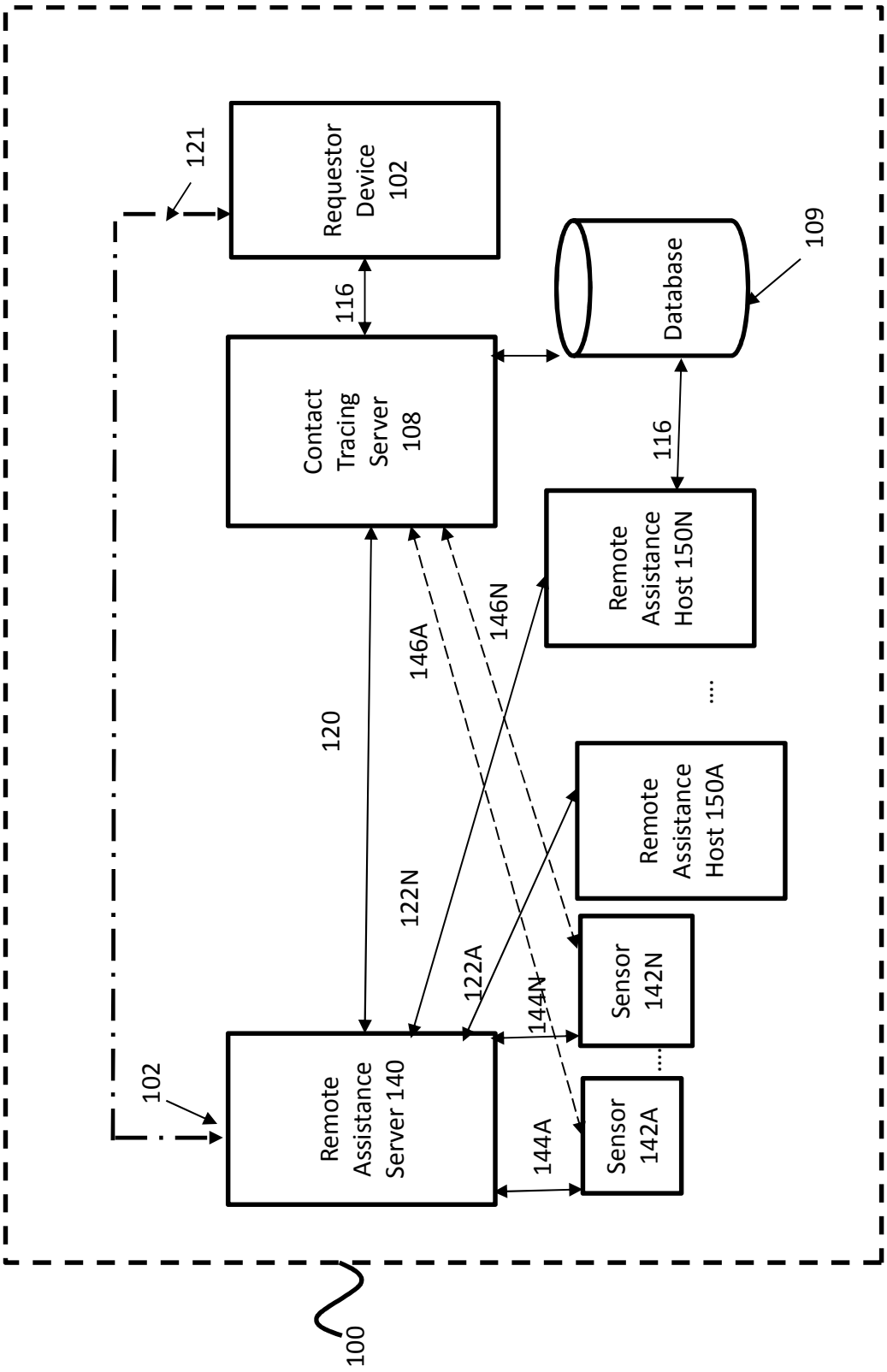
100
102
121
Requestor Device 102
116
Contact Tracing Server 108
Database
109
116
120
122N
122A
146A
146N
Remote Assistance Host 150N
Remote Assistance Host 150A
Remote Assistance Server 140
144N
144A
Sensor 142N
Sensor 142A

