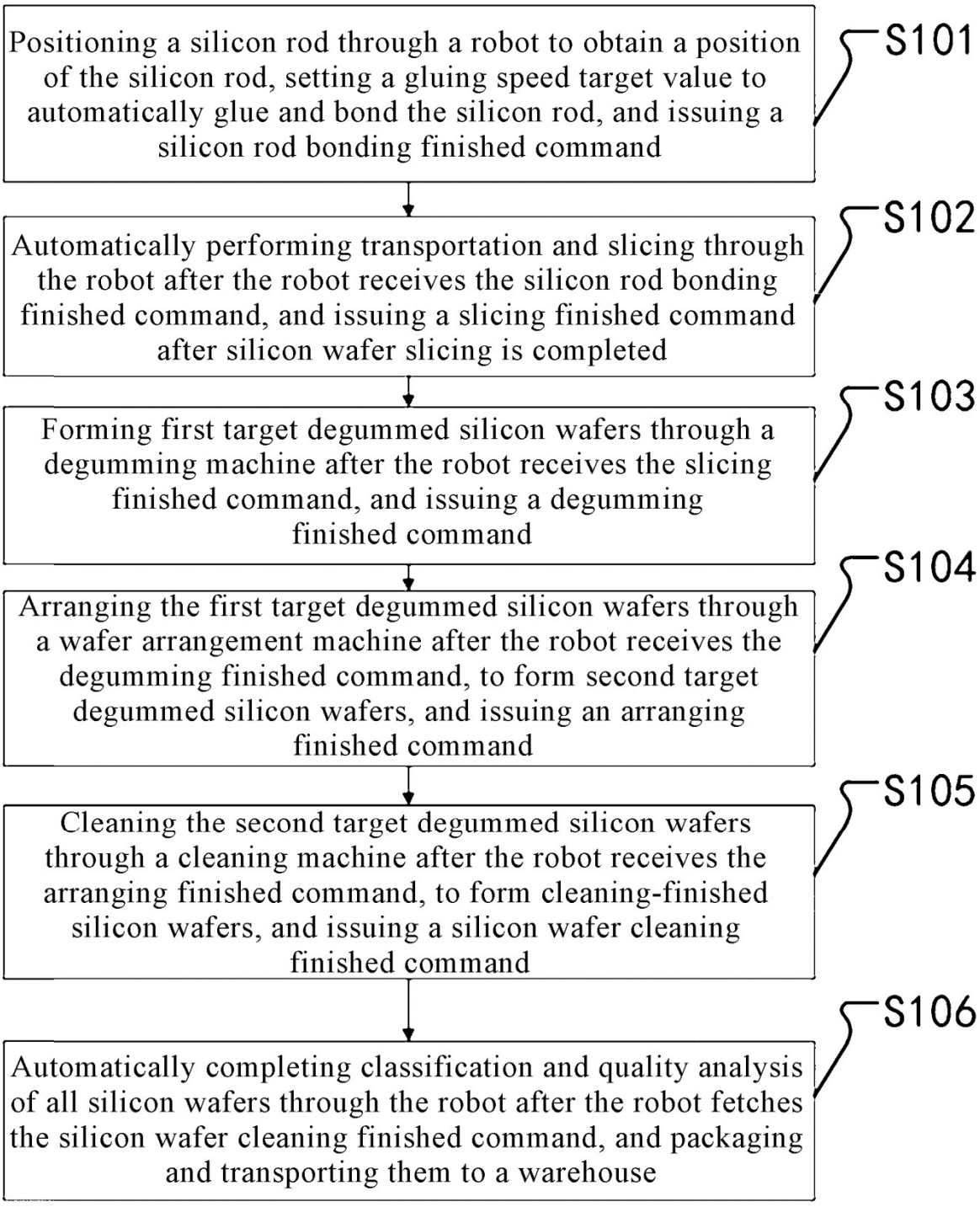

Positioning a silicon rod through a robot to obtain a position of the silicon rod, setting a gluing speed target value to automatically glue and bond the silicon rod, and issuing a silicon rod bonding finished command
S101
Automatically performing transportation and slicing through the robot after the robot receives the silicon rod bonding finished command, and issuing a slicing finished command after silicon wafer slicing is completed
S102
Forming first target degummed silicon wafers through a degumming machine after the robot receives the slicing finished command, and issuing a degumming finished command
S103
Arranging the first target degummed silicon wafers through a wafer arrangement machine after the robot receives the degumming finished command, to form second target degummed silicon wafers, and issuing an arranging finished command
S104
Cleaning the second target degummed silicon wafers through a cleaning machine after the robot receives the arranging finished command, to form cleaning-finished silicon wafers, and issuing a silicon wafer cleaning finished command
S105
Automatically completing classification and quality analysis of all silicon wafers through the robot after the robot fetches the silicon wafer cleaning finished command, and packaging and transporting them to a warehouse
S106

