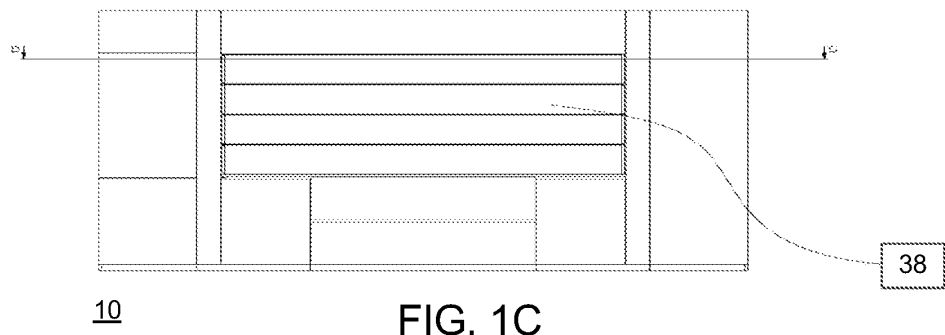
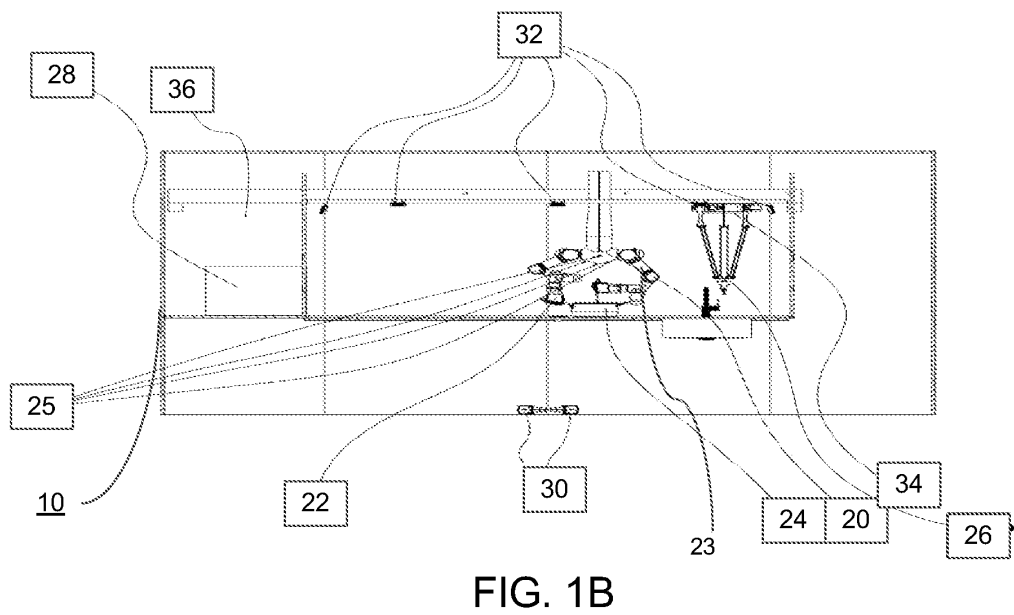
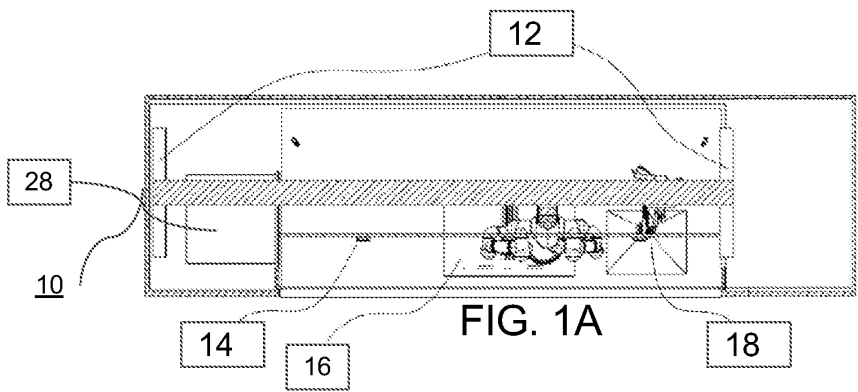




Appl. No. 16/900,842
Response Dated 23 November 2020
Notice to Incomplete Reply of 22 June 2020
Replacement Sheet

Appl. No. 16/900,842
Response Dated 21 November 2020
Notice to Incomplete Reply of 22 June 2020
Replacement Sheet

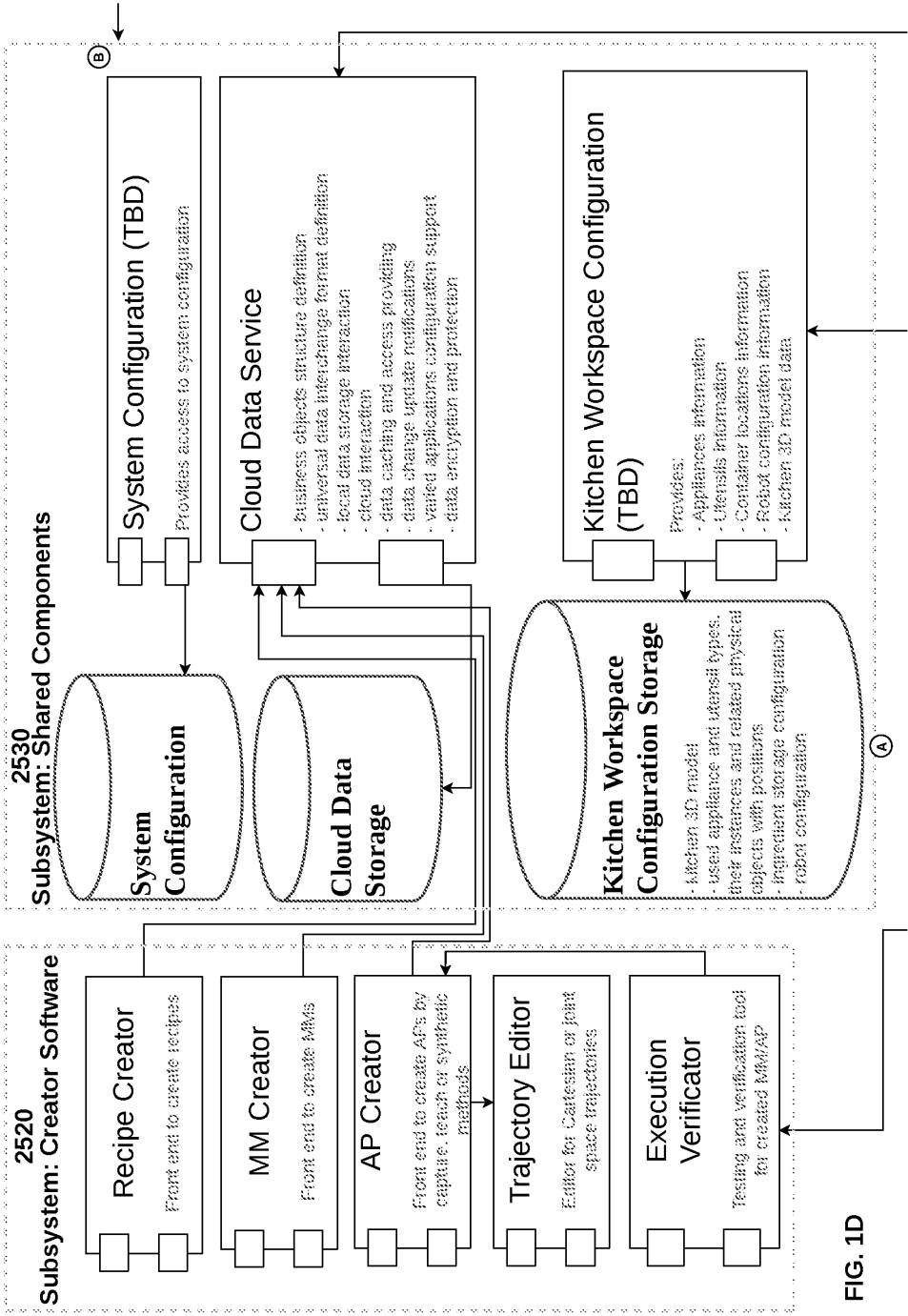


FIG. 1D

Appl. No. 16/900,842
Response Dated 23 November 2020
Notice to Incomplete Reply of 22 June 2020
Replacement Sheet

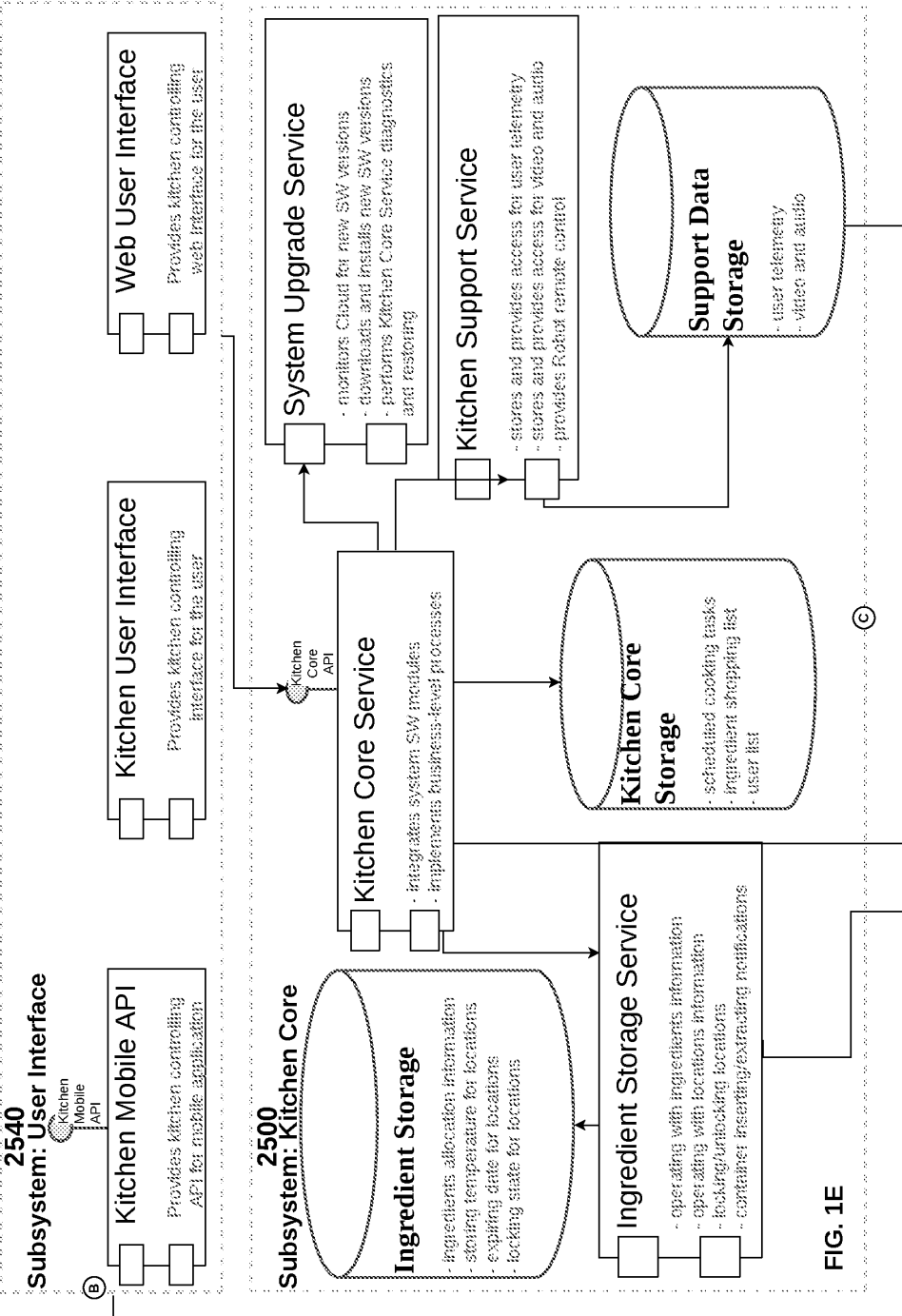


FIG. 1E

Appl. No. 16/900,842
Response Dated 23 November 2020
Notice to Incomplete Reply of 22 June 2020
Replacement Sheet

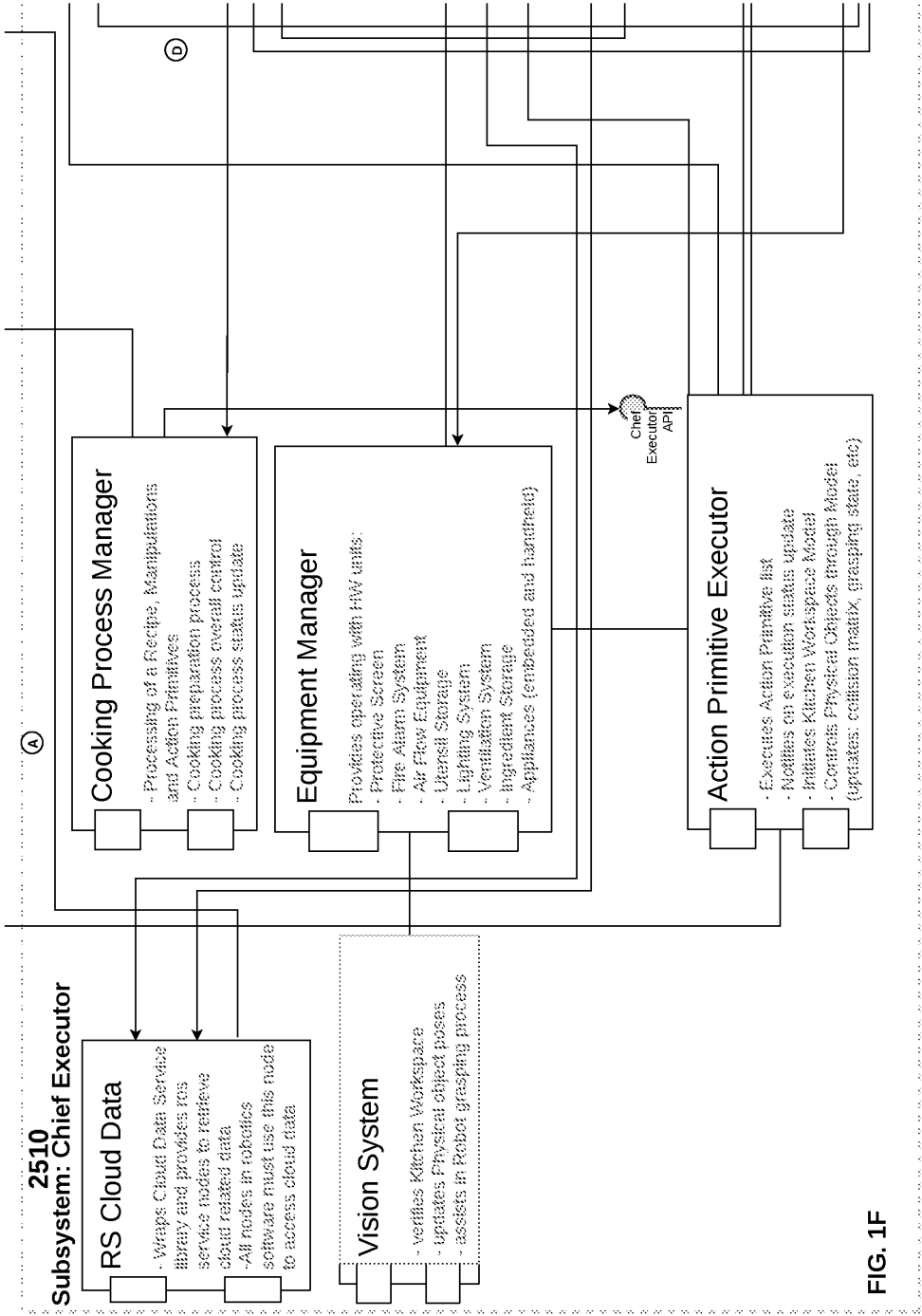


FIG. 1F

Appl. No. 16/909,842
 Response Dated 23 November 2020
 Notice to Incomplete Reply of 22 June 2020
 Replacement Sheet

