of lugs which project outwardly from the housings. The lugs are adapted to receive fasteners, such as nuts and bolts, which are adjustably tightenable to draw the segments toward one another.

Some retainers use teeth that are angularly oriented with respect to a line extending radially from an axis coaxial with the central space. The proper angular orientation allows the teeth to be "self-actuating", i.e., the mechanical engagement between the teeth and the pipe elements increases with increasing force on the pipe elements trying to draw or push them out of the coupling. Hence, the force resisting withdrawal increases with the applied force that would otherwise cause withdrawal. However, if such retainers are oriented improperly, for example, if the retainer is reversed within the coupling, then the teeth will not be self-actuating against forces which would draw or push the pipe element out of the coupling. Thus the retainer would not provide sufficient mechanical engagement against withdrawal and the pipe elements will not be securely held within the coupling. For couplings having retainers it is difficult to determine if the retainers are properly oriented once the coupling has been installed. It would be advantageous if pipe couplings could be designed so that the user is alerted if the retainer is not properly oriented during assembly of the joint.

Summary

According to a first aspect of the present invention, there is provided a coupling for joining pipe elements, said coupling comprising:

a plurality of segments attached to one another end to end surrounding a central space for receiving said pipe elements, each of said segments comprising:

at least a first channel positioned on a first side of said segments, said first channel extending between said ends of said segments; and

a first aperture in at least one of said segments, said first aperture being aligned with said first channel, said first aperture providing a line of sight toward said central space.

According to a second aspect of the present invention, there is provided a method of joining pipe elements, said method comprising:

inserting at least a first pipe element into a central space defined by a plurality of segments attached to one another end to end in spaced relation sufficient to permit insertion of said pipe elements; and

observing, through a first aperture aligned with said first channel in at least one of said segments, whether or not said first pipe element is present within said central space.

The invention concerns a coupling for joining pipe elements. In one example embodiment the coupling comprises a plurality of segments attached to one another end to end surrounding a central space for receiving the pipe elements. By way of example there may be no more than a first and a second segment. Each of the segments comprises first and second channels positioned on opposite sides of the segments. Each of the channels extends between the ends of the segments and has a first floor and a second floor facing the central space. The first floor has a greater radius of curvature than the second floor.

What is claimed is:

1. A coupling for joining pipe elements, said coupling comprising:

a plurality of segments attached to one another end to end surrounding a central space for receiving said pipe elements, each of said segments comprising:

at least a first channel positioned on a first side of said segments, said first channel extending between said ends of said segments; and

a first aperture in at least one of said segments, said first aperture being aligned with said first channel, said first aperture providing a line of sight toward said central space.

2. The coupling according to claim 1, wherein said first aperture is positioned between two of said segments.

3. The coupling according to claim 2, wherein said first aperture comprises a trough positioned at an interface between said two segments.

4. The coupling according to claim 1, further comprising a second aperture in at least one of said segments, said second aperture providing a line of sight toward said central space.

5. The coupling according to claim 4, wherein said second aperture is aligned with a second channel positioned on a second side of said segments opposite said first side.

6. The coupling according to claim 4, wherein said second aperture is positioned between two of said segments.

7. The coupling according to claim 6, wherein said second aperture comprises a trough positioned at an interface between said two segments.

8. The coupling according to claim 1, wherein:

said first channels have a first floor and a second floor facing said central space, said first floor having a greater radius of curvature than said second floor; and

a first retainer positioned in said first channels, said first retainer comprising a band having oppositely disposed ends, a plurality of teeth being positioned along one edge of said band and projecting toward said central space, at least one tab being positioned along an opposite edge of said band, said band overlying said first floor, said tabs overlying said second floor when said first retainer is positioned within said channels.

9. The coupling according to claim 8 further comprising a plurality of said tabs.

10. The coupling according to claim 8, further comprising:

a third channel positioned adjacent to said first channels in each of said first and second segments, said third channels extending between said ends of said segments and facing said central space.

11. The coupling according to claim 8, wherein said teeth are oriented angularly with respect to a line extending radially from an axis arranged coaxially with said central space.

12. The coupling according to claim 8, wherein said at least one tab is oriented perpendicularly to a line extending radially from an axis arranged coaxially with said central space.

13. The coupling according to claim 8, wherein said at least one tab is offset from said band toward an axis arranged coaxially with said central space.

14. The coupling according to claim 10, wherein said at least one tab projects toward said third channel.

15. The coupling according to claim 1, comprising at most a first and a second segment of said segments.

16. The coupling according to claim 15, further comprising first and second attachment members positioned at opposite ends of said first and second segments, at least one of said attachment members

being adjustably tightenable for drawing said first and second segments toward one another.

17. The coupling according to claim 16, wherein said first attachment member comprises:

first and second lugs positioned respectively on said first and second segments, said first and second lugs being in facing relation; and

a first fastener extending between said first and second lugs, tightening of said first fastener drawing said segments toward one another.

18. The coupling according to claim 17, wherein said second attachment member comprises:

third and fourth lugs positioned respectively on said first and second segments, said third and fourth lugs being in facing relation; and

a second fastener extending between said third and fourth lugs, tightening of said second fastener drawing said segments toward one another.

19. The coupling according to claim 10, further comprising:

a ring seal positioned within said third channels, said ring seal having an inner surface sized to receive said pipe elements and an

outer surface sized to support said segments in spaced apart relation sufficient to permit insertion of said pipe elements into said central space while said segments are attached to one another.

20. The coupling according to claim 19, wherein said band of said first retainer is sized to cooperate with said ring seal to support said segments in said spaced apart relation.

21. A method of joining pipe elements, said method comprising:

inserting at least a first pipe element into a central space defined by a plurality of segments attached to one another end to end in spaced relation sufficient to permit insertion of said pipe elements; and

observing, through a first aperture aligned with said first channel in at least one of said segments, whether or not said first pipe element is present within said central space.

22. The method according to claim 21, further comprising:

inserting at least a second pipe element into said central space; and

observing, through a second aperture in at least one of said segments, whether or not said second pipe element is present within said central space.

23. The method according to claim 22, further comprising:

adjusting positions of said pipe elements within said central space if said pipe elements are not present within said central space; and

drawing said segments toward said central space and into engagement with said pipe elements once said pipe elements are observed to be present within said central space.