A front baby carrier comprises a harness (10) to be worn by an adult user and a detachable seat (20) attachable to the front of the harness by front connecting devices (31, 32) with its front facing either toward or away from the user, whereby a baby can be seated in the seat in front of the user facing either toward or away from the user. A front-or-back baby carrier further comprises back connecting devices (34, 35) for attaching the seat to the back of the harness with its front facing either toward or away from the user, whereby a baby can be seated in the seat either in front or in back of the user facing either toward or away from the user.
Description

This invention relates to a front baby carrier for use by a parent or other adult user to carry or hold a baby in front with the baby facing toward or away from the user and to a front-or-back baby carrier for use by a parent or other adult user to carry a baby in back with the baby facing toward or away from the user and to carry a baby in front with the baby facing toward or away from the user.

A front baby carrier proposed by the present inventors and described in Japanese Utility Model Appln. Publication Hei 5-6850 includes a main portion, constituted as narrow lateral support coupled to opposite ends of a suspension belt to be suspended from the neck or shoulder of an adult user, and a detachable seat resembling legless pants that open at the sides. For carrying a baby up to the age of about one year, the baby is seated in the seat attached to the main portion and held with one or both arms. For carrying an older baby able to sit upright by itself, the baby is seated directly on the lateral support of the main portion with the seat detached and is held with one or both arms.

For attaching the seat to the main portion, the user has to connect a lateral belt to the seat back support, connect the opposite ends of the lateral belt to rings provided near the lower ends of the suspension belt, attach a pair of front belts by their one ends to opposite sides of the seat back support, pass the front belts through the aforesaid rings and belt loops on the seat front strap and front support, buckle the front belts together, attach a seat binder to the seat crotch support, and wrap the seat binder around the seat.

As a result, attachment and detachment of the seat to the main portion is troublesome and time consuming and, moreover, the seat cannot be attached to the main portion after the baby is seated in the seat without the help of another person. In addition, the carrier can only be worn in front with the baby facing toward the user. It cannot be used to carry a baby in front facing the other way or to carry a baby in back.

One object of this invention is to provide a front baby carrier which, by simple operations, allows the baby to be carried in front facing either toward or away from the user.

Another object of the invention is to provide a front-or-back baby carrier which, by simple operations, further allows the baby to be carried in back facing either toward or away from the user.

Another object of this invention is to provide a front baby carrier which enables both the user and the baby to be protected by a seat belt when riding in an automobile.

One aspect of this invention provides a front baby carrier comprising a harness to be worn by an adult user and a detachable seat, characterised in that the seat is attachable to the front of the harness with its front facing either toward or away from the user, so that a baby can be seated in the seat in front of the user facing either toward or away from the user.

Another aspect of the invention provides a front-or-back baby carrier comprising a harness to be worn by an adult user and a detachable seat, characterised in that the seat is attachable to the front of the harness with its front facing either toward or away from the user, and attachable to the back of the harness with its front facing either toward or away from the user, so that a baby can be seated in the seat either in front or in back of the user facing either toward or away from the user.

The harness of the front baby carrier according to this invention includes front belts or panels provided with connectors, while the seat has a front support provided with first connectors and a back support provided with second connectors. When a baby has been enclosed in the seat, it can be held in front facing toward the user by connecting the first connectors of the seat to the connectors of the harness and can be held in front facing away from the user by connecting the second connectors of the seat to the connectors of the harness.

When a baby is to be carried in a car or the like equipped with seat belts, the user first puts on the harness and fastens the seat belt and then attaches the seat. As a result, both the user and the baby are protected by the seat belt, without exposing the baby to the danger of being squeezed between the user and the seat belt.

The harness of the front-or-back baby carrier according to the second aspect of the invention is additionally provided with connectors on its back belts or back panel. It therefore has all of the capabilities of the front baby carrier according to the first aspect of the invention and, in addition, allows the first connectors of the seat to be connected to the connectors of the back belts or back panel for carrying a baby in back facing toward the user and allows the second connectors of the seat to be connected to the connectors of the back belts or back panel for carrying a baby in back facing away from the user.

This invention will be described in more detail hereinbelow with reference to the accompanying drawings, in which:-

Figure 1(a) is an explanatory view showing a front baby carrier according to this invention being used to hold a baby in front of an adult user so as to face toward the user.