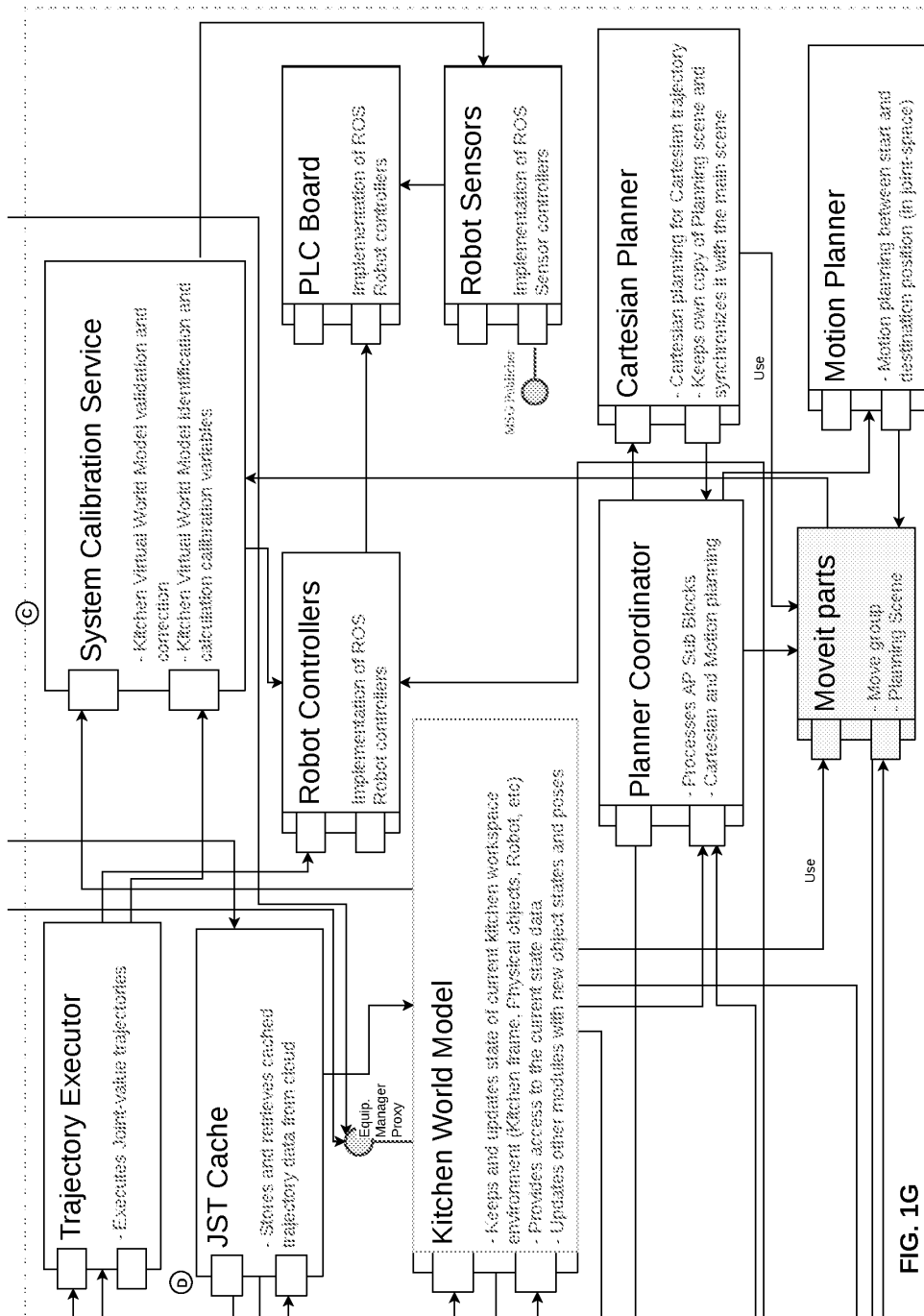


FIG. 1G

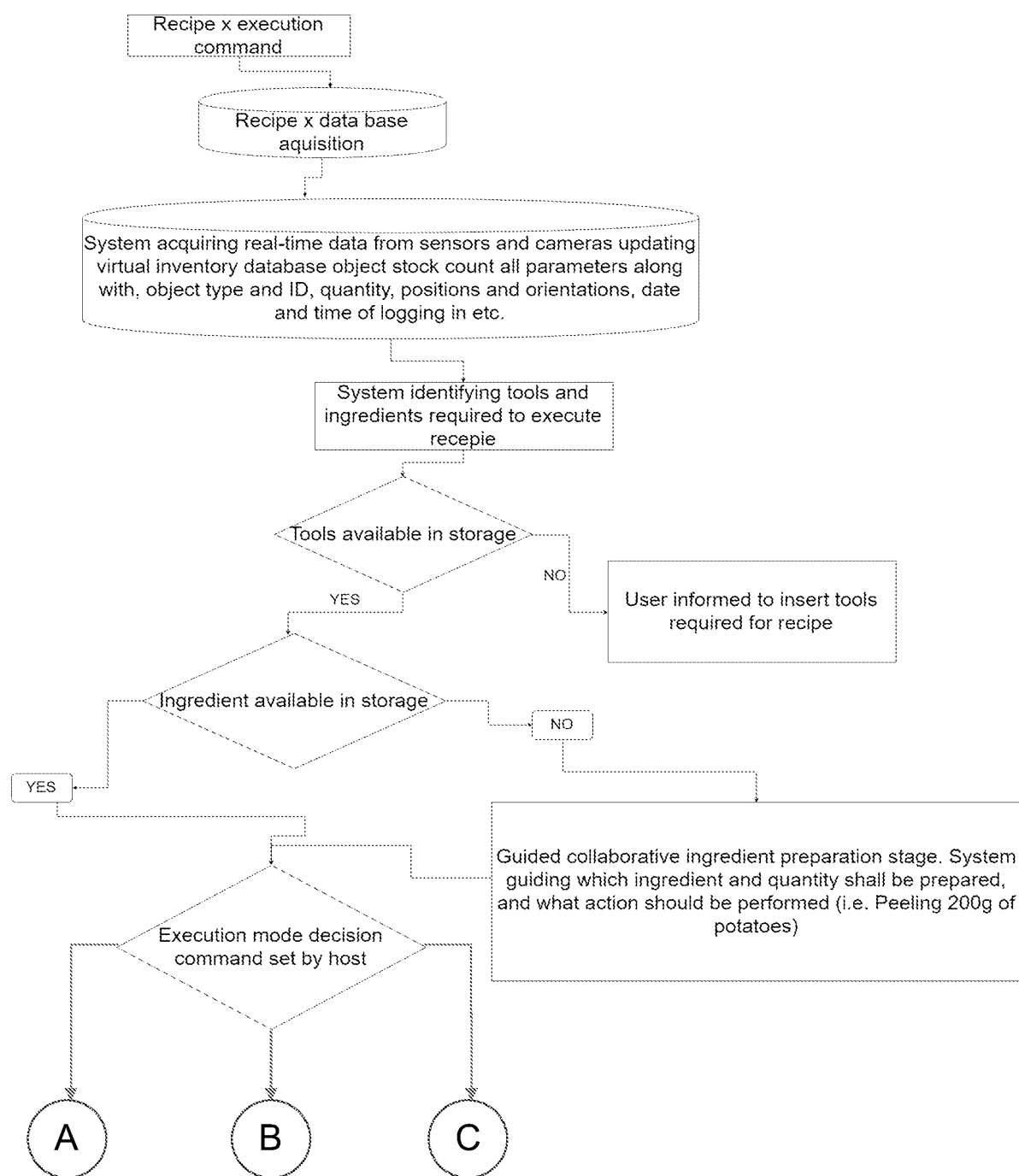


FIG. 2A-1

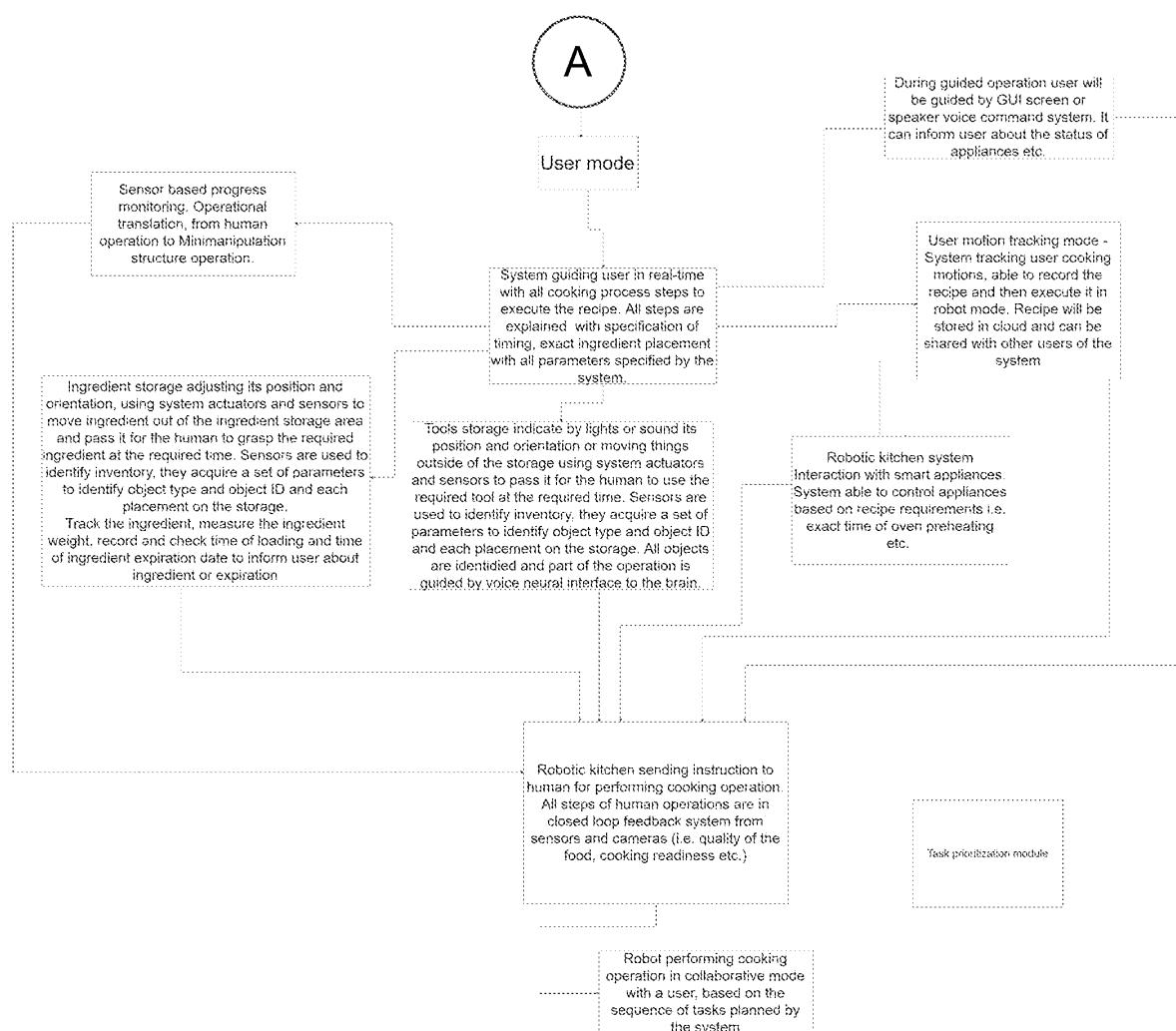


FIG. 2A-2

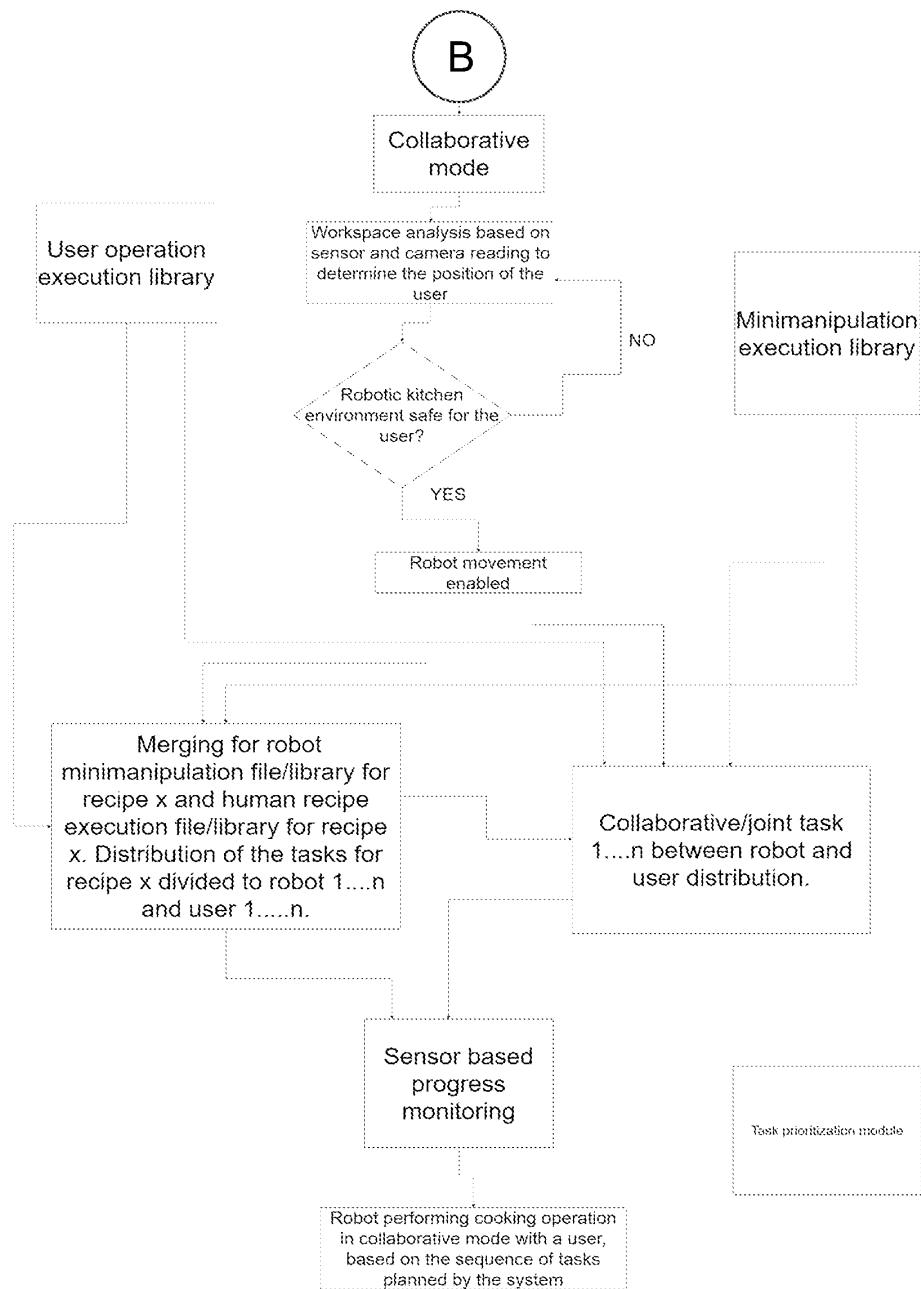
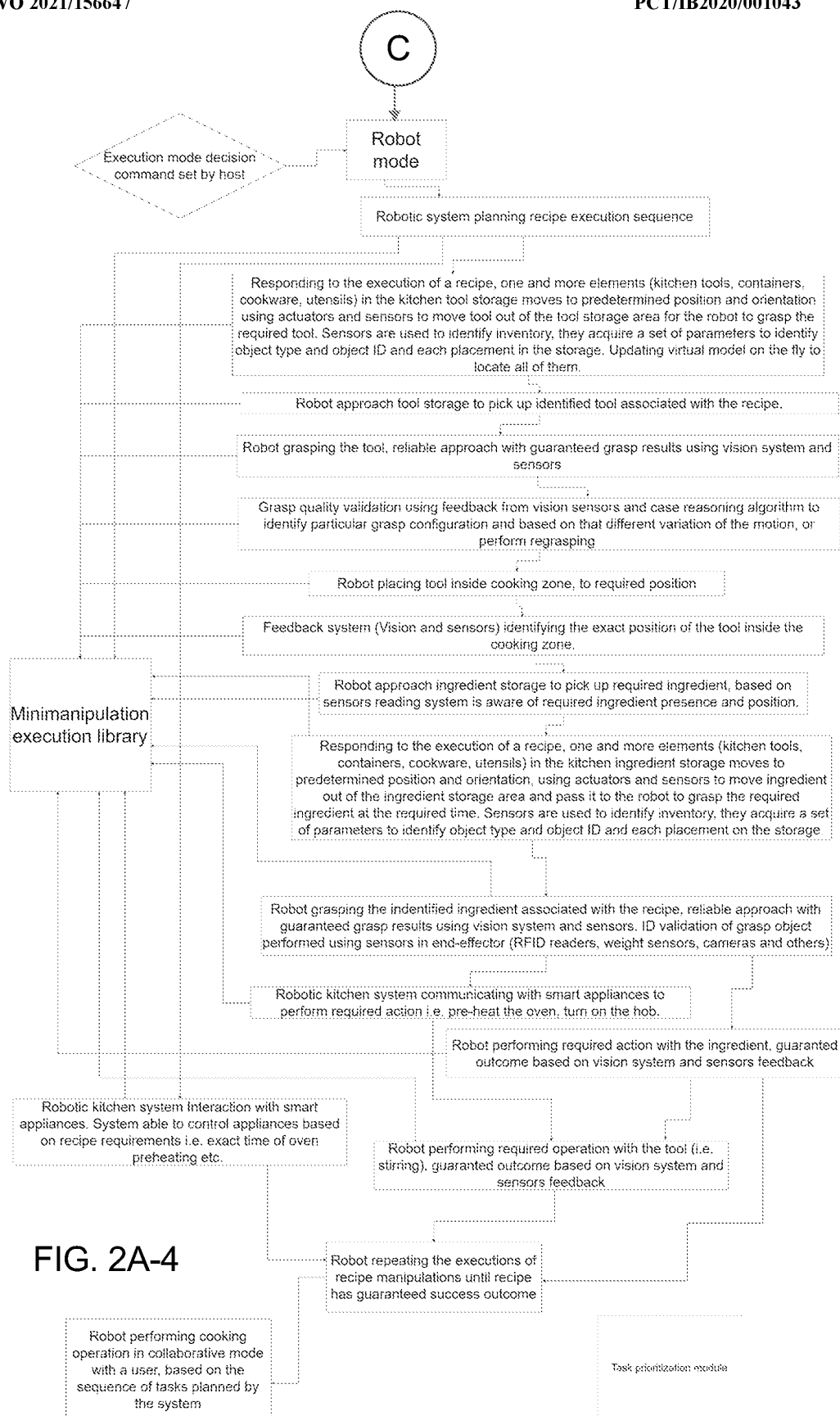


FIG. 2A-3



Data-Centric View of the Robotic Architecture

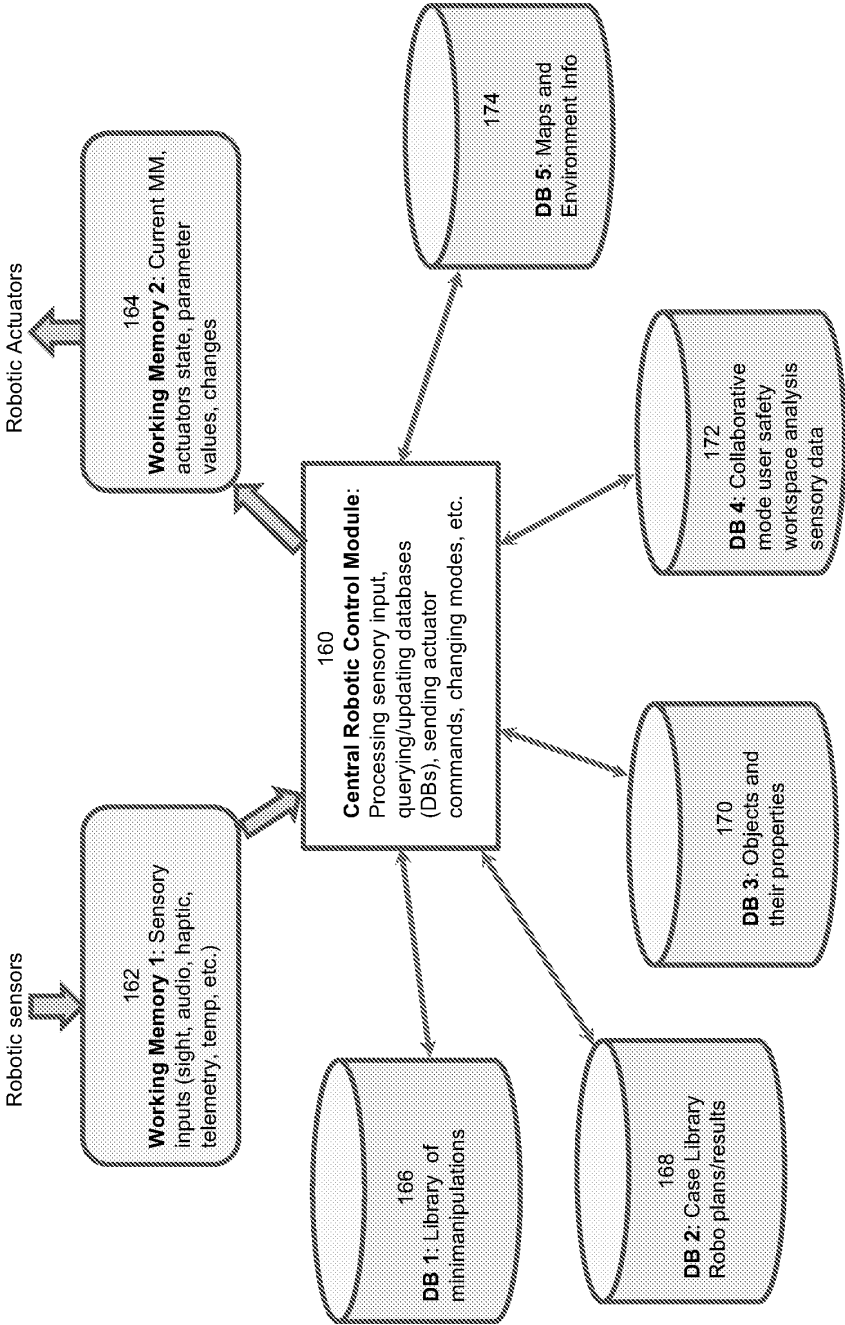


FIG. 2C

158

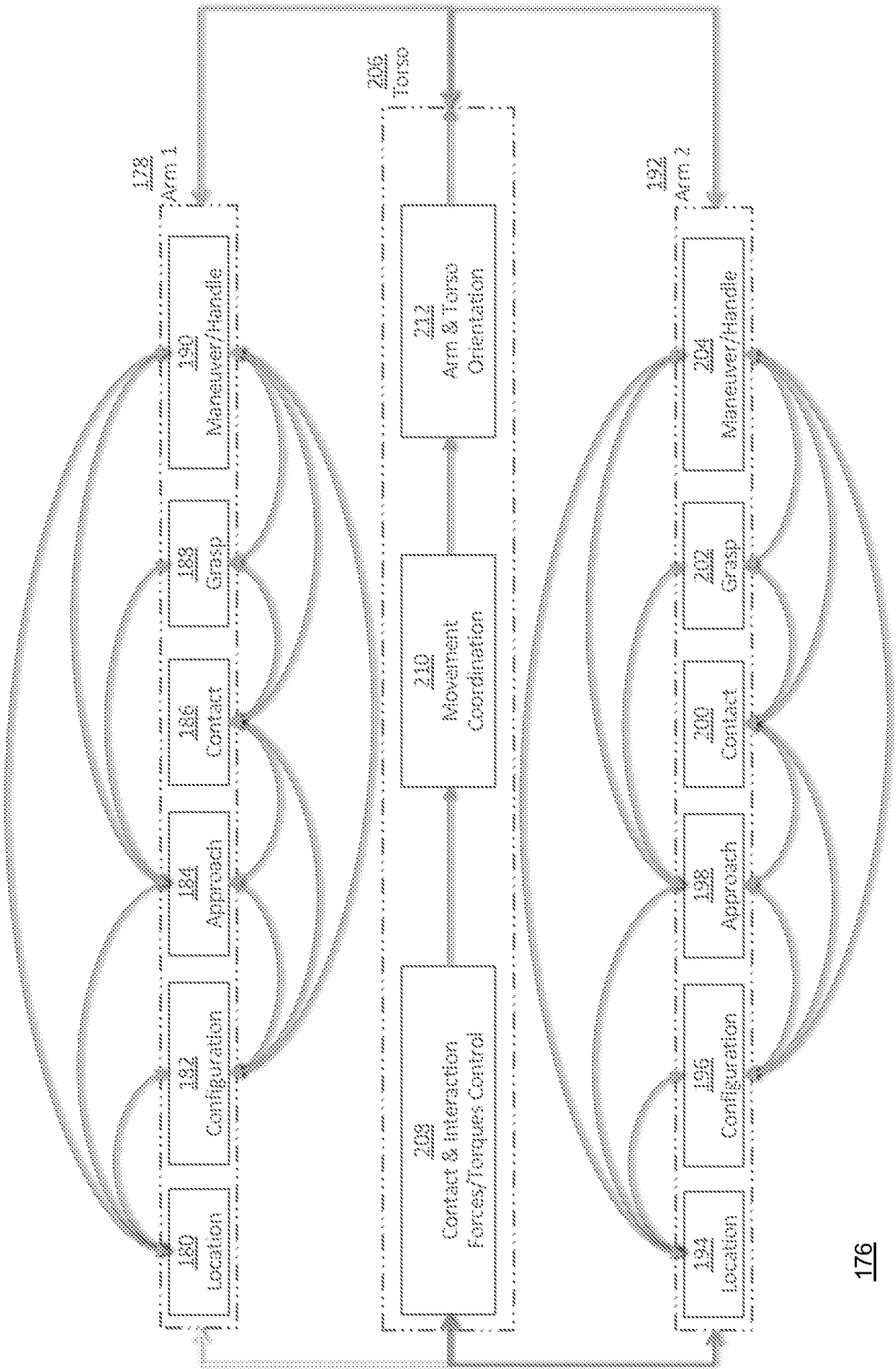


FIG. 2D

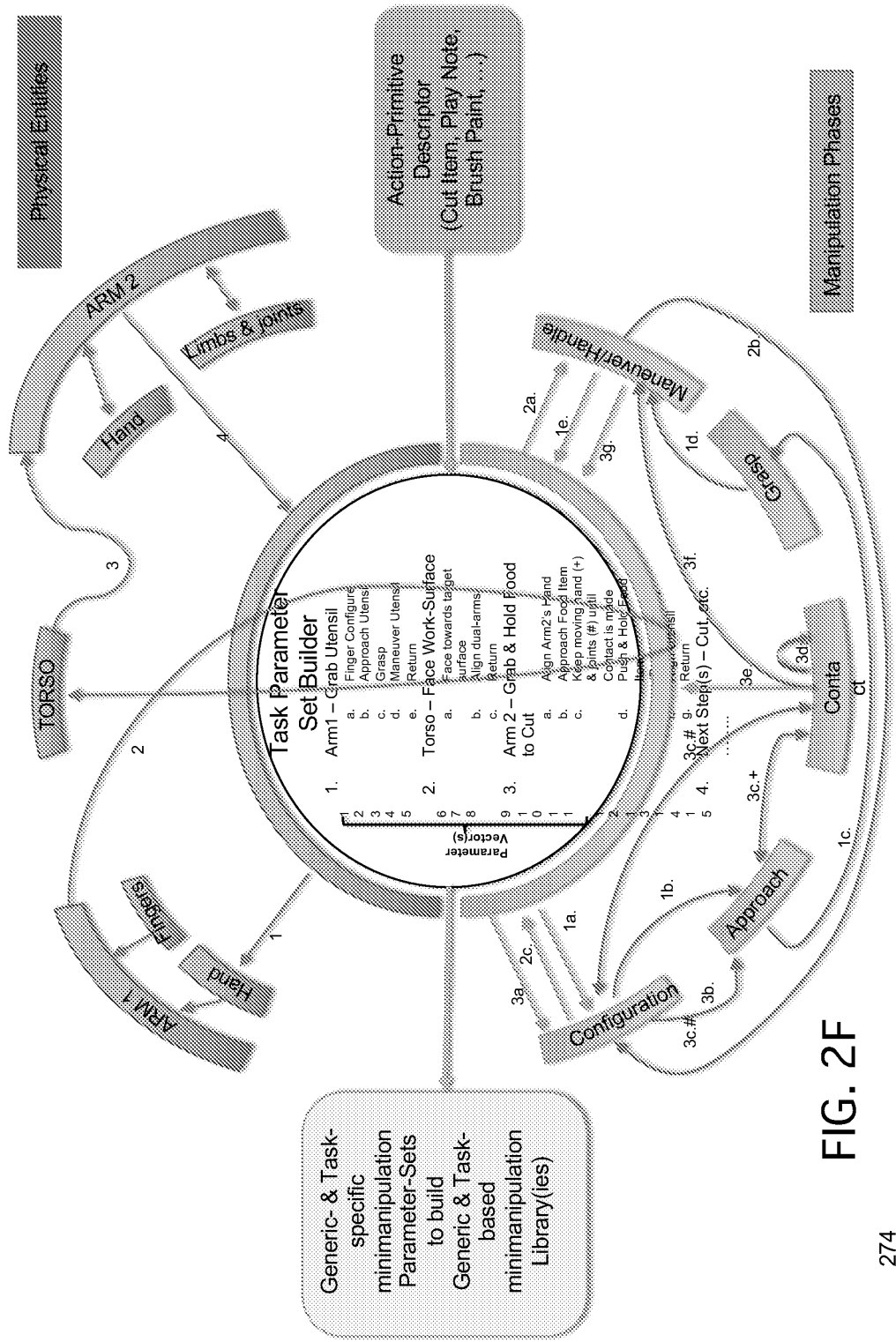
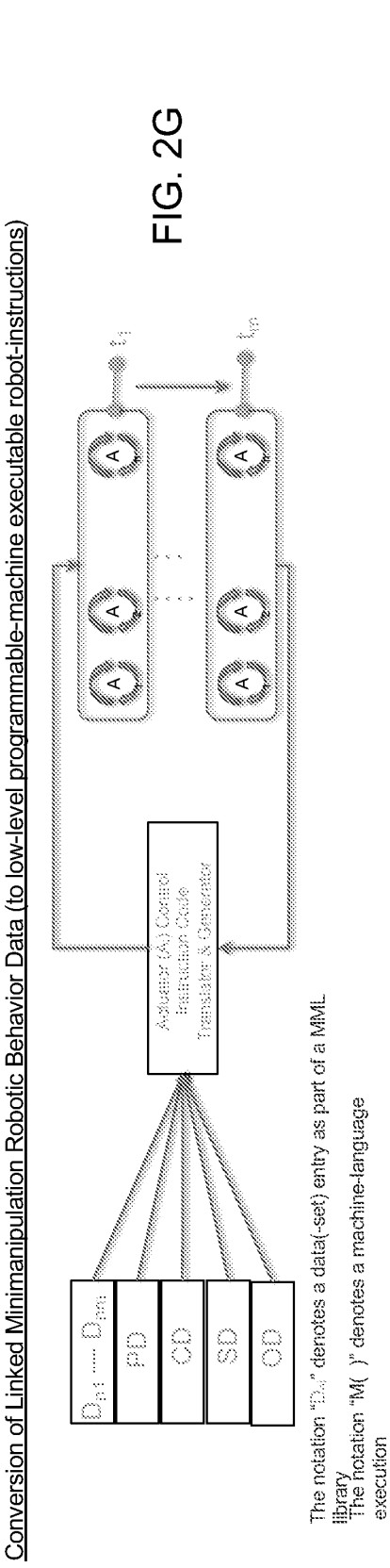
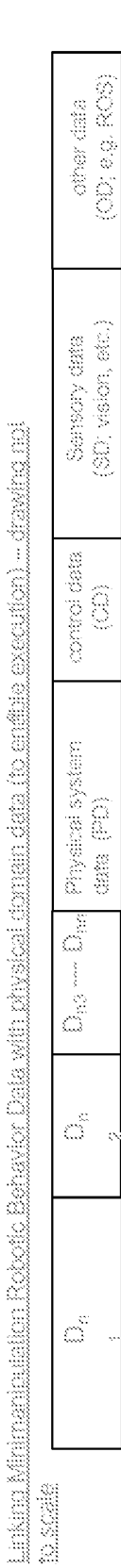
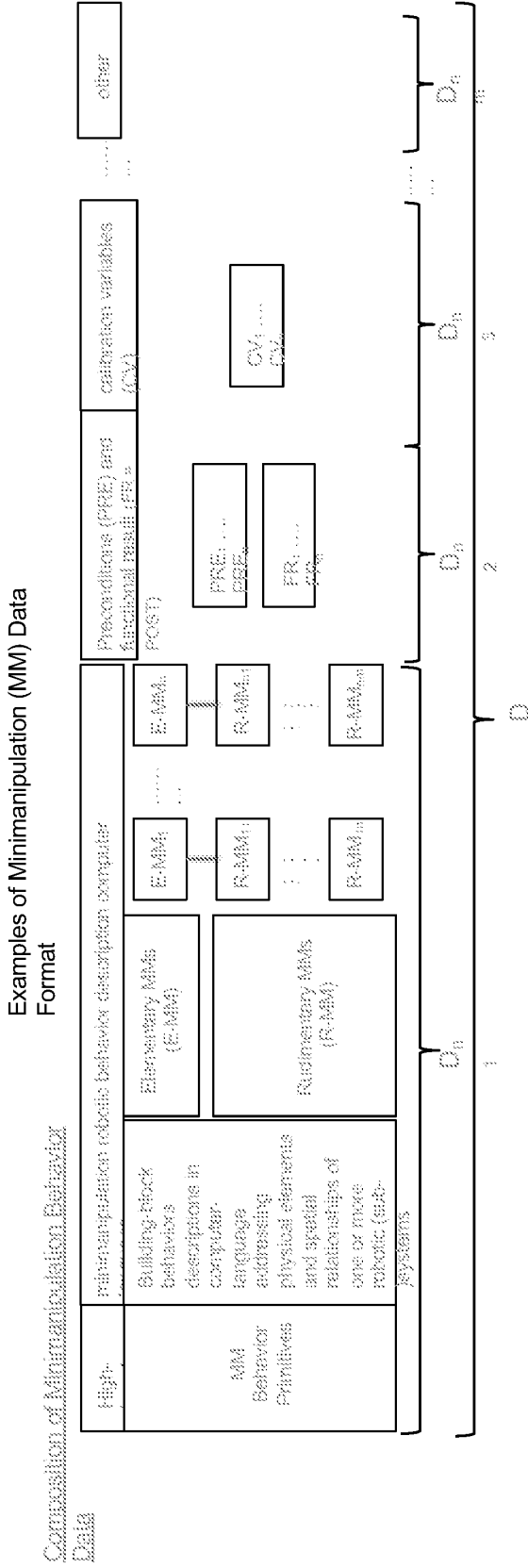
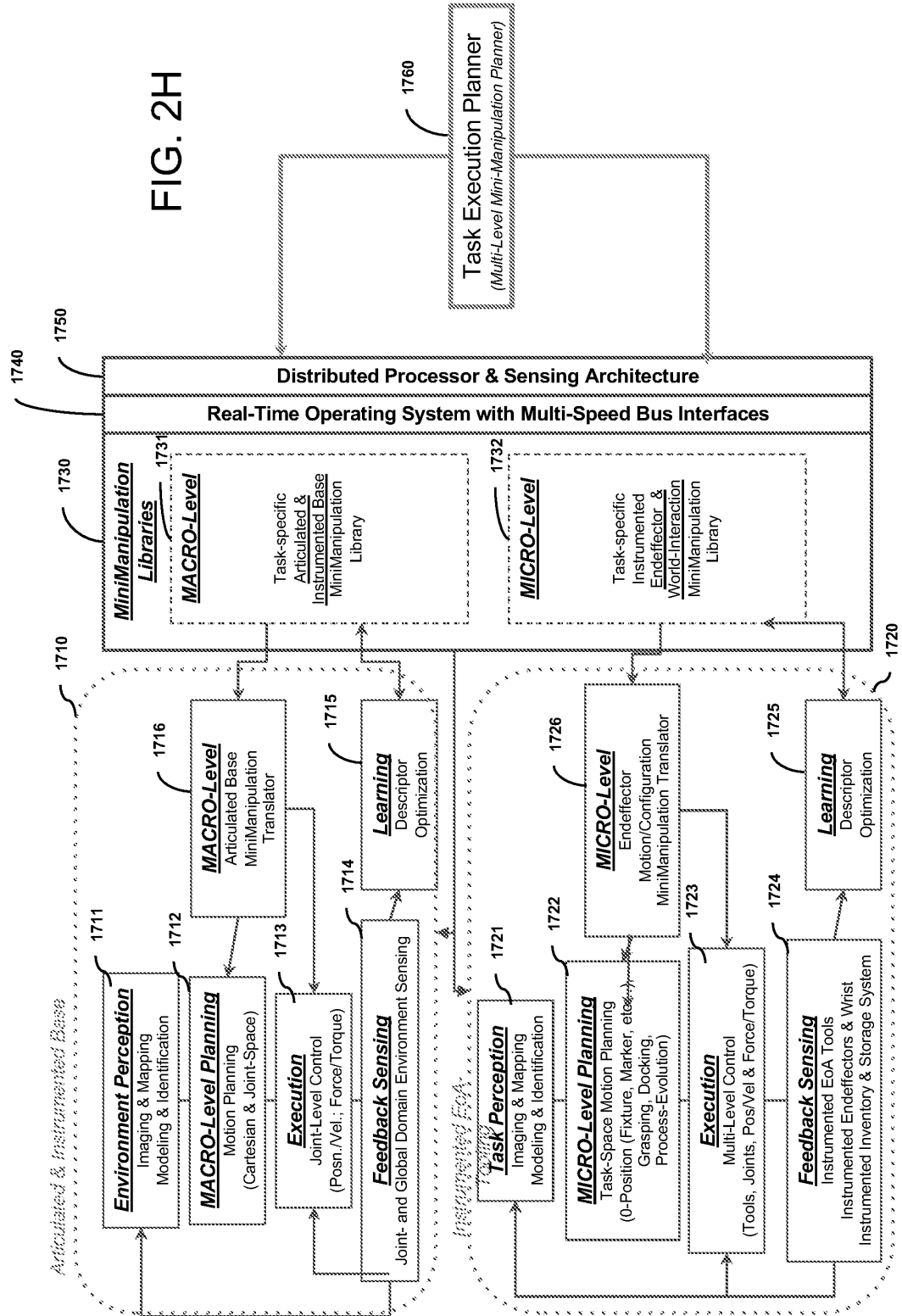