FIG. 1

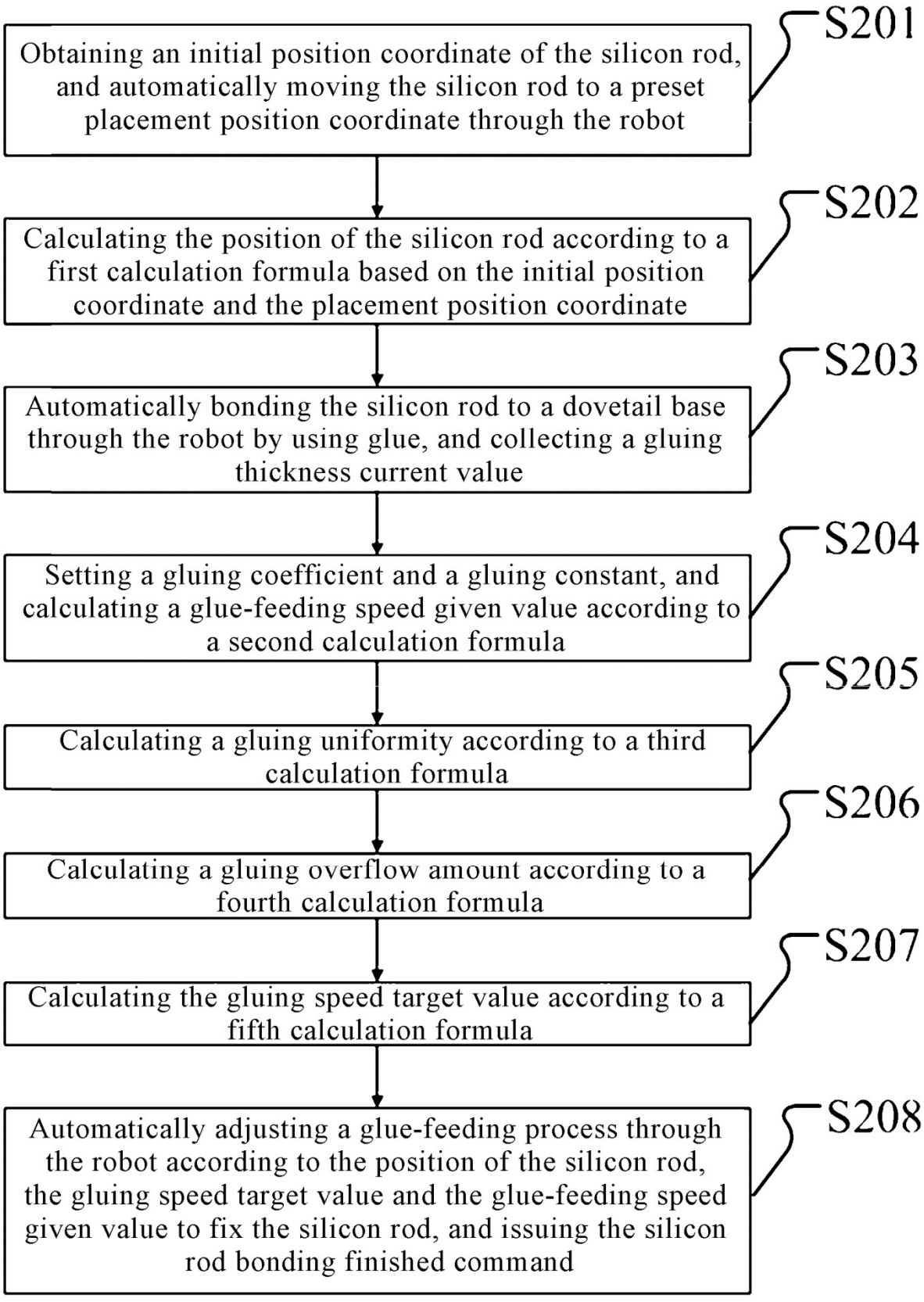

Obtaining an initial position coordinate of the silicon rod, and automatically moving the silicon rod to a preset placement position coordinate through the robot
S201
Calculating the position of the silicon rod according to a first calculation formula based on the initial position coordinate and the placement position coordinate
S202
Automatically bonding the silicon rod to a dovetail base through the robot by using glue, and collecting a gluing thickness current value
S203
Setting a gluing coefficient and a gluing constant, and calculating a glue-feeding speed given value according to a second calculation formula
S204
Calculating a gluing uniformity according to a third calculation formula
S205
Calculating a gluing overflow amount according to a fourth calculation formula
S206
Calculating the gluing speed target value according to a fifth calculation formula
S207
Automatically adjusting a glue-feeding process through the robot according to the position of the silicon rod, the gluing speed target value and the glue-feeding speed given value to fix the silicon rod, and issuing the silicon rod bonding finished command
S208

