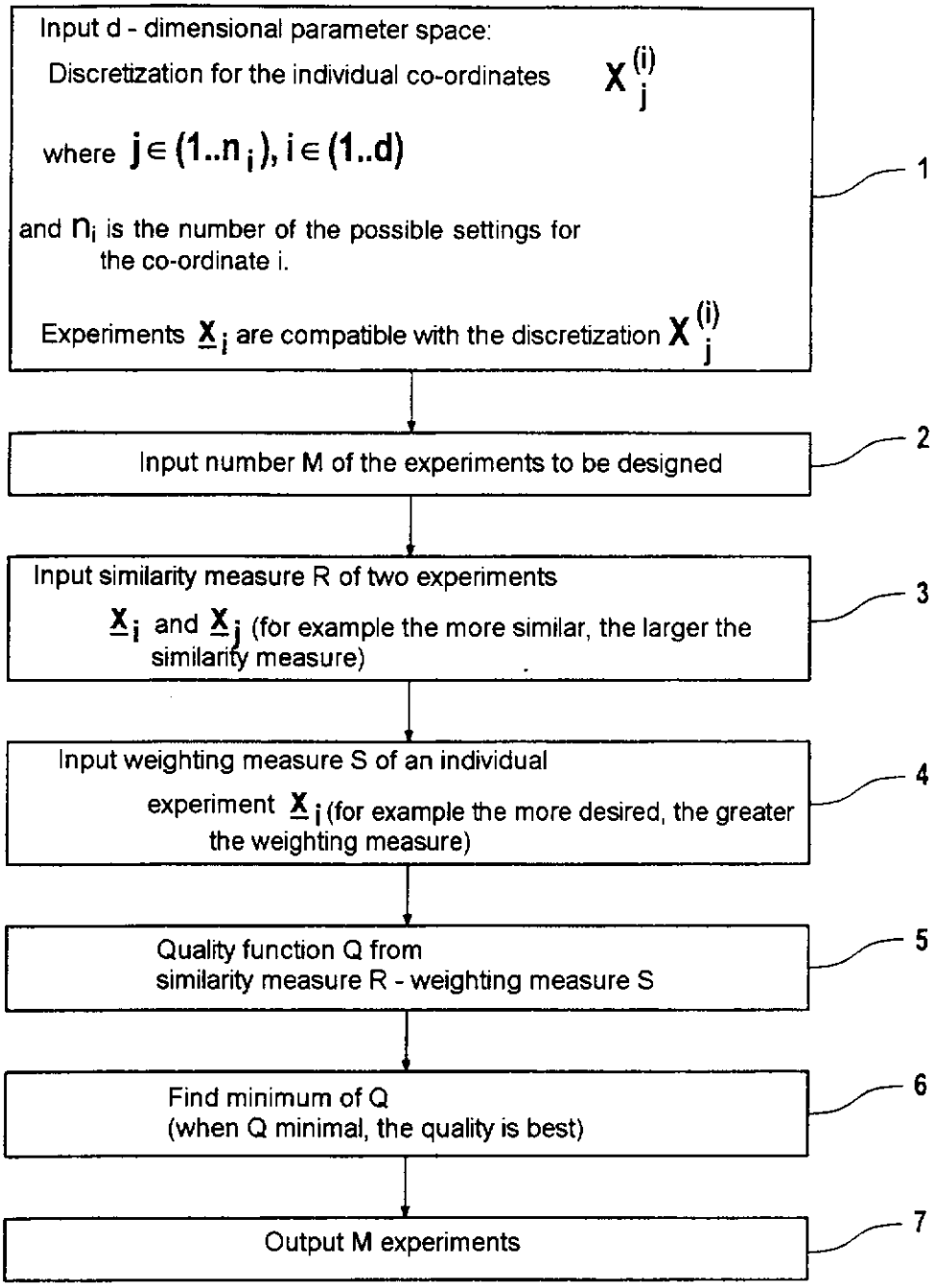
Input d - dimensional parameter space:
Discretization for the individual co-ordinates $X_j^{(i)}$
where $j \in (1..n_i), i \in (1..d)$
and n_i is the number of the possible settings for the co-ordinate i.
Experiments $\underline{X}_i$ are compatible with the discretization $X_j^{(i)}$
1
Input number M of the experiments to be designed
2
Input similarity measure R of two experiments $\underline{X}_i$ and $\underline{X}_j$ (for example the more similar, the larger the similarity measure)
3
Input weighting measure S of an individual experiment $\underline{X}_i$ (for example the more desired, the greater the weighting measure)
4
Quality function Q from similarity measure R - weighting measure S
5
Find minimum of Q (when Q minimal, the quality is best)
6
Output M experiments
7

