US010926532B2

(12) **United States Patent**
Chechik et al.

(10) **Patent No.: US 10,926,532 B2**
(45) **Date of Patent: Feb. 23, 2021**

(54) **ENDLESS FLEXIBLE BELT FOR A PRINTING SYSTEM**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventors: **Helena Chechik**, Rehovot (IL); **Shoham Livaderu**, Moshav Sitriyya (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/649,177**

(22) PCT Filed: **Oct. 16, 2018**

(86) PCT No.: **PCT/IB2018/058009**
§ 371 (c)(1),
(2) Date: **Mar. 20, 2020**

(87) PCT Pub. No.: **WO2019/077489**
PCT Pub. Date: **Apr. 25, 2019**

(65) **Prior Publication Data**

US 2020/0290340 A1 Sep. 17, 2020

Related U.S. Application Data

(60) Provisional application No. 62/574,275, filed on Oct. 19, 2017.

(51) **Int. Cl.**
B41J 2/01 (2006.01)
B41J 11/00 (2006.01)
B41J 29/38 (2006.01)

(52) **U.S. Cl.**
CPC ***B41J 2/01*** (2013.01); ***B41J 11/007*** (2013.01); ***B41J 11/0055*** (2013.01); ***B41J 29/38*** (2013.01); *B41J 2002/012* (2013.01)

(58) **Field of Classification Search**
CPC B41J 2002/012; B41J 11/007; B41J 2/01; B41J 11/0055
(Continued)

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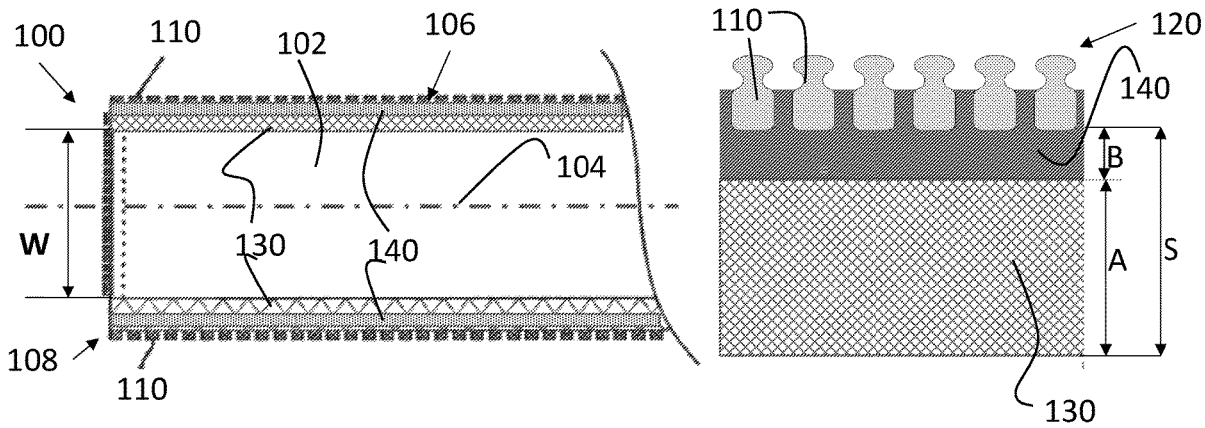
Primary Examiner — An H Do
(74) *Attorney, Agent, or Firm* — Momentum IP; Marc Van Dyke

(57) **ABSTRACT**

An intermediate transfer member (ITM) for use in a printing system. The ITM includes an endless flexible belt formed of an elongate belt having a longitudinal axis. Attached to lateral edges of the endless flexible belt along the longitudinal axis are a first elongate strip and a second elongate strip, each of the elongate strips including lateral formations on outward facing lateral ends thereof which are distal to the lateral edges of the belt. At least one of the first and second elongate strips includes a first longitudinal portion having a first elasticity, and a second longitudinal portion having a second elasticity, such that the second elasticity is greater than the first elasticity. The first portion is attached to the lateral edges of the flexible belt and the second portion extends between the first portion and the lateral formations.

20 Claims, 4 Drawing Sheets



US010857443B1

(12) **United States Patent**
Presby et al.

(10) **Patent No.: US 10,857,443 B1**
(45) **Date of Patent: Dec. 8, 2020**

(54) **GOLF SWING TRAINING CLUB**

(71) Applicants: **Herman Presby**, Highland Park, NJ (US); **Benjamin S. Wallace**, Edison, NJ (US)

(72) Inventors: **Herman Presby**, Highland Park, NJ (US); **Benjamin S. Wallace**, Edison, NJ (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/691,223**

(22) Filed: **Nov. 21, 2019**

(51) **Int. Cl.**
A63B 69/36 (2006.01)
A63B 53/06 (2015.01)

(52) **U.S. Cl.**
CPC ***A63B 69/3632*** (2013.01); ***A63B 69/3685*** (2013.01); *A63B 2069/3626* (2013.01)

(58) **Field of Classification Search**
CPC A63B 69/3632; A63B 69/3685; A63B 2069/3626
USPC 473/219, 256, 257, 314, 316, 318, 319, 473/320, 323, 377
See application file for complete search history.

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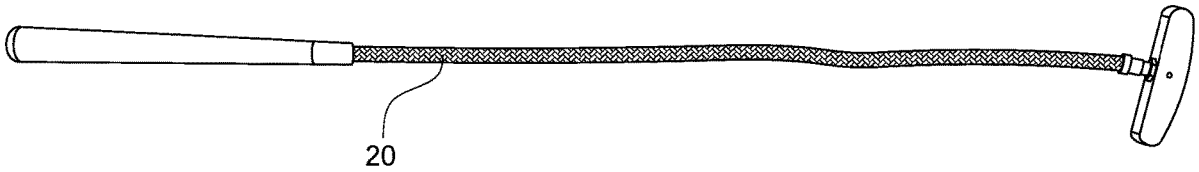
Primary Examiner — Nini F Legesse
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; Momentum IP Group

(57) **ABSTRACT**

A golf swing training club comprising: (a) a shaft; (b) a golf head attached to a first, lower end of the shaft; and (c) a handgrip attached to a second, upper end of the shaft; wherein a standard longitudinal shaft bending angle (β) of the shaft is within a range of 45° to 90°; and wherein a mechanical beam portion of the golf swing training club is characterized by a standard extensive shear modulus of at most 15°.

20 Claims, 4 Drawing Sheets



US010828888B2

(12) **United States Patent**
Landa et al.

(10) **Patent No.: US 10,828,888 B2**
(45) **Date of Patent: Nov. 10, 2020**

(54) **ENDLESS FLEXIBLE BELT FOR A PRINTING SYSTEM**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventors: **Benzion Landa**, Nes Ziona (IL); **Sagi Abramovich**, Ra'anana (IL); **Aharon Shmaiser**, Rishon LeZion (IL); **Rami Keller**, Tel Aviv (IL); **Itshak Ashkanazi**, Rehovot (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/714,756**

(22) Filed: **Dec. 15, 2019**

(65) **Prior Publication Data**

US 2020/0189264 A1 Jun. 18, 2020

Related U.S. Application Data

(63) Continuation of application No. 16/219,582, filed on Dec. 13, 2018, now Pat. No. 10,569,533, which is a continuation of application No. 15/790,026, filed on Oct. 22, 2017, now Pat. No. 10,201,968, which is a continuation of application No. 15/345,238, filed on Nov. 7, 2016, now Pat. No. 9,849,667, which is a

(Continued)

(51) **Int. Cl.**
B41J 2/005 (2006.01)

(52) **U.S. Cl.**
CPC .. ***B41J 2/0057*** (2013.01); *G03G 2215/00147* (2013.01); *G03G 2215/00151* (2013.01)

(58) **Field of Classification Search**
CPC . B41J 11/007; B41J 2/0057; B41J 1/30; B41J 2/22; B41J 2/315; B41J 2/435; B41J 347/103; B41J 17/28; B41J 17/30; B41J 17/32; G03G 2215/00147; G03G 2215/00151; B65H 5/02
See application file for complete search history.

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Co-pending U.S. Appl. No. 16/512,915, filed Jul. 16, 2019.

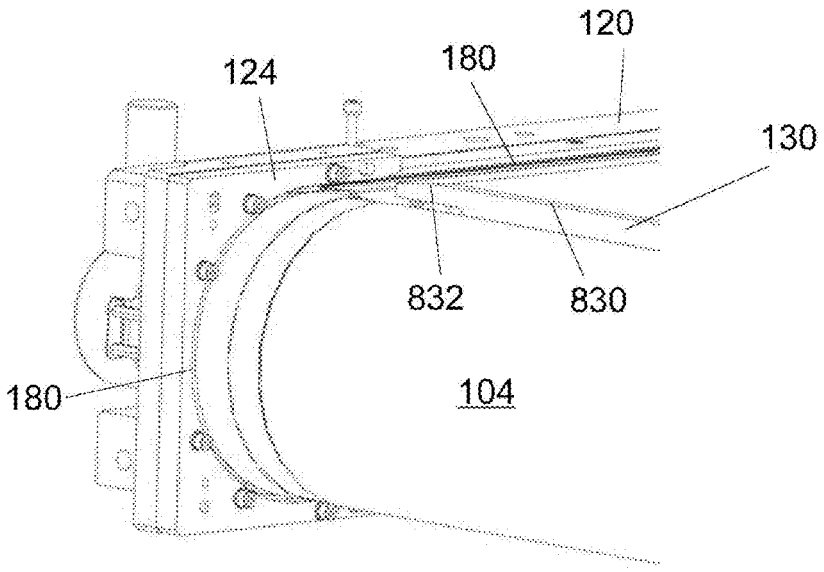
(Continued)

Primary Examiner — Scott A Richmond
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; Momentum IP Group

(57) **ABSTRACT**

A flexible belt is disclosed for use in a printing system. The belt comprises an endless strip which, in use, travels along a continuous path. Formations are provided along the sides of the strip which are capable of engaging with lateral tracks to place the belt under lateral tension, the lateral tracks further serving to constrain the belt to follow the continuous path.

26 Claims, 8 Drawing Sheets



US010813302B2

(12) **United States Patent**
Alkalay

(10) **Patent No.: US 10,813,302 B2**
(45) **Date of Patent: *Oct. 27, 2020**

(54) **CYLINDRICAL DRIP IRRIGATION EMITTER**

(71) Applicant: **METZERPLAS AGRICULTURAL COOPERATIVE LTD.**, Kibbutz Metzer (IL)

(72) Inventor: **Uri Alkalay**, Even Yehuda (IL)

(73) Assignee: **METZERPLAS AGRICULTURAL COOPERATIVE LTD**, Kibbutz Metzer (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **15/890,375**

(22) Filed: **Feb. 7, 2018**

(65) **Prior Publication Data**

US 2018/0228097 A1 Aug. 16, 2018

Related U.S. Application Data

(63) Continuation of application No. 14/117,862, filed as application No. PCT/US2012/037326 on May 10, 2012, now Pat. No. 9,918,438.

(30) **Foreign Application Priority Data**

May 16, 2011 (GB) 1108066.0

(51) **Int. Cl.**
A01G 25/02 (2006.01)

(52) **U.S. Cl.**
CPC ***A01G 25/023*** (2013.01); *Y02A 40/237* (2018.01)

(58) **Field of Classification Search**
CPC A01G 25/02; A01G 25/023
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

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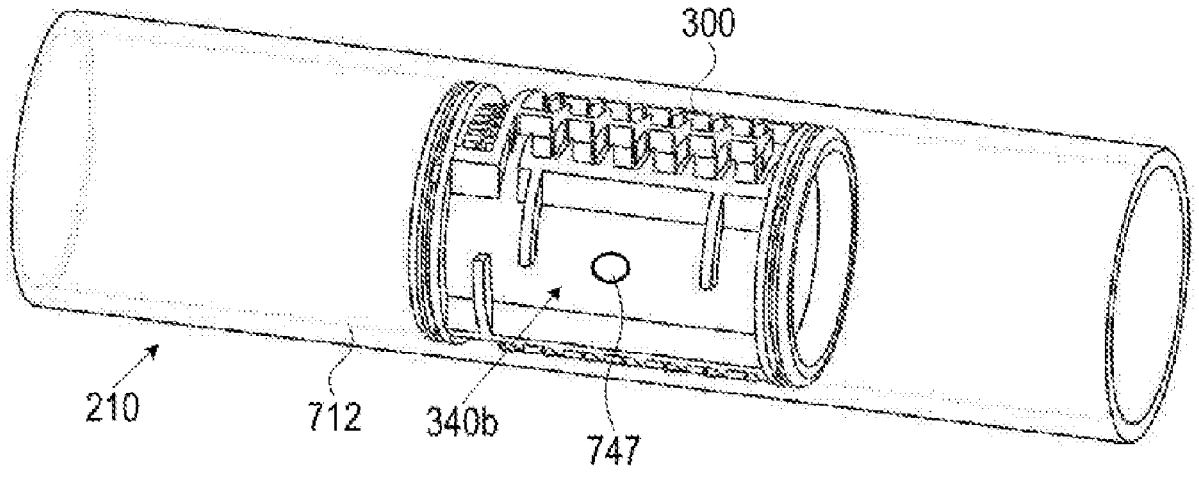
Primary Examiner — Chee-Chong Lee
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; Momentum IP Group

(57) **ABSTRACT**

A system including: (a) a pipe having an aperture providing fluid communication between inner and outer pipe surfaces; (b) a cylindrical drip emitter disposed within the pipe, including: an emitter body having an outer facing having a generally convex contour adapted in generally complementary fashion to a concave contour of the inner pipe surface, the outer facing secured to the inner surface; a liquid inlet section adapted to receive a liquid from within the pipe, and to deliver the liquid, via the aperture, to the outer facing; a pressure-reducing section disposed in fluid communication with the liquid inlet section; functionally active sections including the pressure-reducing section, the liquid inlet section, the functionally active sections disposed within, and longitudinally defining, a position of a longitudinal segment of the body; and at least one functionally passive section, disposed on the outer facing, within the longitudinal segment; and (c) a liquid flow path fluidly connecting between the liquid inlet section and the passive section, via the pressure-reducing section, and between the passive section and an ambient environment, via the first aperture, wherein the first aperture is situated within longitudinal bounds of the longitudinal segment, and radially aligned with the functionally passive section disposed within the longitudinal segment.

