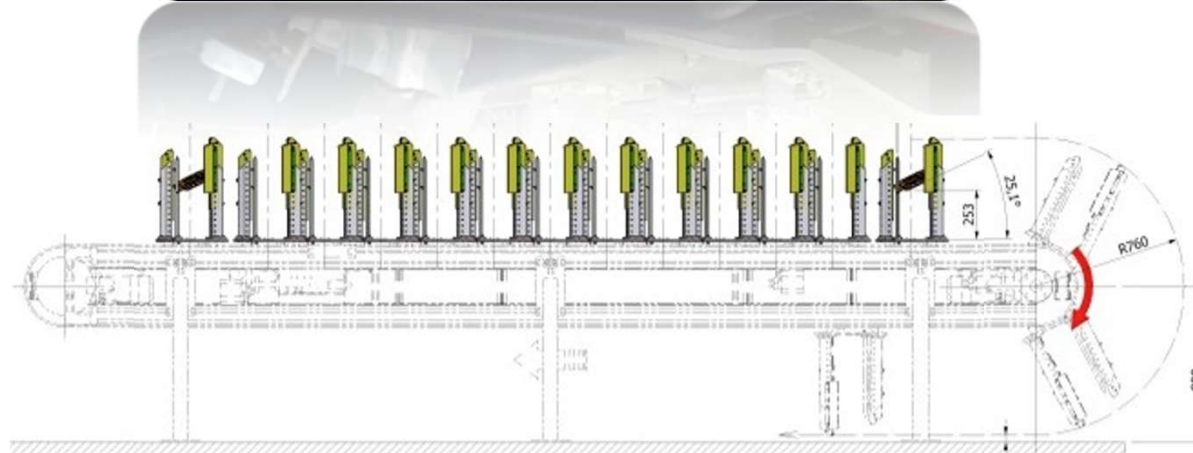
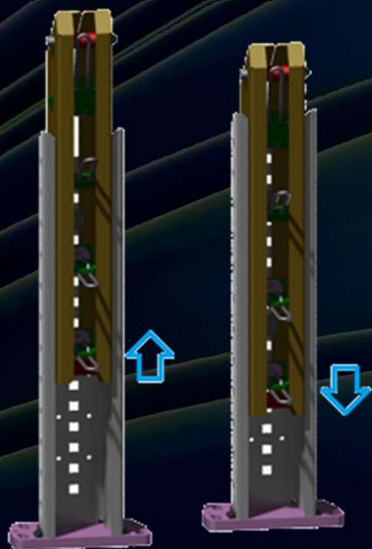


