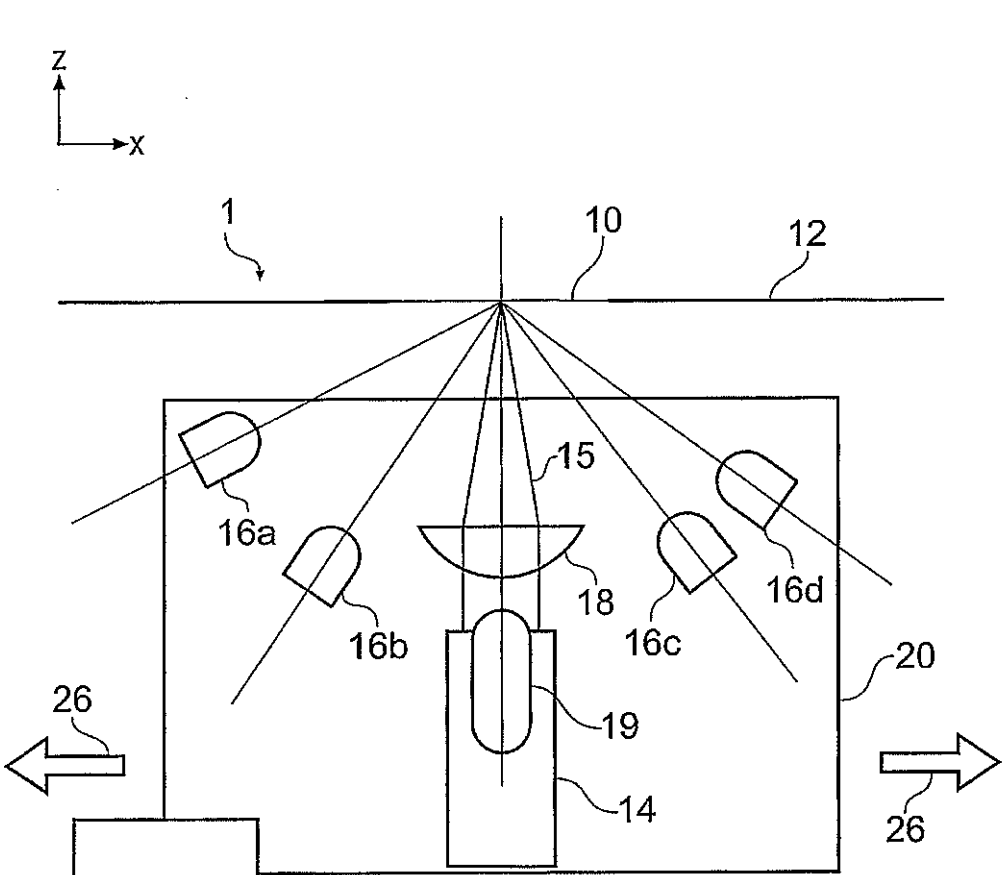


Fig. 1

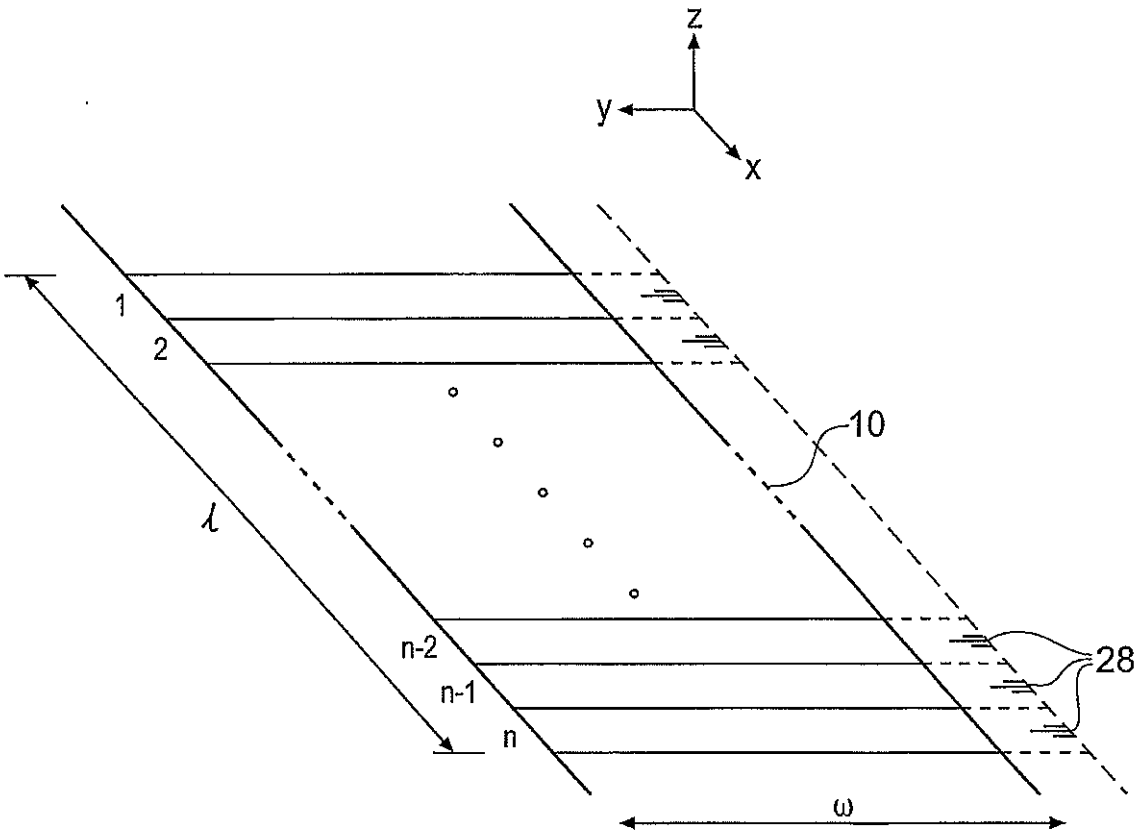


