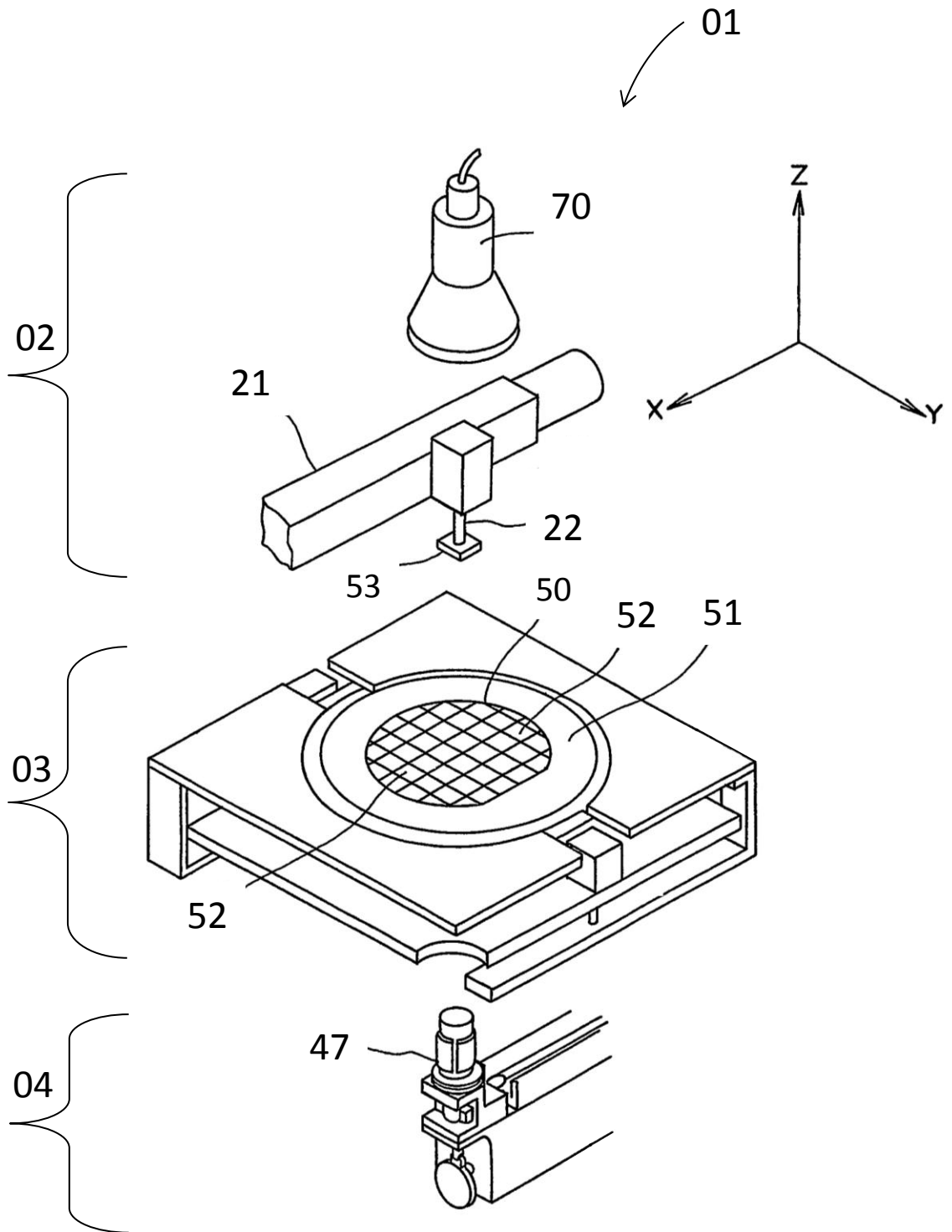


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PRIOR ART
FIG. 1A