Low-cost-Automation

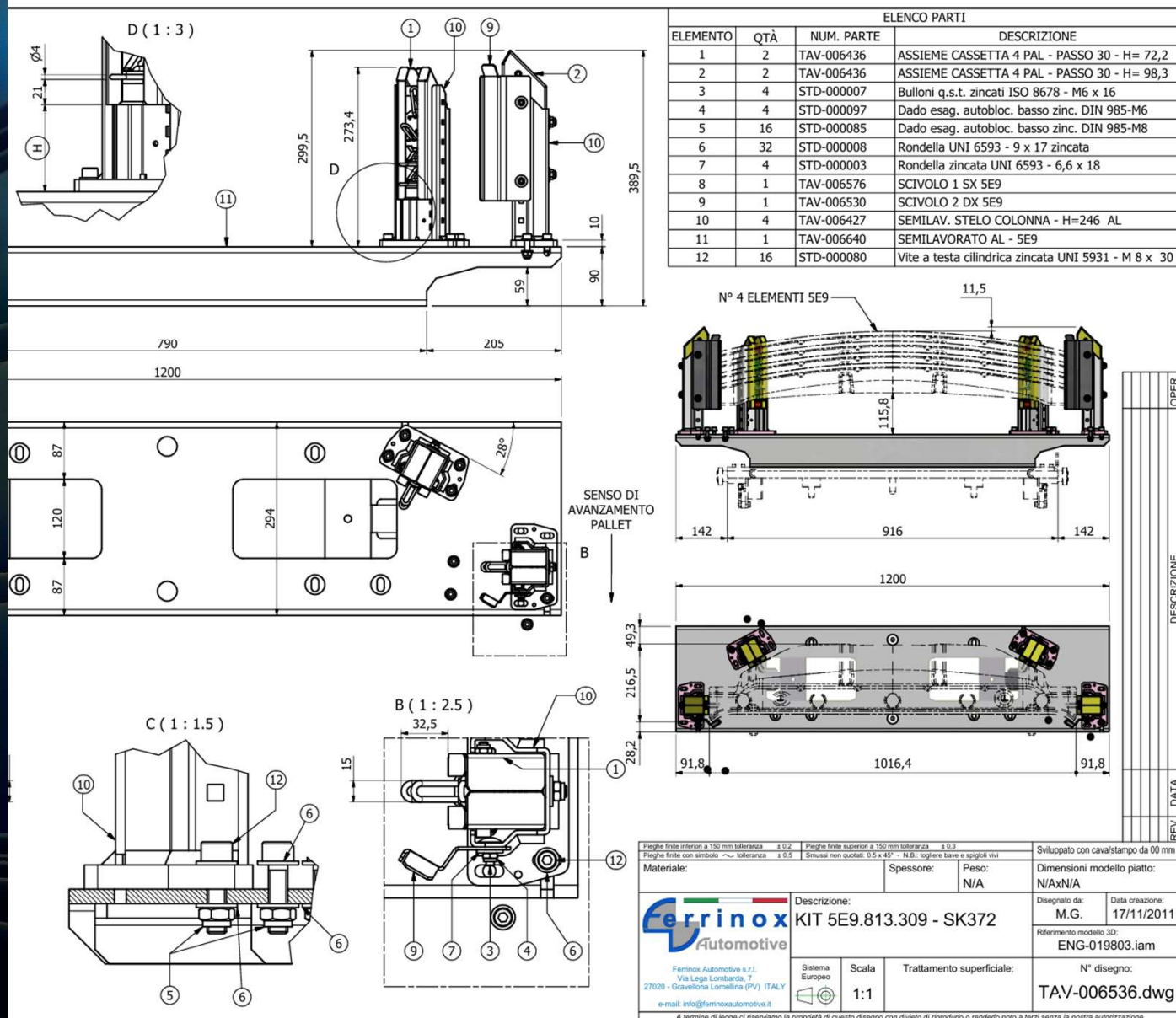


L.C.A. (Low Cost Automation)

S.A.C. (Standard Adjustable Column)