Fig. 1

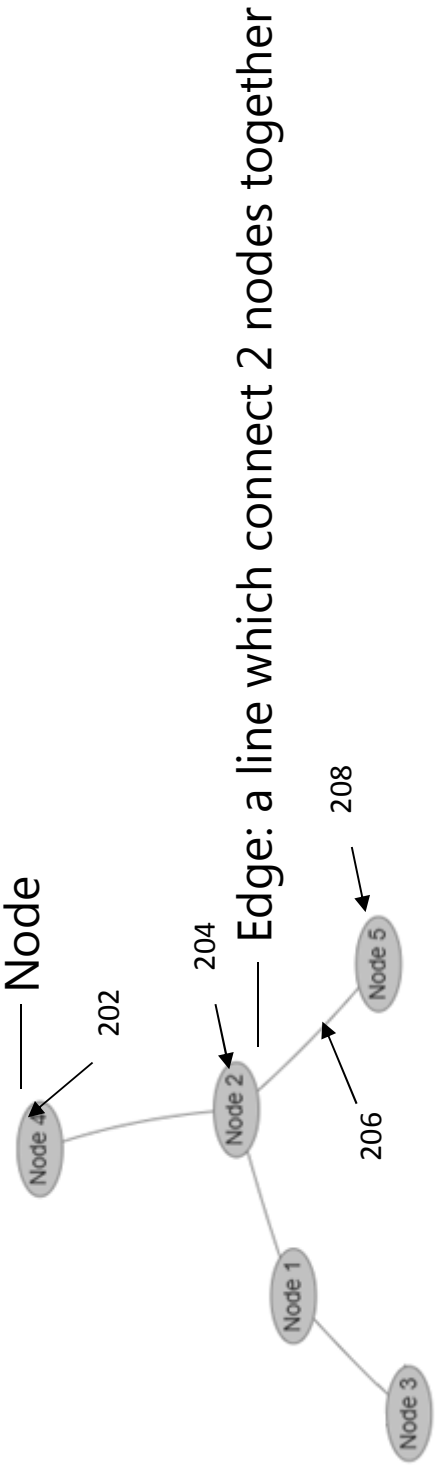
Node
Edge: a line which connect 2 nodes together
202
204
206
208
Node 4
Node 2
Node 5
Node 1
Node 3

Fig. 2

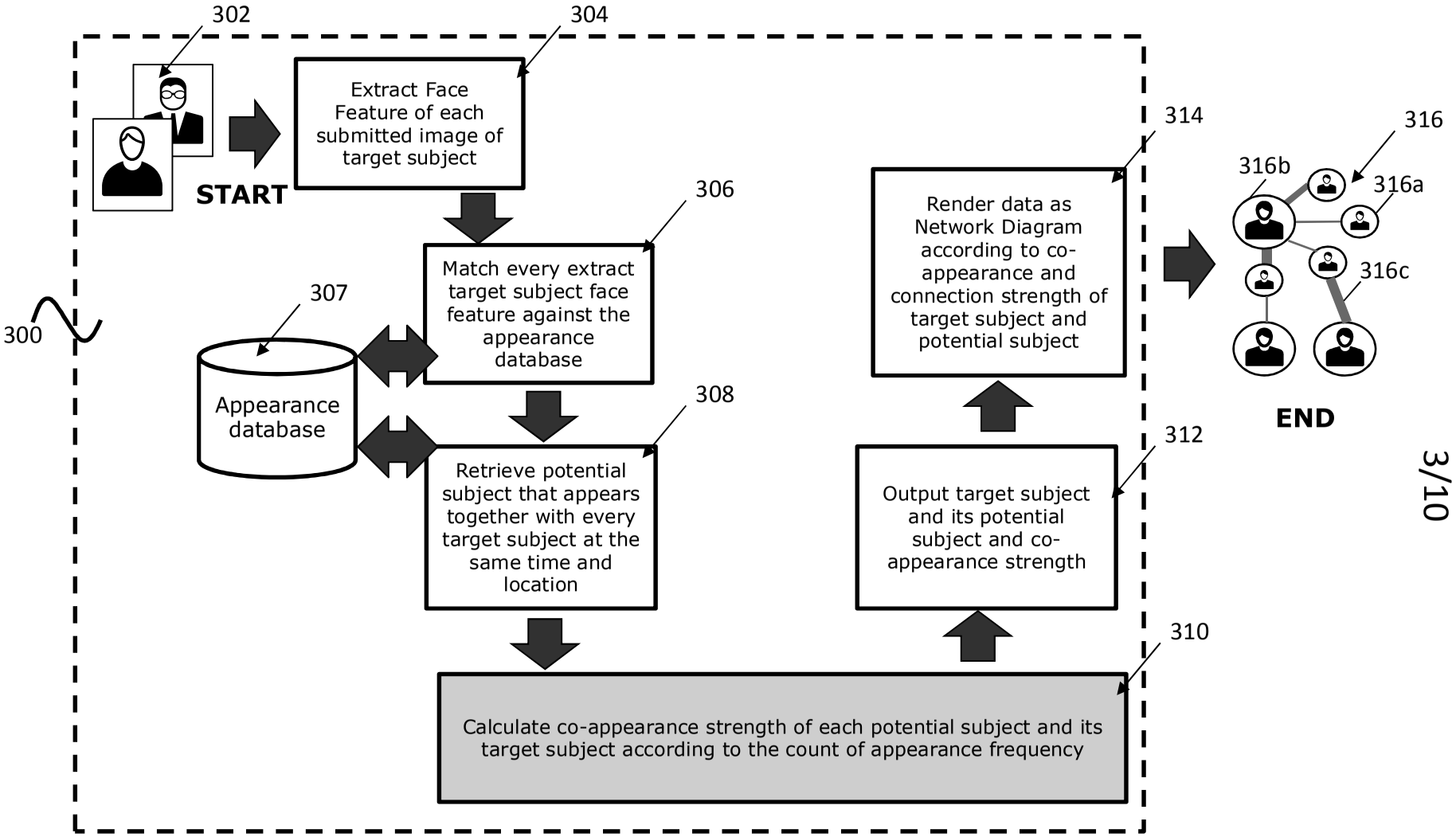
302
304
Extract Face Feature of each submitted image of target subject
START
306
Match every extract target subject face feature against the appearance database
307
Appearance database
308
Retrieve potential subject that appears together with every target subject at the same time and location
310
Calculate co-appearance strength of each potential subject and its target subject according to the count of appearance frequency
312
Output target subject and its potential subject and co-appearance strength
314
Render data as Network Diagram according to co-appearance and connection strength of target subject and potential subject
316
316b
316a
316c
END
300