19 Claims, 8 Drawing Sheets



US010704951B2

(12) **United States Patent**
Trakhimovich

(10) **Patent No.: US 10,704,951 B2**
(45) **Date of Patent: Jul. 7, 2020**

(54) **LOW-PROFILE LOAD CELL ASSEMBLY WITH VERTICAL WEIGHT ADAPTER**

(71) Applicant: **SHEKEL SCALES (2008) LTD.**, Beit Keshet (IL)

(72) Inventor: **Michael Trakhimovich**, Gan Ner (IL)

(73) Assignee: **SHEKEL SCALES (2008) LTD.**, Beit Keshet (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/351,727**

(22) Filed: **Mar. 13, 2019**

(65) **Prior Publication Data**

US 2019/0301921 A1 Oct. 3, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/329,126, filed as application No. PCT/IB2015/055905 on Aug. 3, 2015, now Pat. No. 10,274,359.

(30) **Foreign Application Priority Data**

Aug. 3, 2014 (GB) 1413735.0

(51) **Int. Cl.**
G01G 3/14 (2006.01)
G01G 21/14 (2006.01)

(52) **U.S. Cl.**
CPC ***G01G 3/1412*** (2013.01); ***G01G 21/14*** (2013.01)

(58) **Field of Classification Search**
CPC G01G 3/1412; G01G 21/14
USPC 177/187
See application file for complete search history.

(56) **References Cited**

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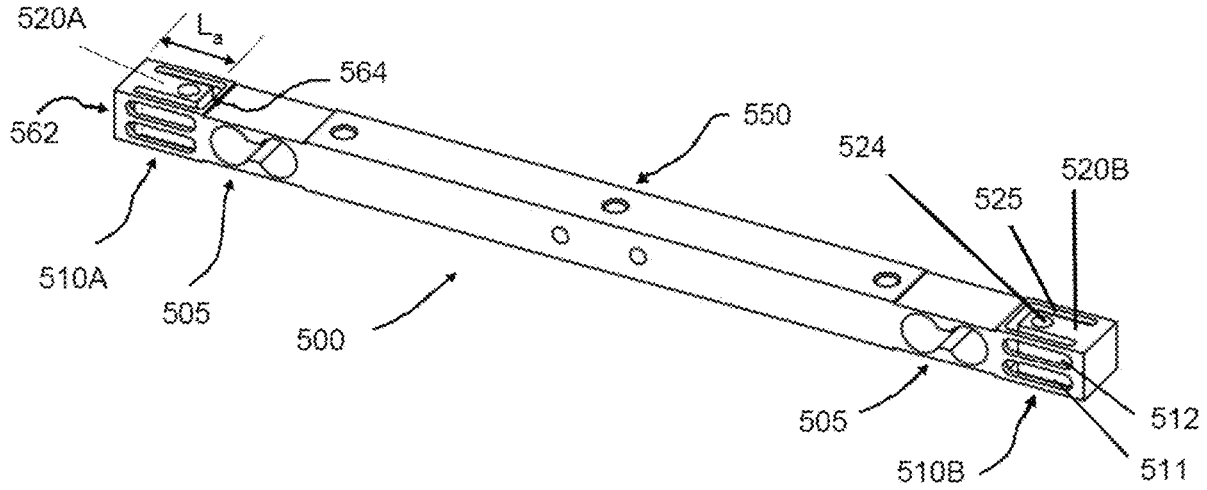
Primary Examiner — Natalie Huls
Assistant Examiner — Monica S Young
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; Momentum IP Group

(57) **ABSTRACT**

A load cell assembly, including an adapter adapted to receive a vertical load, and having loaded and unloaded dispositions a load cell body including a spring element having a first cutout window defined by a top beam and a bottom beam, the window transversely disposed through the body, the spring element adapted such that responsive to a downward force exerted on a top face of the adapter, the beams assume a primary double-bending configuration a strain-sensing gage, attached to the spring element, the strain-sensing gage for measuring strain in the spring element; and an at least two-dimensional flexural member having a second cutout window, the second cutout window being transversely disposed through the body; the adapter disposed in mechanical relation to the flexural member such that, in the loaded disposition of the adapter, the flexural member assumes a secondary, substantially double-bending configuration.

20 Claims, 5 Drawing Sheets



US010641643B2

(12) **United States Patent**
Trakhimovich

(10) **Patent No.: US 10,641,643 B2**
(45) **Date of Patent: May 5, 2020**

(54) **LOAD CELL ASSEMBLY HAVING A FLEXURAL ARRANGEMENT**

(71) Applicant: **Shekel Scales Co. (2008) Ltd.**, Kibbutz Beit-Keshet (IL)

(72) Inventor: **Michael Trakhimovich**, Gan Ner (IL)

(73) Assignee: **Shekel Scales Co. (2008) Ltd.**, Kibbutz Beit-Keshet (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 318 days.

(21) Appl. No.: **15/676,409**

(22) Filed: **Aug. 14, 2017**

(65) **Prior Publication Data**

US 2018/0031412 A1 Feb. 1, 2018

Related U.S. Application Data

(63) Continuation of application No. 14/398,467, filed as application No. PCT/IB2013/000821 on May 2, 2013, now Pat. No. 9,766,113.

(30) **Foreign Application Priority Data**

May 2, 2012 (GB) 1207656.8

(51) **Int. Cl.**
G01G 3/14 (2006.01)
G01G 23/06 (2006.01)
G01G 21/22 (2006.01)

(52) **U.S. Cl.**
CPC ***G01G 3/1402*** (2013.01); ***G01G 3/1412*** (2013.01); ***G01G 21/22*** (2013.01); ***G01G 23/06*** (2013.01)

(58) **Field of Classification Search**
CPC G01G 3/1402; G01G 3/1412; G01G 21/22; G01G 23/06
See application file for complete search history.

(56) **References Cited**

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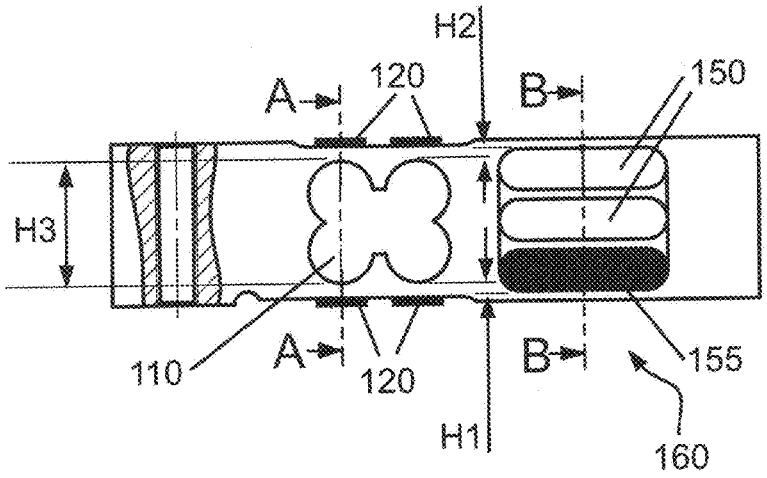
Primary Examiner — Natalie Huls
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; Momentum IP Group

(57) **ABSTRACT**

A weighing scale and a load cell assembly therefor, the weighing scale including: (a) a weighing platform; (b) a base; and (c) a load cell arrangement including: (i) a load cell body, disposed below the platform and above the base, the body secured to the platform at a first position along a length of the body, and secured to the base at a second position along the length, the load cell body having a first cutout window transversely disposed through the body, the window adapted such that a downward force exerted on a top face of the weighing platform distorts the window to form a distorted window; and (ii) at least one strain-sensing gage, mounted on at least a first surface of the load cell body, the strain-sensing gage adapted to measure a strain in the first surface; and (d) an at least a one-dimensional flexure arrangement having at least a second cutout window transversely disposed through the body, the second cutout win-

(Continued)



US010569533B2

(12) **United States Patent**
Landa et al.

(10) **Patent No.: US 10,569,533 B2**
(45) **Date of Patent: Feb. 25, 2020**

(54) **ENDLESS FLEXIBLE BELT FOR A PRINTING SYSTEM**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventors: **Benzion Landa**, Nes Ziona (IL); **Sagi Abramovich**, Ra'anana (IL); **Aharon Shmaiser**, Rishon LeZion (IL); **Rami Keller**, Tel Aviv (IL); **Itshak Ashkanazi**, Rehovot (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/219,582**

(22) Filed: **Dec. 13, 2018**

(65) **Prior Publication Data**

US 2019/0193391 A1 Jun. 27, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/790,026, filed on Oct. 22, 2017, now Pat. No. 10,201,968, which is a continuation of application No. 15/345,238, filed on Nov. 7, 2016, now Pat. No. 9,849,667, which is a continuation of application No. 14/382,759, filed as application No. PCT/IB2013/051719 on Mar. 5, 2013, now Pat. No. 9,517,618.

(60) Provisional application No. 61/611,505, filed on Mar. 15, 2012, provisional application No. 61/611,497, filed on Mar. 15, 2012, provisional application No. 61/635,180, filed on Apr. 18, 2012.

(51) **Int. Cl.**
B41J 2/005 (2006.01)

(52) **U.S. Cl.**
CPC .. ***B41J 2/0057*** (2013.01); *G03G 2215/00147* (2013.01); *G03G 2215/00151* (2013.01)

(58) **Field of Classification Search**
CPC . B41J 11/007; B41J 2/0057; B41J 2/22; B41J 2/315; B41J 2002/012; B41J 17/28; B41J 17/30
See application file for complete search history.

(56) **References Cited**

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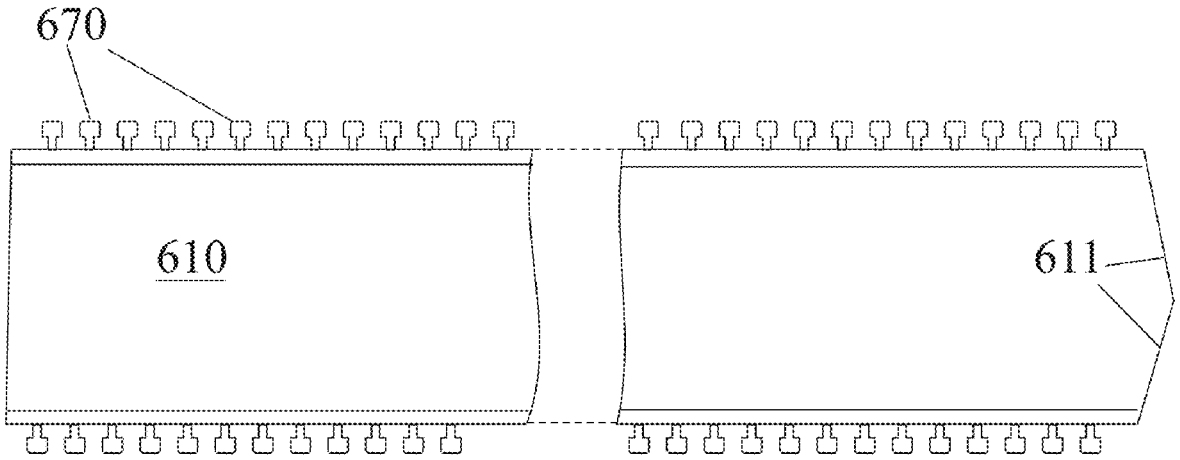
Primary Examiner — Scott A Richmond
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A flexible belt is disclosed for use in a printing system. The belt comprises an endless strip which, in use, travels along a continuous path. Formations are provided along the sides of the strip which are capable of engaging with lateral tracks to place the belt under lateral tension, the lateral tracks further serving to constrain the belt to follow the continuous path.

15 Claims, 8 Drawing Sheets



US010556415B2

(12) **United States Patent**
Ben-David et al.