Fig. 2

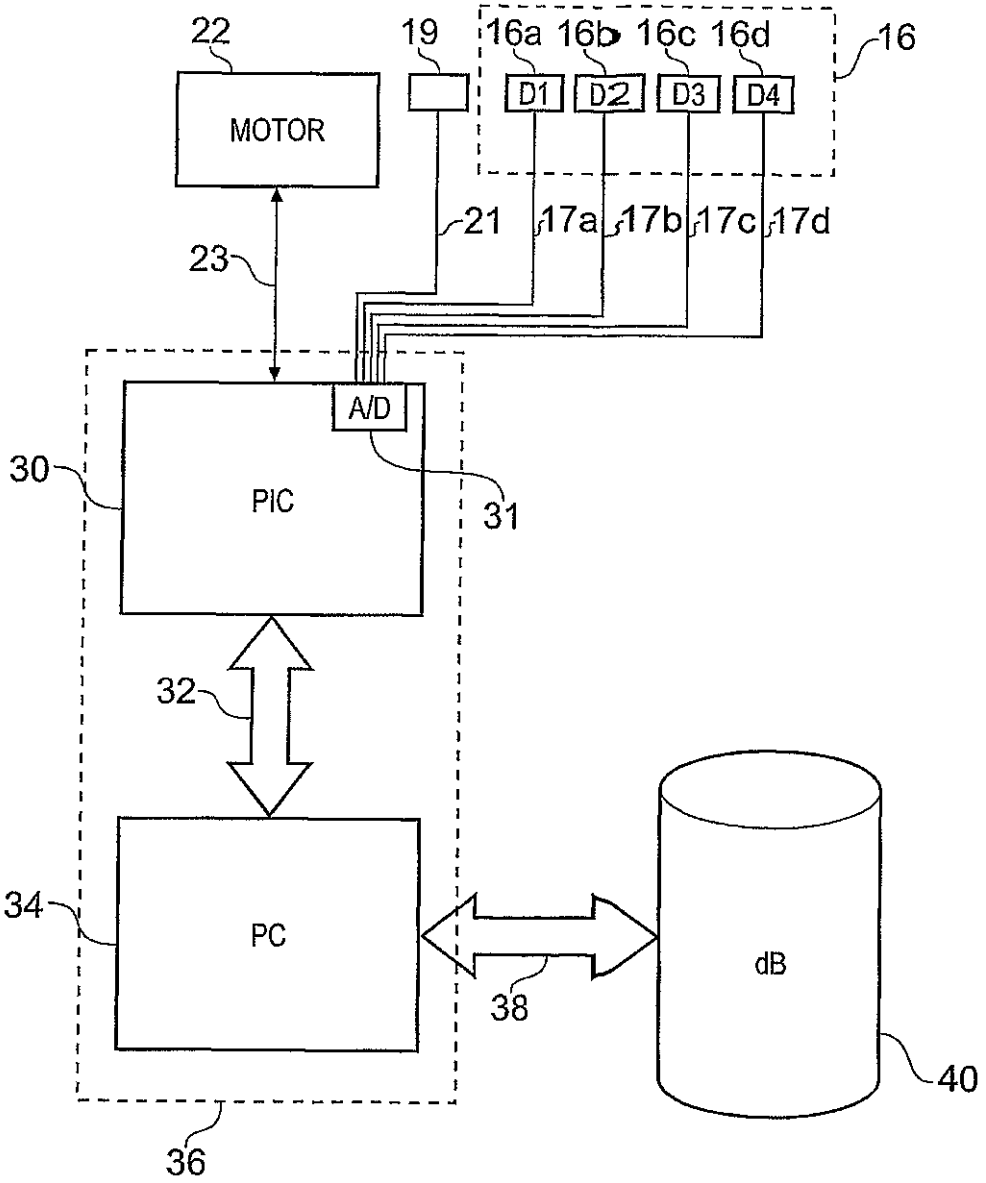

22
19
16a
16b
16c
16d
16
MOTOR
D1
D2
D3
D4
21
17a
17b
17c
17d
23
A/D
30
PIC
31
32
34
PC
38
dB
40
36

