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(54) Title: ADAPTER FOR CHILD CAR SEAT

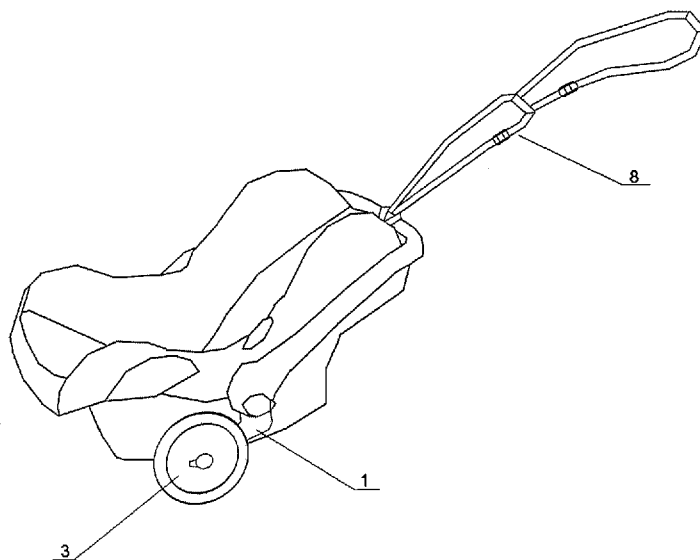


Fig. 4

(57) Abstract: The subject of the invention is an adapter for child car seats characterised in that it consists of two travel elements (1) and of a holder (8), provided that a travel element has two arms connected to one another at an angle from 60° - 160°, of which the thicker arm is ended by a fixing socket (2) with its shape matching the key of a child car seat, on the second arm, there is a rotating wheel installed (3), while the holder (8) is in the form of an elongated element to be connected to the handle of a child car seat.



Adapter for child car seat

The present invention relates to an adapter for a child car seat, facilitating convenient transport of the child car seat outside a vehicle without attaching it to the support frame of a pram.

Solutions for the transport of a child car seats are known from the prior art.

- 5 In American patent description US8469390(B2), a child's car seat is disclosed, transformable into a car seat on wheels, consisting of the front head area, and the back feet area, the head area is higher than the feet area; the right and left front pair, the rear legs and the holder. The legs of each pair have their distant end connected with the wheels and another end connected with the seat in the
- 10 fitting area corresponding to them. Both legs are rotating with respect to each other and with respect to the seat between the folded position, which is applied in the car in the car seat mode, and the operational position applied in the mobile seat mode. The legs may also have intermediate position between the folded position and the operational position, and may rotate between the
- 15 intermediate and the operational position, at least under the effect of gravity.

Polish patent description Pat.220228 discloses an adapter for the support frame of a children's pram, designed to connect the nacelle of a pram, a stroller, or a child seat to the support frame of a pram. The adapter has a box-like, two-part casing, having on its longer, top side, and on its shorter side an

20 elongated fixing skewed socket. In the basis of the casing, there are two locking-releasing elements installed rotationally, and an elastic ejector.

Currently, the majority of the child car seats offered on the market is equipped with keys placed on both sides of the child car seat. They are used to fasten a

child car seat, with appropriate, manufacturer - specific - adapters, to the support frame, transforming the whole into a pram. Also, there are seats with built-in, permanently fixed equipment allowing to move the seat outside a vehicle.

- 5 The purpose of the invention was to develop a solution with universal structure, intended for child car seats of different manufacturers, and facilitating safe and convenient transport of a child sitting in a child car seat with no need to use foldable support frames or the need to carry the child car seat.

10 The nature of the invention is an adapter for child car seats characterized in that it consists of two travel elements and of a holder, provided that a travel element has two arms connected to one another at an angle ranging from 60° - 160° , of which the thicker arm is ended by a fixing socket with its shape matching the key of a child car seat, on the second arm, there is a rotating wheel installed, while the holder is in the form of an elongated element to be
15 connected to the handle of a child car seat.

In an optional embodiment, the fixing socket has on the external side of the adapter's arm a centrally positioned semicircular elongated locating recess, and on the inner side of the adapter's arm, a furrow with the width of the arm, with rounded bottom and side walls, and on one side of the furrow a catch is formed.

- 20 In a preferred embodiment, the angle between the travel element's arms is 90° .