(10) **Patent No.: US 10,556,415 B2**
(45) **Date of Patent: Feb. 11, 2020**

(54) **METHOD AND APPARATUS FOR BUILDING A 3D OBJECT FROM LAYERS OF PRE-STRIPPED SUBSTRATE**

(71) Applicant: **HIGHCON SYSTEMS LTD.**, Yavne (IL)

(72) Inventors: **David Ben-David**, Rehovot (IL); **Eli Ireni**, Raanana (IL); **Michael Zimmer**, Beit Elazari (IL); **Michael Karp**, Petah Tikva (IL); **Claudio Rottman**, Modiin (IL)

(73) Assignee: **HIGHCON SYSTEMS LTD**, Yavne (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/751,059**

(22) PCT Filed: **Aug. 26, 2015**

(86) PCT No.: **PCT/IB2015/056481**

§ 371 (c)(1),
(2) Date: **Feb. 7, 2018**

(87) PCT Pub. No.: **WO2017/033046**

PCT Pub. Date: **Mar. 2, 2017**

(65) **Prior Publication Data**

US 2018/0297348 A1 Oct. 18, 2018

(51) **Int. Cl.**
B32B 37/18 (2006.01)
B26F 3/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***B32B 37/18*** (2013.01); ***B29C 64/147*** (2017.08); ***B29C 64/245*** (2017.08);
(Continued)

(58) **Field of Classification Search**
USPC 156/249, 250, 256, 263, 265, 267, 269, 156/308.2, 309.6
See application file for complete search history.

(56) **References Cited**

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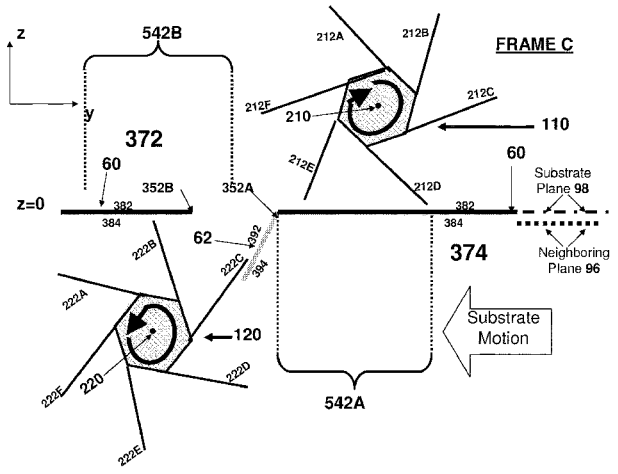
Primary Examiner — Sing P Chan
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Embodiments of the present invention relate to a system and method for manufacturing a three-dimensional object from a stack of pre-stripped layers of substrate. Each object layer is formed by (i) providing substrate comprising waste portion(s) and substrate-retained portion(s) that are attached to each other and separated from one another by cut(s) within the substrate; (ii) subsequently, subjecting the subject of each layer to a stripping process which selectively strips away substrate-waste portion(s) from the substrate-retained portion(s). After stripping, the object layer is added to a stack of previously-stacked object layers to grow the stack. This process is repeated to further grow the stack. Object layers of the stack are bonded to each other to build the three-dimensional object therefrom. Apparatus and methods for stripping are also described—any teaching or combination of teaching(s) related to stripping substrate may be
(Continued)



US010444395B1

(12) **United States Patent**
Vinegar

(10) **Patent No.: US 10,444,395 B1**
(45) **Date of Patent: Oct. 15, 2019**

(54) **TUNNEL DETECTION USING A PIPELINE PIG**

(71) Applicant: **Vinegar Technologies, LLC**, Bellaire, TX (US)

(72) Inventor: **Harold Vinegar**, Bellaire, TX (US)

(73) Assignee: **Vinegar Technologies, LLC**, Bellaire, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/118,187**

(22) Filed: **Aug. 30, 2018**

(51) **Int. Cl.**
G01V 3/165 (2006.01)
G01V 3/02 (2006.01)
G01V 3/40 (2006.01)
G01V 3/08 (2006.01)

(52) **U.S. Cl.**
CPC ***G01V 3/165*** (2013.01); ***G01V 3/02*** (2013.01); ***G01V 3/081*** (2013.01); ***G01V 3/40*** (2013.01)

(58) **Field of Classification Search**
CPC G01V 3/165; G01V 3/02; G01V 3/081
USPC 324/345
See application file for complete search history.

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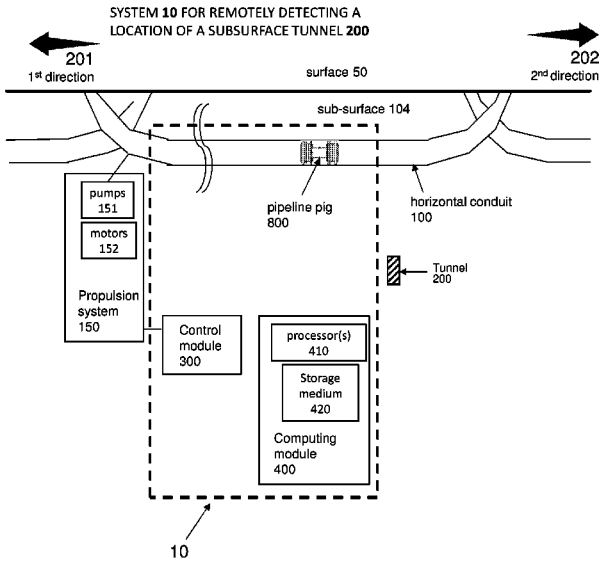
Primary Examiner — Reena Aurora
(74) *Attorney, Agent, or Firm* — Marc Van Dyke; PhD Patent Ltd.

(57) **ABSTRACT**

A method and system for detecting a subsurface tunnel includes propelling an instrumented pipeline pig through a horizontal detection conduit, acquiring and analyzing magnetometer measurements and VLF EM resistivity measurements to detect distortions and/or anomalies in the Earth's magnetic field and/or VLF electromagnetic field, respectively, and correlating the data with position data of the pipeline pig to compute a parameter of a tunnel such as, for example, location, size and depth.

16 Claims, 7 Drawing Sheets



US010435222B2

(12) **United States Patent**
Feder et al.

(10) **Patent No.: US 10,435,222 B2**
(45) **Date of Patent: Oct. 8, 2019**

(54) **RECLOSABLY SEALED CUP, AND MULTI-LAYER WEB THEREFOR**

(71) Applicant: **TADBIK LTD.**, Petach Tikva (IL)

(72) Inventors: **Eli Feder**, Haifa (IL); **Tomer Ben-Dov**, Safed (IL)

(73) Assignee: **TADBIK LTD.**, Petach Tikva (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 138 days.

(21) Appl. No.: **15/315,425**

(22) PCT Filed: **Jun. 8, 2015**

(86) PCT No.: **PCT/IB2015/054316**
§ 371 (c)(1),
(2) Date: **Dec. 1, 2016**

(87) PCT Pub. No.: **WO2015/189756**
PCT Pub. Date: **Dec. 17, 2015**

(65) **Prior Publication Data**

US 2017/0197772 A1 Jul. 13, 2017

(30) **Foreign Application Priority Data**

Jun. 8, 2014 (GB) 1410148.9

(51) **Int. Cl.**
B65D 77/20 (2006.01)
B32B 38/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***B65D 77/2056*** (2013.01); ***A45F 3/16*** (2013.01); ***B29C 65/02*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC B65D 77/2056; B65D 77/2096; B65D 2577/2091; B32B 7/12; B32B 38/0004;
(Continued)

(56) **References Cited**

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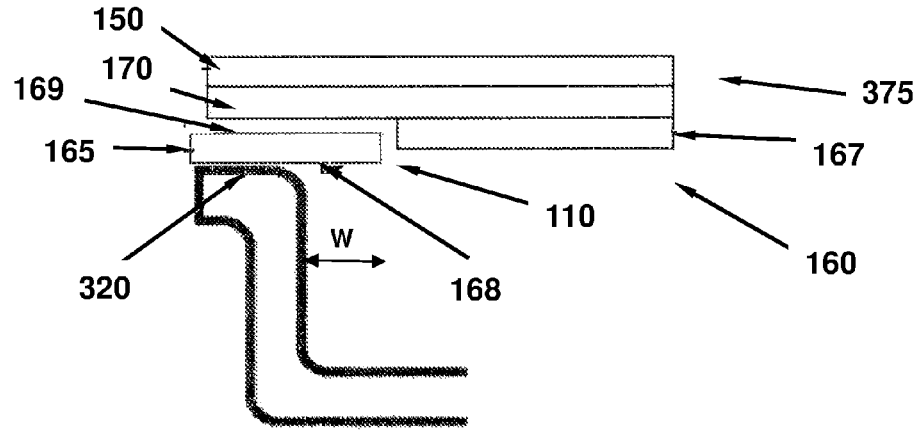
Primary Examiner — Chun Hoi Cheung
Assistant Examiner — Brijesh V. Patel
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A reclosably sealed cup including a cup having a sealing perimeter, a lid having a reclosable sealing arrangement, associated with the sealing perimeter. The lid is adapted to reclosably cover the cup, and the reclosable sealing arrangement adapted to reclosably seal the cup along the sealing perimeter. The reclosably sealed cup further includes an interfacial arrangement, interdisposed between the sealing perimeter and the reclosable sealing arrangement. The interfacial arrangement has a first surface disposed towards, and forming a base adhesive attachment with, the sealing perimeter, and a second surface, distal to the first surface, disposed towards the reclosable arrangement, and forming a reclosable adhesive attachment therewith.

19 Claims, 3 Drawing Sheets



US010434764B1

(12) **United States Patent**
Tal

(10) **Patent No.: US 10,434,764 B1**
(45) **Date of Patent: Oct. 8, 2019**

(54) **YAW MEASUREMENT BY SPECTRAL ANALYSIS**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventor: **David Tal**, Rehovot (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/122,943**

(22) Filed: **Sep. 6, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/554,596, filed on Sep. 6, 2017.

(51) **Int. Cl.**
B41J 2/045 (2006.01)

(52) **U.S. Cl.**
CPC ***B41J 2/04505*** (2013.01); ***B41J 2/04586*** (2013.01)

(58) **Field of Classification Search**
CPC B41J 2/04505; B41J 2/04586
See application file for complete search history.

(56) **References Cited**

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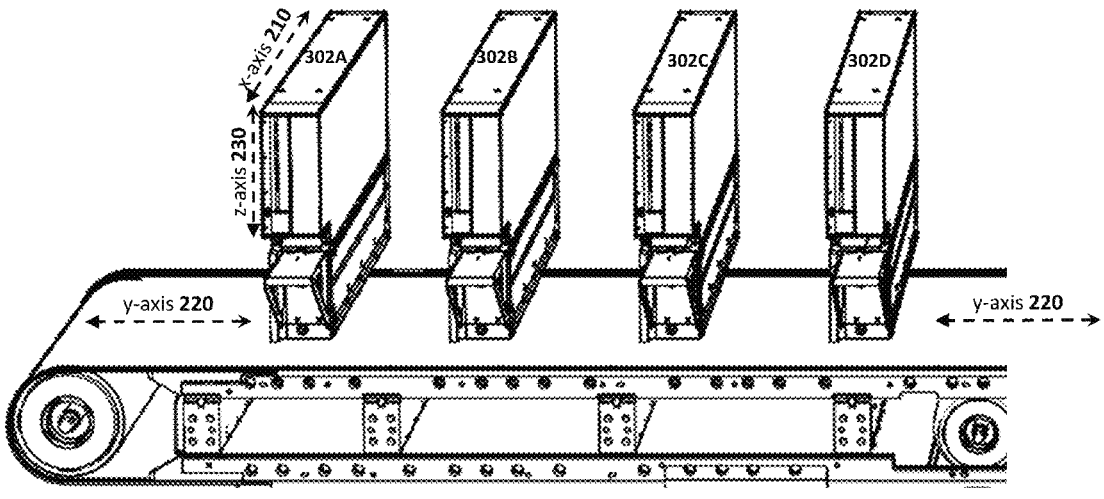
(Continued)

Primary Examiner — Sharon A. Polk
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Some embodiments relate to a method of measuring a magnitude of a yaw angle of print head(s) or of a supporting print-bar thereof relative to cross-print direction. In some embodiments, a 1D-representation (1D-rep) of an ink-calibration image is transformed into the frequency domain (e.g. by FFT) characterized by peak profile. The yaw angle magnitude may be computed from relative energies of a primary and secondary peak of the peak profile of the frequency domain.

20 Claims, 21 Drawing Sheets



US010427399B2

(12) **United States Patent**
Shmaiser et al.

(10) **Patent No.: US 10,427,399 B2**
(45) **Date of Patent: *Oct. 1, 2019**

(54) **APPARATUS FOR THREADING AN INTERMEDIATE TRANSFER MEMBER OF A PRINTING SYSTEM**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventors: **Aharon Shmaiser**, Rishon LeZion (IL); **Sagi Moskovich**, Petach Tikva (IL); **Zohar Goldenstein**, Nes Ziona (IL); **Matan Bar-On**, Hod Hasharon (IL); **Yiftach Katzir**, Kibbutz Bet Guvrin (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **16/118,494**

(22) Filed: **Aug. 31, 2018**

(65) **Prior Publication Data**

US 2019/0084295 A1 Mar. 21, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/564,198, filed as application No. PCT/IB2016/052120 on Apr. 14, 2016, now Pat. No. 10,226,920.