Fig. 3

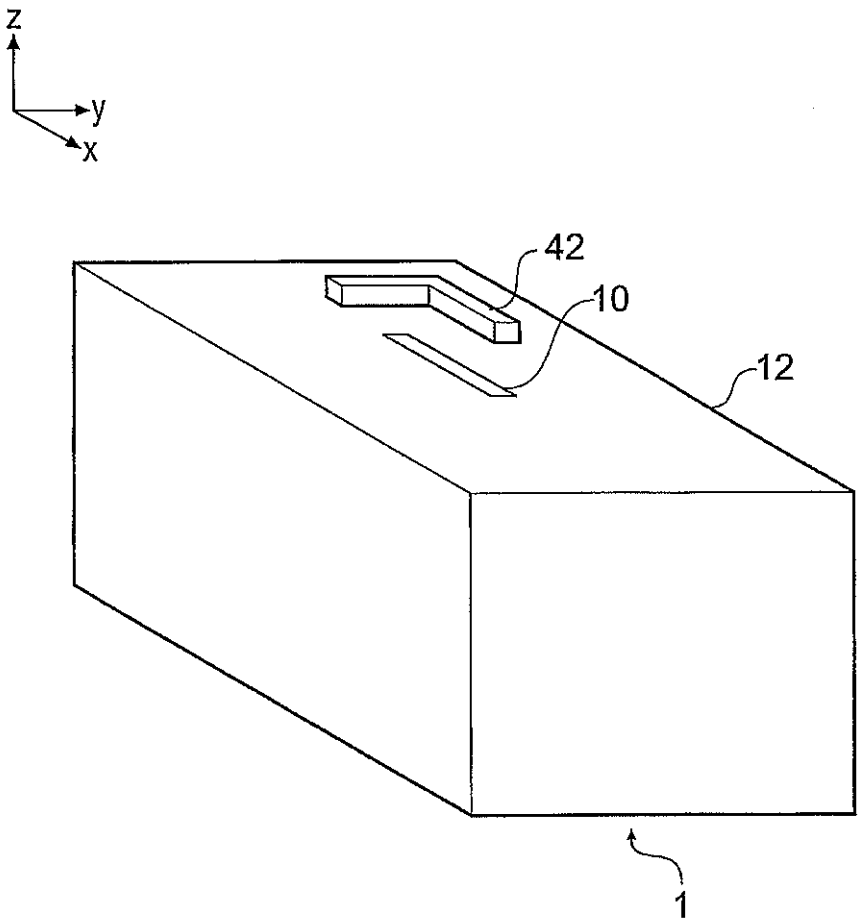


Fig. 4

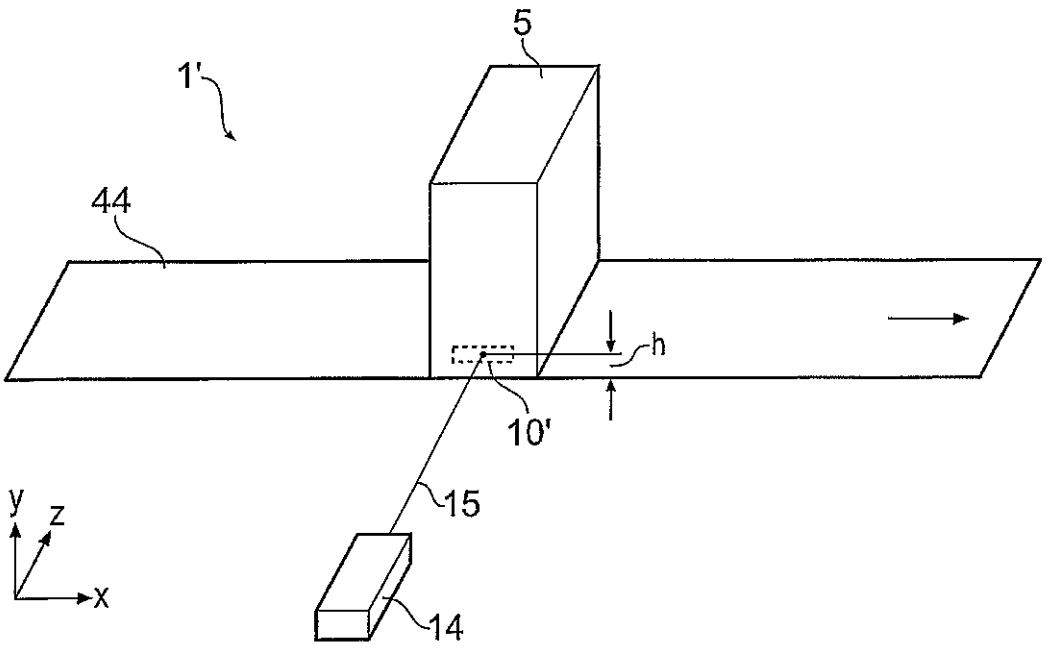


Fig. 5

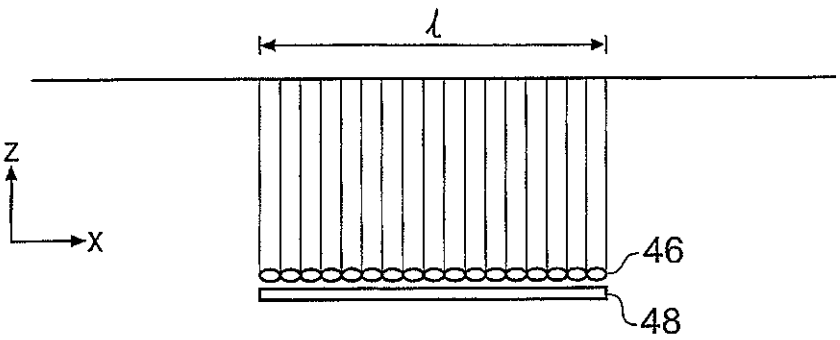


Fig. 6A

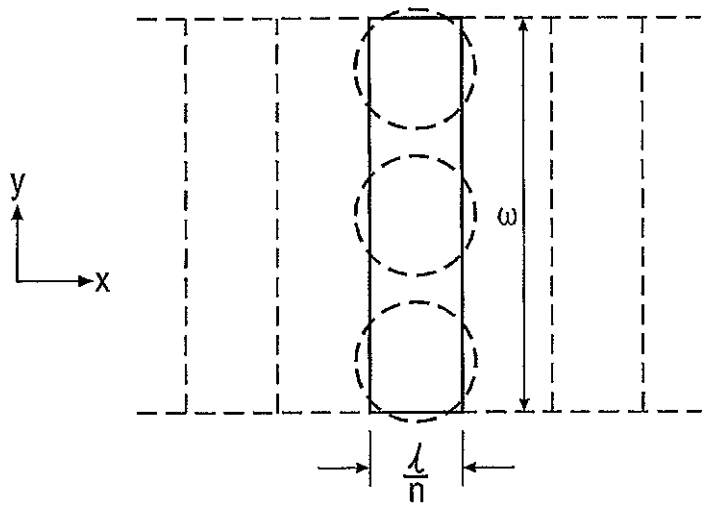


