Disclosed is a shoe with roller blade assembly. The shoe has a shoe body which has a cavity in an outsole thereof. A housing is accommodated in the cavity of the shoe body. An underside of the housing is opened and assembling slots are horizontally formed in lower inner ends of both sidewalks of the housing. A roller assembly is movably accommodated in the housing. The roller assembly includes a frame and a plurality of rollers arranged in a lower end of the frame in an in-line pattern. A stopper is provided for restricting the roller assembly from being completely withdrawn from the housing. A locker is movably coupled to the assembling slots of the housing such that a part of the locker protrudes through a rear portion of the outsole of the shoe. The locker selectively makes contact with an upper end or a lower end of the roller assembly so as to support the roller assembly. A brake is mounted on a rear end of the outsole of the shoe. A user wears the shoe with roller blade assembly as ordinary shoes in ordinary times by accommodating a roller blade in the outsole of the shoe body and uses the roller blade by withdrawing the roller blade from the outsole of the shoe body as needed. Accordingly, it is not required to separately purchase the shoes and the roller blade.
FIG. 19c
ROLLER BLADE SHOES

RELATED APPLICATIONS


TECHNICAL FIELD

[0002] The present invention relates to a shoe with roller blade assembly, and more particularly, to a shoe in which a roller blade assembly is integrally accommodated in an outsole of a shoe body in such a manner that a user can use the roller blade or inline skate by withdrawing rollers of the roller assembly from the outsole of the shoe body as needed, while wearing the shoe as an ordinary shoe in ordinary times.

BACKGROUND ARTS

[0003] A roller blade, which is also called an inline skate, has a plurality of rollers arranged in an outsole of a boot in an in-line pattern. Together with roller skates, roller blades or inline skates are widely used as leisure equipment to freely play on a paved road. Because of the structural characteristic of the roller blades, the user playing the roller blades or in-line skate can enjoy more speedy action while posing a more precise motion than a conventional roller skate so that the roller blade is widely spread through the world.

[0004] In a conventional roller blade, a plurality of rollers is fixedly arranged in an outsole of a boot in an in-line pattern. However, since the roller blade is usually used on rigid ground, such as asphalt or a concrete surface, the user is required to move to the proper place for enjoying the roller blade wearing ordinary shoes, while separately carrying the roller blade. Then, the user takes off the ordinary shoes and wears the roller blade. In addition, since the user pursues a daily life wearing ordinary shoes, if the user wants to enjoy the roller blade in the outdoors, the user has to separately carry the roller blade.

[0005] Therefore, the user alternately wears the ordinary shoes and the roller blade depending on the place and the conditions of the user and separately purchases the ordinary shoes and the roller blade or in-line skate, which are very cumbersome for the user.

DISCLOSURE OF THE INVENTION

[0006] The present invention has been made to solve the above problems of the prior art, therefore, the object of the present invention is to provide a shoe with roller blade assembly which can be used as both roller blade or in-line skate and shoes by accommodating the roller blade assembly in an outsole of a shoe body such that rollers of the roller blade assembly can be withdrawn from the outsole of the shoe body as needed, while wearing the roller blade as ordinary shoes in ordinary times.

[0007] The other object of the present invention is to provide a shoe with roller blade assembly, which do not require to separately purchase the shoes and the roller blade or inline skate.

[0008] To achieve the first object of the present invention, there is provided a shoe with roller blade assembly comprising: a housing being accommodated in a cavity formed in an outsole of a shoe body and opened underside, and including assembling slots horizontally formed on both inner sidewalls of the housing; a roller assembly including a frame and a plurality of rollers arranged in a lower end of the frame in an in-line pattern, the roller assembly being movably accommodated in the housing; a stopper for restricting the roller assembly from being completely withdrawn from the housing; a locker being movably coupled to the assembling slots of the housing such that a part of the locker protrudes through a rear portion of the outsole of the shoe, the locker selectively making contact with an upper end or a lower end of the roller assembly so as to support the roller assembly; and a brake being mounted on a rear end of the outsole of the shoe body.

[0009] According to the preferred embodiment of the present invention, a plurality of guiding protrusions is vertically arranged at both sidewalls of the frame, and a plurality of guiding slots, into which the guiding protrusions are movably inserted, is formed in the housing.

[0010] The locker substantially has a U-shape and a plurality of guiding grooves is formed at both inner sidewalls of the locker. The guiding grooves selectively correspond to the guiding slots of the housing so as to allow the roller assembly to move through the guiding grooves and are offset in a front direction from the guiding slots.

[0011] The brake is coaxially hinge-coupled to a rearmost roller of the roller assembly so as to be accommodated/withdrawn into/from the frame of the roller assembly.

