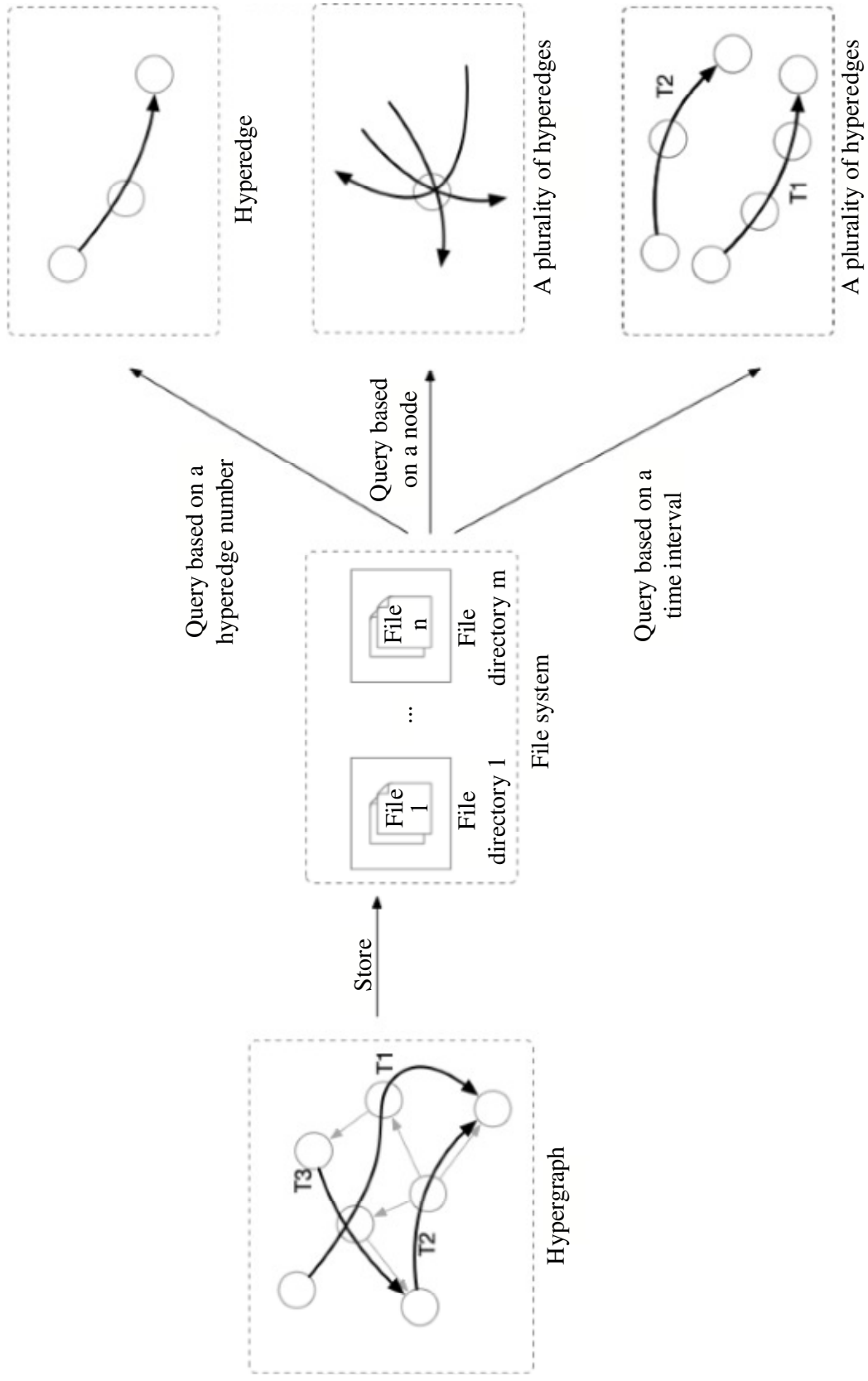
Hypergraph
T1
T2
T3
Store
File system
File directory 1
File 1
...
File directory m
File n
Query based on a hyperedge number
Query based on a node
Query based on a time interval
Hyperedge
A plurality of hyperedges
T1
T2
A plurality of hyperedges