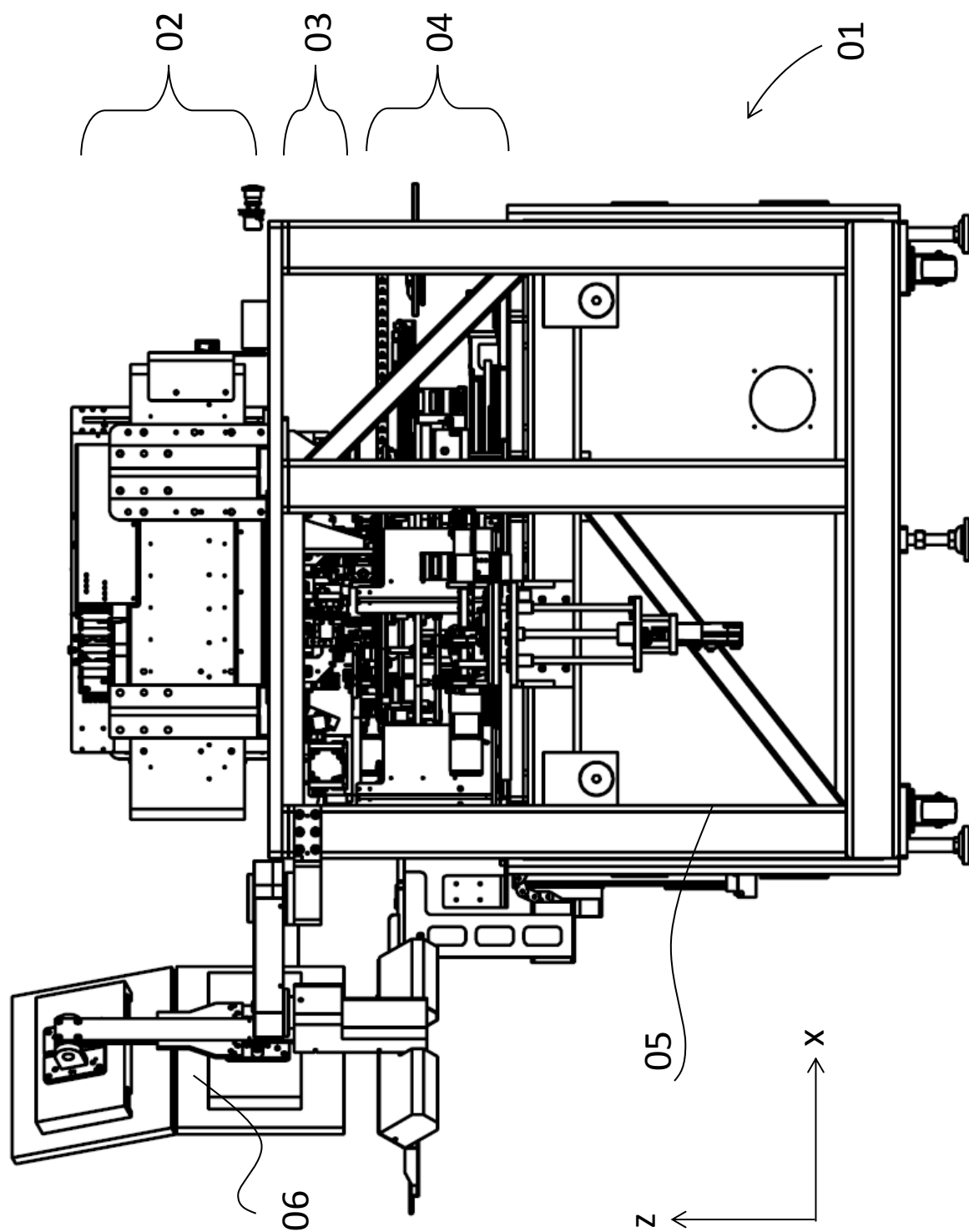


FIG. 1B

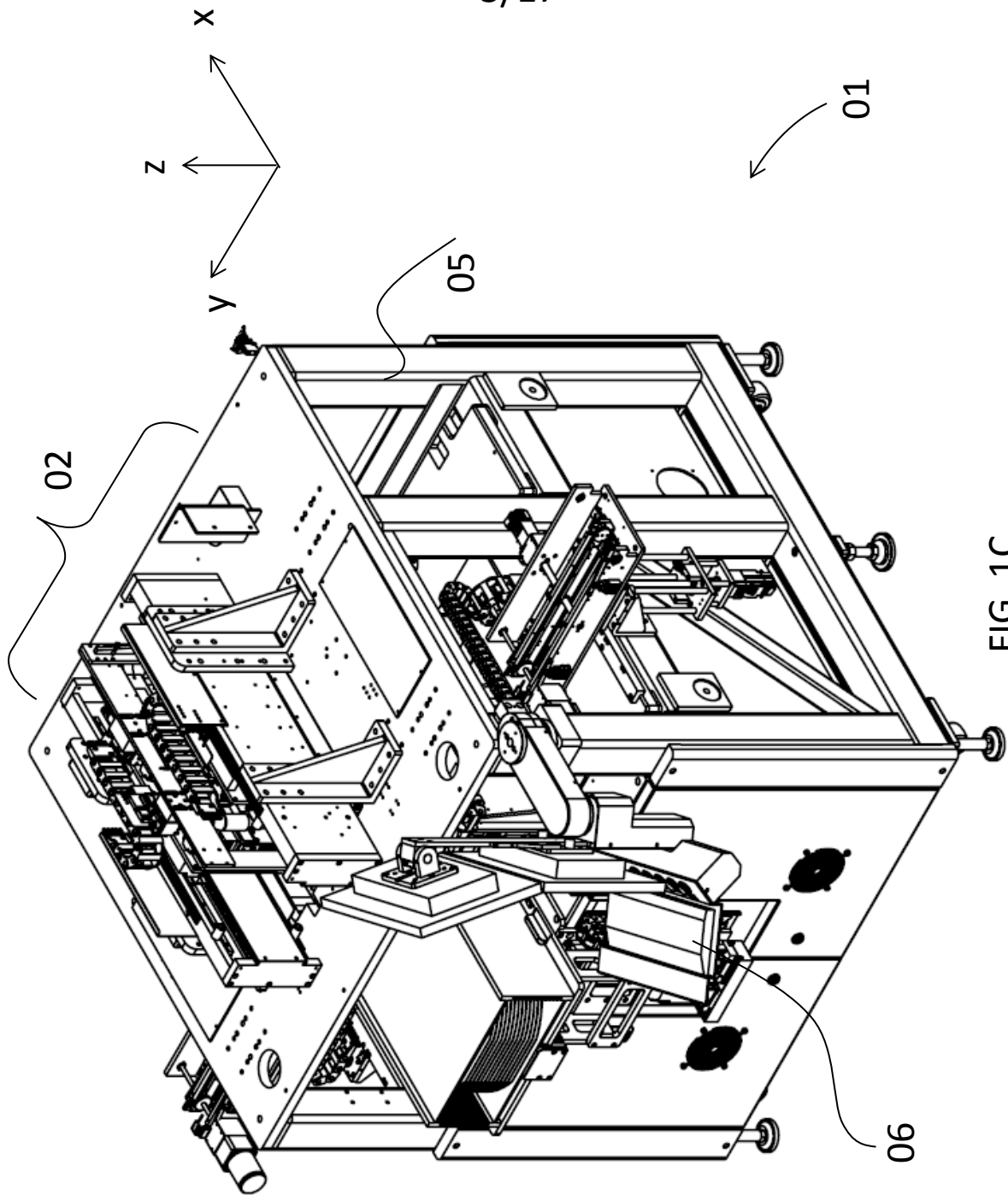


FIG. 1C

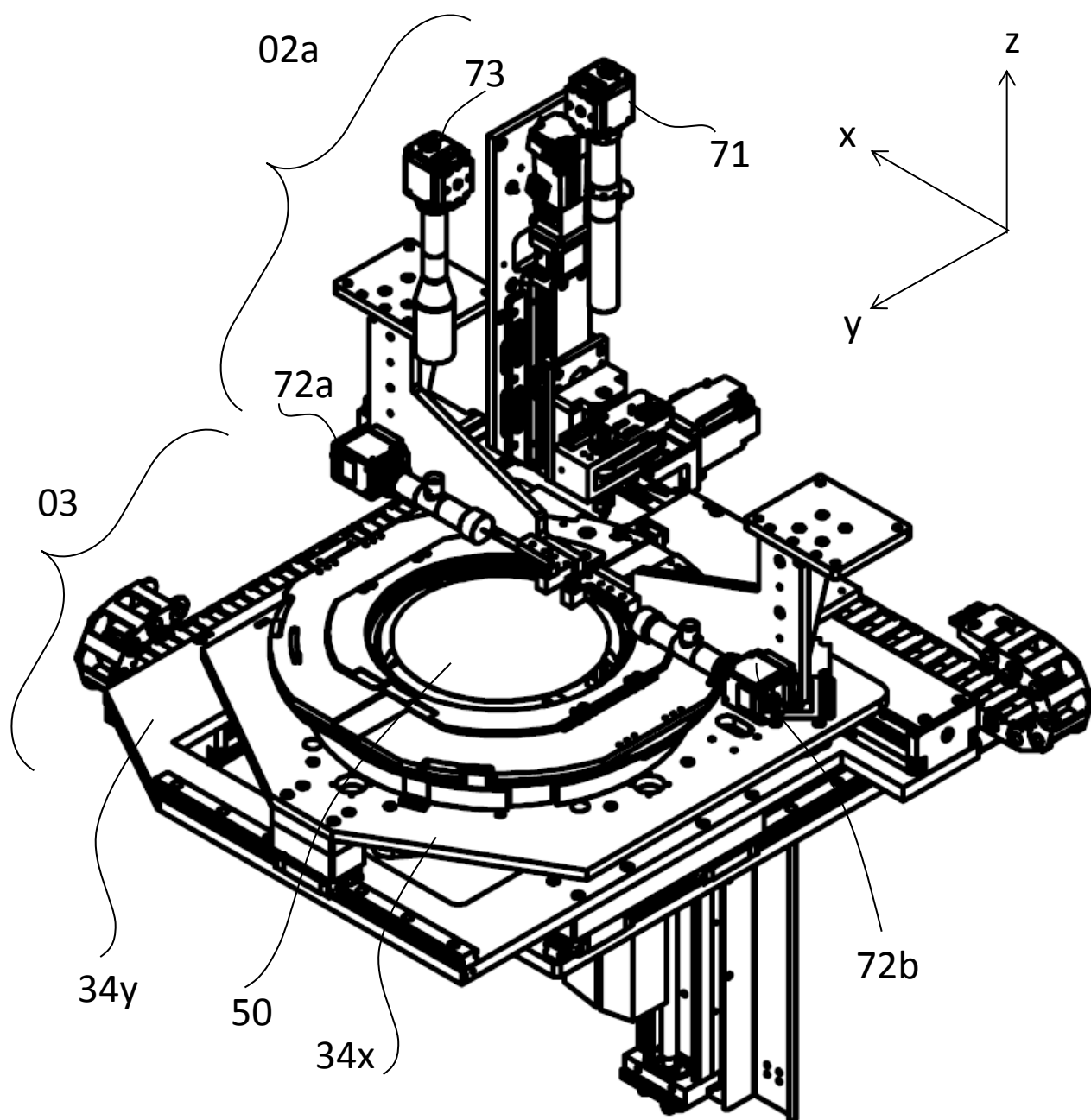