Preferably, the holder is in the form of a strap with adjustable length.

In an optional embodiment, the holder is made of plastic.

The diameter of the wheels of the travel elements is from 8 -18 cm.

- 25 In a favourable embodiment, a wheel is fixed to the travel element on a metal rotating axle.

The term "adapter", according to the invention, covers the travel elements and the holder, which, after installing in a child car seat, make it possible to transform it into a mobile device for child transport.

The expression "inner side of the arm of the travel element" is defined as the side which is located closer to a side wall of a child car seat when using the travel element of the adapter, while "the external side of the travel element" is defined as the side where the wheel is installed.

- 5 The shape of the fixing socket of the adapter's travel element, according to the invention, makes it possible to use it in car seats of different manufacturers. The location and the size of the catch makes it possible to secure the travel element of the adapter against its uncontrolled disconnection from the key of a child car seat.
- 10 Quick and easy installation and deinstallation of the adapter to and from a child car seat, and its relatively small size and weight, make it possible to apply the subject of the invention as an accessory for car child seats. When the support frame of a pram does not fit in the trunk of a car, or the car seat is too heavy to carry it at a longer distance, the adapter according to the invention eliminates
- 15 the need to use foldable support frames and the need to carry the child car seat.

- The minimum diameter of the wheels of the travel elements - 8 cm, is necessary to obtain a clearance between the lower part of a child car seat and the ground, which is necessary for the child car seat to travel freely. The upper
- 20 range of the diameter is limited by the stable position of the child car seat during travel, by the protruding elements of the seat, and by its user's safety.

- As a result of applying a holder in the form of an adjustable strap, it is possible to guide the child car seat freely, in addition, in the event of obstructions in the form of higher curbs, stairs, holes, etc. by placing the strap on a shoulder and
- 25 relocating the handle of the child car seat to its carrying position, it is possible to carry the child car seat. The use of a holder in the form of an adjustable strap to be placed on a shoulder is more comfortable and applies smaller load than the application of the handle from a child car seat, not adapted for carrying on a shoulder.

- 30 The application of a rigid holder made of plastics makes it possible to guide the child car seat in front of the person who push the child car seat.

The invention is presented in preferable embodiments on the drawing, where the respective figures represent:

fig. 1 the travel element of the adapter according to the invention in perspective view from the external side;

5 fig. 2 the travel element of the adapter according to the invention in perspective view from the inner side

fig. 3 the holder of the adapter in perspective view;

fig. 4 applying the adapter according to the invention in a child car seat;

fig. 5 applying the adapter according to the invention with a rigid holder;

10 The embodiment of the adapter according to the invention presented on the figure fig. 1 and fig 2 has a travel element 1 consisting of two arms perpendicular to each other. On one, thicker arm, there is a fixing socket 2 formed. The fixing socket 2 on the external side of the arm is formed in the form of a centrally located semicircular, elongated locating recess 4, while on the
15 inner side of the arm it is in the form of a furrow 5 with the width of the arm, with rounded bottom and side walls, and on one side of the furrow, a catch 6 is formed. On the second arm, perpendicular to the first one, a rotating wheel 3 is installed on a metal axle 7.

The holder 8 shown in fig. 3 is equipped with double length adjustment 8a and
20 is made of a textile, adjustable strap.

An embodiment of the invention's application is presented in fig. 4, where the adapter according to the invention is shown used in a child car seat. The travel elements 1 are attached to the keys of the child car seat placed on its both sides, while the holder 8 is fastened to the handle, being part of the child car
25 seat. The application of the adapter according to the invention consists in placing the travel elements 1 in the keys of a child car seat and then in fastening the holder 8 on the seat's handle.

The fig. 5 discloses an application embodiment of the adapter according to the invention, containing the travel elements 1 and the rigid holder 8.1 folding
30 telescopically, fastened to the handle of a child car seat by means of rounded clamps formed at the end of the holder.

The travel elements of the adapter according to the invention may be used both with the arm with the wheel facing the front of the child car seat, and with the arm with the wheel facing the rear of the child car seat.

5 When using a child car seat equipped with the adapter according to the invention, it tilts slightly forward, which makes it possible to lift the back of the child car seat above the ground, therefore it is possible to move freely using the travel elements and the holder used to pull the child car seat.