FIG. 1

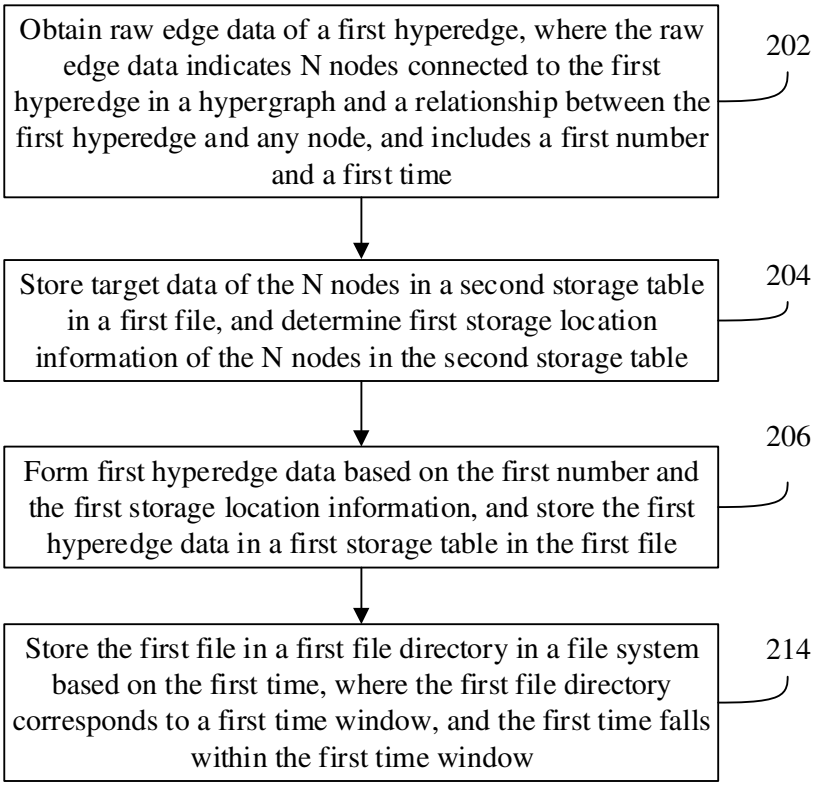
Obtain raw edge data of a first hyperedge, where the raw edge data indicates N nodes connected to the first hyperedge in a hypergraph and a relationship between the first hyperedge and any node, and includes a first number and a first time
202
Store target data of the N nodes in a second storage table in a first file, and determine first storage location information of the N nodes in the second storage table
204
Form first hyperedge data based on the first number and the first storage location information, and store the first hyperedge data in a first storage table in the first file
206
Store the first file in a first file directory in a file system based on the first time, where the first file directory corresponds to a first time window, and the first time falls within the first time window
214

FIG. 2

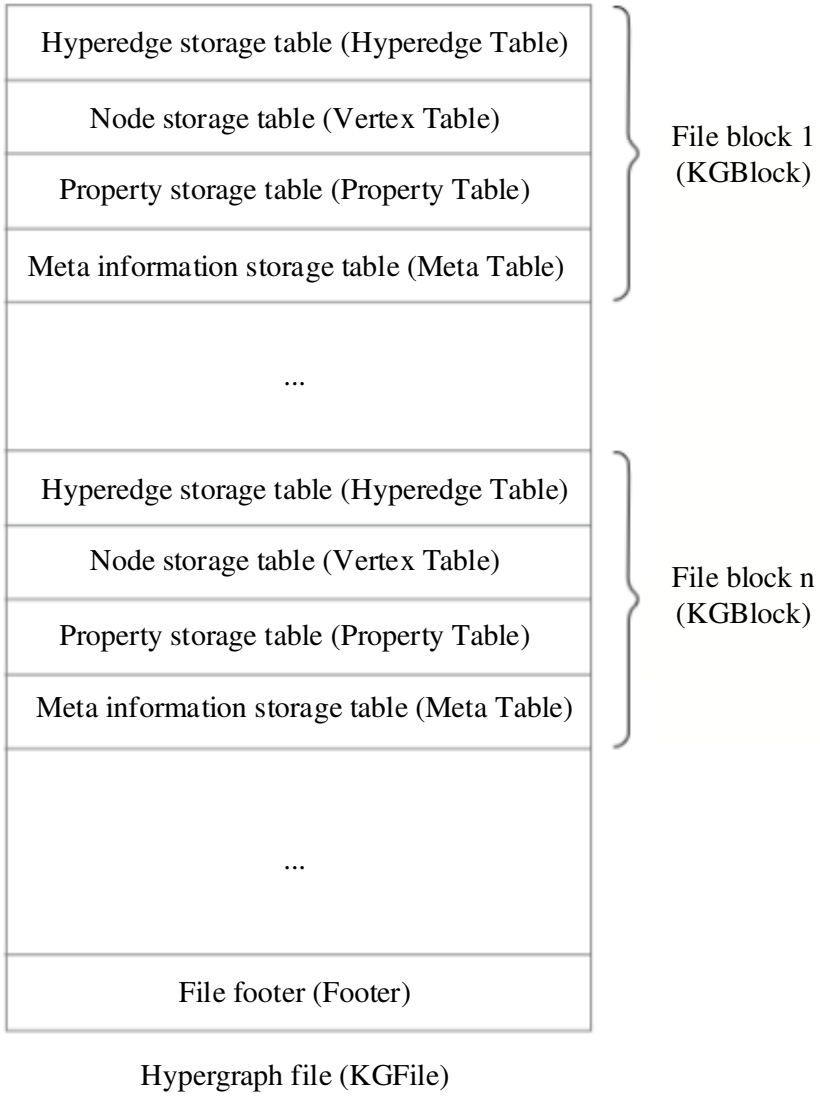
Hyperedge storage table (Hyperedge Table)
Node storage table (Vertex Table)
Property storage table (Property Table)
Meta information storage table (Meta Table)
...
Hyperedge storage table (Hyperedge Table)
Node storage table (Vertex Table)
Property storage table (Property Table)
Meta information storage table (Meta Table)
...
File footer (Footer)
File block 1 (KGBlock)
File block n (KGBlock)
Hypergraph file (KGFile)