Fig. 3A

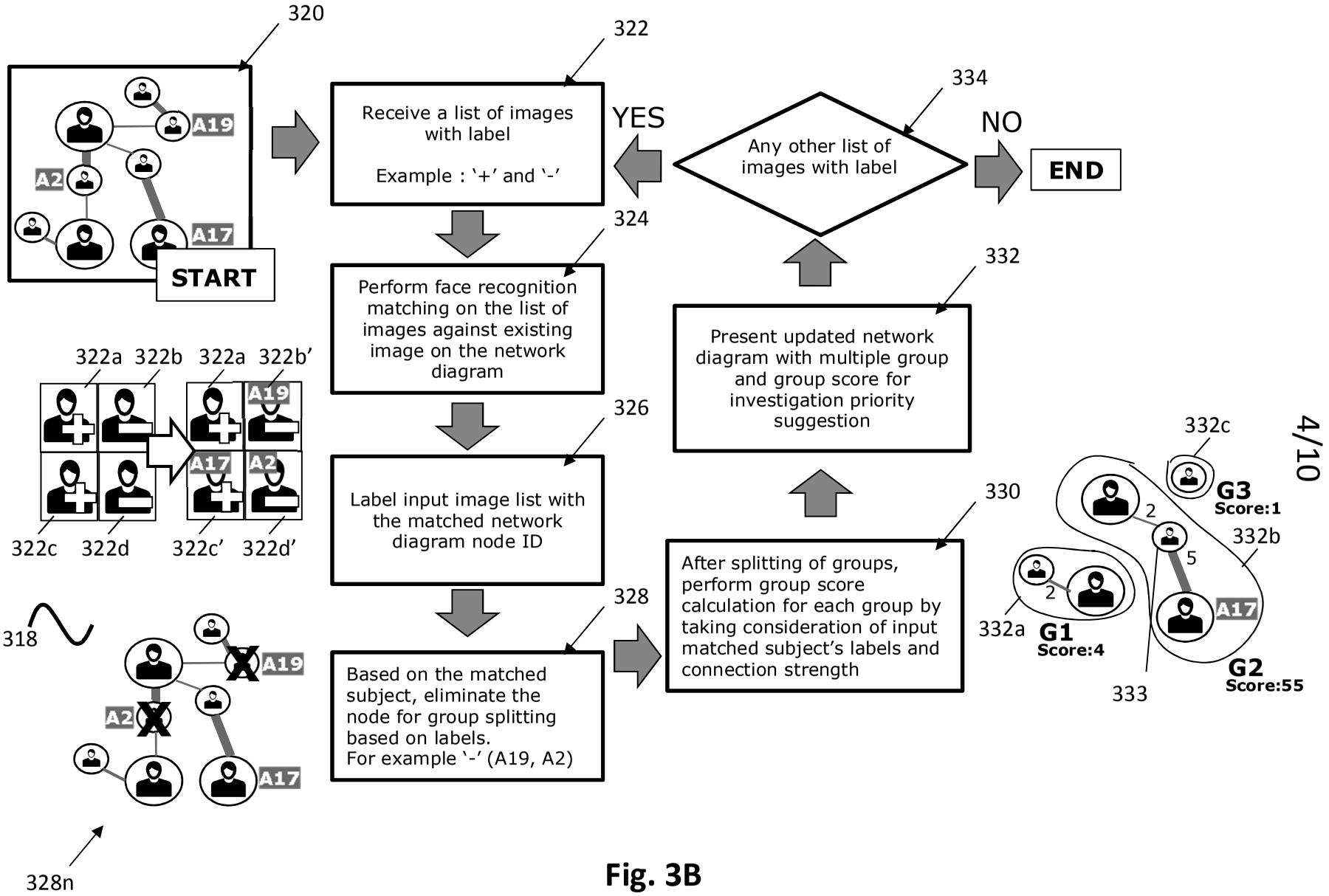
320
A19
A2
A17
START
322
Receive a list of images with label
Example : '+' and '-'
YES
334
Any other list of images with label
NO
END
324
Perform face recognition matching on the list of images against existing image on the network diagram
332
Present updated network diagram with multiple group and group score for investigation priority suggestion
322a 322b 322a 322b'
322c 322d 322c' 322d'
326
Label input image list with the matched network diagram node ID
330
After splitting of groups, perform group score calculation for each group by taking consideration of input matched subject's labels and connection strength
328
Based on the matched subject, eliminate the node for group splitting based on labels.
For example '-' (A19, A2)
318
328n
332c
G3
Score:1
332b
G1
Score:4
332a
G2
Score:55
333