10 Although in the presented embodiments, the catch is a flattened polygon, it is obvious that, according to the invention, it is possible to use a catch of any other shape. Its function is to support its corresponding part located in the key of a child car seat, usually in the form of a hook. As a result, the catch may be rounded or have the shape of another regular figure.

15 In addition, the holder presented in the embodiment made as a textile strap can also be in the form of a rigid holder made of plastic, wood, metal or another material with the required strength.

The wheels applied in the invention are standard wheels used in child prams with the diameter from 8-18 cm, equipped with a bearing or without a bearing, with a pneumatic tire or a tubeless tire, made of various materials e.g.: rubber, natural rubber, foam.

20 In no case the presented embodiments should be treated as exhaustive and restrictive for the invention presented, whose essence has been characterized in the patent claims.

Patent claims

1. The adapter for car child seats characterised in that it consists of two travel elements (1) and of a holder (8), provided that a travel element has two arms connected to one another at an angle from 60° - 160° , of which the thicker arm is ended by a fixing socket (2) with its shape matching the key of a child car seat, on the second arm, there is a rotating wheel (3) installed, while the holder (8) is in the form of an elongated element to be connected to the handle of a child car seat.
2. The adapter according to claim 1, characterized in that the fixing socket (2) has on the external side of the adapter's arm a centrally positioned semicircular elongated locating recess (4), and on the inner side of the arm of the travel element (1) of the adapter, a furrow (5) with the width of the arm, with rounded bottom and side walls, and on one side of the furrow, a catch is formed.(6).
3. The adapter according to claim 1 or 2, characterized in that the angle between the travel element's arms (1) is 90° .
4. The adapter according to claim 1 or 2, characterized in that the holder (8) is in the form of a strap with adjustable length.
5. The adapter according to claim 1 characterized in that the holder (8) is made of plastic.
6. The adapter according to claim 1 or 2, characterized in that the diameter of the wheels (3) of the travel elements (1) is from 8 -18 cm.
7. The adapter according to claim 1 or 2, characterized in that the wheel (3) is fixed to the travel element (1) rotationally on a metal axle (7).