(30) **Foreign Application Priority Data**

Apr. 14, 2015 (GB) 1506314.2

(51) **Int. Cl.**
B41J 2/005 (2006.01)
B41J 11/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***B41J 2/0057*** (2013.01); ***B41J 11/007*** (2013.01); ***B41J 13/08*** (2013.01); ***B41J 15/048*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC B41J 2/0057; B41J 15/16; B41J 11/007; B41J 13/08; B41J 15/048; B41J 2002/012; B65G 17/323; G03G 15/1615
See application file for complete search history.

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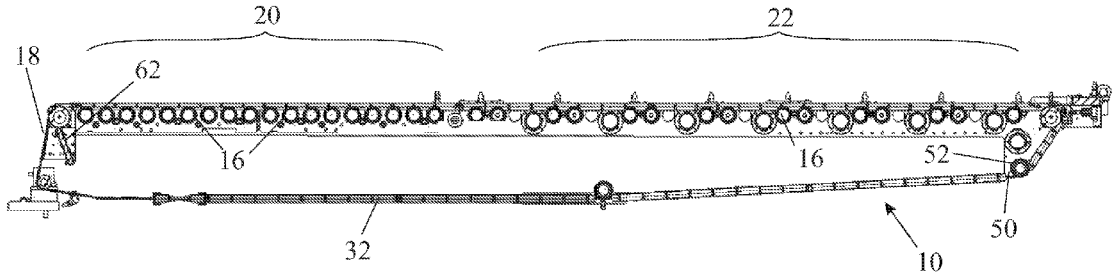
Primary Examiner — Ryan D Walsh
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A printing system is described that has an intermediate transfer member in the form of a seamed endless belt for transporting an ink image from an image forming station, at which an ink image is deposited on the intermediate transfer member, to an impression station, where the ink image is transferred onto a printing substrate. The belt has along its edges formations of a greater thickness than the belt. The formations are received in channels to guide the belt and
(Continued)



US010422114B2

(12) **United States Patent**
Nahum

(10) **Patent No.: US 10,422,114 B2**
(45) **Date of Patent: Sep. 24, 2019**

(54) **SINK DRAIN WITH INTEGRATED TRAP AND REMOVABLE LOWER COVER**

(71) Applicant: **Nir Nahum**, Even Shmuel (IL)

(72) Inventor: **Nir Nahum**, Even Shmuel (IL)

(73) Assignee: **NIR PRACTICAL SOLUTIONS LTD**, Even Shmuel (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/814,953**

(22) Filed: **Nov. 16, 2017**

(65) **Prior Publication Data**

US 2018/0073229 A1 Mar. 15, 2018

Related U.S. Application Data

(63) Continuation-in-part of application No. PCT/IB2016/052853, filed on May 17, 2016.
(Continued)

(51) **Int. Cl.**
E03C 1/282 (2006.01)
E03C 1/22 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***E03C 1/282*** (2013.01); ***E03C 1/1222*** (2013.01); ***E03C 1/22*** (2013.01); ***E03C 1/29*** (2013.01); ***E03C 1/30*** (2013.01); *E03C 1/26* (2013.01)

(58) **Field of Classification Search**
CPC . E03C 1/28; E03C 1/182; E03C 1/122; E03C 1/1222; E03C 1/26; E03C 1/29; E03C 1/30
(Continued)

(56) **References Cited**

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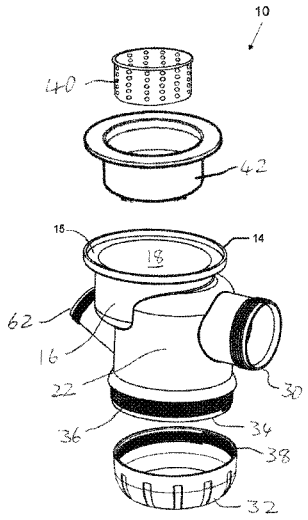
(Continued)

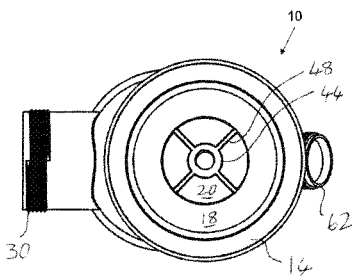
Primary Examiner — Huyen D Le
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A drain assembly for a sink has an abutment surface (**14**) for abutting an underside of the sink around the drain aperture, and a first wall portion (**16**) circumscribing an upper drain volume (**18**). A down-flow conduit (**20**) and an up-flow conduit (**24**) are delineated by a second and third wall portions (**22**, **26**), one of which has an edge defining a lip (**28**) between the down-flow conduit (**20**) and up-flow conduit (**24**). An outlet (**30**) is connected to up-flow conduit (**24**). A removable lower cover (**32**) attaches to the wall portions so as to complete a flow path from the down-flow conduit (**20**) to the up-flow conduit (**24**) so as to form a trap. At least the first, second and third wall portions (**16**, **22**, **26**) and the outlet (**30**) are integrally formed as a unitary body, most preferably by an injection molding process.

20 Claims, 17 Drawing Sheets





US010292482B2

(12) **United States Patent**
Miklatzky et al.

(10) **Patent No.: US 10,292,482 B2**
(45) **Date of Patent: May 21, 2019**

(54) **HAIR-HOLDER, HAIR-READER COMPRISING THE SAME, AND METHODS FOR OPTICALLY ACQUIRING DATA FROM HAIR**

(71) Applicant: **COLORIGHT LTD.**, Rehovot (IL)

(72) Inventors: **Efraim Miklatzky**, Nevellan (IL); **Tal Marcu**, Mevaseret Zion (IL)

(73) Assignee: **COLORIGHT LTD.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 161 days.

(21) Appl. No.: **15/399,796**

(22) Filed: **Jan. 6, 2017**

(65) **Prior Publication Data**

US 2018/0192764 A1 Jul. 12, 2018

(51) **Int. Cl.**
A45D 44/00 (2006.01)
A45D 8/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***A45D 44/005*** (2013.01); ***A45D 8/00*** (2013.01); ***G01N 21/25*** (2013.01); ***G01N 21/84*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC .. A45D 44/005; A45D 8/00; A45D 2044/007; G01N 21/25; G01N 33/4833; G01N 21/84
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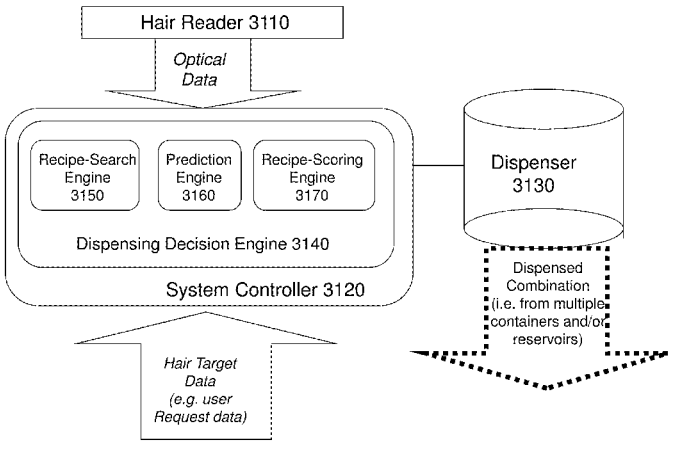
Primary Examiner — Michael Collins
(74) *Attorney, Agent, or Firm* — Oblon, McClelland, Maier & Neustadt, L.L.P.

(57) **ABSTRACT**

A system for optically acquiring data from hair comprises a hair-holder including: upper and lower plate assemblies respectively having downward-facing and upward-facing opposing surfaces defining a gap therebetween, the lower plate assembly having a window-void therein, the upper plate assembly further comprising a sideward-facing sample-thickness-regulating surface above the gap; and an alignment-wall mechanically coupled to both plate assemblies and having a side-facing alignment surface within gap or sideward-facing into the gap, the alignment surface being straight along a longitudinal direction parallel to both of the opposing surfaces, the hair-holder being configured so that: when an externally-tensioned sample of hair is loaded onto the hair-holder by laterally moving the sample towards the alignment surface, a presence of the sideward-facing sample-thickness-regulating surface regulates an amount of hair permitted to enter the gap, thereby regulating a thickness of hair above the window-void to at least 0.5 mm and at most 2 mm, and after the loading and after release of the external tension, static friction applied by the side-facing alignment surface upon shafts of the hair sample maintain alignment of hair above the window-void.

17 Claims, 25 Drawing Sheets



US010274359B2

(12) **United States Patent**
Trakhimovich

(10) **Patent No.: US 10,274,359 B2**
(45) **Date of Patent: Apr. 30, 2019**

(54) **LOW-PROFILE LOAD CELL ASSEMBLY HAVING FLEXURAL MEMBERS WITH DOUBLE-BENDING BEHAVIOR**

(71) Applicant: **SHEKEL SCALES (2008) LTD.**, Beit Keshet (IL)

(72) Inventor: **Michael Trakhimovich**, Gan Ner (IL)

(73) Assignee: **Shekel Scales Co. (2008) Ltd.**, Kibbutz Beit-Keshet (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 28 days.

(21) Appl. No.: **15/329,126**

(22) PCT Filed: **Aug. 3, 2015**

(86) PCT No.: **PCT/IB2015/055905**
§ 371 (c)(1),
(2) Date: **Jan. 25, 2017**

(87) PCT Pub. No.: **WO2016/020840**
PCT Pub. Date: **Feb. 11, 2016**

(65) **Prior Publication Data**

US 2017/0211965 A1 Jul. 27, 2017

(30) **Foreign Application Priority Data**

Aug. 3, 2014 (GB) 1413735.0

(51) **Int. Cl.**
G01G 3/14 (2006.01)
G01G 21/14 (2006.01)

(52) **U.S. Cl.**
CPC ***G01G 3/1412*** (2013.01); ***G01G 21/14*** (2013.01)

(58) **Field of Classification Search**
CPC G01G 3/1412; G01G 21/14
(Continued)

(56) **References Cited**

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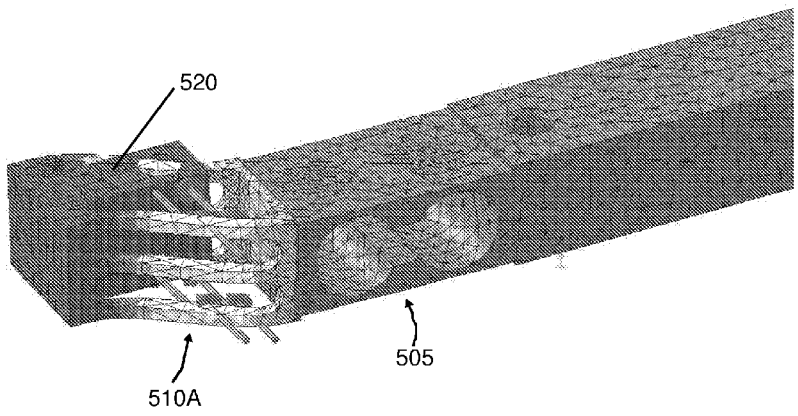
Primary Examiner — Natalie Huls
Assistant Examiner — Monica S Young
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A load cell assembly, including an adapter adapted to receive a vertical load, and having loaded and unloaded dispositions; a load cell body including a spring element having a first cutout window defined by a top beam and a bottom beam, the window transversely disposed through the body, the spring element adapted such that responsive to a downward force exerted on a top face of the adapter, the beams assume a primary double-bending configuration; a strain-sensing gage, attached to the spring element, the strain-sensing gage for measuring strain in the spring element; and an at least two-dimensional flexural member having a second cutout window, the second cutout window being transversely disposed through the body; the adapter disposed in mechanical relation to the flexural member such that, in the loaded disposition of the adapter, the flexural member

(Continued)



US010206766B2

(12) **United States Patent**
Zachar et al.

(10) **Patent No.: US 10,206,766 B2**
(45) **Date of Patent: Feb. 19, 2019**

(54) **TOOTHBRUSH SYSTEM FOR TREATING INTUBATED PATIENTS**

(71) Applicant: **Airway Medix S.A.**, Warsaw (PL)

(72) Inventors: **Oron Zachar**, Tel Aviv (IL); **Yair Ramot**, Kfar Maas (IL); **Eizik Amar**, Ashdod (IL)

(73) Assignee: **Airway Medix S.A.**, Warsaw (PL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/668,726**

(22) Filed: **Aug. 4, 2017**

(65) **Prior Publication Data**

US 2018/0078350 A1 Mar. 22, 2018

Related U.S. Application Data

(60) Provisional application No. 62/371,126, filed on Aug. 4, 2016.

