

DESCRIPTION

REINFORCEMENT CAGE AND METHOD FOR RECOVERING SHAPE OF THE REINFORCEMENT CAGE

FIELD OF THE INVENTION

[0001]

The present invention relates to a foldable reinforcement cage and a method for recovering shape of the reinforcement cage from a folded state to a normal shape.

BACKGROUND OF THE INVENTION

[0002]

A reinforcement cage used for a beam and a column or the like includes a plurality of main bars and a multitude of hoops. The main bars extend parallel to each other. The hoops extending parallel to each other are disposed to surround the plurality of main bars, with the hoops spaced from each other in a longitudinal direction of the main bars. The main bars and the hoops are bound together by binding members composed of metal wires.

While it is common to assemble such reinforcement cages in a construction site, efficiency of assembling work tends to be low. In a case where the reinforcement cages are assembled in a factory and then transported to the construction site, efficiency of the assembling work can be enhanced. However, transportation efficiency of the reinforcement cage may be reduced to a remarkable extent due to an increased volume of the reinforcement cage.

[0003]

Patent Document 1 to be described later discloses a method for transporting a reinforcement cage assembled in a factory to a construction site in a folded state. In this method, efficiencies of the assembly and the transportation of the reinforcement cage can be both enhanced.

To describe the method of the Patent Document 1 more specifically, main bars and hoops are temporarily bound at crossing portions thereof by binding members. In the temporary binding, the main bars and the hoops are bound loosely enough so that the hoops can be rotated with respect to the main bars. This loose temporary binding allows the reinforcement cage to be foldable. The cage is transported in a folded state and then returned to a normal shape as-manufactured at the construction site.

[0004]

Patent Document 2 to be described later discloses a reinforcement cage that can be folded by binding main bars and hoops by stretchable binding members.

PRIOR ART DOCUMENTS

PATENT DOCUMENTS

[0005]

Patent Document 1: Japanese Unexamined Patent Application Publication No. 2006-283475

Patent Document 2: Japanese Patent Publication No. 3839963

SUMMARY OF THE INVENTION

PROBLEM TO BE SOLVED BY THE INVENTION

[0006]

Patent Document 1 does not disclose the method of temporarily binding in detail. In the loose temporary binding, rebinding is required after returning the reinforcement cage to the normal shape at the construction site, which is troublesome.

Patent Document 2 does not provide a detailed description of directions of the binding members at crossing portions of the main bars and the hoops of the reinforcement cage.

SOLUTION TO THE PROBLEM

[0007]

To solve the problems mentioned above, the present invention provides a reinforcement cage including: a plurality of main bars extending in straight lines parallel to each other; a multitude of hoops disposed so as to surround the plurality of main bars and spaced from each other in a longitudinal direction of the main bars, the hoops disposed parallel to each other; and binding members binding the main bars and the hoops at crossing portions of the main bars and the hoops, each of the binding members placed around the crossing portion, the each of the binding members disposed so as to pass through two of four spaces defined by the main bar and the hoop, the two spaces not being adjacent to each other, the hoops having rectangular configurations, the main bars disposed at least at four corners of the hoops, wherein when the reinforcement cage in a horizontally laid condition is viewed from a side, the binding members are inclined in a same direction, when the reinforcement cage in the horizontally laid condition is viewed from above, the binding members binding the hoops and the main bar at an upper right corner of the hoops are inclined in a first direction, the binding members binding the hoops and the main bar at an upper left corner of the hoops are inclined in a second direction crossing the first direction, the binding members binding the hoops and the main bar at a lower right corner of the hoops are inclined in the second direction, and the binding members binding the hoops and the main bar at a lower left corner of the hoops are inclined in the first direction.

[0008]

According to the features mentioned above, efficiency in assembly and transportation of the reinforcement cage can be enhanced because the reinforcement cage is foldable. Moreover, since the directions of the binding members are devised, the reinforcement cage can be folded by moving an upper face portion of the reinforcement cage with respect to a lower face portion thereof in a direction in which the main bars are extended even if the main bars and the hoops are securely bound. The reinforcement cage can be generally maintained in the bound state even after it is

returned to a normal shape from the folded state. This saves a trouble of rebinding to a great extent.

