

A structural member (10) having greatly enhanced load bearing capacity per unit weight has a plurality of helical components (12) wrapped around a longitudinal axis (14). The helical components have straight segments (32) rigidly connected end to end in a helical configuration. In a basic repeating unit, three helical components (12) have a common angular orientation, a common longitudinal axis (14), and are spaced apart from each other at equal distances. Another three reverse helical components (12) also have a common angular orientation, a common longitudinal axis (14), and are spaced apart from each other at equal distances, but have an opposing angular orientation. These six helical components (12) appear as a triangle when viewed along the axis due to the straight segments (32). An additional six helical components (12) are configured as above but rotated with respect to the first six components (12) such that the member (10) appears as a six-pointed star and when viewed from the axis.

