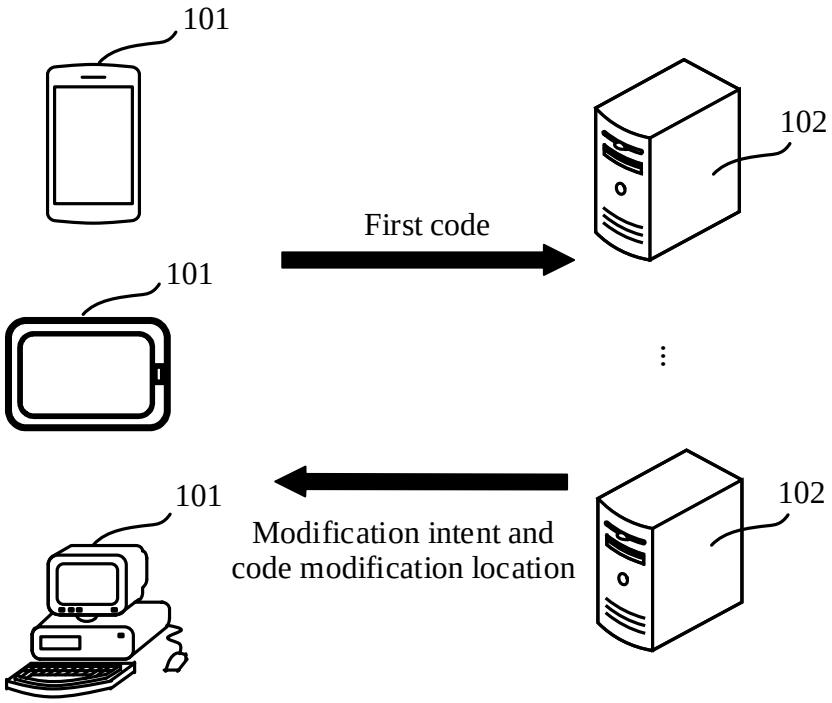

101
102
First code
101
101
Modification intent and
code modification location
102

FIG. 1

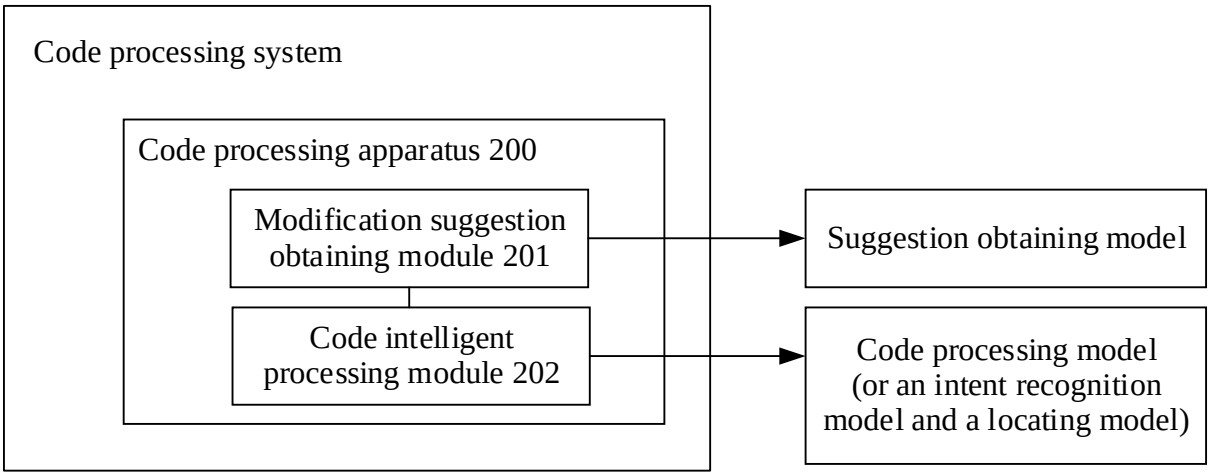

Code processing system
Code processing apparatus 200
Modification suggestion obtaining module 201
Code intelligent processing module 202
Suggestion obtaining model
Code processing model (or an intent recognition model and a locating model)

FIG. 2

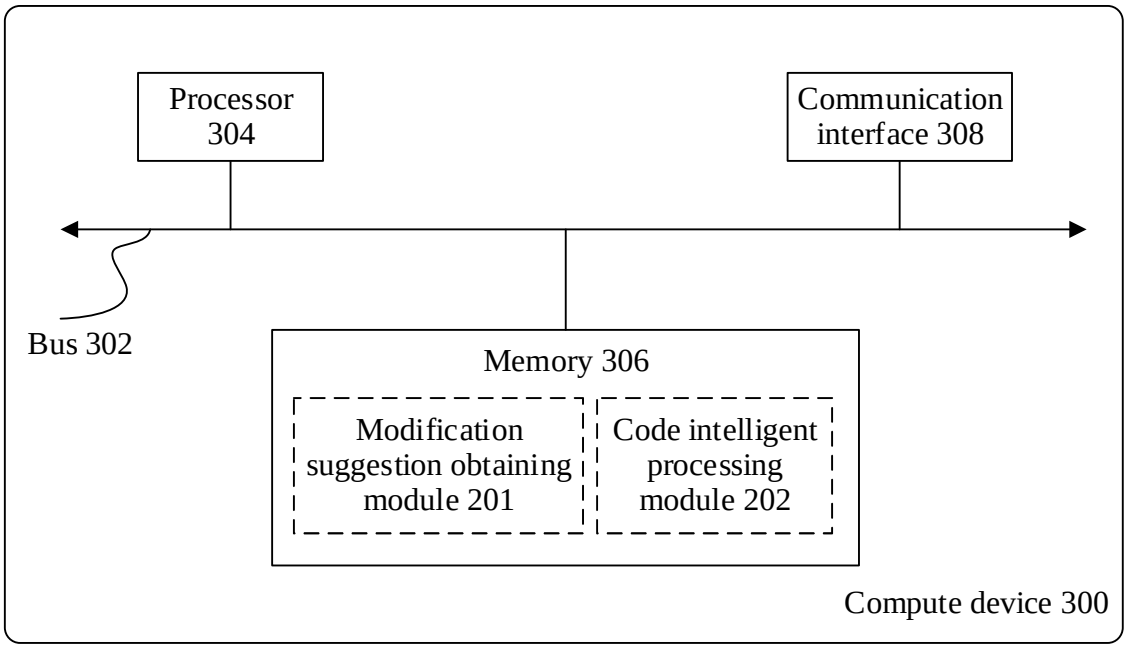

Processor 304
Communication interface 308
Bus 302
Memory 306
Modification suggestion obtaining module 201
Code intelligent processing module 202
Compute device 300

