



US011794463B2

(12) **United States Patent**
Nash et al.

(10) **Patent No.:** **US 11,794,463 B2**
(45) **Date of Patent:** **Oct. 24, 2023**

(54) **WEB MATERIAL APPLICATION SYSTEMS AND METHODS**

(71) Applicant: **H.B. Fuller Company**, St. Paul, MN (US)

(72) Inventors: **Jorge A. Nash**, Vancouver, WA (US);
Orion A. Cavins, Vancouver, WA (US)

(73) Assignee: **H.B. Fuller Company**, St. Paul, MN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 186 days.

(21) Appl. No.: **17/450,530**

(22) Filed: **Oct. 11, 2021**

(65) **Prior Publication Data**
US 2022/0088914 A1 Mar. 24, 2022

Related U.S. Application Data
(63) Continuation of application No. 16/292,995, filed on Mar. 5, 2019, now Pat. No. 11,161,332.
(Continued)

(51) **Int. Cl.**
B32B 37/22 (2006.01)
B32B 38/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **B32B 37/22** (2013.01); **B26D 1/405** (2013.01); **B26D 5/20** (2013.01); **B26D 7/14** (2013.01); **B32B 38/0004** (2013.01); **B32B 41/00** (2013.01); **B65H 20/02** (2013.01); **B65H 29/243** (2013.01); **B65H 35/08** (2013.01); **B65H 39/06** (2013.01); **A61F 13/15739** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC B32B 37/22; B32B 38/0004; B32B 41/00;

B26D 1/405; B26D 5/20; B26D 7/14;
B65H 20/02; B65H 29/243; B65H 35/08;
B65H 39/06; B65H 2301/51612; B65H 2301/51614; B65H 2406/33; B65H 2406/3612; B65H 2553/51; B65H 2801/57; A61F 13/15739; A61F 13/15764; A61F 13/15772; Y10T 156/1052; Y10T 156/1062

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,407,513	A *	4/1995	Hayden	B32B 38/1825
					242/417
6,596,108	B2 *	7/2003	McCabe	B65H 20/06
					156/290
2004/0112517	A1 *	6/2004	Groves	B65H 35/08
					156/264

* cited by examiner

Primary Examiner — George R Koch

Assistant Examiner — Christopher C Caillouet

(74) *Attorney, Agent, or Firm* — Daniel Barta; Kirsten Stone

(57) **ABSTRACT**

A system for cutting a web material and applying the web material on a substrate. The system comprises a feed roll configured to advance a web material. The system includes an anvil roll configured to receive the web material from the feed roll and provide a section of web material having a defined length. The system includes a cutting element configured to cut the web material to form the section of web material. The anvil roll is configured such that the anvil roll surface advances at an anvil roll surface speed. The feed roll is configured to rotate at a first feed roll surface speed that is slower than the anvil roll surface speed and a second feed roll surface speed that is substantially the same as the anvil roll surface speed when the cutting element cuts the web material.

19 Claims, 14 Drawing Sheets