FIG. 2A

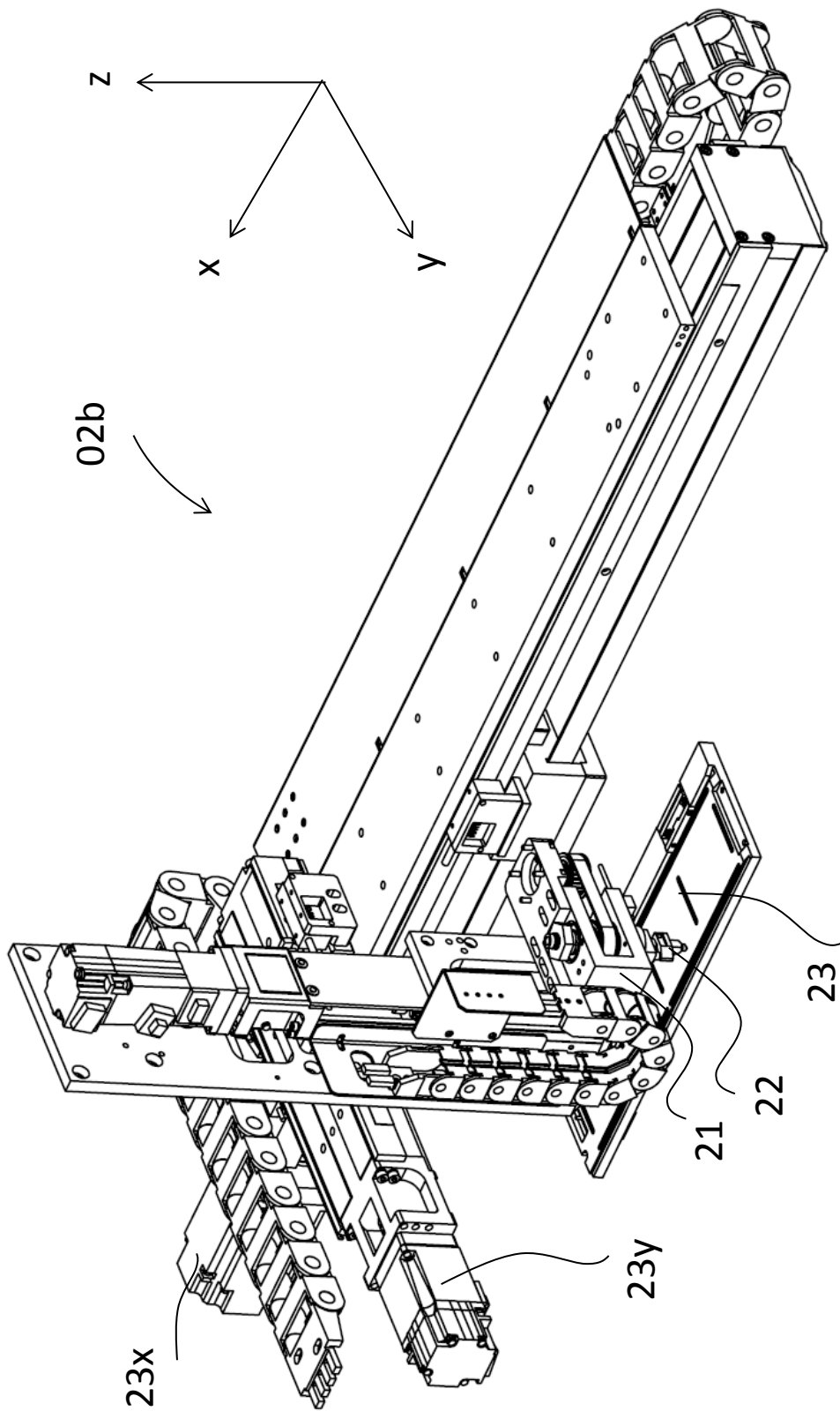


FIG. 2B

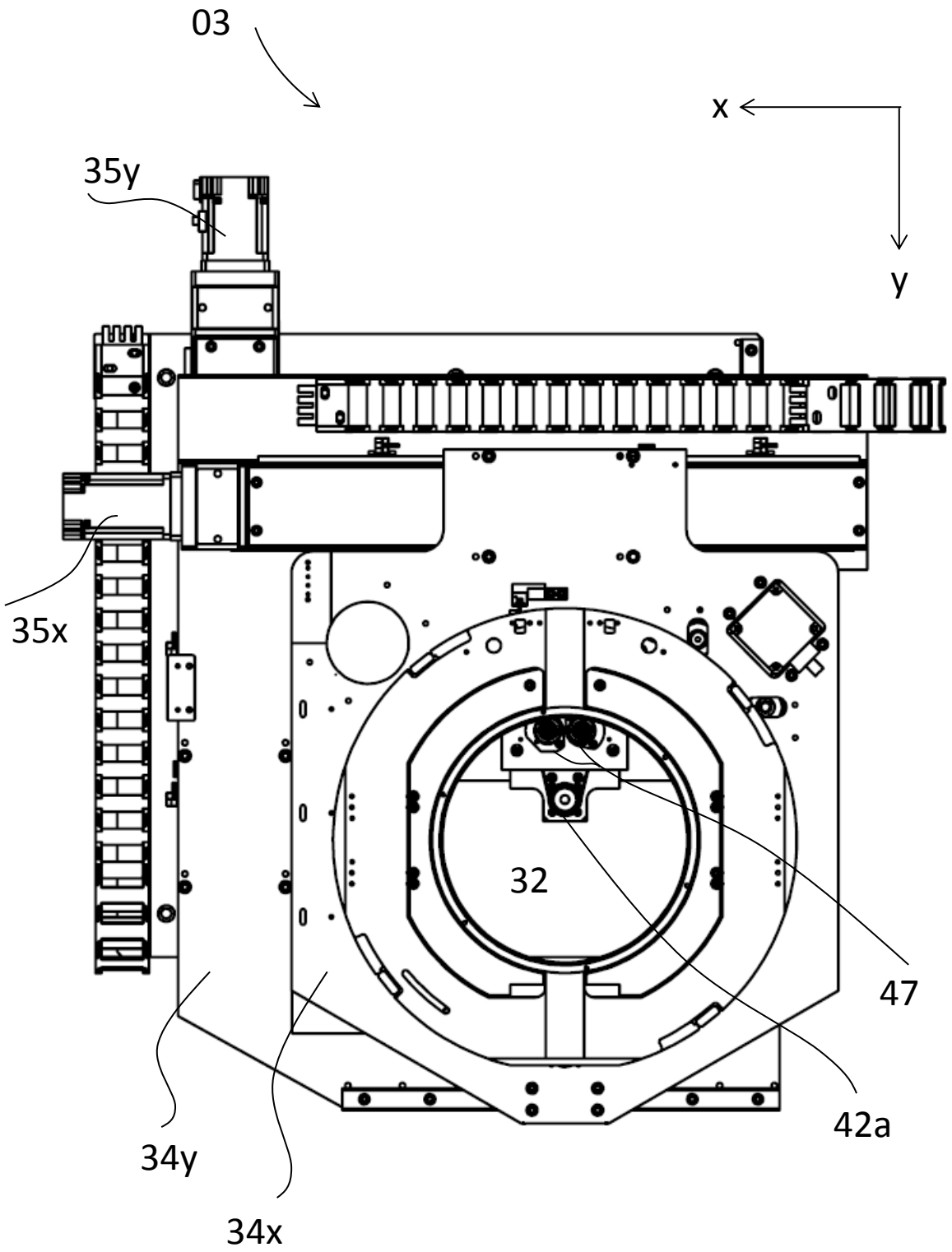


FIG. 3A