FIG. 3

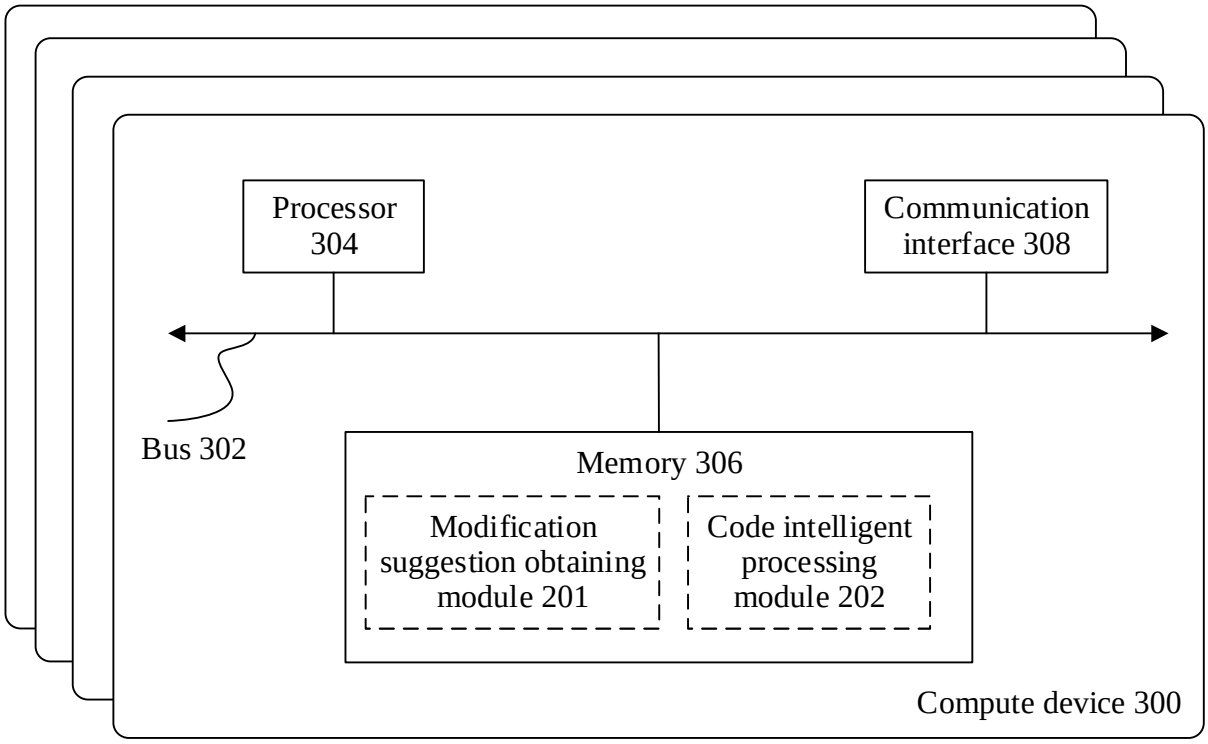

Processor 304
Communication interface 308
Bus 302
Memory 306
Modification suggestion obtaining module 201
Code intelligent processing module 202
Compute device 300

FIG. 4

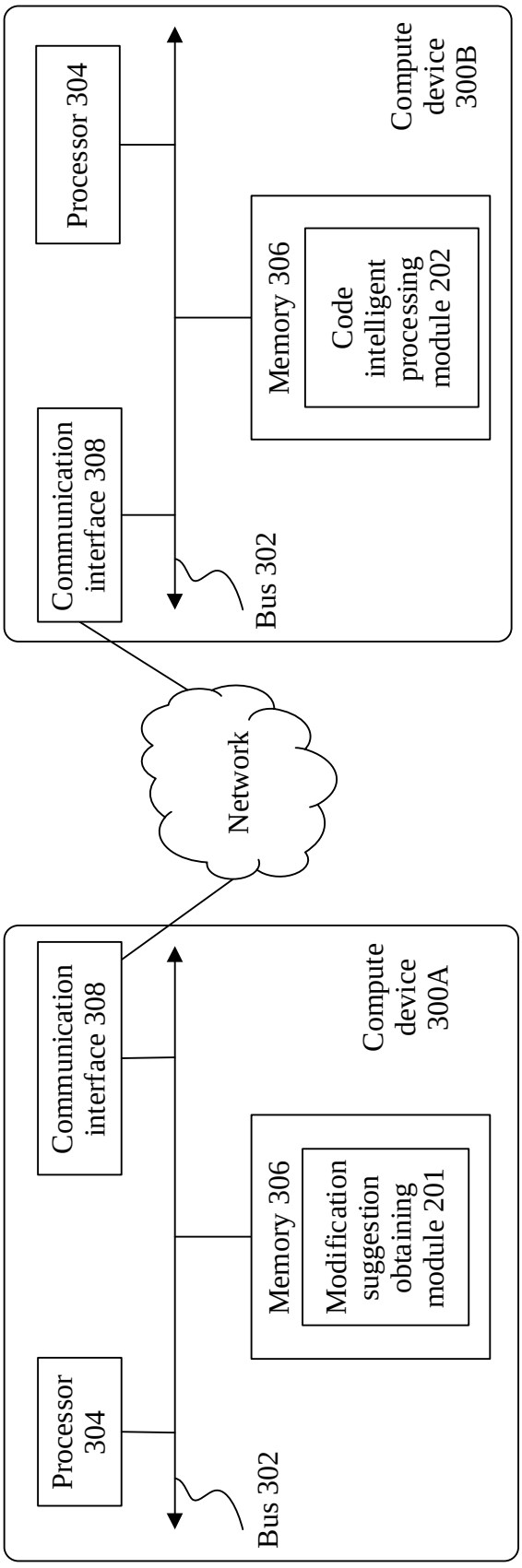

Compute device 300B
Processor 304
Memory 306
Code intelligent processing module 202
Communication interface 308
Bus 302
Network
Compute device 300A
Communication interface 308
Memory 306
Modification suggestion obtaining module 201
Processor 304
Bus 302

