



- (51) International Patent Classification:
C03B 35/00 (2006.01) B65G 49/06 (2006.01)
- (21) International Application Number:
PCT/TR2022/051323
- (22) International Filing Date:
21 November 2022 (21.11.2022)
- (25) Filing Language: Turkish
- (26) Publication Language: English
- (30) Priority Data:
2021/021797 30 December 2021 (30.12.2021) TR
- (71) Applicant: TIRSAN TREYLER SANAYİ VE
TİCARET ANONİM ŞİRKETİ [TR/TR]; Adliye Köyü
1520 Nolu Sokak. No:3, Arifiye/Sakarya (TR).
- (72) Inventors: KESKİN, Mustafa İsmail; Adliye Köyü 1520
Nolu Sokak. No:3, Arifiye/Sakarya (TR). BEL, Suat;
Adliye Köyü 1520 Nolu Sokak. No:3, Arifiye/Sakarya
(TR). BÜYÜKGÖL, Mesut; Adliye Köyü 1520 Nolu
Sokak. No:3, Arifiye/Sakarya (TR).
- (74) Agent: DESTEK PATENT, INC.; Odunluk Mah. Akade-
mi Cad. Zeno Is Merkezi D Blok K:4, 16110 Nilüfer/Bursa
(TR).
- (81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE,
KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU,
LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS,

(54) Title: MODULAR TRANSPORT MECHANISM FOR LOAD-CARRYING VEHICLES

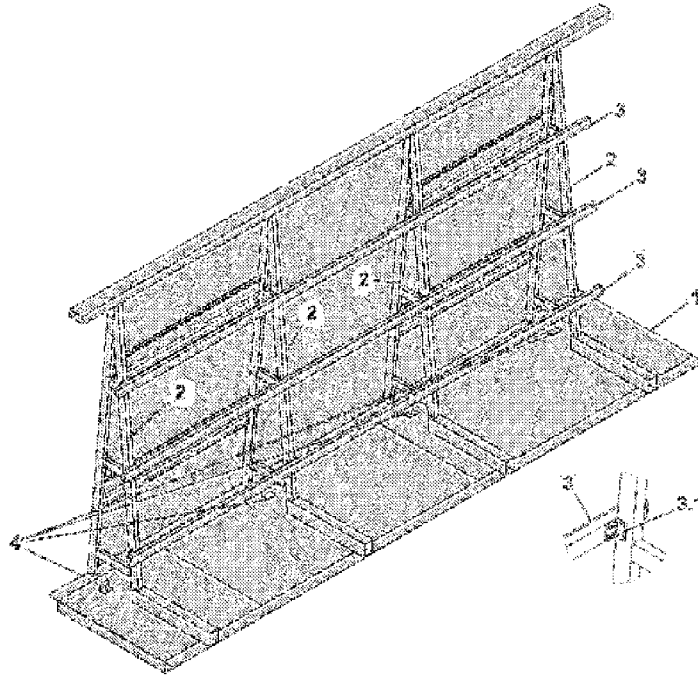


Figure 1

(57) Abstract: The invention is a modular transport mechanism for use in load-carrying vehicles, which enables the transport of glass or different types of products, comprising a stand base (1) on which the product to be transported is placed, carrier struts (2) which are fixed to the stand base (1) and on which the product placed on the stand base (1) is leaned and which support the product being transported, profiles (3) which are connected to the struts (2) and which distribute the pressure falling on the struts (2) to increase the strength of the struts (2); if the product to be transported is a glass product, it includes profile connection brackets (3.1) that enable the profiles (3) to be connected to the struts (2) and if the product to be transported is a product other than glass, it includes profile stacking brackets (4) that enable the profiles (3) to be connected to the bottom of the struts (2) and the base of the stand (1).

RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

MODULAR TRANSPORT MECHANISM FOR LOAD-CARRYING VEHICLES

5 TECHNICAL FIELD

The invention relates generally to a modular transport mechanism for use in load-carrying vehicles.

10 In particular, the invention relates to a modular transport mechanism which can be loaded and unloaded and which can be opened when in use and closed when not in use, so that it does not take up space in the vehicle when empty, in order to enable the load to be carried both on the outward and return in independent suspension glass carrier vehicles.