FIG. 3

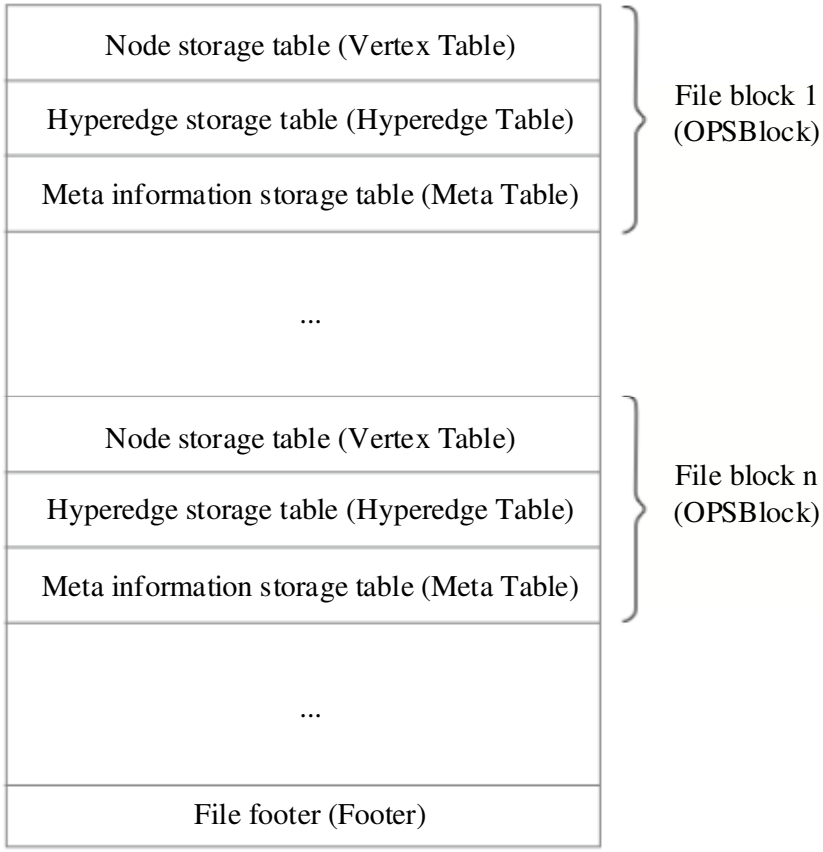
Node storage table (Vertex Table)
Hyperedge storage table (Hyperedge Table)
Meta information storage table (Meta Table)
...
Node storage table (Vertex Table)
Hyperedge storage table (Hyperedge Table)
Meta information storage table (Meta Table)
...
File footer (Footer)
File block 1 (OPSBlock)
File block n (OPSBlock)
OPS file (OPSFile)