Figure 1(b) is an explanatory view showing the front baby carrier of Figure 1(a) being used to hold a baby in front of the user so as to face away from the user.

Figure 2 is a perspective view showing an adult user wearing the harness of the front baby carrier of Figure 1 and seated in an automobile or the like with a seat belt fastened.

Figure 3 is a perspective view of a first example of the harness of a front baby carrier according to this invention.
The harness 10 has two front belts 11, 11 which hang down from the user to the crotch support 22 and project from opposite sides of the front support 23 as well as on the bottom ends of the straps 28, 28. The harness 10 consists of the front belts 11, 11 and the straps 12, 12 which are attached to the upper ends of the straps 28, 28. The straps 28, 28 are provided to run down along left and right sides of the back support 21, cross on the outside of the crotch support 22 and project from the right and left sides of the crotch support 22. The second connectors 32, 32 are provided at the upper ends of the straps 28 and the third connectors 33, 33 are provided at the tips of the straps 28 projecting to opposite sides of the crotch support 22.

For holding a baby to face away from the user, the second connectors 32, 32 of the seat 20 are connected with the second connectors 32, 32 of the harness 10 and the third connectors 33, 33 of the seat 20 are connected with the third connectors 33, 33 of the harness 10 (see Figure 1(b)). For holding a baby to face toward the user, the first connectors 31, 31 of the seat 20 are connected with the first connectors 31, 31 of the harness 10 and the third connectors 33, 33 of the seat 20 are connected with the third connectors 33, 33 of the harness 10 (see Figure 1(a)).

The baby can be enclosed in the seat 20 after the seat 20 has been attached to the harness 10 by con-
necting the second and third connectors or the first and third connectors. Since the connection between the second and third connectors or between the first and third connectors is easy to achieve, however, the baby can also be enclosed in the seat 20 before the seat 20 is attached to the harness 10. This is convenient when a baby is to be carried in a car, airplane or the like with the user and baby protected by a seat belt. In such a case the user puts on the harness 10, sits down and fastens the seat belt, as shown in Figure 2, and the seat 20 with the baby enclosed is then attached to the harness 10 with the seat belt in between.

It is of course dangerous for a passenger in a car or the like to fasten a seat belt over a baby held in front because the baby is in danger of being squeezed between the body of the passenger and the seat belt. When a person wearing the harness according to this invention fastens the seat belt over the harness before the seat enclosing the baby is fastened to the harness, however, the baby is safe from being squeezed. Since the seat is attached to the harness worn by the person restrained by the seat belt, moreover, the baby also benefits from the protective effect of the seat belt.

Figure 7 shows an example of a harness 10 to be worn by the user of a front-or-back baby carrier according to another aspect of this invention. This front-or back baby carrier can be used in Figures 1 to 6.

The illustrated harness 10, though referred to as a "harness" in light of its function, more resembles a vest and consists of front panels 11, 11 (corresponding to the front belts 11, 11 in the earlier embodiment) and a back panel 16, with arm holes 17, 17 therebetween.

The front belt 11 is attached with first, second and third connectors 31, 32, 33 corresponding to the first, second and third connectors 31, 32, 33 of the seat 20.

By connecting the first and third connectors of the harness and seat, therefore, a baby can be carried in the seat facing toward the user, while by connecting the second and third connectors a baby can be carried facing away from the user. When a baby is to be carried in a car or the like equipped with seat belts, the user first puts on the harness 10 and fastens the seat belt (Figure 2) and then attaches the seat 20 for carrying the baby.

For allowing the user to carry a baby in back, the back panel 16 of the harness 10 is further provided with vertically spaced pairs of fourth and fifth connectors 34, 35 at positions corresponding to the first and second connectors 31, 32. The fourth and fifth connectors 34, 35 are for connection with the first and second connectors 31, and 32 on the seat 20.

When the baby is to be carried in back facing toward the user as illustrated in Figure 8(a), the user attaches the seat to the back panel 16 by connecting the fourth connectors 34 on the back panel 16 with the first connectors 31 on the seat 20 and connecting the third connectors 33 of the harness 10 and the seat 20 together, encloses the baby in the seat 20 and puts on the harness 10.