FIG. 5

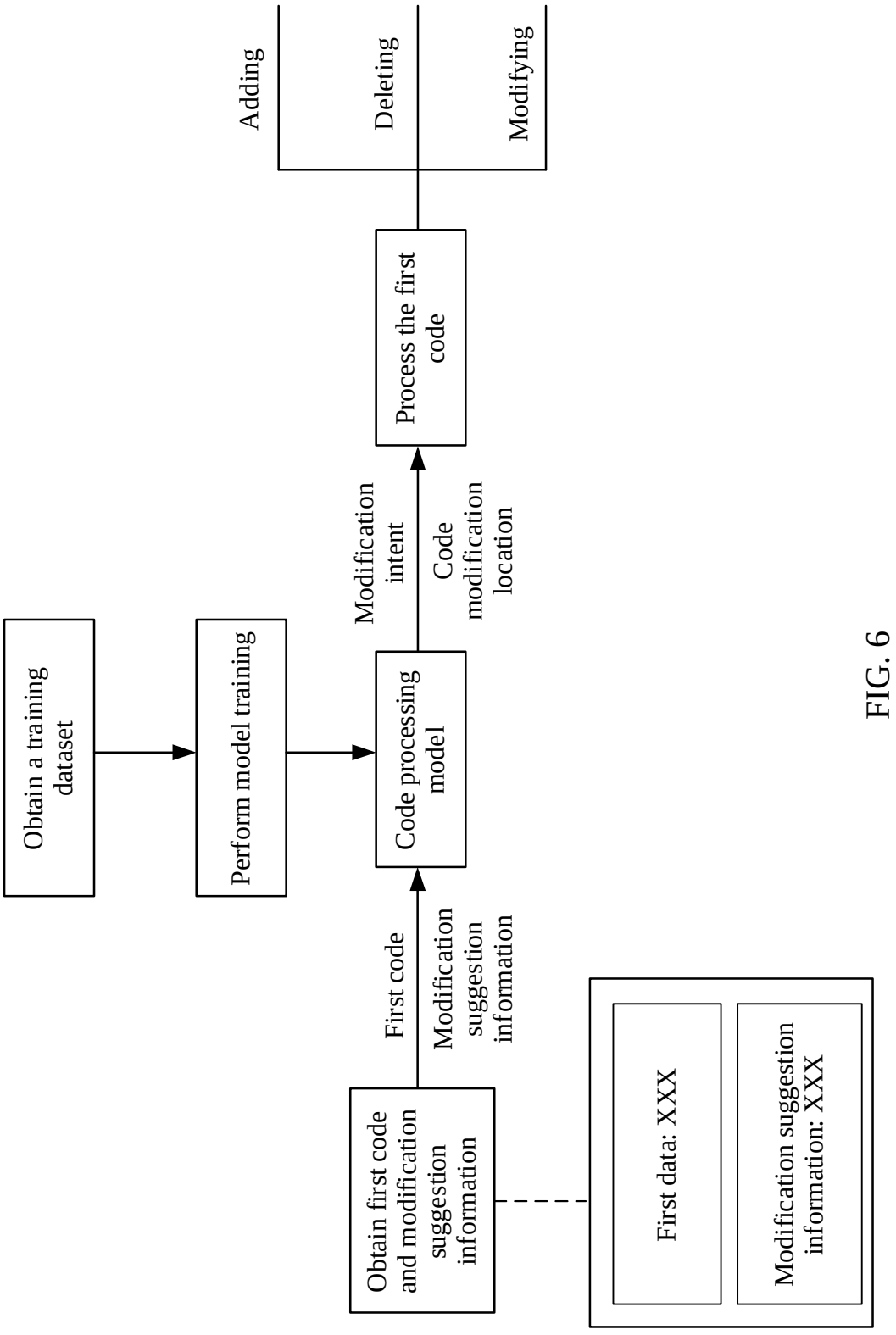

Obtain a training dataset
Perform model training
Code processing model
Modification intent
Code modification location
Process the first code
Adding
Deleting
Modifying
First code
Modification suggestion information
Obtain first code and modification suggestion information
First data: XXX
Modification suggestion information: XXX