Fig. 1

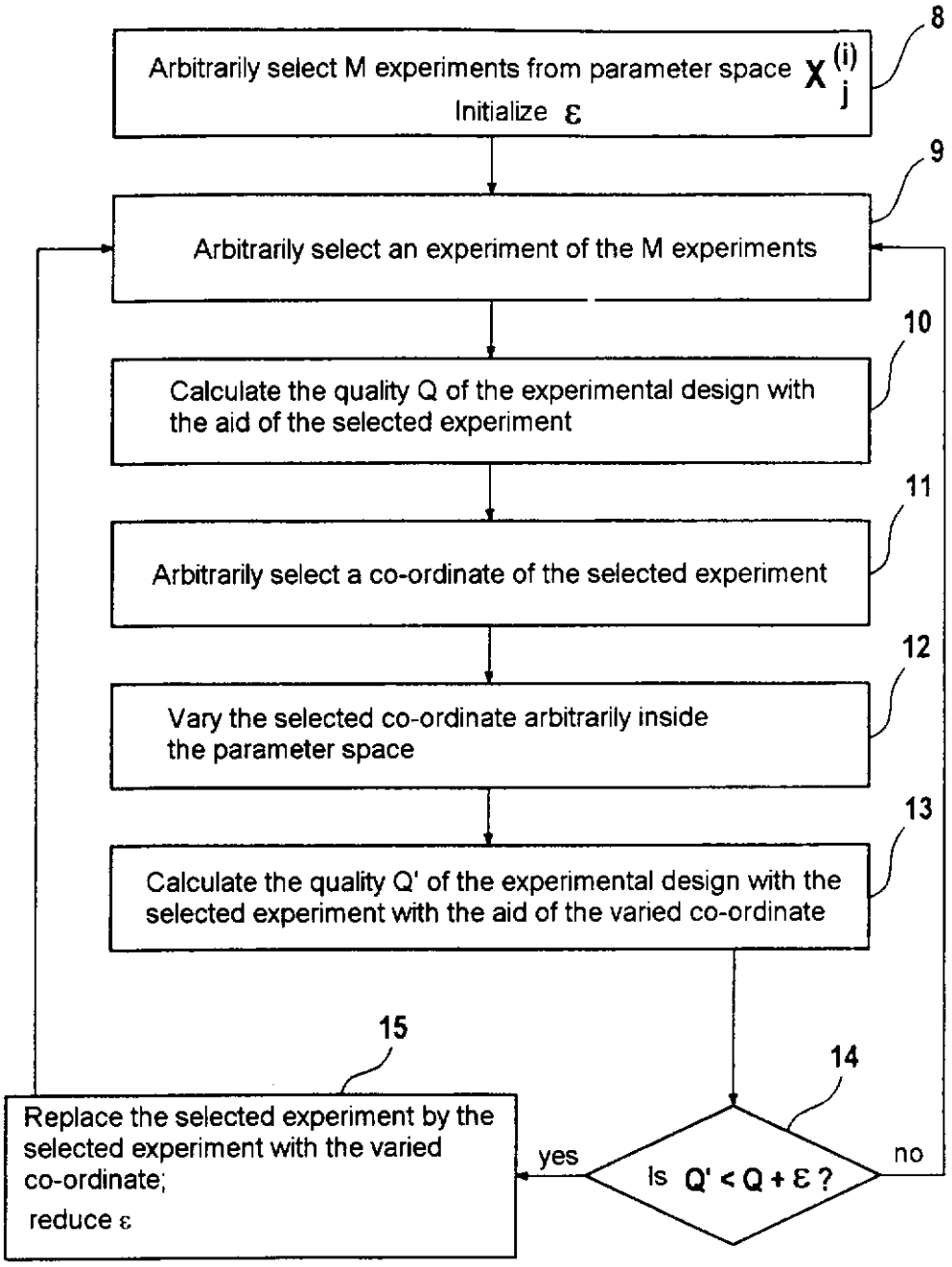
Arbitrarily select M experiments from parameter space $X_j^{(i)}$
Initialize ε
8
Arbitrarily select an experiment of the M experiments
9
Calculate the quality Q of the experimental design with the aid of the selected experiment
10
Arbitrarily select a co-ordinate of the selected experiment
11
Vary the selected co-ordinate arbitrarily inside the parameter space
12
Calculate the quality Q' of the experimental design with the selected experiment with the aid of the varied co-ordinate
13
Is Q' < Q + ε ?
14
yes
no
Replace the selected experiment by the selected experiment with the varied co-ordinate;
reduce ε
15