[0009]

In another aspect of the present invention, there is provided a reinforcement cage including the hoops having circular configurations and the main bars disposed spaced from each other along a circumferential direction of the hoops, wherein when the reinforcement cage in a horizontally laid condition is viewed from a side, the binding members are inclined in a same direction, when the reinforcement cage in the horizontally laid condition is viewed from above, the binding members binding upper side portions of the hoops and the main bar on a right side are inclined in a first direction, the binding members binding the upper side portions of the hoops and the main bar on a left side are inclined in a second direction crossing the first direction, the binding members binding lower side portions of the hoops and the main bar on the right side are inclined in the second direction, and the binding members binding the lower side portions of the hoops and the main bar on the left side are inclined in the first direction.

[0010]

The binding members may be made of metal wires.

Each of the binding members may include an intermediate member made of a stretchable material and a pair of metal wires connected through the intermediate member. By using this binding member, the loosening of the binding can be generally prevented because the intermediate member is stretched when the reinforcement cage is folded. Therefore, rebinding work is not generally required even after the reinforcement cage is returned from the folded state to the normal shape, and the main bars and the hoops can be maintained in the bound state even if the reinforcement cage is repeatedly folded and returned to the normal shape.

[0011]

The main bars may comprise threaded reinforcing bars including threads formed at even intervals in the longitudinal direction. Since the thread is relatively

high and the pitch is short, engagement of the binding member and the thread can provide for secure binding.

[0012]

A method for recovering a shape of the reinforcement cage according to the present invention includes: returning the reinforcement cage in a folded state to a normal shape; and thereafter, binding an obliquely extending brace to the main bars using other binding members, thereby maintaining the reinforcement cage in the normal shape. According to the method given above, the reinforcement cage can be maintained in the normal shape in a stable manner.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0013]

According to the present invention, the reinforcement cage can be folded in a securely bound condition, which can significantly reduce work required after recovering the shape of the reinforcement cage from the folded state to the normal shape.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

FIG. 1 is a perspective view of a reinforcement cage according to a first embodiment of the present invention, showing the reinforcement cage in a horizontally laid condition and binding members binding main bars and hoops in a simplified manner.

FIG. 2 is a plan view of the reinforcement cage.

FIG. 3 is a side view of the reinforcement cage.

FIG. 4A is an enlarged plan view of an upper side portion of the hoop and the main bars, showing the binding members in a simplified manner.

FIG. 4B is a view corresponding to FIG. 4A, showing the reinforcement cage in a course of being folded.

FIG. 5A is an enlarged plan view of a lower side portion of the hoop and the main bars, showing cross-sections of side portions of the hoop and showing the binding members in a simplified manner.

FIG. 5B is a view corresponding to FIG. 5A, showing the reinforcement cage in a course of being folded.

FIG. 6A is an enlarged side view of a right side portion of the hoop and the main bars, showing the binding members in a simplified manner.

FIG. 6B is a view corresponding to FIG. 6A, showing the reinforcement cage in a course of being folded.

FIG. 7 is a side view of the reinforcement cage, showing the reinforcement cage reinforced with a brace after being returned to a normal state from a folded state at a construction site.

FIG. 8 is an enlarged side view of a reinforcement cage according to a second embodiment of the present invention, showing a right side portion of a hoop and main bars.

FIG. 9 is a transverse sectional view of a reinforcement cage according to a third embodiment of the present invention.

FIG. 10 is a plan view of the reinforcement cage of the third embodiment, showing the reinforcement cage in a horizontally laid condition.

FIG. 11A is a side view of the reinforcement cage of the third embodiment.

FIG. 11B is a view corresponding to FIG. 11A, showing the reinforcement cage in a course of being folded.

FIG. 12 is an enlarged perspective view of a main bar and a hoop of a reinforcement cage according to a fourth embodiment of the present invention, showing a binding member in a simplified manner as a double ring.

FIG. 13 is a cross-sectional view, showing another aspect of the binding member.

MODE FOR CARRYING OUT THE INVENTION

[0015]

A first embodiment of the present invention will be described hereinafter with reference to FIGS. 1 to 7.

FIG. 1 shows a reinforcement cage used for a beam or the like in a horizontally laid condition. For the convenience of explanation, an imaginary reference plane P (see FIG. 2) passing through a center of the reinforcement cage is used. The reinforcement cage shown in FIG. 1 is laid horizontally with the reference plane P oriented vertically.

[0016]

The reinforcement cage includes four (plural) main bars 1, 2, 3, 4 and a multitude of hoops 5. The main bars 1, 2, 3, 4 extend in straight lines parallel to the reference plane P and parallel to each other. The hoops 5 extending parallel to each other are disposed to surround the main bars 1, 2, 3, 4, with the hoops spaced from each other in a longitudinal direction of the main bars.

