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[54] **METHOD OF APPLYING A WEAR-RESISTANT COMPOSITE COATING TO AN ARTICLE**

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Related U.S. Application Data

[63] Continuation of Ser. No. 643,546, Dec. 22, 1975, abandoned.

[51] **Int. Cl.**[2] **C21D 1/34**

[52] **U.S. Cl.** **427/53**

[57] **ABSTRACT**

A method of applying a wear-resistant composite coating to an article is disclosed which includes the steps of depositing a plurality of wear-resistant particles having a predetermined melting point along with a lower melting point element in solid form onto the surface of the article, focusably directing a coherent beam of electromagnetic energy thereon at a power density level sufficient to melt the element and a limited surface portion of the article while retaining the particles in substantially solid form, and removing the beam therefrom to allow solidification of the melted portion thereof into a matrix in which the wear-resistant particles are embedded. Advantageously this method provides a thin diffusion zone and a hardened zone underneath it to better support the coating.

5 Claims, 1 Sheet Drawing,

17 Pages Specification

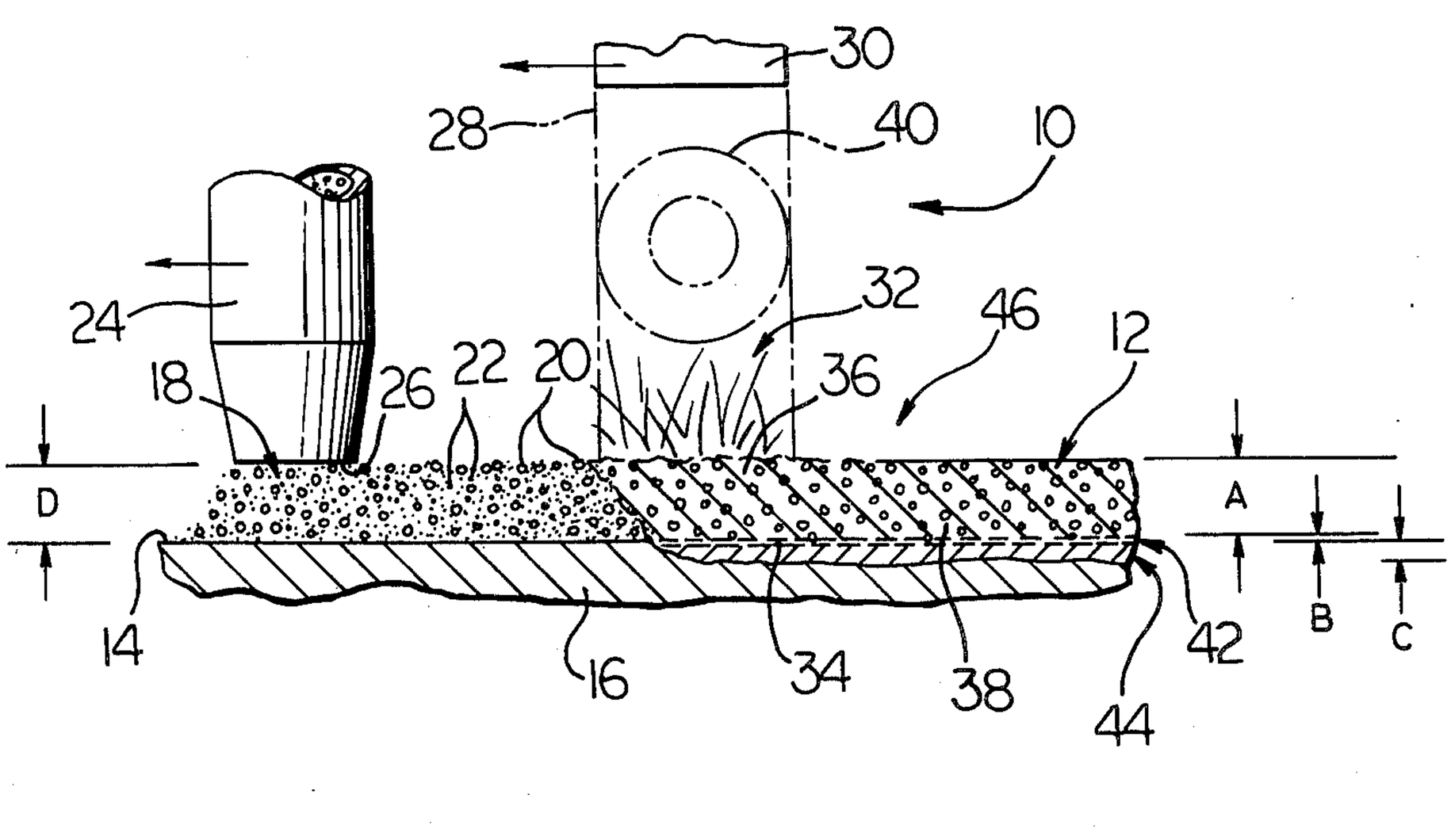

FIG. 1.