Fig. 2

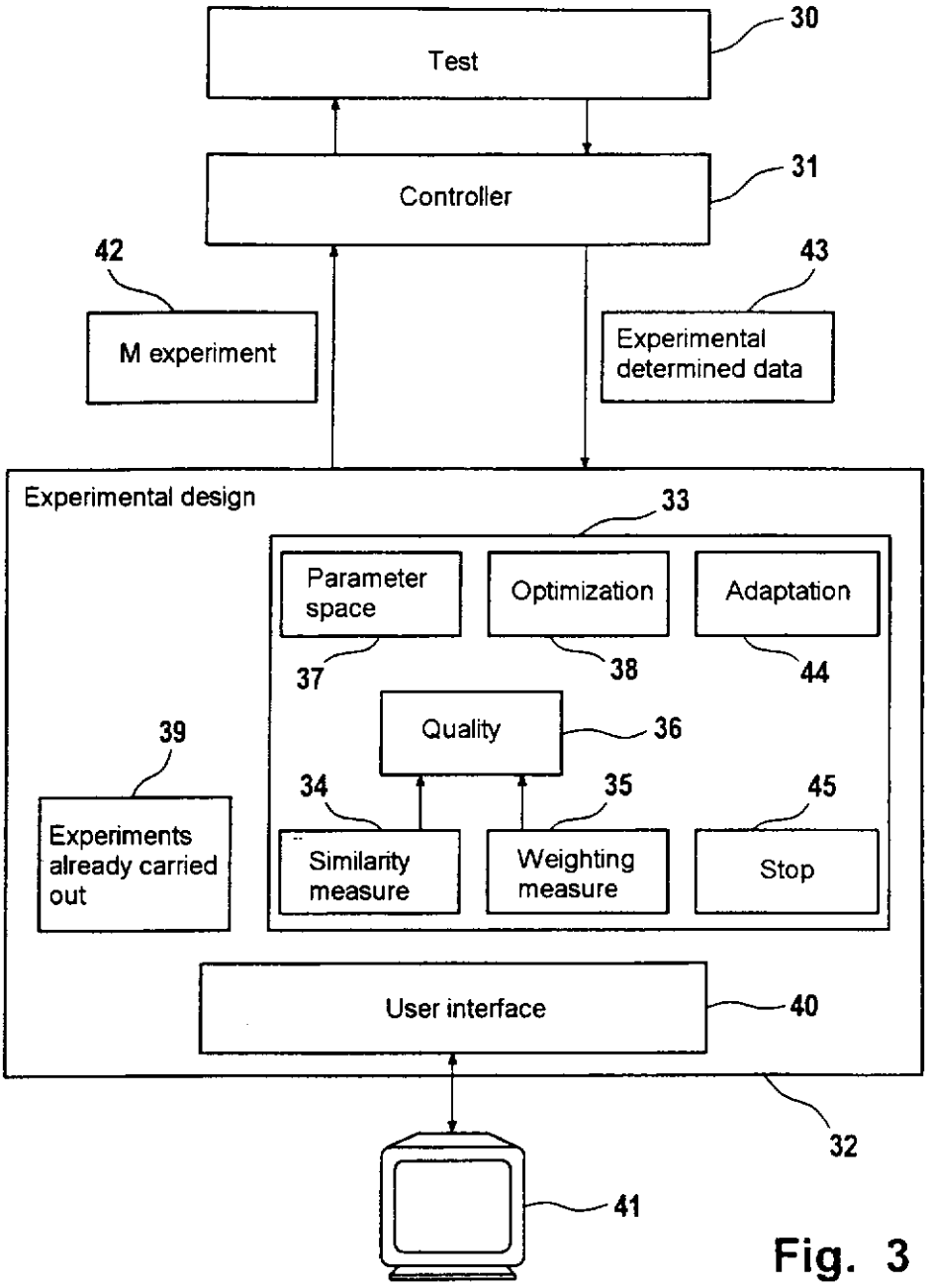
Test
30
Controller
31
42
43
M experiment
Experimental determined data
Experimental design
33
Parameter space
Optimization
Adaptation
37
38
44
Quality
36
39
34
35
45
Experiments already carried out
Similarity measure
Weighting measure
Stop
User interface
40
32
41

Fig. 3