Fig. 3B

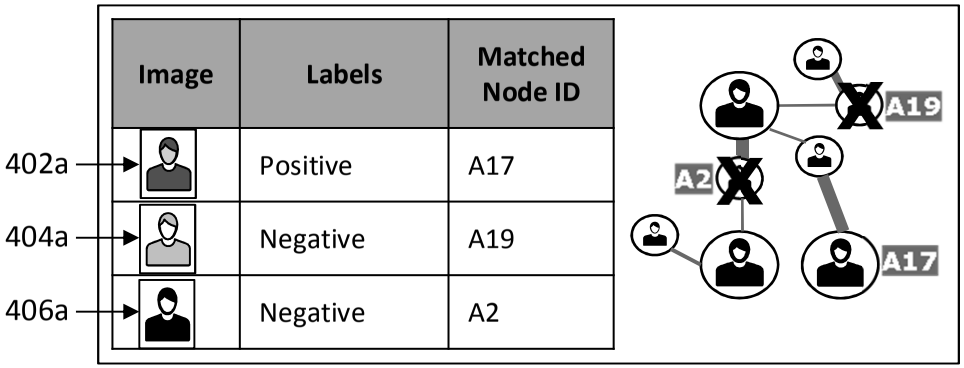

Fig. 4A

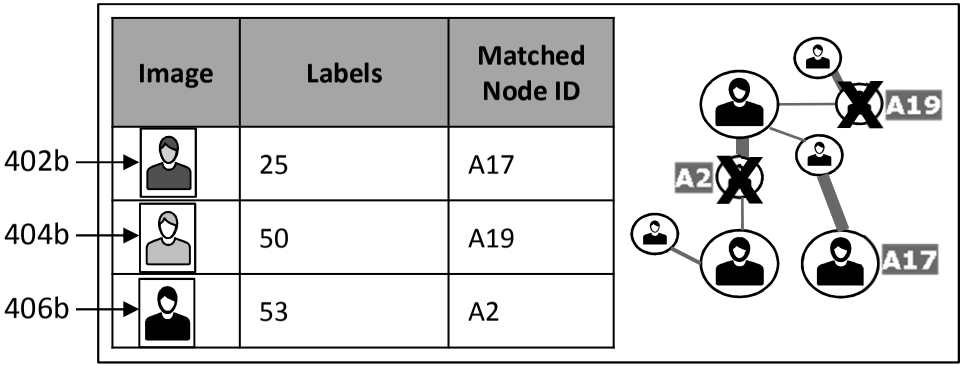

Fig. 4B

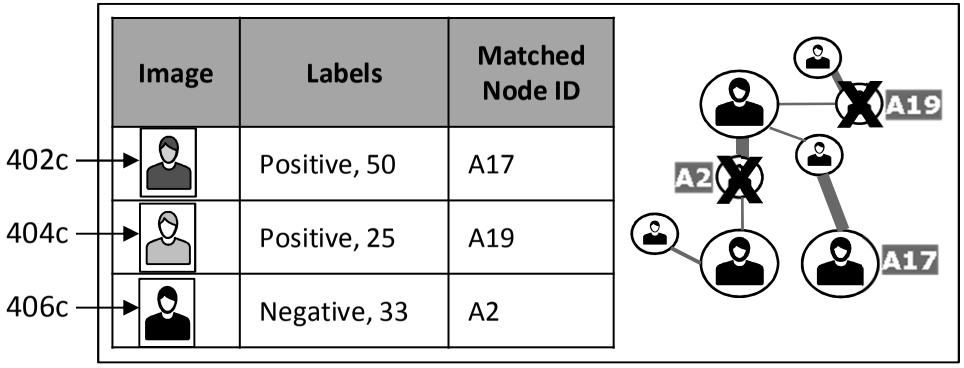

Fig. 4C

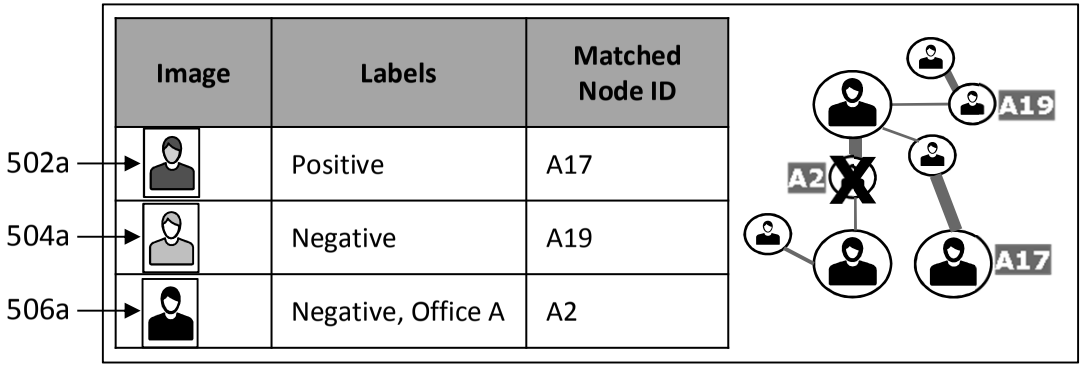

Fig. 5A

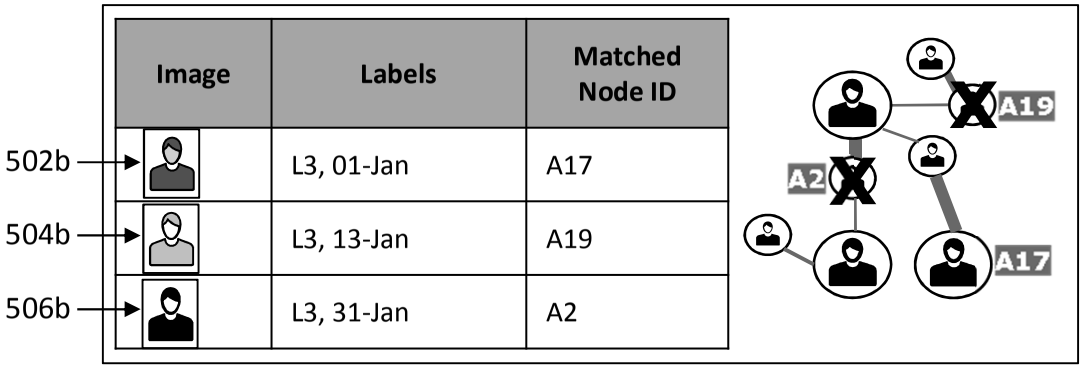

Fig. 5B

