



(12) Invention patent application

(10) Application publication number CN 108968180 A

(43) Application publication date Dec. 11, 2018

(21) Application number 201811114564.2

(22) Application date Sep. 25, 2018

(71) Applicant Kunshan Zhenggong Mould Co., Ltd.

Address No. 102, Hengtang Road, Shunyang Industrial Park, Huaqiao Town,
Kunshan City, Suzhou City, Jiangsu Province 215332

(72) Inventor Song Longhai

(74) Patent agency Suzhou Ruihao Intellectual Property Agency (General Partnership) 32277

Agent Ma Xiaohui Wang Yaqun

(51) Int .Cl .

A41D 13/015 (Jan. 2006)

A41D 13/05 (Jan. 2006)

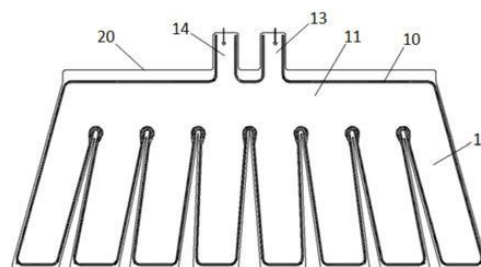
1 page of claims, 3 pages of description, 1 page of drawing

(54) Invention name

An airbag structure for a fall protection belt

(57) Summary

The present invention discloses an airbag structure for a fall protection belt, comprising an airbag and a bag cover. An inflation chamber and a plurality of strip-shaped inflation units connected to the inflation chamber are provided in the airbag, and an air inlet connected to the inflation chamber is provided on the airbag. The air inlet is used to connect with the inflation device, and a plurality of strip-shaped inflation units are provided at the lower end of the inflation chamber, all arranged in the vertical direction. The bag cover is provided on the airbag, and a plurality of strip-shaped accommodating chambers for accommodating the strip-shaped inflation units are provided on the bag cover, and the number of the strip-shaped accommodating chambers is the same as the number of the strip-shaped inflation units. The bag cover can be folded or rolled upward along the length direction of the strip-shaped accommodating chamber until it is fixed to the belt, and after the airbag is inflated, it is opened downward along the length direction of the strip-shaped accommodating chamber with the airbag. The present invention can effectively protect the airbag and quickly shape the airbag during inflation so that the airbag is not easily deformed and can fit the human body well after opening, so as to effectively protect the wearer.



1. An airbag structure for a fall protection belt, characterized in that it includes an airbag and a bag cover; the airbag is provided with an inflation chamber and a plurality of strip-shaped inflation units connected to the inflation chamber; the airbag is provided with an air inlet connected to the inflation chamber, and the air inlet is used to connect to an inflation device; the plurality of strip-shaped inflation units is provided at the lower end of the inflation chamber, and the plurality of strip-shaped inflation units are all provided in a vertical direction; the bag cover is provided on the airbag and with a plurality of strip-shaped accommodating chambers for accommodating the strip-shaped inflation units; the number of the strip-shaped accommodating chambers is the same as the number of the strip-shaped inflation units, and the bag cover can be folded or rolled upward along the length direction of the strip-shaped accommodating chambers until it is fixed to the belt, and after the airbag is inflated, it opens downward along the length direction of the strip-shaped accommodating chambers with the airbag.
2. The airbag structure for a fall protection belt as claimed in claim 1, characterized in that the bag cover is provided with a plurality of sutures, and a plurality of the strip-shaped accommodating chambers are formed between the sutures.
3. The airbag structure for a fall protection belt according to claim 2, characterized in that a sealing patch is provided on the suture line.
4. The airbag structure for a fall protection belt according to claim 1, characterized in that a detection port is also provided on the airbag, and the detection port is connected to the inflation chamber.
5. The airbag structure for a fall protection belt according to claim 1, characterized in that the width of the strip-shaped inflation unit gradually decreases from top to bottom.
6. The airbag structure for a fall protection belt according to claim 1, characterized in that when the bag cover is not inflated, it is a trapezoidal structure with a narrow top and a wide bottom after unfolding.
7. The airbag structure for a fall protection belt according to claim 1, characterized in that the number of the strip-shaped accommodating chambers and the number of the strip-shaped inflation units are both eight.

