surfaces on each the cam body. Each gap is aligned axially with a discontinuity of the cam surface. By way of example the cam surfaces are positioned between the gear and the traction surfaces on each cam body. In a specific example embodiment the cam surfaces are positioned proximate to the traction surfaces on each the cam body. In another example embodiment, each of the cam bodies comprises at most two of the cam surfaces and two of the discontinuities. By way of further example each of the cam bodies comprises at most two of the cam surfaces, two of the discontinuities of the cam surfaces, two of the traction surfaces and two of the gaps in the traction surfaces.

The invention also encompasses a method of forming a groove in a pipe element. In one example embodiment the method comprises:

inserting said pipe element between a plurality of cams, each said cam having a fixed axis of rotation relatively to said pipe element, each said cam having a cam surface comprising a region of increasing radius;

contacting the pipe element with a plurality of said cam surfaces simultaneously at a plurality of locations on the pipe element;

rotating the pipe element, thereby simultaneously rotating the cam surfaces, each cam surface engaging the pipe element with said increasing radius and thereby deforming the pipe element to form the groove.

An example embodiment of the method further comprises contacting the pipe element with at least one traction surface mounted on at least one cam comprising one of the cam surfaces. Another example embodiment comprising contacting the pipe element with a plurality of traction surfaces. In this example one the traction surface is mounted on a respective one of the cams. Each of the cams comprises one of the plurality of cam surfaces.

Another example embodiment comprises synchronizing rotation of the cam surfaces with one another. A further example embodiment comprises using an actuator to initiate rotation of one of the cam surfaces.

Brief Description of the Drawings

Figure 1 is an isometric view of an example embodiment of a device according to the invention;

a respective discontinuity of said cam surfaces being positioned between each of said cam surfaces on each said cam body;

a pinion mounted within said central space within said housing, said pinion meshing with said plurality of gears and being rotatable about a pinion axis oriented parallel to said axes of rotation.

47. The device according to claim 46, wherein each of said cam surfaces further comprises a region of constant radius positioned adjacent to a respective one of said discontinuities.

48. The device according to claim 46, further comprising:

a plurality of traction surfaces extending around each said cam body, each said traction surface comprising a plurality of projections extending transversely to one of said axes of rotation;

a respective gap in said traction surfaces being positioned between each of said traction surfaces on each said cam body, each said gap being aligned axially with a discontinuity of said cam surface.

49. The device according to claim 48, wherein said cam surfaces are positioned between said gear and said traction surfaces on each said cam body.

50. The device according to claim 48, wherein said cam surfaces are positioned proximate to said traction surfaces on each said cam body.

51. The device according to claim 46, wherein each of said cam bodies comprises at most two of said cam surfaces and two of said discontinuities.

52. The device according to claim 48, wherein each of said cam bodies comprises at most two of said cam surfaces, two of said discontinuities of said cam surfaces, two of said traction surfaces and two of said gaps in said traction surfaces.

53. A method of forming a groove in a pipe element, said method comprising: inserting said pipe element between a plurality of cams, each said cam having a fixed axis of rotation relatively to said pipe element, each said cam having a cam surface comprising a region of increasing radius;

contacting said pipe element with a plurality of said cam surfaces simultaneously at a plurality of locations on said pipe element;

rotating said pipe element, thereby simultaneously rotating said cam surfaces, each said cam surface engaging said pipe element with said increasing radius and thereby deforming said pipe element to form said groove.

54. The method according to claim 53, further comprising contacting said pipe element with at least one traction surface mounted on at least one cam comprising one of said cam surfaces.

55. The method according to claim 53, further comprising contacting said pipe element with a plurality of traction surfaces, one said traction surface mounted on a respective one of said cams, each of said cams comprising one of said plurality of cam surfaces.

56. The method according to claim 53, further comprising synchronizing rotation of said cam surfaces with one another.

57. The method according to claim 53, further comprising using an actuator to initiate rotation of one of said cam surfaces.