



US009440416B2

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

(10) **Patent No.:** **US 9,440,416 B2**
(45) **Date of Patent:** ***Sep. 13, 2016**

(54) **WEIGHT-BEARING ADHESIVES WITH ADJUSTABLE ANGLES**

F16B 11/006; Y10T 24/33; Y10T 156/10;
C09J 7/02; C09J 7/0207; C09J 7/0246;
C09J 2201/28; C09J 2201/606; C09J
2201/618; C09J 2201/626

(71) Applicant: **University of Massachusetts**, Boston, MA (US)

USPC 156/297
See application file for complete search history.

(72) Inventors: **Alfred J. Crosby**, Amherst, MA (US);
Daniel J. King, Sunderland, MA (US);
Michael D. Bartlett, Sunderland, MA (US);
Duncan J. Irschick, Amherst, MA (US)

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Primary Examiner — Carson Gross

(74) *Attorney, Agent, or Firm* — Wolf, Greenfield & Sacks, P.C.

(73) Assignee: **University of Massachusetts**, Boston, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/172,939**

(22) Filed: **Feb. 5, 2014**

(65) **Prior Publication Data**

US 2014/0305569 A1 Oct. 16, 2014

Related U.S. Application Data

(60) Provisional application No. 61/761,292, filed on Feb. 6, 2013.

(51) **Int. Cl.**
F16B 47/00 (2006.01)
A47G 1/17 (2006.01)

(Continued)

(52) **U.S. Cl.**
CPC . **B32B 7/04** (2013.01); **B32B 7/02** (2013.01);
B32B 33/00 (2013.01); **C09J 7/02** (2013.01);

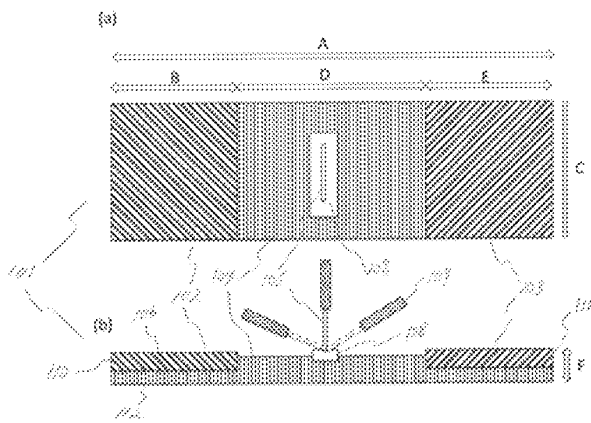
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(58) **Field of Classification Search**
CPC A47G 1/17; A47G 1/175; F16B 47/003;

(57) **ABSTRACT**

The invention provides unique releasable adhesive devices that are high-load bearing and highly stable while allowing adjustment of the weight-bearing angle in a wide range, thereby greatly expanding the scope of applications for technology. Adhesive systems and devices of the invention can be designed to fit applications ranging from household weight-bearing shelves and holders, components for transportation, athletic equipment, labels and advertising posts, automobile interior trims, permanent or reversible fasteners, as well as instruments and devices for industrial, commercial, medical or military applications.

55 Claims, 23 Drawing Sheets



- (51) **Int. Cl.**
B32B 7/04 (2006.01)
C09J 7/02 (2006.01)
B32B 7/02 (2006.01)
B32B 33/00 (2006.01)
F16B 11/00 (2006.01)
- (52) **U.S. Cl.**
CPC *A47G 1/17* (2013.01); *A47G 1/175* (2013.01); *F16B 11/006* (2013.01); *F16B 47/003* (2013.01); *Y10T 156/10* (2015.01); *Y10T 428/24025* (2015.01); *Y10T 428/24967* (2015.01); *Y10T 428/2848* (2015.01)