[0012] To achieve the other object of the present invention, there is provided a shoe with roller blade assembly comprising: a housing being accommodated in a cavity formed in an outsole of a shoe body and opened underside, and including a roller-receiving chamber protruded outwardly at one of outer portions of longitudinal sidewalls of the housing; a roller assembly including a frame in a form of a channel, front and rear rollers which are respectively installed at front and rear ends of the frame such that the front and rear rollers are subject to a lever movement, and a middle roller installed in the frame between the front and rear rollers, the roller assembly being accommodated/withdrawn into/from the housing; a stopper for restricting the roller assembly from being completely withdrawing from the housing; a locker being installed in the roller-receiving chamber of the housing such that a part of the locker is protruded through a lateral portion of the outsole of the shoe, the locker selectively making contact with an upper end or a lower end of the frame so as to support the frame; and a brake being mounted on a rear end of the outsole of the shoe body.

[0013] According to the preferred embodiment of the present invention, a locking protrusion, which is coupled to the locker when the roller assembly is accommodated in the housing, is formed at a lever which supports the front and rear rollers.

[0014] At least one guiding protrusion is vertically formed at, inner portions of longitudinal sidewalls of the housing and, a guiding slot, into which the guiding protrusion is movably inserted, is formed in the frame of the roller assembly.
[0015] The brake is integrally formed with the supporting lever of the rear roller so as to be accommodated/withdrawn into/from the frame of the roller assembly.

[0016] According to the present invention, a user can wear the shoe with roller blade assembly as ordinary shoes in ordinary times by accommodating the roller blade assembly in an outssole of a shoe and can use the roller blade or inline skate by withdrawing the roller assembly from the outssole of the shoe body as needed. Accordingly, it is not required to separately purchase the shoes and the roller blade or inline skate. In addition, since the shoe with the roller blade assembly can be used as the shoes and the roller blade or inline skate, the functional and economical features of the shoes can be improved as well as the user can conveniently use the roller blade or in-line skate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The above objects, and other features and advantages of the present invention will become more apparent by describing preferred embodiments thereof with reference to the attached drawings in which:

[0018] FIG. 1 is a bottom perspective view showing a shoe with roller blade assembly according to the first embodiment of the present invention;

[0019] FIG. 2 is a bottom exploded perspective view of the shoe shown in FIG. 1;

[0020] FIG. 3 is a sectional view showing the assembling state of the shoe shown in FIG. 2;

[0021] FIG. 4 is an exploded perspective view of a roller blade assembly shown in FIG. 2;

[0022] FIGS. 5a and 5b are sectional views showing the accommodating and withdrawing states of the roller blade assembly, respectively;

[0023] FIG. 6 is a sectional view taken along the line VI-VI of FIG. 5a;

[0024] FIGS. 7a and 7b are sectional views showing the assembling state between a housing and a locker shown in FIG. 2;

[0025] FIG. 8 is an exploded perspective view of a handle section of the locker;

[0026] FIG. 9 is a side view showing the assembling state of the handle section shown in FIG. 8;

[0027] FIGS. 10a to 10c are sectional views sequentially showing the operating states of the shoe according to the first embodiment of the present invention;

[0028] FIG. 11 is a bottom perspective view showing a shoe with roller blade assembly according to the second embodiment of the present invention;

[0029] FIG. 12 is an exploded perspective view of the shoe shown in FIG. 11;

[0030] FIG. 13 is a sectional view showing the assembling state of the shoe shown in FIG. 12;

[0031] FIG. 14 is an exploded perspective view of a roller blade assembly shown in FIG. 12;

[0032] FIGS. 15a and 15b are sectional views showing the accommodating and withdrawing states of the roller blade assembly, respectively;

[0033] FIGS. 16a and 16b are sectional views taken along the line XVI-XVI of FIG. 5a, showing the accommodating and withdrawing states of the roller blade assembly, respectively;

[0034] FIG. 17 is a sectional view showing a front roller;

[0035] FIG. 18 is a sectional view taken along the line XVIII-XVIII of FIG. 16a; and

[0036] FIGS. 19a to 19d are sectional views sequentially showing the operating states of the shoe according to the second embodiment of the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

[0037] Hereinafter, preferred embodiments of the present invention will be described with reference to the accompanying drawings.

[0038] Referring to FIGS. 1 to 3, a shoe with roller blade assembly, which is called roller blade shoe, according to the first embodiment of the present invention has a shoe body S having an outssole B formed with a cavity C. An underside of the cavity C is opened. A roller blade assembly 1 is movably accommodated in the cavity C. For this reason, the outssole B of the roller blade shoe of the present invention is formed thicker than an outssole of a traditional shoe. In addition, an aperture A is formed at a rear portion of the outssole B in such a manner that a locker 40 for allowing the roller blade 1 to be fixed in accommodated or withdrawn state is protruded through the aperture A.