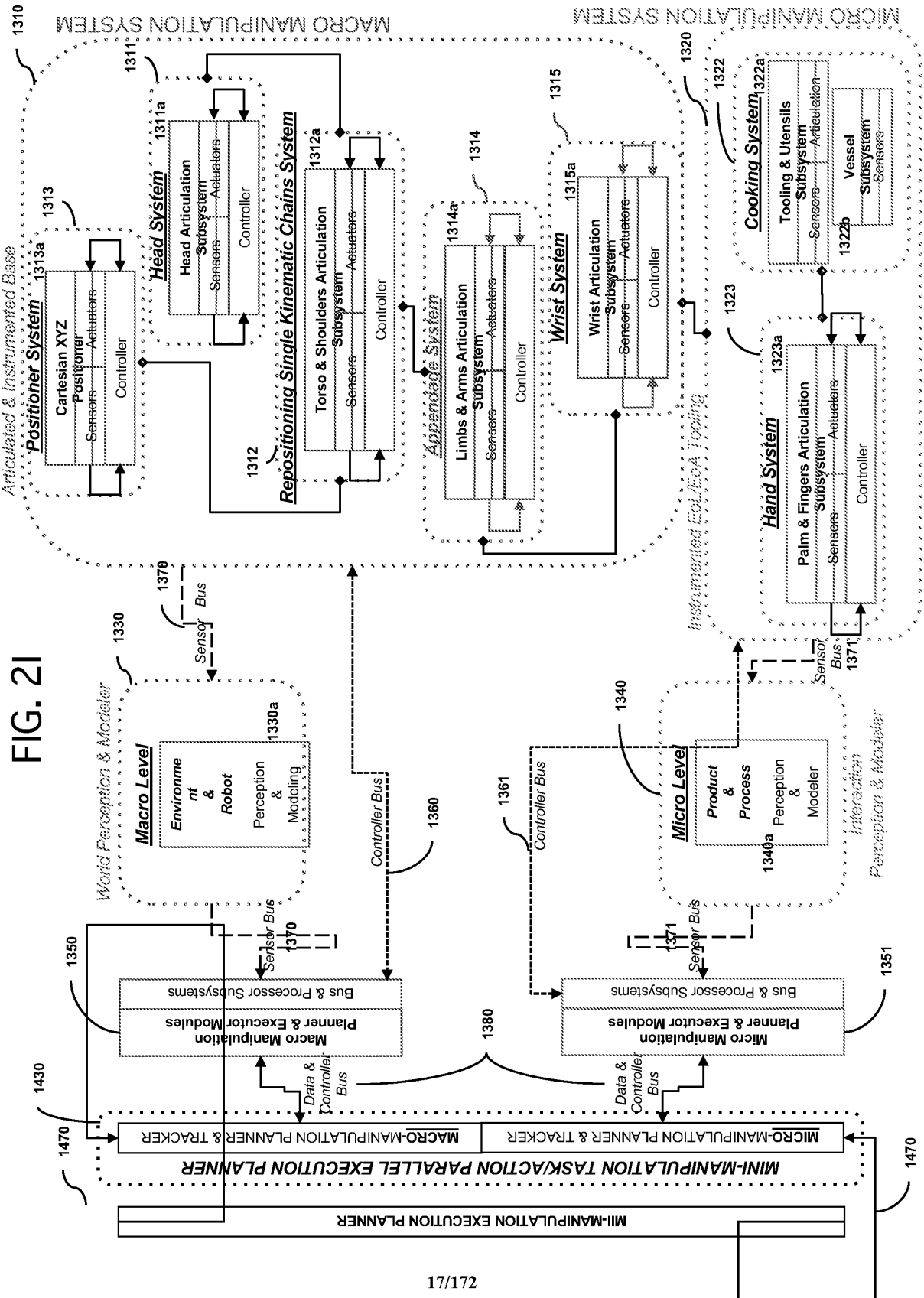
FIG. 2F



Software-Module/Action Layer

(Nomenclature with Database & Hardware Implementation)

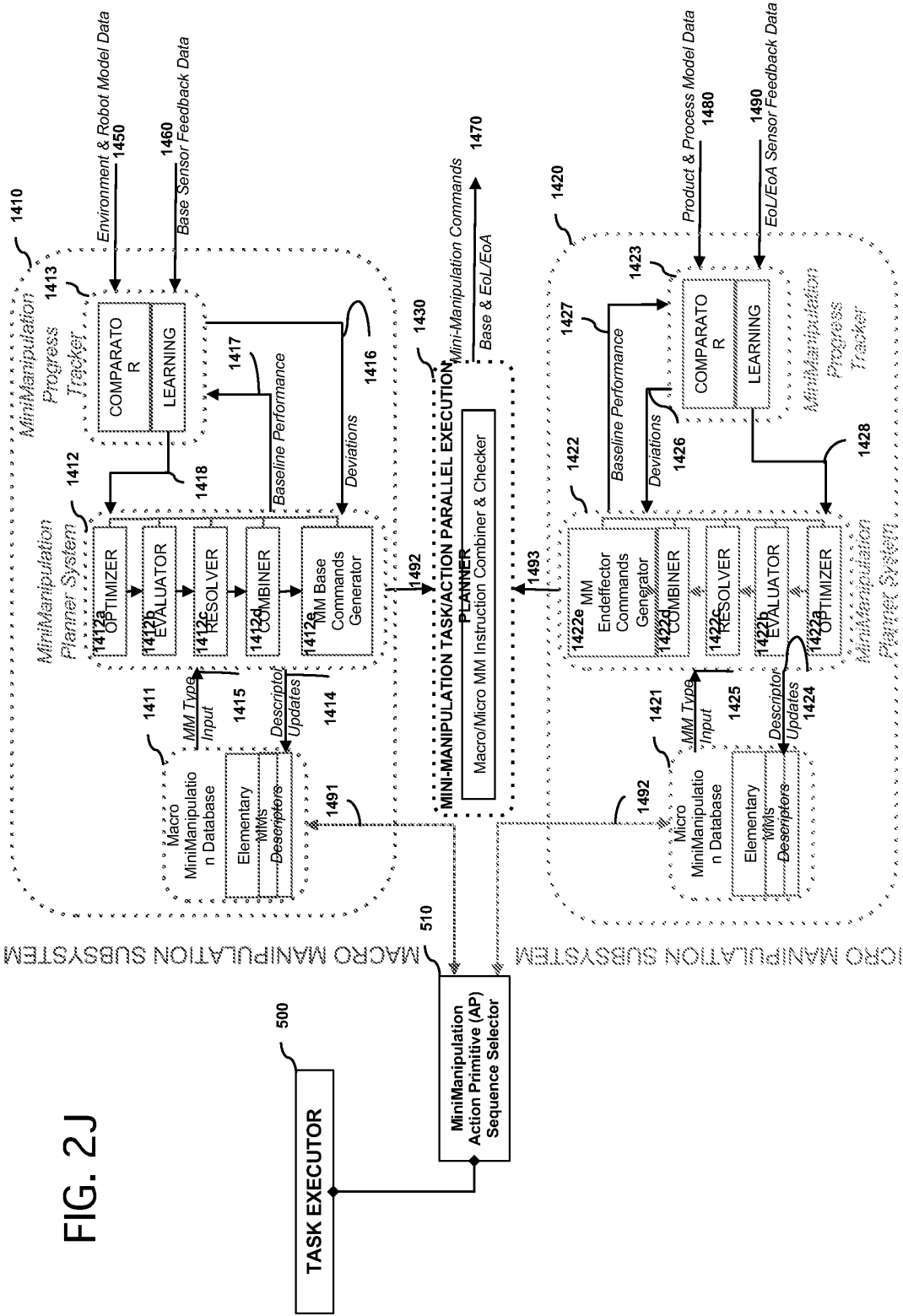




Architecture

(Multi-Level Generation Process of MiniManipulations)

FIG. 2J



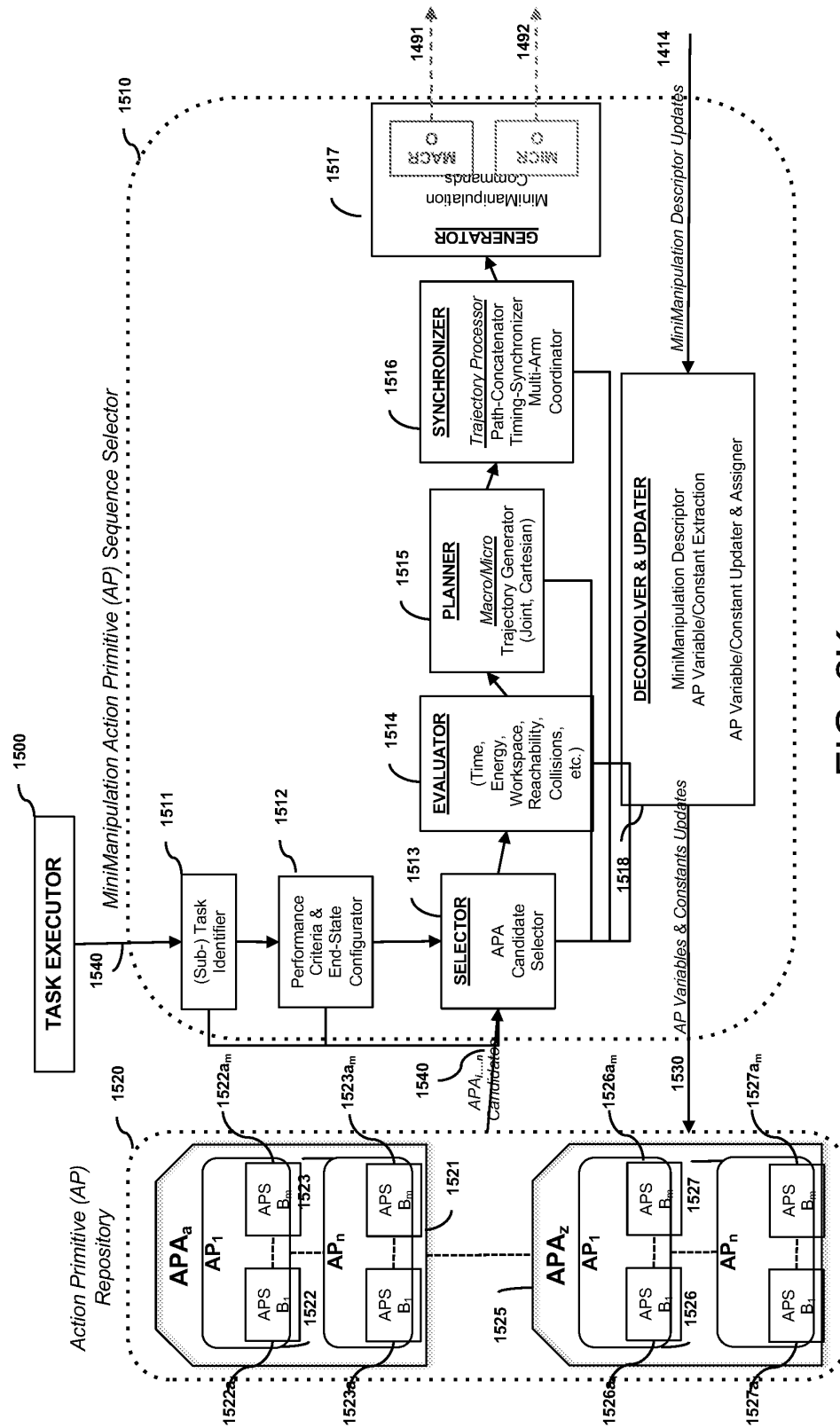
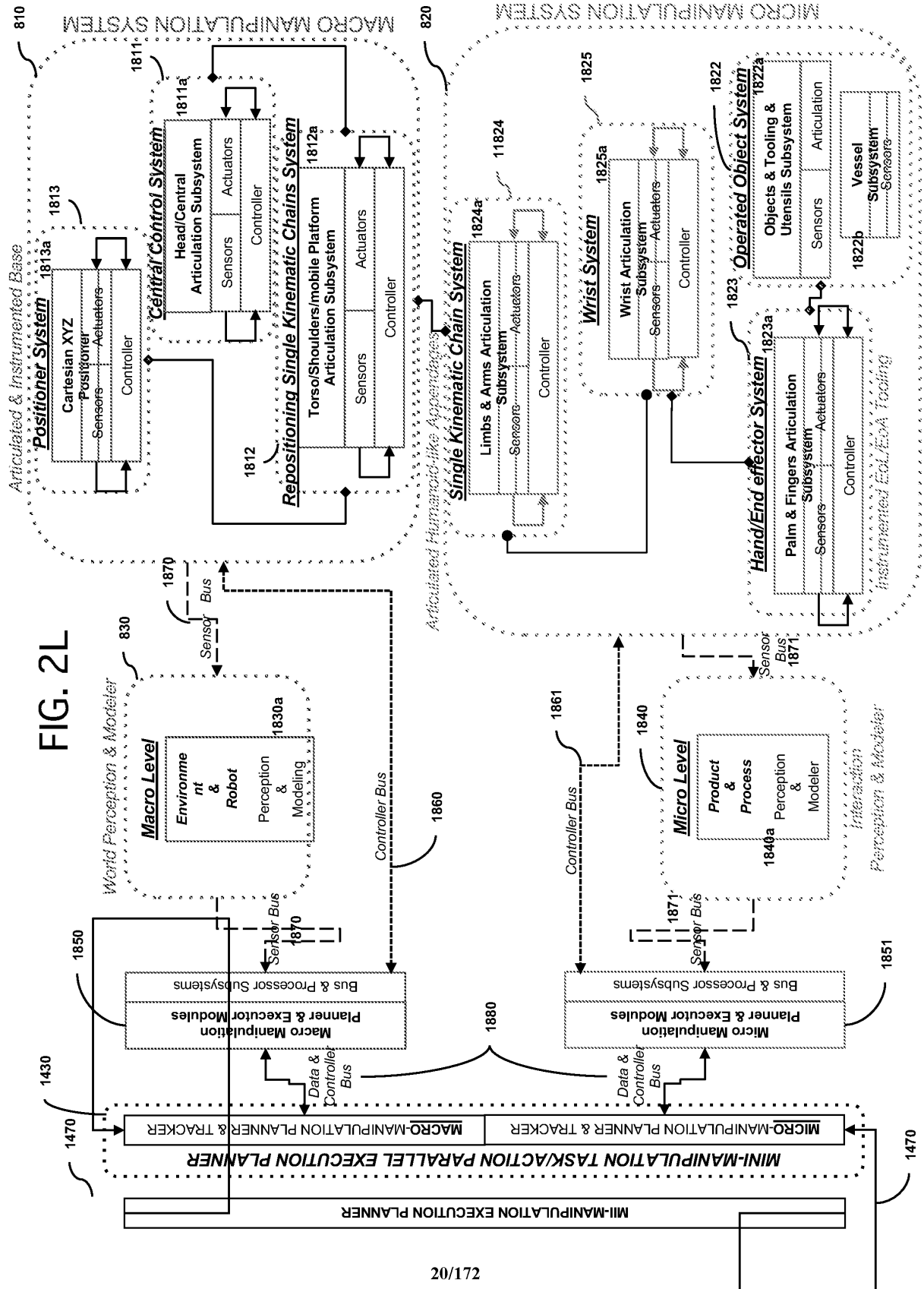
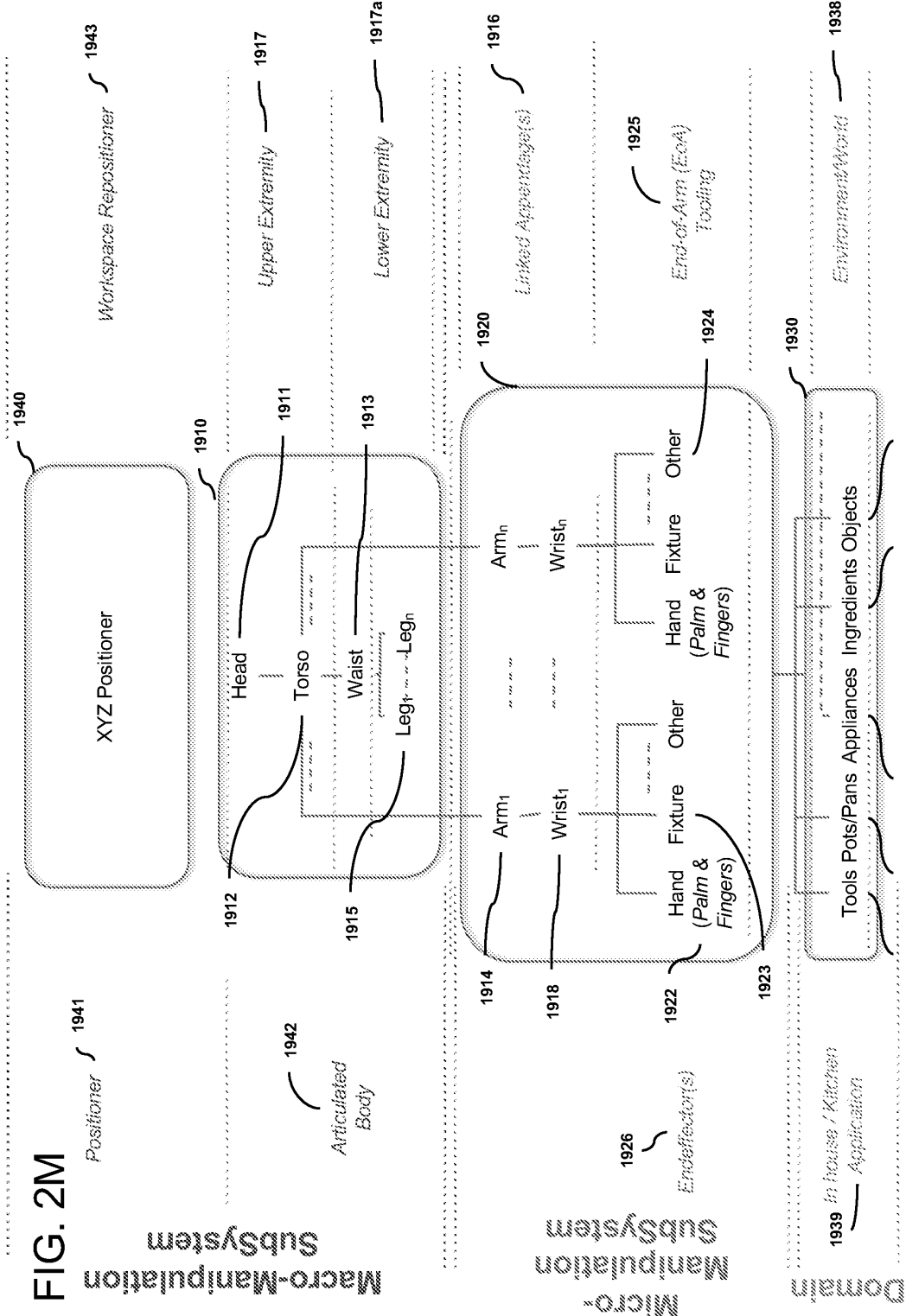


FIG. 2K



Physical Humanoid-type Configuration Layer



Macro-/Micro Structure Decision Process

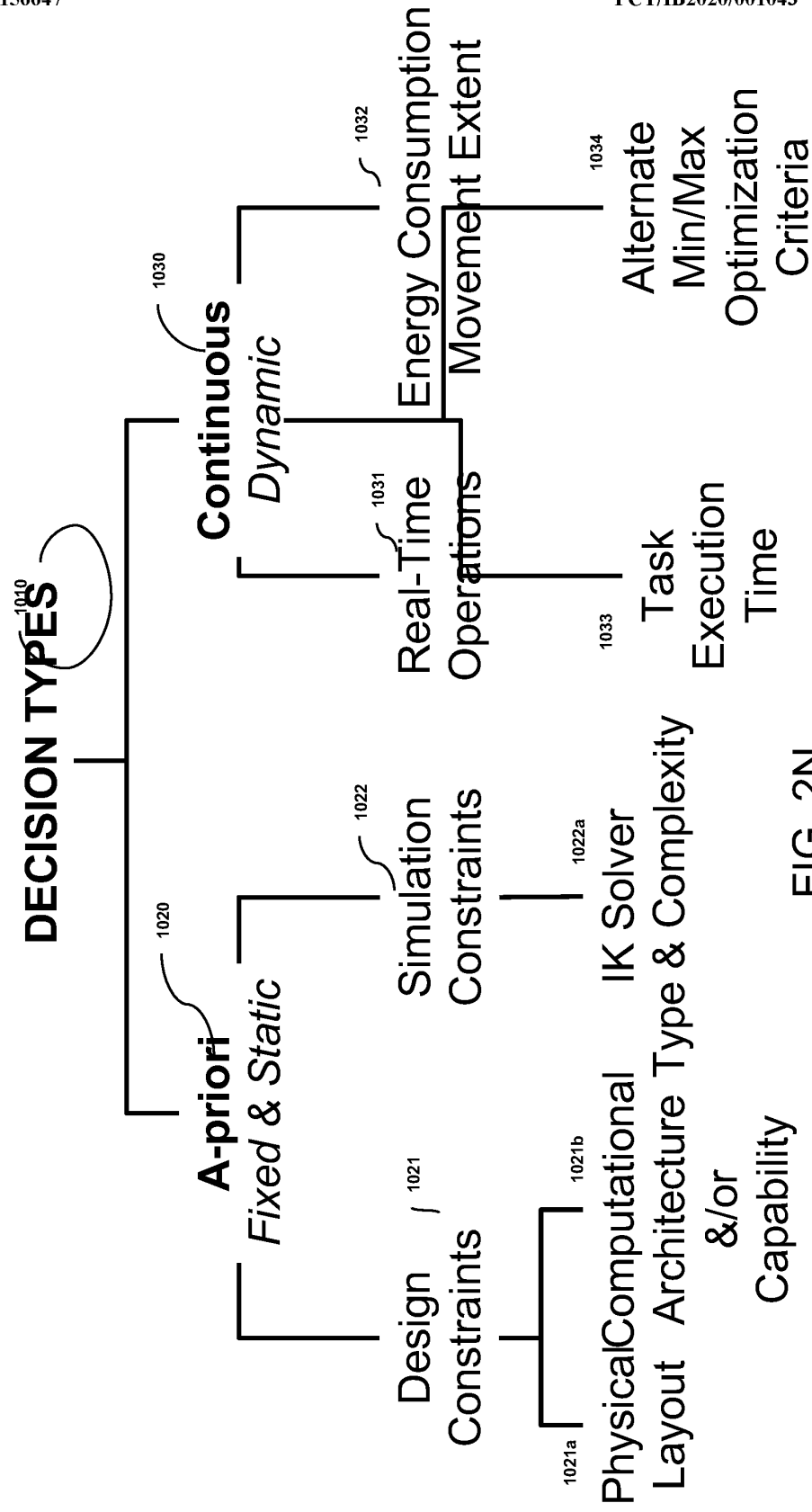
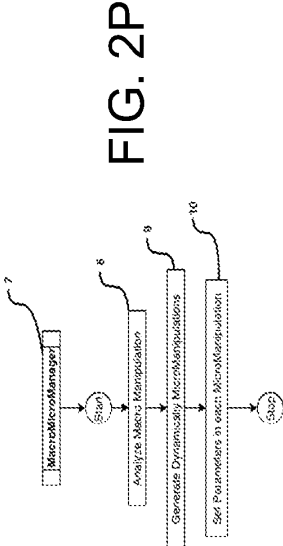
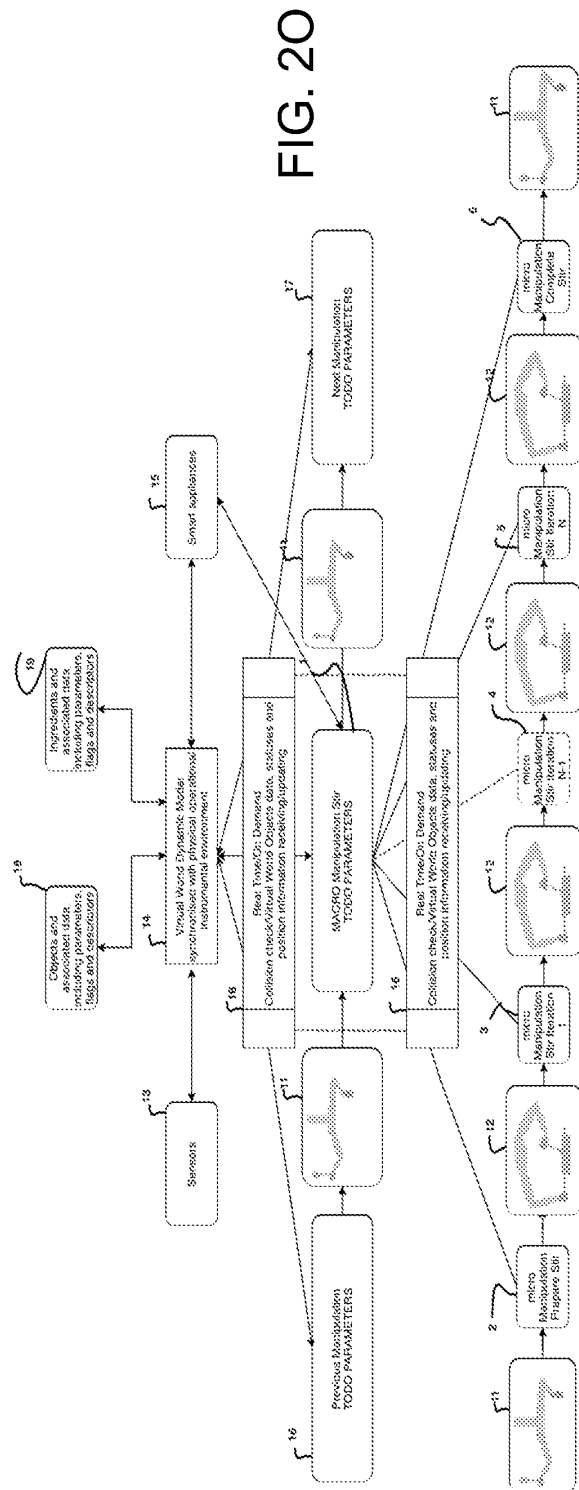