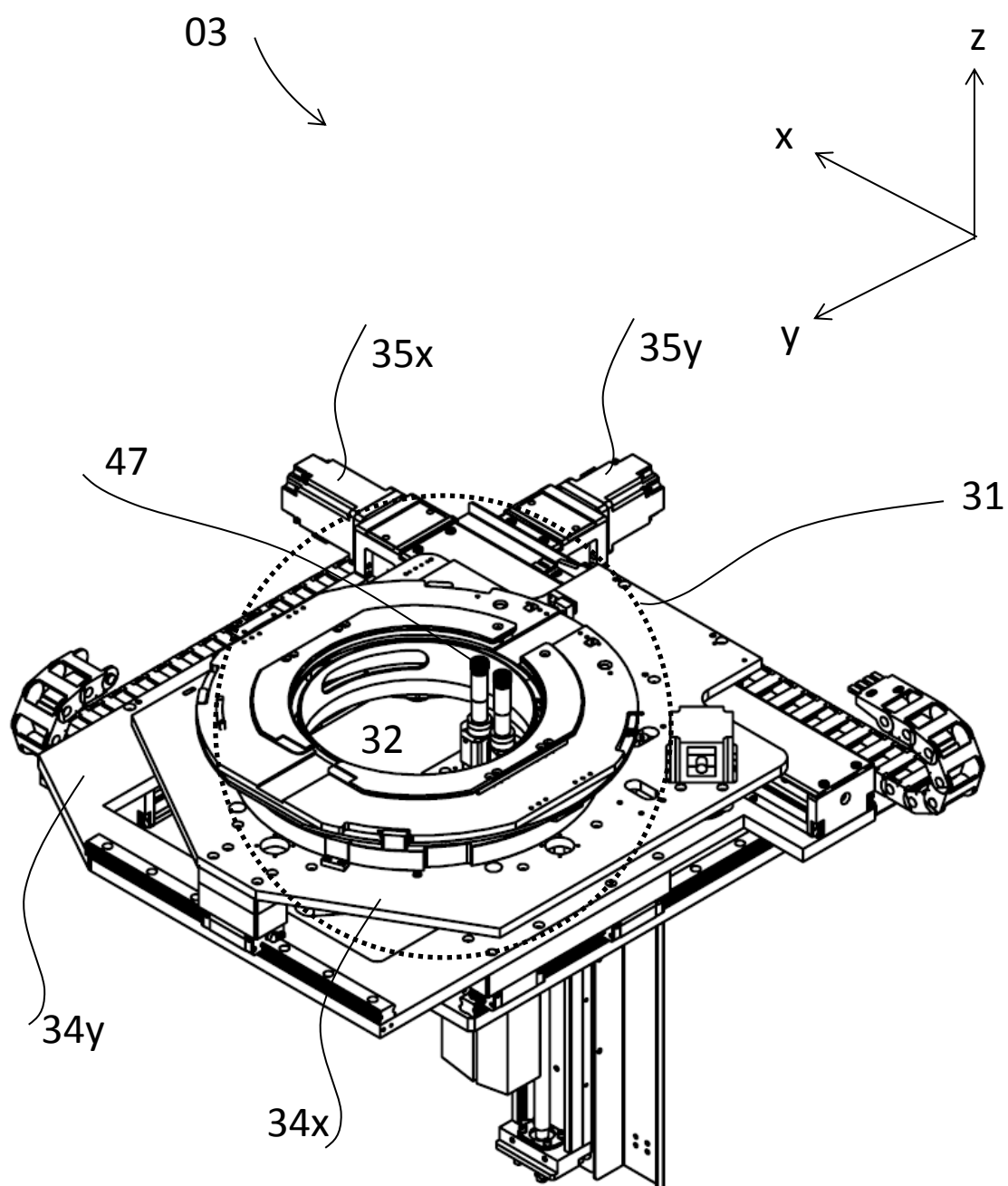


FIG. 3B

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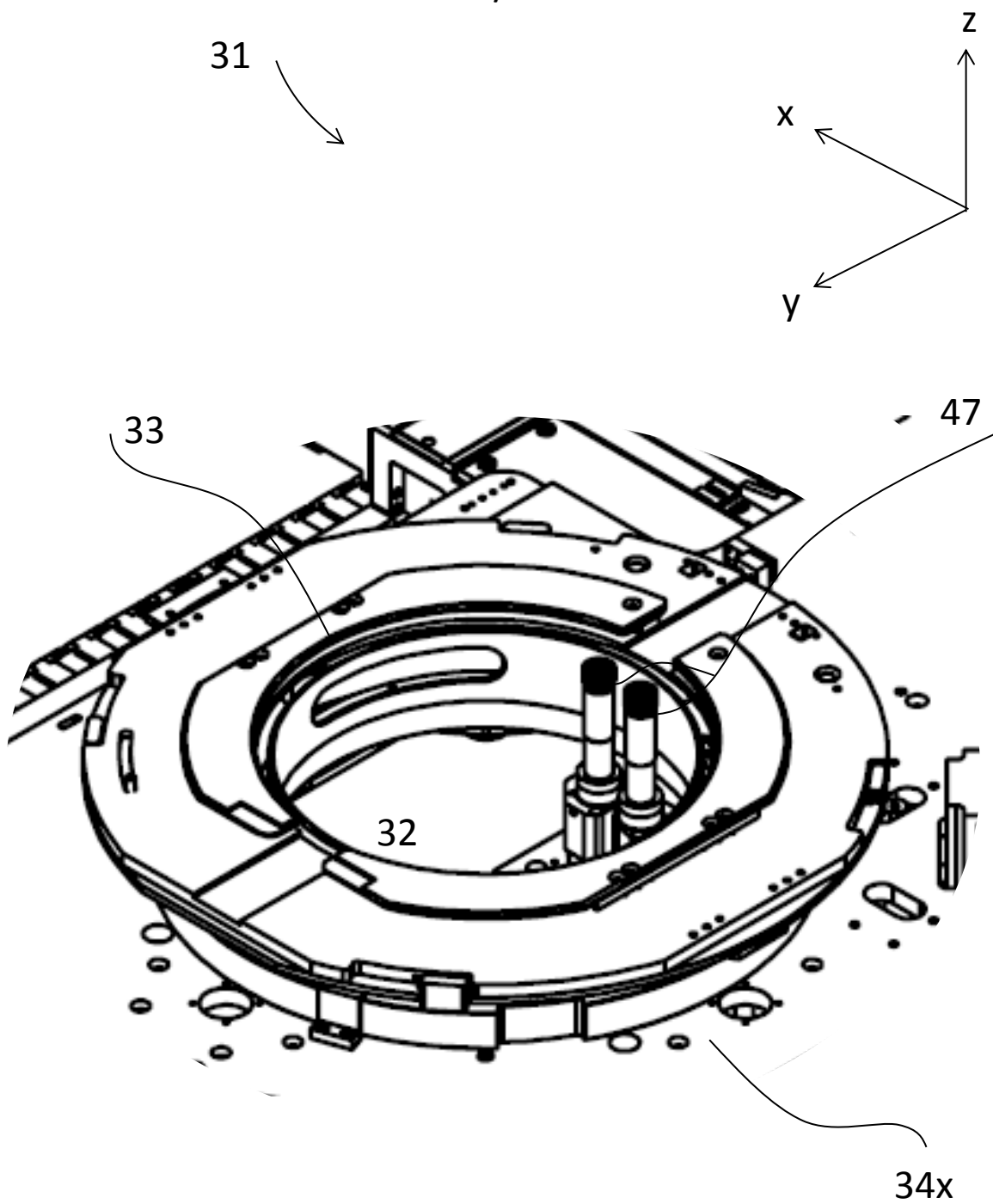