[0039] As is detailedly shown in FIGS. 4 to 6, the roller blade assembly 1 has a rectangular housing 10 which is accommodated in the cavity C of the outssole B to act as a base frame, a roller assembly 20 which is accommodated in the housing 10 and selectively withdrawn therefrom, a stopper 30 for restricting the roller assembly 20 from being completely withdrawn from the housing 10, a locker 40 horizontally and movably assembled to the housing 10 to make contact with an upper end or a lower end of the roller assembly 20 for fixing the roller assembly 20 in accommodated/withdrawn states with respect to the housing 10, and a brake 23 mounted on a rear end of the outssole B of the shoe body S so as to provide a braking force by selectively making contact with a ground.

[0040] The housing 10 can be integrally accommodated in the cavity C of the outssole B by using urethane foam, or can be integrally manufactured with the outssole B by performing an insert molding process. Assembling slots 11, to which the locker 40 is movably coupled, are horizontally formed at inner portions of both longitudinal sidewalls of the housing 10. Assembling holes 12 are sequentially formed at a rear wall of the housing 10 such that the locker 40 can be coupled to the assembling slots 11 by passing through the housing 10. Preferably, the assembling slots 11 and the assembling holes 12 are formed in a dovetail shape so as to prevent the locker 40 from separating therefrom. In addition, a plurality of guiding slots 13 is vertically formed at inner portions of both longitudinal sidewalls of the housing 10 with a prede-
ported interval so as to allow guiding protrusions 24 of a frame 21 of the roller assembly 20 to be movably inserted into the guiding slots 13.

[0041] The roller assembly includes the frame 21 having a rectangular vessel shape and a plurality of rollers 22 which are longitudinally arranged in a lower end of the frame in an in-line pattern. The guiding protrusions 24 are vertically formed at outer portions of both longitudinal side walls of the frame 21 with a predetermined interval. The guiding protrusions 24 are inserted into the guiding slots 13 of the housing in order to facilitate the up/down movement of the roller assembly 20 with respect to the housing 10. Each roller 22 is rotatably supported to the frame 21 by a shaft 25 which is coupled to a nut 25a by passing through the both longitudinal side walls of the frame 21. A bearing 22a is provided in the roller 22 so as to facilitate the rotation of the roller 22. Part of each roller 22 is downwardly exposed from the frame 21.

[0042] In addition, the roller assembly 20 is downwardly biased by a pair of springs 27 so as to allow the roller assembly 20 to be easily withdrawn from the housing 10 when the roller blade assembly 1 is used. For this purpose, a spring supporting plate 28 is provided at an upper end of the housing 10 for supporting upper ends of the springs 27 by making contact with a bottom of the cavity C of the outside B and a spring seat is provided in the frame 21 of the roller assembly 20 for supporting lower ends of the springs 27.

[0043] The stopper 30 can be formed in various types. For example, as shown in the figures, the stopper 30 includes a supporting jaw 31 formed at inner lower ends of front and rear walls of the housing 10 and a restricting protrusion 32 formed at upper ends of front and rear walls of the frame 21 of the roller assembly 20 corresponding to the supporting jaw 31.

[0044] The locker 40 substantially has a U-shape and both lateral sides thereof are movably inserted into the assembling slots 11 of the housing 10. A rear end of the locker 40 is protruded to an exterior through the aperture A of the outside B. In addition, for the purpose of convenience, the locker 40 is elastically biased towards the front direction of the shoe body B by a spring 43. Though the locker 40 can be formed in a single body, it is preferred that the locker 40 includes a pair of strip type locking plates 41 which are respectively coupled to the assembling slots 11 of the housing 10 and a U-shaped handle 42 both ends of which are integrally fixed to rear ends of the locking plates 41 through the aperture A of the outside B and the assembling holes 12 of the housing 10. By forming the locker 40 with the above structure, the locker 40 having the rear end protruded to the exterior through the aperture A of the outside B can be easily assembled in the housing 10, when the locker 40 is assembled with the housing 10 prior to the roller assembly 20.