FIG. 2

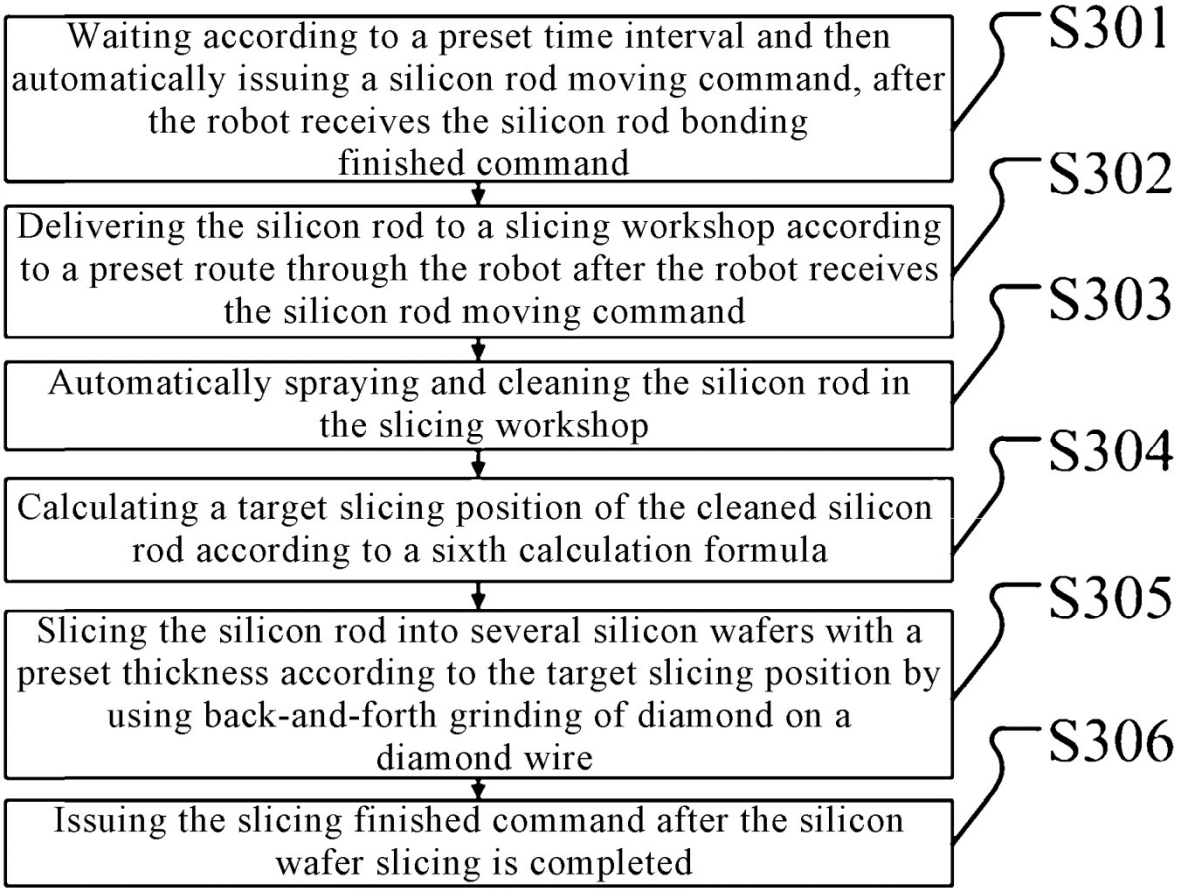

Waiting according to a preset time interval and then automatically issuing a silicon rod moving command, after the robot receives the silicon rod bonding finished command
S301
Delivering the silicon rod to a slicing workshop according to a preset route through the robot after the robot receives the silicon rod moving command
S302
Automatically spraying and cleaning the silicon rod in the slicing workshop
S303
Calculating a target slicing position of the cleaned silicon rod according to a sixth calculation formula
S304
Slicing the silicon rod into several silicon wafers with a preset thickness according to the target slicing position by using back-and-forth grinding of diamond on a diamond wire