FIG. 2N



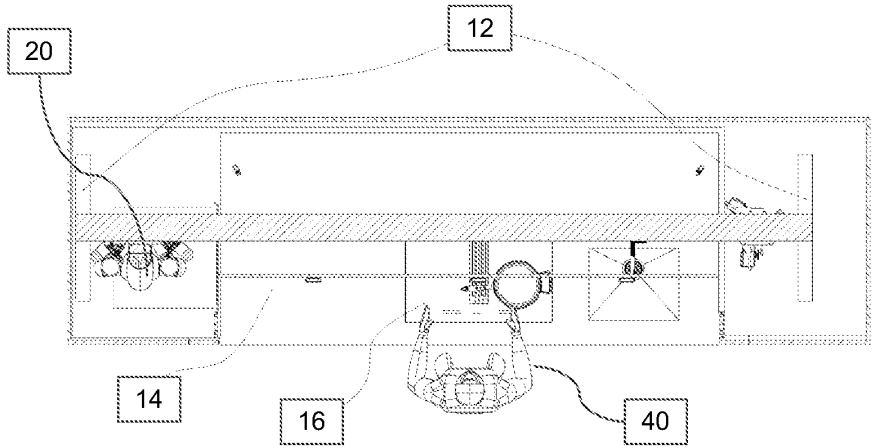


FIG. 3A

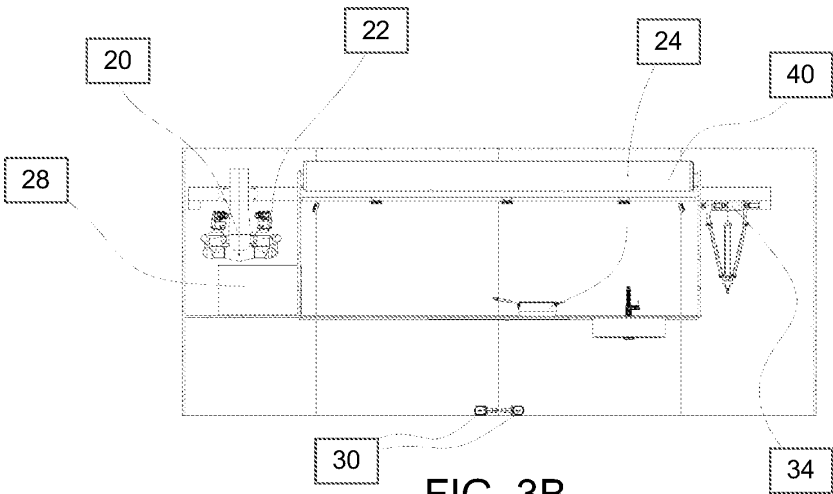


FIG. 3B

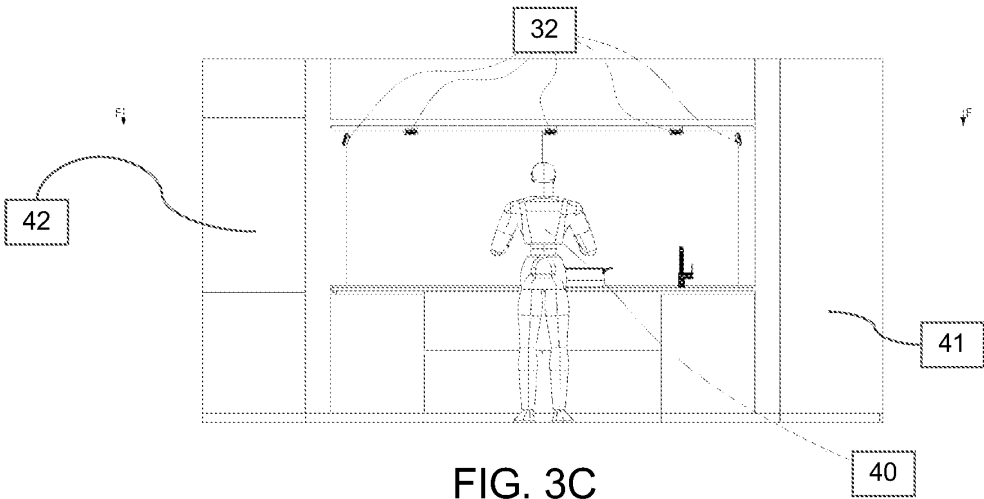
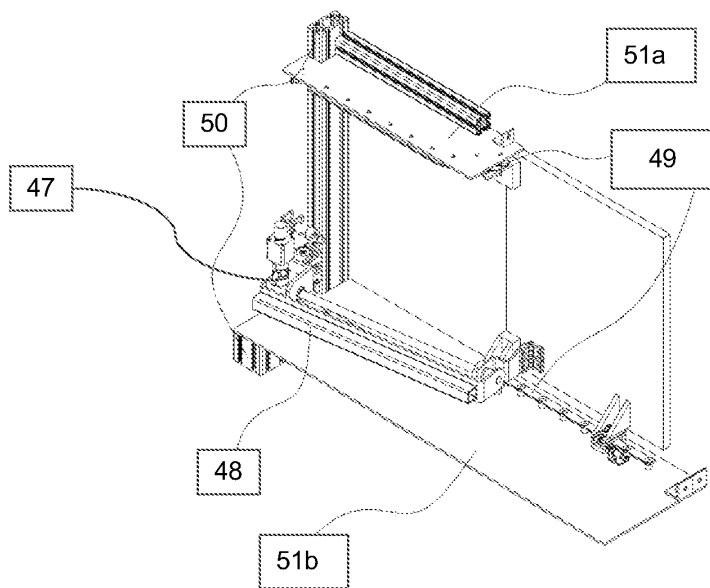
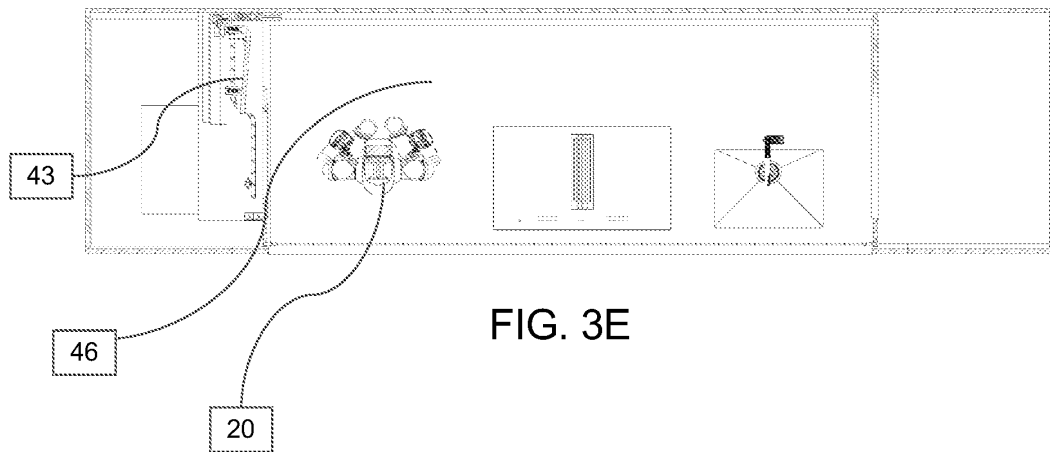
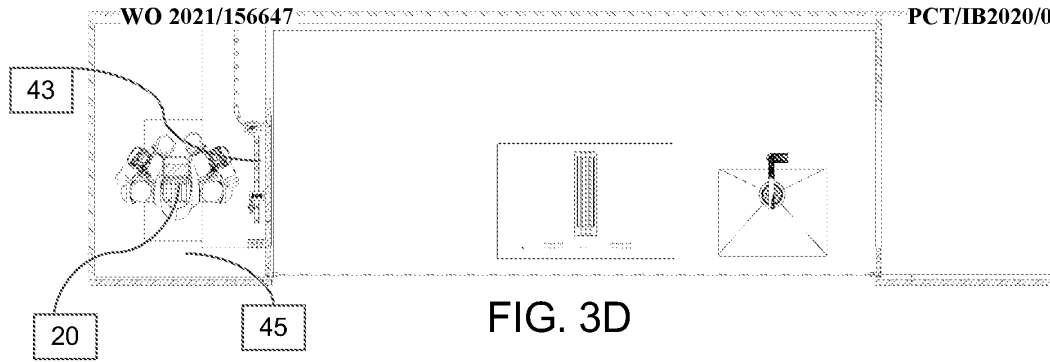
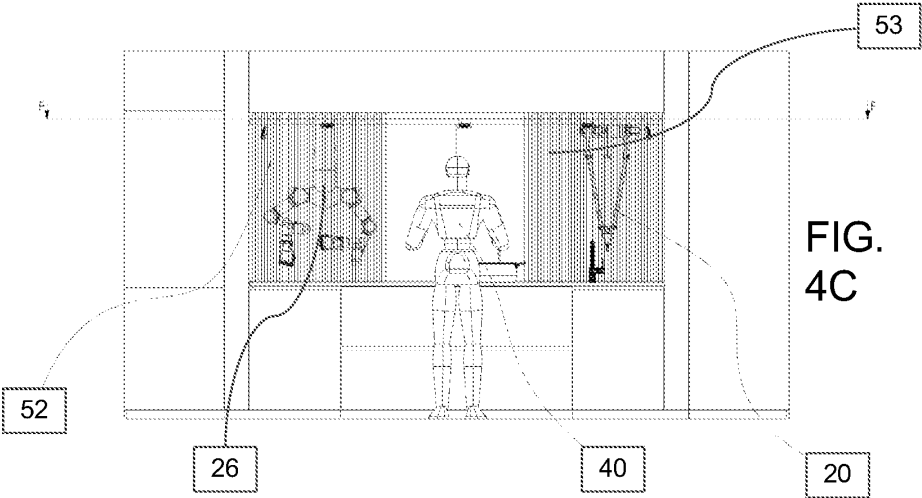
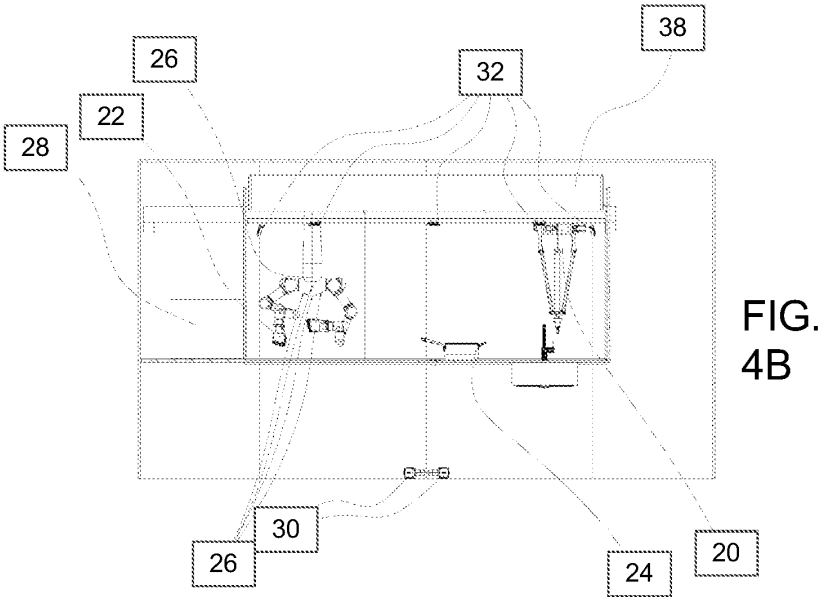
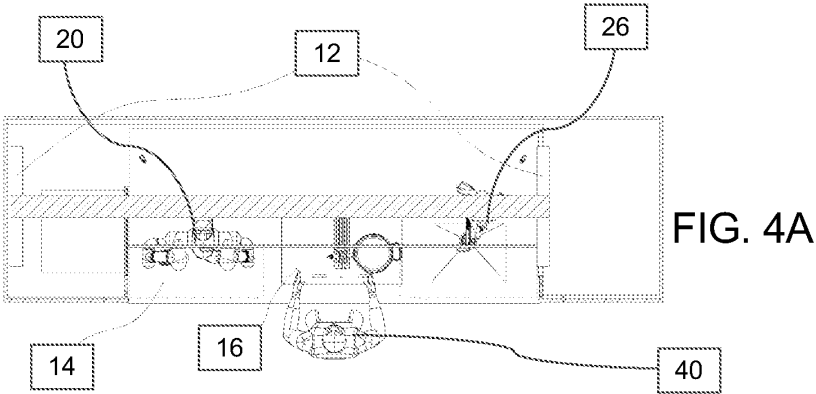


FIG. 3C





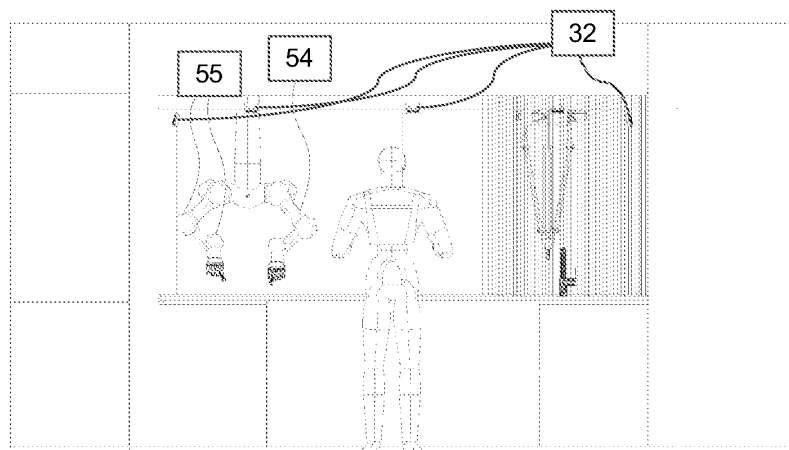


FIG. 5

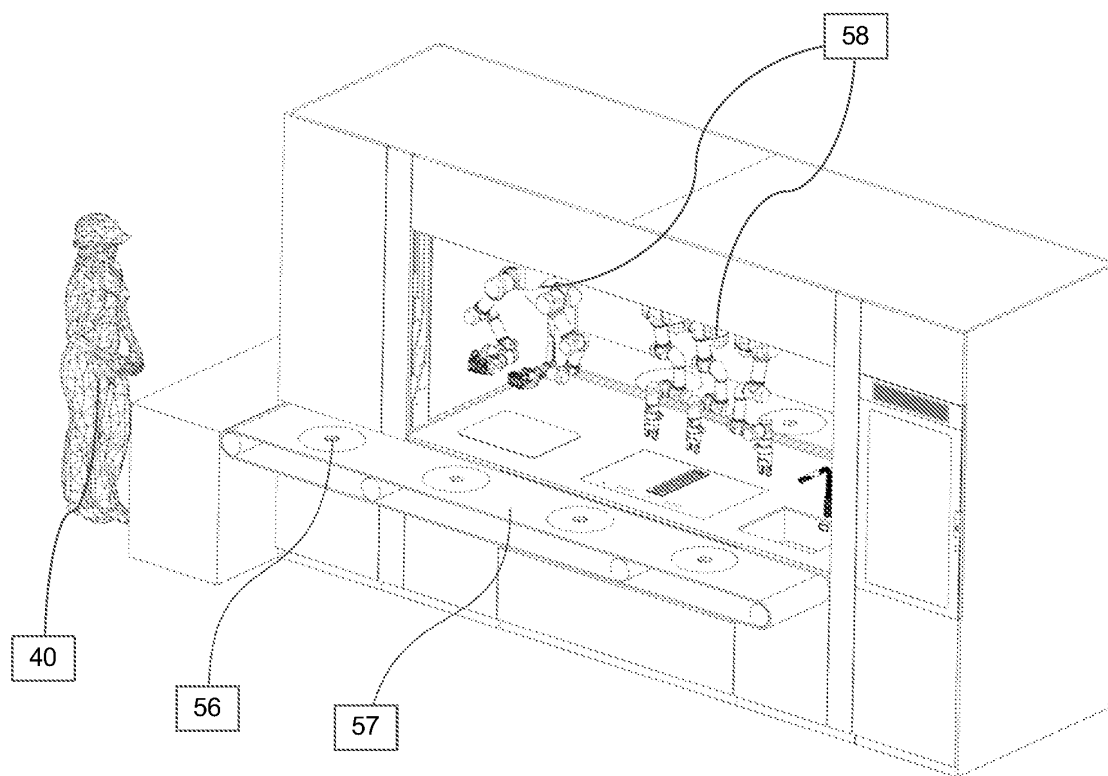


FIG. 6

Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet

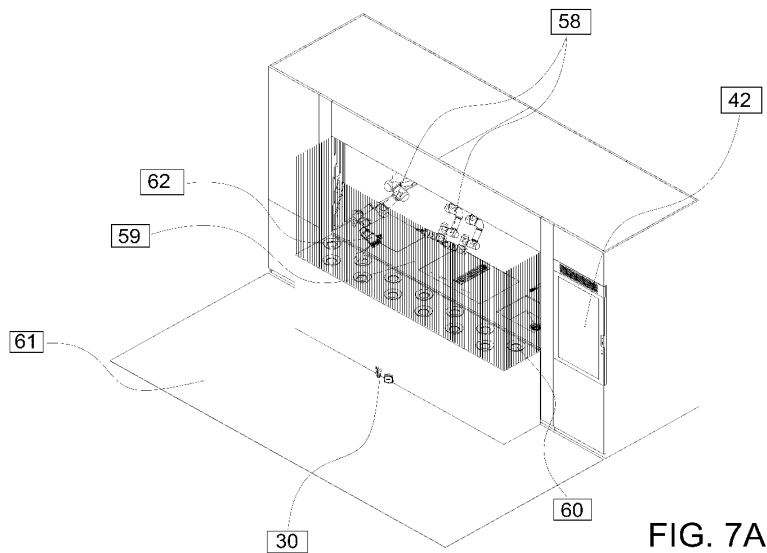


FIG. 7A

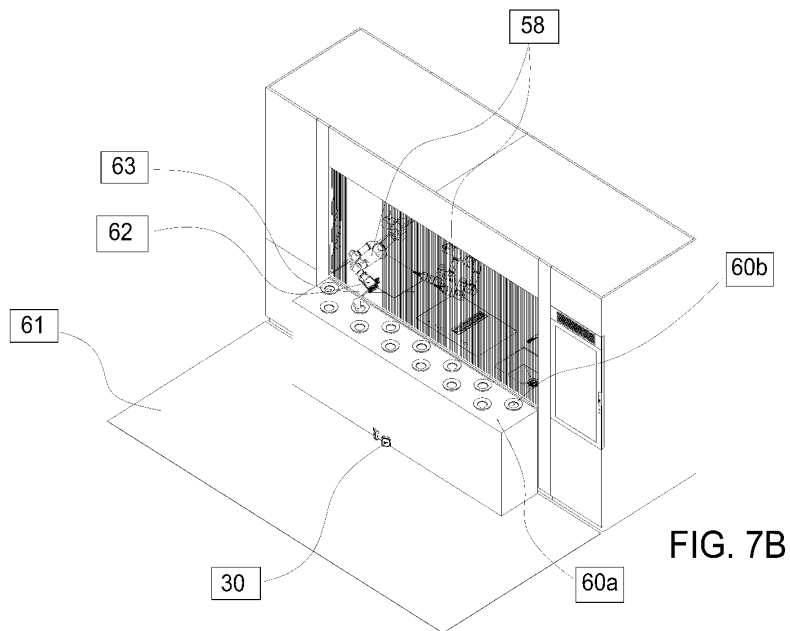
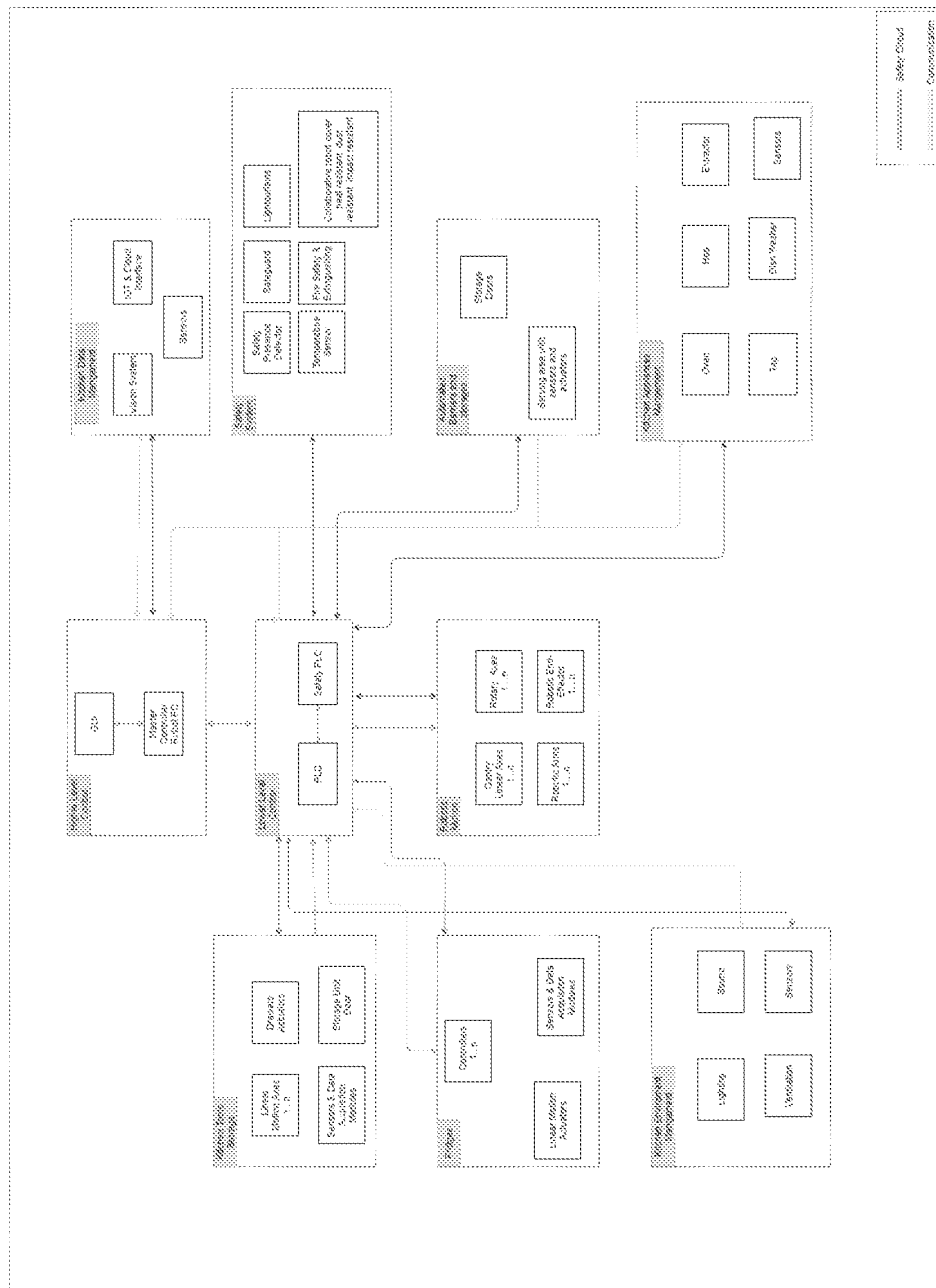