Fig. 6B

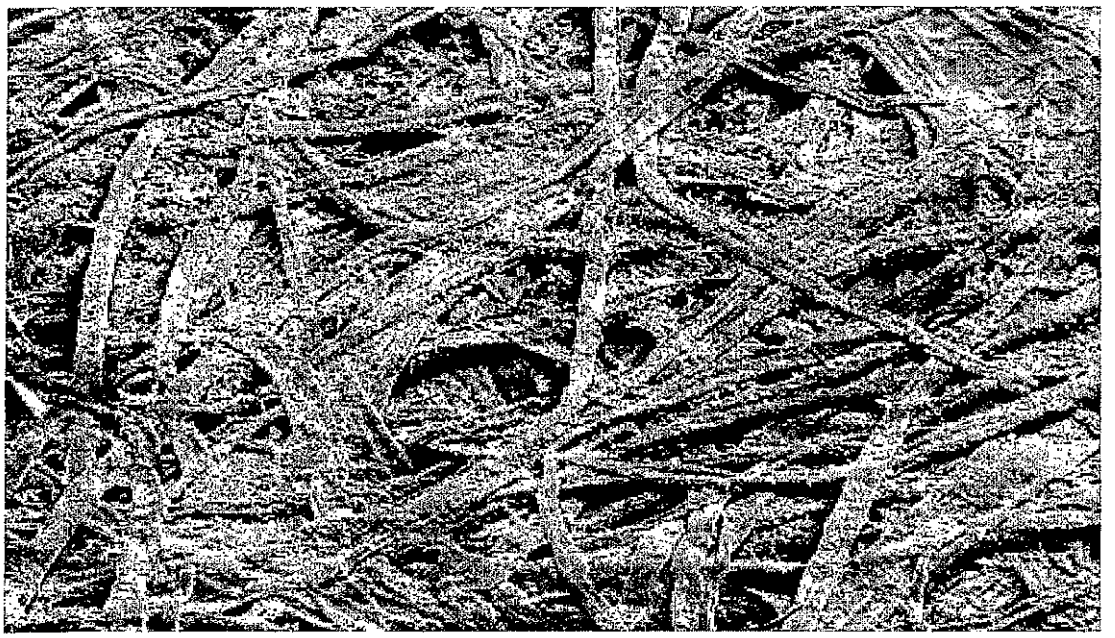


Fig. 7

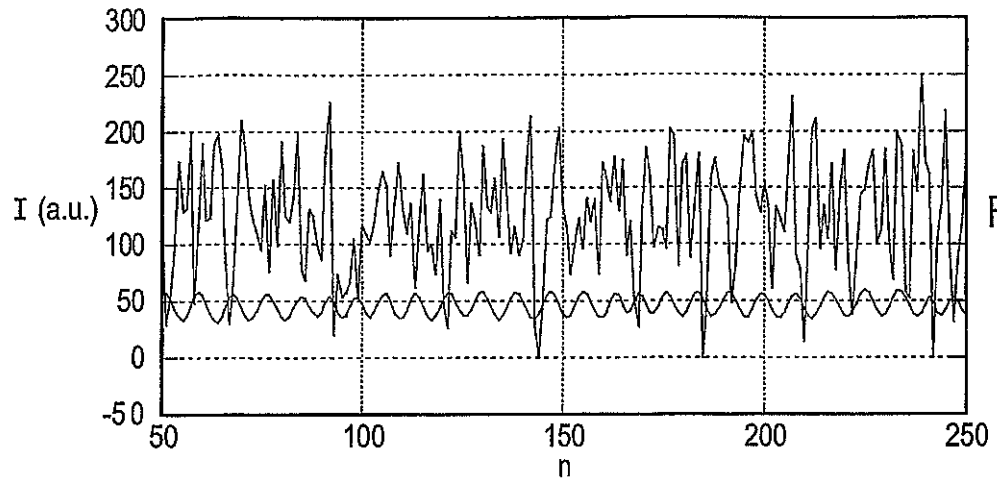


Fig. 8A

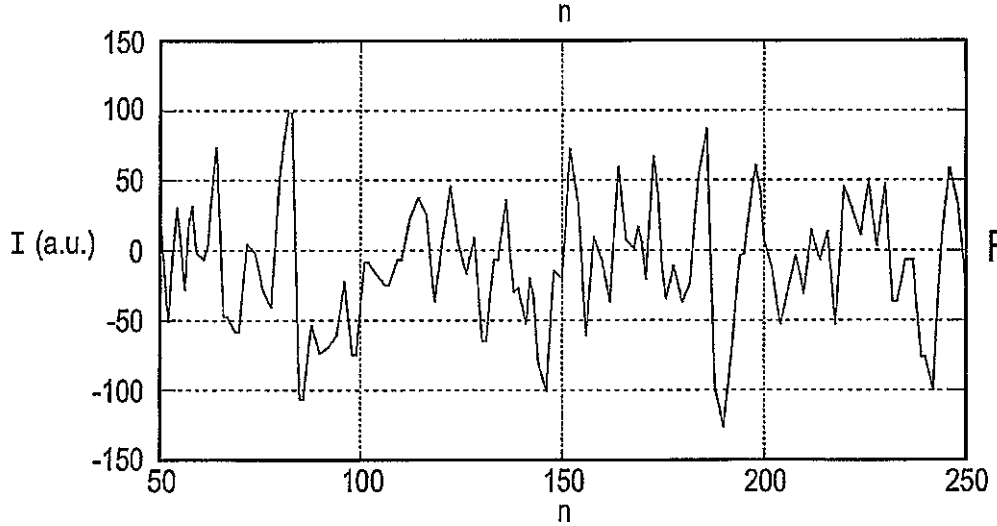


Fig. 8B