FIG. 6

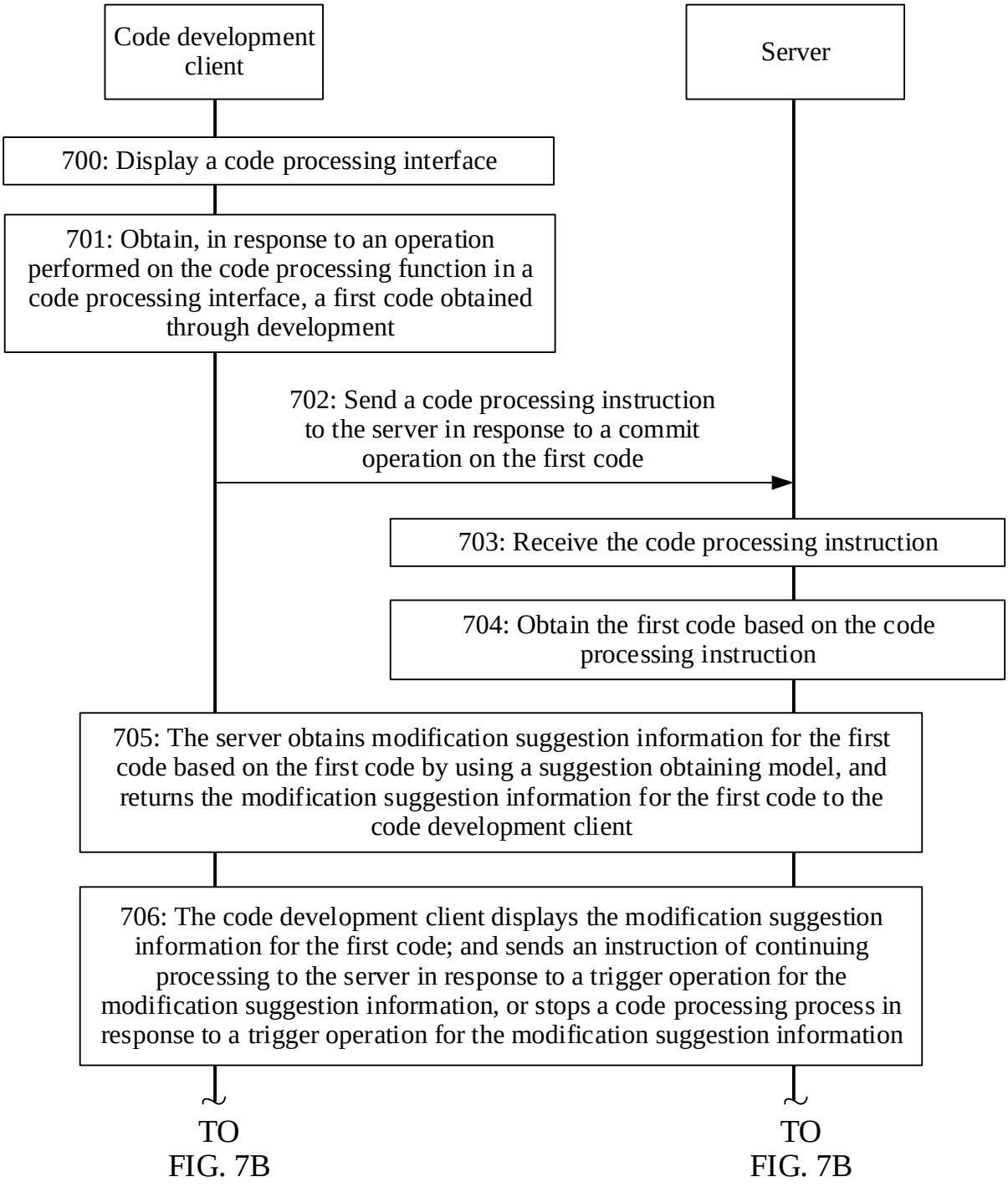

Code development client
Server
700: Display a code processing interface
701: Obtain, in response to an operation performed on the code processing function in a code processing interface, a first code obtained through development
702: Send a code processing instruction to the server in response to a commit operation on the first code
703: Receive the code processing instruction
704: Obtain the first code based on the code processing instruction
705: The server obtains modification suggestion information for the first code based on the first code by using a suggestion obtaining model, and returns the modification suggestion information for the first code to the code development client
706: The code development client displays the modification suggestion information for the first code; and sends an instruction of continuing processing to the server in response to a trigger operation for the modification suggestion information, or stops a code processing process in response to a trigger operation for the modification suggestion information
TO FIG. 7B
TO FIG. 7B

FIG. 7A

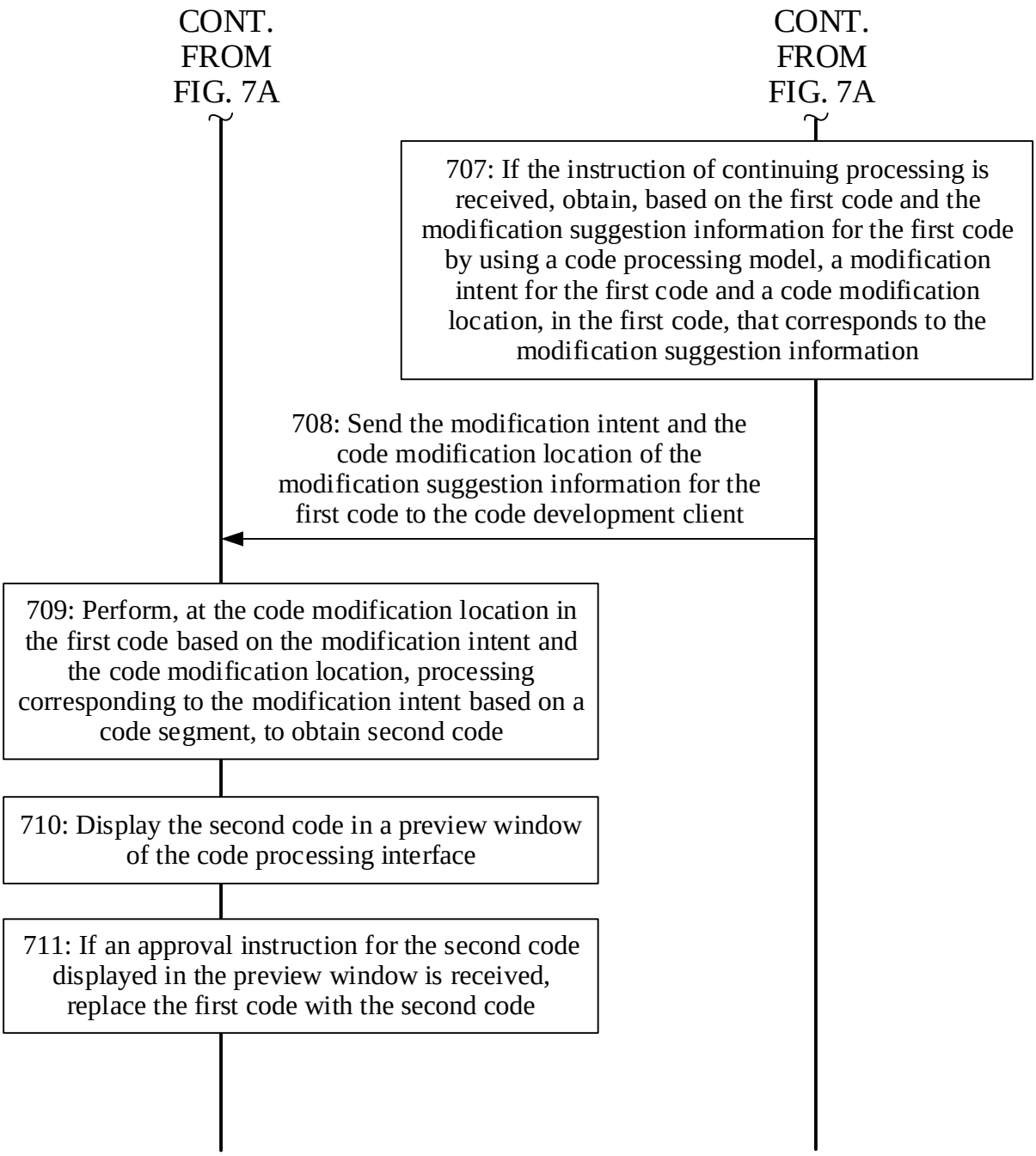

CONT. FROM FIG. 7A
CONT. FROM FIG. 7A
707: If the instruction of continuing processing is received, obtain, based on the first code and the modification suggestion information for the first code by using a code processing model, a modification intent for the first code and a code modification location, in the first code, that corresponds to the modification suggestion information
708: Send the modification intent and the code modification location of the modification suggestion information for the first code to the code development client
709: Perform, at the code modification location in the first code based on the modification intent and the code modification location, processing corresponding to the modification intent based on a code segment, to obtain second code
710: Display the second code in a preview window of the code processing interface
711: If an approval instruction for the second code displayed in the preview window is received, replace the first code with the second code