FIG. 4

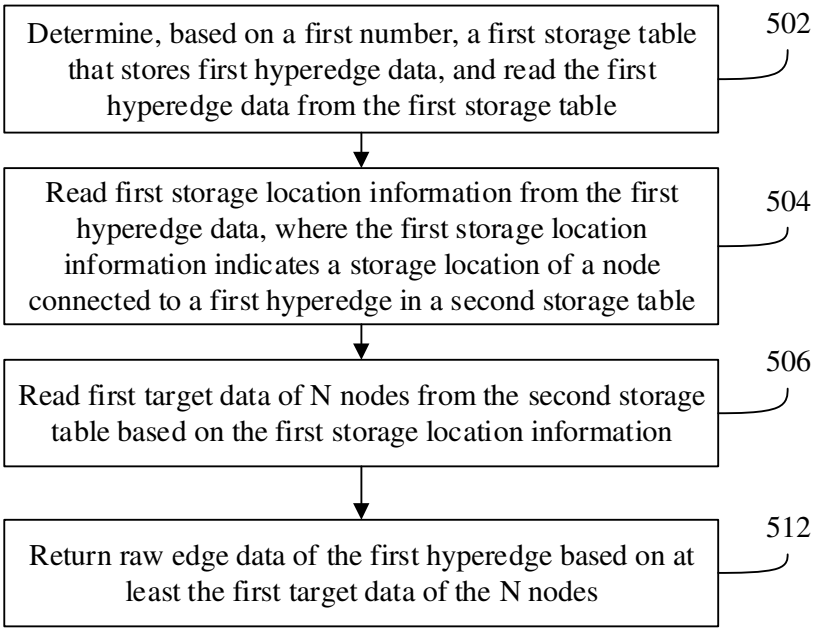
Determine, based on a first number, a first storage table that stores first hyperedge data, and read the first hyperedge data from the first storage table
502
Read first storage location information from the first hyperedge data, where the first storage location information indicates a storage location of a node connected to a first hyperedge in a second storage table
504
Read first target data of N nodes from the second storage table based on the first storage location information
506
Return raw edge data of the first hyperedge based on at least the first target data of the N nodes
512

FIG. 5

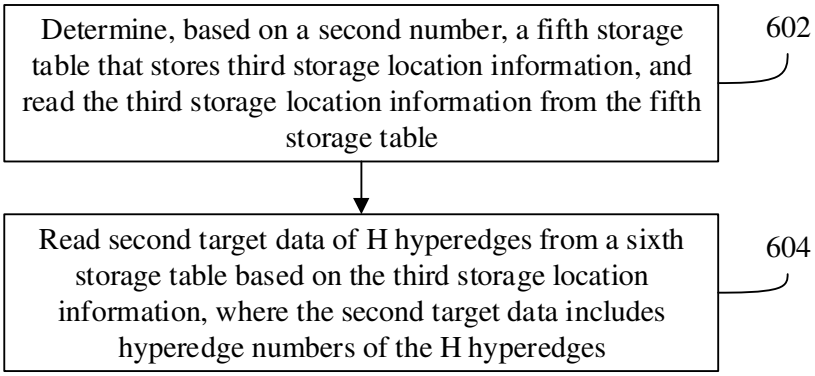
Determine, based on a second number, a fifth storage table that stores third storage location information, and read the third storage location information from the fifth storage table
602
Read second target data of H hyperedges from a sixth storage table based on the third storage location information, where the second target data includes hyperedge numbers of the H hyperedges
604

FIG. 6

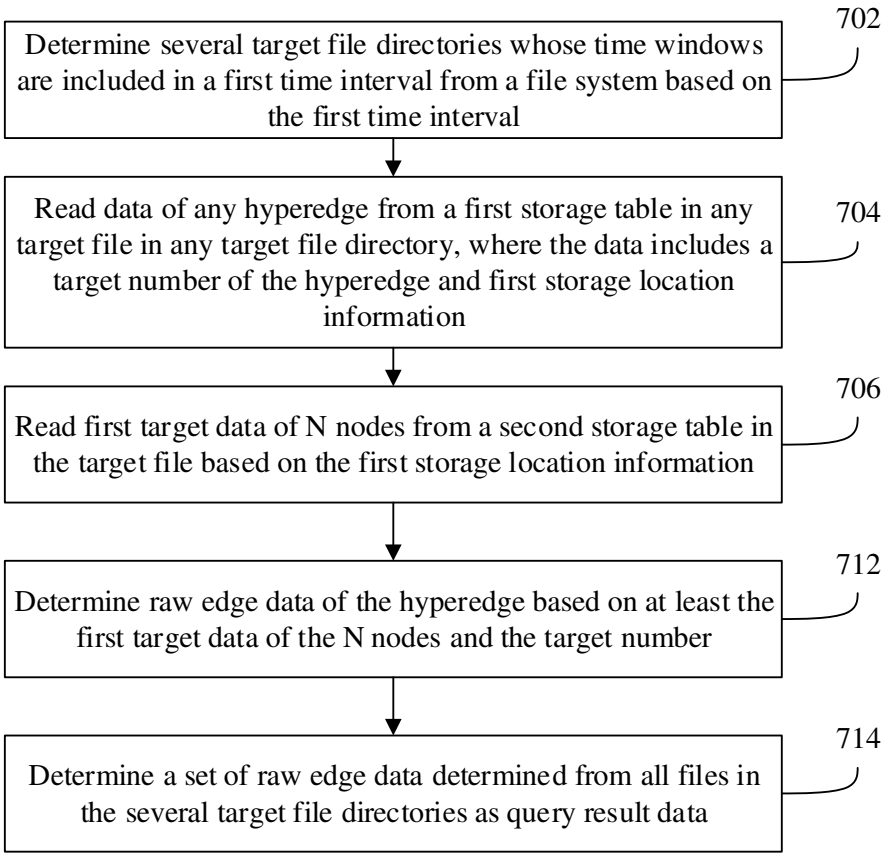
Determine several target file directories whose time windows are included in a first time interval from a file system based on the first time interval
702
Read data of any hyperedge from a first storage table in any target file in any target file directory, where the data includes a target number of the hyperedge and first storage location information
704
Read first target data of N nodes from a second storage table in the target file based on the first storage location information
706
Determine raw edge data of the hyperedge based on at least the first target data of the N nodes and the target number
712
Determine a set of raw edge data determined from all files in the several target file directories as query result data
714