An airbag structure for fall protection belt

Technical field

[0001] The present invention relates to the field of protective equipment, specifically, to an airbag structure for a fall protection belt.

Background technology

[0002] With the increase of age and the aging of the body, the life and health of people, especially the elderly, will be seriously affected, and falling is one of the causes. Falling refers to a sudden, involuntary, and unintentional change in body position, landing on the ground or on a plane lower than the initial position. Falling is very common among the elderly, seriously affecting the physical health and independent living ability of the elderly and causing psychological pressure and fear in this population. Falling often causes great damage to the elderly's body, and, sometimes, the consequences are even fatal. When an elderly person falls, one side of the hip and thigh often lands first. Due to the lack of soft tissue cushioning in this area, the hip and thigh will directly touch the ground and be subjected to force, which can cause hip and femoral fractures.

[0003] A protective belt is a protective device for elderly people falling down. It includes a control chip, an inflator and an airbag. The inflator can be started to inflate the airbag before the elderly person falls down, and the airbag is opened to protect the wearer's hip and thigh. The existing protective belt has the following problems: lack of protective structure for the airbag, resulting in the airbag being easily damaged after inflation. The airbag structure is simple and cannot fit the human body well after opening, and, therefore, cannot effectively protect the wearer.

Invention content

[0004] In view of the shortcomings of the prior art, the purpose of the present invention is to provide an airbag structure that cannot be easily damaged and can fit the human body well after inflation, therefore effectively protecting the wearer.

[0005] An airbag structure for a fall protection belt that includes an airbag and a bag cover. The airbag is provided with an inflation chamber and a plurality of strip-shaped inflation units connected to the inflation chamber. The airbag is provided with an air inlet connected to the inflation chamber, and the air inlet is used to connect to an inflation device. The plurality of strip-shaped inflation units is provided at the lower end of the inflation chamber, and the plurality of strip-shaped inflation units are all provided in a vertical direction. The bag cover is provided on the airbag and with a plurality of strip-shaped accommodating chambers for accommodating the strip-shaped inflation units. The number of the strip-shaped accommodating chambers is the same as the number of the strip-shaped inflation units, and the bag cover can be folded or rolled upward along the length direction of the strip-shaped accommodating chambers until it is fixed to the belt, and after the airbag is inflated, it opens downward along the length direction of the strip-shaped accommodating chambers with the airbag.

[0006] As a further improvement of the present invention, the mentioned bag cover is provided with a plurality of sutures, and a plurality of the strip-shaped accommodating chambers are formed between the sutures.

[0007] As a further improvement of the present invention, a sealing patch is provided on the mentioned suture line.

[0008] As a further improvement of the present invention, a detection port is also provided on the mentioned airbag, and the detection port is connected to the inflation chamber.

[0009] As a further improvement of the present invention, the width of the mentioned strip-shaped inflation unit gradually decreases from top to bottom.

[0010] As a further improvement of the present invention, when the mentioned bag cover is not inflated, it is a trapezoidal structure with a narrow top and a wide bottom after unfolding.

[0011] As a further improvement of the present invention, the number of the mentioned strip-shaped accommodating chambers and the number of the strip-shaped inflation units are both eight.

[0012] Benefits of the present invention:

[0013] The airbag structure for the fall protection belt of the present invention is provided with a plurality of strip-shaped inflatable units connected with the inflatable chamber in the airbag. The plurality of strip-shaped inflatable units can be folded upward or rolled up along the length direction until they are fixed to the belt and opened downward along the length direction after inflation. At the same time, the airbag can be effectively protected by the setting of the airbag cover, and the airbag can quickly form during inflation, so that it is not easy to deform and can fit the human body well after opening, so as to effectively protect the wearer.

[0014] The above description is only an overview of the technical solution of the present invention. In order to more clearly understand the technical means of the present invention, it can be implemented according to the contents of the specification, and in order to make the above and other purposes, features, and advantages of the present invention clearer and easier to understand, the following is a preferred embodiment and is described in detail with the accompanying drawings.

Description of the drawings

[0015] Fig.1 is a schematic diagram of the unfolding of the airbag structure for the fall protection belt in an embodiment of the present invention;

[0016] Fig.2 is a schematic diagram of the unfolding of the bag in an embodiment of the present invention.

