



United States Patent [19]

[11] Patent Number: **5,547,839**

Dower et al.

[45] Date of Patent: **Aug. 20, 1996**

[54] **SEQUENCING OF SURFACE IMMOBILIZED POLYMERS UTILIZING MICROFLOURESCENCE DETECTION**

9013666 5/1990 WIPO C12Q 1/68
9015070 12/1990 WIPO .
9107087 5/1991 WIPO .
9106678 5/1991 WIPO C12Q 1/68

[75] Inventors: **William J. Dower**, Menlo Park;
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of Calif.

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[73] Assignee: **Affymax Technologies N.V.**, Curacao, Netherlands Antilles

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[21] Appl. No.: **626,730**

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[22] Filed: **Dec. 6, 1990**

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Related U.S. Application Data

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[63] Continuation-in-part of Ser. No. 492,462, Mar. 7, 1990, Pat. No. 5,143,854, which is a continuation-in-part of Ser. No. 362,901, Jun. 7, 1989, abandoned.

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[51] Int. Cl.⁶ **C12Q 1/68**

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[52] U.S. Cl. **435/6; 536/24.33; 536/24.3**

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[58] Field of Search 435/6, 91, 810,
435/973, 975, 91.2; 436/527, 530, 531,
56, 94, 800, 808; 536/27, 24.33; 935/77

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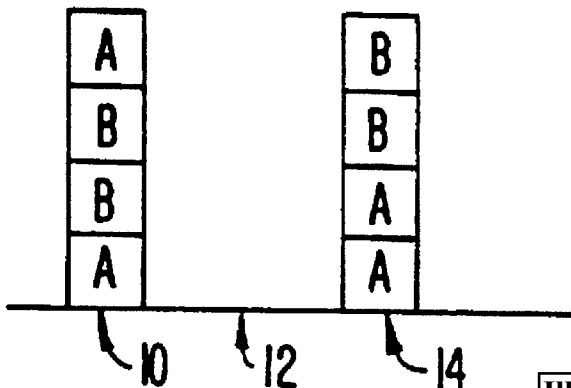
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[57] ABSTRACT

Means for simultaneous parallel sequence analysis of a large number of biological polymer macromolecules. Apparatus and methods may use fluorescent labels in repetitive chemistry to determine terminal monomers on solid phase immobilized polymers. Reagents which specifically recognize terminal monomers are used to label polymers at defined positions on a solid substrate.

7 Claims, 10 Drawing Sheets



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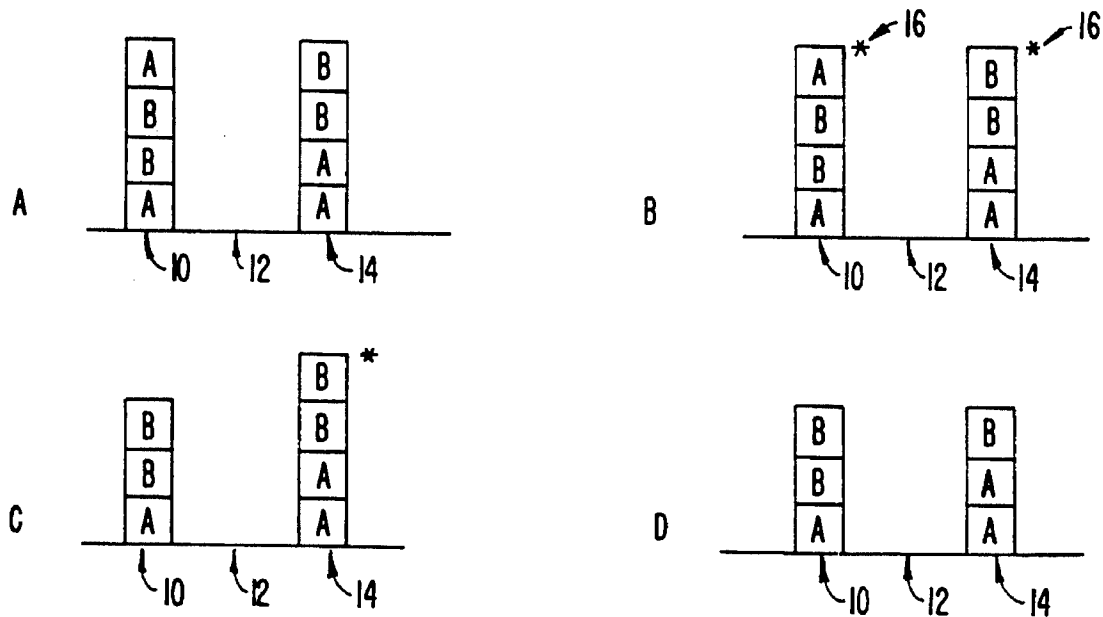


FIG. 1.

