that can effectively absorb a shock caused by a collision of a vehicle, thus minimizing loss of life and property in a vehicle accident.

Technical Solution

[8] In order to accomplish the above object, the present invention provides a crash cushion including a shock absorber that absorbs a shock in such a way that a punch expands the diameter of a pipe, whereby the shock can be effectively absorbed.

Advantageous Effects of Invention

[9] A crash cushion according to the present invention is installed on a road and is able to effectively absorb shock caused by a vehicle collision, thus enhancing the safety for passengers, thereby minimizing loss of life, reducing damage to a vehicle, and also minimizing property damage.

Summary of Invention

[9A] In accordance with an embodiment of the invention, a crash cushion is provided. The crash cushion includes a rail installed on a ground surface, a front support installed on a front end of the rail, the front support being pushed backward along the rail when a shock is applied to the front support, a rear support installed on a rear end of the rail, and a shock absorber installed extending from the front support to the rear support and disposed at a predetermined height from the ground surface, the shock absorber including a punch and a pipe and absorbing the shock in such a way that the pipe is expanded in diameter by the punch. The punch includes a cutting blade protruding angularly with respect to a longitudinal axis of the punch. The crash cushion also includes an intermediate support installed on the rail between the front support and the rear support, the intermediate support supporting the shock absorber and being pushed backward when the shock is applied, wherein the shock absorber comprises a plurality of shock absorbers respectively disposed between the supports, wherein the punches of the shock absorbers are respectively fastened to the rear support and the intermediate support, each of the punches expanding the diameter of the rear end of the corresponding pipe.

Brief Description of Drawings

[10] Fig. 1 is a view illustrating a crash cushion according to the present invention;

[11] Fig. 2 is a view showing a support frame that is a basic component of a front, rear or intermediate support according to the present invention;

[12] Figs. 3 through 5 are views showing several examples of the front, rear or intermediate support using the support frame;

[13] Fig. 6 is a view showing the support frame installed on a single rail;

[14] Fig. 7 is a view illustrating the installation structure of a shock absorber according to the present invention;

[15] Figs. 8 through 10 are views illustrating examples of a punch used in the shock absorber according to the present invention;

[16] Figs. 11 and 12 are views illustrating examples of a sliding panel according to the present invention;

[17] Figs. 13 and 14 are views illustrating another embodiment of the installation structure of the shock absorber according to the present invention;

[18] Fig. 15 is a view showing the operation of the crash cushion when a shock is applied thereto according to the present invention;

Claims

[Claim 1] A crash cushion, comprising:

a rail installed on a ground surface;

a front support installed on a front end of the rail, the front support being pushed backward along the rail when a shock is applied to the front support;

a rear support installed on a rear end of the rail;

a shock absorber installed extending from the front support to the rear support and disposed at a predetermined height from the ground surface, the shock absorber comprising a punch and a pipe and absorbing the shock in such a way that the pipe is expanded in diameter by the punch,

wherein the punch comprises a cutting blade protruding angularly with respect to a longitudinal axis of the punch; and

an intermediate support installed on the rail between the front support and the rear support, the intermediate support supporting the shock absorber and being pushed backward when the shock is applied,

wherein the shock absorber comprises a plurality of shock absorbers respectively disposed between the supports, wherein the punches of the shock absorbers are respectively fastened to the rear support and the intermediate support, each of the punches expanding the diameter of the rear end of the corresponding pipe.

[Claim 2] The crash cushion of claim 1, wherein the punch is provided on a rear end of the pipe, the punch expanding a diameter of the rear end of the pipe when the pipe is pushed backward by a vehicle collision.

[Claim 3] The crash cushion of claim 1, wherein an embedding protrusion is provided on the front support so that when the vehicle collides with the crash cushion, the embedding protrusion is embedded into a bumper of the vehicle, whereby the vehicle is prevented from slipping.

[Claim 4] The crash cushion of claim 1,

wherein the rail comprises a single rail, and the front support, the rear support and the intermediate support are installed on the single rail, wherein the front support and the intermediate support are configured so as to be tiltable to the left or right by a predetermined angle.

[Claim 5] The crash cushion of claim 1, wherein a number of shock absorbers installed is increased toward the rear support.

[Claim 6] The crash cushion of claim 1, further comprising,

a sliding panel installed extending from the front support to the rear support, the sliding panel covering the front support and the rear support, wherein the sliding panel comprises a plurality of sliding panels each of which is fastened at a front end

thereof to the front support or the intermediate support so that when the front support and the intermediate support are pushed backward, the sliding panels overlap each other.

[Claim 7] The crash cushion of claim 6,

wherein a plurality of holes are formed in the sliding panel and arranged in a line in a longitudinal direction of the sliding panel, and a bolt is coupled to the hole that is disposed in a rear end of the sliding panel so that when the sliding panel is pushed backward, the holes are successively ruptured by the bolt, whereby the shock is absorbed.

[Claim 8] The crash cushion of claim 6,

wherein a slit is longitudinally formed in the sliding panel, wherein a width of the slit is less than a diameter of the bolt so that when the sliding panel is pushed backward, the bolt expands the width of the slit, whereby the shock is absorbed.

[Claim 9] The crash cushion of claim 1,

wherein the punch comprises a large diameter part inserted at a rear end thereof into the pipe, the large diameter part being increased in diameter toward a front end thereof so that when the pipe is pushed, a diameter of the pipe is expanded by the large diameter part.

[Claim 10] The crash cushion of claim 1,

wherein a space between the front support and the rear support is filled with a buffer.