15

PRIOR ART

Today, load carrying vehicles called "inloaders" are used to carry loads such as glass, concrete blocks or panels on highways. Especially in glass carrier vehicles, the load is placed not directly on the vehicle, but on the stand that can enter and exit the vehicle. These stands are taken into the vehicle loaded with glass from the production point and the glass is delivered to the customer by unloading the stand. The vehicle that brings the glass load from the production point to the customer returns if there is an empty stand brought before or returns empty.

25

In the prior art, load-carrying vehicles spend half of their life empty. Because the stand on which the products are loaded is designed to hold the products upright, after the load is unloaded, there is no useful free space inside the vehicle to load a different load and transport it safely. For this reason, after unloading, the vehicle returns empty. This situation causes inefficiency in terms of fuel and logistics costs.

30

As a result of a search in the prior art, the application numbered TR 2020/07520, entitled Glass Sheets Handling Device and Related Method was found. The present application discloses an apparatus for sliding glass sheets back to back, comprising

a means for moving the glass sheets in a longitudinal direction and an apparatus for determining the orientation of a glass sheet, comprising two stops, both of which are in contact with the edge of the glass sheet. Here, said detection device transmits an electrical signal according to each contact with each stopper and said electrical
5 signals are connected to a collection system which makes it possible to determine the time between the contacts of each stopper and the glass sheet. Solutions for the transport of glass sheets are described here. However, there is no mention of a modular transport mechanism that can be loaded and unloaded and can be opened when in use and closed when not in use, so that it does not take up space in the
10 vehicle when empty, in order to ensure that the load is transported in the load carrier vehicles both on the outward and return.

As a result, improvements are being made in the transport mechanisms in load-carrying vehicles, so new structures are needed to eliminate the disadvantages
15 mentioned above and to bring solutions to existing systems.

OBJECT OF THE INVENTION

The present invention relates to a modular transport mechanism which fulfills the
20 above-mentioned requirements, eliminates all disadvantages and brings some additional advantages.

The main object of the invention is to enable load-carrying vehicles to carry loads both on the outward and return.
25

One object of the invention is to increase the fuel efficiency, i.e. the load/fuel coefficient, by transporting loads both on the outward and return.

Another object of the invention is to ensure efficient utilization of the life of the load-carrying vehicle.
30

The above mentioned invention which will be detailed below is a modular transport mechanism for use in load-carrying vehicles, which enables the transport of glass or different types of products, comprising a stand base on which the product to be

transported is placed, carrier struts which are fixed to the stand base and on which the product placed on the stand base is leaned and which support the product being transported, profiles which are connected to the struts and which distribute the pressure falling on the struts to increase the strength of the struts; If the product to be transported is a glass product, it includes profile connection brackets that enable the profiles to be connected to the struts and if the product to be transported is a product other than glass, it includes profile stacking brackets that enable the profiles to be connected to the bottom of the struts and the base of the stand

10 The structural and characteristic properties of the invention, along with all the advantages can be more clearly understood thanks to the figures below and the related detailed explanations. Which is why, an evaluation shall be made considering those figures and detailed explanations.

15 **SHORT DESCRIPTION OF THE FIGURES**

In order to best understand the advantages of the current invention along with the additional components, the invention shall be evaluated along with the figures described below.

20 Figure 1 It is the view of the modular transport mechanism, which is subject to the invention, ready for glass transport.

Figure 2 It is the view of the modular transport mechanism, which is subject to the invention, ready to carry Euro Pallet or a different load.

Figure 3 It is the glass-loaded view of the modular transport mechanism, which is subject to the invention.

25 Figure 4 It is the Euro pallet loaded view of the modular transport mechanism, which is subject to the invention.

Figure 4 It is another Euro pallet-loaded view of the modular transport mechanism, which is subject to the invention.

REFERENCE NUMBERS

1. Stand base
2. Strut
- 5 3. Profile
- 3.1 Connection brackets
4. Stack brackets

DETAILED DESCRIPTION OF THE INVENTION

10

In this detailed description, the preferred embodiments of the modular transport mechanism of the invention are described solely for the purpose of a better understanding of the subject matter and without any limiting effect.