FIG. 7B

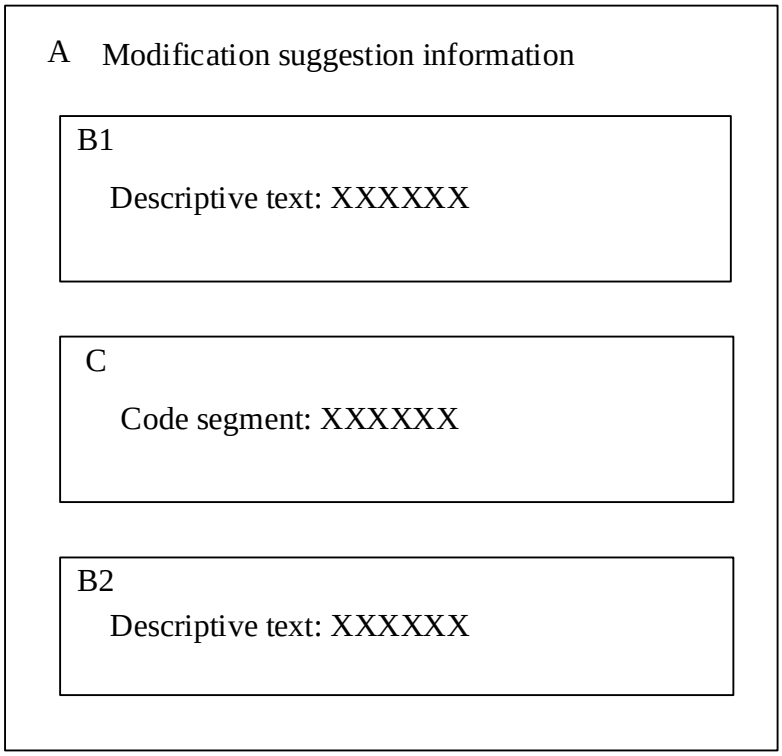

A
Modification suggestion information
B1
Descriptive text: XXXXXX
C
Code segment: XXXXXX
B2
Descriptive text: XXXXXX

FIG. 8

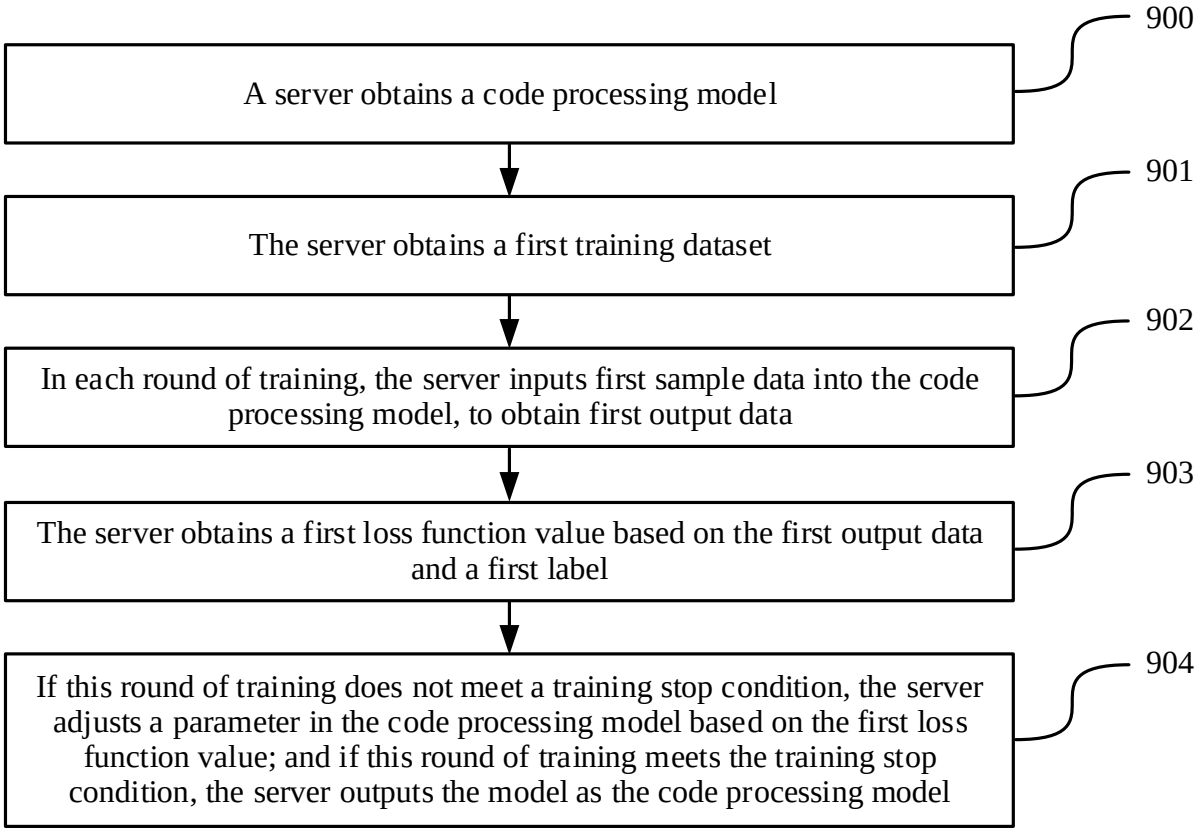

900
A server obtains a code processing model
901
The server obtains a first training dataset
902
In each round of training, the server inputs first sample data into the code processing model, to obtain first output data
903
The server obtains a first loss function value based on the first output data and a first label
904
If this round of training does not meet a training stop condition, the server adjusts a parameter in the code processing model based on the first loss function value; and if this round of training meets the training stop condition, the server outputs the model as the code processing model