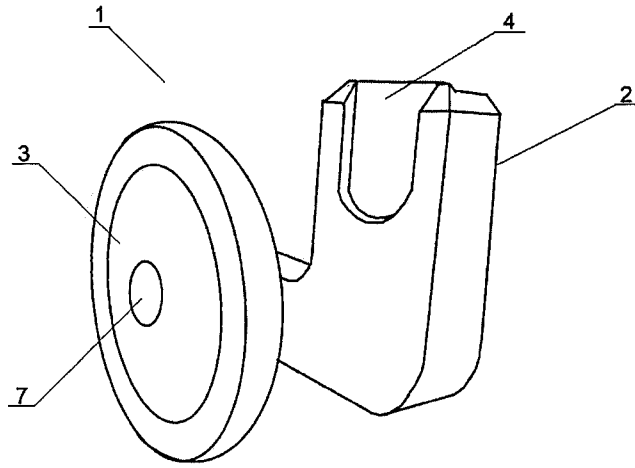


Fig. 1

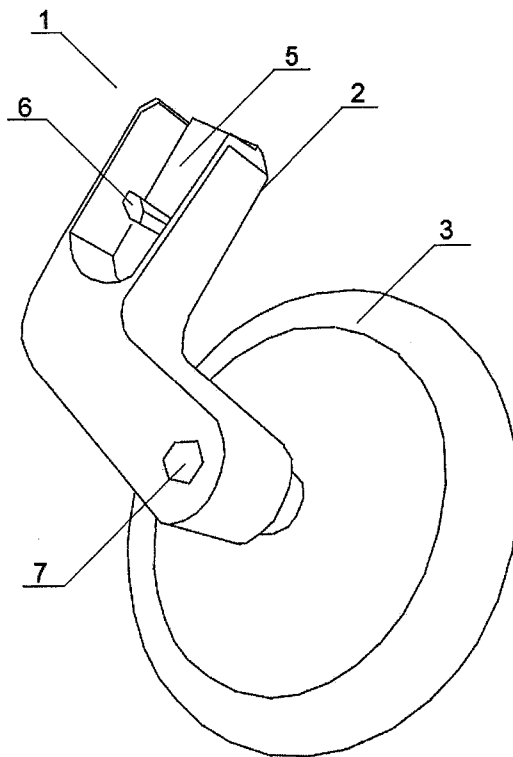


Fig. 2

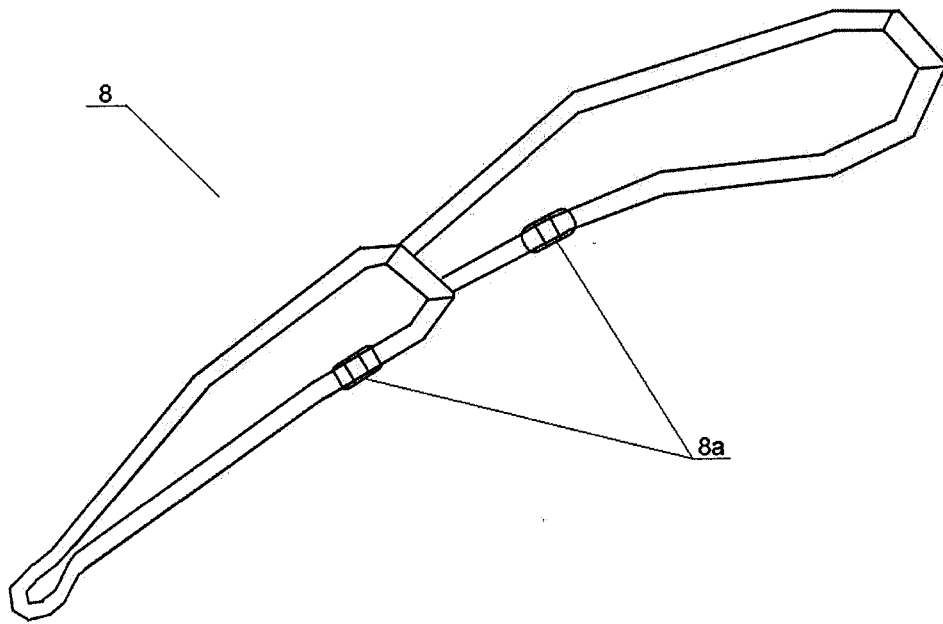


Fig. 3

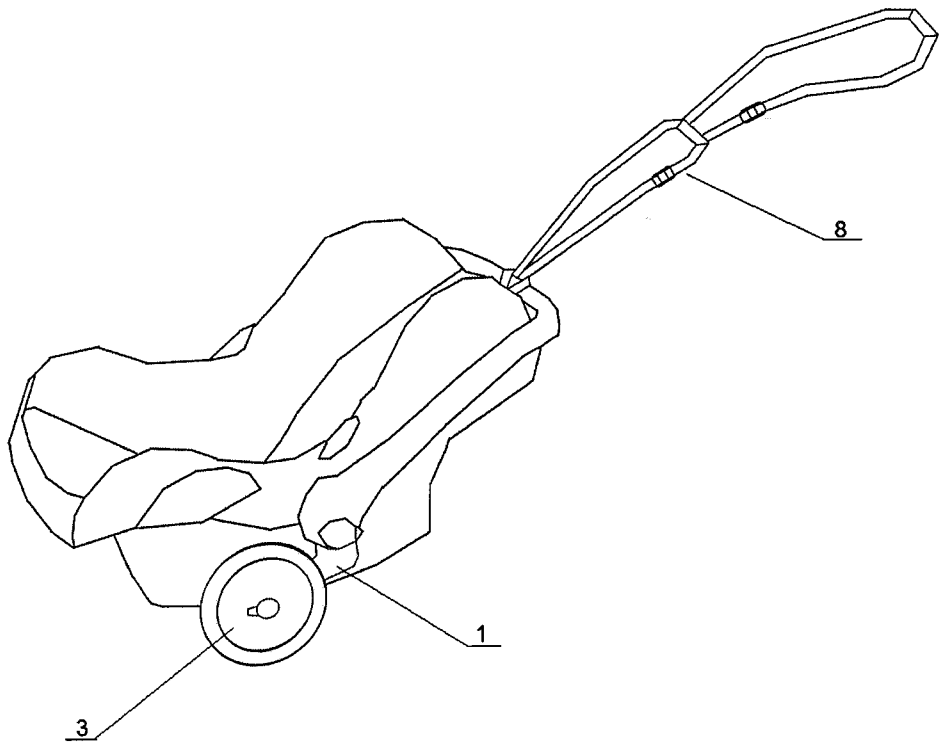


Fig. 4

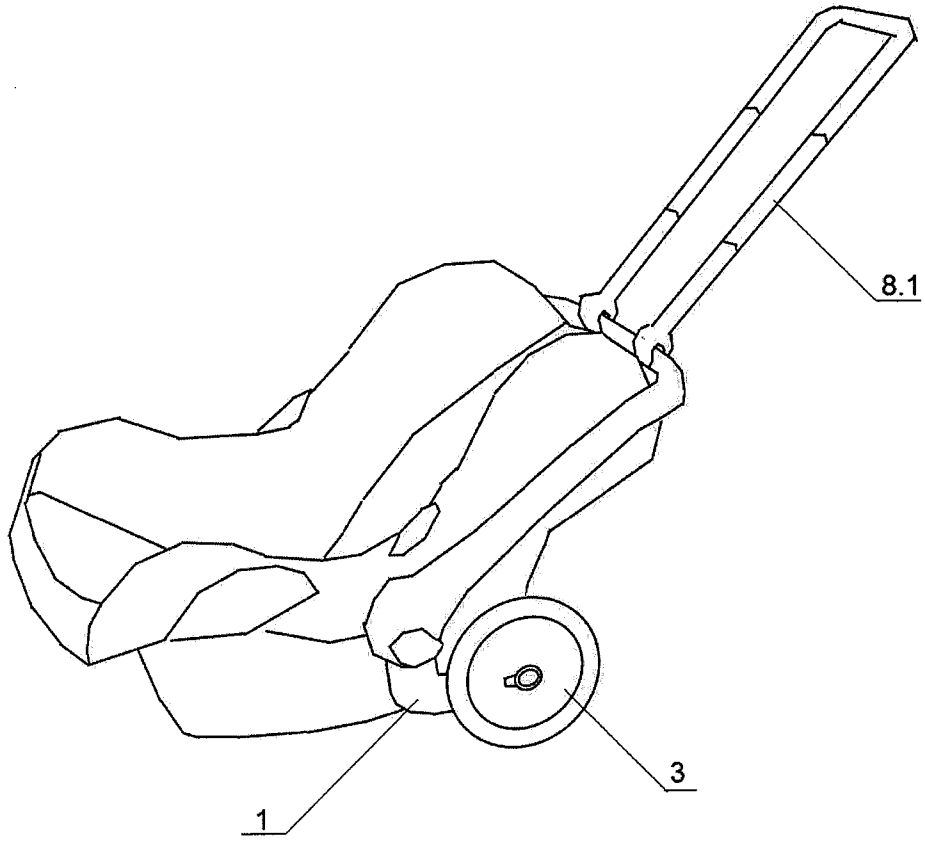


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/PL2017/000077

A. CLASSIFICATION OF SUBJECT MATTER B60N2/26 (2006.01); B60N2/28 (2006.01); A47D1/06 (2006.01); B62B7/02 (2006.01)		
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) B60N;B62B; A47D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	WO 2014023767 (A1) (STRAUS MARTIN; DE) 13.02.2014r. (abstract; Fig. 2;3;4;5a)	1; 2; 3; 6; 7 4; 5
Y A	US2012205947 (A1) (COOTE KATHY [US]; COOTE OMAR; US) 16.08.2012r. (abstract; Fig. 1; 4)	1; 6; 7 2; 3; 4; 5
Y A	US2001009325 (A1) (THIELE DONALD J; US) 26.07.2001r. (abstract; Fig. 2A; 2B; 3A; 3B; 4B)	1; 6; 7 2; 3; 4; 5
Y A	KR20150030633 (A) (KIM GWAN SU; KR) 20.03.2015r. (abstract; Fig. 3; 4; 6)	1; 6; 7 2; 3; 4; 5
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
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"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 13 November 2017 (13.11.2017)		Date of mailing of the international search report 16 November 2017 (16.11.2017)
Name and mailing address of the ISA/ Visegrad Patent Institute / Branch Office PL Al. Niepodległości 188, 00-950 Warsaw, Poland Facsimile No. +48 22 579 00 01		Authorized officer Tomasz Drążyk Telephone No. +48 22 579 0267

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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KR20150030633 (A)	2015-03-20	None	