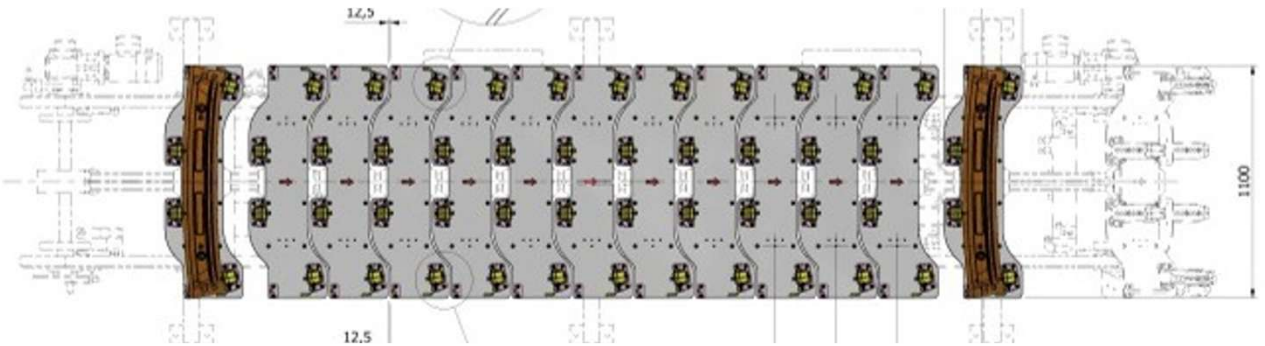
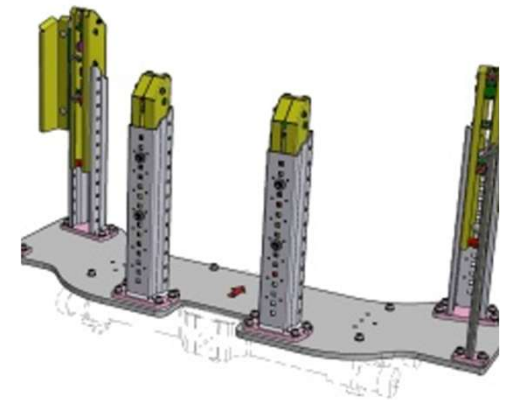
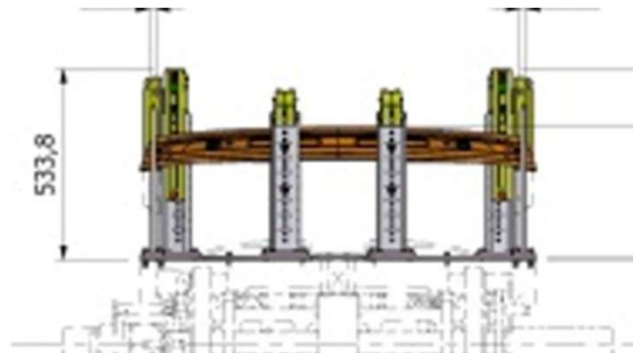
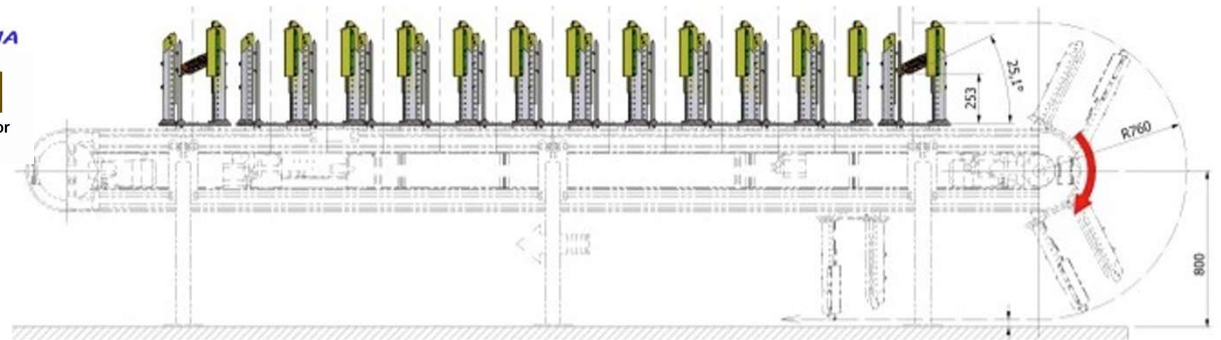
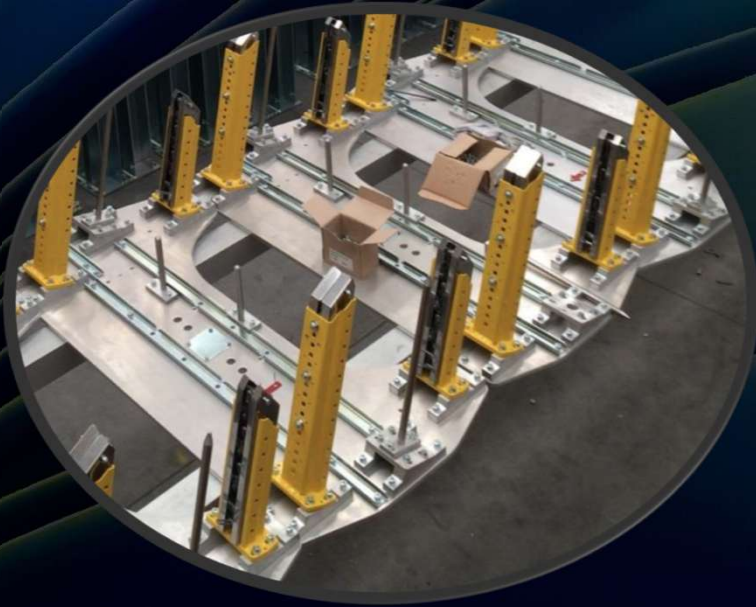


Ultralight column to optimize
the overall system weight



L.C.A. (Low Cost Automation)

S.A.C. (Standard Adjustable Column)