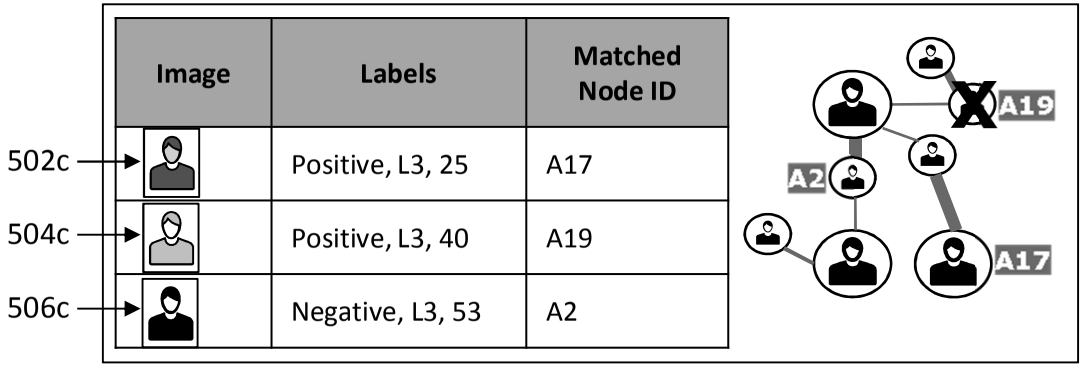

Fig. 5C

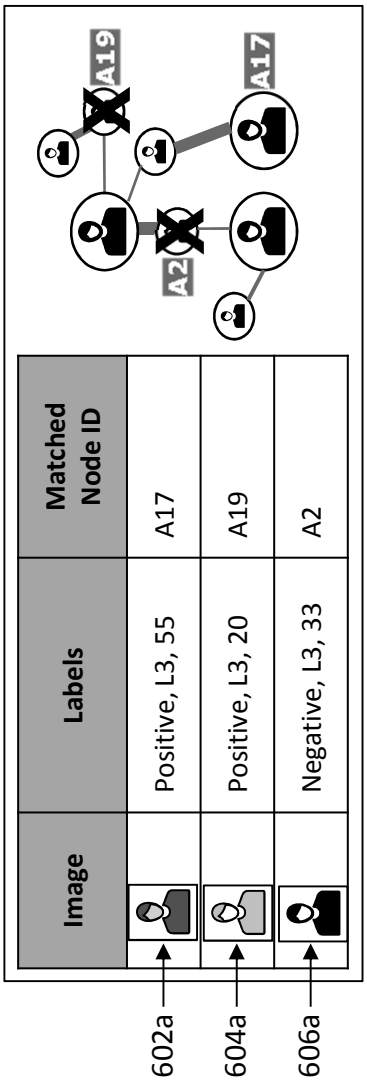
Image
Labels
Matched Node ID
Positive, L3, 55
A17
Positive, L3, 20
A19
Negative, L3, 33
A2
A19
A17
A2
602a
604a
606a

Fig. 6A

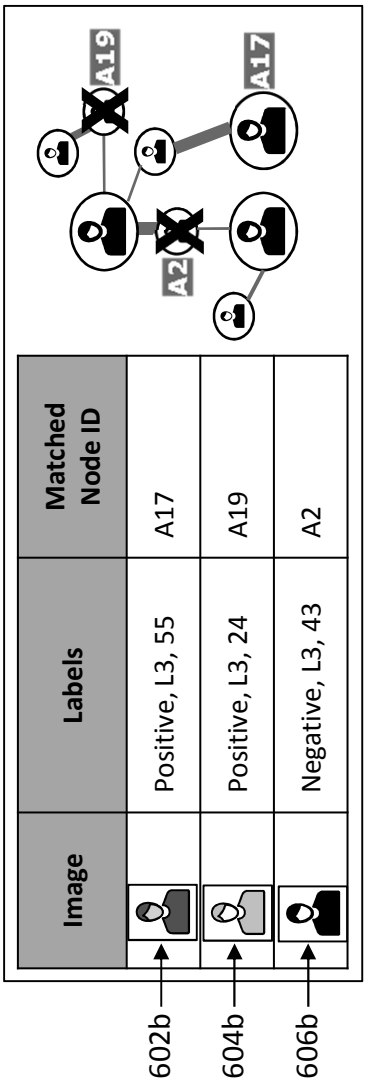
Image
Labels
Matched Node ID
Positive, L3, 55
