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Huber et al.

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[54] **METHOD AND APPARATUS FOR EXTRUSION PROCESSING OF CELLULOSE BEARING MATERIALS**

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[73] Assignee: **Wenger Manufacturing, Inc.,** Sabetha, Kans.

[21] Appl. No.: **670,138**

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Related U.S. Application Data

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[51] **Int. Cl.**[4] **B29B 7/42**

[52] **U.S. Cl.** ..... **264/115;** 264/40.5; 366/88; 366/90; 425/202; 425/207; 425/208; 425/376 A; 425/376 B; 425/466

[58] **Field of Search** ..... 264/40.5, 187, 115; 425/113, 149, 376 B, 381, 466, 208, 202, 206, 207; 366/88, 90

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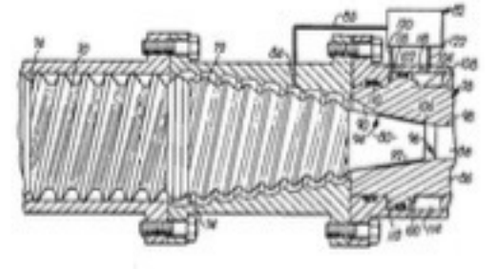
[57] **ABSTRACT**

An improved, low cost, energy efficient extrusion device and method for processing of cellulose- or fiber-bearing materials (e.g., wood chips, crop residues, whole or ground soybeans) is described which includes a transition screw section designed to smooth out material flow through the extruder and allow creation of increased barrel pressure and temperature levels. The transition section includes first and second alternating flights, with the depth of the first flight being less than that of the second flight and preferably gradually increasing until it equals the second flight depth. The overall extruder apparatus also advantageously includes a single flighted inlet screw section and a double flighted compression screw section respectively disposed on opposite sides of the transition section; in addition, the extruder has a pressure responsive adjustable die so that the effective dimensions of the die opening can be varied during the extrusion operation. Extrusion of wood chips to produce a defibrated wood product useful in the manufacture of fiber board or paper products can be accomplished according to the invention with a per ton energy consumption substantially below that of conventional processes.

7 Claims, 6 Drawing Figures



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