The hoops 5 have a rectangular configuration elongated in a vertical direction. The main bars 1, 2, 3, 4 are disposed at four corners of the hoops 5.

[0017]

In the drawings, left and right directions are defined with a folding direction F to be described later as a forward direction. The hoop 5 includes an upper side portion 5a and a lower side portion 5b, both orthogonal to the reference plane P, and a right side portion 5c and a left side portion 5d, both extending parallel to the reference plane P. The hoop 5 has a rectangular configuration elongated in the vertical direction. Specifically, the side portions 5c, 5d are longer than the upper side portion 5a and the lower side portion 5b.

The main bar 1 is at upper right corners of the hoops 5. The main bar 2 is at upper left corners of the hoops 5. The main bar 3 is at lower right corners of the hoops 5. The main bar 4 is at lower left corners of the hoops 5.

[0018]

The main bars 1, 2, 3, 4 and the hoops 5 are bound by binding members 6 at crossing portions thereof. The binding member 6 is composed of a bundle of multitude of thin metal wires, for example.

At each of the crossing portions, the binding member 6 is placed around the crossing portion of the main bar 1, 2, 3, 4 and the hoop 5. The binding member 6 passes through two of four spaces defined by the main bar 1, 2, 3, 4 and the hoop 5, which two spaces are not adjacent to each other. Opposite end portions of the binding member 6 are connected by being twisted together, and thereby, the main bar 1, 2, 3, 4 and the hoop 5 are bound together. In the drawings, the binding members 6 are shown in a simplified manner as single rings.

[0019]

As shown in FIG. 4A, the binding members 6 binding the main bar 1 at the upper right corner and all the hoops 5 are inclined in a first direction when viewed from above. Specifically, the binding members 6 are inclined such that the binding members 6 are oriented outward toward the folding direction F to be described later. On the other hand, the binding members 6 binding the main bar 2 at the upper left corner and all the hoops 5 are inclined in a second direction when viewed from above. Specifically, the binding members 6 are inclined such that the binding members are oriented outward toward the folding direction F. The first direction and the second direction intersect with each other. Accordingly, the binding members 6 binding the main bar 1 and the binding members 6 binding the main bar 2 are inclined such that the binding members 6 get away from each other toward the folding direction F when viewed from above.

[0020]

As shown in FIG. 5A, the binding members 6 binding the main bar 3 at the lower right corner and all the hoops 5 are inclined in the second direction when viewed from above. Specifically, the binding members 6 are inclined such that the binding members 6 are oriented inward toward the folding direction F. On the other hand, the binding members 6 binding the main bar 4 at the lower left corner and all

the hoops 5 are inclined in the first direction when viewed from above. Specifically, the binding members 6 are inclined such that the binding members are oriented inward toward the folding direction F. Accordingly, the binding members 6 binding the main bar 3 and the binding members 6 binding the main bar 4 are inclined such that the binding members get closer to each other toward the folding direction F when viewed from above.

[0021]

Portions of the binding members 6 located outside of the hoops 5 may be located in the upper side portion 5a, the lower side portion 5b, the side portion 5c or the side portion 5d of the hoop 5. In a case where the portion of the binding member 6 located outside of the hoops 5 is located in the upper side portion 5a or the lower side portion 5b, the binding member 6 is inclined in a generally straight line when viewed from above as shown in FIGS. 4A and 5A. However, in a case where the portion of the binding member 6 located outside of the hoops 5 is located in the side portion 5c or the side portion 5d, the binding member 6 has a curved configuration. Even in this case, an inner portion of the binding member 6 is inclined in a generally straight line when viewed from above. In a case where diameters of the hoops 5 are smaller than diameters of the main bars 1, 2, 3, 4, difference between the two cases mentioned above in configurations of the binding members 6 when viewed from above is reduced.

[0022]

As shown in FIG. 6A, when viewed from a side, i.e. from a direction orthogonal to the reference plane P, the binding members 6 are inclined in a same direction. Specifically, the binding members 6 are inclined such that the binding members are oriented downward toward the folding direction F to be described later.

[0023]

Since the direction (first direction) of the binding member 6 at the main bar 1 at the upper right corner and the direction (second direction) of the binding member 6 at the main bar 3 at the lower right corner are different, when viewed from above, one

overlaid upon the other, the binding member 6 at the main bar 1 and the binding member 6 at the main bar 3 appear like letter “X”. Similarly, the binding member 6 at the main bar 2 at the upper left corner and the binding member 6 at the main bar 4 at the lower left corner appear like letter “X”.