S305
Issuing the slicing finished command after the silicon wafer slicing is completed
S306

FIG. 3

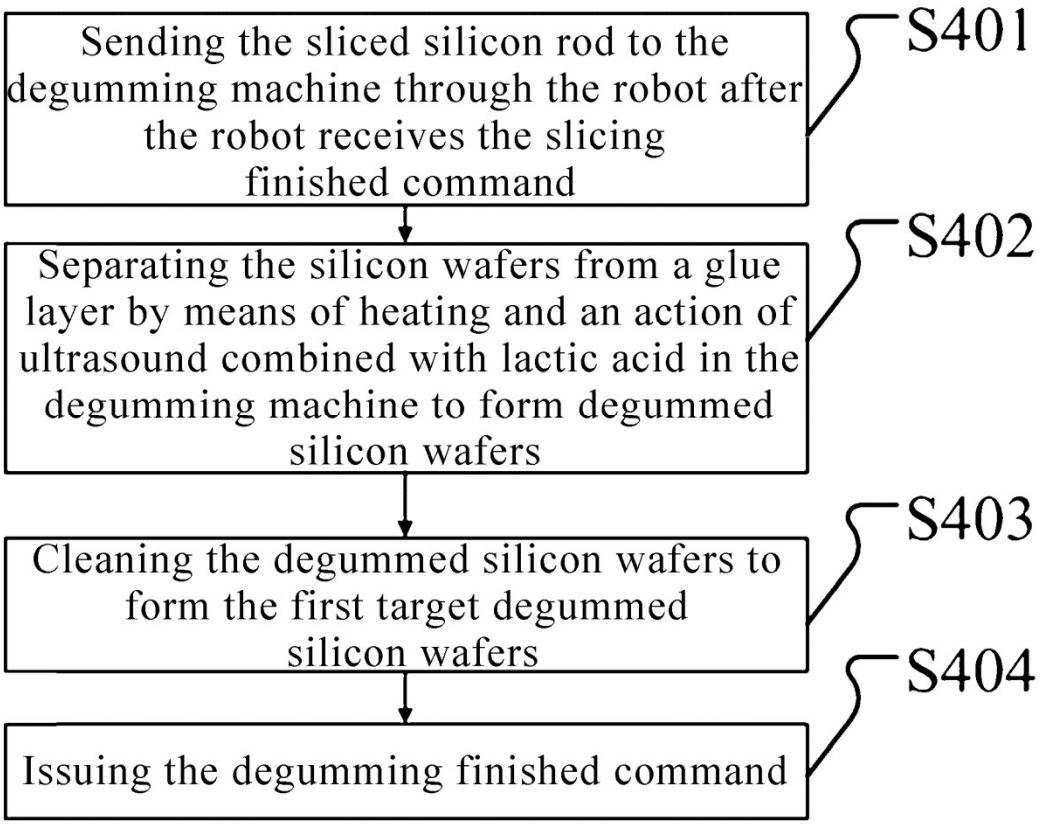

Sending the sliced silicon rod to the degumming machine through the robot after the robot receives the slicing finished command
S401
Separating the silicon wafers from a glue layer by means of heating and an action of ultrasound combined with lactic acid in the degumming machine to form degummed silicon wafers
S402
Cleaning the degummed silicon wafers to form the first target degummed silicon wafers
S403
Issuing the degumming finished command
S404

