STRIPWISE CONSTRUCTION OF 3D CURVED SURFACES

ABSTRACT

A 3D structure approximating a 3D curved surface having non-zero Gaussian curvature over a portion of the surface. The structure is formed of a plurality of thin strips (10) which are simply deformed and aligned adjacent one another to approximate the 3D curved surface. Each strip has: • zero Gaussian curvature; • a strip width which varies by no more than ±10% along a longitudinal axis of the strip; and • a predetermined flat shape such that, after simple deformation, adjacent edges of adjacent strips can be aligned substantially parallel to one another separated by a substantially small gap. The aligned, simply deformed strips appear straight when viewed from a preferred viewing direction. The strips can be attached to a rigid support (12) at selected mounting points such that natural equilibrium deformation between the mounting points holds the aligned simply deformed strips in a desired approximation of the 3D curved surface.

Figure 4