[0045] Referring to FIGS. 7a and 7b, a plurality of guiding grooves 44 is formed at both inner side walls of the locking plates 41 with a predetermined interval. The guiding grooves 44 are selectively matched with the guiding slots 13 of the housing 10 so as to allow the roller assembly 20 to move up/down through the guiding grooves 44. When the locker 40 is assembled with the housing 10, the guiding grooves 44 are offset in a front direction from the guiding slots 13. In addition, locking slots 45, into which lower ends of the guiding protrusions 24 are inserted when the roller assembly 20 is accommodated in the housing 10, are formed at upper rear ends of the guiding grooves 44. The locking slots 45 are communicated with the guiding grooves 44.

[0046] In addition, as shown in FIGS. 8 and 9, the locking plates 41 are hook-coupled to the handle 42. That is, assembling grooves 46 and coupling pieces 47 having a dovetail shape, which are coupled to each other, are respectively formed at outer portions of the rear ends of the locking plates 41 and both ends of the U-shaped handle 42. In addition, a plurality of restricting protrusions 46a is formed at upper and lower portions of the assembling grooves 46 and a plurality of locking protrusions 47a is formed at upper and lower portion of the coupling pieces 47. The locking protrusions 47a are positioned offset from the restricting protrusions 46a by passing through the restricting protrusions 46a. Accordingly, when the locking plates 41 are assembled with the housing 10, the coupling pieces 47 of the handle 42 are inserted into assembling grooves 46 of the locking plates 41 through the assembling holes 12 of the housing 10 so that the locking protrusions 47a of the coupling pieces 47 are latched to the assembling grooves 46 passing through the restricting protrusions 46a of the assembling grooves 46.

[0047] The brake 23 is formed at one portion thereof with a pair of lugs 26 which are protruded in parallel to each other with a predetermined interval. The brake 23 is coaxially mounted with a rearmost roller 22 and is supported by a shaft 25 such that the brake 23 can be accommodated/ withdrawn into/from the frame 21. In addition, a fixing slot 23a is formed in the other portion of the brake 23 for fixing the brake 23 in a withdrawn state by inserting a rear lower end of the frame 21 into the fixing slot 23a. Though it is not illustrated, a brake pad is attached to an underside of the brake 23.

[0048] Reference numbers 48 and 14 indicate spring seats, which are formed in the inner portion of the housing 10 and locking plates 41 in opposite to each other for installing the spring 43 which elastically biases the locker 40.

[0049] Hereinafter, a method for using the shoe with roller blade assembly according to the first embodiment of the present invention will be described with reference to FIGS. 10a to 10e.

[0050] FIG. 10a shows the roller assembly 20 accommodated in the housing 10 which is received in the outside B of the shoe body S. In this state, the guiding grooves 44 of the locker 40 is offset from the guiding slots 13 of the housing 10 so that lower ends of the guiding protrusions 24 of the roller assembly 20 are inserted into the locking slots 45 formed at the upper end of the locker 40. Therefore, the roller assembly 20 is restricted from withdrawing out of the housing 10 and the roller 22 is prevented from protruding towards the lower portion of the outside B, so the user can freely walk with wearing the roller blade shoe.

[0051] In this state, if the user wants to enjoy the roller blade or inline skate, the user pulls the handle 42 of the locker 40 protruded through the rear portion of the outside B as shown in FIG. 10b. Then, the guiding protrusions 24 of the roller assembly 20 are released from the locking slot 45. At the same time, the guiding grooves 44 are matched
with the guiding slots 13 of the housing 10, so the roller assembly 20 is downwardly withdrawn as shown in FIG. 10C. At this time, the roller assembly 20 is prevented from completely withdrawing from the housing 10 by the stopper 30. That is, an upper end portion of the roller assembly 20 is coupled to the housing 10.

[0052] Since the roller assembly 20 is downwardly biased by the springs 27, when the guiding grooves 44 of the locking plate 41 are matched with the guiding slots 13 of the housing as shown in FIG. 10b, the roller assembly 20 is downwardly moved by the elastic force of the springs 27, so that the roller assembly 20 protrudes out of the lower portion of the outsole B. In addition, as shown in FIG. 10c, the restricting protrusions 32 formed at the upper end of the frame 21 of the roller assembly 20 are latched to the supporting jaws 31 formed at the inner lower end of the housing 10, so that the roller assembly 20 is restricted from completely separating from the housing 10.

[0053] Then, if the user releases the external force from the handle 42 of the locker 40, as shown in FIG. 10d, the locker 40 returns to its initial position by the restoring force of the spring 43 so that the guiding grooves 44 of the locker 40 are offset from the guiding slots 13 of the housing 10. As a result, the lower ends of the locking plates 41 are supported on the upper ends of the guiding protrusions 24 of the roller assembly 20, so the roller assembly 20 is protruded from the outsole and fixed in a withdrawn state.

