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(54) **SYSTEMS AND METHODS FOR EFFECTIVE REUSE OF A SELF-CONTAINED PORTABLE POSITIONABLE OSCILLATING MOTOR ARRAY**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,310,050 A 3/1967 Goldfarb
3,612,046 A * 10/1971 Gaylord, Jr. A61H 1/0218
128/DIG. 15

(Continued)

FOREIGN PATENT DOCUMENTS

DE 202008015893 7/2009
WO 2010/071919 7/2010

(Continued)

OTHER PUBLICATIONS

Tackett, M. W. et al., "Lung function improvement with AfloVest® HFCWO use: a clinician's perspective on PFT score data from 25 patients with cystic fibrosis." May 2016.

(Continued)

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(57) **ABSTRACT**

In some embodiments, a method may include inhibiting contamination of a medical device. The method may include positioning a first shield on a torso of a subject. The first shield may inhibit transmission of solid and fluid contaminants. The method may include positioning a wearable harness of a medical device on a torso of a first subject. The method may include positioning a second shield on a torso of a subject such that the wearable harness is positioned between the first shield and the second shield. The second shield may inhibit transmission of solid and fluid contaminants. The method may include applying an oscillation force to at least one of the treatment areas using at least some of a plurality of engines coupled to the wearable harness. The method may include mobilizing at least some secretions in an airway within the subject substantially adjacent to the treatment areas.

24 Claims, 30 Drawing Sheets

