10 mm ID stent

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;10mm Stent Welding Program
M61                 ;Laser Remote Control
; Welding Parameters
C101 Q10            ;FREQUENCY 10 HZ
C102 Q0.3           ;PULSE LENGTH 0.3ms
C108 Q300           ;Peak Power 200 W
C111 Q100           ; A-Scale 100
M51                 ;MONITOR LASER OK
; Move to common work place
G90                 ; Absolute Coordinate
F50                 ; Feed Rate
X3.93 Y-4.6         ; Locate fixture and part
Z-2.6716            ; Adjust Focus
; Weld six Couplings
M26 H152            ; Reset Door
M98 P2              ; Goto Subroutine 1 - 1st Coupling
F4                  ; Fast Feed for inter move
X-.067 Y.061        ; Move back to relative 0,0
M98 P2              ; Goto Subroutine 1 - 2nd Coupling
F4                  ; Fast Feed for inter move
X-.067 Y.061        ; Move back to relative 0,0
M98 P2              ; Goto Subroutine 1 - 3rd Coupling
F4                  ; Fast Feed for inter move
X-.067 Y.061        ; Move back to relative 0,0
M98 P2              ; Goto Subroutine 1 - 4th Coupling
F4                  ; Fast Feed for inter move
X-.067 Y.061        ; Move back to relative 0,0
M98 P2              ; Goto Subroutine 1 - 5th Coupling
F4                  ; Fast Feed for inter move
X-.067 Y.061        ; Move back to relative 0,0
M98 P2              ; Goto Subroutine 1 - 6th Coupling
; Go Back to Common Work Place
G90                 ; Absolute Coordinate
F50                 ; Feed Rate
X3.93 Y-4.6         ; Locate fixture and part
M25 H152            ; Open Door
M02                 ; End of NC
; Coupling Weld Subroutine
O2                  ; Welding Routine
F1                  ; Feed Rate
G05Q1               ; Jog with Pause / Move to Upper Left Corner
G91                 ; Incremental Coordinates
M8                  ; Gas On
G4F.5               ; Dwell for .5 seconds
X0.010 Y-.006       ; Offset from corner of coupling
M71                 ; Laser Processing with Sync. feed
X0.015              ; Weld left bead = .015:
M70                 ; Stop laser processing
X0.095 Y.006        ; Index to Right Upper Corner
G05Q1               ; Jog with Pause / Adjust to Upper Right Corner
X-0.010 Y-.006      ; Offset from right corner of coupling
M71                 ; Laser Processing with Sync. feed
X-0.015             ; Weld bead = .015:
M70                 ; Stop laser processing
M9                  ; Gas off
M99                 ; Return
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It should be understood that the present methods and the devices they produce are not intended to be limited to the particular forms disclosed. Rather, they are to cover all modifications, equivalents, and alternatives falling within the scope of the claims. For example, while the devices illustrated in the figures have been woven from multiple strands, in other embodiments, the present methods could be applied to devices woven or otherwise created from only a single strand of material (such as a nitinol wire). Further, while stents have been shown in the figures, other devices suited for placement in an anatomical structure, such as filters and occluders, could have their free strand ends joined according to the present methods.

The claims are not to be interpreted as including means-plus- or step-plus-function limitations, unless such a limitation is explicitly recited in a given claim using the phrase(s) "means for" or "step for," respectively.

What is claimed is:

1. A self-expanding stent comprising:

a multiple number of strands each including a strand portion on both sides of a first strand bend, each of the strand portions having an end, the strand portions being woven, some of the strand portions including a second strand bend and being back braided by at least two strand crossings, pairs of the strand portion ends secured together, each of the pairs of said strand portion ends including two strand portion ends of two different strands or the same strand; and

a multiple number of coupling structures, the number of coupling structures equal to the number of strands, the coupling structures being different than the strands, each of the coupling structures secured to one of the pairs of strand portion ends,

wherein the coupling structures are aligned in an axial direction of the stent.

2. The stent of claim **1**, wherein each of the coupling structures includes a passageway containing the pair of strand portion ends.

3. The stent of claim **1**, wherein each of the coupling structures is welded to each of the strand portion ends of the pair of strand portion ends.

4. The stent of claim **1**, wherein the strand portion ends in each pair of strand portion ends are spaced from each other.

5. The stent of claim **1**, wherein the strands comprise Nitinol.

6. The stent of claim **1**, wherein the coupling structures comprise Nitinol.

7. The stent of claim **1**, wherein each of the coupling structures includes a passageway having a diameter sized to receive one said strand.

8. The stent of claim **1**, wherein the two strand portion ends in each of the pairs of strand portion ends are aligned end-to-end.

9. The stent of claim **1**, wherein the two strand portion ends in each of the pairs of strand portion ends are overlapping.

10. The stent of claim **1**, wherein at least one crossing strand crosses over each of the coupling structures at a position radially outward from the coupling structure.

11. A self-expanding stent comprising:

a multiple number of strands each including a strand portion on both sides of a first strand bend, each of the strand portions having an end, the strand portions being woven, some of the strand portions including a second strand bend and being back braided by at least two strand crossings, pairs of the strand portion ends secured together, each of the pairs of said strand portion ends including two strand portion ends of two different strands or the same strand;

wherein the pairs of strand portion ends are aligned in an axial direction of the stent.

12. The stent of claim **11**, wherein the two strand portion ends in each of the pairs of strand portion ends are aligned end-to-end.

13. The stent of claim **11**, wherein the two strand portion ends in each of the pairs of strand portion ends are overlapping.

14. The stent of claim **11**, further comprising a multiple number of coupling structures, each of the coupling structures secured to one of the pairs of strand portion ends, the coupling structures aligned in an axial direction of the stent.

15. The stent of claim **14**, wherein the coupling structures are different than the strands.

16. The stent of claim **14**, wherein the number of coupling structures is equal to the number of strands.