[0054] After that, as shown in FIG. 10e, the brake 23 accommodated in the frame 21 of the roller assembly 20 is withdrawn from the frame 21 by rotating the roller assembly 20. Then, the fixing slot 23a of the brake 23 is inserted into a rear lower end of the frame 21 so as to fix the brake 23 in the withdrawn state. Therefore, the roller blade assembly 1 can be is fixedly maintained below the outsole B of the shoe body S, so the user can enjoy the roller blade or inline skate.

[0055] On the other hand, after enjoying the roller blade or inline skate, the roller assembly 20 is accommodated in the cavity of the shoe body S by reversing the order for withdrawing the roller assembly 20. That is, the brake 23 is firstly separated from the frame 21. Then, the user rotates the brake 23 to accommodate the brake 23 in the frame 21. After that, the user pulls the handle 42 of the locker 40 such that the guiding grooves 44 are matched with the guiding slots 13 of the housing 10. In this state, if the user slightly steps on the roller assembly 20, the springs 27 are compressed by external force so that the roller assembly 20 is lifted up into the housing 10.

[0056] Then, if the user releases the pulling force applied to the handle 42 of the locker 40, the locker 40 is returned to its initial position by the restoring force of the spring 43. Therefore, as shown in FIG. 10e, the lower ends of the guiding protrusions 24 of the roller assembly 20 are introduced into the locking slots 45 of the locking plates 41 so as to be interlocked with the locking slots 45, so the roller assembly 20 can be fixedly accommodated in the cavity C of the outsole B. Accordingly, the user can use the roller blade shoe as ordinary shoes.

[0057] FIGS. 11 to 13 show a shoe with roller blade assembly according to the second embodiment of the present invention. As same as the first embodiment, the cavity C is formed in the outsole B of the shoe body S and a roller blade assembly 1' is movably accommodated in the cavity C. For this purpose, the outsole B is formed thicker than an outsole of a traditional shoe. In addition, a slot H for exposing a knob 92 of a locker 90, which maintains the roller blade assembly 1' in an accommodated state, is formed at one side portion of the outsole B.

[0058] As detailedly shown in FIGS. 14 to 16b, the roller blade assembly 1' has a rectangular housing 50 which is accommodated in the cavity C of the outsole B to act as a base frame, a roller assembly 60 which is accommodated in the housing 10 and selectively withdrawn therefrom, a stopper 80 for restricting the roller assembly 60 from being completely withdrawn from the housing 50, a roller 90 movably assembled with the housing in a width direction thereof to make contact with an upper end or a lower end of the roller assembly 60 for fixing the roller assembly 60 in accommodated/withdrawn states with respect to the housing 50, and a brake 77 mounted on a rear end of the outsole B of the shoe body S so as to provide a braking force by selectively making contact with a ground.

[0059] The housing 50 can be integrally accommodated in the cavity C of the outsole B by using urethane foam, or can be integrally manufactured with the outsole B by performing an insert molding process. A locker-receiving chamber 51 is formed at one of outer portions of longitudinal sidewalls of the housing 50. An inner portion of the locker-receiving chamber 51 is opened so as to communicate with an interior of the housing 50, and an outer portion thereof is formed with an assembling hole 52 through which the knob 92 is protruded to the exterior. In addition, guiding protrusions 53 are vertically formed at inner portions of longitudinal sidewalls of the housing 50 in opposite to each other.

[0060] The roller assembly 60 includes a frame 61 movably accommodated in the housing 50 and a plurality of rollers 65 which are longitudinally arranged in a lower end of the frame 61 in an in-line pattern. The frame 61 is in a form of a channel having skirts 62 at both longitudinal sidewalls thereof. The skirts 62 are formed at an outer side thereof with guiding slots 62a, which are movably coupled, to the guiding protrusions 53 of the housing 50. Preferably, the housing 50 is downwardly biased by a leaf spring 63 fixed to an apex of the housing 50. A spring seat 61a provided at the upper surface of the frame 61 for receiving the leaf spring 63 when the roller assembly 60 is accommodated in the housing 50.