When the baby is to be carried in back facing away from the user as illustrated in Figure 8(b), the user attaches the seat to the back panel 16 by connecting the fifth connectors 35 on the back panel 16 with the second connectors 32 on the seat 20 and connecting the third connectors 33 of the harness 10 and the seat 20 together, encloses the baby in the seat 20 and puts on the harness 10.

The harness 10 can take various other forms aside from those shown in Figures 3 and 7. Some other possible modified configurations are shown in Figures 9 to 12 by way of example.

The harness 10 shown in Figure 9 has two front belts 11, 11, similarly to the harness of Figure 3. The upper ends of the front belts 11, 11 continue into a Y-shaped back belt 16 and the lower ends of the front belts 11, 11 and the back belt 16 are attached to a waist belt 18 that the user buckles around the waist. The harness 10 shown in Figure 10, which resembles a shirt, is obtained by adding sleeves to the front panels 11, 11 and the back panel 16 of the harness of Figure 7.

The harness 10 shown in Figure 11 is similar to the one in Figure 3 but instead of the straps 12, 12 has a pair of crossed back belts 16 equal in width to the front belts 11, 11, each of which extends from the upper end of one front belt 11 to the lower end of the other front belt 11 so as to form an arm hole 13 on either side.

In the harness 10 shown in Figure 12, the front belts 11, 11 and back belts 12, 12 are connected together in endless loops 13 forming arm holes and the loops 13 are connected in back by a lateral belt 19 to form a harness 10 of H-like configuration. All of these harness have short straps with the harness-side third connectors 33 at their tips connected either to the lower ends of the front belts/panels 11 or to the connection point between the front belts 11 and the back belts 16.

Any of these harnesses can be constituted as a harness for a front baby carrier by attaching first and second connectors 31, 32 to the front belts/panels 11 or as a harness for a front-or-back baby carrier by additionally attaching fourth and fifth connectors 34, 35 to the back belts/panel 16.

In the illustrated embodiment, rear support for the baby's head is provided by extending the back support 21 of the seat farther upward than the front support 23, and second connectors 32 are attached to the upper outer surface of the back support 21 at a level higher than that at which the first connectors 31 are attached to the upper outer surface of the front support 23. In line with this, the front belts/panels 11 of the harness 10 are provided at different heights with the first and second connectors 31, 32 and the rear belts/panel 16 are provided at different heights with the fourth and fifth connectors 34, 35. Even in the case where the back support 21 is made taller than the front support 23, however, the second connectors 32 can instead be attached to the back support 21 at the same height as that at which the
first connectors 31 are attached to the front support 23. When this arrangement is adopted, the second connectors 32 on the back support 21 of the seat 20 can be connected with the first connectors 31 on the front belts/panel 11 or with the fourth connectors 34 on the back belts/panel 16, making it possible to eliminate the two second connectors 32 on the front belts/panels 11 and the two fifth connectors 35 on the back belts/panel 16.

Further, the need for the two second connectors 32 on the front belts/panels and the two fifth connectors 35 on the back belts/panel 16 can be also be eliminated by, as shown in Figure 13, making the height of the back support 21 the same as that of the back support 21 and attaching the second connectors 32 to the back support 21 at the same height as the first connectors 31 are attached to the front support 23. Since with this arrangement the back support 21 does not provide support for the baby’s head, however, it is preferable to provide a separate support member projecting upward from the back support 21 by, for example, attaching a head support 29 to the inner surface of the back support 21 by means of press-on fasteners 24 (e.g., snaps or surface-to-surface fasteners) or inserting the head support 29 into the upper opening of a pocket formed on the inner surface of the back support 21.

Commercially available male-female type belt buckles that allow easy belt length adjustment can also be used for reducing the number of connectors required on the harness 10. If such buckles are used as the connectors and attached to the front belts/panels 11 and back belts/panels 16 through short straps, the lengths of the straps can be adjusted for making connection with either the second connectors 32 on the back support 21 of the seat 20 or with the first connectors 31 on the front support 23, irrespective of any difference in the heights at which these connectors are attached. As a result, the four connectors on the front belts/panels 11 and the four connectors on the back belts/panel 16 can be reduced to two each.