L.C.A. (Low Cost Automation)

S.A.C. (Standard Adjustable Column)

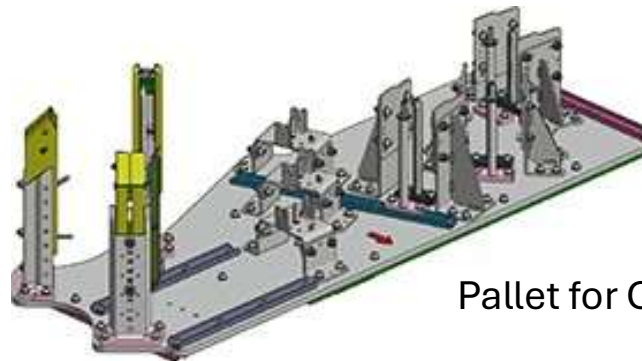
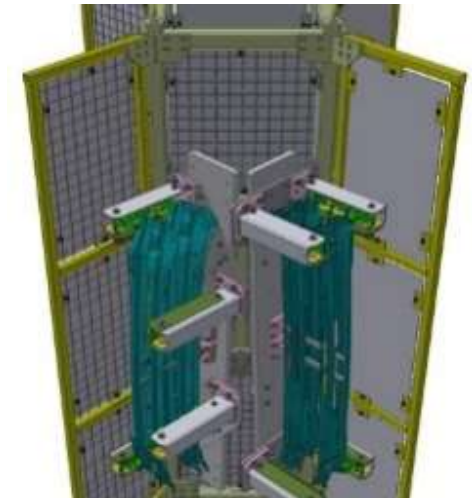


Ultralight column to optimize
the overall system weight

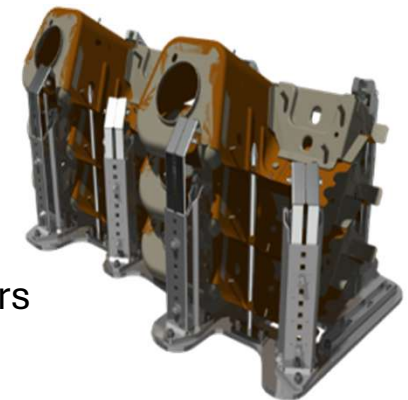
Trolley



Horizontal Turntable



Pallet for Conveyors



L.C.A. (Low Cost Automation)

S.A.C. (Standard Adjustable Column)



Millimetre-precise adjustment allows for optimisation of the robotic process and guarantees high adaptability to the components to be picked.

Standard systems in stock

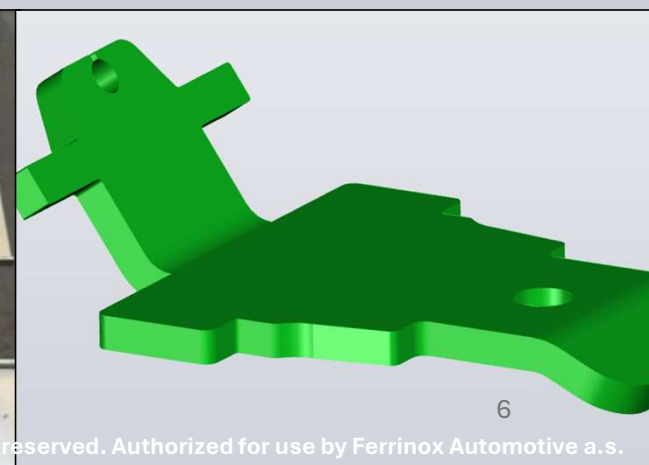
Series 350				
Technical features		SAC 40 /350	SAC 50/350	SAC 60/350
* Max. number of positions / Capacity	Q.ty	6	5	4
Step - mm	mm	40	50	60
Initial position: 50 mm, incrementally adjustable	mm	50	50	50
minimum overall height	mm	350	350	350
maximum adjustable height	mm	600	600	600
* Specify the required number of position				
3D formats will be provided upon request				
Other customized formats available				

Series 450				
Technical features		SAC 40 /450	SAC 50/450	SAC 60/450
* Max. number of positions / Capacity	Q.ty	8	7	6
Step - mm	mm	40	50	60
Initial position: 50 mm, incrementally adjustable	mm	50	50	50
minimum overall height	mm	450	450	450
maximum adjustable height	mm	750	750	750
* Specify the required number of positions				
3D formats will be provided upon request				
Other customized formats available				