15 The invention, the open and closed views of which are shown in Figures 1 and 2, is a modular transport mechanism which is in the open position when carrying a load and can be closed when not carrying a load and thus does not take up space in the vehicle when in the closed position and includes the following:

- a stand base (1) on which the product to be transported is placed,
- 20 • Supporting struts (2) which are fixed to the base of the stand (1) and on which the product placed on the base of the stand (1) rests and supports the product,
- profiles (3) positioned between the product and the struts (2), which distribute the pressure falling on the struts (2) to increase the strength of
- 25 the struts (2),
- if the product to be transported is a glass product, profile connection brackets (3.1) for the connection of the profiles (3) to the struts (2)
- if the product to be transported is a product other than glass, profile stacking brackets (4) for fixing the profiles (3) to the lower part of the
- 30 uprights (2) and the base of the stand (1)

In an exemplary embodiment of the invention, when a load of glass is to be transported, it is placed in a vertical position against the base of the stand (1), resting on struts (2) by means of profiles (3) and inclined. The view of the modular transport mechanism loaded with glass is shown in Figure 3, and as can be seen
5 from the view of the glass ready for transport in Figure 1, the profiles (3) are fixed to the struts (2) by means of profile connection brackets (3.1), which give the invention a modular feature. After the glass product is prepared in this way, it is loaded onto the glass carrier vehicle. The invention comprises four struts (2) and three profiles (3) as preferred in the embodiment disclosed herein.

10 In a preferred embodiment of the invention, after the glass load is unloaded from the stand base (1), when it is desired to carry different loads such as Euro Pallets in the vehicle; preferably 2 profiles (3) connected to the struts (2) are removed from the profile connection brackets (3.1) and mounted from the stand base (1) to the struts (2) with profile stacking brackets (4). In the preferred embodiment of the invention as
15 described herein, the struts (2) can be spaced apart sufficiently to accommodate two Euro pallets or 36 m³ of load. Six Euro pallets in a single layer or twelve Euro pallets in a double layer can fit in this opening. After the user has adapted the mechanism to carry different loads, it can be loaded with a standard wooden Euro pallet or 36 m³ volume.

20

The modular load-carrying mechanism of the invention has been developed to carry glass loads in the preferred embodiment of the invention. With the modular transport mechanism, the vehicle with the glass load is prevented from returning with an empty stand. The invention makes it possible to load pallets (ISO1, EURO1 and
25 EURO pallets of the same size) or other loads, e.g. pallets measuring 1200x800 mm, onto the load transport vehicle on the return.

CLAIMS

1. The modular transport mechanism includes the following:
For use in load-carrying vehicles, enabling the transport of glass or different
5 types of products,
- a stand base (1) on which the product to be transported is placed,
 - support struts (2) which are fixed to the stand base (1) and on which the
product placed on the stand base (1) rests and supports the transported
product,
 - 10 • profiles (3) connected to the struts (2), which distribute the pressure
falling on the struts (2) to increase the strength of the struts (2)
which has the following feature;
 - if the product to be transported is a glass product, profile connection
brackets (3.1) for the connection of the profiles (3) to the struts (2) and
 - 15 • if the product to be transported is a product other than glass, profile
stacking brackets (4) for fixing the profiles (3) to the lower part of the
uprights (2) and the base of the stand (1)
- 20 2. A modular transport mechanism according to claim 1, wherein it comprises four
struts (2) and three profiles (3) connected to each other by profile connection
brackets (3.1) when the glass product is transported.
- 25 3. A modular transport mechanism according to claim 1, wherein it four struts (2)
and one profile (3) connected to each other by profile stacking brackets (4) when
a product other than glass is transported.

