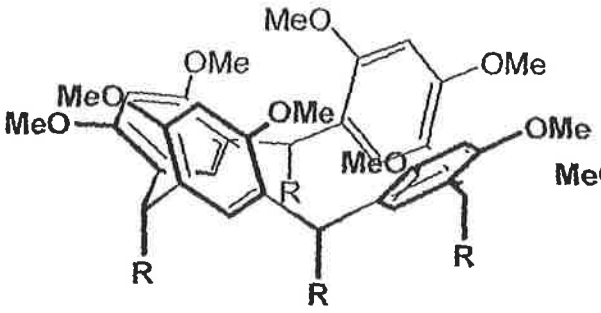
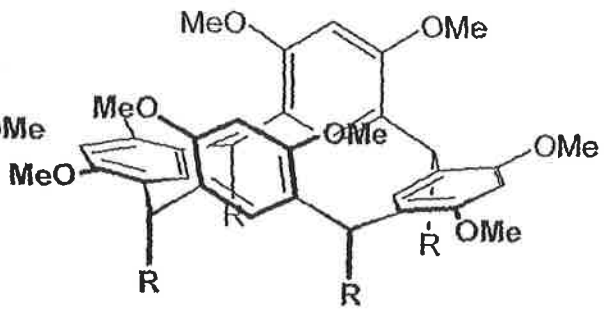