[0017] Marking description: 10 - airbag; 11 - inflation chamber; 12 - strip-shaped inflation unit; 13 - air inlet; 14 - detection port; 20 - bag sleeve; 21 - strip-shaped accommodating chamber; 22 - suture.

Specific implementation description

[0018] The present invention is further described below in conjunction with the accompanying drawings and specific embodiments so that those skilled in the art can better understand the present invention and implement it, but the embodiments here are not intended to limit the present invention.

[0019] As shown in Fig. 1 and Fig. 2, an airbag structure for a fall protection belt in an embodiment of the present invention is shown. The airbag structure for a fall protection belt includes an airbag 10 and a bag cover 20. The airbag 10 is provided with an inflation chamber 11 and a plurality of strip-shaped inflation units 12 connected to the inflation chamber 11. The airbag 10 is provided with an air inlet 13 connected to the inflation chamber 11. The air inlet 13 is used to connect to the inflation device. The plurality of strip-shaped inflation units 12 are placed at the lower end of the inflation chamber 11, and the plurality of strip-shaped inflation units 12 are placed in the vertical direction.

[0020] The airbag cover 20 is sleeved on the airbag 10. A plurality of sutures 22 are provided on the airbag cover 20. A sealing patch is provided on the sutures 22. A plurality of strip-shaped accommodating chambers 21 for accommodating the strip-shaped inflatable units 12 are formed between the sutures 22. The number of the strip-shaped accommodating chambers 21 is the same as the number of the strip-shaped inflatable units 12. The airbag cover 20 can be folded upward or rolled up along the length direction of the strip-shaped accommodating chambers 21 until it is fixed to the waist belt, and can be opened downward along the length direction of the strip-shaped accommodating chambers 21 along with the airbag 10 after the airbag 10 is inflated.

[0021] In the present embodiment, a detection port 14 is also provided on the airbag. The detection port 14 is connected to the inflatable chamber 11 and is used to detect the sealing performance of the

airbag.

[0022] In the embodiment, the number of the strip-shaped accommodating chambers 21 and the number of the strip-shaped inflatable units 12 are both eight.

[0023] In the present embodiment, when the airbag cover 20 is not inflated, it is a trapezoidal structure with a narrow top and a wide bottom after unfolding, which is convenient for opening downward. The width of the strip-shaped inflatable unit 12 gradually decreases from top to bottom, and the inflation speed is faster. When the waist belt is worn on the human body, the airbag cover 20 is arranged in the waist belt in a strip shape. When the air is inflated from the air inlet 20 to the inflation chamber 10, the strip-shaped inflatable unit 12 opens from top to bottom, and the airbag cover 20 is a ring structure, wrapped around the hip femur and thigh of the wearer.

[0024] The airbag structure for the fall protection belt of the present invention is provided with a plurality of strip-shaped inflatable units connected with the inflation chamber in the airbag, and the plurality of strip-shaped inflatable units can be folded or rolled up along the length direction to be fixed with the waist belt, and opened downward along the length direction after inflation. At the same time, the airbag cover can effectively protect the airbag, and the airbag can quickly form during inflation so that it is not easy to deform and can fit the human body well after opening and effectively protect the wearer.

[0025] The above embodiments are only preferred embodiments cited to fully illustrate the present invention, and the protection scope of the present invention is not limited thereto. Any equivalent substitution or modification made by a person skilled in the art based on the present invention is within the protection scope of the present invention. The protection scope of the present invention shall be subject to the claims.