(51) **Int. Cl.**
A61C 17/22 (2006.01)
A61C 17/02 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***A61C 17/221*** (2013.01); ***A46B 5/0095*** (2013.01); ***A46B 9/04*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC . A46B 13/02; A46B 15/0004; A46B 15/0053; A46B 5/0095; A46B 9/04;
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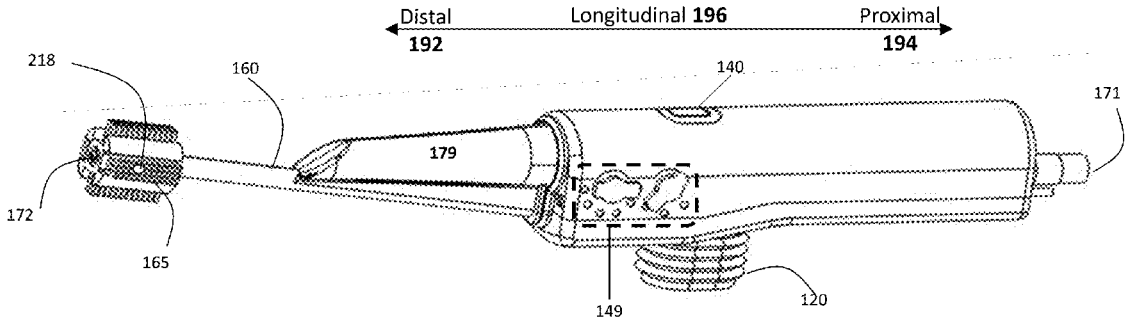
(Continued)

Primary Examiner — Marc Carlson
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

An oral care system for a defined oral care cleaning cycle comprising a base module **100**, a head module **150** comprising a toothbrush-bristle brush **165** disposed on a bristle-retaining surface of the head module, and a tail module **151**. A multi-input/multi-display counter **149** is disposed on a base-module main body **110** of the main body **100**. The multi-input/multi-display counter **149** independently displays first and second count-states, and includes first and second independently-operable user inputs that are respectively associated with the first and second count-states such that: (a) in response to user engagement of the first user input, the first count state is incremented or decremented; and (b) in response to user engagement of the second user input, the second count state is incremented or decremented.

4 Claims, 16 Drawing Sheets



US010104919B2

(12) **United States Patent**
Perl

(10) **Patent No.: US 10,104,919 B2**
(45) **Date of Patent: Oct. 23, 2018**

(54) **BRA LINING**

(71) Applicant: **Avigail Perl**, Tel Aviv (IL)

(72) Inventor: **Avigail Perl**, Tel Aviv (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 234 days.

(21) Appl. No.: **14/371,507**

(22) PCT Filed: **Jul. 10, 2013**

(86) PCT No.: **PCT/IL2013/050590**

§ 371 (c)(1),
(2) Date: **Jul. 10, 2014**

(87) PCT Pub. No.: **WO2014/009956**

PCT Pub. Date: **Jan. 16, 2014**

(65) **Prior Publication Data**

US 2015/0150310 A1 Jun. 4, 2015

Related U.S. Application Data

(60) Provisional application No. 61/669,689, filed on Jul. 10, 2012.

(51) **Int. Cl.**

A41C 3/12	(2006.01)
A41D 27/12	(2006.01)
A61F 13/14	(2006.01)
A61F 13/15	(2006.01)

(52) **U.S. Cl.**

CPC ***A41C 3/12*** (2013.01); ***A41D 27/12*** (2013.01); *A41B 2300/24* (2013.01); *A61F 13/14* (2013.01); *A61F 2013/15016* (2013.01)

(58) **Field of Classification Search**

CPC A41C 3/065; A61F 13/15; A61F 2013/15016; A61F 13/14; A41D 27/12; A41B 2300/24

USPC 450/93, 37, 54–57, 60, 81, 39; 604/385.07, 358

See application file for complete search history.

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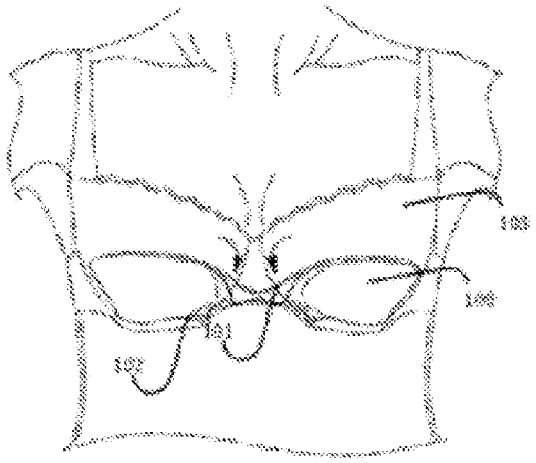
Primary Examiner — Khaled Annis
Assistant Examiner — Brieanna Szafran
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

The current invention aims to absorb sweat and body odor from the breasts. It also protects the skin by providing a cushioned support strip below the bra wire. The invention is a lining to be affixed between the inner lining of a brassiere and the skin, having three layers and a set of flaps protruding from the device adapted to be folded outward to hold the device in place.

9 Claims, 3 Drawing Sheets



US010076385B2

(12) **United States Patent**
Shoham et al.

(10) **Patent No.: US 10,076,385 B2**
(45) **Date of Patent: Sep. 18, 2018**

(54) **METHOD AND APPARATUS FOR ALERTING A USER TO SENSED LATERAL FORCES UPON A GUIDE-SLEEVE IN A ROBOT SURGICAL SYSTEM**

(71) Applicant: **MAZOR ROBOTICS LTD.**, Caesarea (IL)

(72) Inventors: **Moshe Shoham**, Hoshaya (IL); **Eli Zehavi**, Haifa (IL)

(73) Assignee: **MAZOR ROBOTICS LTD.**, Caesarea

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 707 days.

(21) Appl. No.: **14/563,983**

(22) Filed: **Dec. 8, 2014**

(65) **Prior Publication Data**

US 2015/0209056 A1 Jul. 30, 2015

Related U.S. Application Data

(60) Provisional application No. 61/913,328, filed on Dec. 8, 2013.

(51) **Int. Cl.**

A61B 17/17	(2006.01)
A61B 19/00	(2006.01)
A61B 34/30	(2016.01)
A61B 90/11	(2016.01)
A61B 17/00	(2006.01)
A61B 90/00	(2016.01)

(52) **U.S. Cl.**

CPC ***A61B 19/2203*** (2013.01); ***A61B 34/30*** (2016.02); ***A61B 90/11*** (2016.02); *A61B 17/1703* (2013.01); *A61B 17/1707* (2013.01); *A61B 17/1757* (2013.01); *A61B 2017/00119* (2013.01); *A61B 2090/064* (2016.02)

(58) **Field of Classification Search**

CPC . A61B 17/17; A61B 17/1732; A61B 17/1703; A61B 17/1707; A61B 19/201; A61B 19/2203

See application file for complete search history.

(56) **References Cited**

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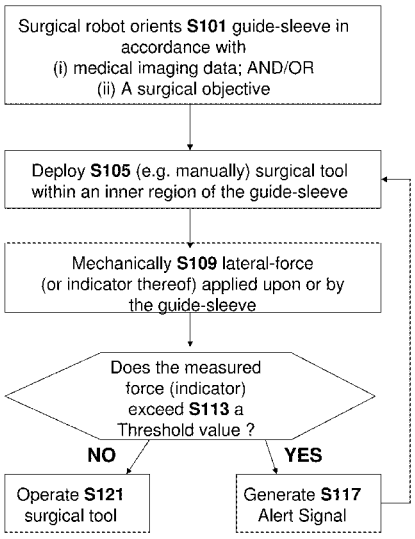
Primary Examiner — Christopher Beccia
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Methods and apparatus for detecting or predicting surgical tool-bone skiving are disclosed. In some embodiments, the surgical tool is movably and/or snugly disposed within a guide-sleeve. In some embodiments, a magnitude of a lateral force between the surgical tool and the guide-sleeve is measured (e.g. by a force sensor or strain sensor). The present or future skiving may be detected or predicted according to the magnitude of the lateral force. In some embodiments, an alert signal is generated in response to the detecting or predicting of the skiving.

15 Claims, 16 Drawing Sheets



US010058797B2

(12) **United States Patent**
Firestein et al.

(10) **Patent No.: US 10,058,797 B2**
(45) **Date of Patent: Aug. 28, 2018**

(54) **CONTACTING ARRANGEMENT**

(71) Applicant: **BATEMAN ADVANCED TECHNOLOGIES LTD.**, Yokneam (IL)

(72) Inventors: **Mark Firestein**, Yokneam Moshava (IL); **Oded Lerner**, Haifa (IL); **Nadav Dobrin**, Kfar Yona (IL)

(73) Assignee: **TENOVA ADVANCED TECHNOLOGIES**, Yokneam (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 188 days.

(21) Appl. No.: **14/909,518**

(22) PCT Filed: **Aug. 11, 2014**

(86) PCT No.: **PCT/IB2014/063856**
§ 371 (c)(1),
(2) Date: **Feb. 2, 2016**

(87) PCT Pub. No.: **WO2015/022627**
PCT Pub. Date: **Feb. 19, 2015**

(65) **Prior Publication Data**

US 2016/0166948 A1 Jun. 16, 2016

(30) **Foreign Application Priority Data**

Aug. 12, 2013 (GB) 1314425.8

(51) **Int. Cl.**
B01D 11/04 (2006.01)
B01J 19/32 (2006.01)
B01F 13/00 (2006.01)

(52) **U.S. Cl.**
CPC ***B01D 11/043*** (2013.01); ***B01F 13/0074*** (2013.01); *B01J 2219/32206* (2013.01)

(58) **Field of Classification Search**
CPC B01D 11/04; B01D 11/043; B01D 11/02; B01D 21/0042; B01D 21/0045; B01D 21/0048; B01D 21/0039; B01D 21/0069; B01F 13/10; B01F 13/0074; B01F 13/0081; B01F 13/0094; B01J 19/32; B01J 2219/32; B01J 2219/322; B01J 2219/32203; B01J 2219/32206; B01J 2219/32282;
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(56) **References Cited**

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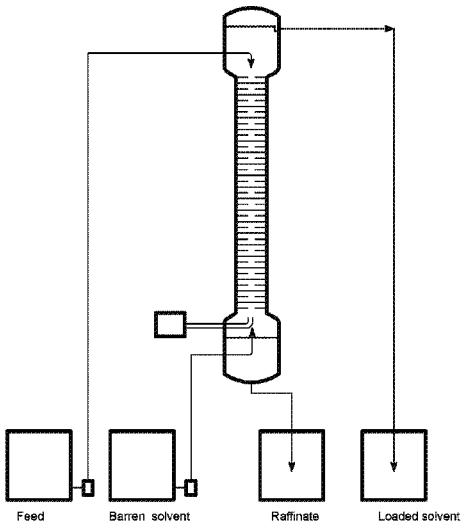
(Continued)

Primary Examiner — Joseph Drodge
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Contacting arrangements adapted to be installed within a liquid-liquid extraction column, and including pairs of disk and doughnut plates.

20 Claims, 10 Drawing Sheets



US010047594B2

(12) **United States Patent**
Vinegar et al.

(10) **Patent No.: US 10,047,594 B2**
(45) **Date of Patent: *Aug. 14, 2018**

(54) **HEATER PATTERN FOR IN SITU THERMAL PROCESSING OF A SUBSURFACE HYDROCARBON CONTAINING FORMATION**

(75) Inventors: **Harold Vinegar**, Bellaire, TX (US); **Scott Nguyen**, Hoston, TX (US)

(73) Assignee: **GENIE IP B.V.**, Amsterdam (NL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 604 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/373,880**

(22) PCT Filed: **Jan. 23, 2012**

(86) PCT No.: **PCT/US2012/022282**

§ 371 (c)(1),
(2), (4) Date: **Feb. 18, 2015**

(87) PCT Pub. No.: **WO2013/112133**

PCT Pub. Date: **Aug. 1, 2013**

(65) **Prior Publication Data**

US 2015/0176380 A1 Jun. 25, 2015

(51) **Int. Cl.**
E21B 43/24 (2006.01)
E21B 43/243 (2006.01)

(52) **U.S. Cl.**
CPC ***E21B 43/24*** (2013.01); ***E21B 43/2401*** (2013.01); ***E21B 43/243*** (2013.01)

(58) **Field of Classification Search**
CPC E21B 43/24; E21B 43/2401; E21B 43/243
See application file for complete search history.

(56) **References Cited**

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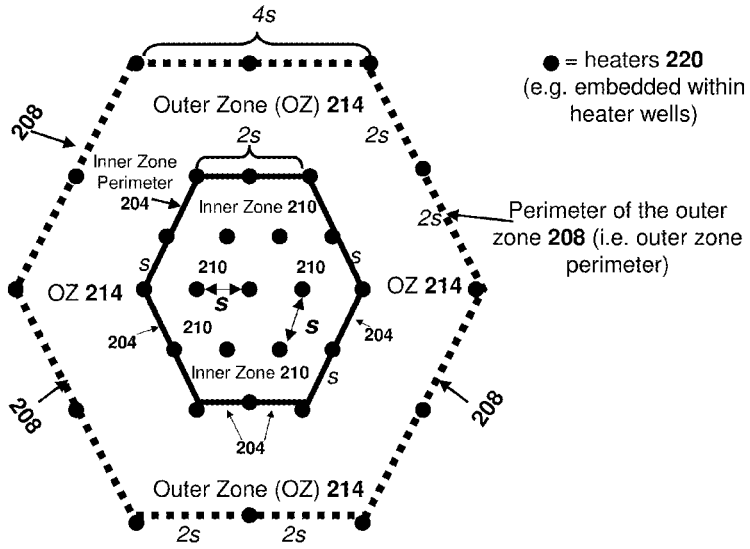
Primary Examiner — Brad Harcourt
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Embodiments of the present invention relate to heater patterns and related methods of producing hydrocarbon fluids from a subsurface hydrocarbon-containing formation (for example, an oil shale formation) where a heater cell may be divided into nested inner and outer zones. Production wells may be located within one or both zones. In the smaller inner zone, heaters may be arranged at a relatively high spatial density while in the larger surrounding outer zone, a heater spatial density may be significantly lower. Due to the higher heater density, a rate of temperature increase in the smaller inner zone of the subsurface exceeds that of the larger outer zone, and a rate of hydrocarbon fluid production ramps up faster in the inner zone than in the outer zone. In some embodiments, a ratio between a half-maximum sustained production time and a half-maximum rise time of a hydrocarbon fluid production function is relatively large.