[0024]

The reinforcement cage having the features mentioned above can be assembled in a factory, and therefore, productivity can be enhanced. The reinforcement cage can be folded after being assembled. Specifically, an upper face portion of the reinforcement cage is moved in the direction F indicated in the drawings along a longitudinal direction of the reinforcement cage, and thereby the reinforcement cage is folded.

[0025]

In the folding step mentioned above, the upper side portions 5a of the hoops 5 are rotated with respect to the main bars 1, 2, but positional relationships therebetween are almost unchanged. The lower side portions 5b are also rotated with respect to the main bars 3, 4, but positional relationships therebetween are almost unchanged.

[0026]

On the other hand, the right side portions 5c of the hoops 5 are inclined to a great degree from the state orthogonal to the main bars 1, 3, and the right side portions 5c adjacent to each other are overlapped with each other. Similarly, the left side portions 5d of the hoops 5 are inclined to a great degree from the state orthogonal to the main bars 2, 4, and the left side portions 5d adjacent to each other are overlapped with each other.

[0027]

In the folding step mentioned above, the binding members 6 do not pose much resistance to the tilting of the right side portions 5c and the left side portions 5d of the hoops 5. The reasons therefor are given below.

[0028]

In the course of folding, as shown in FIGS. 4B and 6B, the right side portions 5c and the left side portions 5d are rotated in a direction opposite to the direction F with respect to the main bars 1, 2 on the upper side. Specifically, the right side portion 5c is rotated in a direction away from a portion 6x of the binding member 6 passing through a space defined by the main bar 1 and the right side portion 5c. The left side portion 5d is rotated in a direction away from a portion 6x of the binding member 6 passing through a space defined by the main bar 2 and the left side portion 5d.

[0029]

In the course of folding, as shown in FIGS. 5B and 6B, the right side portions 5c and the left side portions 5d are rotated in the direction F with respect to the main bars 3, 4 on the lower side. Specifically, the right side portion 5c is rotated in a direction away from a portion 6x of the binding member 6 passing through a space defined by the main bar 3 and the right side portion 5c. The left side portion 5d is rotated in a direction away from a portion 6x of the binding member 6 passing through a space defined by the main bar 4 and the left side portion 5d.

[0030]

As mentioned above, since the side portions 5c, 5d are rotated with respect to the main bars 1, 2, 3, 4 without interfering with the binding members 6 while the reinforcement cage is being folded, the reinforcement cage can be folded without receiving much resistance. Therefore, in a reinforcement cage assembly step in the factory, the binding members 6 can be bound firmly in a permanent binding instead of a temporary binding in which the bars 1, 2, 3, 4 and the hoops 5 are loosely bound.

[0031]

Since the reinforcement cage can be transported to a construction site or a yard adjacent to the construction site in a folded state, transportation efficiency can be enhanced. In the construction site, in a procedure reverse to the above, the reinforcement cage in the folded state can be returned to a normal shape by lifting the

reinforcement cage while moving the upper face portion of the reinforcement cage in the direction opposite to the direction F.

The binding members 6 return to the original binding state as mentioned above. Rebinding work can be significantly reduced since the binding members 6 are permanently bound in a secure manner.

[0032]

After the reinforcement cage is returned to the normal shape, a brace 100 extending obliquely with respect to the main bars 1, 2, 3, 4 as indicated in an imaginary line in FIG. 7 is used to prevent the reinforcement cage from being collapsed (folded). Opposite end portions of the brace 100 extend parallel to the main bars 1, 2, 3, 4. The opposite end portions are bound to the main bars 1, 2, 3, 4 with the binding members. The brace 100 is bound to the side portions 5c, 5d of the hoops 5 as necessary. The brace 100 is inclined downward toward the direction F. After being reinforced with the brace 100, the reinforcement cage is provided for the construction work.

[0033]

Other embodiments of the present invention will be described hereinafter. In the description of these embodiments, components corresponding to those of the preceding embodiments are indicated by the same reference numerals and explanations thereof will be omitted.