FIG. 9

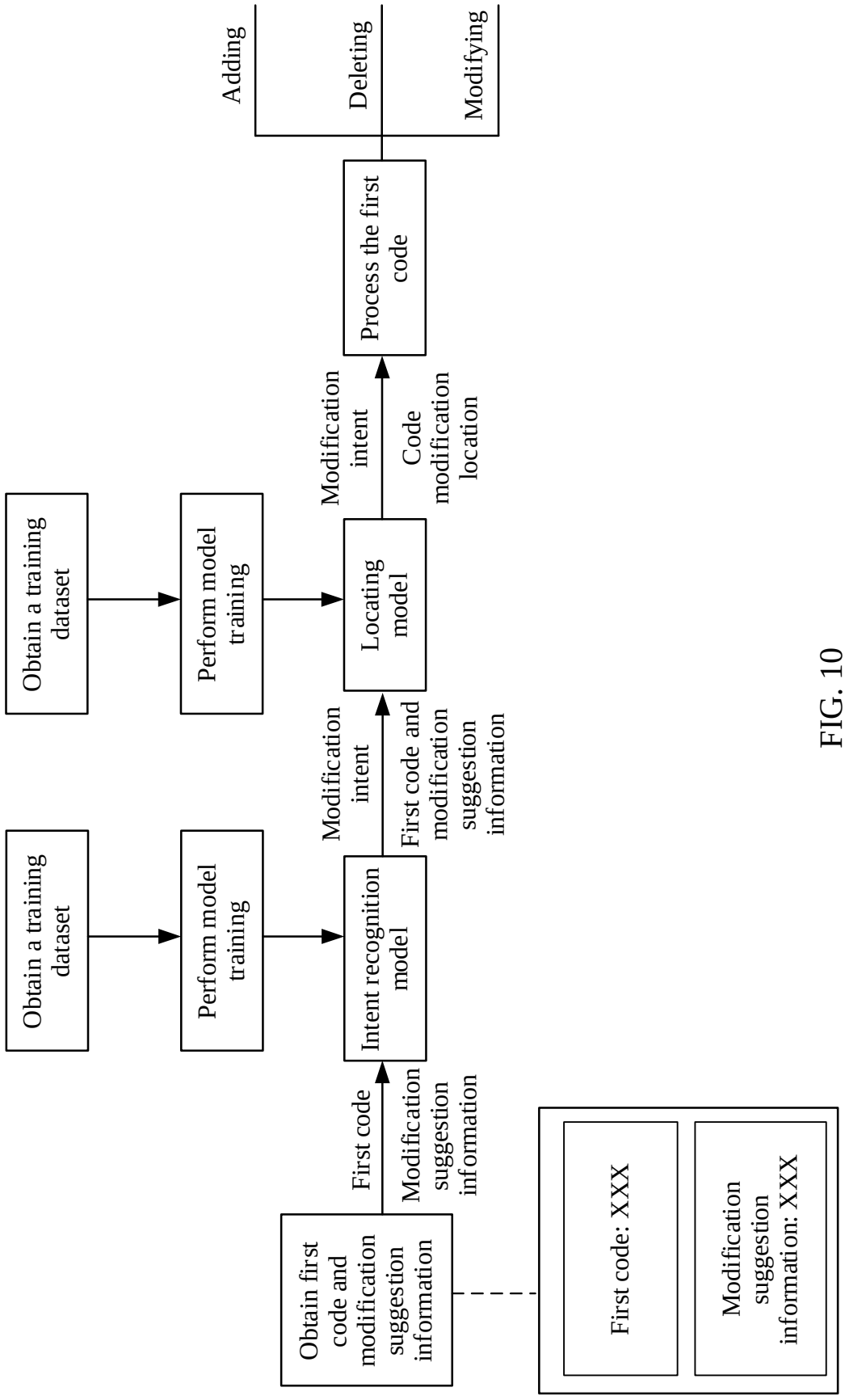

Obtain first code and modification suggestion information
First code
Modification suggestion information
First code: XXX
Modification suggestion information: XXX
Obtain a training dataset
Perform model training
Intent recognition model
Modification intent
First code and modification suggestion information
Obtain a training dataset
Perform model training
Locating model
Modification intent
Code modification location
Process the first code
Adding
Deleting
Modifying

FIG. 10

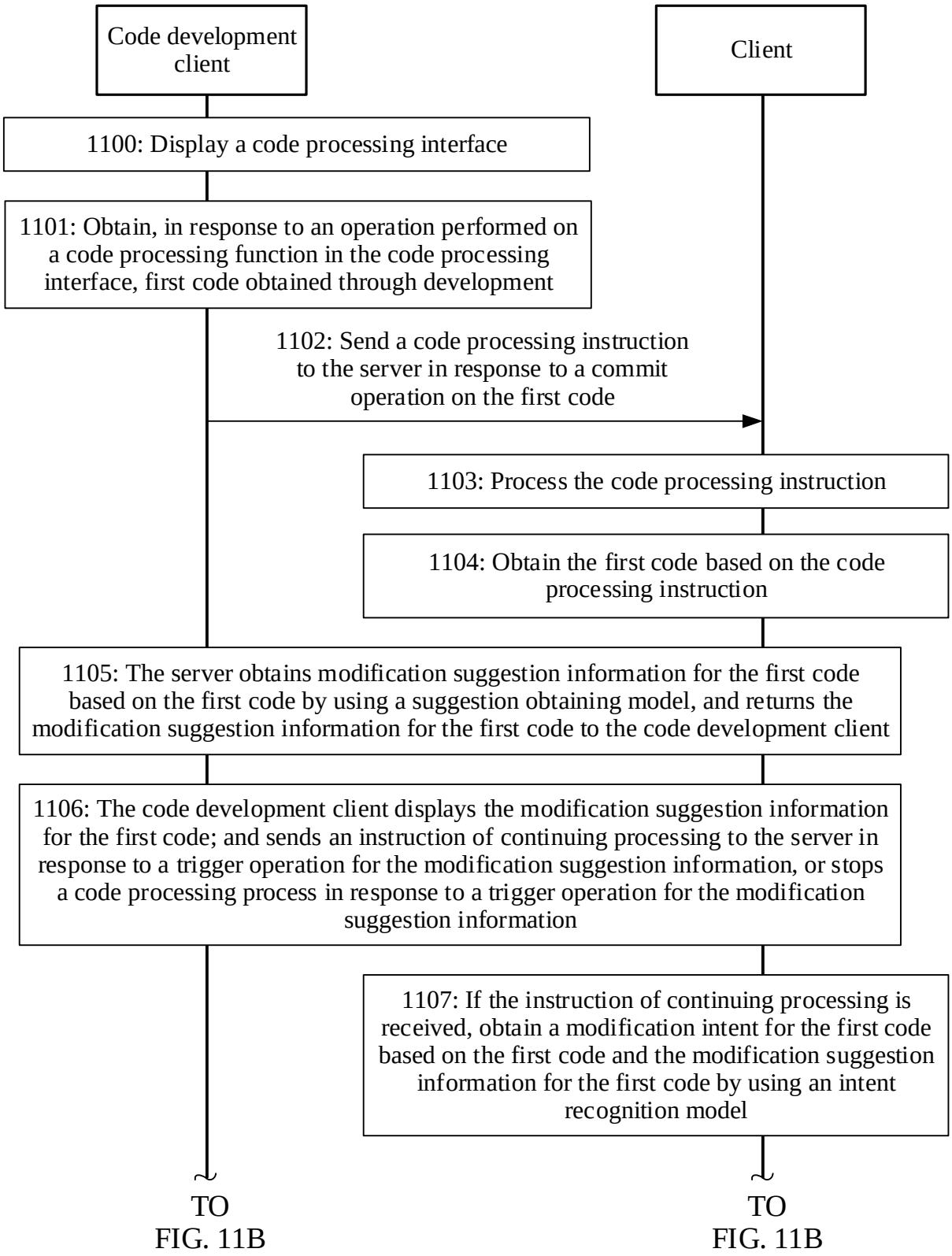

Code development client
Client
1100: Display a code processing interface
1101: Obtain, in response to an operation performed on a code processing function in the code processing interface, first code obtained through development
1102: Send a code processing instruction to the server in response to a commit operation on the first code
1103: Process the code processing instruction
1104: Obtain the first code based on the code processing instruction
1105: The server obtains modification suggestion information for the first code based on the first code by using a suggestion obtaining model, and returns the modification suggestion information for the first code to the code development client
1106: The code development client displays the modification suggestion information for the first code; and sends an instruction of continuing processing to the server in response to a trigger operation for the modification suggestion information, or stops a code processing process in response to a trigger operation for the modification suggestion information
1107: If the instruction of continuing processing is received, obtain a modification intent for the first code based on the first code and the modification suggestion information for the first code by using an intent recognition model
TO FIG. 11B
TO FIG. 11B