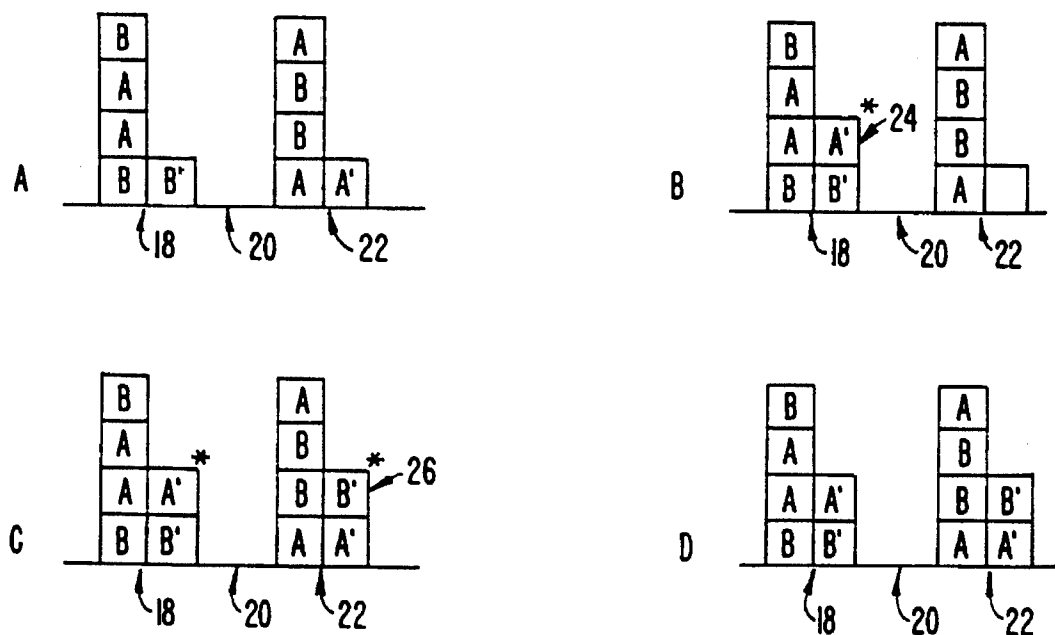
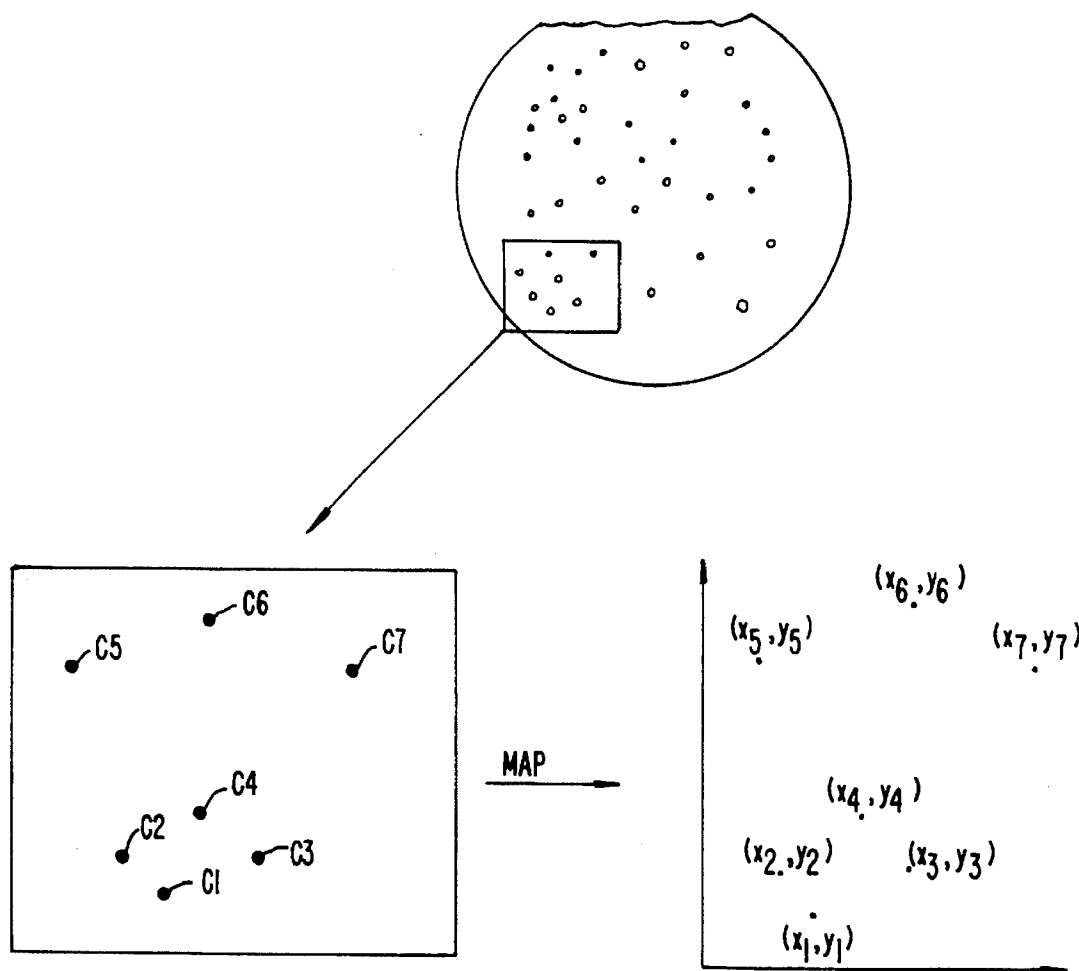


FIG. 2.



