CLAIMS

What is claimed is:

1. An improved positioning joint structure of reinforcing steel bars (cages) ~~having infinitely extending connection~~, comprising a plurality of joint pieces and pivot devices, wherein

the plurality of joint pieces are fastened and connected to each other through the pivot devices and are used as the reinforcing steel bars (cages) having an ~~infinitely~~ extending connection;

the pivot device ~~has the~~having an inner thread corresponding to the joint piece; ~~and the characteristics include~~wherein the joint piece that has a ~~multi-start~~double or a triple-start thread and a guide tooth structure installed at one end of the joint piece where the joint piece is in contact with the pivot device, the guide tooth structure comprising a guide thread portion located at one end of the joint piece that is in contact with the front end of the join piece; the thread diameter of the guide thread portion being smaller than the thread diameter of the joint piece at the rear end; when the joint piece is in contact with the pivot device initially, such that the joint piece can enter the inner thread of the pivot device much easier through the design of the smaller thread diameter of the guide thread portion, the guide tooth structure further comprising an inner guide thread portion having a larger thread diameter than that of the inner thread of the pivot device, such that the joint piece can enter the pivot device much easier initially during the fastening process, and wherein

a diameter of a section of the reinforcing steel bar of the joint piece is enlarged by cold-formed expansion front portion method before thread is made, such that the enlarged section of the reinforcing steel bar undergoes thread rolling process afterward; the joint piece comprising an expansion thread portion, located at the front end of the joint piece and for joining parts, a shank portion that is connected to the expansion thread portion and maintains an original diameter size of the reinforcing steel bar, wherein a thread outer diameter of the expansion thread portion is larger than a diameter of the shank portion and a diameter of the expansion thread portion decreases gradually toward a direction away from the shank portion.

~~2. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 1, wherein the joint piece has a double-start thread.~~

~~3. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 1, wherein the joint piece has a triple-start thread.~~

~~4. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 1, wherein the guide tooth structure comprises a guide thread portion located at the front end of the joint piece; the thread diameter of the guide thread portion is smaller than the thread diameter of the joint piece at the rear end; when the joint piece is in contact with the pivot device initially, the joint piece can enter the inner thread of the pivot device much easier through the design of the smaller thread diameter of the guide thread portion.~~

~~5. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 1, wherein the guide tooth structure comprises an inner guide thread portion, installed inside one end of the pivot device that is in contact with the front end of the joint piece; having a larger thread diameter of the inner guide thread portion than the diameter of the inner thread of the pivot device, the joint piece can enter the pivot device much easier initially during the fastening process.~~

~~6. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 1, wherein the diameter of a section of the reinforcing steel bar of the joint piece is enlarged by the cold-formed expansion front portion method before the thread is made, and then the enlarged section of the reinforcing steel bar undergoes the thread rolling process afterward; the joint piece comprises an expansion thread portion, located at the front end of the joint piece and for joining parts, a shank portion that is connected to the expansion thread portion and maintains the original diameter size of the reinforcing steel bar, wherein the thread outer diameter of the expansion thread portion is larger than the diameter of the shank portion.~~

~~7. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 6, wherein the size of the diameter of the expansion thread portion decreases gradually toward the direction away of the shank portion.~~

~~8~~2. An improved positioning joint structure of reinforcing steel bars (cages) ~~having infinitely extending connection~~, comprising a plurality of joint pieces and pivot devices, wherein

the plurality of joint pieces are fastened and connected to each other through the pivot devices and are used as the reinforcing steel bars (cages) having an ~~infinitely~~ extending connection;

the pivot device ~~has the~~ having an inner thread corresponding to the joint piece; ~~and~~

~~the characteristics include~~wherein the joint piece that has a single-start thread and a guide tooth structure installed at one end of the joint piece where the joint piece is in contact with the pivot device, the guide tooth structure comprising a guide thread located at one end of the joint piece that is in contact with the front end of the join piece; the thread diameter of the guide thread portion being smaller than the thread diameter of the joint piece at the rear end of the joint piece; the joint piece can enter the inner thread of the pivot device much easier through the design of the smaller thread diameter of the guide thread portion, the guide tooth structure further comprising an inner guide thread portion having a larger thread diameter than that of the inner thread of the pivot device, such that the joint piece can enter the pivot device much easier initially during the fastening process and wherein

a diameter of a section of the reinforcing steel bar of the joint piece is enlarged by cold-formed expansion front portion method before thread is made, such that the enlarged section of the reinforcing steel bar undergoes thread rolling

process afterward; the joint piece comprising an expansion thread portion, located at the front end of the joint piece and for joining parts, a shank portion that is connected to the expansion thread portion and maintains an original diameter size of the reinforcing steel bar, wherein a thread outer diameter of the expansion thread portion is larger than a diameter of the shank portion and a diameter of the expansion thread portion decreases gradually toward a direction away from the shank portion.

~~9. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 8, wherein the guide tooth structure comprises a guide thread portion located at the front end of the joint piece; the thread diameter of the guide thread portion is smaller than the thread diameter of the joint piece at the rear end of the joint piece; the joint piece can enter the inner thread of the pivot device much easier through the design of the smaller thread diameter of the guide thread portion.~~

~~10. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 8, wherein the guide tooth structure comprises an inner guide thread portion, installed inside one end of the pivot device that is in contact with the front end of the joint piece; having a larger thread diameter of the inner guide thread portion than the diameter of the inner thread of the pivot device, the joint piece can enter the pivot device much easier initially during the fastening process.~~

~~11. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 8, wherein the diameter of a~~

~~section of the reinforcing steel bar of the joint piece is enlarged by the cold-formed expansion front portion method before the thread is made, and then the enlarged section of the reinforcing steel bar undergoes the thread rolling process afterward; the joint piece comprises an expansion thread portion, located at the front end of the joint piece and for joining parts, a shank portion that is connected to the expansion thread portion and maintains the original diameter size of the reinforcing steel bar, wherein the thread outer diameter of the expansion thread portion is larger than the diameter of the shank portion.~~

~~12. The improved positioning joint structure of reinforcing steel bars (cages) having infinitely extending connection as claimed in claim 11, wherein the size of the diameter of the expansion thread portion decreases gradually toward the direction away of the shank portion.~~