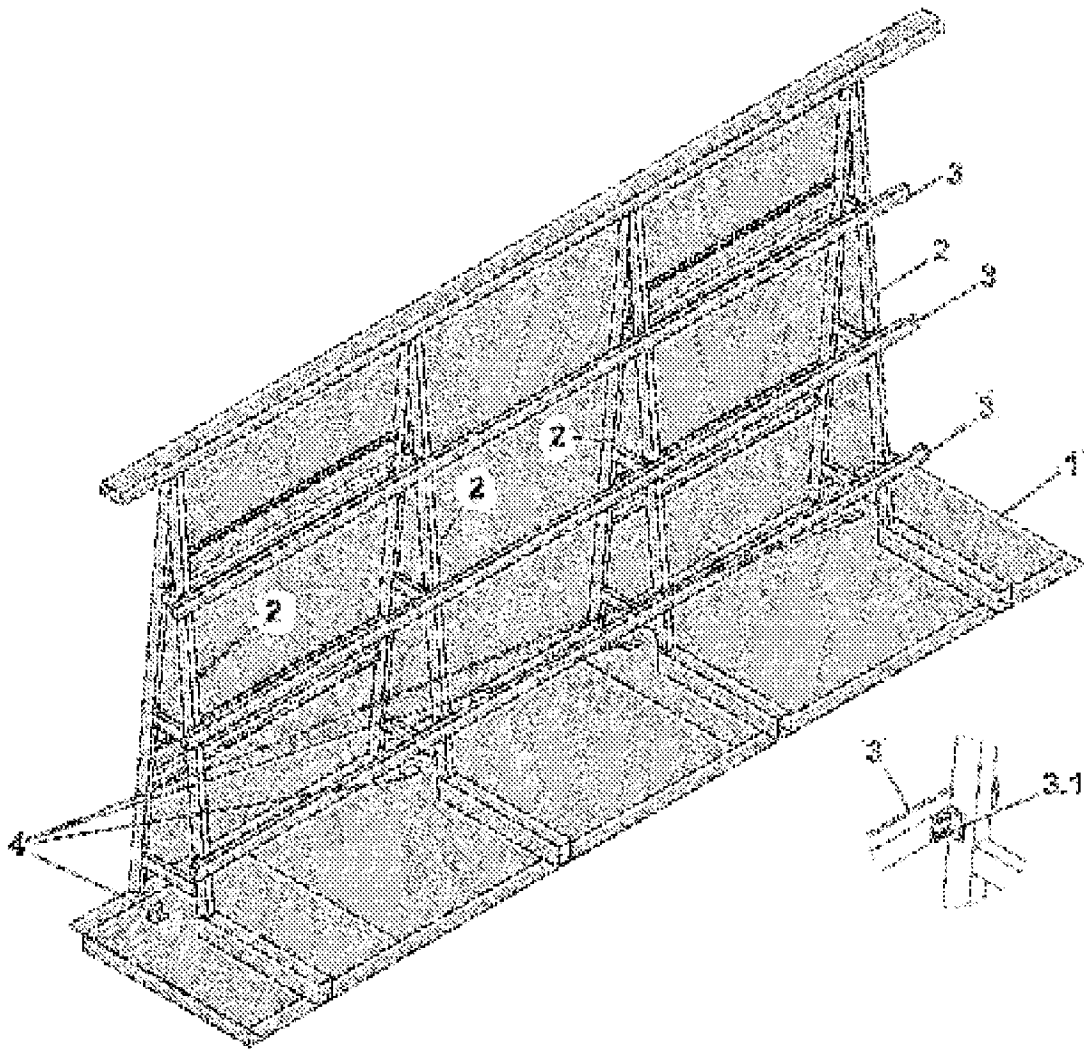


Figure 1

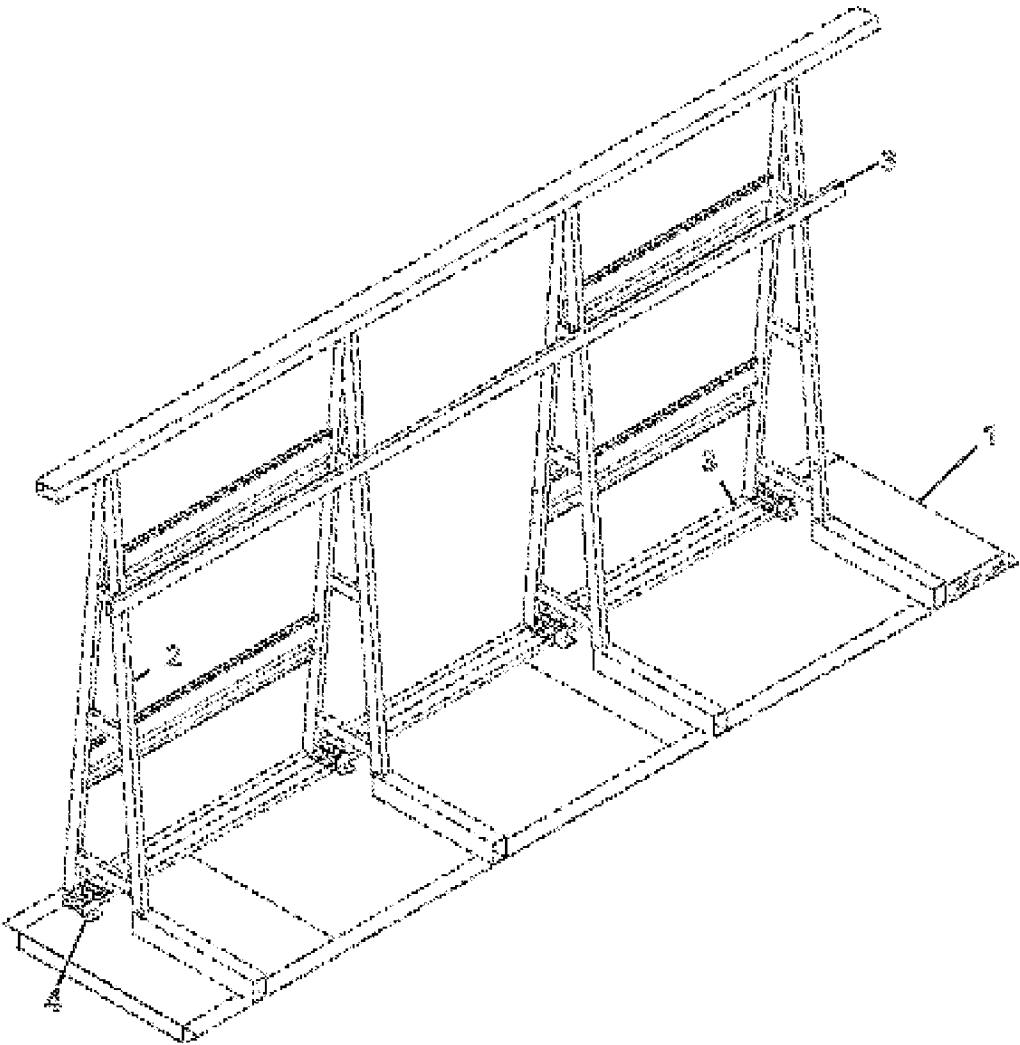


Figure 2

3 / 4

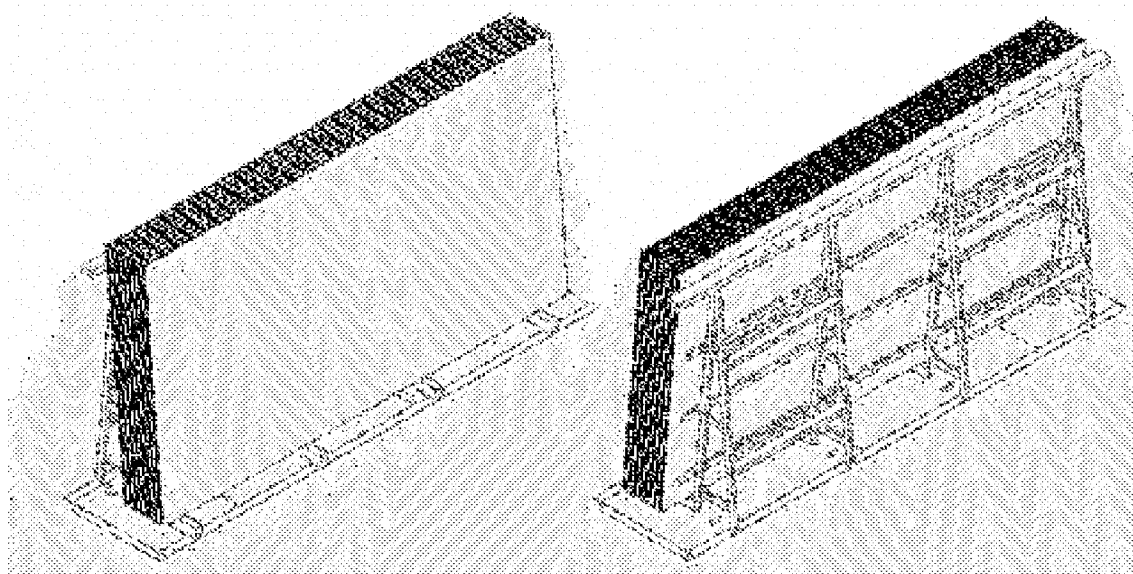


Figure 3

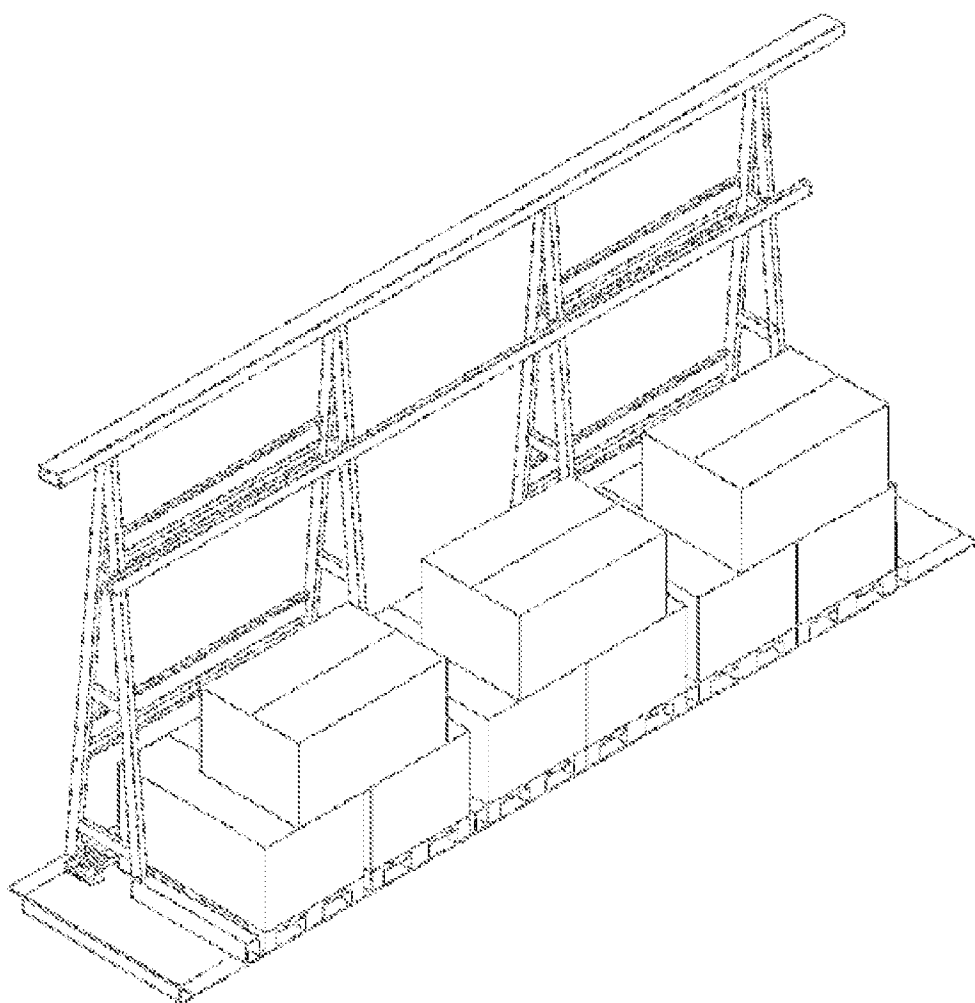


Figure 4

4 / 4

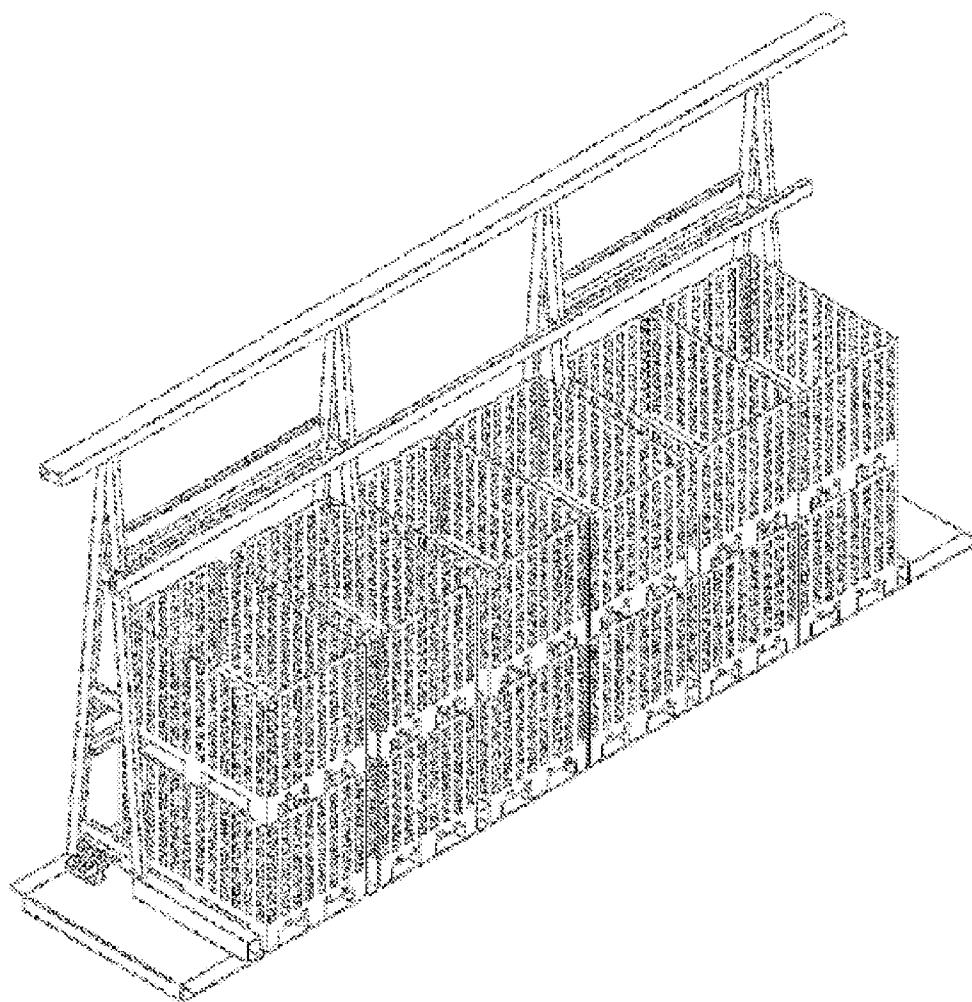


Figure 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2022/051323

A. CLASSIFICATION OF SUBJECT MATTER

C03B 35/00 (2006.01)i; B65G 49/06 (2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C03B; B65G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