A17
Positive, L3, 24
A19
Negative, L3, 43
A2
A19
A17
A2
602b
604b
606b

Fig. 6B

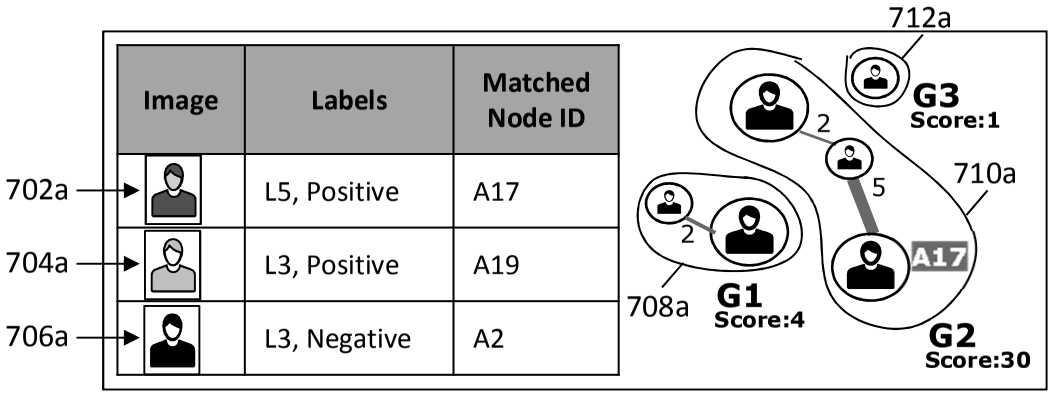
Image
Labels
Matched Node ID
702a
L5, Positive
A17
704a
L3, Positive
A19
706a
L3, Negative
A2
712a
G3
Score:1
2
5
710a
2
A17
708a
G1
Score:4
G2
Score:30