FIG. 7

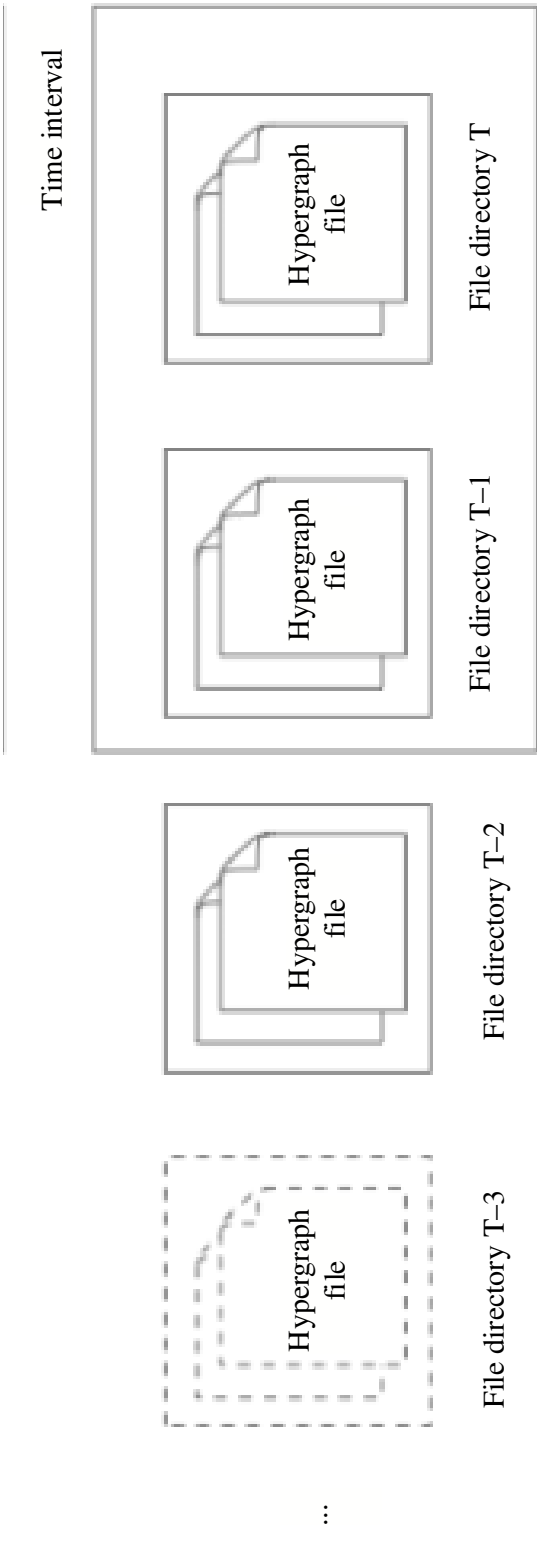
Time interval
Hypergraph file
File directory T
Hypergraph file
File directory T–1
Hypergraph file
File directory T–2
Hypergraph file
File directory T–3
...

