



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

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(45) **Date of Patent:** **Sep. 16, 2008**

(54) **THIN FILM WITH  
NON-SELF-AGGREGATING UNIFORM  
HETEROGENEITY AND DRUG DELIVERY  
SYSTEMS MADE THEREFROM**

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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 621 days.

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**Related U.S. Application Data**

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(51) **Int. Cl.**  
**B32B 43/00** (2006.01)  
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(Continued)

(52) **U.S. Cl.** ..... **264/172.19**; 264/212; 264/217

*Primary Examiner*—Philip C Tucker

(58) **Field of Classification Search** ..... 264/172.19,  
264/173.1, 175, 212, 217, 211.12, 260, 234;  
424/484, 488; 484/434, 435; 34/509, 502,  
34/493, 443

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See application file for complete search history.

(57) **ABSTRACT**

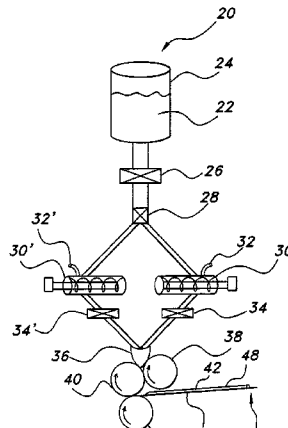
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The invention relates to the film products and methods of their preparation that demonstrate a non-self-aggregating uniform heterogeneity. Desirably the films disintegrate in water and may be formed by a controlled drying process, or other process that maintains the required uniformity of the film.

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**22 Claims, 2 Drawing Sheets**



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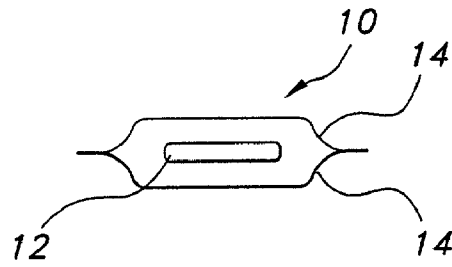
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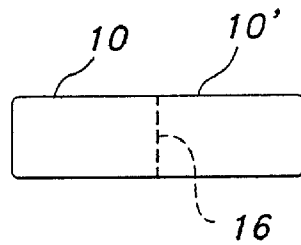
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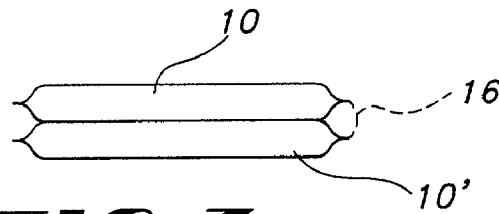
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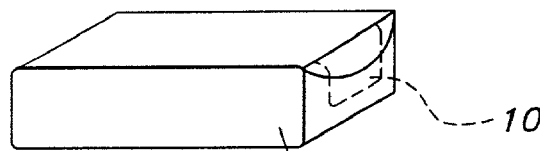
**FIG. 1**



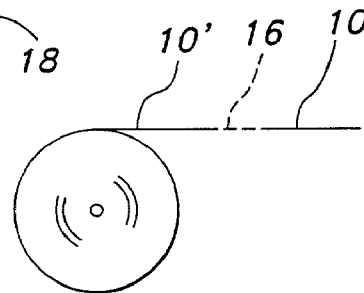
**FIG. 2**



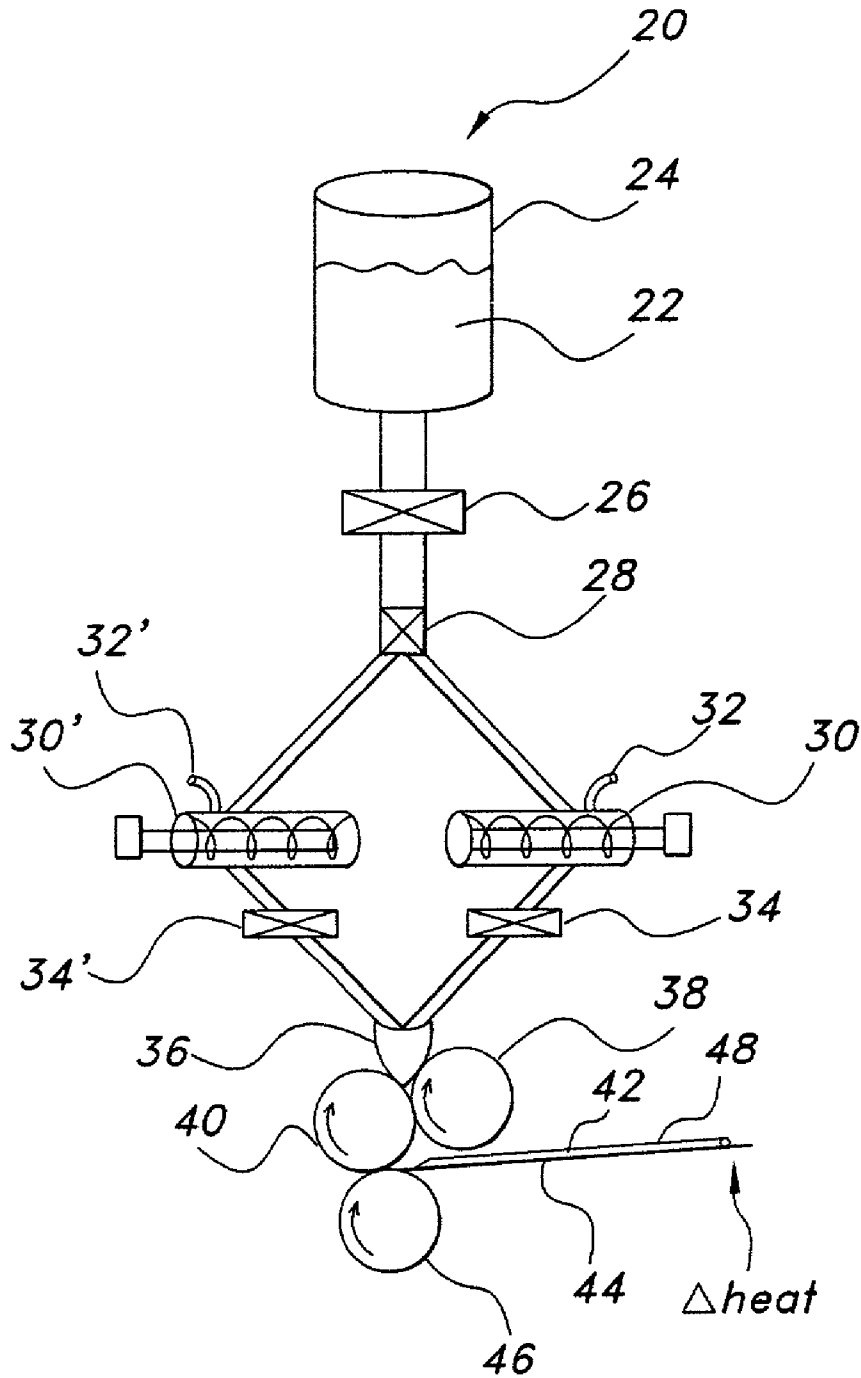
**FIG. 3**



**FIG. 4**



**FIG. 5**



**FIG. 6**

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