Fig. 7A

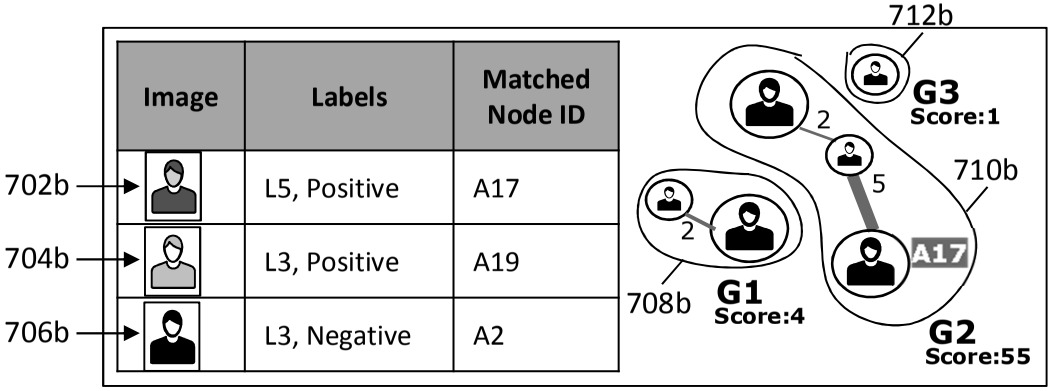
Image
Labels
Matched Node ID
702b
L5, Positive
A17
704b
L3, Positive
A19
706b
L3, Negative
A2
712b
G3
Score:1
2
5
710b
2
A17
708b
G1
Score:4
G2
Score:55

Fig. 7B

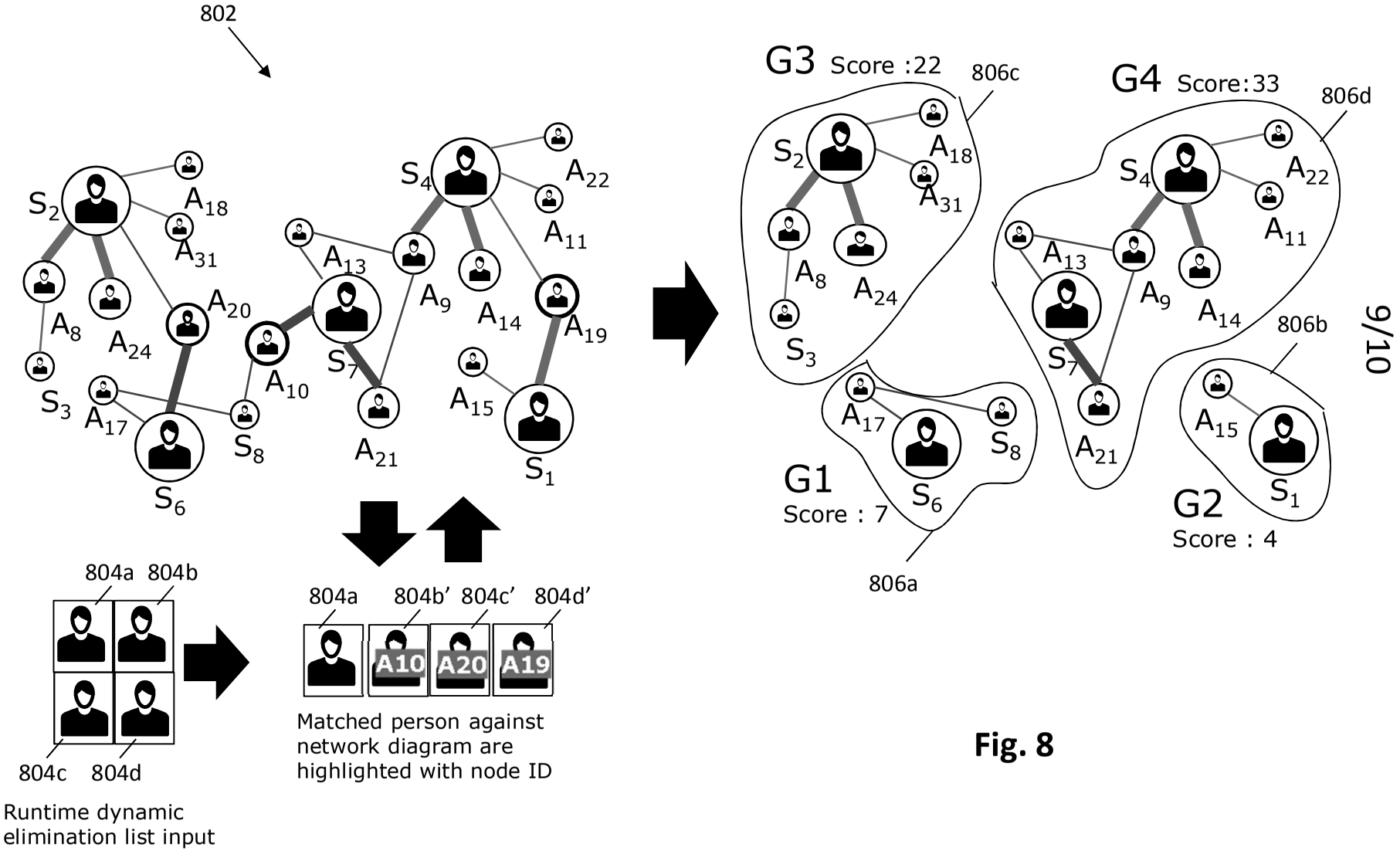
802
S2
A18
A31
A20
A8
A24
S3
A17
S6
S8
A10
A13
S7
A21
S4
A22
A11
A9
A14
A19
A15
S1
804a 804b
804c 804d
Runtime dynamic elimination list input
804a 804b' 804c' 804d'
A10
A20
A19
Matched person against network diagram are highlighted with node ID
G3 Score :22
806c
G4 Score:33
806d
806b
G1
Score : 7
806a
G2
Score : 4