FIG. 4

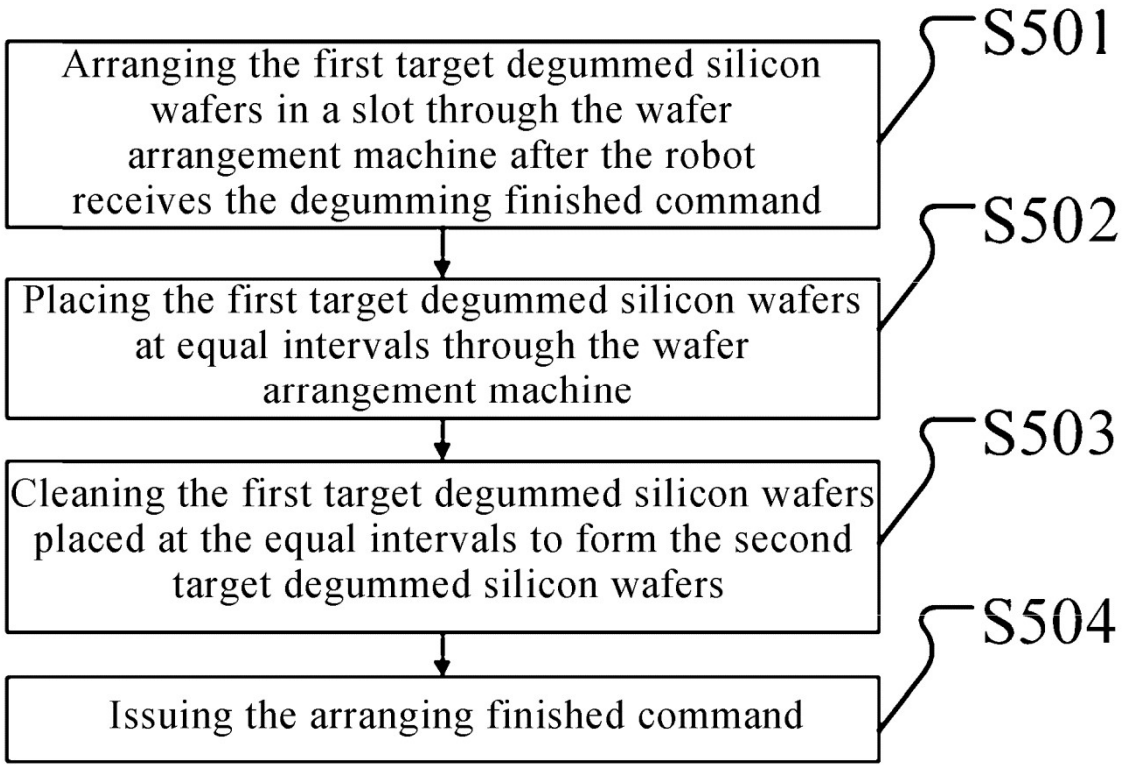

Arranging the first target degummed silicon wafers in a slot through the wafer arrangement machine after the robot receives the degumming finished command
S501
Placing the first target degummed silicon wafers at equal intervals through the wafer arrangement machine
S502
Cleaning the first target degummed silicon wafers placed at the equal intervals to form the second target degummed silicon wafers
S503
Issuing the arranging finished command
S504

