There is a need for an improved end fitting that addresses the above mentioned issues.

BRIEF SUMMARY OF THE INVENTION

According to an aspect of the invention, there is provided a pipe end fitting assembly that includes an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces. An inner body has an inner surface defining a second bore and an outer surface, wherein a first portion of the inner body outer surface is secured to the outer body inner surface. A passage is formed through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage, wherein the first and second portions of the passage are in fluid communication with each other.

In another aspect of the invention, a pipe assembly includes an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces. An inner body has an inner surface defining a second bore and an outer surface, wherein a first portion of the inner body outer surface is secured to the outer body inner surface. A passage is formed through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage. A pipe has an end disposed around and secured to a second portion of the inner body outer surface. A jacket disposed around the pipe and having an end secured to the outer body outer surface. The first and second portions of the passage are in fluid communication with each other and with a space extending between the jacket and the pipe.

In yet another aspect of the invention, a method of forming a pipe assembly includes forming an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces, forming a passage through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first

bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage, forming an inner body having an inner surface defining a second bore and an outer surface, securing a first portion of the inner body outer surface to the outer body inner surface, securing an end of a pipe around and to a second portion of the inner body outer surface, and securing an end of a jacket to the outer body outer surface, wherein the jacket is disposed around the pipe. The first and second portions of the passage are in fluid communication with each other and with a space extending between the jacket and the pipe.

Other objects and features of the present invention will become apparent by a review of the specification, claims and appended figures.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side cross sectional view of a conventional pipe end fitting.

Fig. 2 is a side cross sectional view of the pipe end fitting assembly of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is pipe end fitting assembly 30, which is illustrated in Fig. 2. The pipe end fitting assembly 30 constitutes two separate components that are affixed to each other: the outer body 32 and the inner body 34.

The outer body 32 is generally cylindrically shaped having an inner surface 32a that defines a bore 36 extending longitudinally through the outer body. A connector notch 38 is formed on the outer surface 32b of outer body 32 (to facilitate connection to its destination). The inner body 34 is generally cylindrically shaped with an inner surface 34a that defines a bore 40 extending longitudinally through the inner body 34. One end of the inner body 34 has serrations on the outer surface 34b of the inner body 34, forming a serrated pipe connector 42 (for receiving and securing a pipe end). The other end of the

What is claimed is:

1. A pipe end fitting assembly, comprising:

an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces;

an inner body having an inner surface defining a second bore and an outer surface, wherein a first portion of the inner body outer surface is secured to the outer body inner surface; and

a passage formed through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage, wherein the first and second portions of the passage are in fluid communication with each other.

2. The assembly of claim 1, wherein the second portion of the passage extends orthogonally to the first portion of the passage.

3. The assembly of claim 1, wherein the first and second bores are cylindrically shaped.

4. The assembly of claim 1, further comprising:

a weld securing the end surface to the inner body outer surface.

5. The assembly of claim 1, wherein the inner body first portion terminates at a first end, and wherein the pipe end fitting assembly further comprises:

a weld securing the first end to the outer body inner surface.

6. The assembly of claim 1, further comprising:

a notch formed into the outer surface of the outer body.

7. The assembly of claim 1, wherein a second portion of the inner body outer surface includes serrations formed therein.

8. A pipe assembly, comprising:

an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces;

an inner body having an inner surface defining a second bore and an outer surface, wherein a first portion of the inner body outer surface is secured to the outer body inner surface;

a passage formed through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage;

a pipe having an end disposed around and secured to a second portion of the inner body outer surface; and

a jacket disposed around the pipe and having an end secured to the outer body outer surface;

wherein the first and second portions of the passage are in fluid communication with each other and with a space extending between the jacket and the pipe.

9. The assembly of claim 8, wherein the second portion of the passage extends orthogonally to the first portion of the passage.

10. The assembly of claim 8, wherein the first and second bores are cylindrically shaped.

11. The assembly of claim 8, further comprising:

a weld securing the end surface to the inner body outer surface.

12. The assembly of claim 8, wherein the inner body first portion terminates at a first end, and wherein the pipe assembly further comprises:

a weld securing the first end to the outer body inner surface.

13. The assembly of claim 8, further comprising:

a notch formed into the outer surface of the outer body.

14. The assembly of claim 8, wherein the second portion of the inner body outer surface includes serrations formed therein.

15. A method of forming a pipe assembly, comprising:

forming an outer body having an outer surface, an inner surface defining a first bore, and an end surface extending between the inner and outer surfaces;

forming a passage through the outer body extending from the end surface to the outer surface of the outer body, wherein the passage includes a first portion extending within the outer body from the end surface and parallel to the first bore, and a second portion within the outer body extending from the outer surface of the outer body to the first portion of the passage;

forming an inner body having an inner surface defining a second bore and an outer surface; securing a first portion of the inner body outer surface to the outer body inner surface;

securing an end of a pipe around and to a second portion of the inner body outer surface; and

securing an end of a jacket to the outer body outer surface, wherein the jacket is disposed around the pipe;

wherein the first and second portions of the passage are in fluid communication with each other and with a space extending between the jacket and the pipe.

16. The method of claim 15, wherein the securing of the first portion of the inner body outer surface to the outer body inner surface is performed after the forming of the passage.

17. The method of claim 15, wherein the second portion of the passage extends orthogonally to the first portion of the passage.

18. The method of claim 15, wherein the first and second bores are cylindrically shaped.

19. The method of claim 15, further comprising: