Claims

What is claimed is:

1. A torque limiting screw assembly, comprising:

a screw and a cap surrounding the screw rotatably secured to the screw;

the screw comprising:

a screw head having a narrowed neck at a top of the screw head and a base of enlarged diameter at a bottom of the screw head, the top of the neck having a central well defining a deformable rim;

the base of the screw head having a plurality of peripheral radial teeth with contiguous cams each having outward facing surfaces between each of the teeth; and

a threaded shank extending downward from the base;

the cap comprising:

a body with a plurality of resilient torque-transmitting arms extending downwardly from the body, said resilient arms disposed such that inward facing surfaces of the arms engage the screw head cams;

the arms having trailing edges engageable with radial walls of the screw head teeth in a first direction of rotation and not in a second opposite direction of rotation, wherein rotation of the cap in the second direction of rotation imparts a preselected torque to the screw by a gripping friction of the arms against the cams; and

an axial through bore of the cap having an internal radial collar of decreased inside diameter;

means for rotatably captivating the cap to the screw comprising the screw neck rim deformed to capture the cap internal collar between the neck rim and the screw head base.

2. The screw assembly of claim 1 wherein the cap arms are constructed and disposed such that they apply an inward spring force against the screw cams.

3. The screw assembly of claim 2 wherein a bottom surface of the screw head is planar.

4. The screw assembly of claim 3 wherein the ends of the cap arms fall axially short of the screw head base such that there is a vertical gap between the ends of the arms and the plane of the base.

5. The screw assembly of claim 1 wherein the cap and the screw are loosely and rotatably joined with minimal axial play.

6. The screw assembly of claim 1 wherein each screw cam surface is defined by a ramp which has points that progressively vary in distance from a central axis of the screw.

7. The screw assembly of claim 1 in which the top of the cap through bore is a socket with tool engaging surfaces for turning the screw assembly.

8. The screw assembly of claim 1 wherein each of the screw head base teeth has a radial wall engageable with a trailing edge of one of the cap arms.