FIG. 5

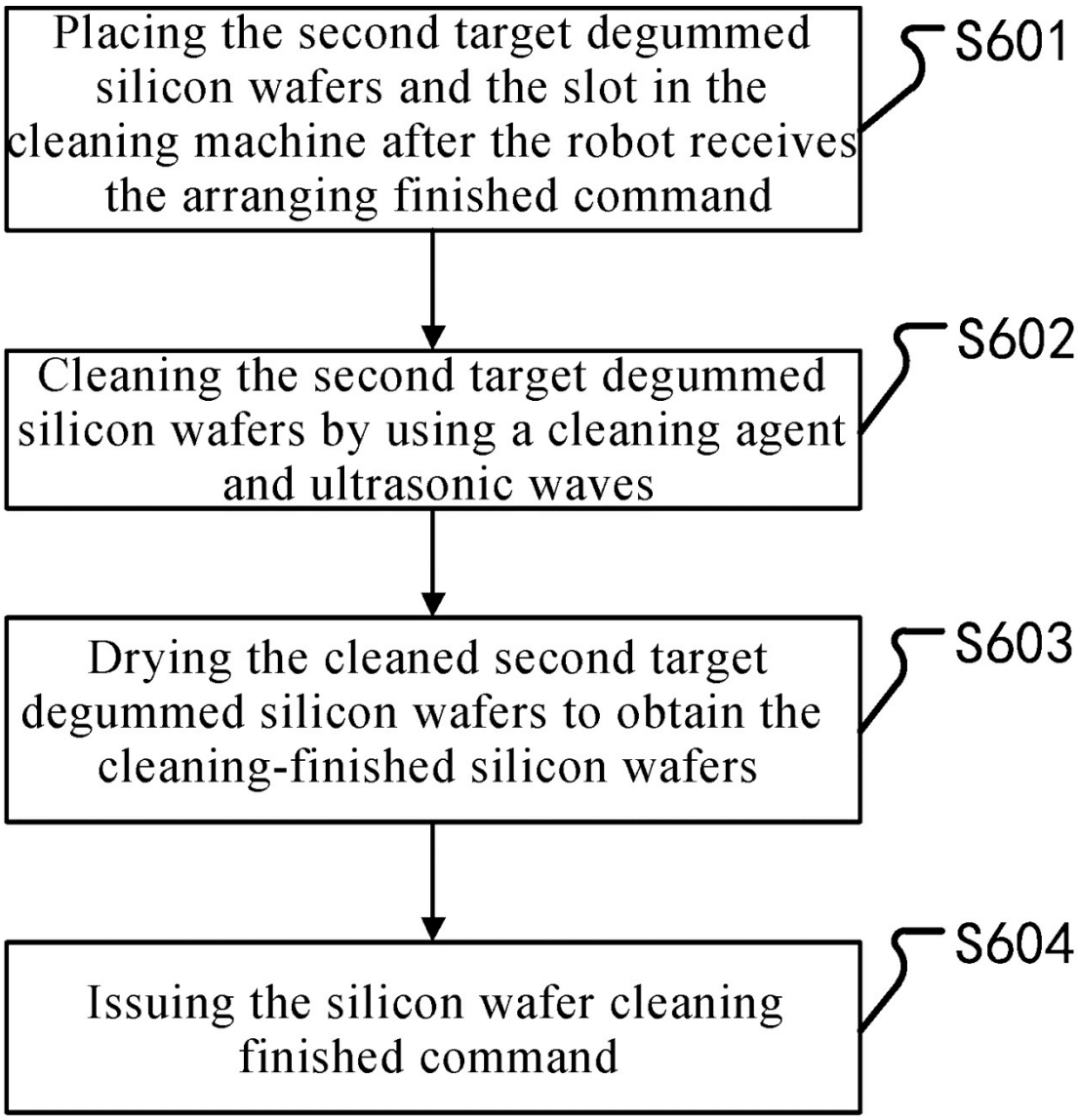

Placing the second target degummed silicon wafers and the slot in the cleaning machine after the robot receives the arranging finished command
S601
Cleaning the second target degummed silicon wafers by using a cleaning agent and ultrasonic waves
S602
Drying the cleaned second target degummed silicon wafers to obtain the cleaning-finished silicon wafers
S603
Issuing the silicon wafer cleaning finished command
S604