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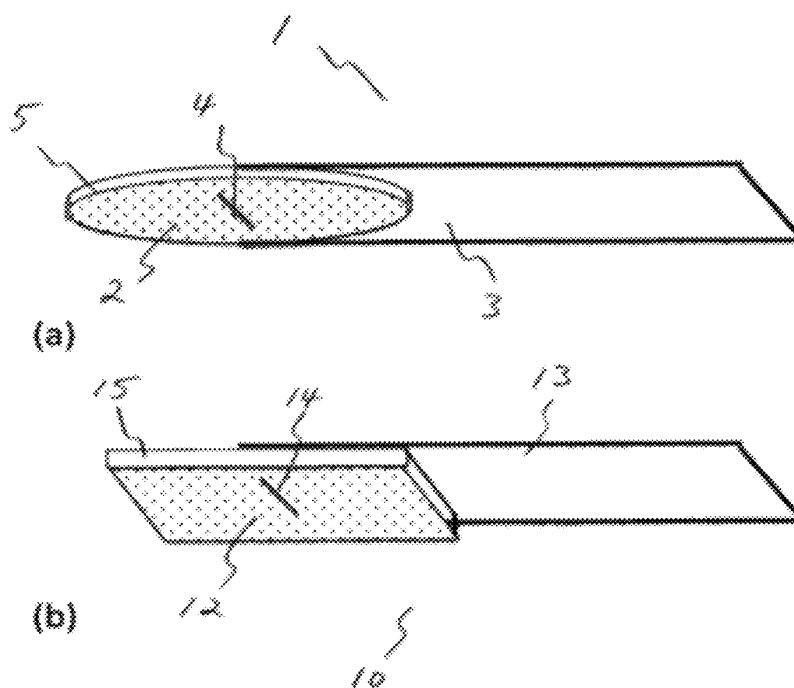


FIG. 1

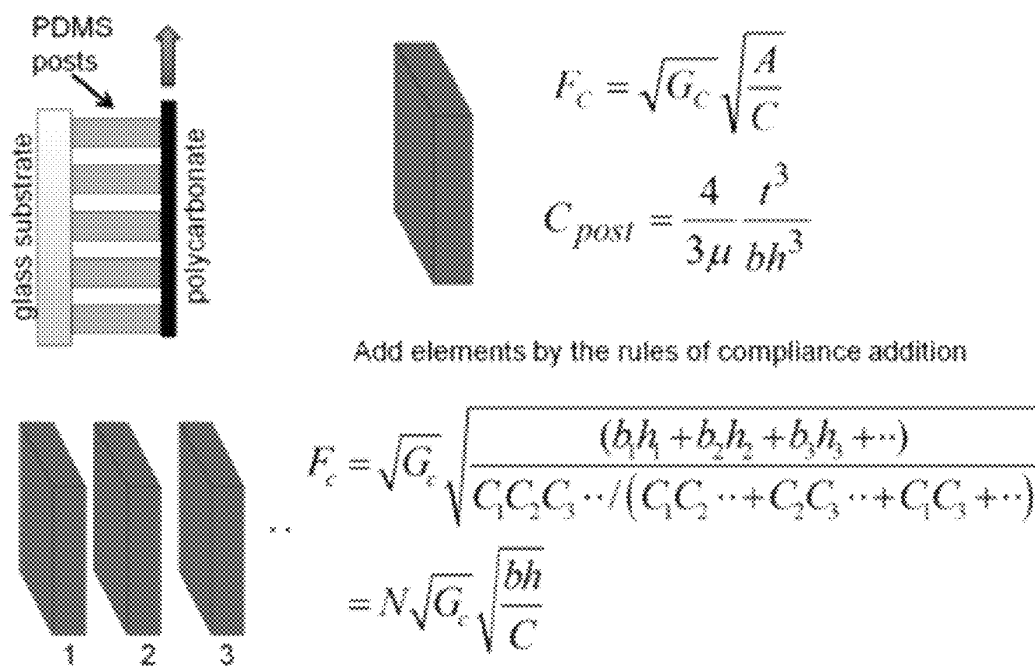
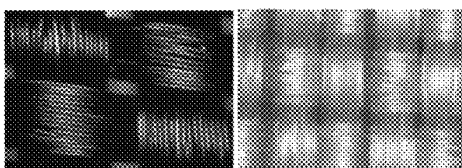


FIG. 2

Fabric



Molding
 $t > 1 \text{ mm}$



Pour PDMS into mold



Impregnate fabric with PDMS



Cure at room temperature

Meyer Bar
 $10 \text{ }\mu\text{m} < t < 1 \text{ mm}$

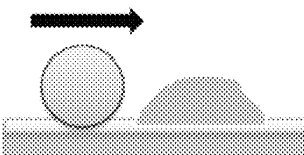


FIG. 3

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