FIG. 8

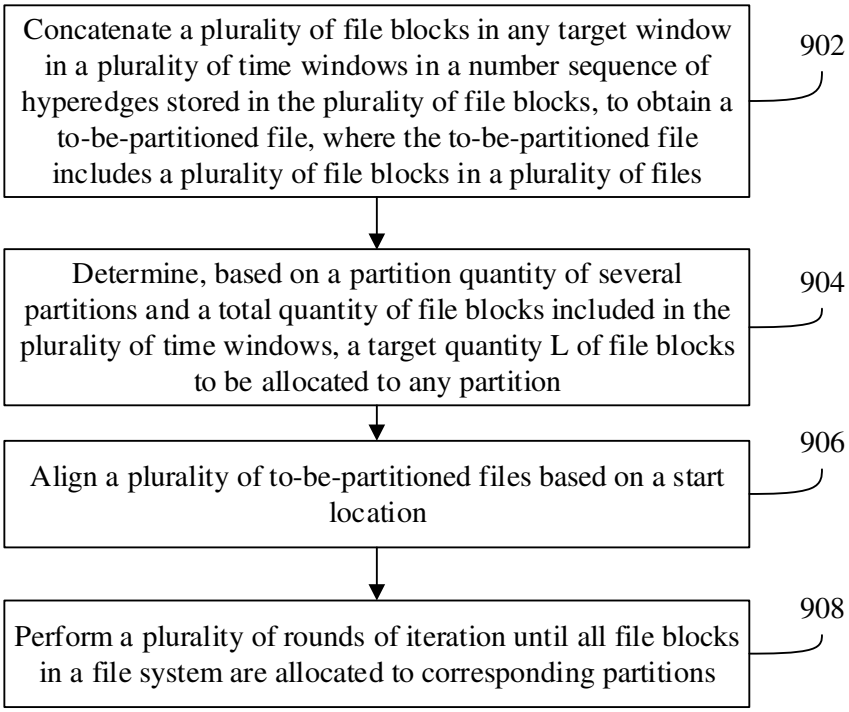
Concatenate a plurality of file blocks in any target window in a plurality of time windows in a number sequence of hyperedges stored in the plurality of file blocks, to obtain a to-be-partitioned file, where the to-be-partitioned file includes a plurality of file blocks in a plurality of files
902
Determine, based on a partition quantity of several partitions and a total quantity of file blocks included in the plurality of time windows, a target quantity L of file blocks to be allocated to any partition
904
Align a plurality of to-be-partitioned files based on a start location
906
Perform a plurality of rounds of iteration until all file blocks in a file system are allocated to corresponding partitions
908

FIG. 9

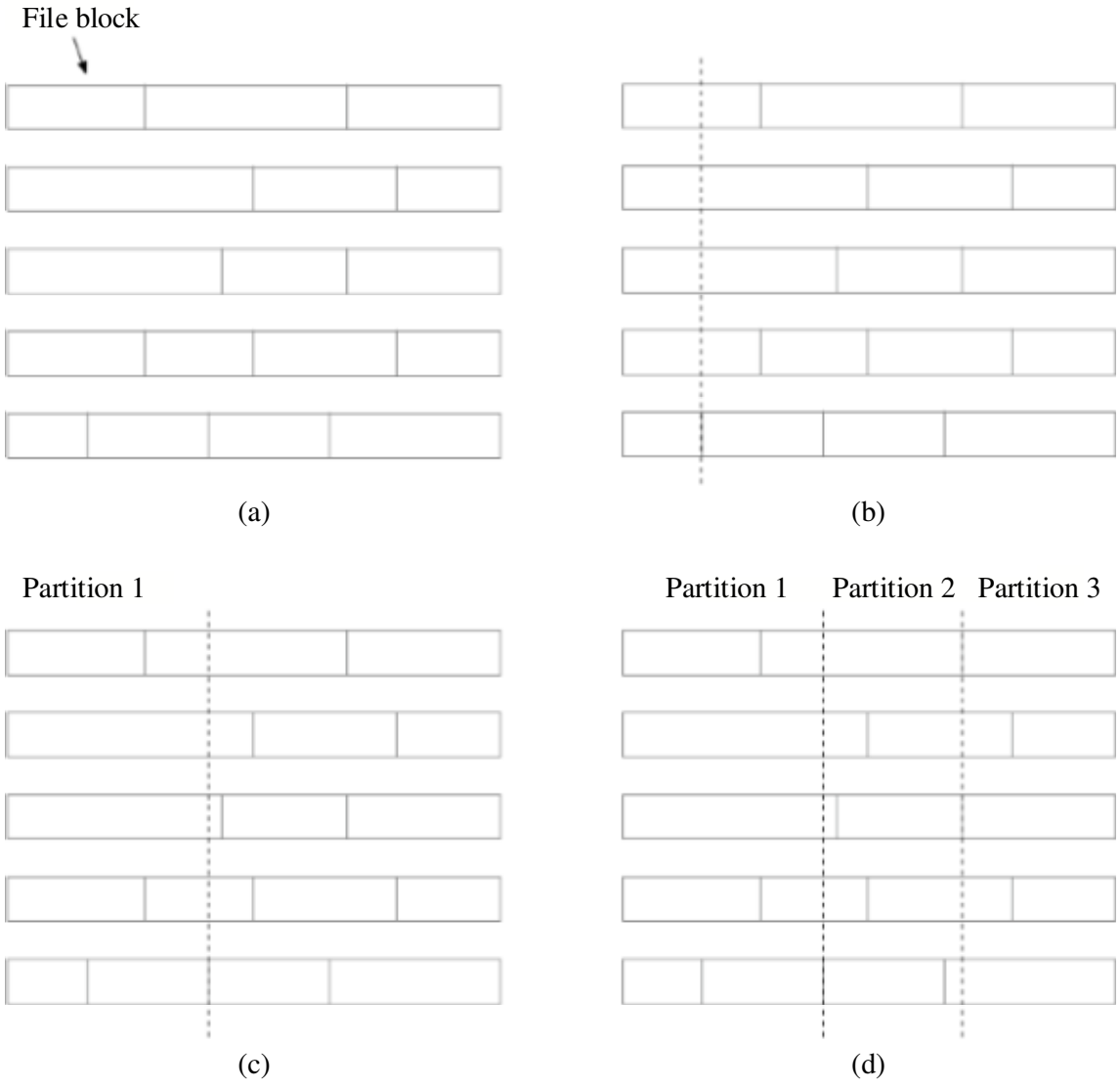
File block
(a)
(b)
Partition 1
Partition 1
Partition 2
Partition 3
(c)
(d)

FIG. 10

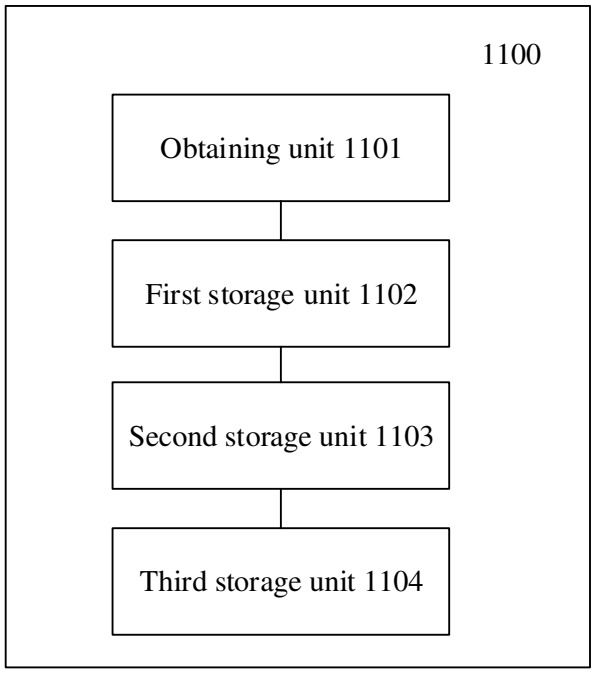
1100
Obtaining unit 1101
First storage unit 1102
Second storage unit 1103
Third storage unit 1104

FIG. 11

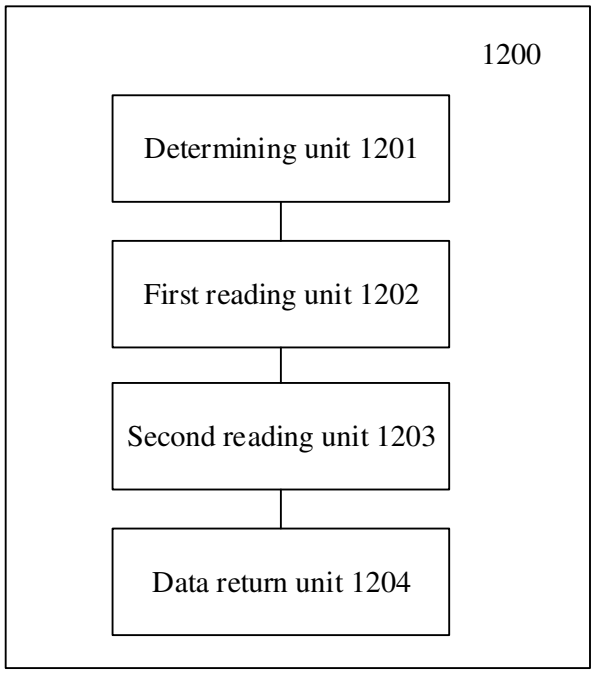
1200
Determining unit 1201
First reading unit 1202
Second reading unit 1203
Data return unit 1204