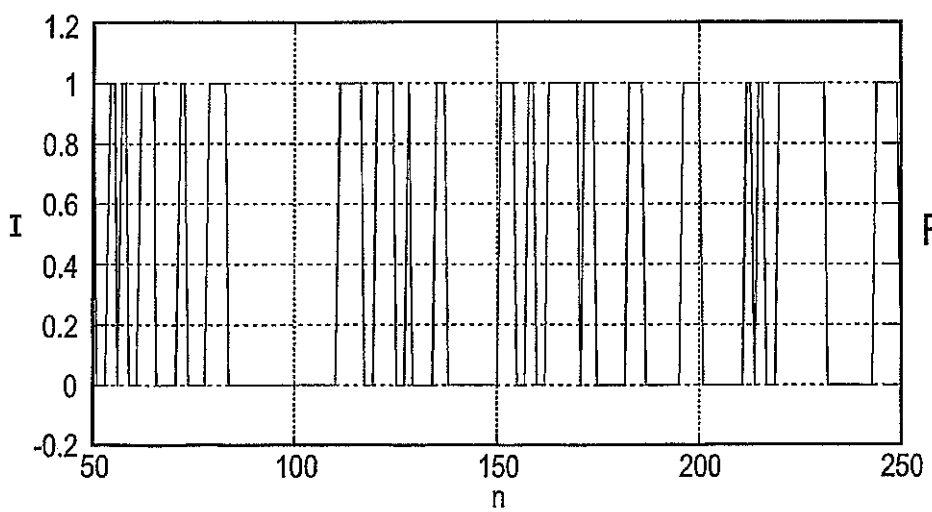


Fig. 8C

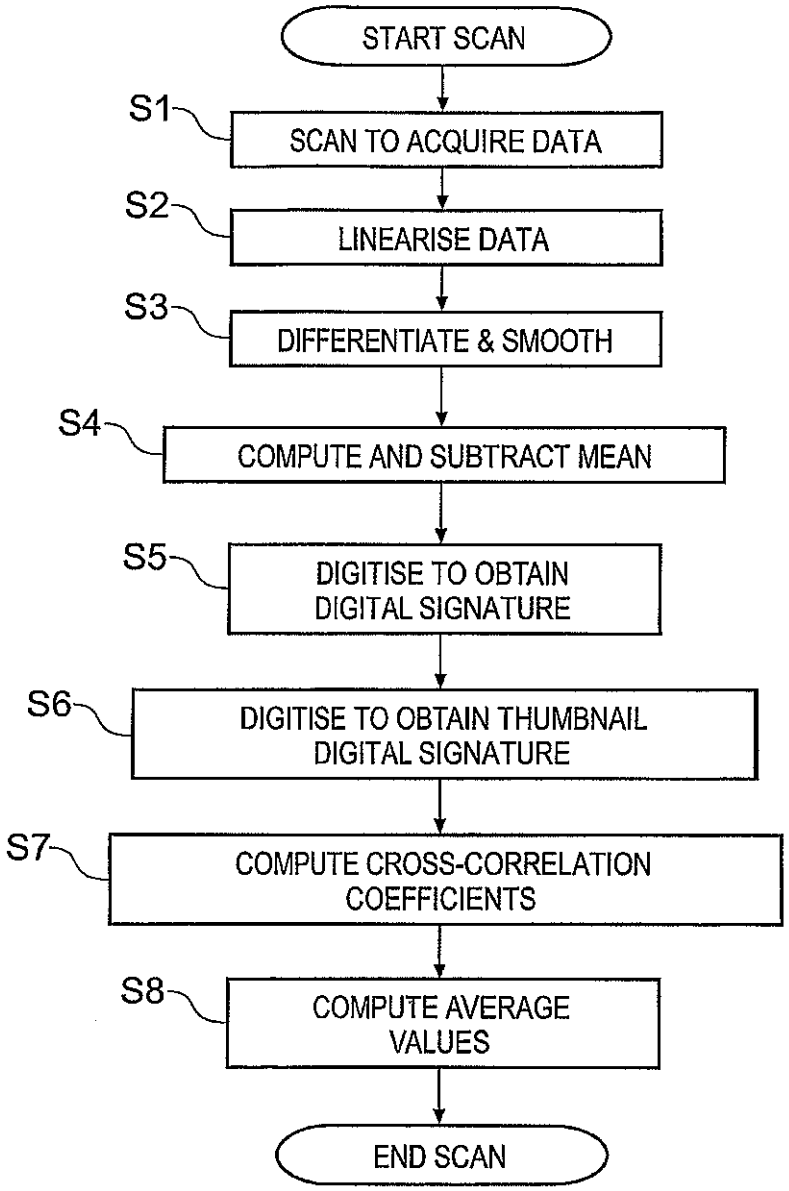

START SCAN
S1
SCAN TO ACQUIRE DATA
S2
LINEARISE DATA
S3
DIFFERENTIATE & SMOOTH
S4
COMPUTE AND SUBTRACT MEAN
S5
DIGITISE TO OBTAIN DIGITAL SIGNATURE
S6
DIGITISE TO OBTAIN THUMBNAIL DIGITAL SIGNATURE
S7
COMPUTE CROSS-CORRELATION COEFFICIENTS
S8
COMPUTE AVERAGE VALUES
END SCAN