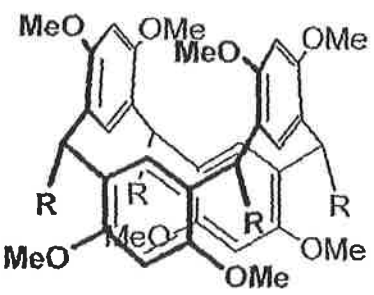
cone
(crown)
a



flattened cone
(boat)
b



1,2-alternate
(diamond)
c



1,3-alternate
(saddle)
d

FIG. 1

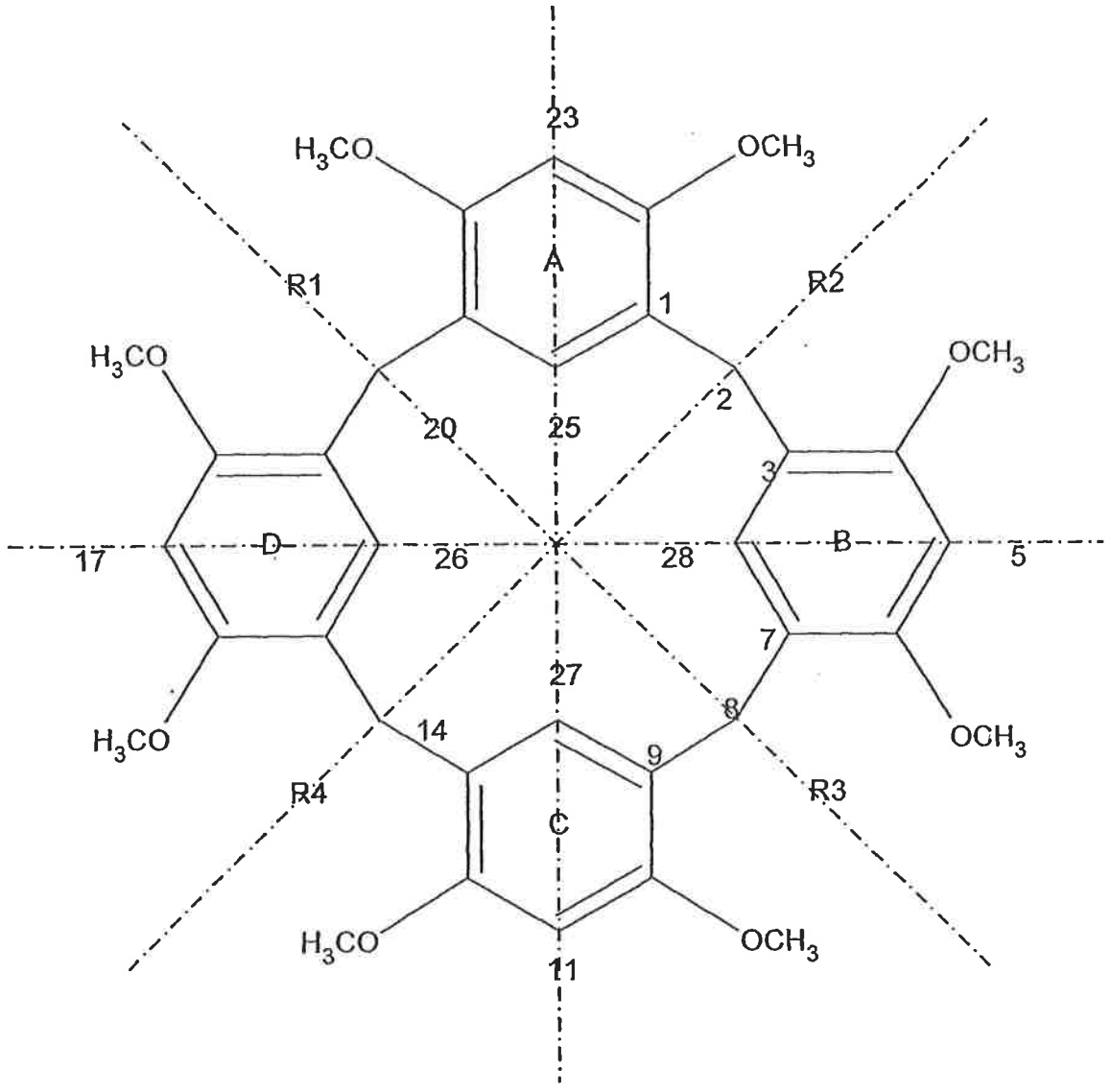

23
H3CO
OCH3
A
R1
R2
1
H3CO
OCH3
2
20
25
3
17
D
26
28
B
5
7
27
8
H3CO
14
9
OCH3
R4
R3
C
H3CO
OCH3
11

FIG. 2

