## United States Patent [19]

#### Rhodes

DOCKF

#### [54] SLOW RELEASE FORMULATION

- [75] Inventor: Alan Rhodes, Ely, United Kingdom
- [73] Assignee: Ethical Pharmaceuticals Limited, United Kingdom
- [21] Appl. No.: 12,026
- [22] Filed: Feb. 9, 1987

#### [30] Foreign Application Priority Data

#### Feb. 13, 1986 [GB] United Kingdom ...... 8603523

- [51] Int. Cl.<sup>4</sup> ..... A61K 9/16; A61K 9/26
- [58] Field of Search ...... 424/468, 469, 470, 472, 424/473; 514/965

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# [11] Patent Number: 4,880,830 [45] Date of Patent: Nov. 14, 1989

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Attorney, Agent, or Firm—Saidman, Sterne, Kessler & Goldstein

#### ABSTRACT

A slow release formulation to be administered to humans or animals, comprising primary granules which contain an active ingredient and are in a secondary matrix of a water soluble/dispersible slow release material, the granules themselves comprising particles containing the active ingredients and in a primary matrix of a water soluble/dispersible slow release material.

Optionally the formulation comprises a binder phase of a water insoluble slow release material having embedded therein secondary granules comprising the secondary matrix containing the primary matrix granules.

The water soluble/dispersible material may be a polysaccharide and acacia and low viscosity methylcellulose are exemplified, as well as alginate and gelatine.

#### 20 Claims, 4 Drawing Sheets

## BINDER SOLUTION MIX ACTIVE INGREDIENT/BINDER MIXTORE 2 GRANULATE AND DRY GRANULES

ACTIVE INGREDIENT

[57]

(3) MIX WITH BINDER SOLUTION

GRANULE / BINDER MIXTURE

GRANULATE AND DRY

#### GRANULES

DRY BLEND WITH WATER INSOLUBLE BINDER

WAX/GRANULE AGGLOMERATE



TABLETS

#### Exhibit 1037

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FIG. 1.

```
ACTIVE INGREDIENT
BINDER SOLUTION
```

Ø MIX

ACTIVE INGREDIENT/BINDER MIXTURE

C GRANULATE AND DRY

GRANULES

3 MIX WITH BINDER SOLUTION

GRANULE/ BINDER MIXTURE

(4) GRANULATE AND DRY

GRANULES

5 DRY BLEND WITH WATER INSOLUBLE BINDER

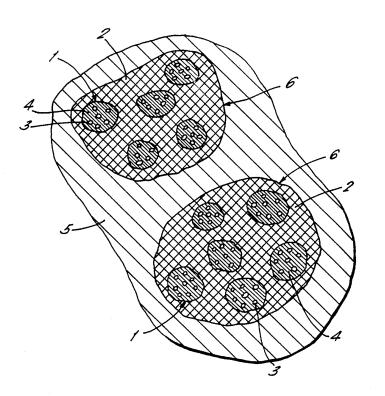
WAX/GRANULE AGGLOMERATE

6 PRESS NTO TABLETS

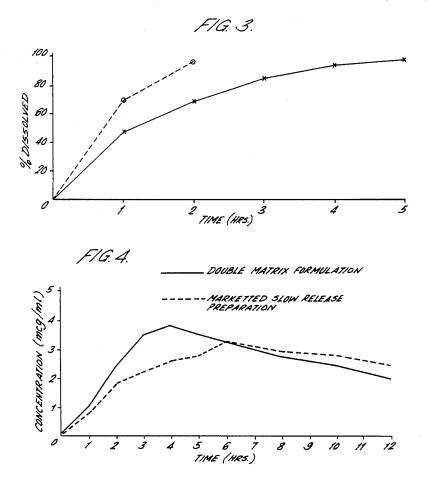
TABLETS

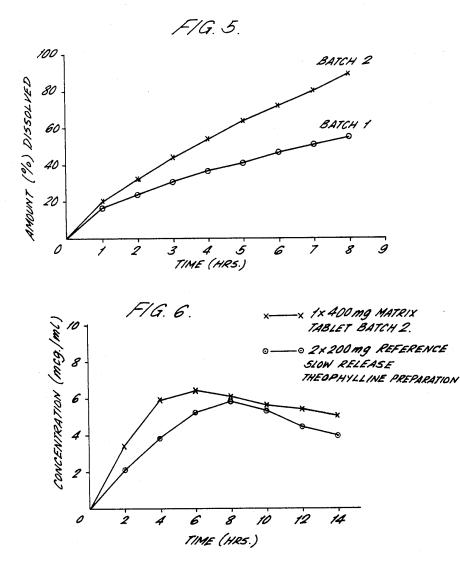
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