minimum dimension for that size and weight, then the entire joint of tubing or drill pipe is downgraded or scrapped.

[0012] Furthermore, many imperfections can exist on the tube body of a workstring tubing joint, drill pipe joint, drill collar, NMDC, or mud motor component. If these imperfections are deep enough, they can cause the entire tubular to be rejected.

[0013] No known methods exist to apply buildup material or hardbanding to a drill pipe or workstring tubing tube body to create raised wear pads or to repair the tube body, without altering the mechanical properties of the tube body, since the tube body is very thin compared with the externally upset connection or tool joint, with thicknesses as low as 0.113 inches (2.9 mm) or perhaps even lower. Applying any weave beads to the external surface of a tube body using the GMAW method or most other welding methods will significantly alter the base material hardness and thus the mechanical properties of the base material.

[0014] What is needed is a method of building up or adding hardbanding to oil and gas tubulars that can be performed with multiple passes continuously that does not compromise the mechanical properties of the oil and gas tubular.

SUMMARY

[0015] The present disclosure is related to methods for welding on oil and gas tubulars, and, in particular, for repairing or reinforcing new or worn tubulars and applying hardbanding to oil and gas tubulars.

[0015a] In an aspect, the present disclosure refers to a method comprising: applying a wire

continuously to an oil and gas tubular using low heat input welding to create multiple bands.

[0015b] In another aspect, the present disclosure refers to an oil and gas tubular constructed by a process comprising the steps of: applying a wire continuously to an oil and gas tubular using low heat input welding to create multiple bands.

[0016] One example according to the present disclosure includes a method with the steps of: applying a wire to an oil and gas tubular using low heat input welding for multiple bands continuously. The method may also include cooling the oil and gas tubular in ambient air after welding. The low heat input welding may use direct current electrode positive voltages of

[0017] Another example according to the present disclosure includes an oil and gas tubular constructed by a process that includes applying a wire to the oil and gas tubular using low heat input welding for multiple bands continuously.

[0018] Examples of the more important features of the disclosure have been summarized rather broadly in order that the detailed description thereof that follows may be better understood and in order that the contributions they represent to the art may be appreciated. There are, of course, additional features of the disclosure that will be described hereinafter and which will form the subject of the claims appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] For a detailed understanding of the present disclosure, reference should be made to the following detailed description of the embodiments, taken in conjunction with the accompanying drawings, in which like elements have been given like numerals.

[0020] **FIG. 1** shows a diagram of an oil and gas tubular with integrated externally upset connections, which are typical for a joint of drill pipe or a joint of workstring tubing.

[0021] **FIG. 2** shows a diagram of an oil and gas tubular with a slick body, meaning that the connections have the same OD as the tube body, which is typical of a drill collar, NMDC, or mud motor component.

[0022] **FIG. 3** shows a diagram of a cross section of half of an externally upset box connection that is part of a joint of the workstring tubing from **FIG. 1**.

[0023] **FIG. 4** shows a diagram of a cross section of half of an externally upset pin connection that is part of a joint of the workstring tubing from **FIG. 1**.