[0034]

FIG. 8 shows a second embodiment of the present invention. In the second embodiment, additional main bars 8 extending parallel to the main bars 1, 2, 3, 4 are disposed at an intermediate height of a reinforcement cage. The additional main bars 8 intersect with a side portion 5c, 5d of hoops 5 at a right angle. The additional main bars 8 are bound to the side portion 5c, 5d with binding members 6. These binding members 6 are inclined in a same direction as the binding members 6 binding the main bars 1, 2, 3, 4 and the hoops 5. Specifically, of four spaces defined by the additional main bar 8 and the side portion 5c, 5d, the binding members 6 are disposed

so as to pass through two spaces in which angles between the additional main bar 8 and the side portion 5c, 5d are widened at the time of the folding. Therefore, the binding members 6 binding the additional main bar 8 do not interfere with the side portions 5c, 5d at the time of the folding. Other features of the second embodiment are same as those of the first embodiment.

[0035]

Additional main bars may be disposed in an intermediate portion of upper side portions 5a and lower side portions 5b of the hoops 5. In this case, directions of the binding members binding the additional main bars to the upper side portions 5a and the lower side portions 5b may be either the first direction or the second direction mentioned above or may be a mixture of the first direction and the second direction. It is because positional relationships between the additional main bar and the upper side portions 5a and the lower side portions 5b are not changed throughout a folding step.

[0036]

FIGS. 9 to 11 show a reinforcement cage used for a column or the like according to a third embodiment of the present invention. The reinforcement cage includes a plurality of main bars 9 extending parallel to each other and a multitude of hoops 10 surrounding the main bars 9 and disposed parallel to each other spaced from each other in a longitudinal direction of the main bars 9. The hoops 10 have a circular configuration. The main bars 9 are disposed at even intervals along a circumferential direction of the hoops 10. An imaginary reference plane P extending through a center of the reinforcement cage is used to explain this embodiment as well.

[0037]

When the reinforcement cage is viewed from a side with the reference plane P extending vertically and the reinforcement cage laid horizontally, all of the binding members 6 are inclined in a same direction as shown in FIG. 11A. Specifically, the binding members 6 are inclined such that the binding members are oriented downward toward the folding direction F.

[0038]

When the reinforcement cage in the horizontally laid condition is viewed from above, the binding members 6 binding upper side portions 10a of the hoops 10 and the main bar 9 on the right side are inclined in a first direction as shown in FIG. 10. Specifically, the binding members 6 are inclined such that the binding members 6 are oriented outward toward the folding direction F. On the other hand, the binding members 6 binding the upper side portions 10a of the hoops 10 and the main bar 9 on the left side are inclined in a second direction. Specifically, the binding members 6 are inclined such that the binding members are oriented outward toward the folding direction F.

[0039]

Although not shown in the drawings, when the reinforcement cage in the horizontally laid condition is viewed from above, the binding members 6 binding lower side portions 10b of the hoops 10 and the main bar 9 on the right side are inclined in the second direction. Specifically, the binding members 6 are inclined such that the binding members 6 are oriented inward toward the folding direction F. On the other hand, the binding members 6 binding the lower side portions 10b of the hoops 10 and the main bar 9 on the left side are inclined in the first direction. Specifically, the binding members 6 are inclined such that the binding members are oriented inward toward the folding direction F.

[0040]

Directions of the binding members binding the main bar 9 on the reference plane P and centers of the upper side portions 10a and the lower side portions 10b of the hoops 10 may be either the first direction or the second direction mentioned above or may be a mixture of the first direction and the second direction.

[0041]

The binding members 6 do not interfere with the hoops 10 when the reinforcement cage of the third embodiment is folded as shown in FIG. 11B in a similar manner to the first embodiment. Therefore, an explanation thereof is omitted.

Even where the main bar is disposed not at the centers but in vicinity of the centers of the upper side portions 10a and the lower side portions 10b of the hoops 10, it is not required to specify directions of the binding members 6 that bind the main bar and the hoops 10.

[0042]

FIG. 12 shows a fourth embodiment of the present invention. In the fourth embodiment, threaded reinforcing bars having threads N formed therein at even intervals are used as main bars 1, 2, 3, 4. Since the threads N are higher and formed at narrower pitches than nodes of ordinary deformed reinforcing bars, binding members 6 can be caught more securely by the threads N, and the main bars 1, 2, 3, 4 and hoops 5 can be bound more securely. The fourth embodiment is similar to the first embodiment in the other features. The threaded reinforcing bars may be used as the main bars 8, 9 of the second and the third embodiments.

[0043]

FIG. 13 shows a binding member 6 according to another aspect of the present invention. The binding member 6 includes an intermediate member 6a made of a rubber (stretchable material) and a pair of metal wires 6b, 6c connected via the intermediate member 6a. The intermediate member 6a has a circular cylindrical configuration (ring configuration). The metal wires 6b, 6c pass through the intermediate member 6a. The main bars and the hoops can be bound by placing the binding members 6 around the crossing portions of the main bars and the hoops and bundling and twisting the metal wires 6b, 6c.