FIG. 7B


$$\frac{\infty}{E|G}$$

Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet

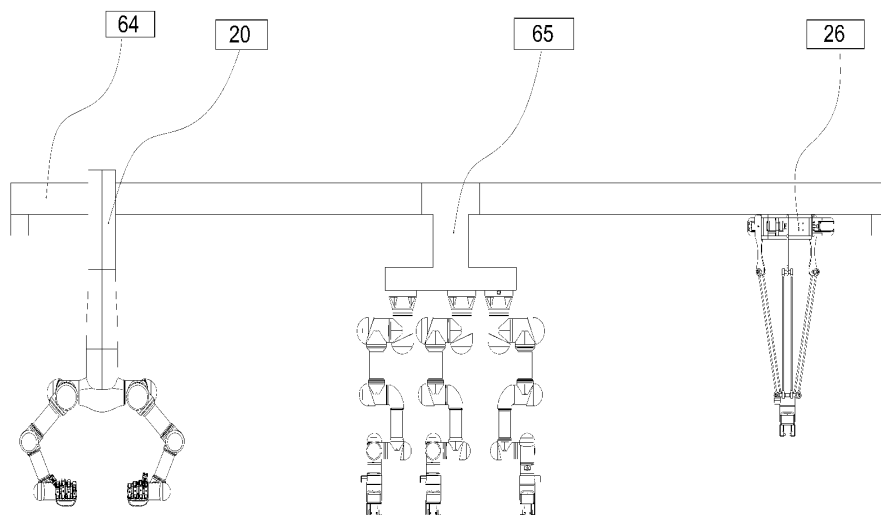


FIG. 9

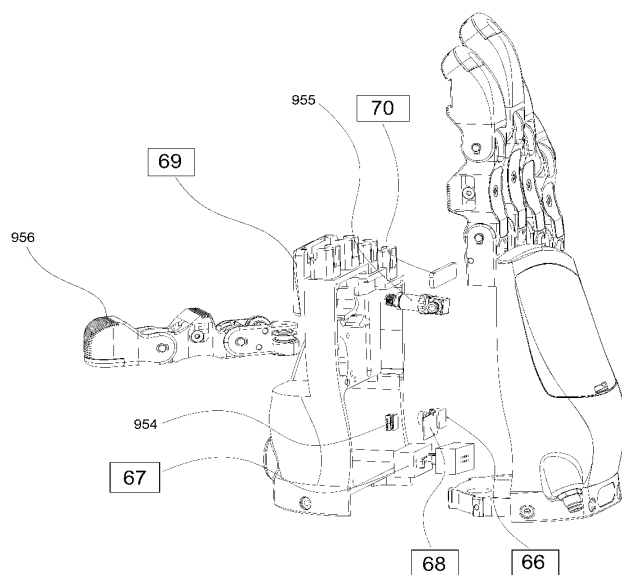


FIG. 10

Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet

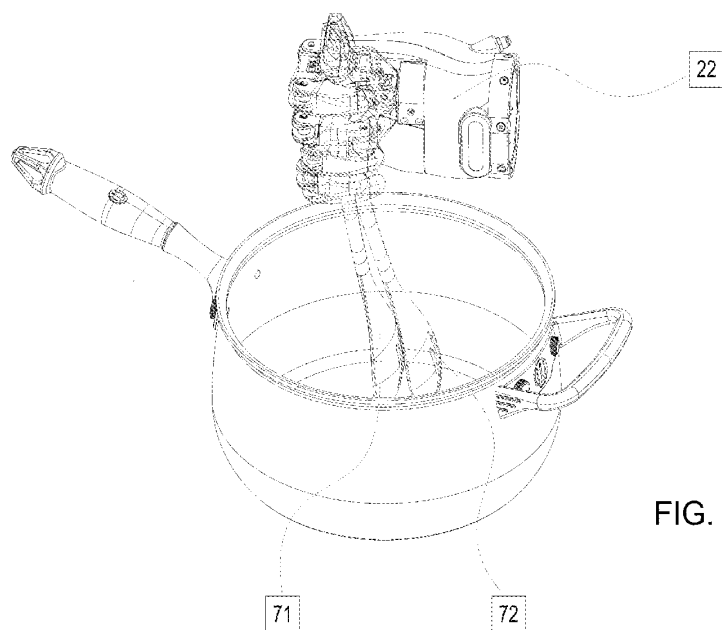


FIG. 11A

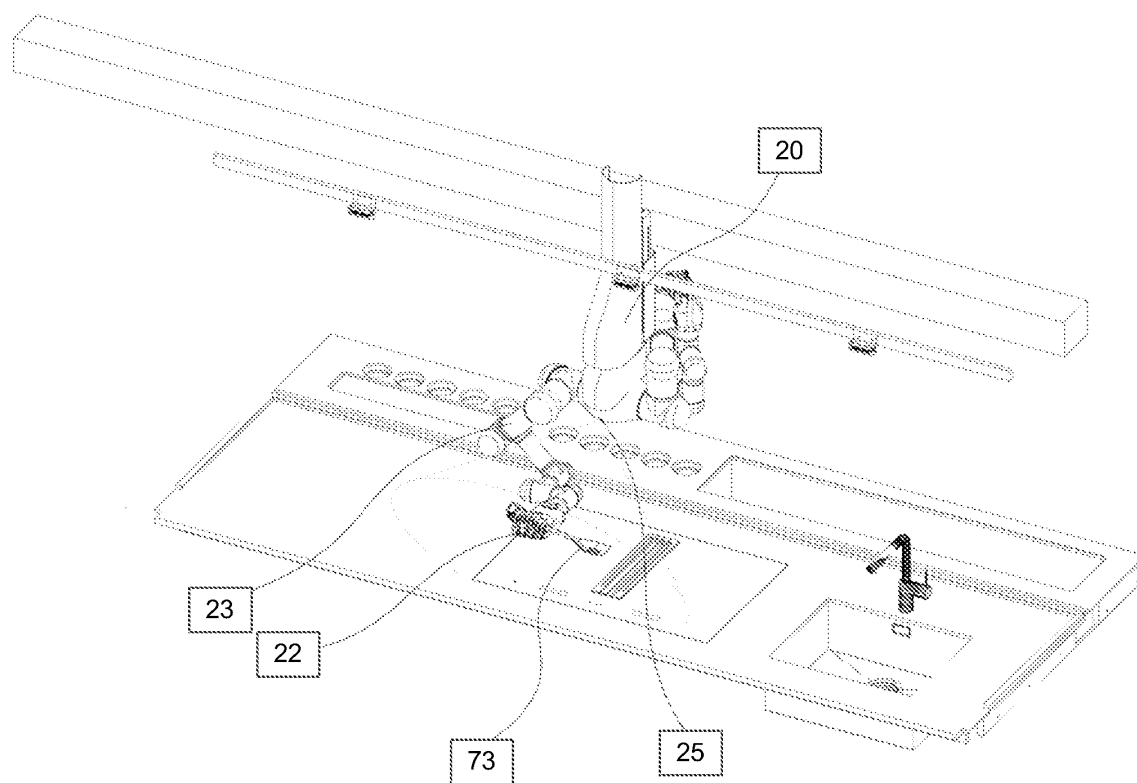


FIG. 11B

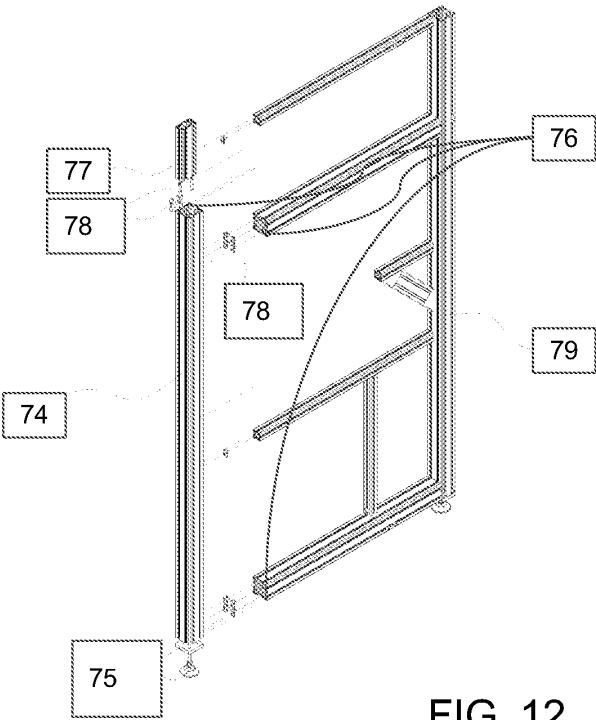


FIG. 12

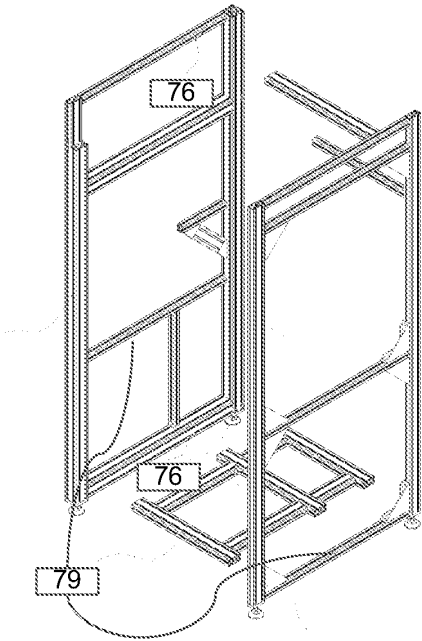
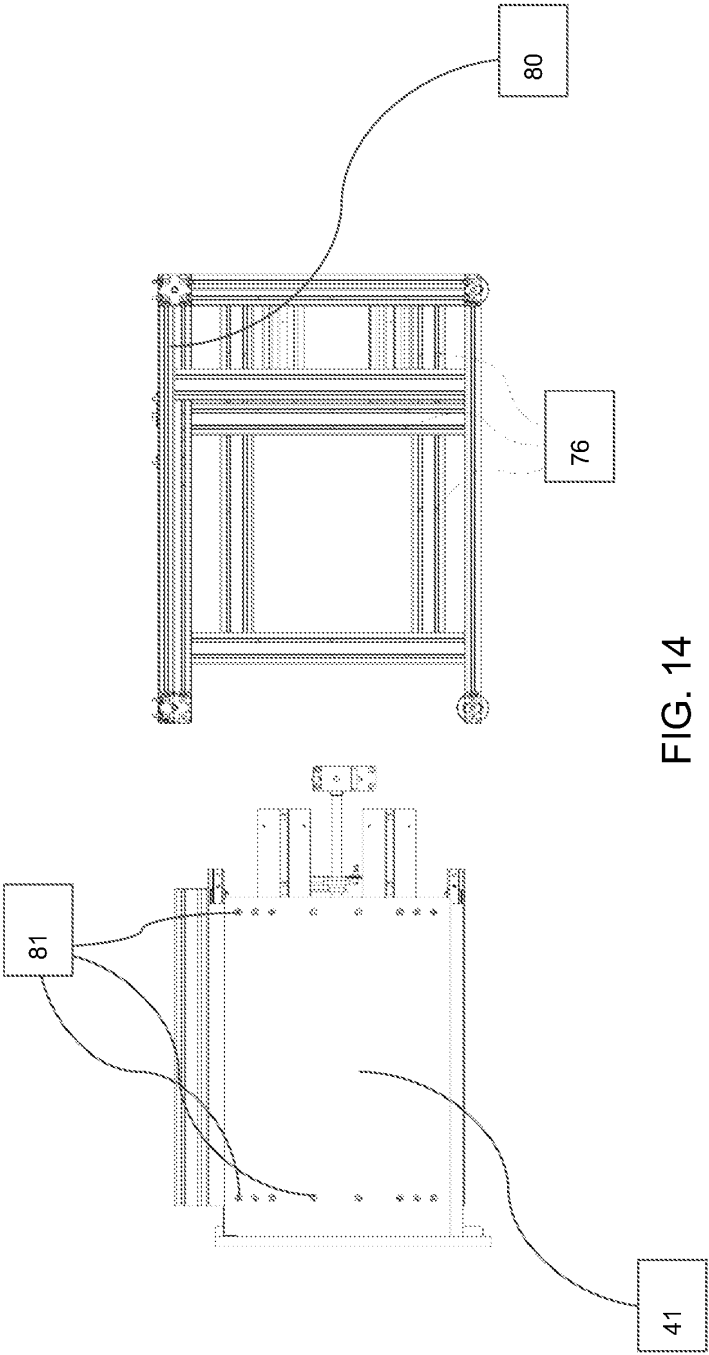
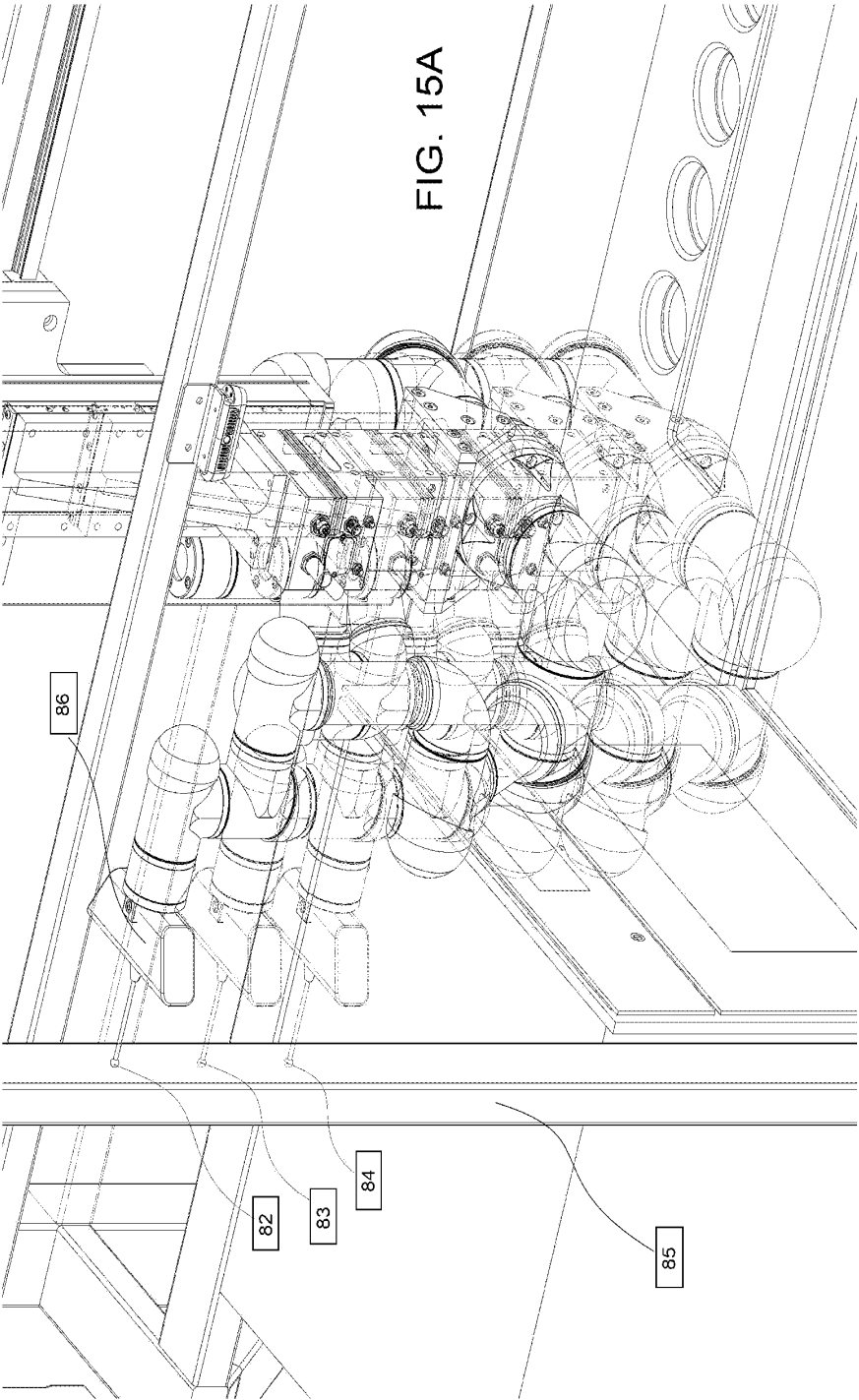


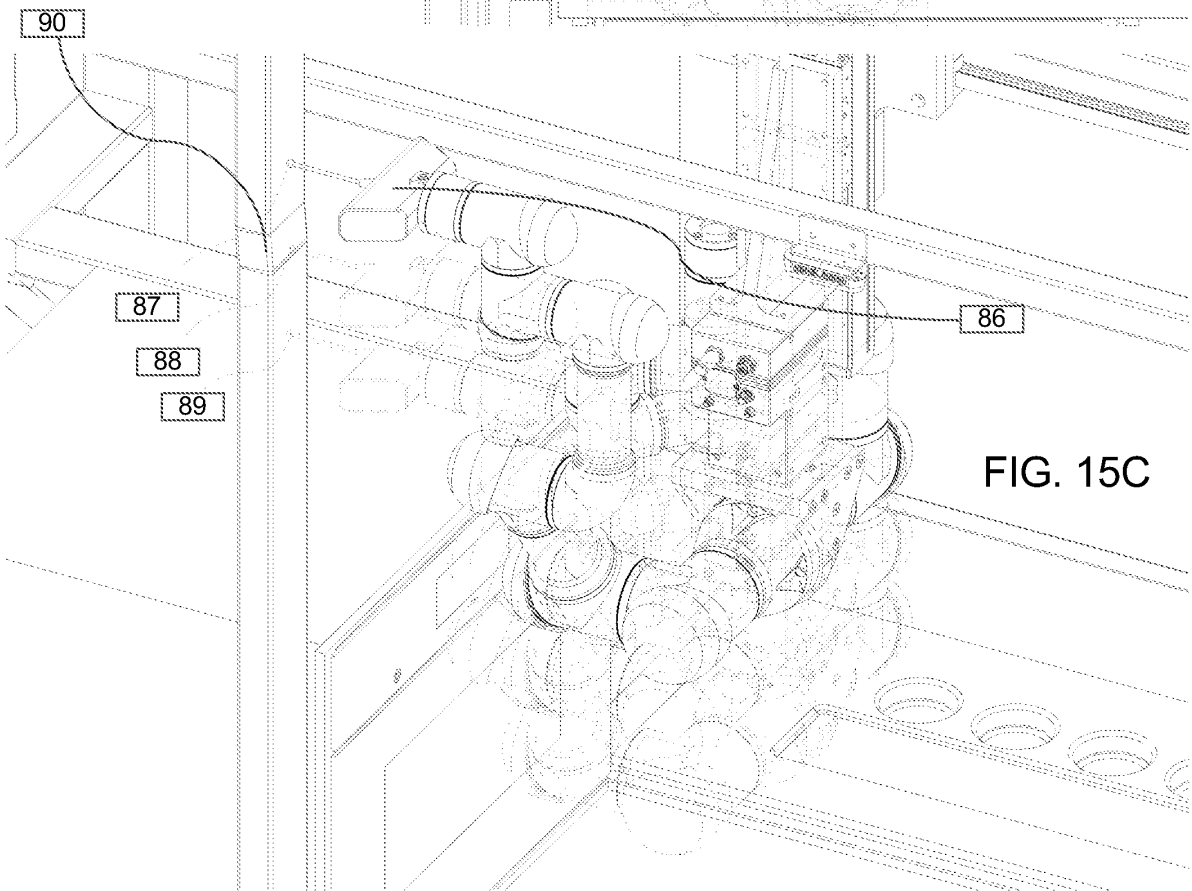
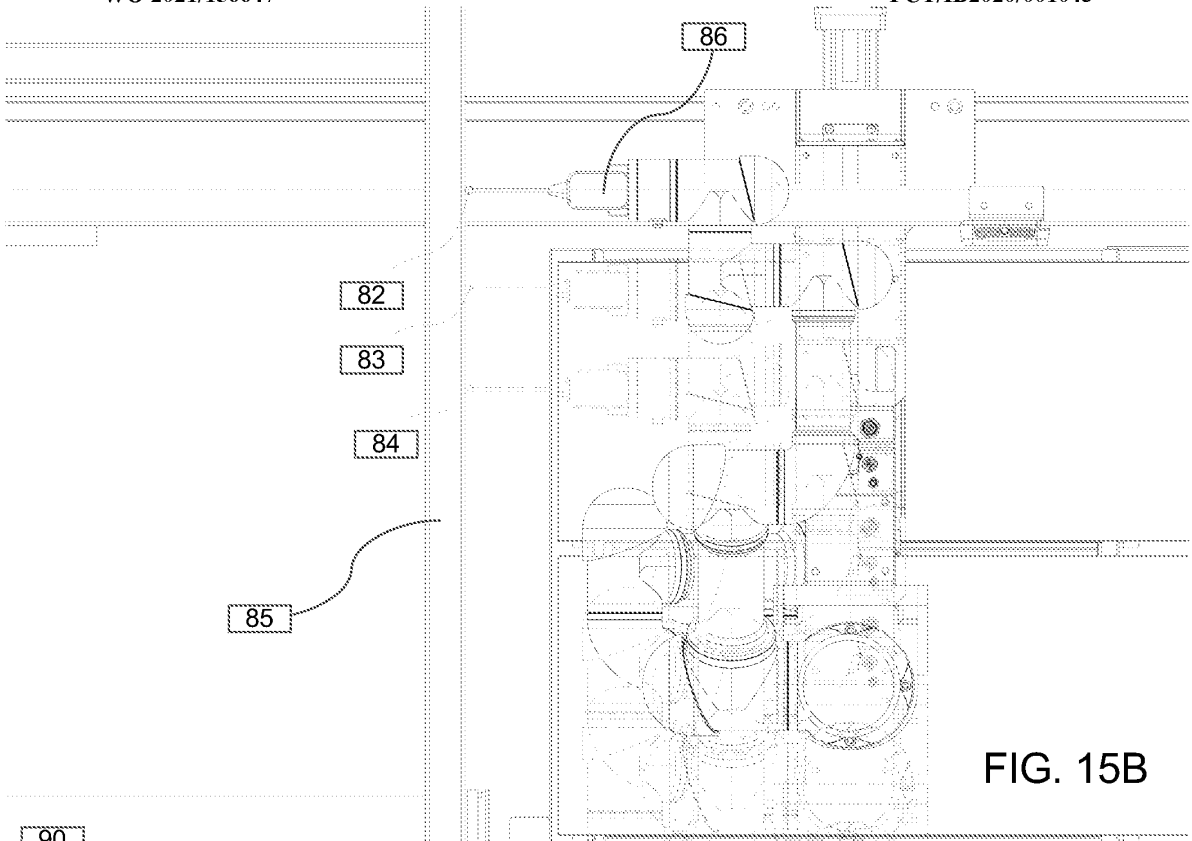
FIG. 13

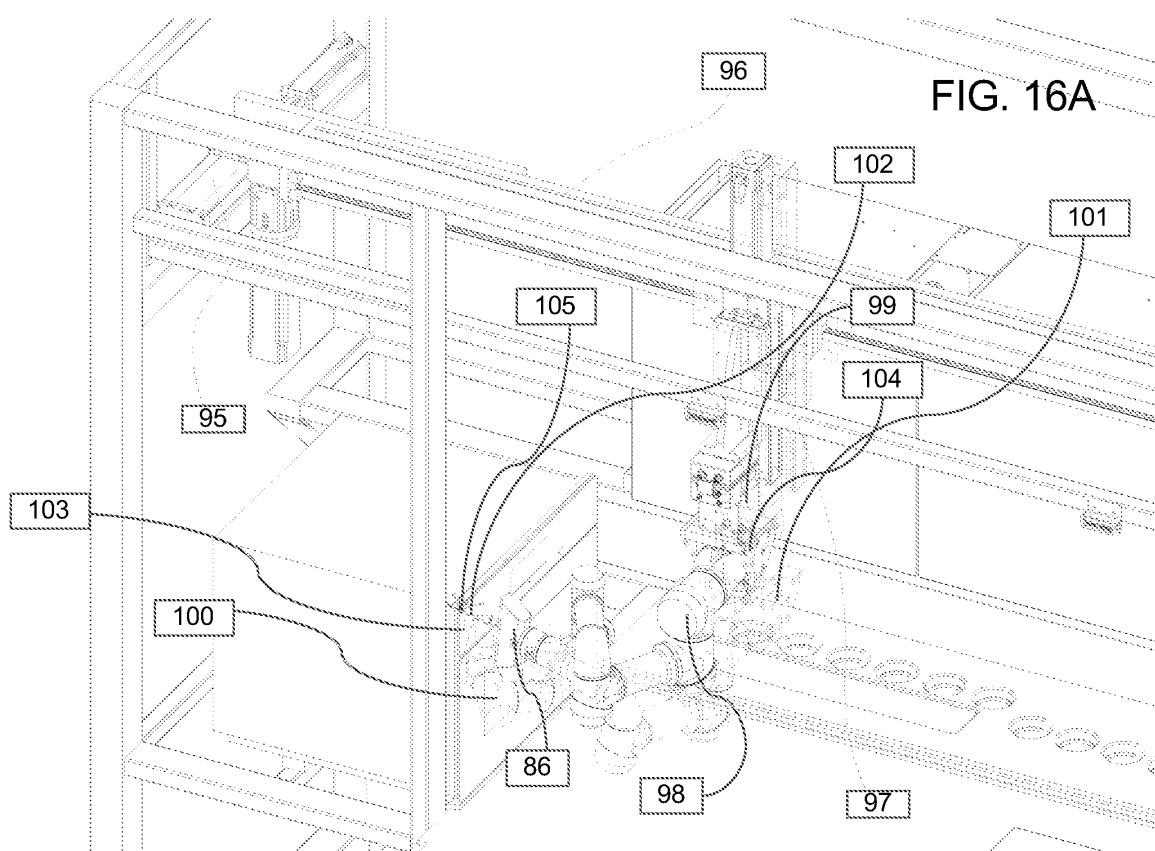
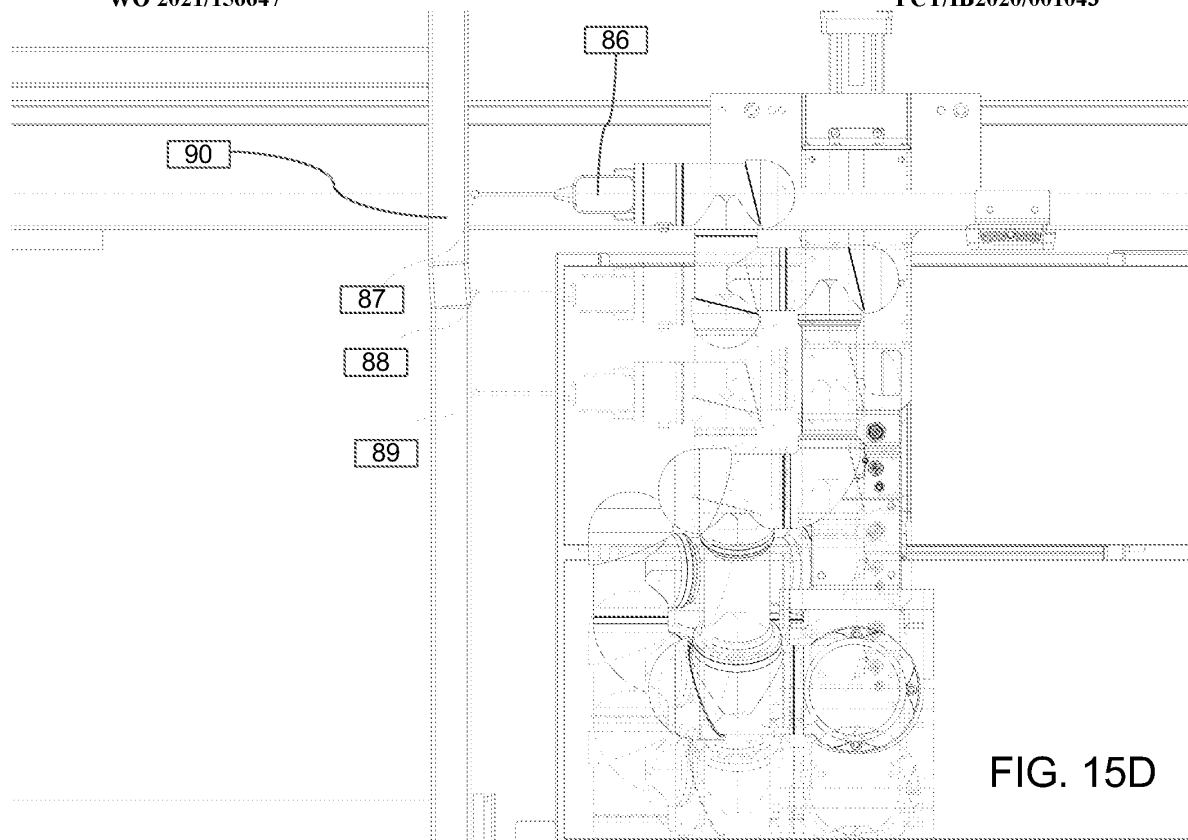
Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet



Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet







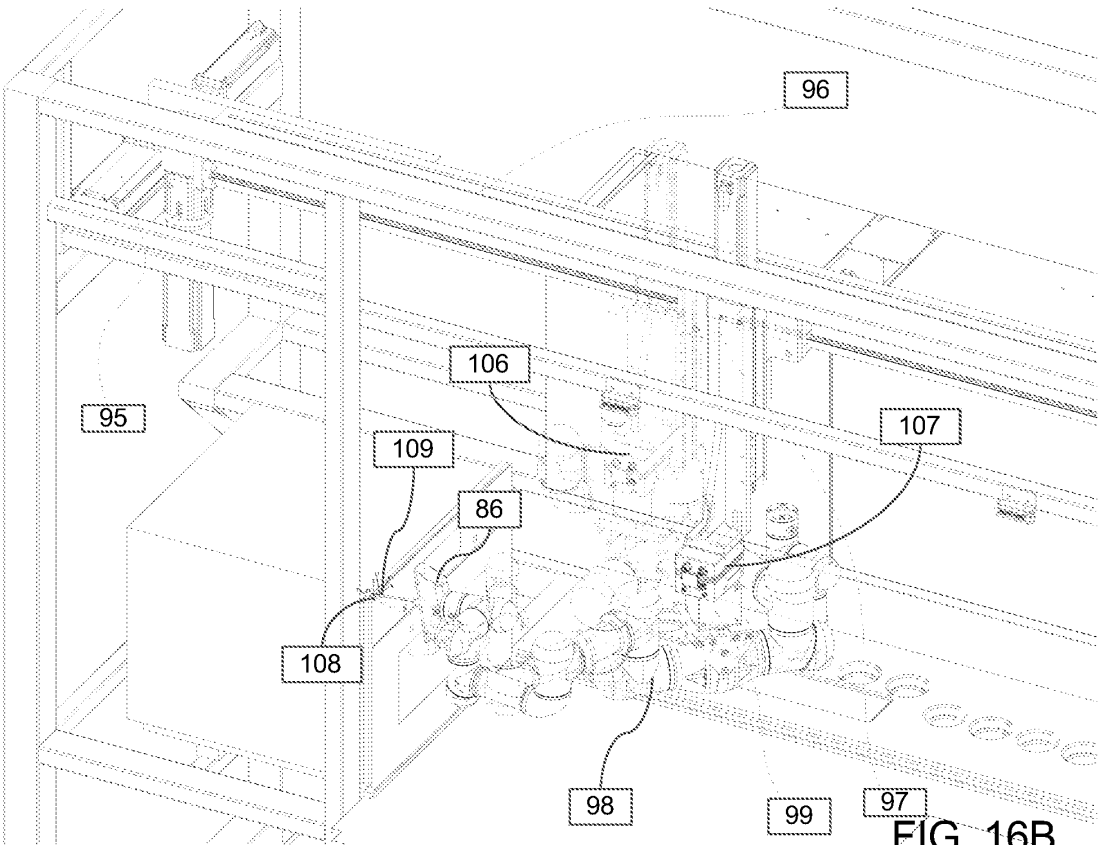


FIG. 16B

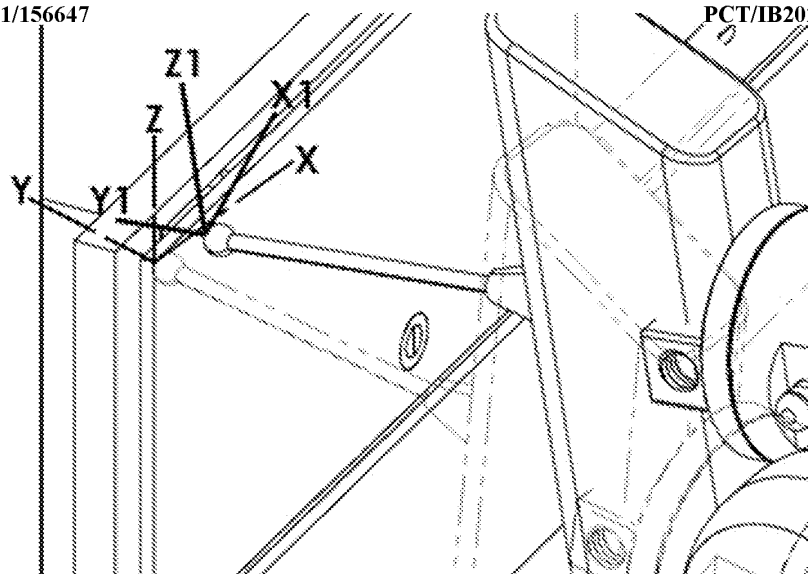


FIG. 16C

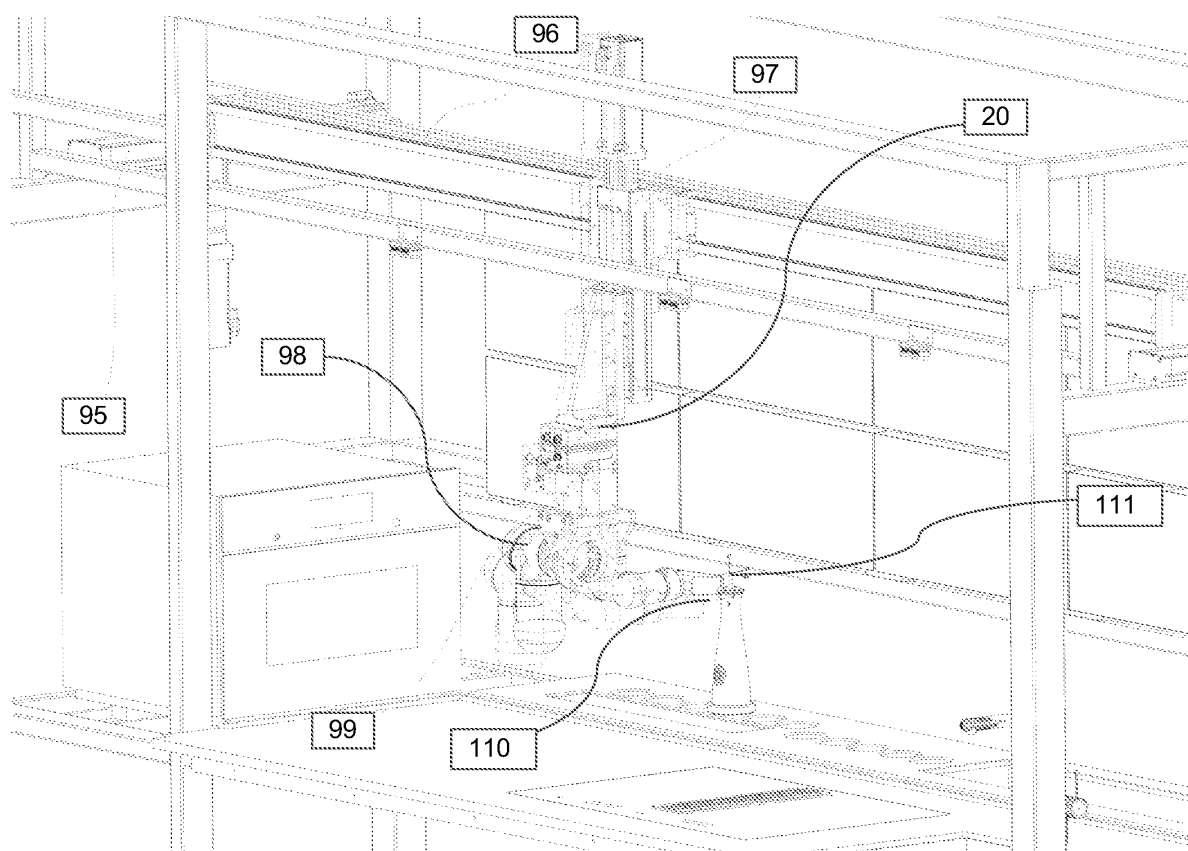


FIG. 17

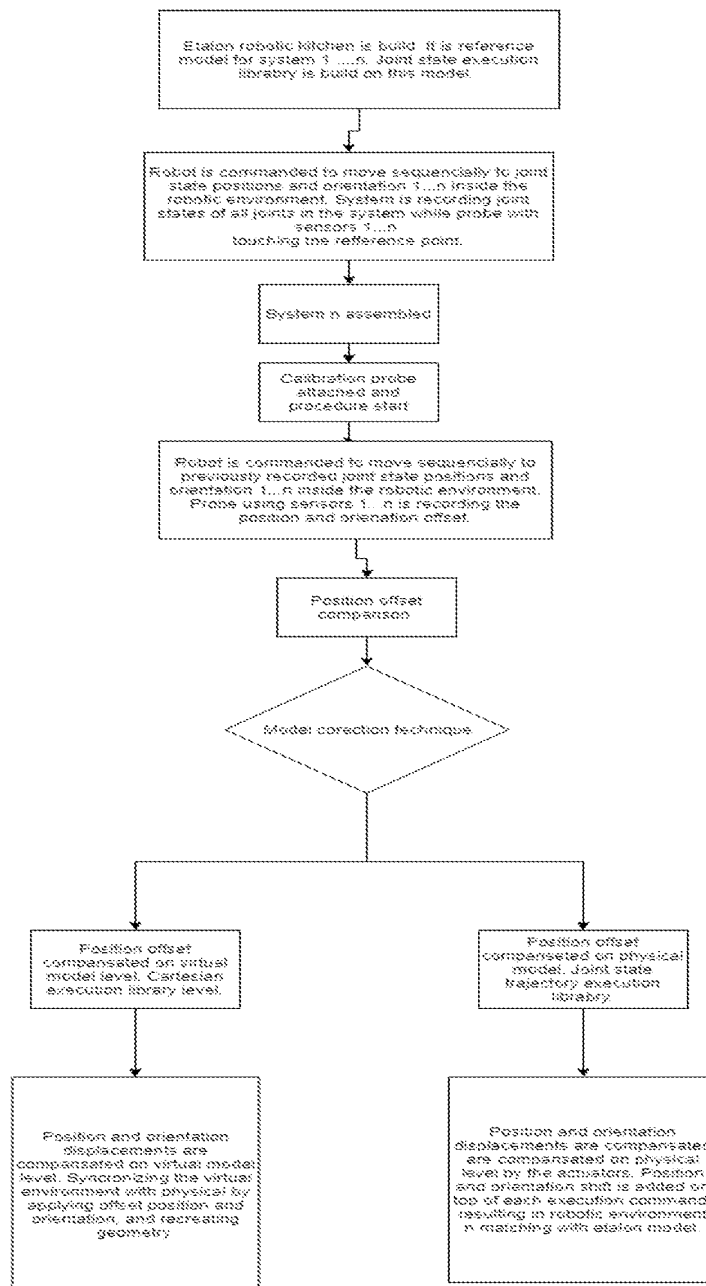


FIG. 18

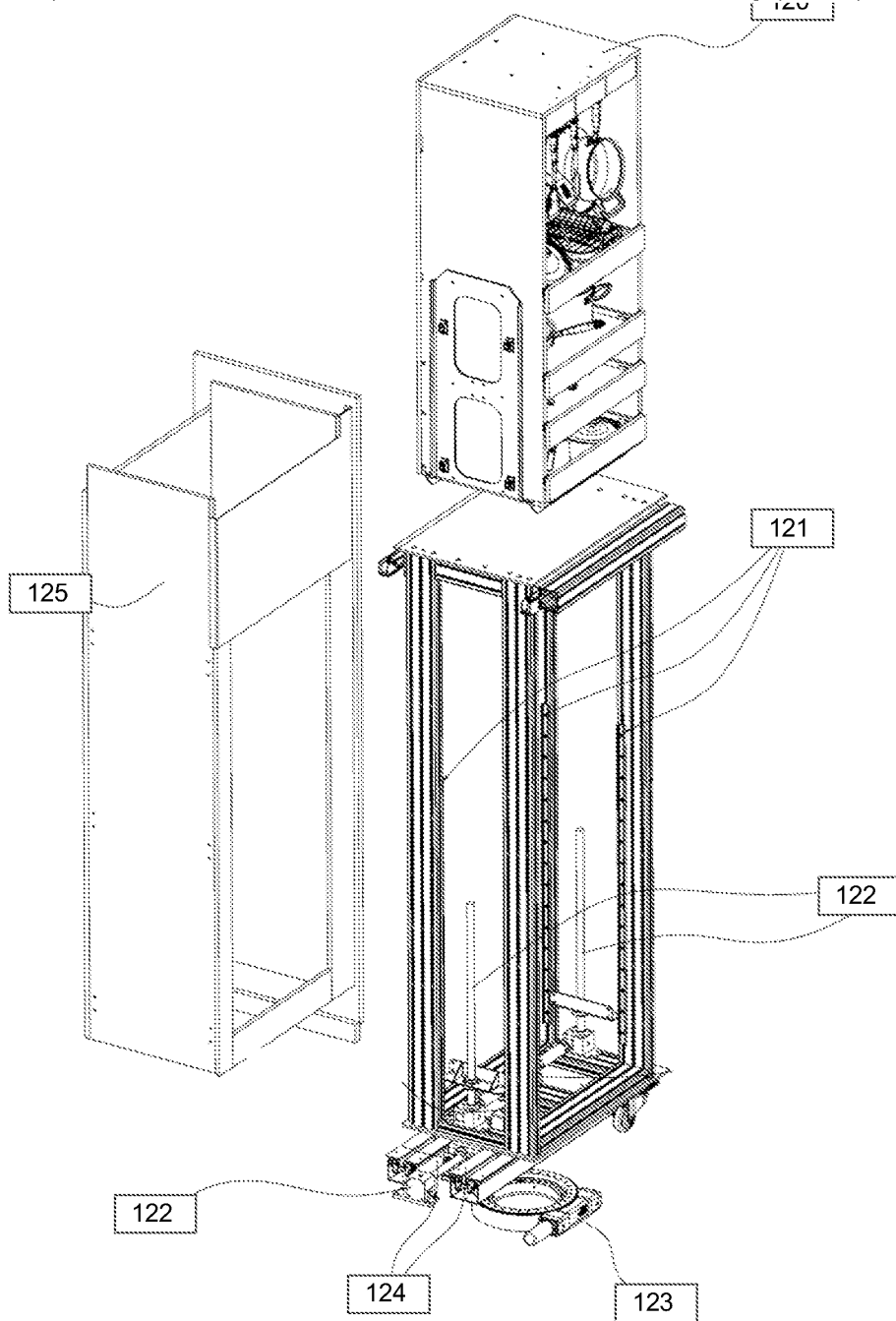


FIG. 19

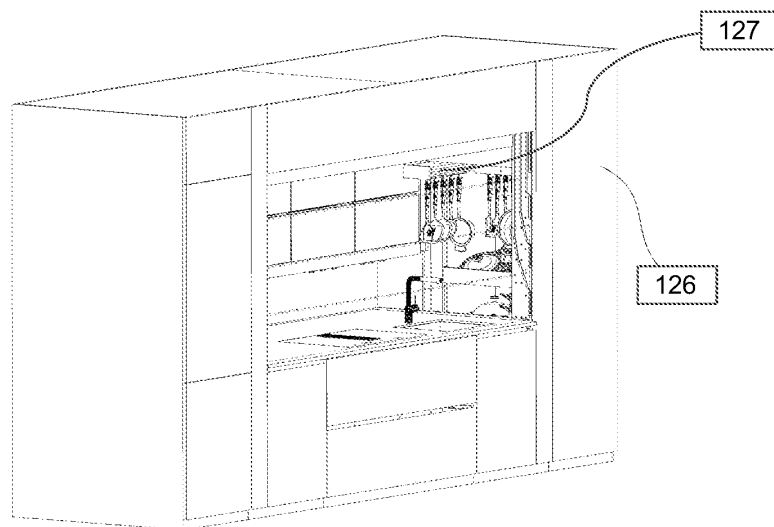


FIG. 20

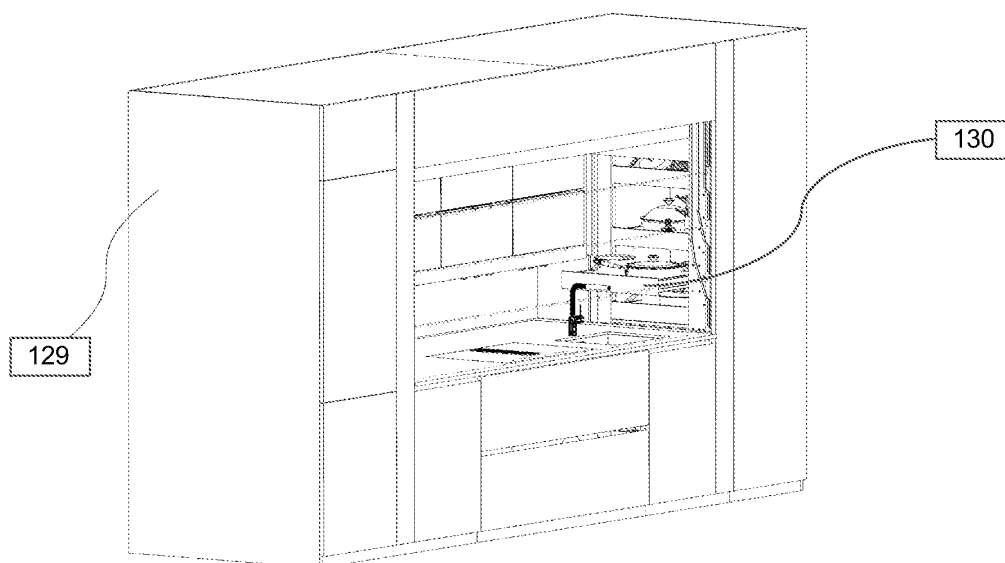


FIG. 21

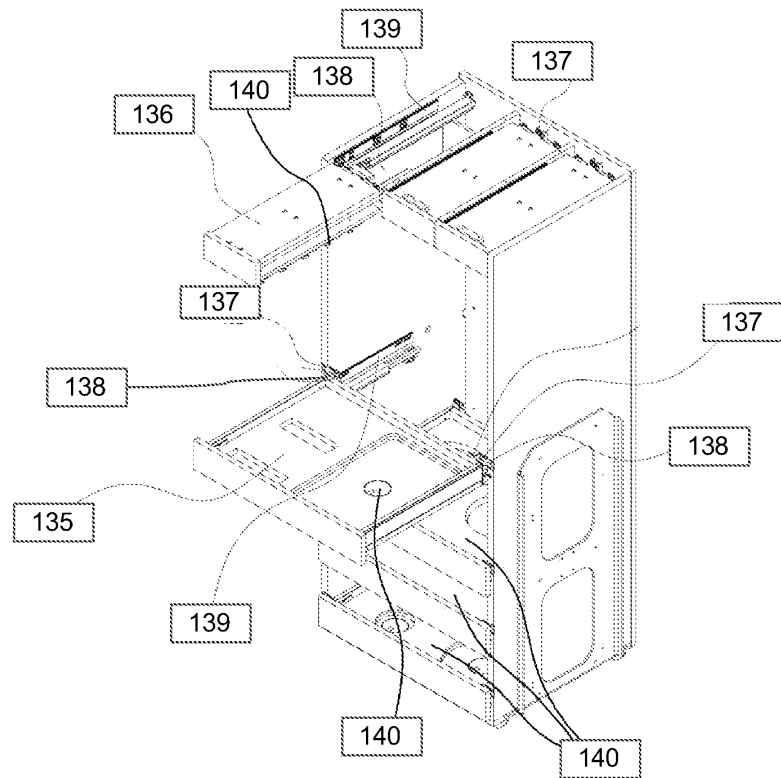


FIG. 22

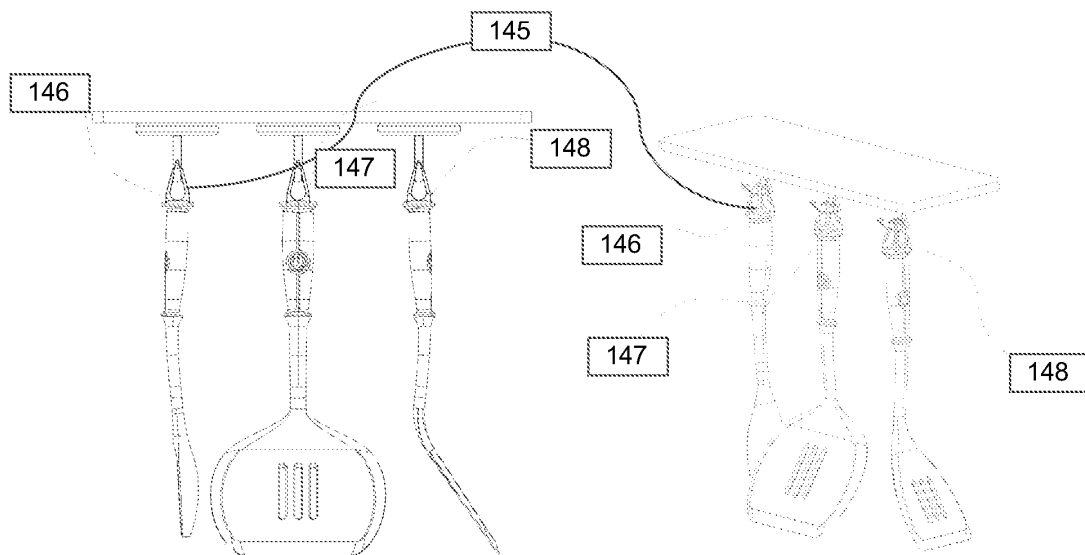
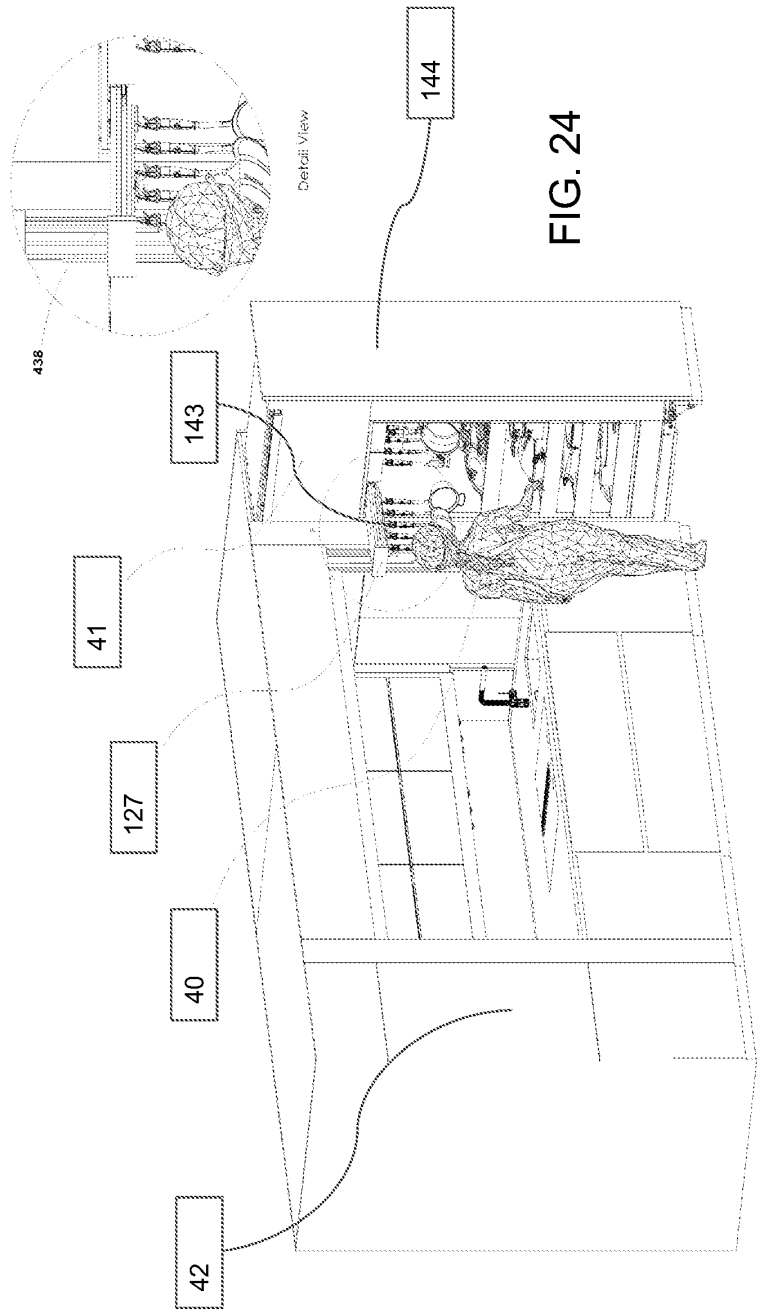


FIG. 23A

FIG. 23B



Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet

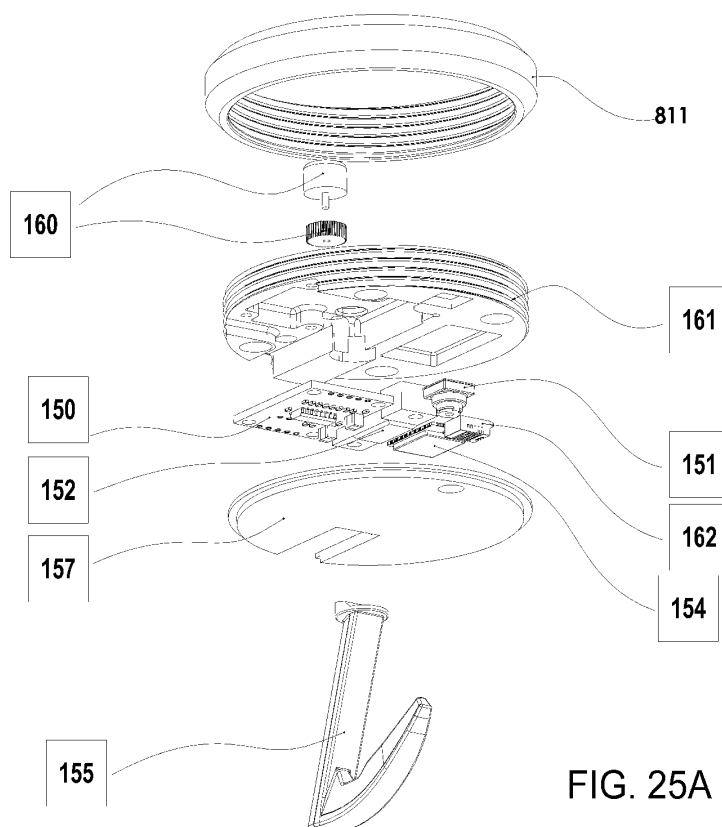


FIG. 25A

Appl. No. 16/900,842
 Response Dated 23 November 2020 Notice
 to Incomplete Reply of 22 June 2020
 Replacement Sheet

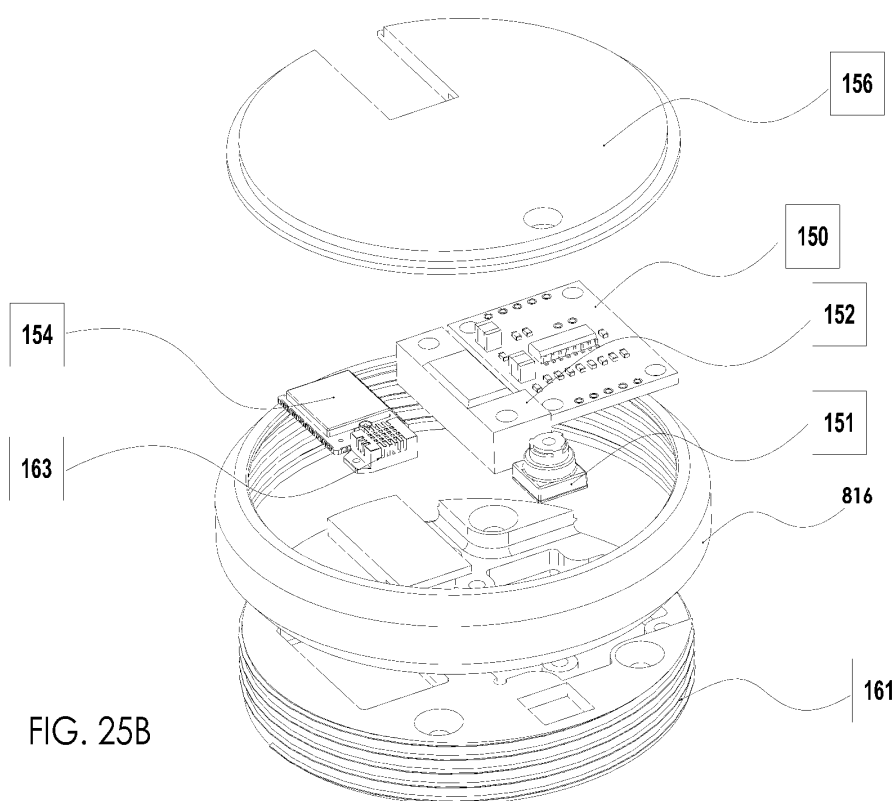


FIG. 25B

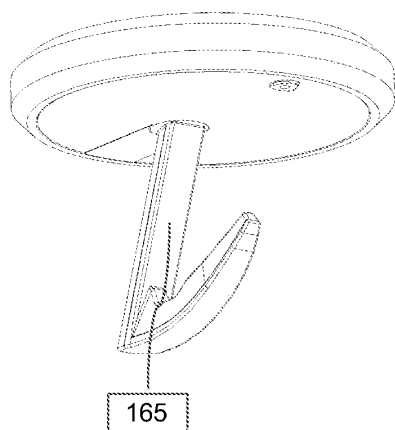


FIG. 26A

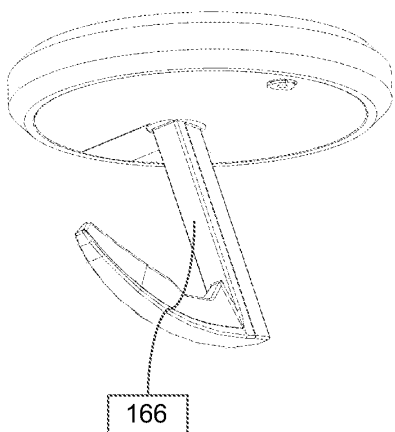


FIG. 26B

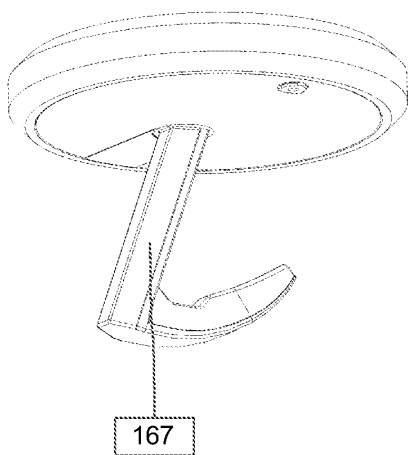


FIG. 26C

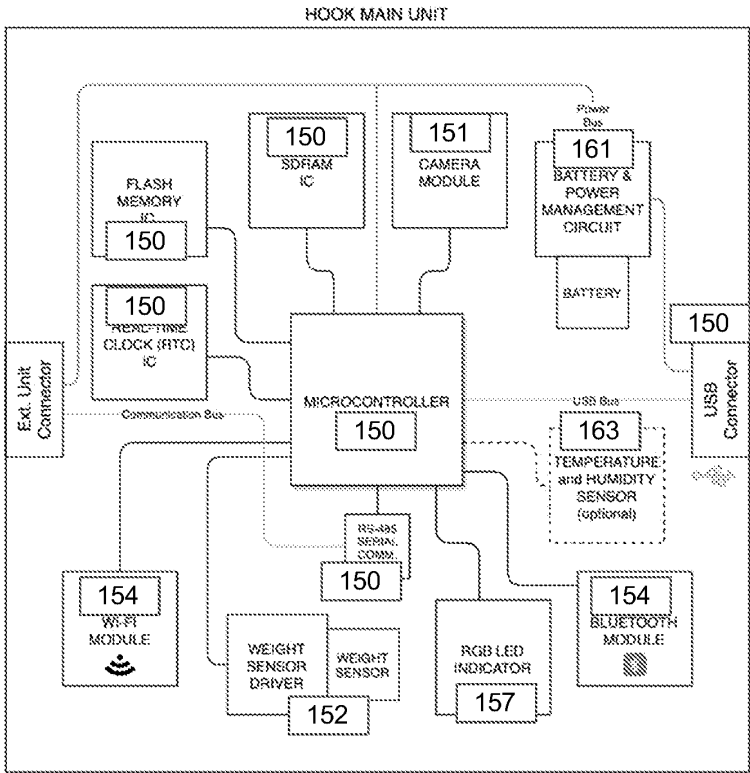


FIG. 27

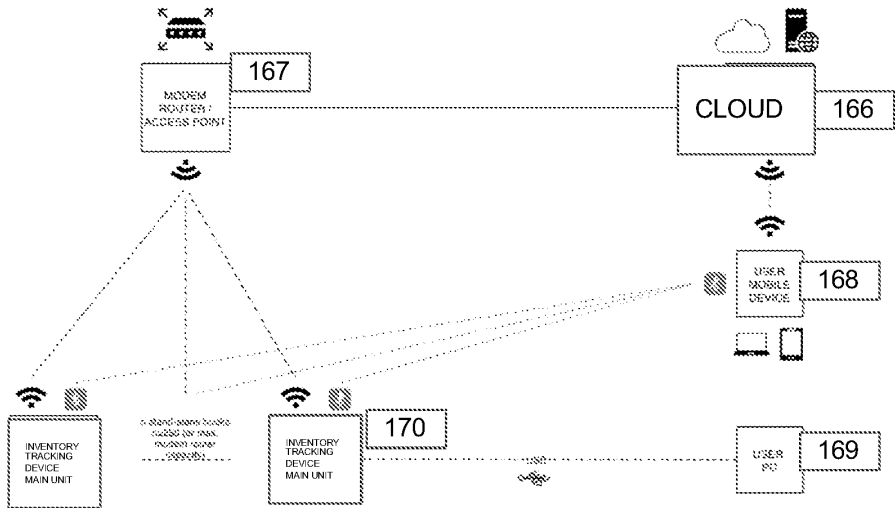


FIG. 28

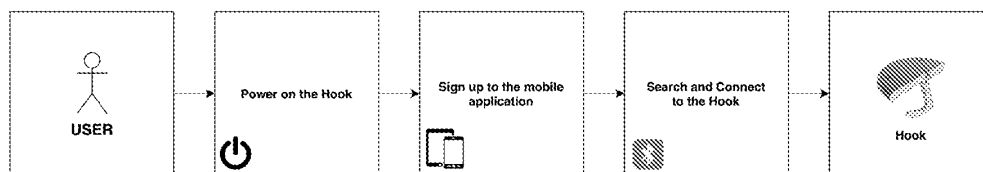


FIG. 29

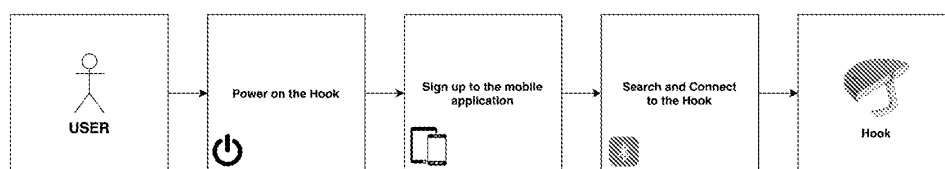


FIG. 30

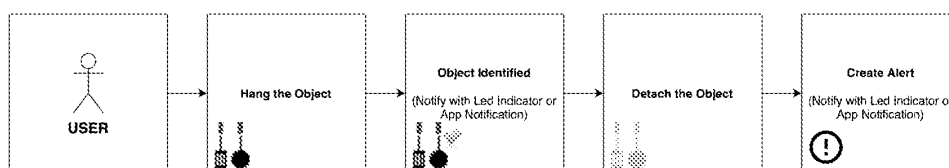


FIG. 31

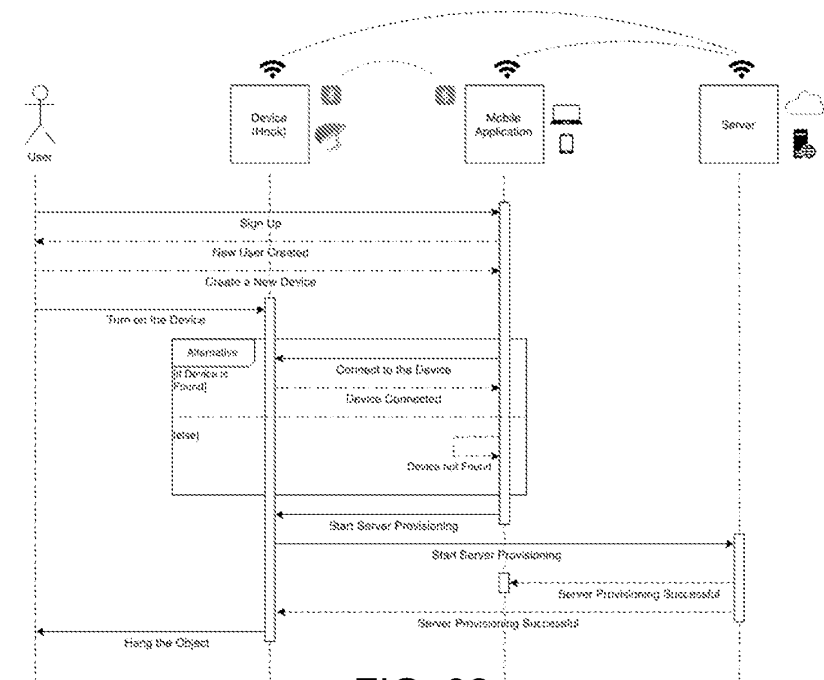


FIG. 32

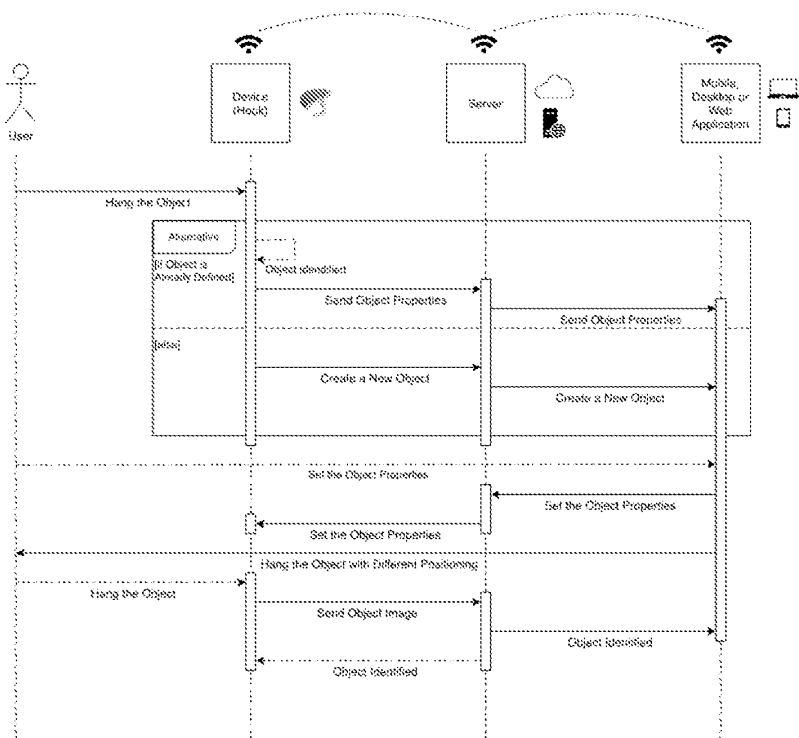


FIG. 33

Appl. No. 16/900,842
Response Dated 23 November 2020 Notice
to Incomplete Reply of 22 June 2020
Replacement Sheet