FIG. 3C

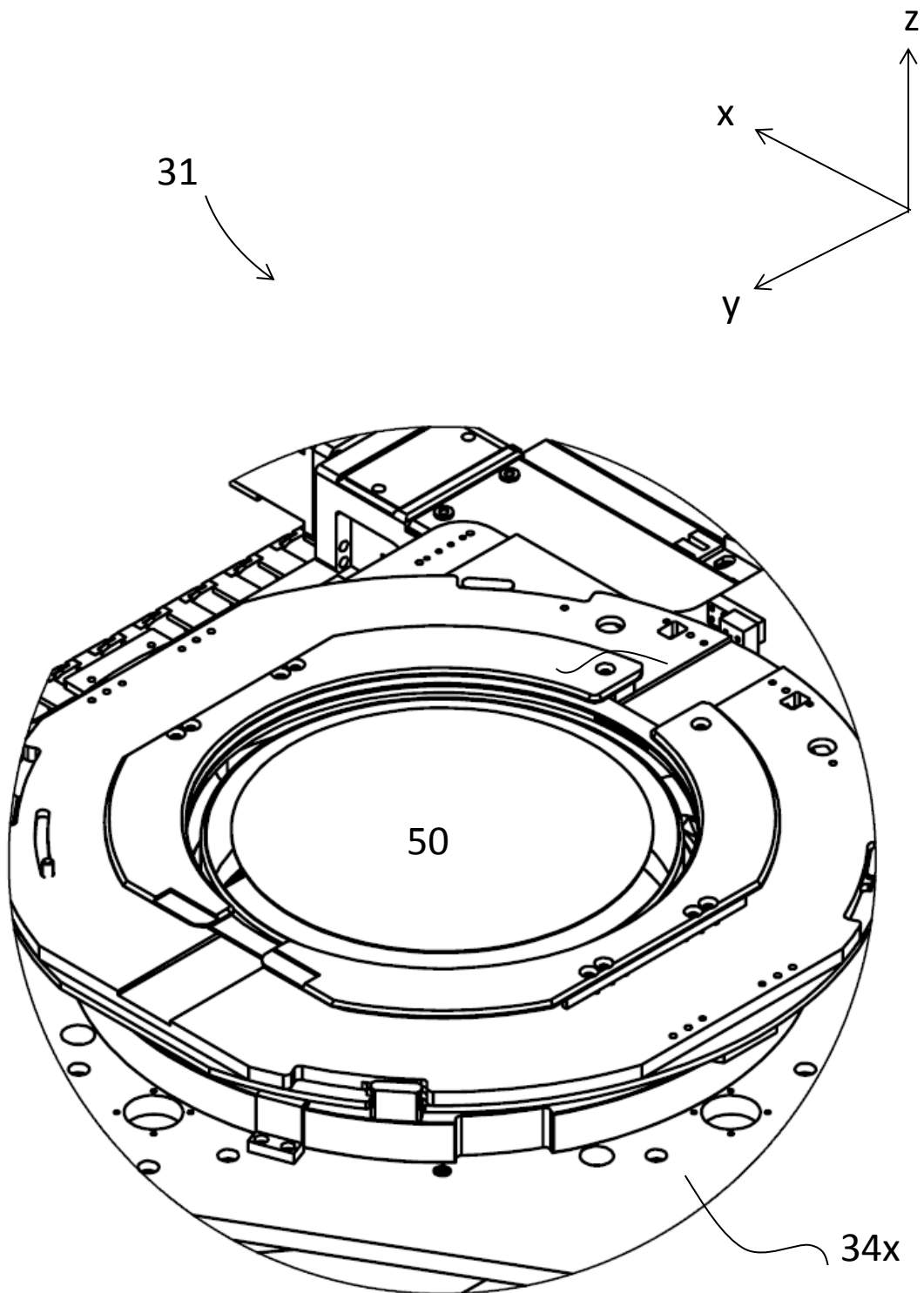


FIG. 3D

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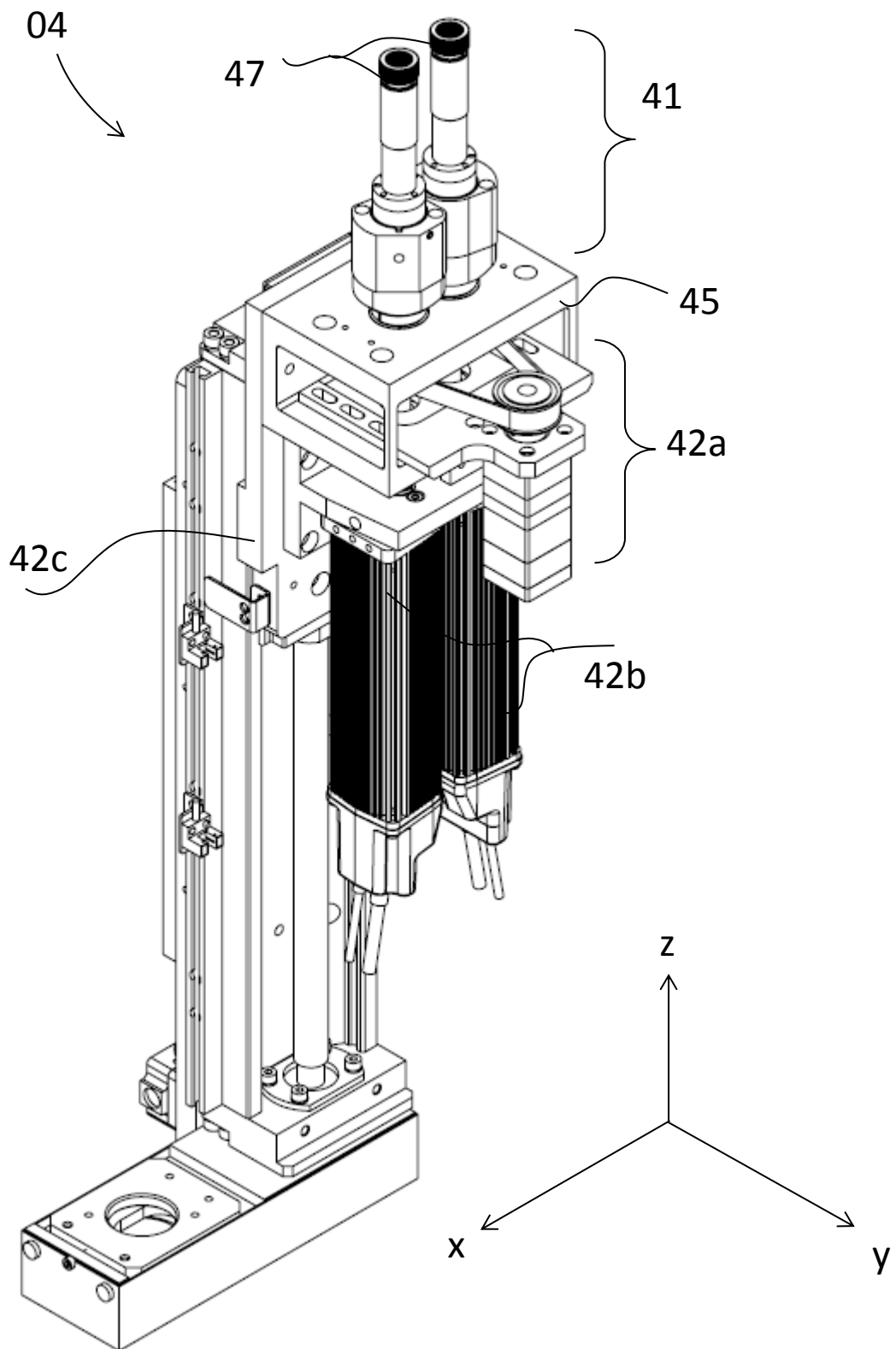