CLUSTERS LOCALIZED AT POSITIONS

C_1	(x_1, y_1)
C_2	(x_2, y_2)
C_3	(x_3, y_3)
C_4	(x_4, y_4)
C_5	(x_5, y_5)
C_6	(x_6, y_6)
C_7	(x_7, y_7)
\vdots	\vdots
C_n	(x_n, y_n)

FIG. 3.

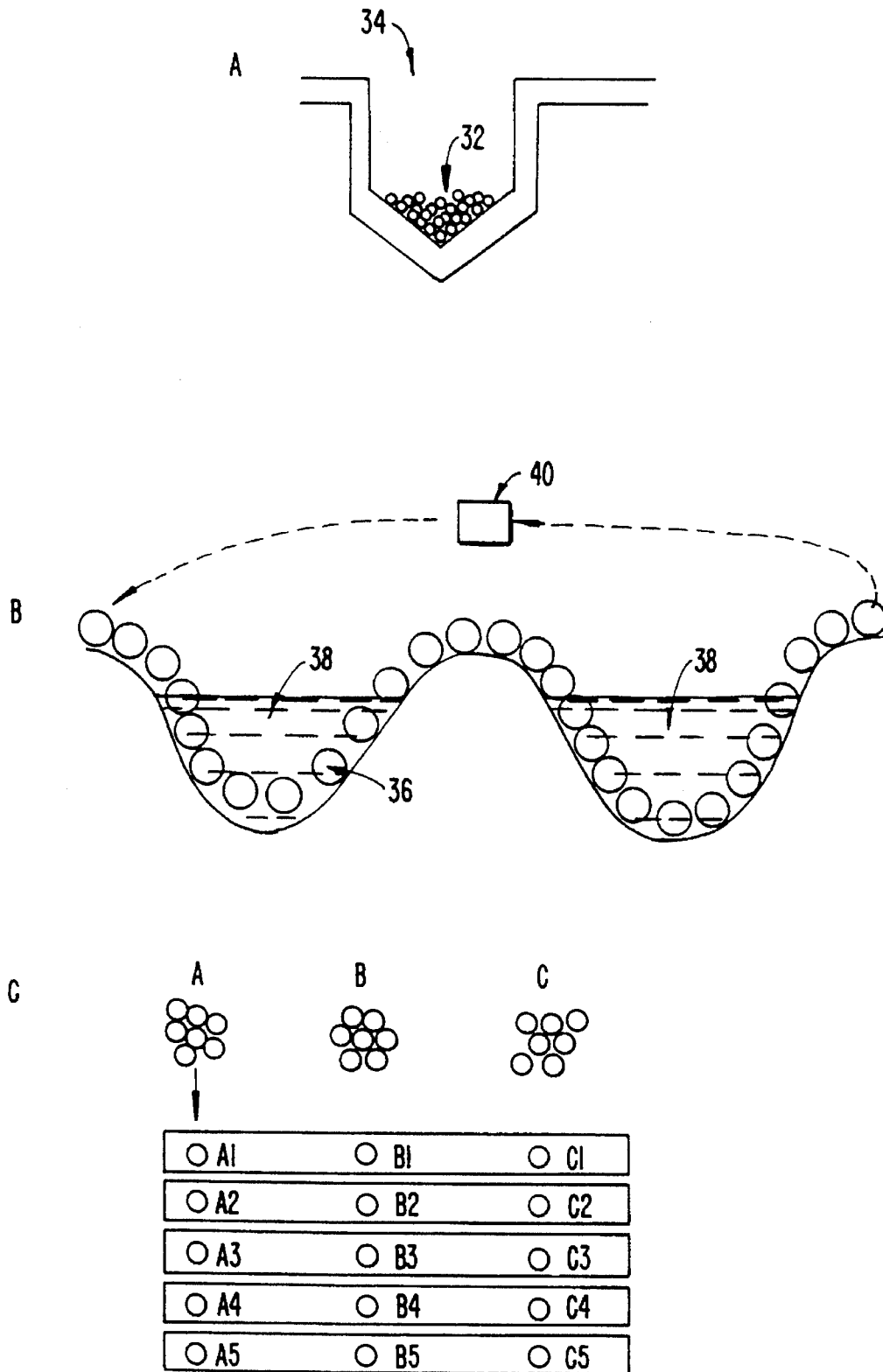


FIG. 4.

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