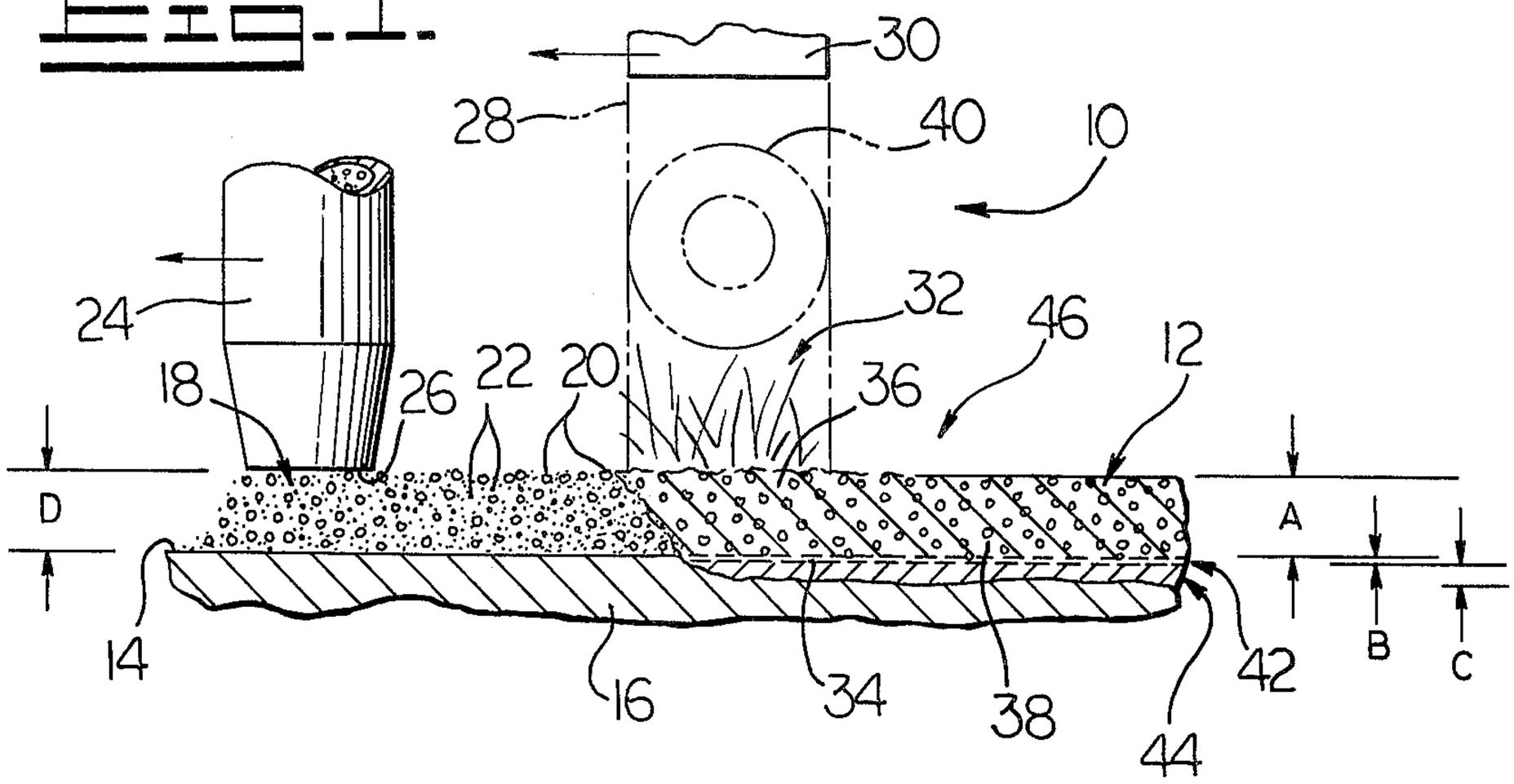

FIG. 2.

KNOOP HARDNESS