FIG. 4A

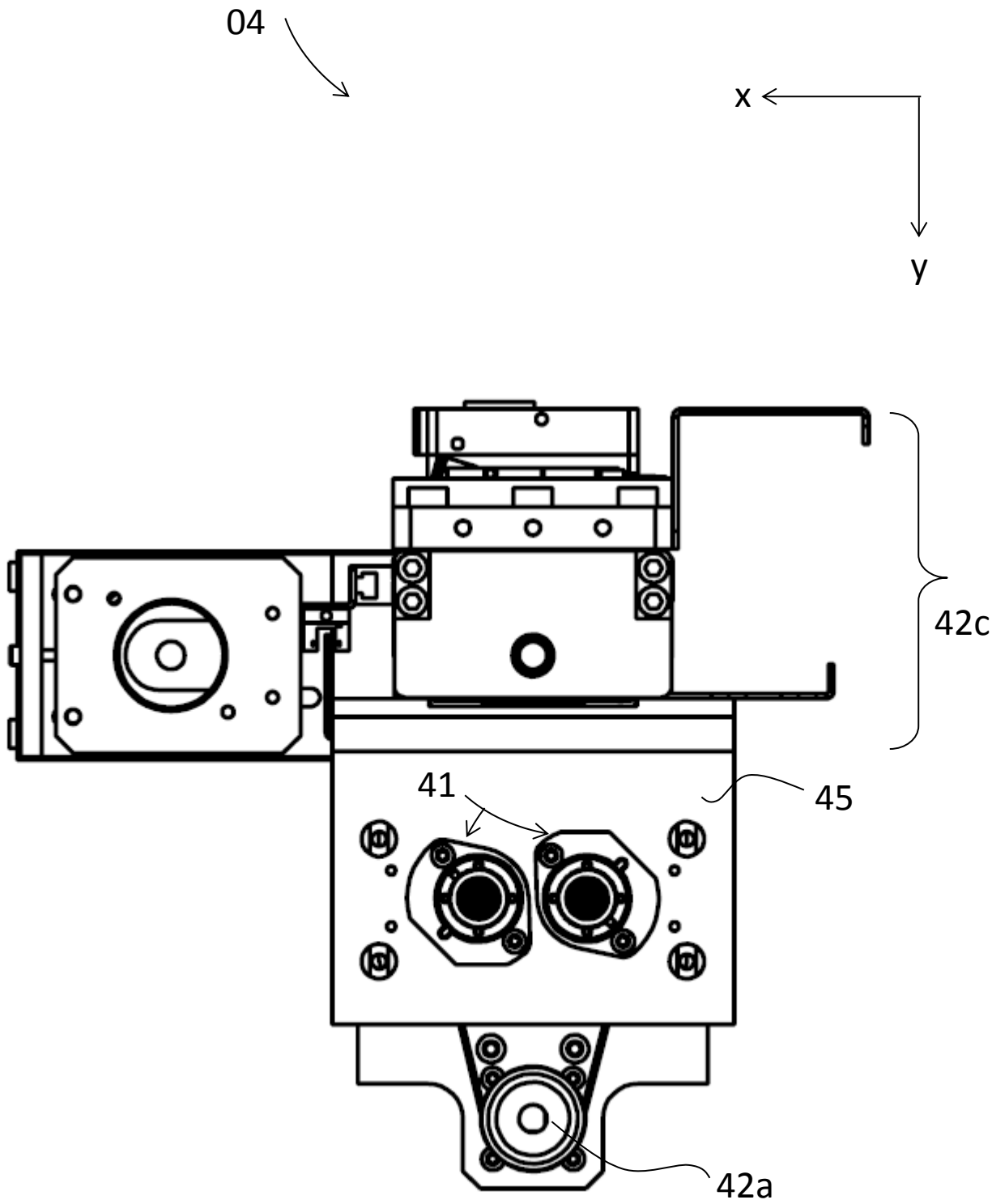


FIG. 4B

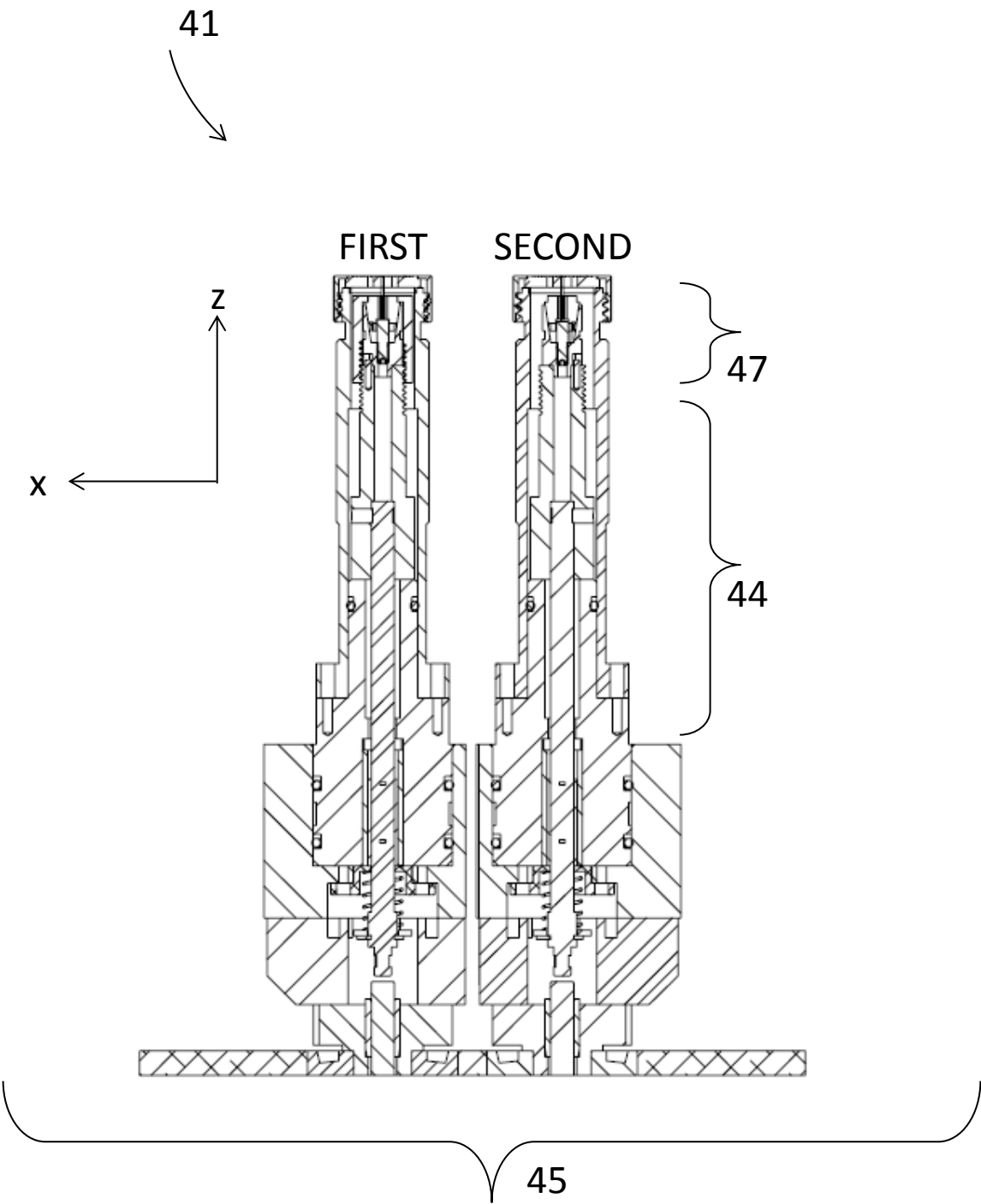


