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(12) **United States Patent**
Hull

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(54) **RETROFIT OF A FORM-FILL-SEAL MACHINE HEAT STATION WITH AN ADVANCED ULTRASONIC WELDING KIT**

(58) **Field of Classification Search**

CPC B29C 65/08; B29C 66/8322; B29C 66/81427; B29C 66/81433

(Continued)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 682 days.

This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

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B32B 37/00 (2006.01)
B29C 65/08 (2006.01)
(Continued)

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CPC **B29C 65/08** (2013.01); **B29C 65/7882** (2013.01); **B29C 66/1122** (2013.01);
(Continued)

(57) **ABSTRACT**

Advanced ultrasonic welding components of co-pending application Ser. No. 12/925,652 are readily incorporated into new form-fill-seal machines, but owners of existing machines utilizing heat-seal stations were unsuccessful at swapping the sealing packages. Retrofit kits to a replace heat sealing station with an advanced ultrasonic sonotrode and anvil comprise: a housing; a linear rail fixed thereto; first and second bearing carriages being slidable upon the rail; and first and second fluidic muscles. Each of the fluidic muscles is mounted with a first end fixed to a respective housing wall, and a second end fixed to a respective bearing carriage, permitting actuation of each carriage through pressurization and depressurization of the muscles. The advanced anvil and sonotrode may be secured to respective carriages. In-line arrangements of anvil/sonotrode, bearing carriages, the first fluidic muscle, and the second fluidic muscle provides a narrow profile, permitting side-by-side kit installations for retrofits accomplishing duplex sealing on a horizontal machine.

16 Claims, 13 Drawing Sheets