TURKPATENT Patent Database

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO Abstract and Fulltext Databases

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 20100128589 A (TAE SUNG ENG CO LTD [KR]) 08 December 2010 (2010-12-08) abstract, figure 1, 3	1-3
A	CN 203360275U U (NANCHANG O FILM TECH CO LTD) 25 December 2013 (2013-12-25) abstract	1-3
A	US 2007289383 A1 (COTTONE NORBERT,) 20 December 2007 (2007-12-20) Whole document	1-3
A	CN 202440431U U (TIANJIN GUSHANG VACUUM GLASS MANUFACTURE CO LTD) 19 September 2012 (2012-09-19) abstract	1-3



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“D” document cited by the applicant in the international application

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

28 February 2023

Date of mailing of the international search report

28 February 2023

Name and mailing address of the ISA/TR

Turkish Patent and Trademark Office (Turkpatent)
Hipodrom Caddesi No. 13
06560 Yenimahalle
Ankara
Türkiye

Telephone No. +903123031000

Facsimile No. +903123031220

Authorized officer

Kamer AYDINALP

Telephone No. +903123031237

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/TR2022/051323

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
KR	20100128589	A	08 December 2010	KR	101067709	B1	28 September 2011
CN	203360275U	U	25 December 2013	NONE			
US	2007289383	A1	20 December 2007	US	8550765	B2	08 October 2013
				CN	101085522	A	12 December 2007
				CN	101085522	B	17 September 2014
				DE	102006026503	B3	31 January 2008
				KR	20070116745	A	11 December 2007
				KR	101385085	B1	14 April 2014
				TW	200811022	A	01 March 2008
CN	202440431U	U	19 September 2012	NONE			