FIG. 4C

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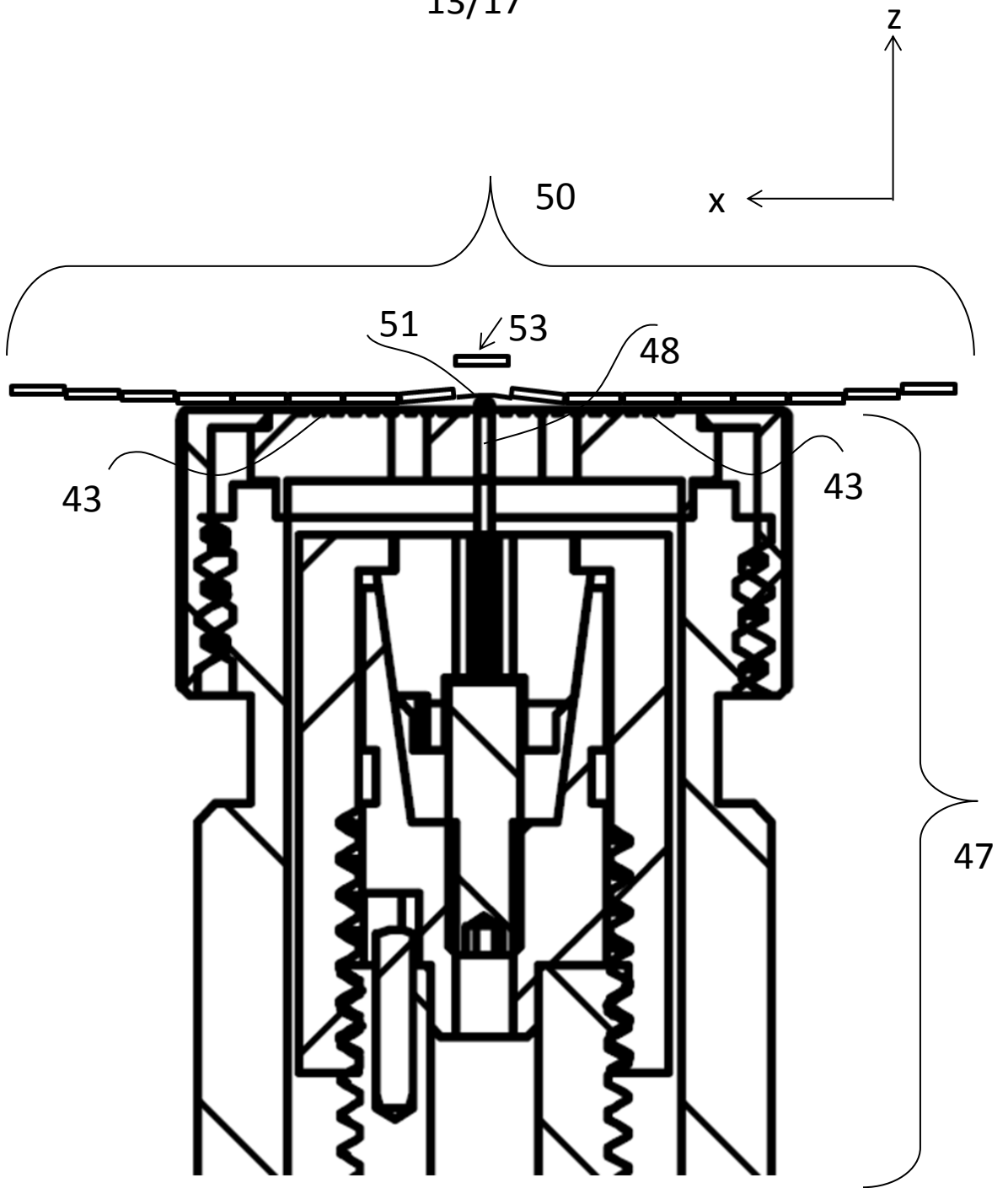