15 Claims, 100 Drawing Sheets



US010040000B2

(12) **United States Patent**
Lerner et al.

(10) **Patent No.: US 10,040,000 B2**
(45) **Date of Patent: Aug. 7, 2018**

(54) **REVERSE FLOW SETTLER APPARATUS**

(71) Applicant: **Tenova Advanced Technologies Ltd.**, Yokneam (IL)

(72) Inventors: **Oded Lerner**, Haifa (IL); **Keren Larmour-Ship**, Mitzpe Netofa (IL); **Mark Vancas**, San Manuel, AZ (US)

(73) Assignee: **TENOVA ADVANCED TECHNOLOGIES LTD.**, Yokneam (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 5 days.

(21) Appl. No.: **15/323,418**

(22) PCT Filed: **Jul. 2, 2015**

(86) PCT No.: **PCT/IB2015/055002**

§ 371 (c)(1),
(2) Date: **Jan. 1, 2017**

(87) PCT Pub. No.: **WO2016/001872**

PCT Pub. Date: **Jan. 7, 2016**

(65) **Prior Publication Data**

US 2017/0157535 A1 Jun. 8, 2017

(30) **Foreign Application Priority Data**

Jul. 3, 2014 (GB) 1411947.3

(51) **Int. Cl.**
B01D 17/028 (2006.01)
B01D 17/02 (2006.01)
B01D 21/24 (2006.01)

(52) **U.S. Cl.**
CPC ***B01D 17/0211*** (2013.01); ***B01D 17/0214*** (2013.01); ***B01D 21/2405*** (2013.01)

(58) **Field of Classification Search**
CPC B01D 17/0208; B01D 17/0211; B01D 17/0214; B01D 21/0042; B01D 21/0087; B01D 21/2405
USPC 210/519, 521, 532.1, 540, 801
See application file for complete search history.

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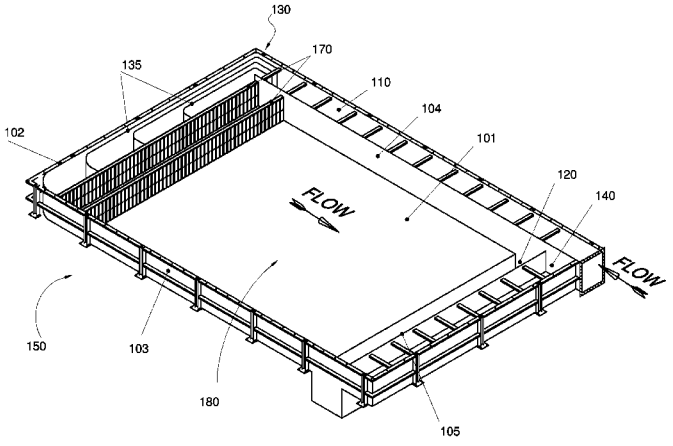
Primary Examiner — Christopher Upton
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A reverse flow settling apparatus.

20 Claims, 10 Drawing Sheets



US00D741005S

(12) United States Design Patent

Mercier

(10) Patent No.: US D741,005 S
(45) Date of Patent: ** Oct. 13, 2015

(54) **HAIR COLORING APPARATUS**

(71) Applicant: **Michel Mercier Ltd.**, Tel Aviv (IL)

(72) Inventor: **Michel Mercier**, Hetzliya (IL)

(73) Assignee: **S.O.S. COLOR LTD.**, Tel Aviv (IL)

(**) Term: **14 Years**

(21) Appl. No.: **29/454,336**

(22) Filed: **May 9, 2013**

Related U.S. Application Data

(63) Continuation of application No. 29/397,379, filed on Jul. 14, 2011, now abandoned, and a continuation-in-part of application No. 13/169,115, filed on Jun. 27, 2011.

(60) Provisional application No. 61/358,507, filed on Jun. 25, 2010.

(51) **LOC (10) Cl.** **28-03**

(52) **U.S. Cl.**
USPC **D28/7**

(58) **Field of Classification Search**
USPC D28/7, 8, 20–22, 30–31, 76, 85, 99; 132/108, 202, 208, 317, 320; 401/202–207, 261–267; D24/119, D24/124–126; D1/126, 127, 130, 199; D6/595–601; D32/40–45; 15/209.1, 15/244.1, 244.2, 244.3, 244.4
CPC A45D 33/00; A45D 33/34; A45D 33/36
See application file for complete search history.

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Primary Examiner — Zenia Bennett
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

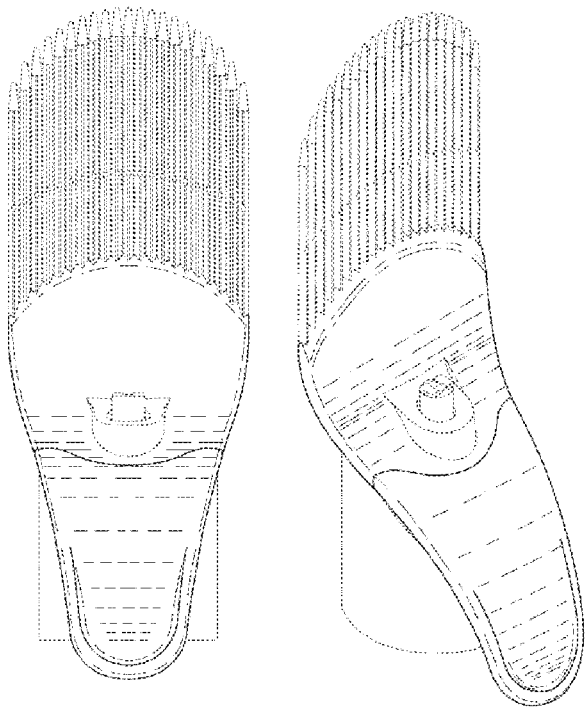
(57) **CLAIM**

The ornamental design for a hair coloring apparatus, as shown and described.

DESCRIPTION

FIG. **1** is a front view of a hair coloring apparatus embodying the design.
FIG. **2** is a back view thereof.
FIG. **3-4** are side views thereof.
FIG. **5** is a bottom view thereof.
FIG. **6** is a top view thereof; and,
FIG. **7** is an isometric view thereof.
The broken lines in the drawings are for illustrative purposes only and do not form part of the claimed design.

1 Claim, 6 Drawing Sheets



US00D637818S

(12) United States Design Patent

Mercier

(10) Patent No.: US D637,818 S
(45) Date of Patent: ** *May 17, 2011

(54) **HAIRBRUSH**

(76) Inventor: **Michel Mercier**, Hetzliya (IL)

(**) Term: **14 Years**

(21) Appl. No.: **29/354,421**

(22) Filed: **Jan. 24, 2010**

(51) **LOC (9) Cl.** **04-02**

(52) **U.S. Cl.** **D4/136**

(58) **Field of Classification Search** ..... D4/130, D4/132–134, 136; D24/200, 214, 211; D28/63; 15/159.1, 160, 186–188, 207.2, DIG. 5; 132/120, 132/313, 901; 401/28; 601/109, 136, 137; 119/600, 612, 615, 632
See application file for complete search history.

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EP	1757201	2/2007
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GB	2244232	11/1991
GB	2447692	9/2008
JP	2003033226	2/2003
WO	8800446	1/1988

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Primary Examiner — Melanie H Tung
Assistant Examiner — Lavone D Tabor

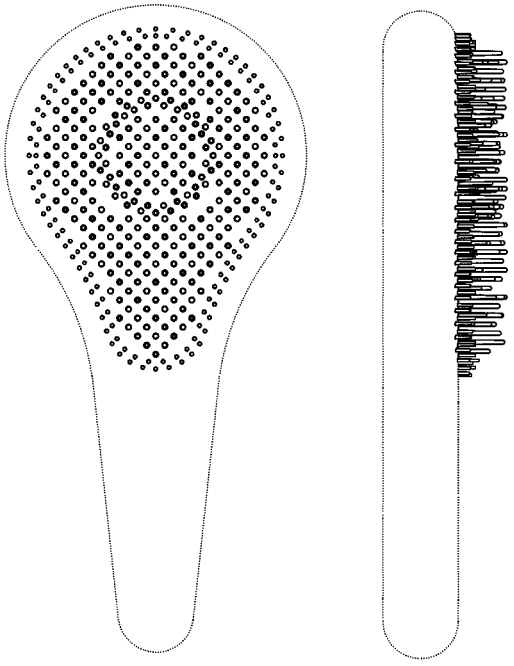
(57) **CLAIM**

The ornamental design for a hairbrush, as shown and described.

DESCRIPTION

FIG. **1** is a front view of a hairbrush embodying the design.
FIG. **2** is a back view thereof.
FIGS. **3-4** are side views thereof.
FIG. **5** is a top view thereof.
FIG. **6** is a bottom view thereof; and,
FIG. **7** is a isometric view thereof.
The broken-line showing of a back and handle illustrates portions of the hairbrush that form no part of the claimed design.

1 Claim, 5 Drawing Sheets



US009766113B2

(12) **United States Patent**
Trakhimovich

(10) **Patent No.: US 9,766,113 B2**
(45) **Date of Patent: Sep. 19, 2017**

(54) **LOAD CELL DEVICE HAVING A FLEXURAL ARRANGEMENT**

(71) Applicant: **Shekel Scales Co. (2008) Ltd.**, Kibbutz Beit-Keshet (IL)

(72) Inventor: **Michael Trakhimovich**, Gan Ner (IL)

(73) Assignee: **Shekel Scales Co. (2008) Ltd.**, Kibbutz Beit-Keshet (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 73 days.

(21) Appl. No.: **14/398,467**

(22) PCT Filed: **May 2, 2013**

(86) PCT No.: **PCT/IB2013/000821**
§ 371 (c)(1),
(2) Date: **Nov. 2, 2014**

(87) PCT Pub. No.: **WO2013/164675**
PCT Pub. Date: **Nov. 7, 2013**

(65) **Prior Publication Data**

US 2015/0107913 A1 Apr. 23, 2015

(30) **Foreign Application Priority Data**

May 2, 2012 (GB) 1207656.8

(51) **Int. Cl.**
G01G 3/14 (2006.01)
G01G 23/06 (2006.01)
G01G 21/22 (2006.01)

(52) **U.S. Cl.**
CPC ***G01G 3/1402*** (2013.01); ***G01G 3/1412*** (2013.01); ***G01G 21/22*** (2013.01); ***G01G 23/06*** (2013.01)

(58) **Field of Classification Search**
CPC G01G 3/1402; G01G 3/1412; G01G 21/22; G01G 23/06
See application file for complete search history.

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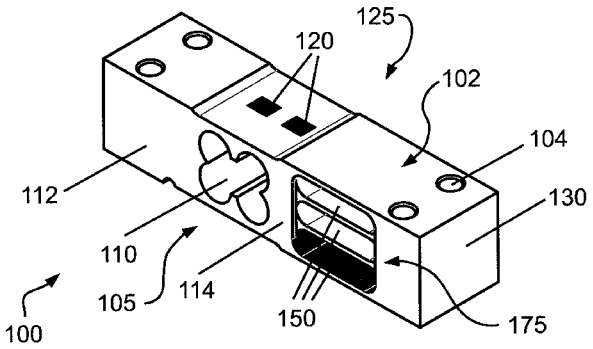
Primary Examiner — Natalie Huls
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A weighing scale and a load cell assembly therefor, the weighing scale including: (a) a weighing platform; (b) a base; and (c) a load cell arrangement including: (i) a load cell body, disposed below the platform and above the base, the body secured to the platform at a first position along a length of the body, and secured to the base at a second position along the length, the load cell body having a first cutout window transversely disposed through the body, the window adapted such that a downward force exerted on a top face of the weighing platform distorts the window to form a distorted window; and (ii) at least one strain-sensing gage, mounted on at least a first surface of the load cell body, the strain-sensing gage adapted to measure a strain in the first surface; and (d) an at least a one-dimensional flexure arrangement having at least a second cutout window transversely disposed through the body, the second cutout win-

(Continued)



US009517618B2

(12) **United States Patent**
Landa et al.

