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**Hakansson et al.**

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(54) **METHOD OF PRODUCING A BUILDING PANEL**

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See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,210,302 A \* 10/1965 **Bowell** ..... C08G 18/36 524/157  
5,141,599 A 8/1992 **Jahn et al.**  
(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 101885200 A 11/2010  
DE 10 2010 045 266 A 3/2012  
(Continued)

**OTHER PUBLICATIONS**

Written Opinion of WO2014084787; Oct. 3, 2014.\*  
(Continued)

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(57) **ABSTRACT**

A method of producing a floor panel (1), including providing a carrier (3) including a thermoplastic material, applying a primer comprising at least one salt, preferably a metal salt, on a first surface of the carrier (3), printing by means of digital printing a first print (10) on said first surface of the carrier (3) with an aqueous pigment ink composition, and applying a protective layer (4) on said first surface of the carrier (3) and applying the carrier (3) on a core (2) and pressing by applying heat and pressure the protective layer (4), the carrier (3) and the core (2) together to form a floor panel (1). Also, a method for forming a decorative substrate.

**30 Claims, 4 Drawing Sheets**