[0061] Rollers 65 include front and rear rollers 66 and 68, which are collapsibly mounted front and rear ends of the frame 61, and a middle roller 67 simply coupled to the frame 61 between the front and rear rollers 66 and 68. Front and rear rollers 66 and 68 are connected to first ends of supporting levers 69 and 70. Second ends of the supporting levers 69 and 70 are coupled between two skirts 62 of the frame 61 by shafts 71 and 72 and nuts 71a and 72a. Accordingly, a relatively large gap is formed between the middle roller 67 and two skirts 62 of the frame 61. In order to compensate for the gap, a supporting protrusion 62b is formed at an inner portion of the skirt 62 corresponding to the middle roller 67. In addition, the guiding slots 62a are formed at an outer portion of the skirt 62 corresponding to the supporting protrusion 62b. Preferably, as shown in FIG. 17, the front and rear levers 69 and 70 are outwardly biased, that is in a direction to be spread, by torsion springs 75 and
The torsion springs 75 and 76 are installed on the shafts 71 and 72 through guiding slits 69a and 70a formed at a periphery of a pivot section of the supporting levers 69 and 70. First ends of the torsion springs 75 and 76 are fixed to the housing 50 and second ends of the torsion springs 75 and 76 are fixed to the supporting levers 69 and 70. Therefore, the guiding slits 69a and 70a have to be bent at the rotational direction of the supporting levers 69 and 70 such that the supporting levers 69 and 70 can be smoothly rotated without being interfered by end portions of the torsion springs 75 and 76 fixed to the housing 50.

[0062] In addition, since the front and rear rollers 66 and 68 of the roller assembly 60 are collapsibly installed on the frame 61 and outwardly biased therefrom, locking protrusions 73 and 74 are provided at side portions of the supporting levers 69 and 70 so as to fix the front and rear rollers 66 and 68 in a collapsed state by coupling to the locker 90 when the roller assembly 60 is accommodated in the housing 50.

[0063] The stopper 80 can be formed in various types. For example, as shown in the figures, the stopper 80 includes a restricting protrusion which is formed at inner portions of front and rear walls of the housing 50, respectively, to make contact with front and rear peripheries of an apex of the frame 61. Therefore, the supporting levers 69 and 70 of the front and rear rollers 66 and 68 are spaced from the apex of the frame 61 when the roller assembly 60 is withdrawn from the housing 50. For this reason, a supporting plate 64 is installed at the apex of the frame 61. The supporting plate 64 makes contact with the supporting levers 69 and 70 of the front and rear rollers 66 and 68 to horizontally support the supporting levers 69 and 70 when the roller assembly 60 is withdrawn from the housing 50.

[0064] As shown in FIG. 18, the locker 90 includes a latching bar 91 and a knob 92 for manipulating the latching bar 91. The latching bar 91 is installed in the locker-receiving chamber 51 of the housing 50 so as to support the lower end of the frame 61 and the locking protrusions 73 and 74 of the supporting levers 69 and 70 when the roller assembly 60 is accommodated in the housing 50. The latching bar 91 is inwardly biased by compression springs 93, which are interposed at both ends between an outer surface of the latching bar 91 and an inner surface of the locker-receiving chamber 51, such that a part of the latching bar 91 is protruded into the housing 50. The knob 92 is provided at one end thereof with a female screw 94 so as to be screw-coupled with the latching bar 91. The other end of the knob 92 is protruded to an exterior through assembling hole 52 of the locker-receiving chamber 51 and the slot 11 of the outside B. In addition, flange 95 is provided at a predetermined periphery portion of the knob 92. The flange 95 makes contact with the outer surface of the locker-receiving chamber 51 so as to limit the stroke of the latching bar 91, and simultaneously, prevents the locker 90 from introducing into the housing 50 when the roller assembly 60 is withdrawn from the housing 50. Therefore, the knob 92 is screw-coupled with the latching bar 91 from the locker-receiving chamber 51 through the assembling hole 52 of locker-receiving chamber 51.

[0065] On the other hand, the inner side of the latching bar 91 slidably making contact with the roller assembly 60 is preferably formed as a downwardly inclined surface or an arc-type curvature surface in order to easily receive the roller assembly 60. More preferably, the outer sides of the locking protrusions 73 and 74 making contact with the latching bar 91 are formed as an inclined surface or an arc-type curvature surface in opposite to the inner side of the latching bar 91.

[0066] The brake 77 is installed on a rear end of the supporting lever 70, which connects the rear roller 68 to the frame 61. The brake 77 includes a fixing bar 78 protruded in a rear direction from the supporting lever 70 and a brake pad 79 attached to an underside of the fixing bar 78.

[0067] Reference numerals 66a, 66b and 67a and 67b, 68a and 68b are shafts and nuts for rotatably mounting rollers 66, 67 and 68.

[0068] Hereinafter, the method for using the shoe with roller blade assembly according to the second embodiment of the present invention will be described with reference to FIGS. 19a to 19d.