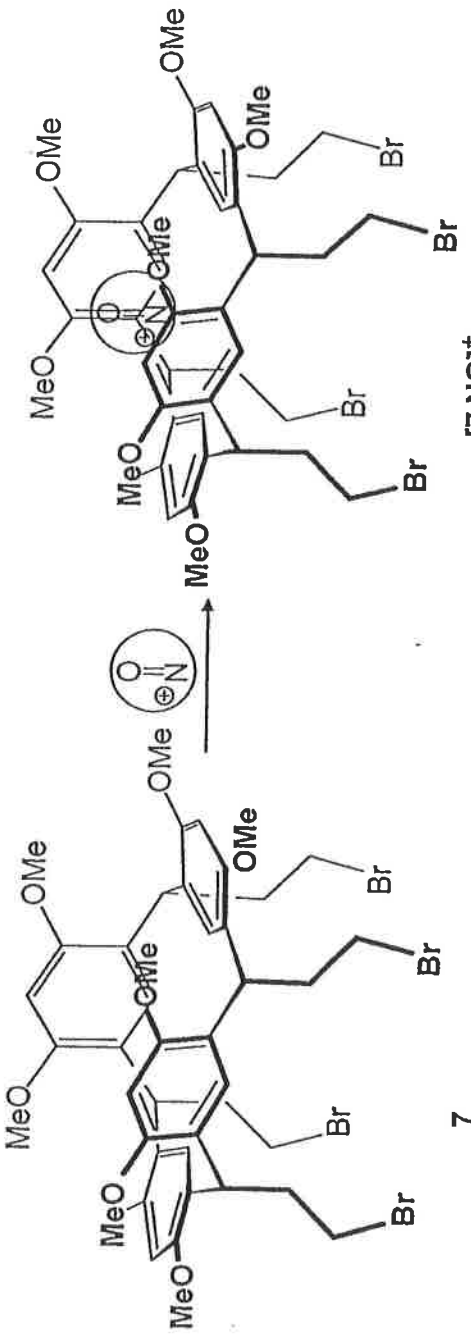


FIG. 3

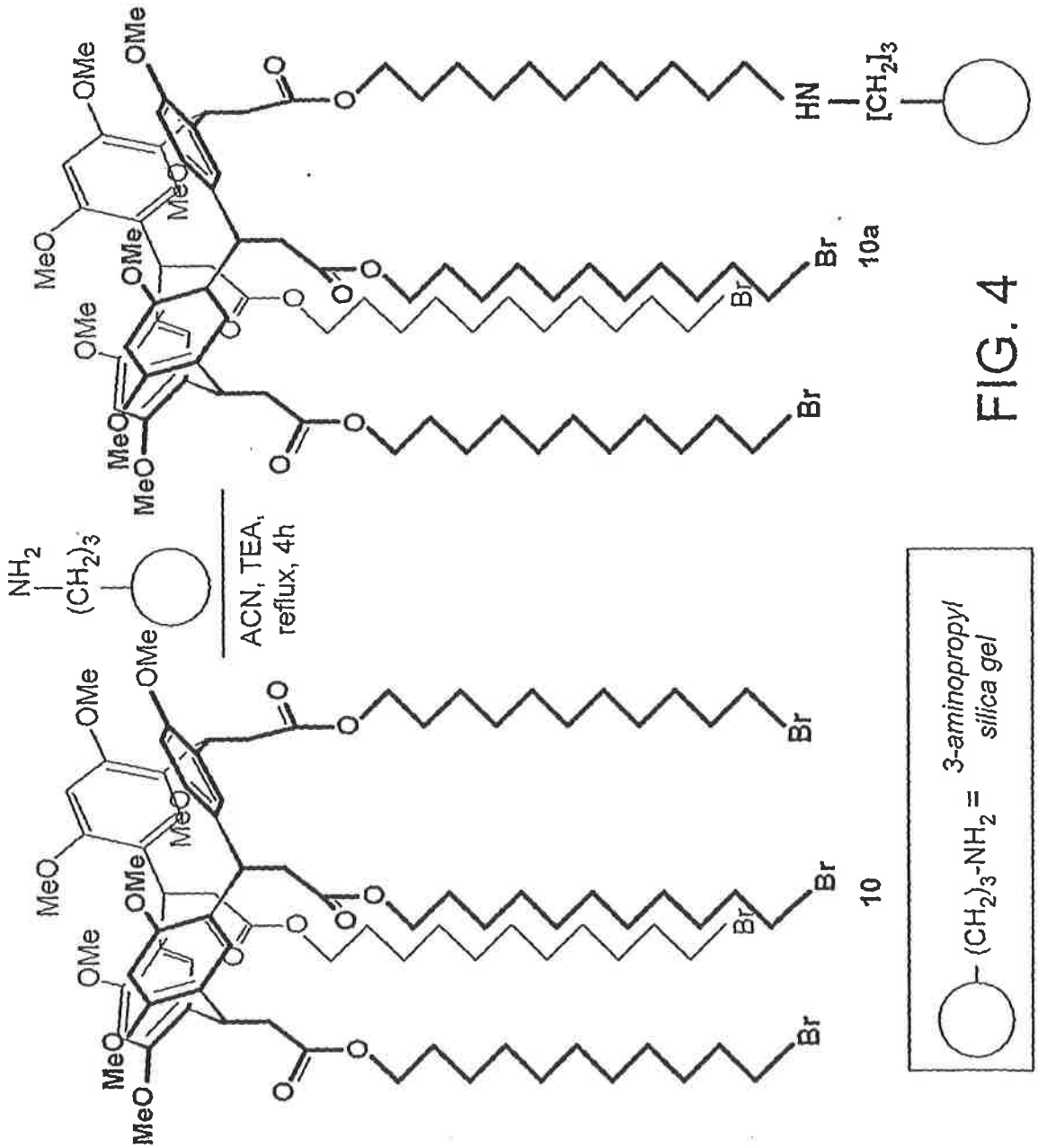

NH2
(CH2)3
ACN, TEA,
reflux, 4h
MeO
OMe
Br
10
10a
HN
[CH2]3
(CH2)3-NH2 = 3-aminopropyl silica gel

FIG. 4

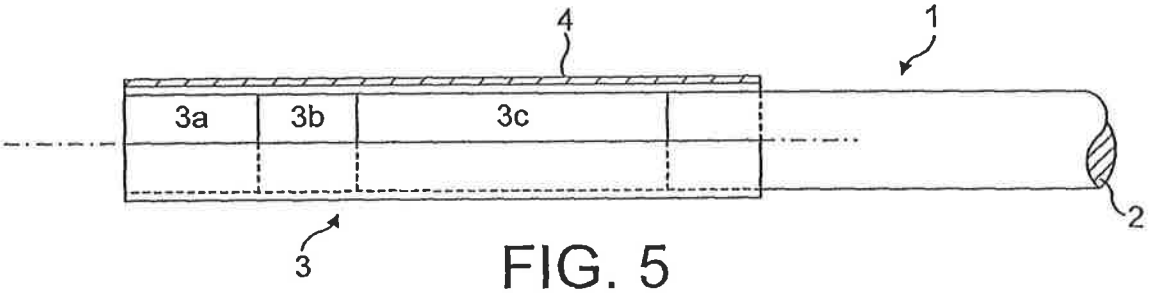


FIG. 5

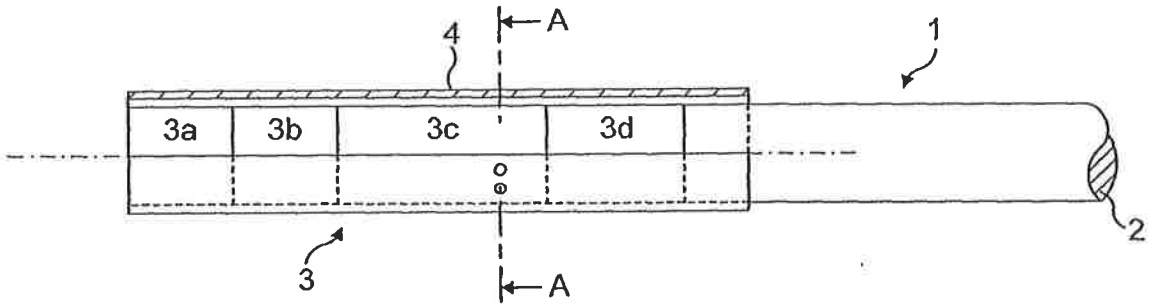


FIG. 6