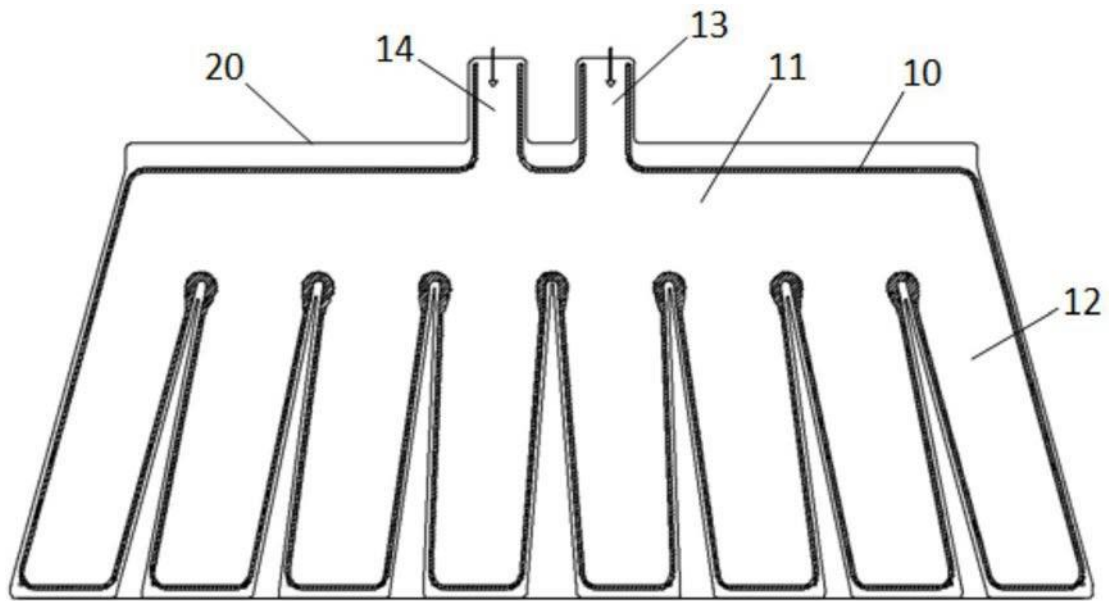


Fig. 1

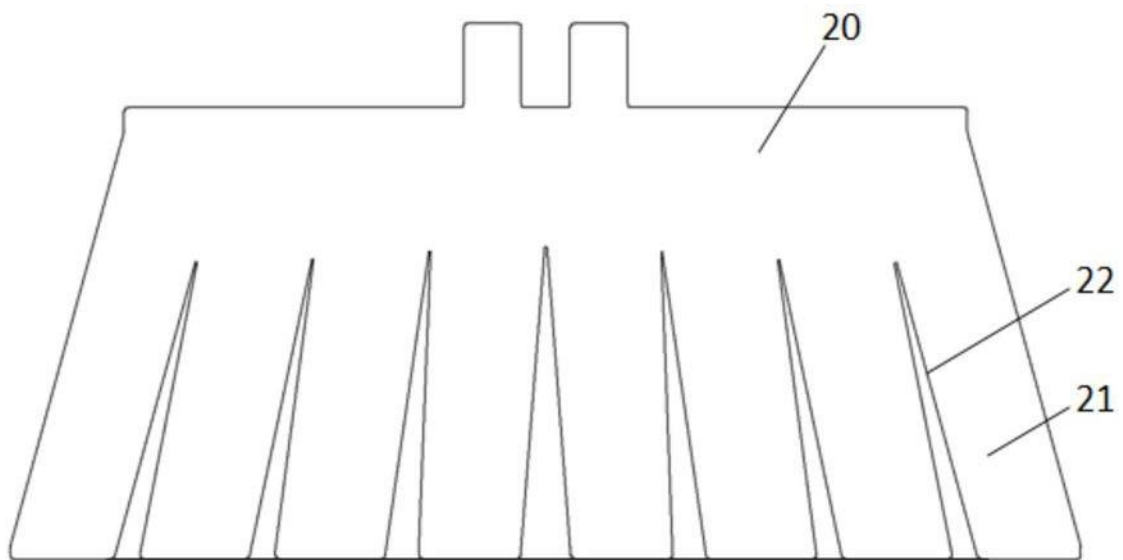


Fig. 2



TRANSLATION CERTIFICATION

Date: February 13, 2025

To whom it may concern:

I, Patrick Cheng, a translator fluent in the English and Chinese languages, on behalf of Morningside Translations, do solemnly and sincerely declare that the following is, to the best of my knowledge and belief, a true and correct translation of the document(s) listed below in a form that best reflects the intention and meaning of the original text.

The document is designated as:

- CN108968180A - Copy

Signature

Patrick Cheng

Print

QUESTEL CONFIDENTIAL

4001 S 700 East, Suite 500 #B17
Salt Lake City, UT 84107

ALPINESTARS
Ex. 1005 - Page 7