Fig. 8

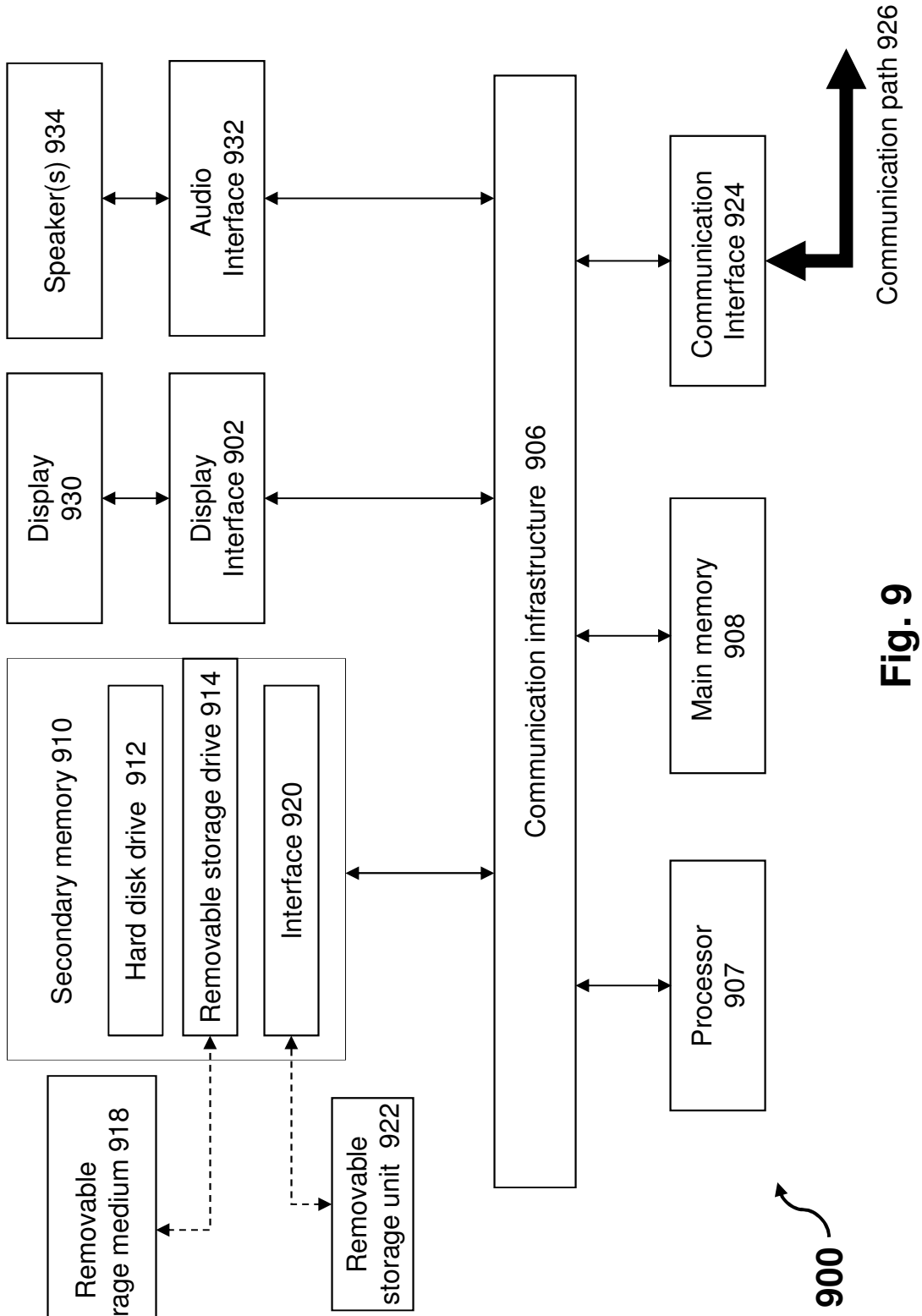
Speaker(s) 934
Audio Interface 932
Display 930
Display Interface 902
Secondary memory 910
Hard disk drive 912
Removable storage drive 914
Interface 920
Communication infrastructure 906
Main memory 908
Processor 907
Communication Interface 924
Communication path 926
Removable storage medium 918
Removable storage unit 922
900

Fig. 9