

'951 Independent Claims 4, 7, 14, 21

[4.1] An end fitting for a sucker rod, the end fitting comprising:	[7.1] An end fitting for a sucker rod, the end fitting comprising:	[14.1] An end fitting for a sucker rod, the end fitting comprising:	[21.1] An end fitting for a sucker rod, the end fitting comprising:
[4.2] a body having an interior, a closed end, an open end, and	[7.2] a body having an interior, a closed end, an open end, and	[14.2] a body having an interior, a closed end, and an open end;	[21.2] a body having an interior, a closed end, an open end, and
[4.3] a wedge system formed in the interior, wherein the wedge system comprises:	[7.3] a wedge system formed in the interior, wherein the wedge system comprises:		[21.3] a wedge system formed in the interior, wherein the wedge system comprises:
[4.4a] an outer wedge portion formed in the interior proximate to the open end, wherein the outer wedge portion comprises	[7.4a] an outer wedge portion formed in the interior proximate to the open end, wherein the outer wedge portion comprises	[14.4a] a first wedge portion formed in the interior proximate the open end, wherein the first wedge portion comprises	[21.4a] an outer wedge portion formed in the interior proximate to the open end, wherein the outer wedge portion comprises
[4.4b] a first leading edge, a first trailing edge, and a first angle between the first leading edge and the first trailing edge,	[7.4b] a first leading edge, a first trailing edge, and a first angle between the first leading edge and the first trailing edge,	[14.4b] a first leading edge, a first trailing edge, and a first angle between the first leading edge and the first trailing edge,	[21.4b] a first leading edge, a first trailing edge, and a first angle between the first leading edge and the first trailing edge,

<p>[4.4c] wherein the first leading edge faces the open end and the first trailing edge faces the closed end, and</p> <p>[4.4d] wherein the length of the first leading edge, the length of the first trailing edge, and the size of the first angle define a first distribution of force in the outer wedge portion;</p>	<p>[7.4c] wherein the first leading edge faces the open end and the first trailing edge faces the closed end, and</p> <p>[7.4d] wherein the length of the first leading edge, the length of the first trailing edge, and the size of the first angle define a first distribution of force in the outer wedge portion;</p>	<p>[14.4c] wherein the first leading edge faces the open end and the first trailing edge faces the closed end, and</p> <p>[14.4d] wherein the length of the first leading edge, the length of the first trailing edge, and the size of the first angle define a first distribution of force in the first wedge portion; and</p>	<p>[21.4c] wherein the first leading edge faces the open end and the first trailing edge faces the closed end, and</p> <p>[21.4d] wherein the length of the first leading edge, the length of the first trailing edge, and the size of the first angle define a first distribution of force in the outer wedge portion;</p>
<p>[4.5a] an intermediate wedge portion formed in the interior between the outer wedge portion and the closed end,</p>	<p>[7.5a] an intermediate wedge portion formed in the interior between the outer wedge portion and the closed end,</p>		<p>[21.5a] an intermediate wedge portion formed in the interior between the outer wedge portion and the closed end,</p>
<p>[4.5b] wherein the intermediate wedge portion comprises a second leading edge, a second trailing edge, and a second angle between the second leading edge and the second trailing edge,</p>	<p>[7.5b] wherein the intermediate wedge portion comprises a second leading edge, a second trailing edge, and a second angle between the second leading edge and the second trailing edge,</p>		<p>[21.5b] wherein the intermediate wedge portion comprises a second leading edge, a second trailing edge, and a second angle between the second leading edge and the second trailing edge,</p>
<p>[4.5c] wherein the second leading edge faces the open end and the second trailing edge faces the closed end, and</p>	<p>[7.5c] wherein the second leading edge faces the open end and the second trailing edge faces the closed end, and</p>		<p>[21.5c] wherein the second leading edge faces the open end and the second trailing edge faces the closed end, and</p>