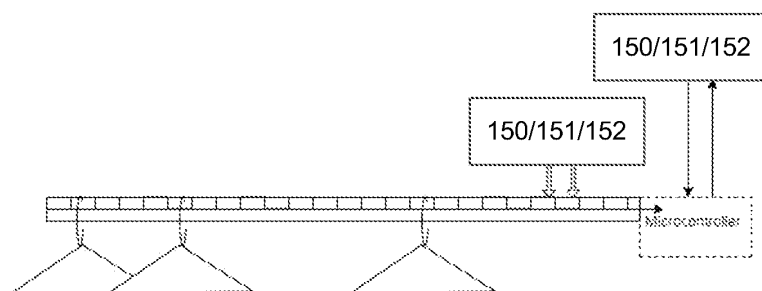


FIG. 34



FIG. 35

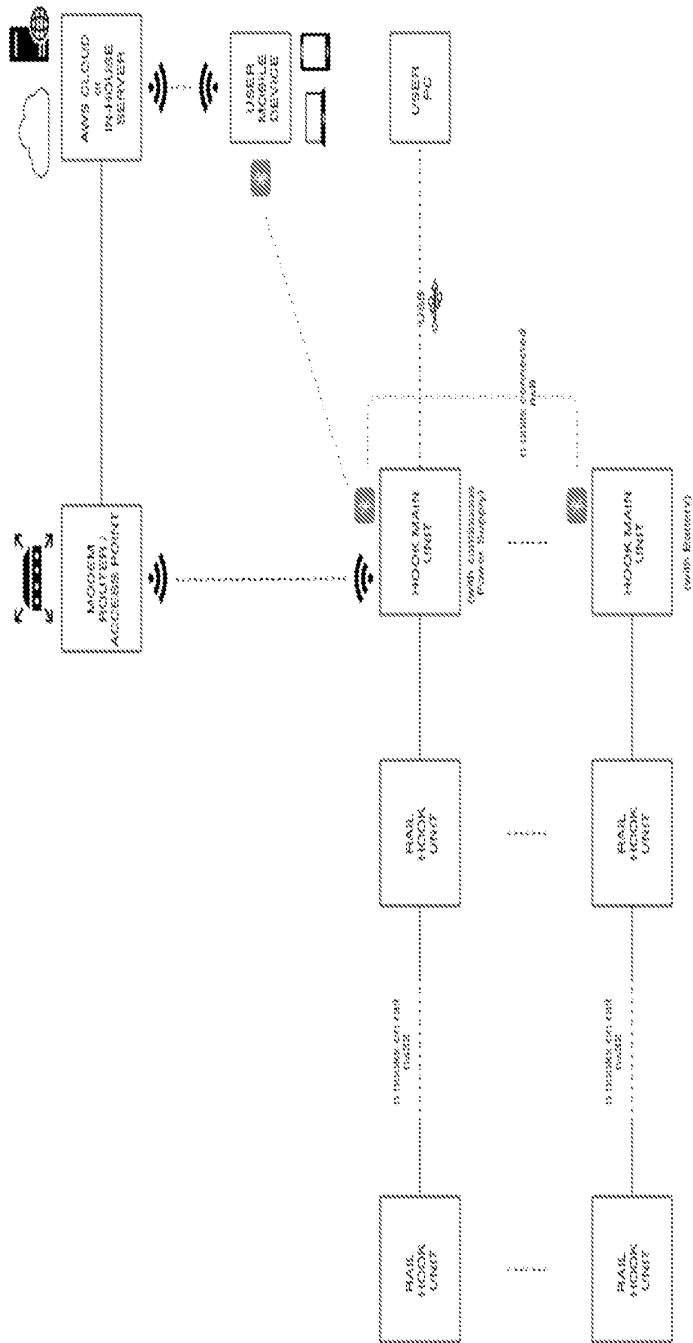


FIG. 36

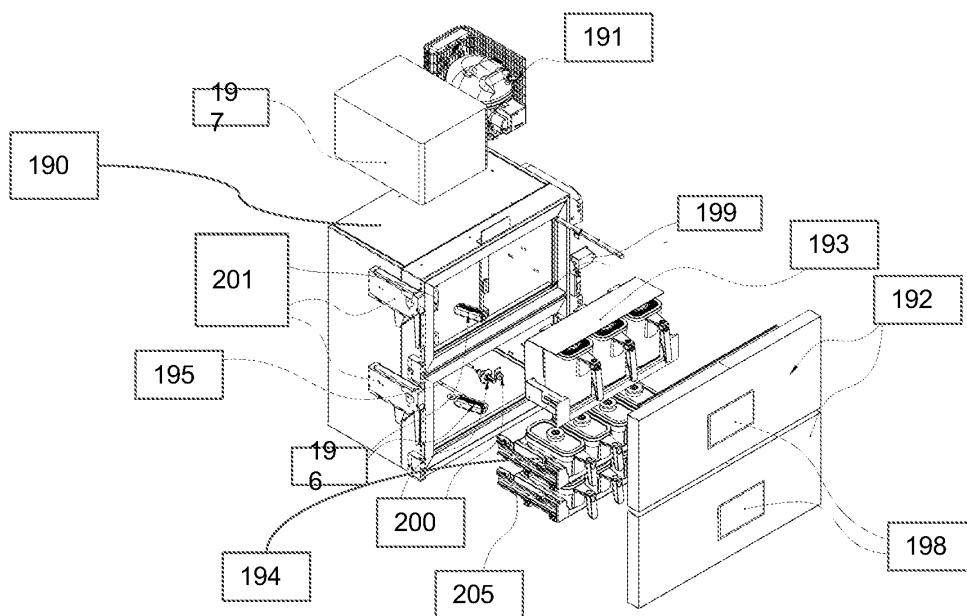


FIG. 37

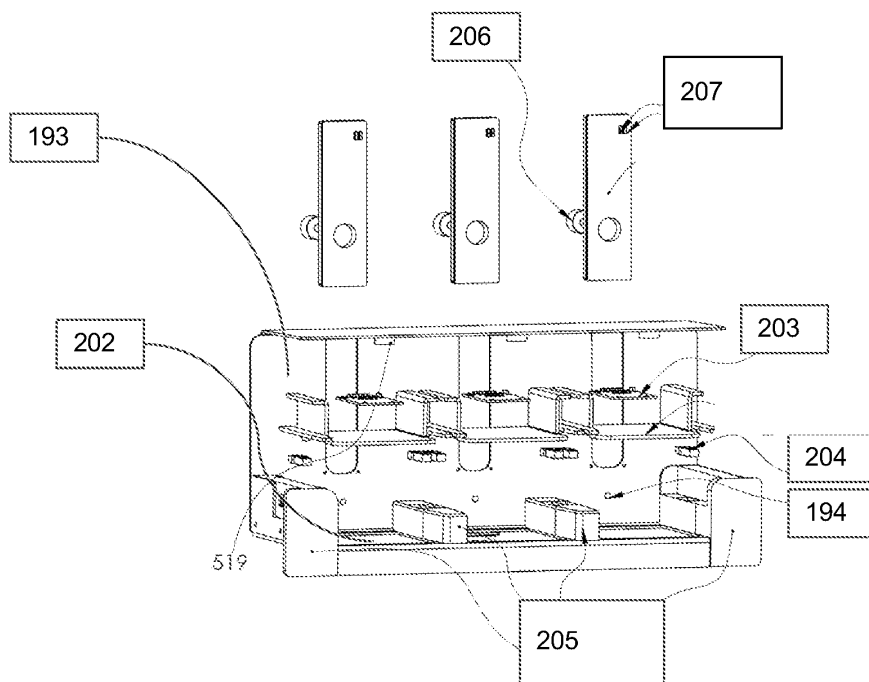


FIG. 38

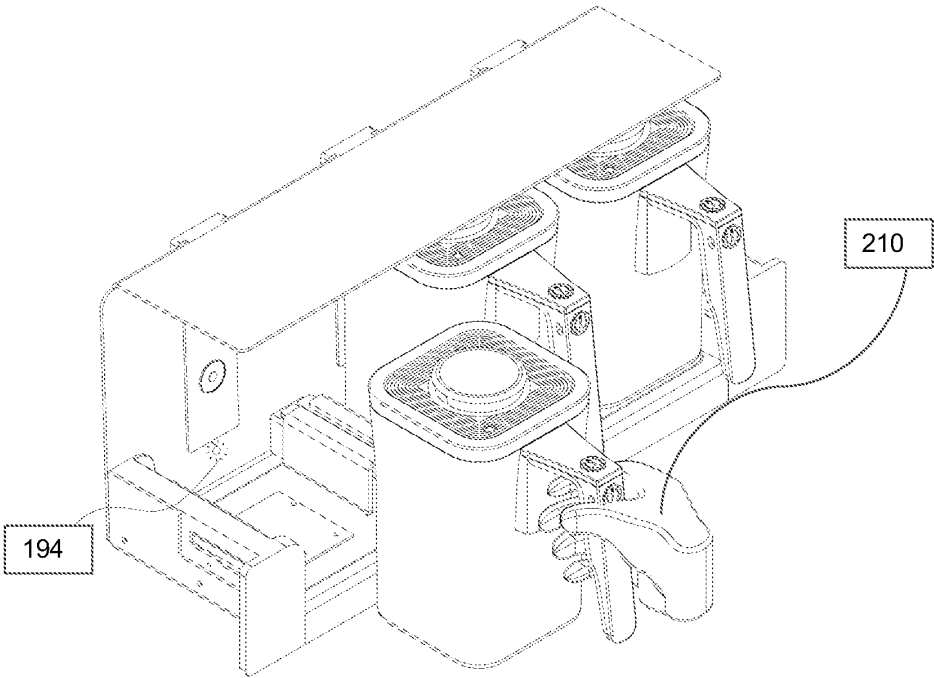


FIG. 39

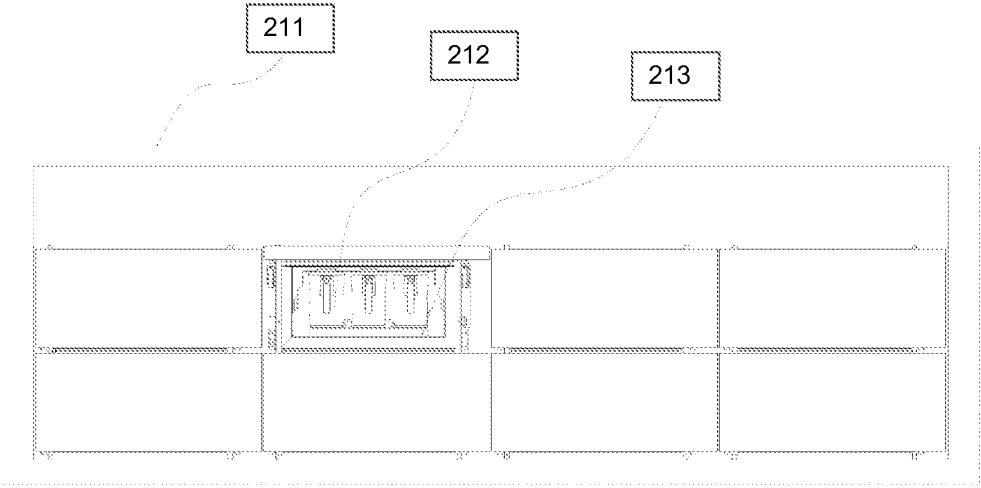


FIG. 40

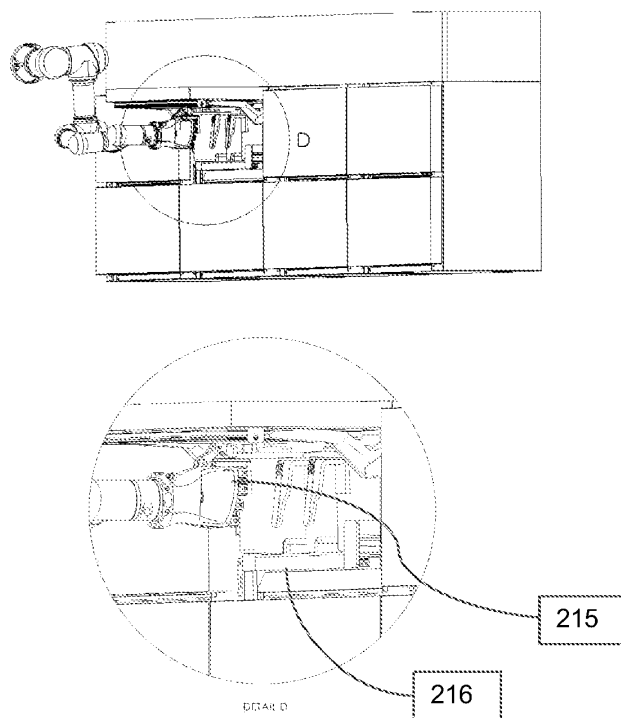
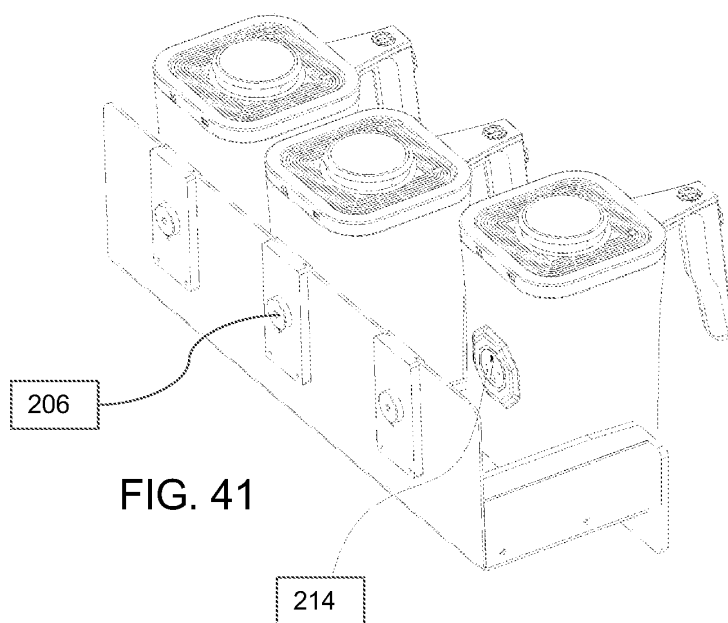


