In the arrangement shown in FIGS. 3-4, cylinders 61 and pistons 62 provide up and down movement of rollers 66, swivel members 63 provide rotational movement of rollers 66, and roller carriages 64 and bar 67 provide longitudinal pivoting of rollers 66 between adjacent roller carriages 64. Therefore, this arrangement provides tracks 24, 44 to be compliant or adjustable as the pipe segment linearly moves through linear pipe tensioner 10 so as to adjust for any changes in shape or outer diameter size of the pipe segment caused by such items as cement, biological growth, anodes, valves, bent portions of the pipe segment, and the like as those portions of the pipe segment pass through linear pipe tensioner 10.

Referring now to FIGS. 5-10, in one embodiment of gripping pads 75, gripping pad 75 comprises gripping member plate 80, top plate 90, and compliant member 92. Gripping member plate 80 comprises bottom surface 81, top surface 82 (best shown in FIGS. 8-10), two longitudinal side surfaces 83, and two lateral side surfaces 84. In the embodiment of FIGS. 5-10, top plate 90 includes shoulder 91 running the length of one of the two longitudinal side surfaces of top plate 90 to facilitate placement of gripping pad 75 on tracks 24, 44 at the desired or necessary orientation to facilitate gripping pad 75 engaging the pipe section so that the pipe section can be pulled through linear pipe tensioner 10. Top plate 90 also includes one or more slots (not shown) for receiving gripping members, such as gripping members 100 discussed in greater detail below.

Disposed on an upper surface of top plate 90 is compliant member 92. ~~Complaint~~ member 92 can be bonded or molded to the upper surface of top plate 90. ~~Complaint~~ member 92 can be formed out of any material that, when placed under load, can compress and, when the load is removed, return toward its original configuration. In one particular embodiment, ~~complaint~~ member 92 is formed out of a resilient, elastomeric or polymeric material of a

commercially available type that will withstand high temperatures that occur in some wells. Preferably, the durometer hardness of material forming the ~~complaint~~ member 92 is in the range from about 60 to 100 Shore A and more particularly from 80 to 90 Shore A. In one embodiment, the durometer hardness is about 85 Shore A.

Compliant member 92 comprises a bottom surface that is engaged with the upper surface of top plate 90, top surface 93, two longitudinal side surfaces 94, and two lateral side surfaces 95. ~~Complaint~~ member 92 includes one or more slots 96 for receiving gripping members 100 (discussed in greater detail below with respect to FIGS. 8-10). In the embodiment of FIGS. 5-10, compliant member 92 also includes grooves 97, 98 to permit access to two of the fastener openings 110 (FIGS. 8-9) disposed through top plate 90 and gripping plate member 80 to facilitate securing gripping pads 75 to tracks 24, 44. In the embodiment shown in FIGS. 5-10, top surface 93 of compliant member 92 also includes beveled portion 99 to facilitate gripping the pipe (not shown).

Referring now to FIGS. 8-10, gripping member plate 80 comprises three identical gripping members 100. Gripping members 100 comprise an upper end 101, a lower end 102, and length 104, width 106, and a height 108. Upper end 101 includes chamfers 103 to provide a point at upper end 101. As shown in the specific embodiment of FIGS. 8-10, gripping members 100 are rectangular-shaped and disposed at non-right angles relative to both the longitudinal axis and the lateral axis of gripping member plate 80.

Length 104, width 106, and height 108 may be any measurement desired or necessary to facilitate gripping the pipe segment when gripping pad 75 engages the pipe segment. As shown in FIG. 5, in this particular embodiment height 108 is such that gripping members 100 do not protrude out of slots 96 of compliant member 92 when gripping pad 75 is not engaged with the

facilitate gripping of the pipe segment. Further, the pivot assembly is not required to include a hydraulic cylinder, but instead can comprise a swivel member such as a ball joint, or other hinge assembly. Moreover, the roller carriages can be pivotally connected to one another using devices other than the bar and pin connection shown in the Figures, such as ball joints and the like. Additionally, each roller carriage can include as few as one roller or three or more rollers instead of the two rollers shown in the Figures. Further, the gripping pads are not required to include both a top plate and a gripping member plate. To the contrary, a single plate can provide the gripping members and can receive the ~~complaint~~ member. Accordingly, the invention is therefore to be limited only by the scope of the appended claims.