FIG. 12

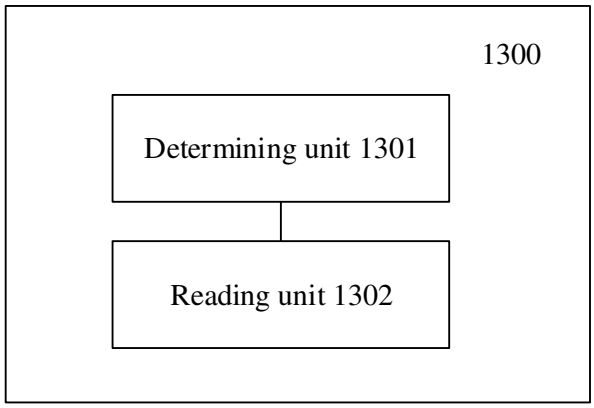
1300
Determining unit 1301
Reading unit 1302

FIG. 13

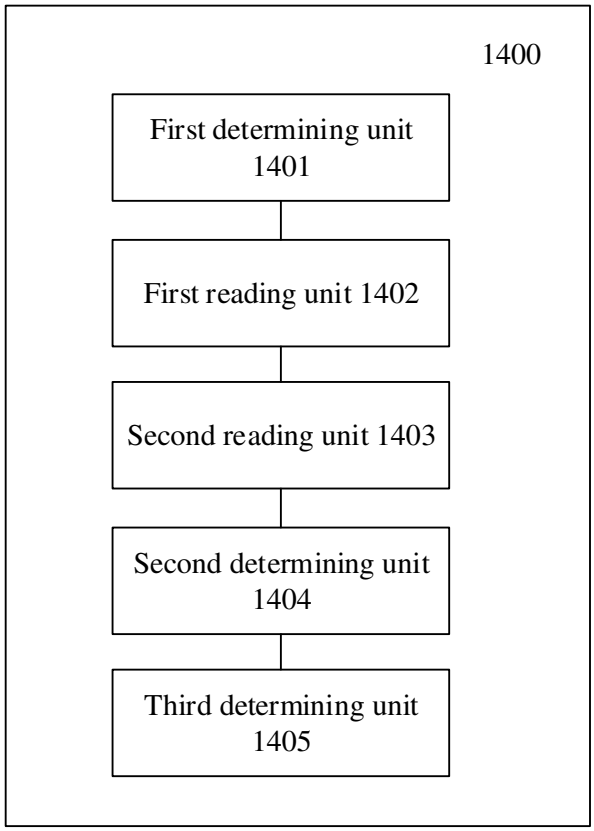
1400
First determining unit 1401
First reading unit 1402
Second reading unit 1403
Second determining unit 1404
Third determining unit 1405

FIG. 14

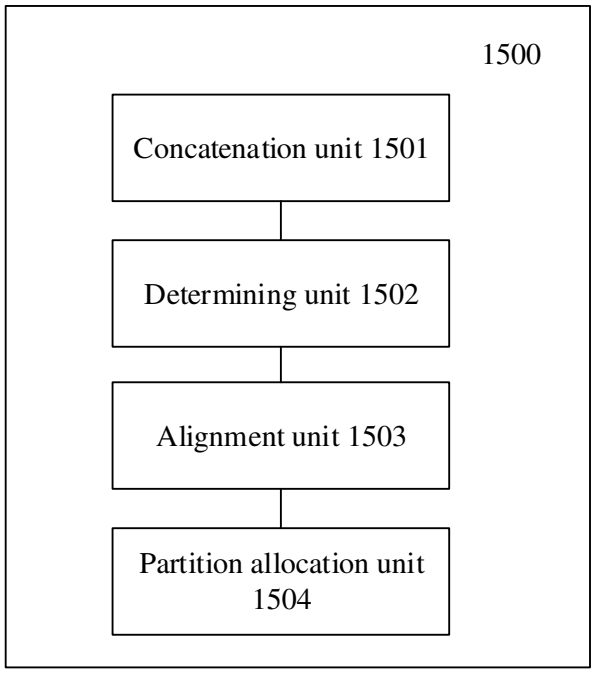
1500
Concatenation unit 1501
Determining unit 1502
Alignment unit 1503
Partition allocation unit 1504

FIG. 15