<p>[4.5d] wherein the length of the second leading edge, the length of the second trailing edge, and the size of the second angle define a second distribution of force in the intermediate wedge portion; and</p>	<p>[7.5d] wherein the length of the second leading edge, the length of the second trailing edge, and the size of the second angle define a second distribution of force in the intermediate wedge portion; and</p>		<p>[21.5d] wherein the length of the second leading edge, the length of the second trailing edge, and the size of the second angle define a second distribution of force in the intermediate wedge portion; and</p>
<p>[4.6a] an inner wedge portion formed in the interior between the intermediate wedge portion and the closed end, proximate to the closed end,</p>	<p>[7.6a] an inner wedge portion formed in the interior between the intermediate wedge portion and the closed end, proximate to the closed end,</p>	<p>[14.6a] a second wedge portion formed in the interior proximate the closed end, between the first wedge portion and the closed end,</p>	<p>[21.6a] an inner wedge portion formed in the interior between the intermediate wedge portion and the closed end, proximate to the closed end,</p>
<p>[4.6b] wherein the inner wedge portion comprises a third leading edge, a third trailing edge, and a third angle first angle between the third leading edge and the second third edge,</p>	<p>[7.6b] wherein the inner wedge portion comprises a third leading edge, a third trailing edge, and a third angle first angle between the third leading edge and the third trailing edge,</p>	<p>[14.6b] wherein the second wedge portion comprises a second leading edge, a second trailing edge, and a second angle between the second leading edge and the second trailing edge,</p>	<p>[21.6b] wherein the inner wedge portion comprises a third leading edge, a third trailing edge, and a third angle first angle between the third leading edge and the second third edge,</p>
<p>[4.6c] wherein the third leading edge faces the open end and the third trailing edge faces the closed end, and</p>	<p>[7.6c] wherein the third leading edge faces the open end and the third trailing edge faces the closed end,</p>	<p>[14.6c] wherein the second leading edge faces the open end and the second trailing edge faces the closed end, and</p>	<p>[21.6c] wherein the third leading edge faces the open end and the third trailing edge faces the closed end, and</p>

<p>[4.6d] wherein the length of the third leading edge, the length of the third trailing edge, and the size of the third angle define a third distribution of force in the inner wedge portion,</p>	<p>[7.6d] and wherein the length of the third leading edge, the length of the third trailing edge, and the size of the third angle define a third distribution of force in the inner wedge portion,</p>	<p>[14.6d] wherein the length of the second leading edge, the length of the second trailing edge, and the size of the second angle define a second distribution of force in the second wedge portion,</p>	<p>[4.6d] wherein the length of the third leading edge, the length of the third trailing edge, and the size of the third angle define a third distribution of force in the inner wedge portion,</p>
<p>[4.7a] wherein at least two of the first angle, the second angle, and the third angle differ in size</p>	<p>[7.7a] wherein the first trailing edge, the second trailing edge, and the third trailing edge differ in length</p>	<p>[14.7a] wherein the length of the first trailing edge and the length of the second trailing edge differ, and</p>	<p>[21.7a] wherein the length of at least two of the first trailing edge, the second trailing edge, and the third trailing edge vary, and</p>
<p>[4.7b] such that during use a compressive load applied to the sucker rod at the inner wedge portion is greater than a compressive load applied to the sucker rod at the outer wedge portion,</p>	<p>[7.7b] such that during use a compressive load applied to the sucker rod at the inner wedge portion is greater than a compressive load applied to the sucker rod at the intermediate wedge portion, and the compressive load applied to the sucker rod at the intermediate wedge portion is greater than a compressive load applied to the sucker rod at the outer wedge portion,</p>	<p>[14.7b] wherein the first distribution of force and the second distribution of force vary such that during use a compressive load applied to the sucker rod at second wedge portion is greater than a compressive load applied to the sucker rod at first wedge portion,</p>	<p>[21.7b] wherein the first distribution of force, the second distribution of force, and the third distribution of force vary such that during use a compressive load applied to the sucker rod at the inner wedge portion is greater than a compressive load applied to the sucker rod at the intermediate wedge portion, and the compressive load applied to the sucker rod at the intermediate wedge portion is greater than a compressive load applied to the sucker rod at the outer wedge portion,</p>

<p>[4.8] such that compressive forces applied to the sucker rod at the closed end of the body exceed compressive forces at the open end of the body, and</p>	<p>[7.8] such that compressive forces applied to the sucker rod at the closed end of the body exceed compressive forces at the open end of the body.</p>	<p>[14.8] such that compressive forces in the sucker rod at the closed end of the body exceed compressive forces in the sucker rod at the open end of the body.</p>	<p>[21.8] such that compressive forces applied to the sucker rod at the closed end of the body exceed compressive forces at the open end of the body.</p>
<p>[4.9] wherein the second angle is equal to one of the first angle or the third angle.</p>			

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