In the arrangement shown in FIGS. 3-4, cylinders 61 and pistons 62 provide up and down movement of rollers 66, swivel members 63 provide rotational movement of rollers 66, and roller carriages 64 and bar 67 provide longitudinal pivoting of rollers 66 between adjacent roller carriages 64. Therefore, this arrangement provides tracks 24, 44 to be compliant or adjustable as the pipe segment linearly moves through linear pipe tensioner 10 so as to adjust for any changes in shape or outer diameter size of the pipe segment caused by such items as cement, biological growth, anodes, valves, bent portions of the pipe segment, and the like as those portions of the pipe segment pass through linear pipe tensioner 10.

Referring now to FIGS. 5-10, in one embodiment of gripping pads 75, gripping pad 75 comprises gripping member plate 80, top plate 90, and compliant member 92. Gripping member plate 80 comprises bottom surface 81, top surface 82 (best shown in FIGS. 8-10), two longitudinal side surfaces 83, and two lateral side surfaces 84. In the embodiment of FIGS. 5-10, top plate 90 includes shoulder 91 running the length of one of the two longitudinal side surfaces of top plate 90 to facilitate placement of gripping pad 75 on tracks 24, 44 at the desired or necessary orientation to facilitate gripping pad 75 engaging the pipe section so that the pipe section can be pulled through linear pipe tensioner 10. Top plate 90 also includes one or more slots (not shown) for receiving gripping members, such as gripping members 100 discussed in greater detail below.

Disposed on an upper surface of top plate 90 is compliant member 92. Compliant member 92 can be bonded or molded to the upper surface of top plate 90. Compliant member 92 can be formed out of any material that, when placed under load, can compress and, when the load is removed, return toward its original configuration. In one particular embodiment, compliant member 92 is formed out of a resilient, elastomeric or polymeric material of a

commercially available type that will withstand high temperatures that occur in some wells. Preferably, the durometer hardness of material forming the compliant member 92 is in the range from about 60 to 100 Shore A and more particularly from 80 to 90 Shore A. In one embodiment, the durometer hardness is about 85 Shore A.

Compliant member 92 comprises a bottom surface that is engaged with the upper surface of top plate 90, top surface 93, two longitudinal side surfaces 94, and two lateral side surfaces 95. Compliant member 92 includes one or more slots 96 for receiving gripping members 100 (discussed in greater detail below with respect to FIGS. 8-10). In the embodiment of FIGS. 5-10, compliant member 92 also includes grooves 97, 98 to permit access to two of the fastener openings 110 (FIGS. 8-9) disposed through top plate 90 and gripping plate member 80 to facilitate securing gripping pads 75 to tracks 24, 44. In the embodiment shown in FIGS. 5-10, top surface 93 of compliant member 92 also includes beveled portion 99 to facilitate gripping the pipe (not shown).

Referring now to FIGS. 8-10, gripping member plate 80 comprises three identical gripping members 100. Gripping members 100 comprise an upper end 101, a lower end 102, and length 104, width 106, and a height 108. Upper end 101 includes chamfers 103 to provide a point at upper end 101. As shown in the specific embodiment of FIGS. 8-10, gripping members 100 are rectangular-shaped and disposed at non-right angles relative to both the longitudinal axis and the lateral axis of gripping member plate 80.

Length 104, width 106, and height 108 may be any measurement desired or necessary to facilitate gripping the pipe segment when gripping pad 75 engages the pipe segment. As shown in FIG. 5, in this particular embodiment height 108 is such that gripping members 100 do not protrude out of slots 96 of compliant member 92 when gripping pad 75 is not engaged with the

facilitate gripping of the pipe segment. Further, the pivot assembly is not required to include a hydraulic cylinder, but instead can comprise a swivel member such as a ball joint, or other hinge assembly. Moreover, the roller carriages can be pivotally connected to one another using devices other than the bar and pin connection shown in the Figures, such as ball joints and the like. Additionally, each roller carriage can include as few as one roller or three or more rollers instead of the two rollers shown in the Figures. Further, the gripping pads are not required to include both a top plate and a gripping member plate. To the contrary, a single plate can provide the gripping members and can receive the compliant member. Accordingly, the invention is therefore to be limited only by the scope of the appended claims.