Technology and Guarantee

- **The proprietary technical originality** of the system lies in the **hourglass-shaped hole architecture**, the **one-piece latch**, and the **rectangular rotation pin**. This design solution allows the latch to position itself both in the lower and upper dead points, ensuring enhanced ergonomics, operational precision, and absolute long-term reliability. The system is a consolidated technical benchmark in the sector.
- **ZERO MAINTENANCE** The design approach adopted for each individual solution, combined with equipment featuring centesimal tolerances, ensures consistent performance throughout the entire production life cycle of the vehicle, without maintenance.

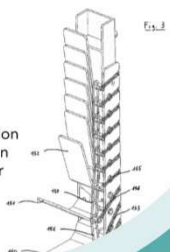
Hourglass Architecture: the original patented technology



(13) Publication Date: 29 June 2015 (23.06.2015)
(14) International Patent Classification: B60D 2/30 (2006.01)
(15) International Application Number: PCT/IB2010/002087
(16) International Filing Date: 15 December 2010 (15.12.2010)
(17) Filing Language: English
(18) Publication Language: English
(19) Priority Data: 5801/140011 (17 December 2010) (17.12.2010) IT
(20) Applicant: FERRINOX AUTOMOTIVE SMO (SRLS), Novatec 22, 36-0400 Novatec (SRLS)
(21) Inventor: VIOLANTE, Alberto, Corso della Repubblica 15, 27020 Vigevano (PV) (IT)
(22) Agent: RICCARDI, Sergio, c/o IPSE S.R.L., Via Mazzini 10, 20129 Milano (IT)
(23) Designated States (unless otherwise indicated, for every kind of regional protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, DK, DE, DM, DZ, EC, EE, EG, ES, FI, FR, GB, GR, GU, HK, IL, IN, JP, KE, KG, KH, KR, KZ, LA, LC, LI, LU, LT, LV, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, RO, RU, SA, SE, SG, SI, SM, SK, SL, SR, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
(24) Title: AUTOMATIC STACKING COLUMNS FOR STORING AND TRANSPORTING ELEMENTS
(25) Filing Language: English
(26) Publication Language: English
(27) Abstract: An automatic structure for storing and handling products is disclosed, comprising a plurality of linked shelf members (103, 175) disposed in a column (101, 187) and spaced for receiving products supported thereon, in which mechanic connection means (111, 127, 128) are provided, allowing their reciprocal movement, in sequence one after the other, between a horizontal position, with the product loaded on the shelf member (103, 175), an intermediate position for receiving the product and an almost vertical rest position.

EUROPEAN PATENT APPLICATION
(51) Int. Cl.: B65G 1/14
(52) Date of filing: 05.08.2004
(53) Application number: 04077242.8
(54) Designated Contracting States: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, TM, TN, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
(55) Designated Extension States: AL, HR, LT, LV, MK
(56) Priority: 07.08.2003 IT MI20031629
(57) Applicant: Ferrinox di Alberto Violante, 27020 Gravelona Lomellina (PV) (IT)
(58) Inventor: Violante, Alberto
(59) Representative: Riccardi, Sergio, Via Mazzini 10, 20129 Milano (IT)
(60) Agent: RICCARDI, Sergio, c/o IPSE S.R.L., Via Mazzini 10, 20129 Milano (IT)
(61) Designated States (unless otherwise indicated, for every kind of regional protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, DK, DE, DM, DZ, EC, EE, EG, ES, FI, FR, GB, GR, GU, HK, IL, IN, JP, KE, KG, KH, KR, KZ, LA, LC, LI, LU, LT, LV, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, RO, RU, SA, SE, SG, SI, SM, SK, SL, SR, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
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invention patent: Monolithic rotation
at the finger and fulcrum with an
active design that allows the finger
TDC and BDC; eliminating
and machining.