[0069] FIG. 19a shows the roller assembly 60 accommodated in the housing 50 buried in the outside B of the shoe body S. In this state, the front and rear rollers 66 and 68 are folded into the frame 61, and the locking protrusions 73 and 74 and the lower end of the frame 61 make contact with the latching bar 91 of the locker 90 and are suspended thereon. Accordingly, the roller assembly 60 is prevented from being withdrawn from the housing 50 so that the rollers 65 cannot be protruded out of the outside B of the shoe body S. Thus, the user can freely walk with wearing the roller blade shoes. At this time, the leaf spring 63 installed on the apex of the housing 50 is elastically deformed when the roller assembly 60 is lifted so that the leaf spring 63 is rested in the spring seat 61a.

[0070] In this state, if the user wants to use the roller blade, the user laterally pulls the knob 92 of the roller 90 which is protruded in the lateral direction of the outside B, as shown in FIG. 19b. Then, the latching bar 91 of the locker 90 is outwardly moved while compressing the compression springs 93 and is completely inserted into the locker-receiving chamber 51 of the housing 50. Accordingly, the locking protrusions 73 and 74 are released from the frame 61 of the roller assembly 60. At the same time, as shown in FIG. 19c, the frame 61 is downwardly moved by the restoring force of the leaf spring 63 and the front and rear rollers 66 and 68 are outwardly rotated by the restoring force of the torsion springs 75 and 76, so that the roller assembly 60 is protruded out of the outside B. At this time, the roller assembly 60 is easily descended guided by guide protrusions 53 of the housing 50. On the other hand, when the roller assembly 60 is withdrawn from the housing 50, the latching bar 91 of the locker 90 slidably makes contact with a side portion of the frame 61 of the roller assembly 60 while being inserted in the locker-receiving chamber 51 of the housing 50.

[0071] Then, as shown in FIG. 19d, when the frame 61 of the roller assembly 60 reaches an opening formed at the lower end of the housing 50, the periphery portion of the apex of the frame 61 is locked with the stopper which is protruded at the inner lower portion of the housing 50, the withdrawing of the roller assembly 60 is stopped. At the same time, the front and rear rollers 66 and 68 are completely spread and are horizontally positioned in front and rear portions of the frame 61. At this time, the upper portions
of the supporting levers 69 and 70 of the front and rear rollers 66 and 68 make contact with the supporting plate 64 of the frame 61 and the lower end of the housing 50 so that the supporting levers 69 and 70 are stably and securely supported and the roller assembly 60 is fixedly maintained in the withdrawing position. When the roller assembly 60 has been withdrawn, the locker 90 is released and the latching bar 91 of the locker 90 is returned to its initial position by the restoring force of the compression springs 93 so that the latching bar 91 is protruded into the housing 90.

[0072] On the other hand, after using the roller blade, the roller assembly 60 is accommodated in the housing 50 by reversing the order for withdrawing the roller assembly 60. Firstly, the spread front and rear rollers 66 and 68 are folded into the frame 61. Then, the user laterally pulls the locker 90 thereby inserting the protruded latching bar 91 into the housing 50. Accordingly, the latching bar 91 of the locker 90 slidably makes contact with the side portion of the frame 61, and then, the lower end of the frame 61 and the locking protrusions 73 and 74 of the supporting levers 69 and 70 pass through the latching bar. As a result, the latching bar 91 is inwardly moved by the restoring force of the compression springs 93 to support the lower end of the frame 61 and the locking protrusions 73 and 74, thereby fixedly maintaining the roller assembly 60 in the accommodated state. Therefore, the roller assembly is not protruded into the lower portion of the outsole B so that the shoe with roller blade assembly can be used as ordinary shoes.

[0073] At this time, since the latching bar 91 of the locker 90 has the inner surface in the form of the arc-type curvature, the latching bar 91 is pushed outward while slidably making contact with the frame 61 by the insertion force of the roller assembly 60, so the roller assembly 60 can be easily accommodated in the housing 50 without laterally pulling the locker 90.

INDUSTRIAL APPLICABILITY

[0074] As mentioned above, according to the present invention, the roller assembly is coaxially mounted such that the roller blade assembly can be accommodated in the outsole of the shoe body, so the user can wear the shoe with roller blade assembly as ordinary shoes and enjoy the roller blade or inline skate by withdrawing the roller assembly from the outsole of the shoe, as needed. Therefore, it is not required to separately purchase the shoes and the roller blade or to separately carry the roller blade or the shoes to enjoy the roller blade or inline skate in the outdoor. In addition, it is not necessary for the user to replace the shoes with the roller blade or in-line skate or vice versa according to the condition of the place.

[0075] In addition, since the roller blade assembly can be disassembled from the outsole of the shoe body, not only the repairing work for the roller blade assembly is simply carried out, but also it is possible to replace the roller blade assembly with new one without wasting the shoe body.

