United States Patent [19]

Flood

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[54] **ULTRASONIC SEAL AND CUT METHOD AND APPARATUS**

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[52] **U.S. Cl.** **156/73.3**; 156/88; 156/250; 156/251; 156/267; 156/510; 156/515; 156/580.1; 156/580.2

[58] **Field of Search** 156/73.1, 73.2, 73.3, 156/88, 176, 267, 251, 309.6, 436, 515, 580.1, 580.2, 510, 250

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[57] **ABSTRACT**

An ultrasonic seal and cut method and apparatus comprises an ultrasonic sealing and cutting station which includes a horn adapted to be resonant at an ultrasonic frequency and an oppositely disposed anvil having a sealing surface and a cutting surface. As sheet material is passed through the station, the sheet material is cut and sealed in a marginal area adjacent to the cut. A substantially thermoplastic thread, either monofilament or multifilament, is fed together with the sheet material through the station in a position to cause the thread to fuse with the material in the marginal area. The provision of the thread permits the ultrasonic seal and cut method to be used for sheet material having a relatively low thermoplastic fiber content or exhibiting an open mesh weave, or being made of natural fibers.

20 Claims, 10 Drawing Figures