INTERNATIONAL PUBLICATION
(43) International Publication Date: 2007/027059 A1
(51) Int. Cl.: B65G 1/14
(52) Date of filing: 05.08.2004
(53) Application number: 04077242.8
(54) Designated Contracting States: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, TM, TN, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
(55) Designated Extension States: AL, HR, LT, LV, MK
(56) Priority: 07.08.2003 IT MI20031629
(57) Applicant: Ferrinox di Alberto Violante, 27020 Gravelona Lomellina (PV) (IT)
(58) Inventor: Violante, Alberto
(59) Representative: Riccardi, Sergio, Via Mazzini 10, 20129 Milano (IT)
(60) Agent: RICCARDI, Sergio, c/o IPSE S.R.L., Via Mazzini 10, 20129 Milano (IT)
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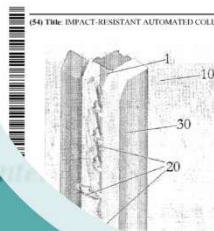
(67) Abstract: Kit of improved accessories suitable for automated storage structure (20) comprising an automatic clamping system adapted to lock in position workpieces stored during transport on a track, plant conveyor or any other vehicle and supporting elements (11) for said workpieces stored each formed by bending of iron wire according to the workpiece profile.

• History of Patents Obtained

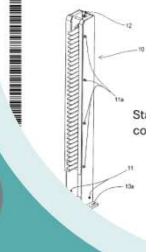
(72) Inventor; and
(75) Inventor/Applicant (for US only): VIOLANTE, Alberto [IT/IT]; Via Lega Lombarda 7, I-27020 Gravelona Lomellina (PV) (IT).

(74) Agent: MAC PATENT & LAW FIRM; 5th Floor, Hwaseung Bldg. 15-3, Yangjae 1-dong, Seocho-gu, Seoul 137-888 (KR).

INTERNATIONAL PUBLICATION
(43) International Publication Date: 2011/03333
(51) Int. Cl.: B65G 1/14 (2006.01)
(52) Date of filing: 21 September 2009 (21.09.2009)
(53) Application number: PCT/IB2009/007638
(54) Designated Contracting States: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, GU, HK, IL, IN, JP, KE, KG, KH, KR, KZ, LA, LC, LI, LU, LT, LV, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, RO, RU, SA, SE, SG, SI, SM, SK, SL, SR, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
(55) Designated Extension States: AL, HR, LT, LV, MK
(56) Priority: 24 March 2011 (24.03.2011)
(57) Applicant: BORTOLETTO, Flavio [IT/IT]; Via F. Corbelli, 18/A, 22060 - Arosio (CO) (IT)
(58) Inventor: BORTOLETTO, Flavio
(59) Representative: BORTOLETTO, Flavio
(60) Agent: BORTOLETTO, Flavio
(61) Designated States (unless otherwise indicated, for every kind of regional protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, DK, DE, DM, DZ, EC, EE, EG, ES, FI, FR, GB, GR, GU, HK, IL, IN, JP, KE, KG, KH, KR, KZ, LA, LC, LI, LU, LT, LV, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, RO, RU, SA, SE, SG, SI, SM, SK, SL, SR, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW
(62) Title: IMPACT-RESISTANT AUTOMATED COLUMN FOR A STORAGE BUFFER
(63) Abstract: A column (10) for an automated storage buffer comprising a plurality of supporting shelves (20) for work pieces, each shelf provided with a mechanism for absorbing impact of the work, in prepass piece against said shelf and with a mechanism for blocking the column at an impact not absorbable by said impact absorption mechanism.



INTERNATIONAL PUBLICATION
(43) International Publication Date: 2011/03333
(51) Int. Cl.: B65G 1/14 (2006.01)
(52) Date of filing: 21 September 2009 (21.09.2009)
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Stacking column with reduced counterweight system (with

- From 2003 to today, the technical direction carried out by Mr. Violante has remained consistent, ensuring methodological continuity and ongoing professional development. The engineering solutions developed over the years have been applied for many years in various European production environments, contributing to consolidated industrial processes.



The origin of the technical solutions

presented traces back to the first patent developed by Mr. Alberto Violante within the sole proprietorship Ferrinox, which formed the foundation for the subsequent path of innovation.



The technologies and technical contents presented are original works of the author and are used by Ferrinox Automotive a.s. within the scope of its industrial and commercial activities.



L.C.A.

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Thank you for your attention