FIG. 11A

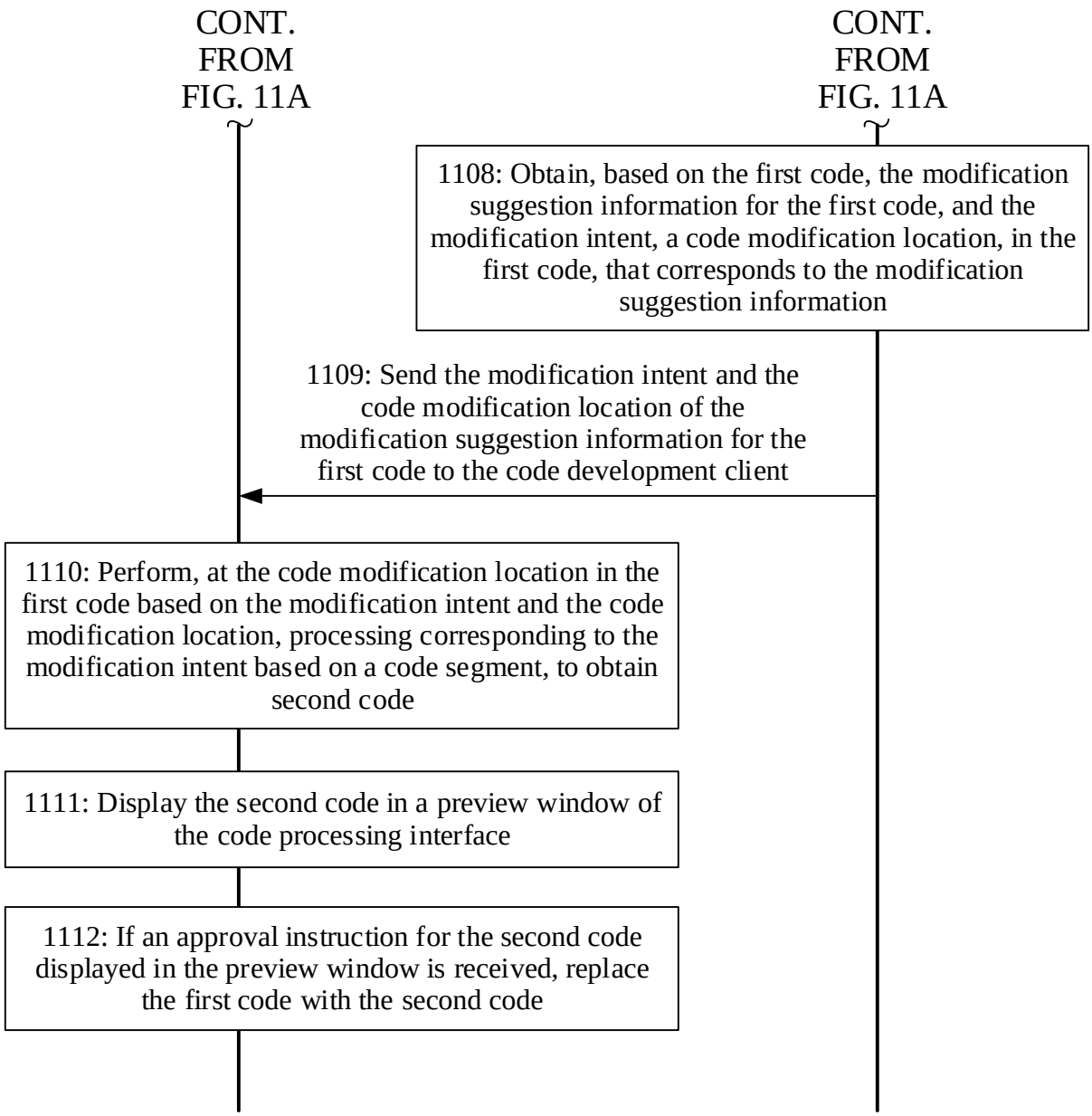

CONT. FROM FIG. 11A
CONT. FROM FIG. 11A
1108: Obtain, based on the first code, the modification suggestion information for the first code, and the modification intent, a code modification location, in the first code, that corresponds to the modification suggestion information
1109: Send the modification intent and the code modification location of the modification suggestion information for the first code to the code development client
1110: Perform, at the code modification location in the first code based on the modification intent and the code modification location, processing corresponding to the modification intent based on a code segment, to obtain second code
1111: Display the second code in a preview window of the code processing interface
1112: If an approval instruction for the second code displayed in the preview window is received, replace the first code with the second code