FIG. 4D



LOAD THE WAFER ONTO THE WAFER STAGE OVER THE CENTRAL OPENING	5A-01
ENGAGE TENSIONING RING TO HOLD THE MOUNTING TAPE ACROSS THE CENTRAL OPENING LIKE THE HEAD OF A DRUM, PARTIALLY DELAMINATING THE DIE FROM THE MOUNTING TAPE AND REDUCING ADHESION OF DIE TO THE MOUNTING TAPE	5A-02
SET THE FIRST ARM IN A FIRST HOLDING POSITION AND THE SECOND ARM IN A SECOND HOLDING POSITION	5A-03
IMAGE THE WAFER WITH THE WAFER CAMERA TO CREATE WAFER IMAGE AND SEND WAFER IMAGE TO CONTROL UNIT	5A-04
EMPLOY PROCESSOR OF CONTROL UNIT TO: <ul style="list-style-type: none">• ROUGHLY MATCH WAFER IMAGE WITH ASSOCIATED WAFER MAP IN LIBRARY• IDENTIFY ROUGH X & Y COORDINATES OF FIRST DIE, SECOND DIE, AND RETURN DIE (FIRST DIE OF NEXT PAIR OF DIE IN SERIES)	5A-05
INDEX X-AXIS AND Y-AXIS STAGE ACTUATORS TO MOVE FIRST DIE ROUGHLY ABOVE A FIRST PEPPER POT USING THE ROUGH X & Y COORDINATES OF THE FIRST DIE	5A-06

FIG. 5A



INDEX X-AXIS AND Y-AXIS STAGE ACTUATORS TO MOVE FIRST DIE ROUGHLY ABOVE THE FIRST PEPPER POT USING THE ROUGH X & Y COORDINATES OF THE FIRST DIE	5B-01
USE IMAGE(S) FROM FIRST ALIGNMENT CAMERA TO: <ul style="list-style-type: none">• PRECISELY ALIGN FIRST DIE IMAGES WITH ASSOCIATED DIE MODEL IN LIBRARY• IDENTIFY PRECISE X & Y COORDINATES AND ANGLE THETA OF FIRST DIE	5B-02
INDEX X-AXIS AND Y-AXIS STAGE ACTUATORS TO MOVE FIRST DIE LOCATION PRECISELY ABOVE FIRST PEPPER POT USING THE PRECISE X & Y COORDINATES OF THE FIRST DIE	5B-03
INDEX ROTATIONAL ACTUATOR OF EJECTOR ASSEMBLY TO ROTATE THE FIRST PEPPER POT TO ALIGN THE ROTATIONAL ANGLE OF THE FIRST PEPPER POT WITH THE ROTATIONAL ANGLE THETA OF THE FIRST DIE; THIS STEP MAY BE PERFORMED SIMULTANEOUSLY WITH STEP 5B-03	5B-04

FIG. 5B



RAISE THE FIRST PEPPER POT TO ITS UPWARD POSITION WITH THE FIRST EJECTOR ACTUATOR SUCH THAT THE PERFORATED PLATE OF THE FIRST PEPPER POT ALMOST TOUCHES THE BOTTOM SURFACE OF THE MOUNTING TAPE BELOW THE FIRST DIE	5C-01
PULL THE MOUNTING TAPE DOWN AND HOLD THE MOUNTING TAPE TO THE FIRST PEPPER POT BY SIMULTANEOUSLY: <ul style="list-style-type: none">• ASSERTING LOW PRESSURE IN THE FIRST PEPPER POT TO ALLOW LOW PRESSURE TO REACH THE TOP SURFACE OF FIRST PEPPER POT AND PASS THROUGH THE PERFORATED PLATE; AND• MINUTELY RAISING THE FIRST PEPPER POT WITH THE FIRST EJECTOR ACTUATOR	5C-02
RAISE EJECTOR PIN OF FIRST PEPPER POT TO ITS PROGRAMMED UPWARD POSITION (UP TO 0.5MM) TO LIFT THE FIRST DIE AND FURTHER DELAMINATE THE FIRST DIE FROM THE MOUNTING TAPE	5C-03
EMPLOY FIRST SUCTION CUP OF PICK AND PLACE ASSEMBLY TO GRASP AND LIFT THE FIRST DIE OFF FROM THE TOP SURFACE OF THE MOUNTING TAPE	5C-04
RETURN THE EJECTOR PIN OF THE FIRST PEPPER POT TO ITS DOWNWARD POSITION AND INDEX THE FIRST ARM TO MOVE THE FIRST DIE (HELD BY THE FIRST SUCTION CUP) TO THE SUBSTRATE STAGE FOR PLACEMENT ONTO THE FIRST SUBSTRATE	5C-05
DE-ASSERT LOW PRESSURE IN THE FIRST PEPPER POT AND LOWER THE FIRST PEPPER POT TO ITS LOWER POSITION TO RELEASE THE MOUNTING TAPE	5C-06

FIG. 5C

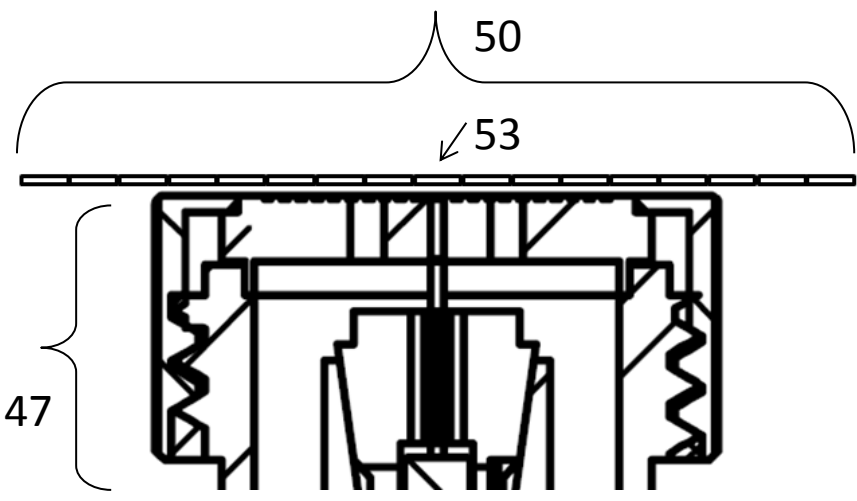
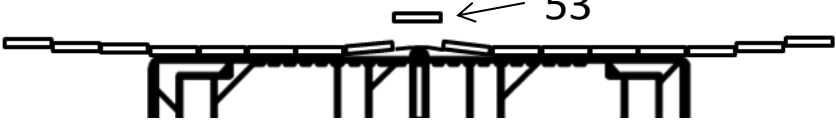
 <p>A cross-sectional view of a mechanical assembly, labeled 50. A bracket 47 is positioned on the left side, and an arrow 53 points to a central vertical component. The assembly is shown within a housing with various internal structures and springs.</p>	5D-01
 <p>A top-down view of the assembly, showing the layout of the components from above.</p>	5D-02
 <p>A top-down view of the assembly, showing the layout of the components from above.</p>	5D-03
 <p>A top-down view of the assembly, showing the layout of the components from above. An arrow 53 points to a specific component in the center.</p>	5D-04
 <p>A top-down view of the assembly, showing the layout of the components from above.</p>	5D-05
 <p>A top-down view of the assembly, showing the layout of the components from above. A label 51 points to a component on the left side.</p>	5D-06

FIG. 5D