4) is equipped with a dispenser reservoir talpigi grain collected grain rice washer, and sorting or is able to send to the supply in common is a device made milling.

Classifications:

International (IPC 8-9): A23L1/10 A23L7/10 B07B1/28
CPC: A23L7/10 B02B3/08 B02B5/02 B02B7/02



Family:

Publication number	Publication date	Application number	Application date
KR200454677 Y1	20110719	KR20100011140U	20101029

Priority:

KR20100011140U 20101029

Assignee(s): 신동훈 ; 임재하

Inventor(s): LIM JAE HA ; SHIN DONG HUN ; 신동훈 ; 임재하

37) Family number: 33106475 (TWM266988 Y)

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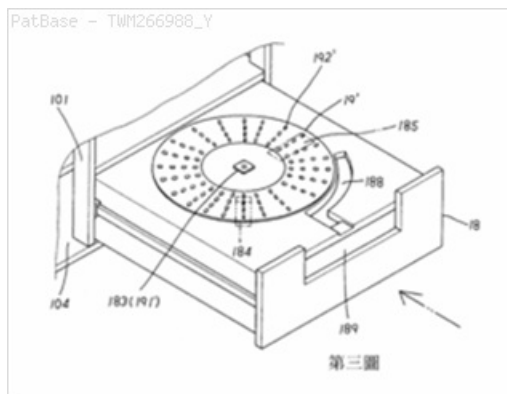
Title: Improved structure for automatic sifting machine for grains characteristics

Abstract: Source: TWM266988 Y **Machine translation:** This creation has about one grain characteristic automatic classification machine structure improvement, its classification machine is above Yu Jiati allows to set at the space suitably place to be equipped with a feeding funnel, also is equipped with a on LED photosource and the consistent hole in one side, Yu Guankong place above is equipped with a photomounting, and Yu Yuwei place is equipped with four lines of four rows to select the rice chute, as soon as but under allows to set at the space in predetermined place to be equipped with a guide channel to be possible symmetrically to coordinate to be equipped with activity type place body Rong in Sheyu rail track, this body in predetermined place supposes concavely one may coordinate the grain of rice serving tray to allow to suppose Rong Zhicao also in the centerSupposes as soon as raised turns on lathe the walking beam, and supposes outside the level in the predetermined place birthplace to export, but this grain of rice serving tray is supposes in the center birthplace one with turns on lathe the walking beam to coordinate the birthplace hole, also assumes four lines ring-like to suppose certain special apertures concavely; But because of the above structure, is may turn on lathe the place body the walking beam impetus grain of rice serving tray to gyrate may continuously cover entirely the grain of rice by the feeding funnel allows to put in the special aperture and simultaneously carries on graduation work the grain of rice analysis, but enables reaches the work speed quick also the work time short has the efficiency.

Classifications:

International (IPC 8-9): B07C5/00

International (IPC 1-7): B07C5/00



Family:

Publication number	Publication date	Application number	Application date
TWM266988 Y	20050611	TW20040219752U	20041208

Priority:

TW20040219752U 20041208

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Title: NEW ENERGY, METHODS/TECHNIQUES/PROCESSES USED TO PRODUCE VARIOUS PRODUCTS TECHNOLOGIES

Abstract: Several method of Microwave assisted extraction of oils that we will use on oil/tar sands and/or refuse plastic and/or rubber (eg. tires), bituminous coal, and/or biomass, and/or kerosene and/or naphtha and/or propane and/or oil/tar

sands with corn, eucalyptus, oil palm, and coconuts, maize, jatropha and other possibilities algae bagasse, miscanthus, sugar beet, sorghum, grain sorghum, switchgrass, barley, hemp, kenaf, potatoes, sweet potatoes, cassava, sunflower, fruit, molasses, corn, stover, grain, wheat, straw, cotton, other biomass. One method/process add a non-aqueous organic extractant to the source material (with a some content that absorbs microwave radiation and mixing it with a solvent that is transparent to microwave radiation) and there is our newly invented tumbler to expose the mixture to microwave radiation. Then suddenly raise the temperature via microwave, cool it down (that is has a more concentrated source of volatile oils), add more source material and alternate back and forth (heat - cool). Co-solvents (dipole moment), some of which are, alkanes, hexane, carbon tetrachloride, liquid CO2... (don't heat that much from microwaves and are microwave transparent) so the source material (heats up and releases oils) and the oils are cooled as they are released into the non-aqueous organic. For source materials that need rehydration we can use ethanol, methanol, saline solutions, and other mixture of solvents. Other methods, is to suddenly raise the temperature via microwaves and apply pressure until the source material's boundaries explodes. The microwave-transparent extraction medium cools the substance that flows out of the source material. Extracants can be used singly, mixed or in a series (continuous). For the oil/tar sands in addition to hexane we plan to add deionized water. We may use impregnation of saline solution (eg. KCL). To extract plastic from garbage land fills and real time collections or processing we: 1. Run agitated water to loosen the organic material, possibly use a tumbler to unstuck and remove caked together materials. 2. Then further loosen and sifts larger pieces from smaller (biodegradable material; less durable, unlike plastic and metal of which are very durable and the larger pieces are of more economical use to us) by a grate the horizontally spins spilling out the smaller pieces and possibly. 3. Finally we run the processed material down an assembly line to separate plastic from metal. 4. We could use mixers of some type using flexible spatula like (spinning) blades that will tear large any pieces of less durable materials such as cardboard, while leaving hunks of plastic (largely) undamaged. 5. We could use Artificial Intelligence or sorter with a remote camera that decides if the material's contents are made up of what, such as cardboard versus plastic. If there is cardboard (probably torn by the spatula mixer into smaller pieces) the batch could be re-agitated with water and possibly the tumbler and the grate again. 6. The sorting in the assembly line work can done by automated (eg. robots run by Artificial Intelligence) to sort between, plastic, glass and metal versus toxic components of for example of computers.

Classifications:

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