FIG. 6

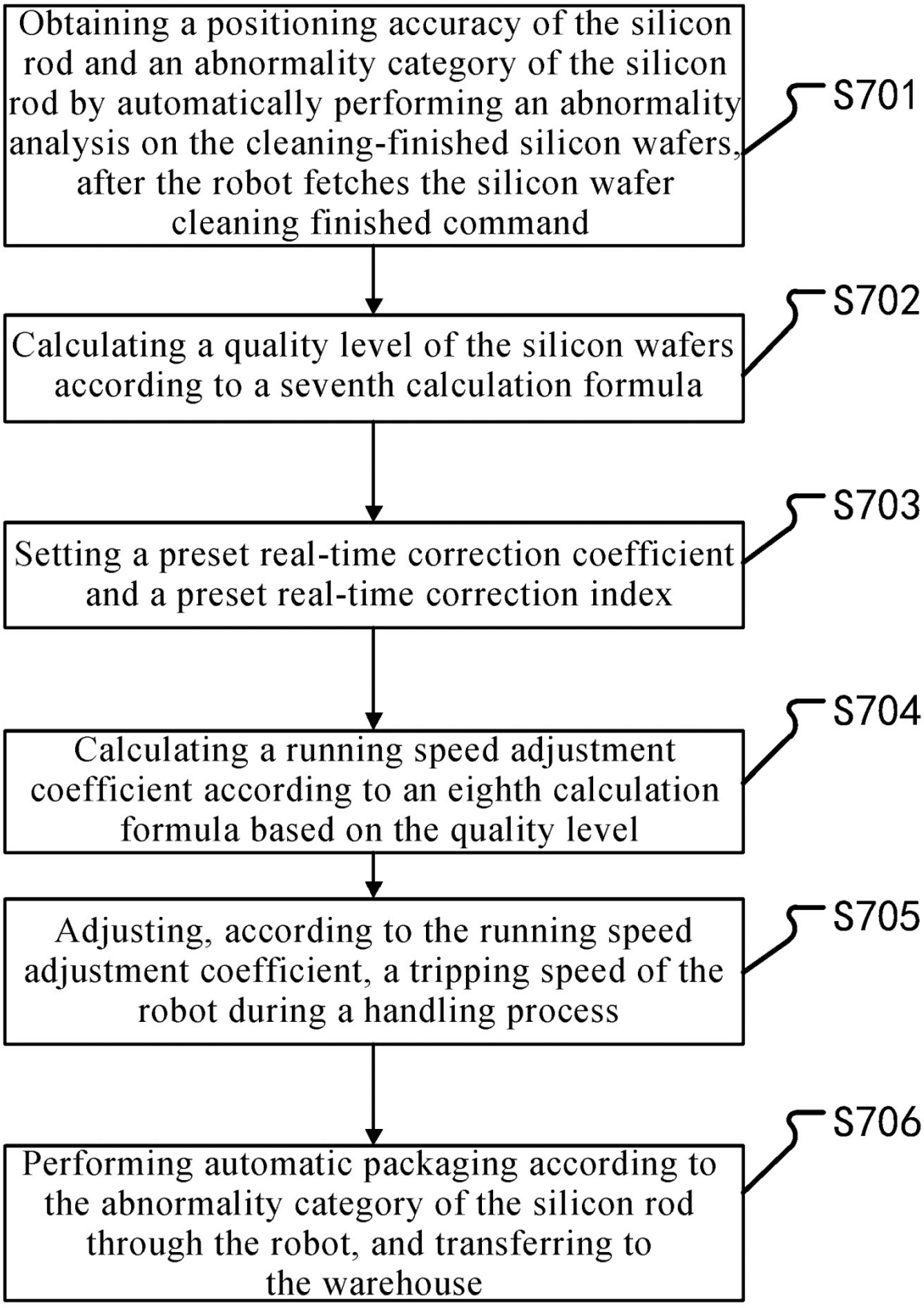

Obtaining a positioning accuracy of the silicon rod and an abnormality category of the silicon rod by automatically performing an abnormality analysis on the cleaning-finished silicon wafers, after the robot fetches the silicon wafer cleaning finished command
S701
Calculating a quality level of the silicon wafers according to a seventh calculation formula
S702
Setting a preset real-time correction coefficient and a preset real-time correction index
S703
Calculating a running speed adjustment coefficient according to an eighth calculation formula based on the quality level
S704
Adjusting, according to the running speed adjustment coefficient, a tripping speed of the robot during a handling process
S705
Performing automatic packaging according to the abnormality category of the silicon rod through the robot, and transferring to the warehouse
S706