In the binding member 6, the intermediate member 6a is stretched when the reinforcement cage is being folded. Therefore, the metal wires 6b, 6c are not subjected to much force, and loosening of the binding hardly occurs. Therefore, rebinding is not required even if the reinforcement cage is repeatedly folded.

[0044]

The present invention is not limited to the embodiments described above and various modifications can be made within the scope of the present invention.

The brace 100 used in the first embodiment may be used in the second and the third embodiments.

INDUSTRIAL APPLICABILITY

[0045]

The present invention may be applied to a foldable reinforcement cage.

CLAIMS

[Claim 1]

A reinforcement cage comprising:

a plurality of main bars (1, 2, 3, 4; 8) extending in straight lines parallel to each other;

a multitude of hoops (5) disposed so as to surround the plurality of main bars and spaced from each other in a longitudinal direction of the main bars, the hoops disposed parallel to each other; and

binding members (6) binding the main bars and the hoops at crossing portions of the main bars and the hoops,

each of the binding members (6) placed around the crossing portion, the each of the binding members disposed so as to pass through two of four spaces defined by the main bar and the hoop, the two spaces not being adjacent to each other,

the hoops (5) having rectangular configurations, the main bars (1, 2, 3, 4; 8) disposed at least at four corners of the hoops,

CHARACTERIZED IN THAT when the reinforcement cage in a horizontally laid condition is viewed from a side, the binding members (6) are inclined in a same direction,

when the reinforcement cage in the horizontally laid condition is viewed from above, the binding members (6) binding the hoops (5) and the main bar (1) at an upper right corner of the hoops are inclined in a first direction,

the binding members (6) binding the hoops (5) and the main bar (2) at an upper left corner of the hoops are inclined in a second direction crossing the first direction,

the binding members (6) binding the hoops (5) and the main bar (3) at a lower right corner of the hoops are inclined in the second direction, and

the binding members (6) binding the hoops (5) and the main bar (4) at a lower left corner of the hoops are inclined in the first direction.

[Claim 2]

A reinforcement cage comprising:
a plurality of main bars (9) extending in straight lines parallel to each other;
a multitude of hoops (10) disposed so as to surround the plurality of main bars and spaced from each other in a longitudinal direction of the main bars, the hoops disposed parallel to each other; and
binding members (6) binding the main bars and the hoops at crossing portions of the main bars and the hoops,
each of the binding members (6) being placed around the crossing portion, the each of the binding members disposed so as to pass through two of four spaces defined by the main bar and the hoop, the two spaces not being adjacent to each other,
the hoops (10) having circular configurations, the main bars (9) disposed spaced from each other along a circumferential direction of the hoops,

CHARACTERIZED IN THAT when the reinforcement cage in a horizontally laid condition is viewed from a side, the binding members (6) are inclined in a same direction,

when the reinforcement cage in the horizontally laid condition is viewed from above, the binding members (6) binding upper side portions (10a) of the hoops (10) and the main bar (9) on a right side are inclined in a first direction,

the binding members (6) binding the upper side portions (10a) of the hoops (10) and the main bar (9) on a left side are inclined in a second direction crossing the first direction,

the binding members (6) binding lower side portions (10b) of the hoops (10) and the main bar (9) on the right side are inclined in the second direction, and

the binding members (6) binding the lower side portions (10b) of the hoops (10) and the main bar (9) on the left side are inclined in the first direction.

[Claim 3]

The reinforcement cage according to claim 1 or 2, wherein the binding members (6) are made of metal wires.

[Claim 4]

The reinforcement cage according to claim 1 or 2, wherein each of the binding members (6) includes an intermediate member (6a) made of a stretchable material and a pair of metal wires (6b, 6c) connected through the intermediate member.

[Claim 5]

The reinforcement cage according to claim 1 or 2, wherein the main bars (1, 2, 3, 4) comprise threaded reinforcing bars including threads (N) formed at even intervals in the longitudinal direction.

[Claim 6]

A method for recovering a shape of a reinforcement cage, the method comprising:

returning the reinforcement cage according to claim 1 or claim 2 in a folded state to a normal shape; and thereafter,

binding an obliquely extending brace (100) to the main bars (1, 2, 3, 4) using other binding members, thereby maintaining the reinforcement cage in the normal shape.