(10) **Patent No.: US 9,517,618 B2**
(45) **Date of Patent: Dec. 13, 2016**

(54) **ENDLESS FLEXIBLE BELT FOR A PRINTING SYSTEM**

(71) Applicant: **LANDA CORPORATION LTD.**, Rehovot (IL)

(72) Inventors: **Benzion Landa**, Nes Ziona (IL); **Sagi Abramovich**, Ra'anana (IL); **Aharon Shmaiser**, Rishon LeZion (IL); **Rami Keller**, Tel Aviv (IL); **Itshak Ashkanazi**, Rehovot (IL)

(73) Assignee: **LANDA CORPORATION LTD.**, Rehovot

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/382,759**

(22) PCT Filed: **Mar. 5, 2013**

(86) PCT No.: **PCT/IB2013/051719**
§ 371 (c)(1),
(2) Date: **Sep. 3, 2014**

(87) PCT Pub. No.: **WO2013/136220**
PCT Pub. Date: **Sep. 19, 2013**

(65) **Prior Publication Data**

US 2015/0165759 A1 Jun. 18, 2015

Related U.S. Application Data

(60) Provisional application No. 61/611,505, filed on Mar. 15, 2012, provisional application No. 61/611,497, (Continued)

(51) **Int. Cl.**
B41J 2/005 (2006.01)

(52) **U.S. Cl.**
CPC ... ***B41J 2/0057*** (2013.01); *G03G 2215/00147* (2013.01); *G03G 2215/00151* (2013.01)

(58) **Field of Classification Search**
CPC ... B41J 2/0057; B41J 2002/012; B41J 11/007; B41J 1/30; B41J 2/22; B41J 347/103; B41J 2002/12; B65G 15/00; B65H 5/02
See application file for complete search history.

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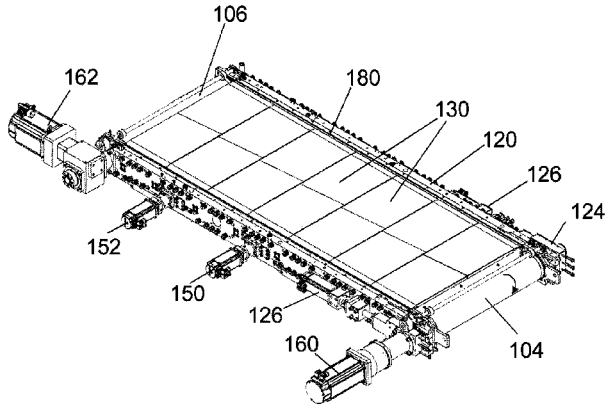
Primary Examiner — Geoffrey Mruk
Assistant Examiner — Scott A Richmond
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A flexible belt is disclosed for use in a printing system. The belt comprises an endless strip which, in use, travels along a continuous path. Formations are provided along the sides of the strip which are capable of engaging with lateral tracks to place the belt under lateral tension, the lateral tracks further serving to constrain the belt to follow the continuous path.

16 Claims, 8 Drawing Sheets



US009464414B2

(12) **United States Patent**
Shapira

(10) **Patent No.: US 9,464,414 B2**
(45) **Date of Patent: Oct. 11, 2016**

(54) **HOUSEHOLD ELECTRONIC MIXING-VALVE DEVICE**

(71) Applicant: **SMARTAP A.Y LTD**, Haifa (IL)

(72) Inventor: **Yuval Shapira**, Haifa (IL)

(73) Assignee: **SMARTAP A.Y LTD.**, Hamesila, Nesher (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/012,379**

(22) Filed: **Aug. 28, 2013**

(65) **Prior Publication Data**

US 2014/0069516 A1 Mar. 13, 2014

Related U.S. Application Data

(63) Continuation-in-part of application No. PCT/US2012/026678, filed on Feb. 27, 2012, and a continuation-in-part of application No. 13/204,805, filed on Aug. 8, 2011.

(51) **Int. Cl.**

G05D 23/19	(2006.01)
E03C 1/04	(2006.01)
E03C 1/05	(2006.01)
F16K 11/00	(2006.01)
G05D 23/13	(2006.01)

(52) **U.S. Cl.**

CPC ***E03C 1/04*** (2013.01); ***E03C 1/055*** (2013.01); ***F16K 19/006*** (2013.01); ***G05D 23/1393*** (2013.01); *Y10T 137/2499* (2015.04); *Y10T 137/2529* (2015.04); *Y10T 137/776* (2015.04); *Y10T 137/87684* (2015.04)

(58) **Field of Classification Search**

CPC E03C 1/04; E03C 1/055; F16K 19/006; G05D 23/1393; Y10T 137/2499; Y10T 137/2521; Y10T 137/2529; Y10T 137/776; Y10T 137/87684

USPC 137/100, 101.19, 606, 487; 236/12.12

See application file for complete search history.

(56) **References Cited**

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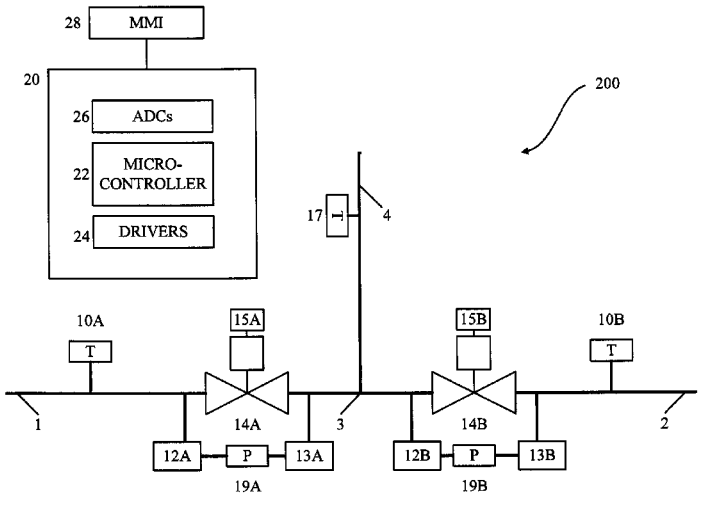
Primary Examiner — William McCalister

(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

A household electronic mixing-valve faucet for controlling a temperature of a mixed stream discharging from the faucet, including: (a) a faucet body; (b) a controller; (c) a first powered valve fluidly connected to the hot water flowpath; (d) a second powered valve fluidly connected to the cold water flowpath; (e) an arrangement adapted to determine extents of opening of the valves; (f) temperature sensors, operative to sense a temperature of fluids within the hot and cold water flowpaths; and pressure sensors; the controller adapted to maintain a difference between an actual temperature of the mixed stream and a setpoint temperature thereof within a particular range.

12 Claims, 8 Drawing Sheets



US009427060B2

(12) **United States Patent**
Mercier

(10) **Patent No.: US 9,427,060 B2**
(45) **Date of Patent: Aug. 30, 2016**

(54) **DEVICE, KIT AND METHOD FOR COLORING HAIR**

(75) Inventor: **Michel Mercier**, Hertzliya (IL)

(73) Assignee: **KAMPALOOK LTD.**, Tel Aviv

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1287 days.

(21) Appl. No.: **13/169,115**

(22) Filed: **Jun. 27, 2011**

(65) **Prior Publication Data**

US 2011/0315157 A1 Dec. 29, 2011

Related U.S. Application Data

(60) Provisional application No. 61/358,507, filed on Jun. 25, 2010.

(51) **Int. Cl.**

A45D 19/02	(2006.01)
A45D 24/22	(2006.01)
A45D 19/00	(2006.01)

(52) **U.S. Cl.**

CPC ***A45D 19/02*** (2013.01); *A45D 24/22* (2013.01); *A45D 2019/0083* (2013.01); *A45D 2200/057* (2013.01)

(58) **Field of Classification Search**

CPC A45D 19/0008; A45D 19/02; A45D 2019/0075; A45D 2019/0058; A45D 24/22; A45D 2200/057

USPC 132/107–116, 124, 126, 120–121, 132/159–160, 212, 333, 148, 270; 401/196, 401/268; 119/611–612, 603–604

See application file for complete search history.

(56) **References Cited**

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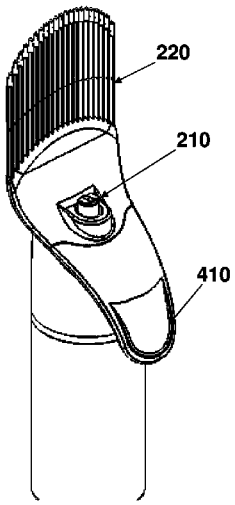
(Continued)

Primary Examiner — Todd E Manahan
Assistant Examiner — Brianne Kalach
(74) *Attorney, Agent, or Firm* — Mark Van Dyke

(57) **ABSTRACT**

A hair-penetrating shield **220** comprises a tooth array having top **280** and bottom **290** surfaces. In some embodiments, for a majority of the teeth, a cross section of each tooth (for example, triangular in shape) has an asymmetric width profile such that the tooth cross section, on average, is narrower near the top of the tooth and wider near the bottom of the tooth. In some embodiments, a ratio between: i) a first average tooth width describing the average tooth width below the top-bottom midpoint; and ii) a second average tooth width describing the average tooth width above the top-bottom midpoint is at least 1.2, or at least 1.6. In some embodiments, a non-viscous hair-coloring agent is dispensed as a mist over the top of the surface of the shield so as to color roots of hair passing through the spaces between the teeth of the user's hair. In some embodiments, closely-spaced teeth of the hair penetrating shield protect the user's scalp from the non-viscous hair-coloring agent. Related methods and kits are disclosed herein.

16 Claims, 55 Drawing Sheets



US008939842B2

(12) **United States Patent**
Ehrmann

(10) **Patent No.: US 8,939,842 B2**
(45) **Date of Patent: *Jan. 27, 2015**

(54) **METHOD AND SYSTEM FOR OPERATING A SELF-PROPELLED VEHICLE ACCORDING TO SCENE IMAGES**

(75) Inventor: **Eric Ehrmann**, Beit Shemesh (IL)

(73) Assignee: **Meimadtek Ltd.**, Beit Shemesh (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 831 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/687,126**

(22) Filed: **Jan. 13, 2010**

(65) **Prior Publication Data**

US 2011/0003640 A9 Jan. 6, 2011

Related U.S. Application Data

(60) Provisional application No. 61/204,915, filed on Jan. 13, 2009, provisional application No. 61/241,914, filed on Sep. 13, 2009.

(51) **Int. Cl.**

A63F 9/24	(2006.01)
A63F 13/00	(2014.01)
A63H 30/04	(2006.01)
A63F 7/06	(2006.01)

(52) **U.S. Cl.**

CPC ***A63H 30/04*** (2013.01); ***A63F 7/0664*** (2013.01); *A63F 2009/2419* (2013.01); *A63F 2009/2435* (2013.01); *A63F 2300/1093* (2013.01)

USPC **463/62**; 463/58; 701/28; 701/523; 348/118; 348/119

(58) **Field of Classification Search**

CPC G06K 9/00791

USPC 701/28, 523; 348/118, 119

See application file for complete search history.

(56) **References Cited**

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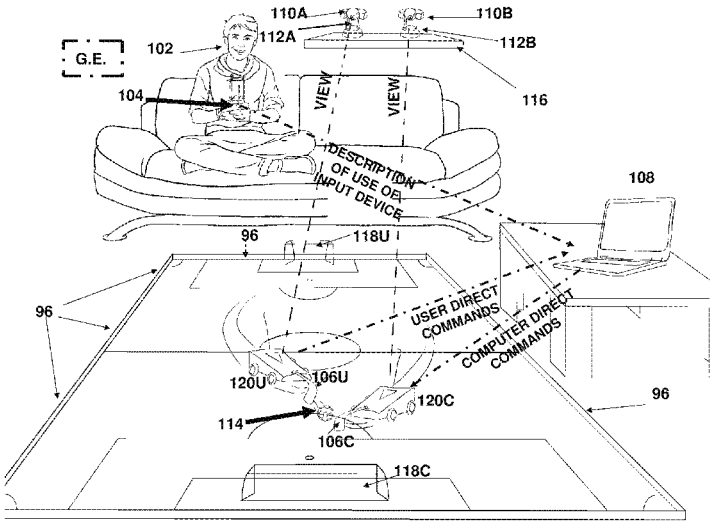
Primary Examiner — Steven J Hylinski

(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

The present disclosure relates to a robotic system including one or more self-propelled motorized vehicles **120** (SPMV) whose motion is controlled in accordance with electronic image data acquired by one or more observing camera(s) **110** configured to image a scene including the SPMV **120**. In some embodiments, the SPMV includes one or more on-board lights **124**, and the SPMV is operated according to analyzing images acquired by the observing camera before and after an illumination transition of one or more of the point-lights. Some embodiments relate techniques to computer gaming and/or to stereoscopic image processing techniques.

10 Claims, 55 Drawing Sheets



US008939158B2

(12) **United States Patent**
Mercier et al.