FIG. 7

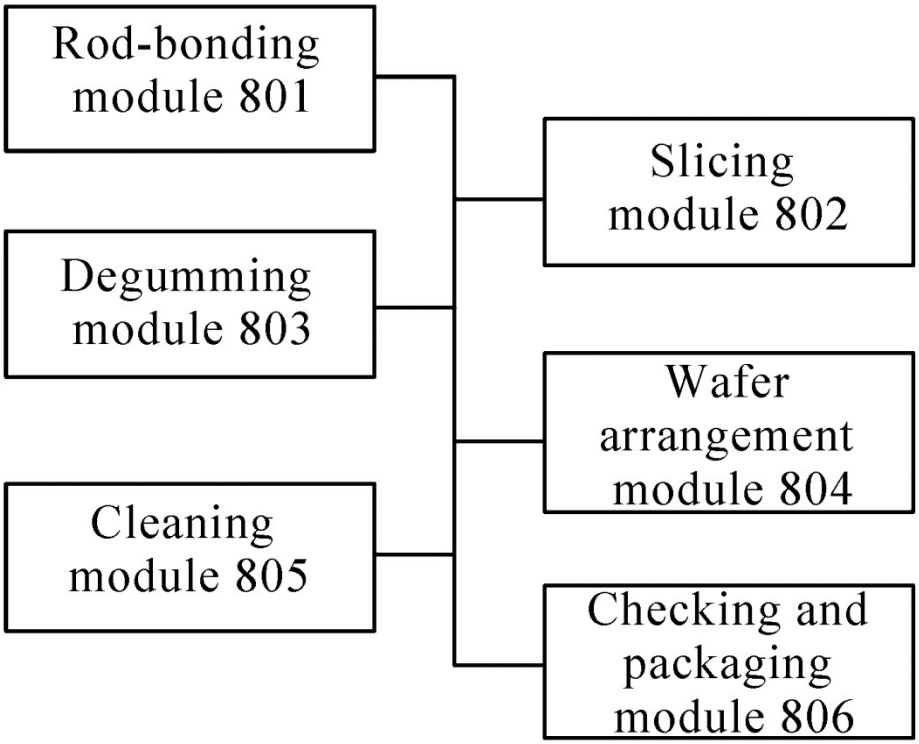

Rod-bonding module 801
Slicing module 802
Degumming module 803
Wafer arrangement module 804
Cleaning module 805
Checking and packaging module 806

FIG. 8

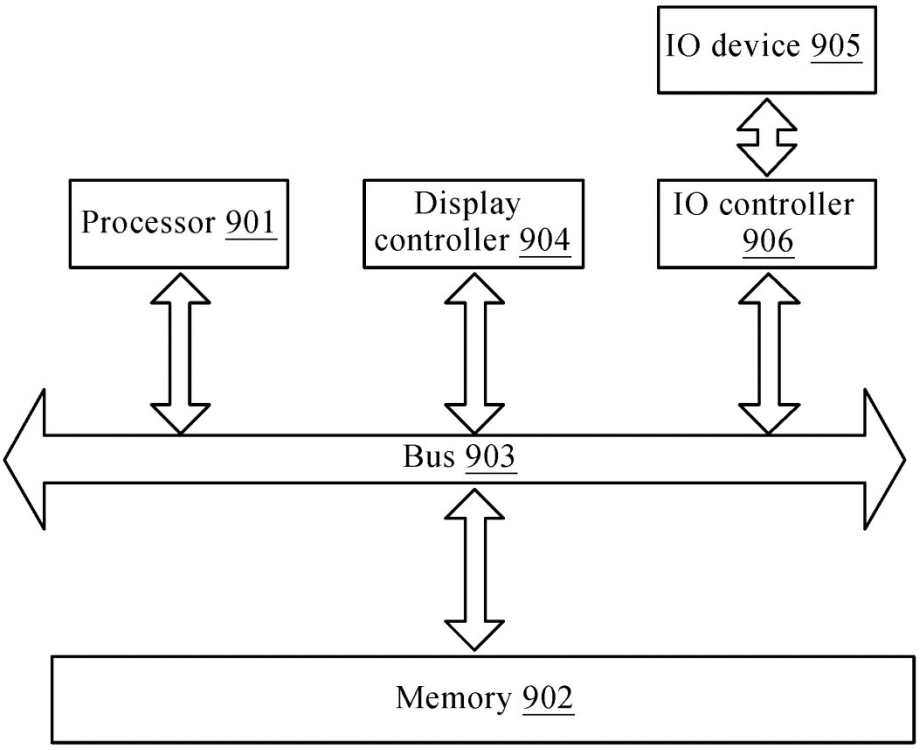

IO device 905
Processor 901
Display controller 904
IO controller 906
Bus 903
Memory 902

FIG. 9