[0076] Therefore, the present invention can improve functional and economical features of the shoes as well as the user can conveniently use the roller blade or inline skate.

It is claimed:

1. A shoe with roller blade assembly comprising:
   - a housing being accommodated in a cavity formed in an outsole of a shoe body and opened underside, and including assembling slots horizontally formed on both inner sidewalls of the housing;
   - a roller assembly including a frame and a plurality of rollers arranged in a lower end of the frame in an in-line pattern, the roller assembly being movably accommodated in the housing;
   - a stopper for restricting the roller assembly from being completely withdrawn from the housing;
   - a locker being movably coupled to the assembling slots of the housing such that a part of the locker protrudes through a rear portion of the outsole of the shoe, the locker selectively making contact with an upper end or a lower end of the roller assembly so as to support the roller assembly; and
   - a brake being mounted on a rear end of the outsole of the shoe body.

2. The shoe as claimed in claim 1, wherein a plurality of guiding protrusions is vertically arranged at both sidewalls of the frame, and a plurality of guiding slots, into which the guiding protrusions are movably inserted, is formed in the housing.

3. The shoe as claimed in claim 2, wherein the locker substantially has a U-shape and a plurality of guiding grooves is formed at both inner portions of sidewalls of the locker, the guiding grooves selectively corresponding to the guiding slots of the housing so as to allow the roller assembly to move through the guiding grooves, the guiding grooves being offset in a front direction from the guiding slots.

4. The shoe as claimed in claim 3, wherein the locker is elastically biased in the front direction by an elastic spring.

5. The shoe as claimed in any one of claims 1 to 3, wherein the roller assembly is downwardly biased by a spring.

6. The shoe as claimed in claim 1, wherein the stopper includes a restricting protrusion formed at upper ends of front and rear walls of the frame of the roller assembly, and a supporting jaw formed at inner lower ends of front and rear walls of the housing corresponding to the restricting protrusion.

7. The shoe as claimed in claim 1, wherein the brake is coaxially hinge-coupled to a rearmost roller of the roller assembly so as to be accommodated/withdrawn into/from the frame and has a fixing slot for receiving a rear lower end of the frame.

8. The shoe as claimed in claim 3, wherein the locker includes a pair of locking plates which are respectively coupled to the assembling slots of the housing and a substantially U-shaped handle both ends of which are assembled with rear ends of the locking plates by passing through the outsole of the shoe.

9. A shoe with roller blade assembly comprising:
   - a housing being accommodated in a cavity formed in an outsole of a shoe body and opened underside, and including a locker-receiving chamber protruding outwardly at one of outer portions of longitudinal sidewalls of the housing;
a roller assembly including a frame in a form of a channel, front and rear rollers which are respectively installed at front and rear ends of the frame such that the front and rear rollers are subject to a lever movement, and a middle roller installed in the frame between the front and rear rollers, the roller assembly being accommodated/withdrawn into/from the housing;

a stopper for restricting the roller assembly from being completely withdrawn from the housing;

a locker being installed in the locker-receiving chamber of the housing such that a part of the locker protrudes through a lateral portion of the outsole of the shoe, the locker selectively making contact with an upper end or a lower end of the frame so as to support the frame; and

a brake being mounted on a rear end of the outsole of the shoe body.

10. The shoe as claimed in claim 9, wherein a lever is provided to support the front and rear rollers, and a locking protrusion, which is coupled to the locker when the roller assembly is accommodated in the housing, is formed at the lever.

11. The shoe as claimed in claim 9, wherein at least one guiding protrusion is vertically formed at inner portions of longitudinal sidewalls of the housing and a guiding slot, into which the guiding protrusion is movably inserted, is formed in the frame of the roller assembly.

12. The shoe as claimed in claim 9 or claim 11, wherein the roller assembly is elastically biased in a withdrawing direction thereof by a spring.

13. The shoe as claimed in claim 9, wherein the stopper includes a stopping protrusion which is installed at inner portions of front and rear walls of the housing so as to make contact with lower portions of the front and rear walls of the frame of the roller assembly.

14. The shoe as claimed in claim 9, wherein the brake is integrally formed with a supporting lever mounted with the rear roller and extends in a rear direction therefrom.

15. The shoe as claimed in claim 9, further comprising a supporting plate which is installed at a lower portion of the frame for restricting the front and rear rollers from spreading above a horizontal state and for supporting an upper portion of the supporting lever by making contact with the supporting lever when the rollers of the roller assembly are withdrawn from the housing.

16. The shoe as claimed in claim 10, wherein an inner portion of the locker and an outer portion of the locking protrusion are formed as slope surfaces or arc-shaped curvature surfaces opposite to each other:

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