(10) **Patent No.: US 8,939,158 B2**
(45) **Date of Patent: Jan. 27, 2015**

(54) **AGENTS, COMPOSITIONS AND DEVICES FOR TEMPORARY COLORING LOCAL HAIR AREAS**

(75) Inventors: **Michel Mercier**, Hetzliya (IL); **Shula Recanati**, Tel Aviv (IL)

(73) Assignee: **S.O.S. Color Ltd.**, Tel Aviv (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **12/817,524**

(22) Filed: **Jun. 17, 2010**

(65) **Prior Publication Data**

US 2011/0005538 A1 Jan. 13, 2011

Related U.S. Application Data

(63) Continuation of application No. PCT/IL2008/001630, filed on Dec. 17, 2008.

(60) Provisional application No. 61/006,068, filed on Dec. 17, 2007.

(51) **Int. Cl.**

A45D 24/22	(2006.01)
A45D 34/04	(2006.01)
A61K 8/72	(2006.01)
A45D 19/02	(2006.01)
A61K 8/19	(2006.01)
A61K 8/60	(2006.01)
A61Q 5/06	(2006.01)
A45D 19/00	(2006.01)

(52) **U.S. Cl.**

CPC . ***A61K 8/72*** (2013.01); ***A45D 19/02*** (2013.01); ***A45D 24/22*** (2013.01); ***A45D 34/04*** (2013.01); ***A61K 8/19*** (2013.01); ***A61K 8/602*** (2013.01); ***A61Q 5/065*** (2013.01); *A45D 34/042* (2013.01); *A45D 2019/0083* (2013.01); *A45D 2200/057* (2013.01)

USPC **132/112**; 132/116

(58) **Field of Classification Search**

USPC 132/112–116, 160; 401/190, 290, 272, 401/17, 25–27; 222/402.13, 402.15

See application file for complete search history.

(56) **References Cited**

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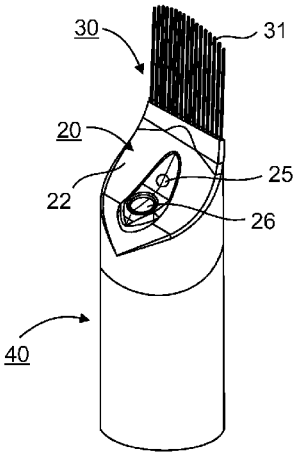
Primary Examiner — Robyn Doan

(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Hair-coloring applicators comprising a shield to protect the scalp, polymers of tannic acid having iron ions bound thereto, hair-coloring compositions comprising same and/or melanoidin, and novel alcohol-free carriers, are disclosed, as well uses thereof for coloring hair.

24 Claims, 4 Drawing Sheets



US008723144B2

(12) **United States Patent**
Kidron et al.

(10) **Patent No.: US 8,723,144 B2**
(45) **Date of Patent: May 13, 2014**

(54) **APPARATUS FOR SAMPLE FORMATION AND MICROANALYSIS IN A VACUUM CHAMBER**

(75) Inventors: **Eitan Kidron**, Hod Hasharon (IL); **Dror Shemesh**, Hod Hasharon (IL)

(73) Assignee: **Applied Materials Israel, Ltd.**, Rehovot (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1266 days.

(21) Appl. No.: **11/119,230**

(22) Filed: **Apr. 28, 2005**

(65) **Prior Publication Data**

US 2006/0011867 A1 Jan. 19, 2006

Related U.S. Application Data

(60) Provisional application No. 60/588,272, filed on Jul. 14, 2004.

(51) **Int. Cl.**
H01J 37/08 (2006.01)

(52) **U.S. Cl.**
USPC ..... **250/492.21**; 250/306; 250/307; 250/310; 250/311; 250/492.1; 250/492.22; 250/492.23; 250/492.3; 118/723 FI

(58) **Field of Classification Search**
USPC ..... 250/492.22, 306, 307, 309, 310, 311, 250/440.11, 442.11, 492.1, 492.2, 492.21, 250/492.23, 492.3; 118/723 FI
See application file for complete search history.

(56) **References Cited**

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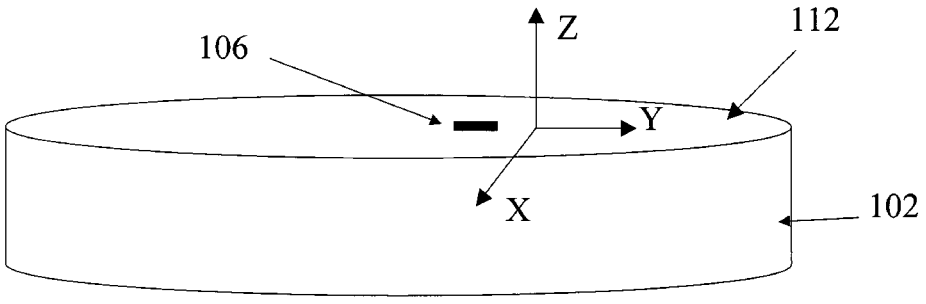
Primary Examiner — Michael Maskell
(74) *Attorney, Agent, or Firm* — Kilpatrick Townsend & Stockton LLP

(57) **ABSTRACT**

An apparatus is disclosed for forming a sample of an object, extracting the sample from the object, and subjecting this sample to microanalysis including surface analysis and electron transparency analysis in a vacuum chamber. In some embodiments, a means is provided for imaging an object cross section surface of an extracted sample. Optionally, the sample is iteratively thinned and imaged within the vacuum chamber. In some embodiments, the sample is situated on a sample support including an optional aperture. Optionally, the sample is situated on a surface of the sample support such that the object cross section surface is substantially parallel to the surface of the sample support. Once mounted on the sample support, the sample is either subjected to microanalysis in the vacuum chamber, or loaded onto a loading station. In some embodiments, the sample is imaged with an electron beam substantially normally incident to the object cross section surface.

11 Claims, 38 Drawing Sheets



US008627537B2

(12) **United States Patent**
Mercier

(10) **Patent No.: US 8,627,537 B2**
(45) **Date of Patent: Jan. 14, 2014**

(54) **HAIRBRUSH, METHODS OF USE, AND METHODS OF MANUFACTURING THE SAME**

(75) Inventor: **Michel Mercier**, Hertzliya (IL)

(73) Assignee: **Michel Mercier Ltd.**, Tel Aviv (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 430 days.

(21) Appl. No.: **12/903,203**

(22) Filed: **Oct. 12, 2010**

(65) **Prior Publication Data**

US 2011/0167580 A1 Jul. 14, 2011

Related U.S. Application Data

(60) Provisional application No. 61/250,057, filed on Oct. 9, 2009, provisional application No. 61/297,814, filed on Jan. 24, 2010, provisional application No. 61/298,205, filed on Jan. 25, 2010, provisional application No. 61/298,398, filed on Jan. 26, 2010, provisional application No. 61/367,447, filed on Jul. 25, 2010, provisional application No. 61/367,793, filed on Jul. 26, 2010.

(30) **Foreign Application Priority Data**

Oct. 11, 2010 (GB) 1017114.8

(51) **Int. Cl.**
A46B 9/02 (2006.01)

(52) **U.S. Cl.**
USPC **15/160**; 15/186; 15/DIG. 5; 132/120

(58) **Field of Classification Search**
USPC 15/159.5, 160, 186, 187, 188; 132/120, 132/137, 138, 141, 142, 148, 150, 152, 159
See application file for complete search history.

(56) **References Cited**

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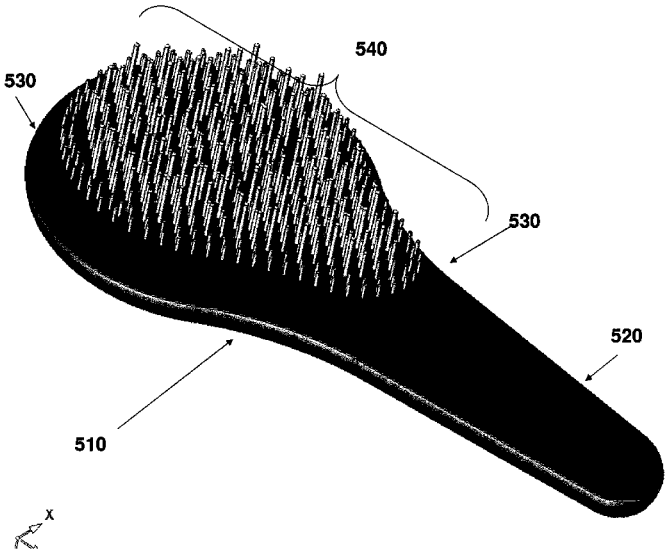
(Continued)

Primary Examiner — Mark Spisich
Assistant Examiner — Michael Jennings
(74) *Attorney, Agent, or Firm* — Marc Van Dyke

(57) **ABSTRACT**

Embodiments of the present invention relate to a hairbrush for detangling human or animal hair. In some embodiments, the hairbrush includes a field of bristles where bristle height is substantially random and substantially independent of position on the hairbrush. In some embodiments, within the bristle field, the bristle width and/or the bristle material may vary between bristles—for example, substantially randomly with respect to position and/or in a manner that is correlated with bristle height.

22 Claims, 40 Drawing Sheets



US007630204B2

(12) **United States Patent**
Pomerantz

(10) **Patent No.: US 7,630,204 B2**
(45) **Date of Patent: Dec. 8, 2009**

(54) **DETACHABLE DEVICE HOLDER**

(75) Inventor: **Itzhak Pomerantz**, Kfar Saba (IL)

(73) Assignee: **SanDisk IL Ltd.**, Kfar Saba (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 675 days.

(21) Appl. No.: **11/389,224**

(22) Filed: **Mar. 27, 2006**

(65) **Prior Publication Data**

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(58) **Field of Classification Search** 361/737, 361/752, 728, 730; 439/131, 135, 136, 139, 439/149

See application file for complete search history.

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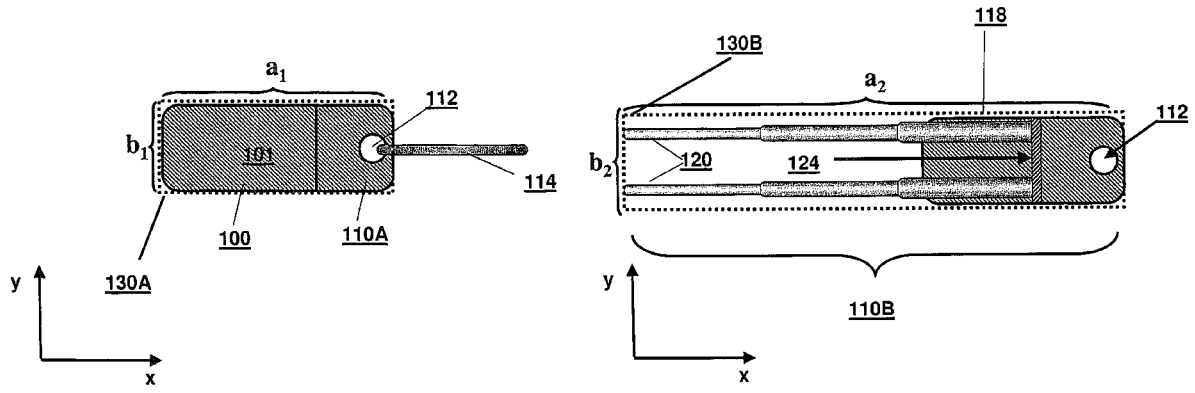
(57) **ABSTRACT**

A system including a portable object and a portable object holder is disclosed. Preferably, the portable object is an electronic device such as a flash memory drive such as a USB flash drive. According to some embodiments, when the portable object and the portable object holder are attached to each other, the combination is convenient for a user to carry in her pocket. While detached from each other, the portable object holder is retained in a state where the portable object holder is inconvenient for a user to carry in her pocket. Thus, the user may be less likely to forget the electronic device after use, and may be more likely to remember to replace the electronic device in or on the device holder. According to some embodiments, the portable object holder has a first state and a second state. Detachment of the portable object from the portable object holder is operative to cause the device holder to adopt the second state, where at least one dimension of the device holder is increased. Formulae relating lengths of dimensions of rectangular prisms which minimally circumscribe the object holder and/or the portable object in the first and second states are provided In some embodiments, the "inconvenient" nature of the second state may be provided by increased maximum localized contact pressure, for example, due to a localized projection or spike which provides this increased contact pressure only in the second state.

27 Claims, 13 Drawing Sheets



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(54) **METHOD AND APPARATUS FOR SAMPLE FORMATION AND MICROANALYSIS IN A VACUUM CHAMBER**

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(58) **Field of Classification Search** ..... None
See application file for complete search history.

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(57) **ABSTRACT**

Methods and apparatus are disclosed for forming a sample of an object, extracting the sample from the object, and subjecting this sample to microanalysis including surface analysis and electron transparency analysis in a vacuum chamber. In some embodiments, a method is provided for imaging an object cross section surface of an extracted sample. Optionally, the sample is iteratively thinned and imaged within the vacuum chamber. In some embodiments, the sample is situated on a sample support including an optional aperture. Optionally, the sample is situated on a surface of the sample support such that the object cross section surface is substantially parallel to the surface of the sample support. Once mounted on the sample support, the sample is either subjected to microanalysis in the vacuum chamber, or loaded onto a loading station. In some embodiments, the sample is imaged with an electron beam substantially normally incident to the object cross section surface.

14 Claims, 38 Drawing Sheets