In the seat 20 shown in Figures 4 to 6, the opposite sides of the back support 21 and the front support 23 are fastened together by the press-on fasteners 24. With this arrangement, the baby can be easily put (enclosed) in the seat much in the manner of putting on a pair of side-opening pants, and can be easily taken out for a change of diapers, for example. Other seat designs are also possible. In the one shown in Figure 14, for example, the front and back supports are continuous with each other on both sides, forming a bag-like seat with two leg holes.

As was explained in the foregoing, the front baby carrier according to the first aspect of the invention can be used to carry a baby in front facing toward the user by connecting the first connectors provided on the seat to connectors provided on the front belts or front panels of the harness, thereby attaching the seat to the harness, and then enclosing the baby in the seat. The attachment of the carrier to the harness is very easy since it can be achieved merely by joining the connectors. When a baby is to be carried in a car or the like equipped with seat belts, the user first puts on the harness and fastens the seat belt and then attaches the seat to the harness. Since both of the user’s arms pass through the harness, both the user and the baby are protected by the seat belt, and since the seat belt passes between the user and the carrier, there is no risk of the baby being squeezed by the seat belt.

In addition to having the capabilities of the front baby carrier according to the first aspect of the invention, the front-or-back baby carrier according to the second aspect of the invention can further be used to carry a baby in back facing toward the user by connecting the first connectors provided on the front support of the seat to connectors provided on the back belts or back panel of the harness, thereby attaching the seat to the harness, and then enclosing the baby in the seat, and can be used to carry a baby in back facing away from the user by connecting the second connectors provided on the back support of the carrier to connectors provided on the front belts/panels of the harness, thereby attaching the seat to the harness, and then enclosing the baby in the seat. The attachment of the carrier to the harness is very easy since it can be achieved merely by joining the connectors. When a baby is to be carried in a car or the like equipped with seat belts, the user first puts on the harness and fastens the seat belt and then attaches the seat to the harness. Since both of the user’s arms pass through the harness, both the user and the baby are protected by the seat belt, and since the seat belt passes between the user and the carrier, there is no risk of the baby being squeezed by the seat belt.

Claims

1. A front baby carrier comprising a harness (10) to be worn by an adult user and a detachable seat (20), characterised in that the seat (20) is attachable to the front of the harness with its front facing either toward or away from the user, so that a baby can be seated in the seat in front of the user facing either toward or away from the user.

2. A front-or-back baby carrier comprising a harness (10) to be worn by an adult user and a detachable seat (20), characterised in that the seat (20) is attachable to the front of the harness by with its front facing either toward or away from the user, and attachable to the back of the harness with its front facing either toward or away from the user, so that a baby can be seated in the seat either in front or in back of the user facing either toward or away from the user.

3. A front baby carrier according to claim 1, characterised in that the front of the harness (10) is provided with first and second connectors (31, 32, 34, 35), and the seat (20) has a front support (23) provided with first connectors (31, 32) and a back support (21) provided with second connectors (34, 35).
4. A front-or-back baby carrier according to claim 2, characterised in that the harness (10) is provided on the front thereof with first connectors (31, 32) and on the back thereof with second connectors (34, 35), and the seat (20) has a front support (23) provided with first connectors (31, 32) and a back support (21) provided with second connectors (34, 35).

5. A front baby carrier according to claim 1, characterised in that the harness (10) comprises a pair of front belts (11) hanging down the front of the user from the shoulders.

6. A front-or-back baby carrier according to claim 1, characterised in that the harness (10) comprises a pair of belts hanging down the front and back of the user from the shoulders and each comprising a front belt (11) and a back belt (16) continuing into each other.
# EUROPEAN SEARCH REPORT

## DOCUMENTS CONSIDERED TO BE RELEVANT

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<thead>
<tr>
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## TECHNICAL FIELDS SEARCHED (Int.Cl.6)

| A47D      |

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The present search report has been drawn up for all claims.

**Place of search:** THE HAGUE  
**Date of completion of the search:** 19 June 1995  
**Examiner:** Guthmuller, J

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**CATEGORY OF CITED DOCUMENTS**

- **T:** theory or principle underlying the invention
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