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(54) Title: PROCESSES FOR ADDITIVE MANUFACTURE AND SURFACE CLADDING

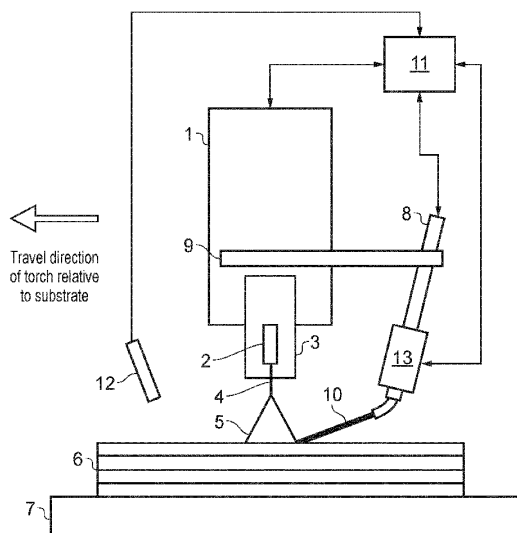


FIG. 1

(57) Abstract: A process for producing a 3D article by additive manufacture is provided. The method includes the steps of: forming a melt pool on an already-existing part of the article using heat supplied to the article by a gas metal arc welding device having one or more consumable electrodes, and moving the melt pool relative thereto; simultaneously feeding into the moving melt pool: (i) the one or more consumable electrodes of the gas metal arc welding device to provide a first material feed rate into the melt pool, and (ii) a non-electrode, supplementary feedstock to provide a second material feed rate into the melt pool, whereby a layer of material is deposited and fused on the already-existing part; and repeating the forming and moving, and the feeding steps to build up successive layers of material, and thereby produce the 3D article. The ratio of the first material feed rate to the second material feed rate is varied in performance of the feeding step. A related process for surface cladding an article is also provided.

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