Fig. 9

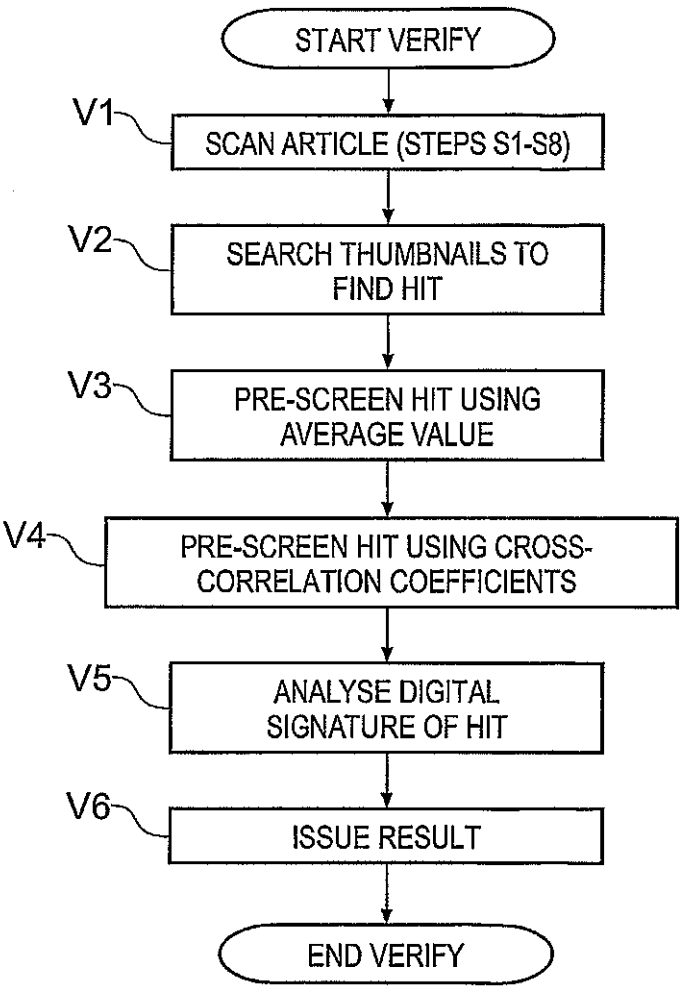

START VERIFY
V1
SCAN ARTICLE (STEPS S1-S8)
V2
SEARCH THUMBNAILS TO FIND HIT
V3
PRE-SCREEN HIT USING AVERAGE VALUE
V4
PRE-SCREEN HIT USING CROSS-CORRELATION COEFFICIENTS
V5
ANALYSE DIGITAL SIGNATURE OF HIT
V6
ISSUE RESULT
END VERIFY

Fig. 10

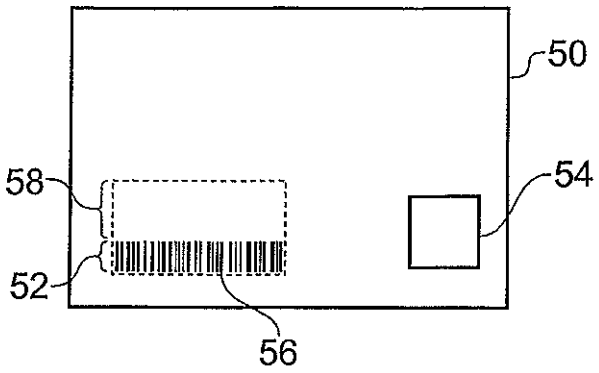


Fig. 11

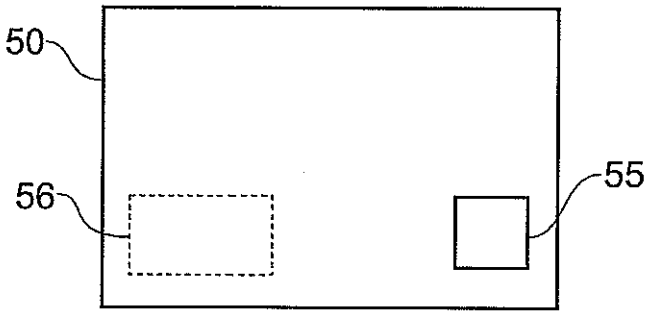


Fig. 12

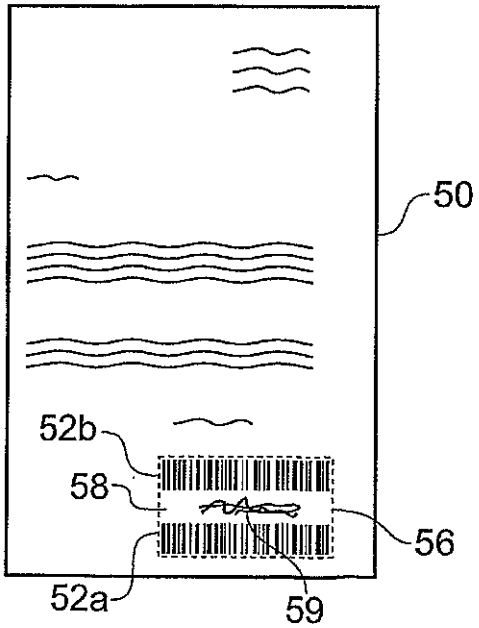


Fig. 13