FIG. 11B

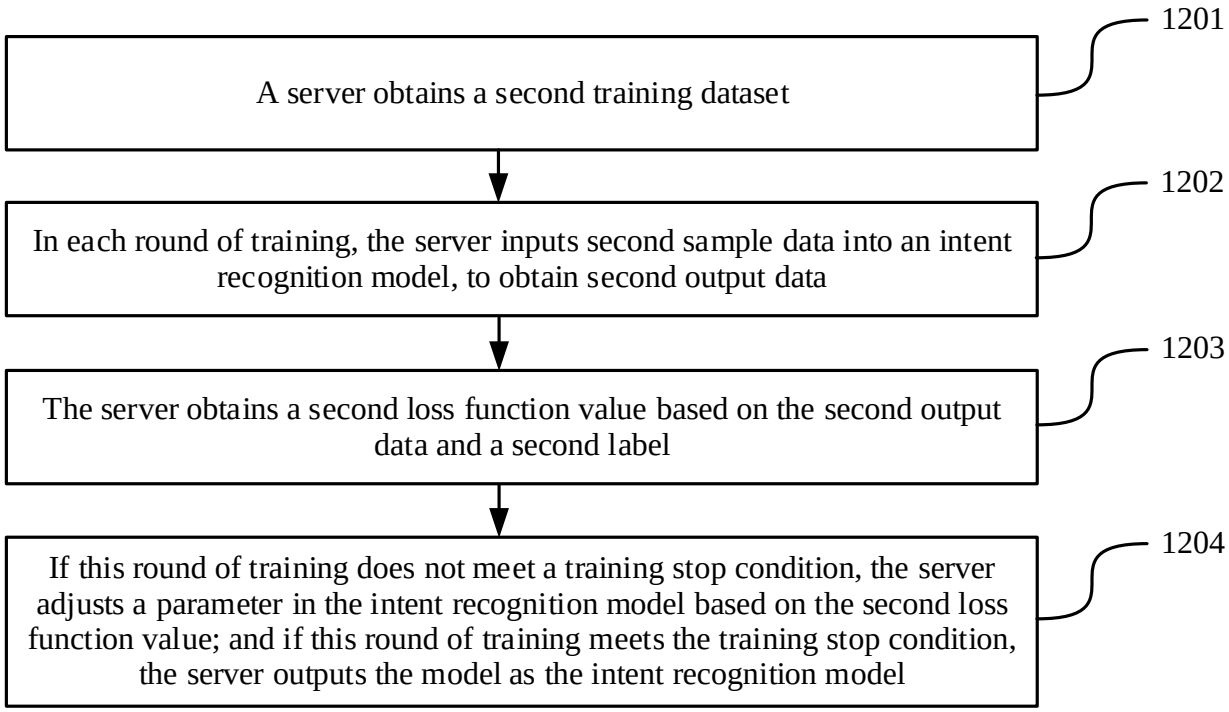

A server obtains a second training dataset
1201
In each round of training, the server inputs second sample data into an intent recognition model, to obtain second output data
1202
The server obtains a second loss function value based on the second output data and a second label
1203
If this round of training does not meet a training stop condition, the server adjusts a parameter in the intent recognition model based on the second loss function value; and if this round of training meets the training stop condition, the server outputs the model as the intent recognition model
1204

FIG. 12

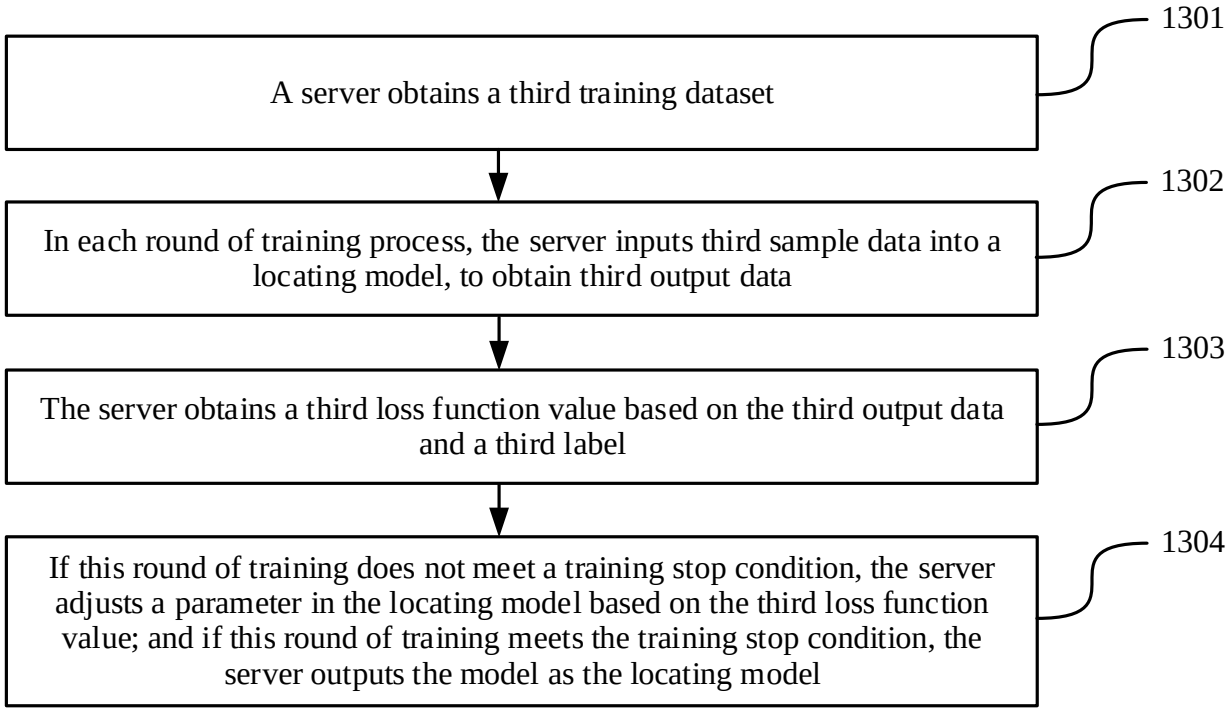

A server obtains a third training dataset
1301
In each round of training process, the server inputs third sample data into a locating model, to obtain third output data
1302
The server obtains a third loss function value based on the third output data and a third label
1303
If this round of training does not meet a training stop condition, the server adjusts a parameter in the locating model based on the third loss function value; and if this round of training meets the training stop condition, the server outputs the model as the locating model
1304

FIG. 13

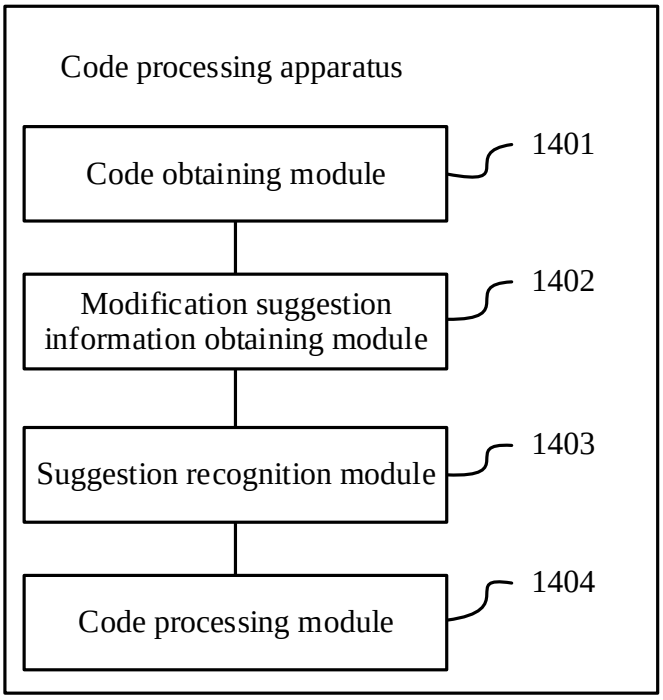

Code processing apparatus
Code obtaining module
1401
Modification suggestion information obtaining module
1402
Suggestion recognition module
1403
Code processing module
1404

FIG. 14