FIG. 42

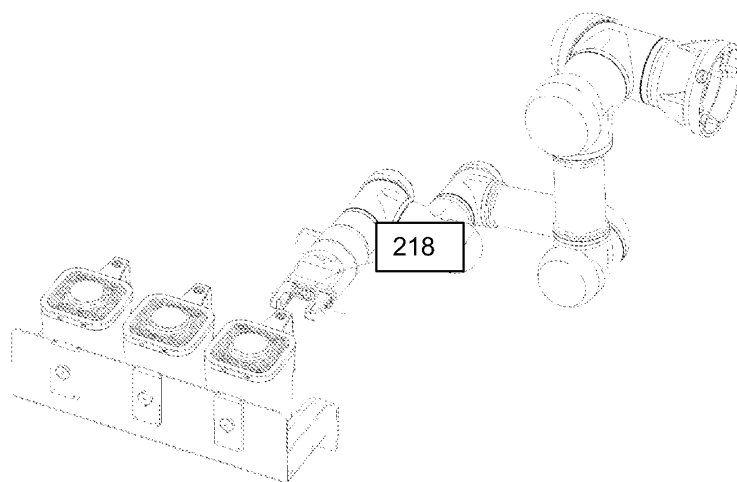


FIG. 43

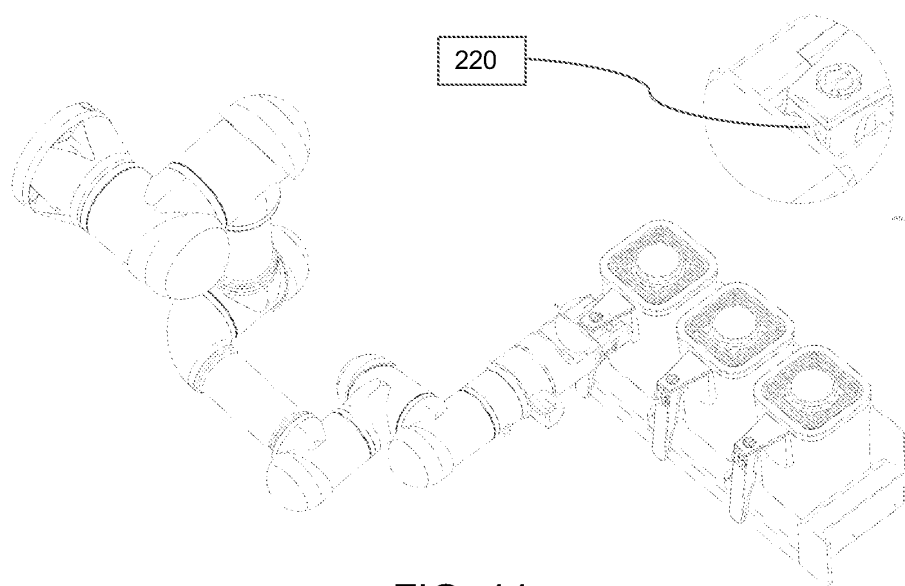


FIG. 44

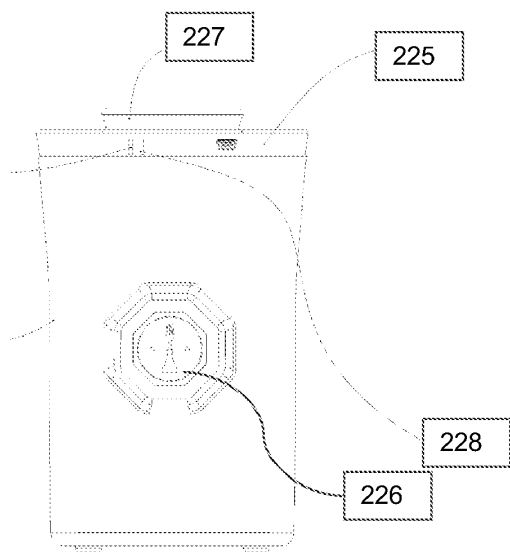


FIG. 45

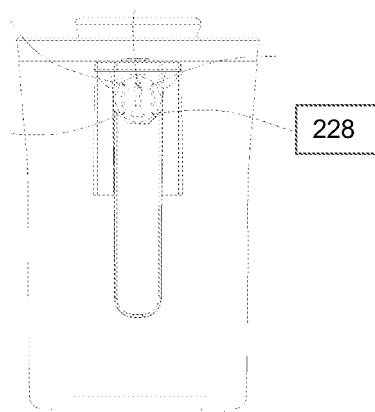


FIG. 46

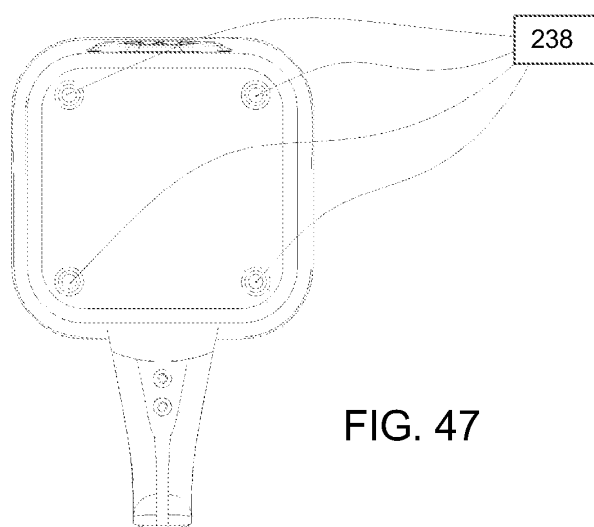


FIG. 47

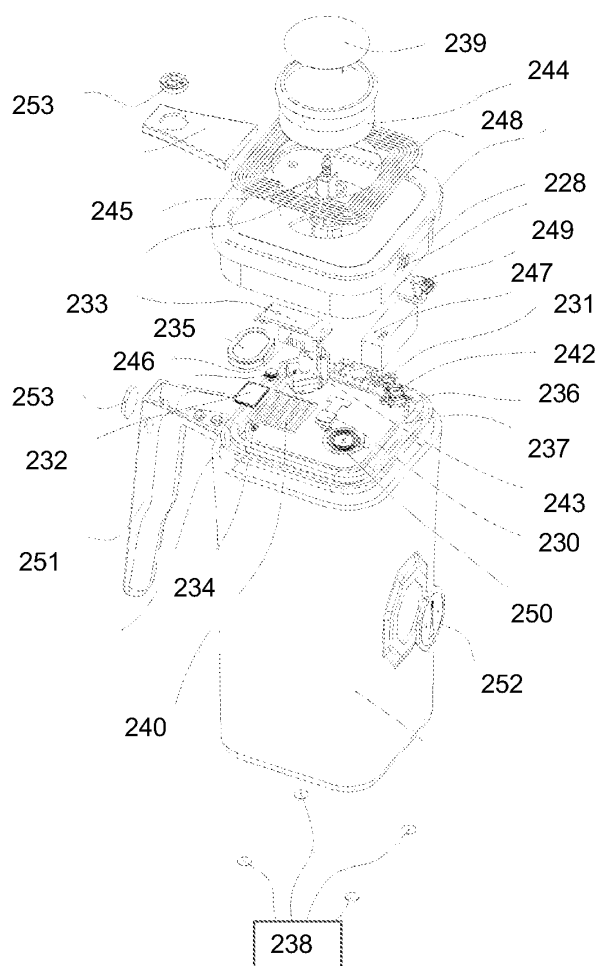


FIG. 48

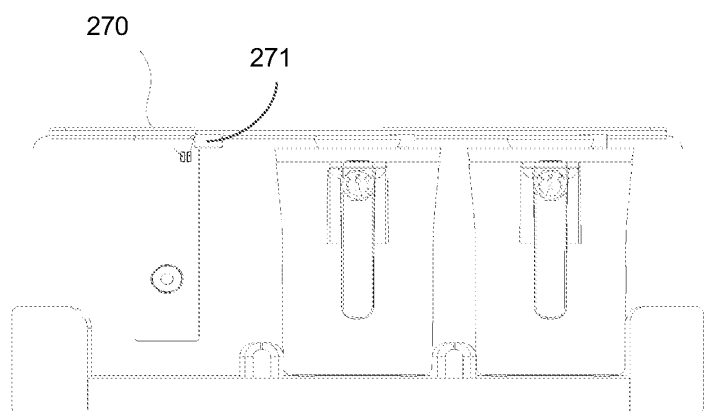


FIG. 49

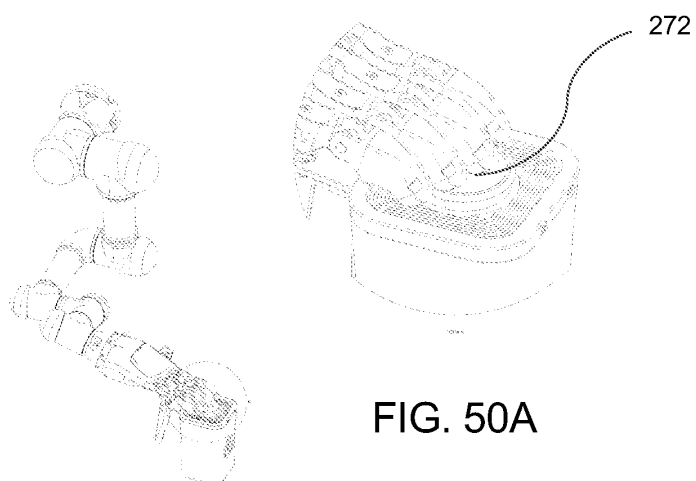


FIG. 50A

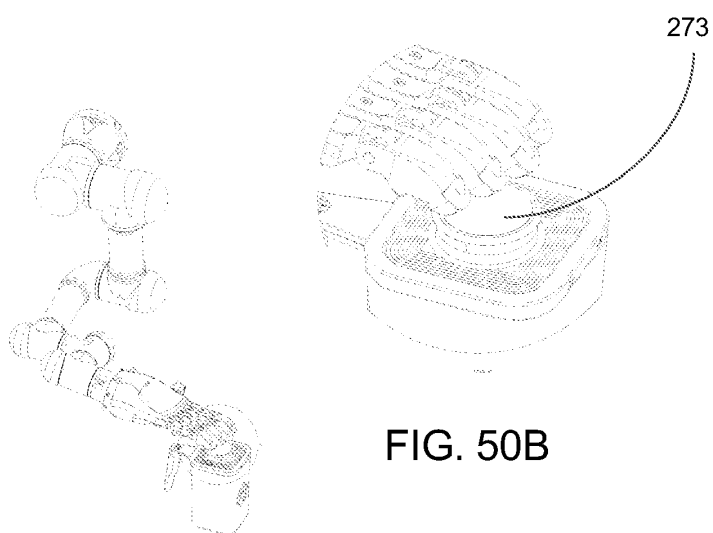


FIG. 50B

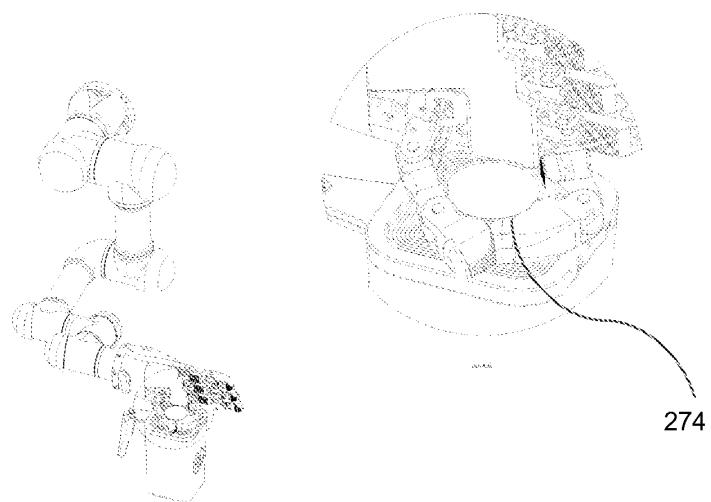


FIG. 51

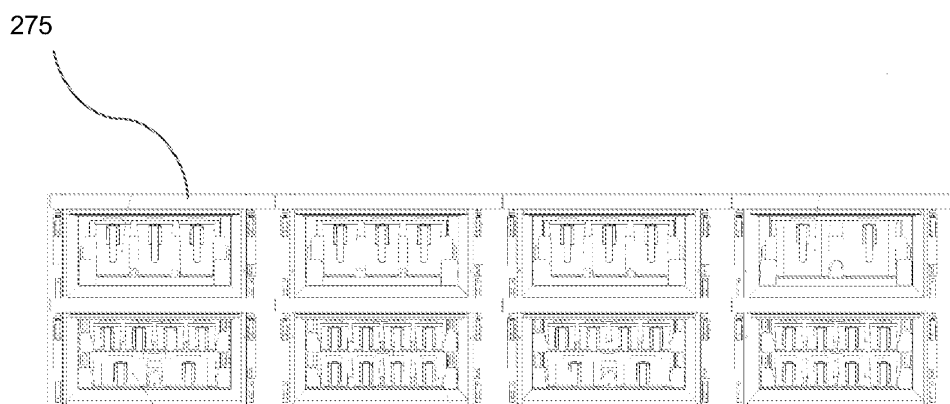


FIG. 52

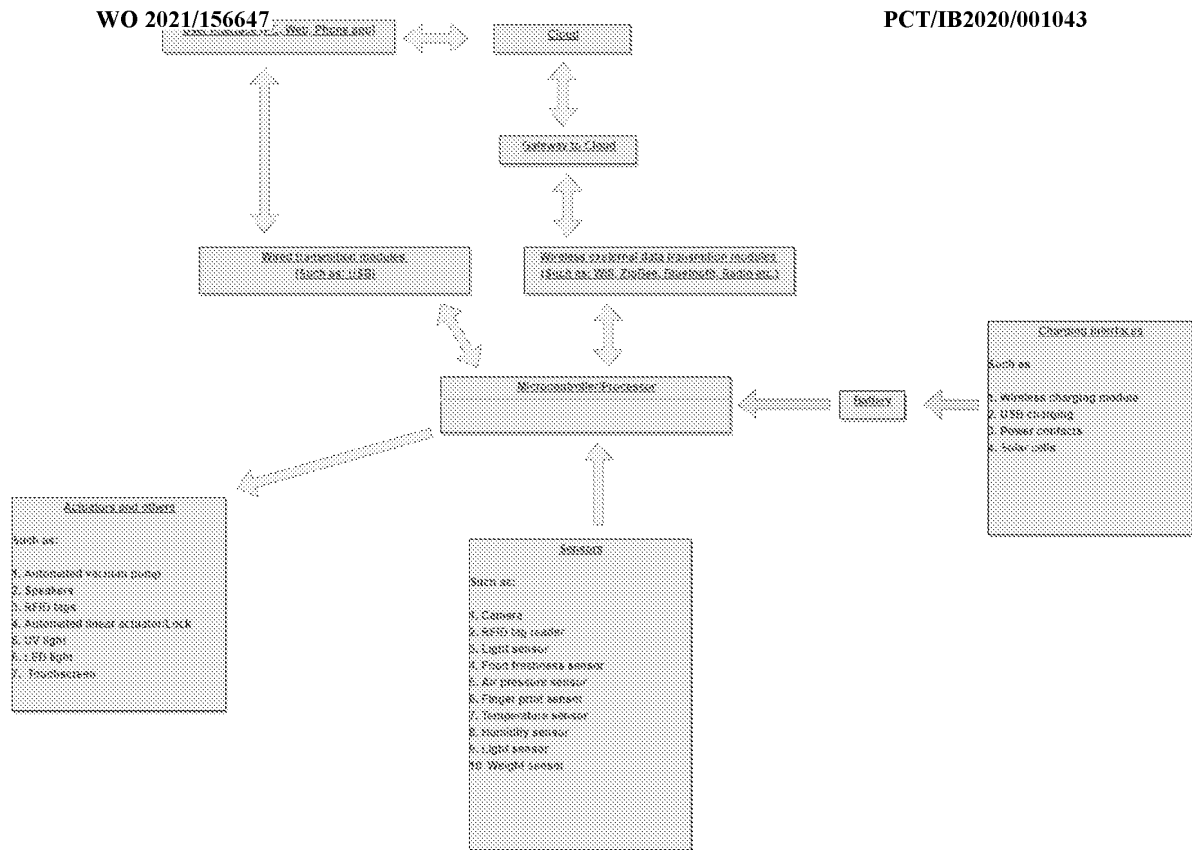


FIG. 53

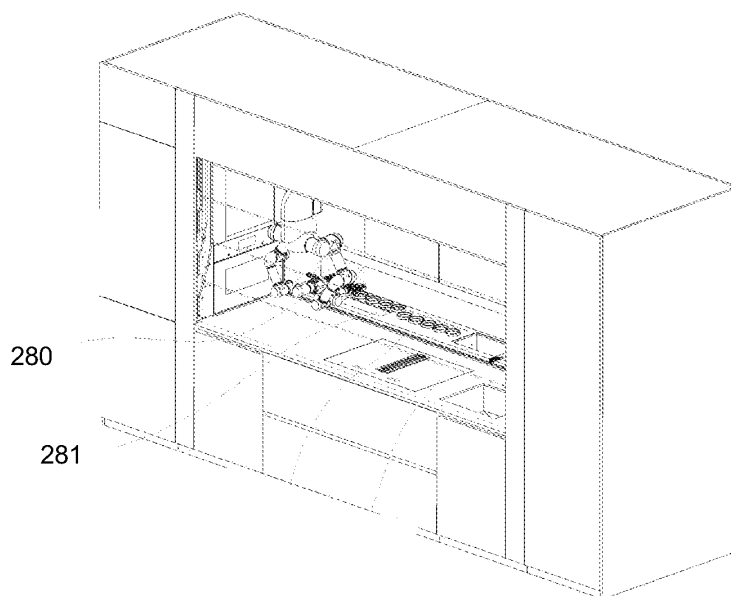


FIG. 54

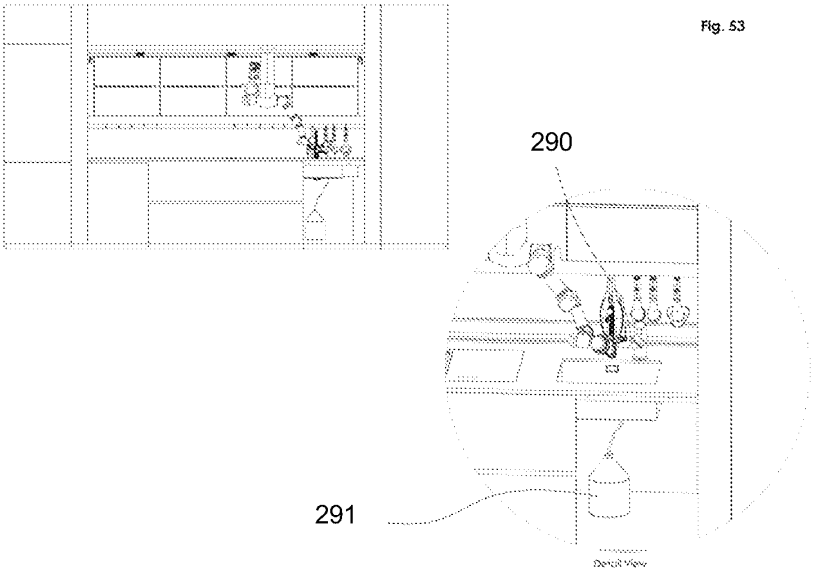


FIG. 55

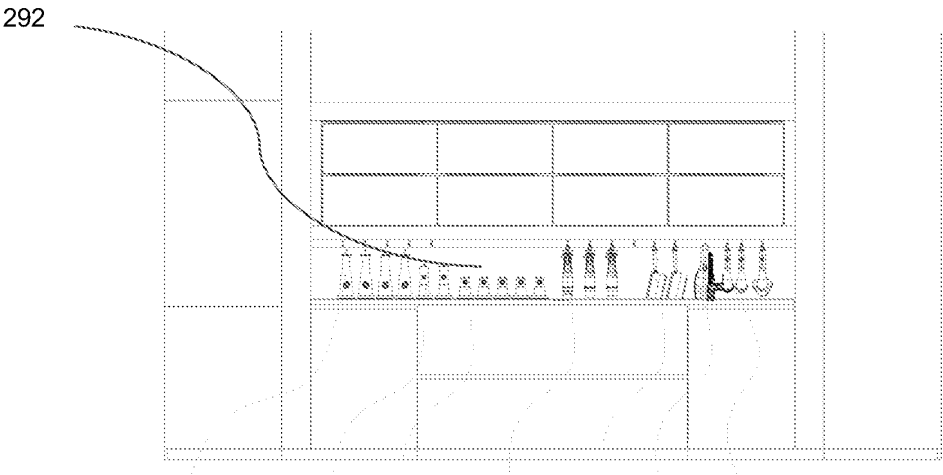


FIG. 56

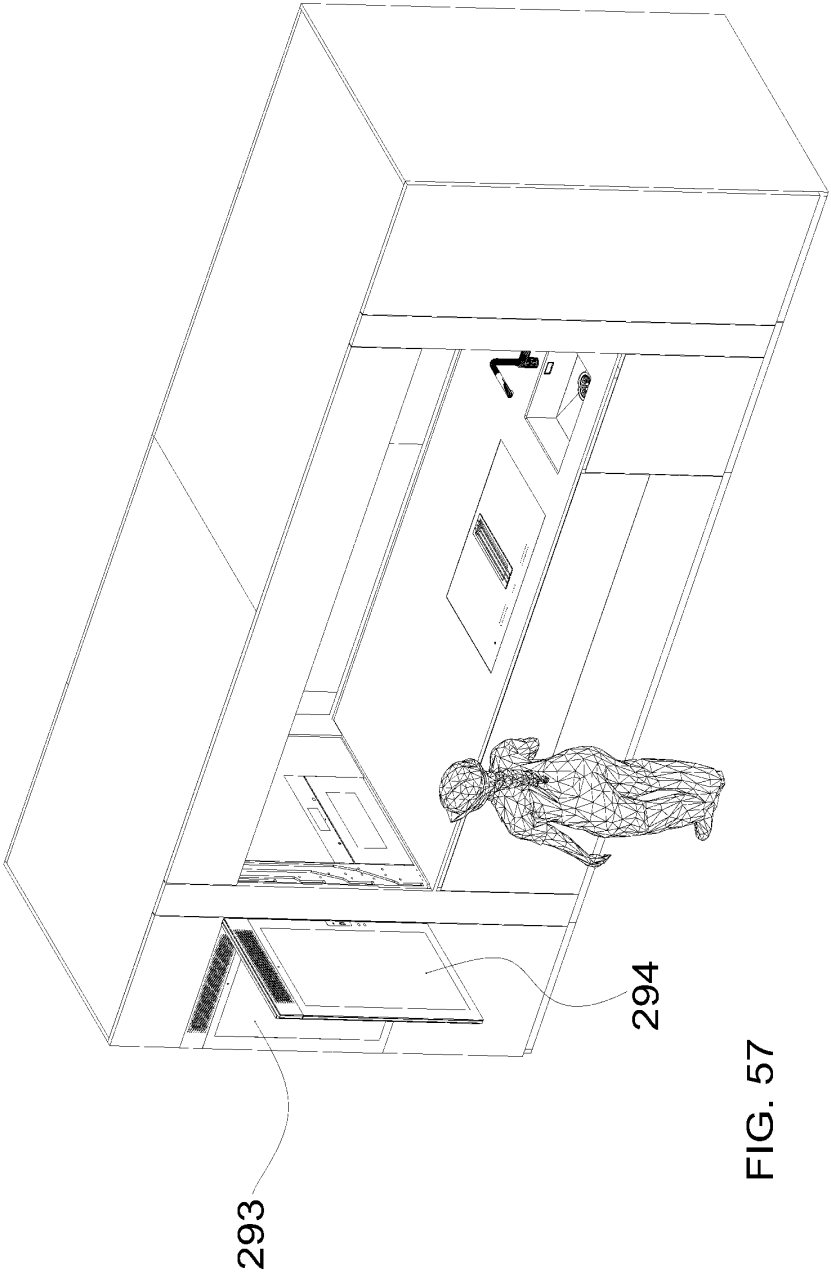


FIG. 57

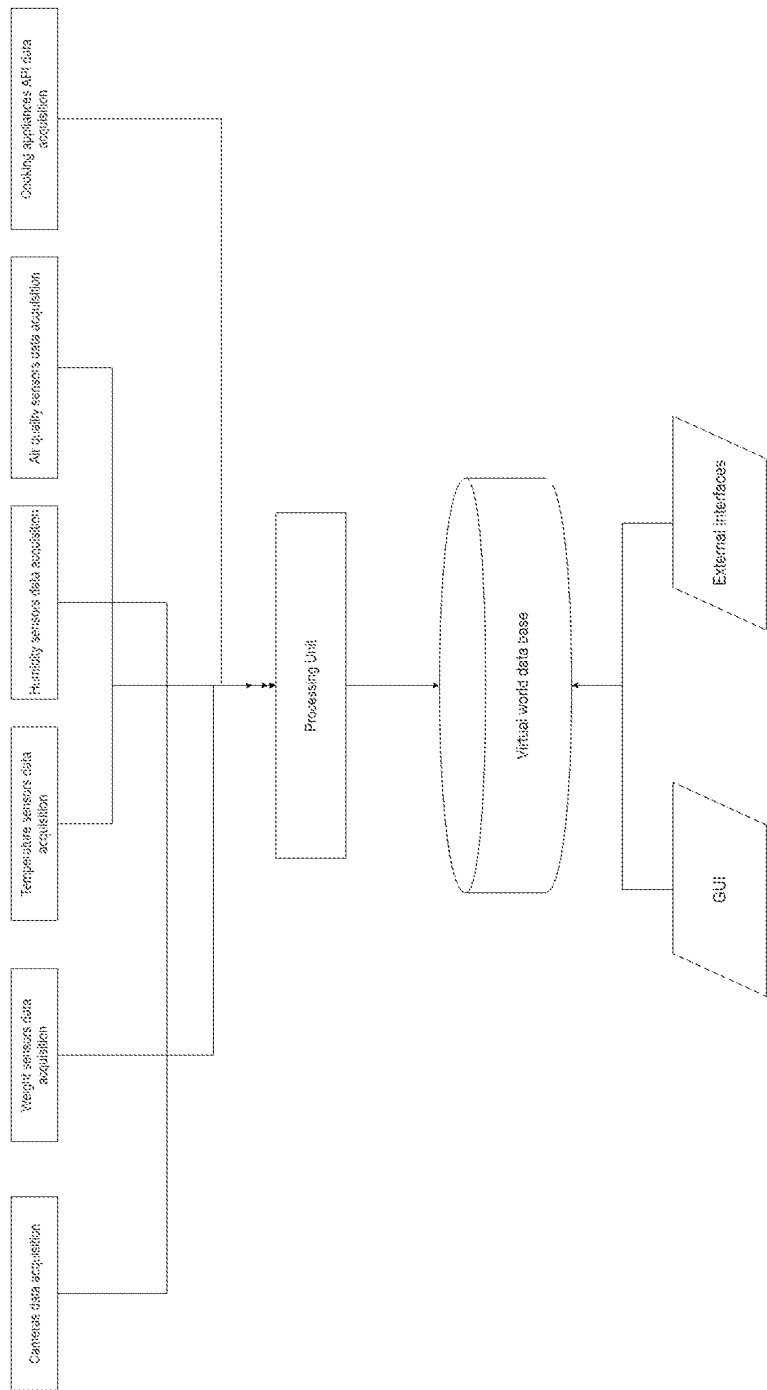


FIG. 58

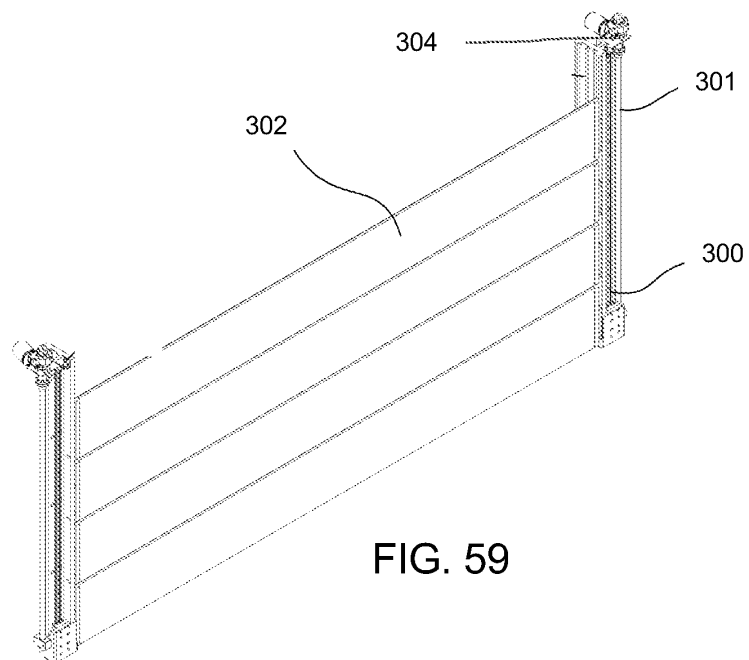


FIG. 59

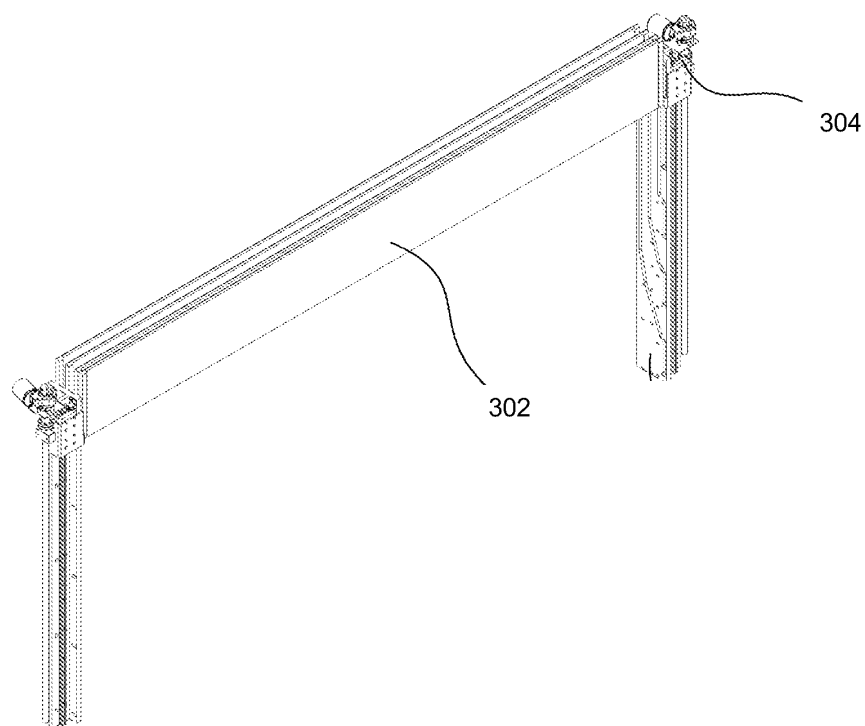


FIG. 60

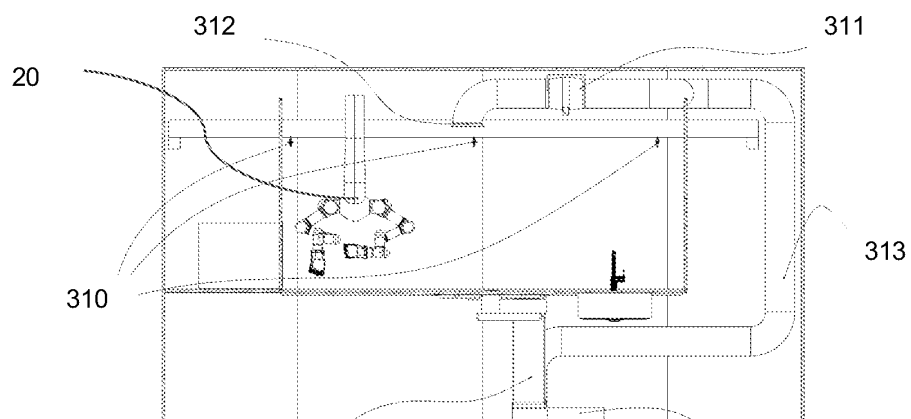


FIG. 61

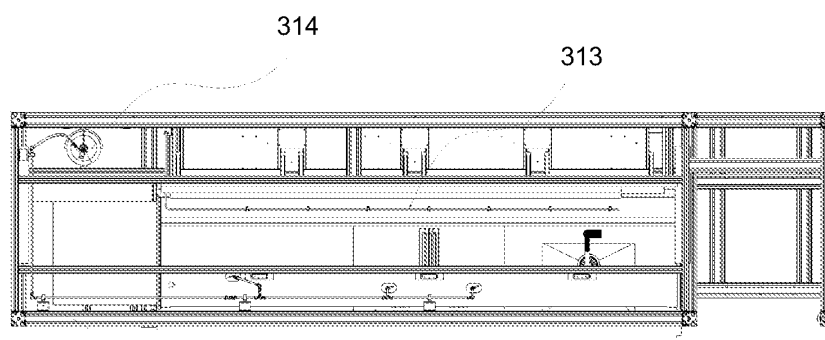


FIG. 62A

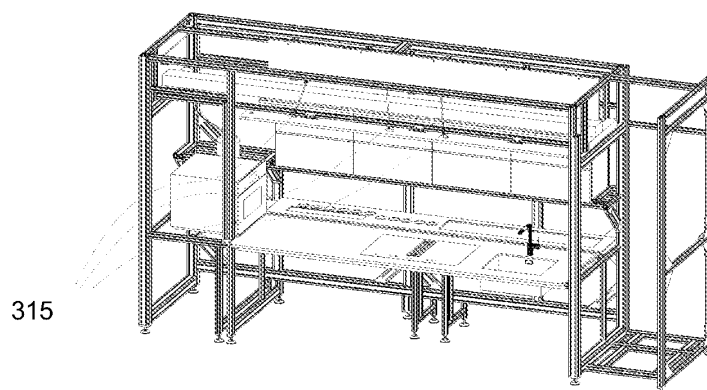
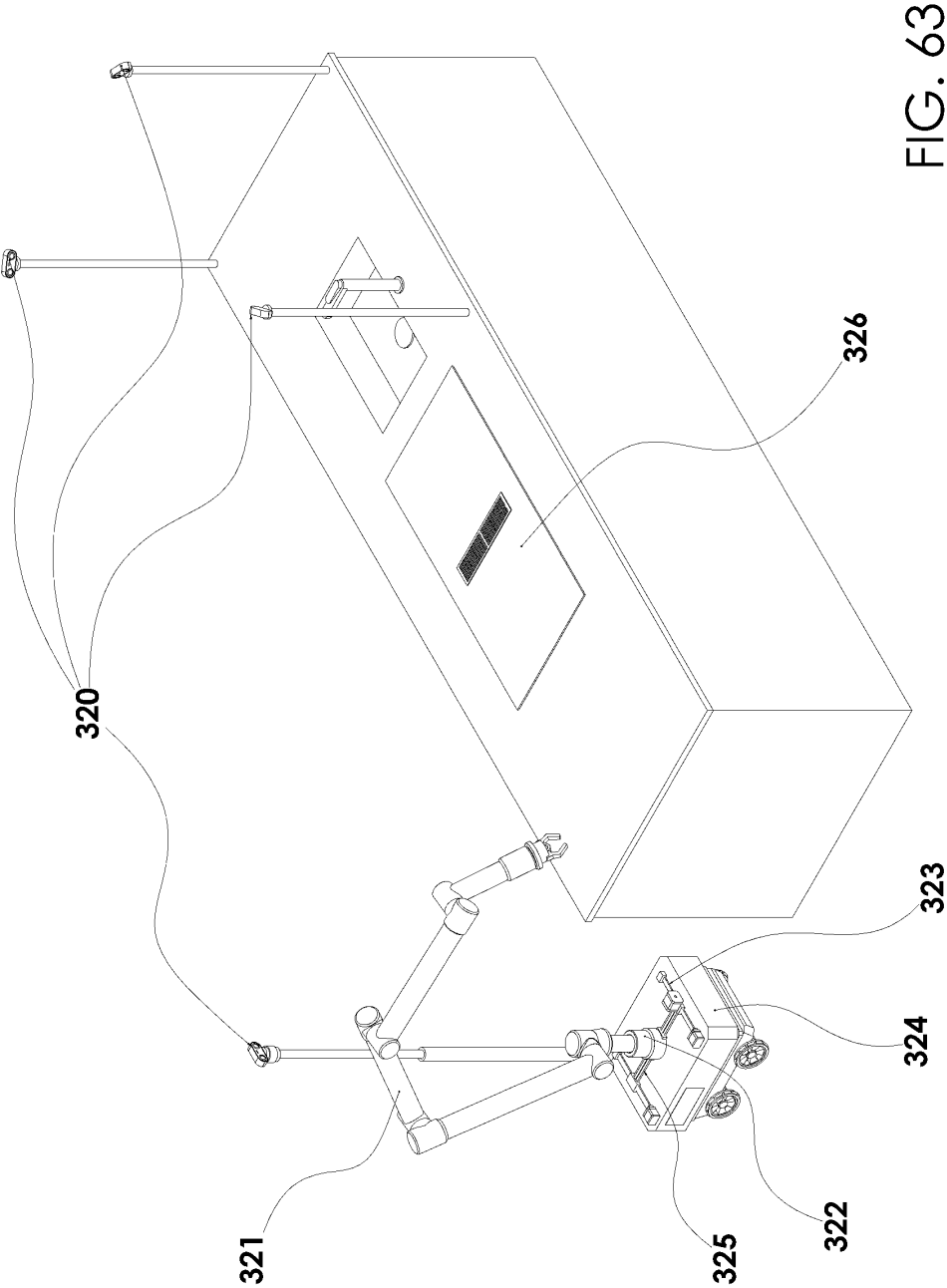
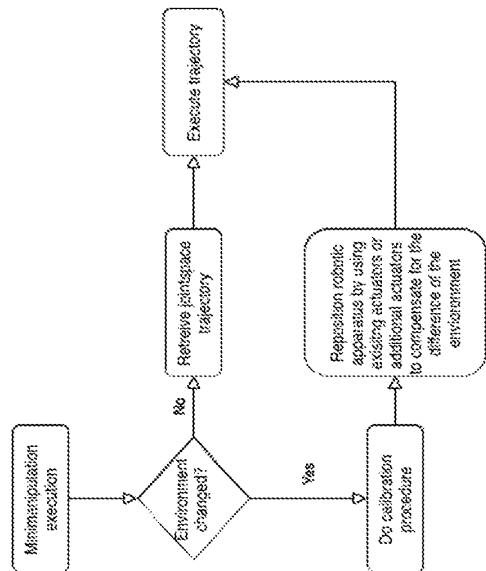
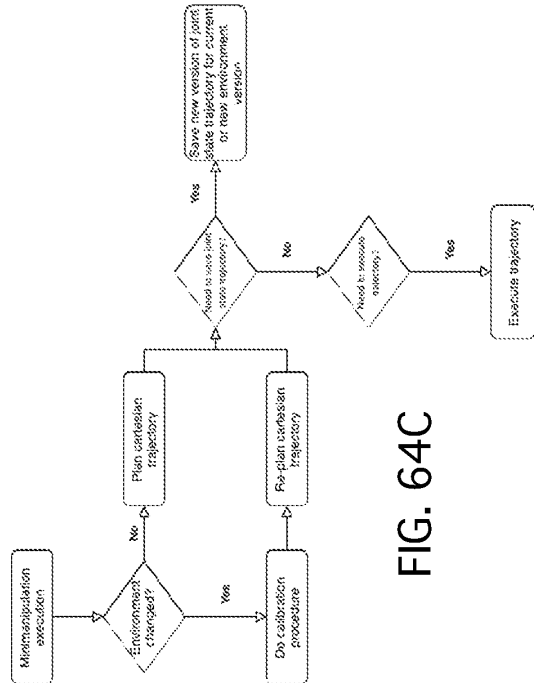
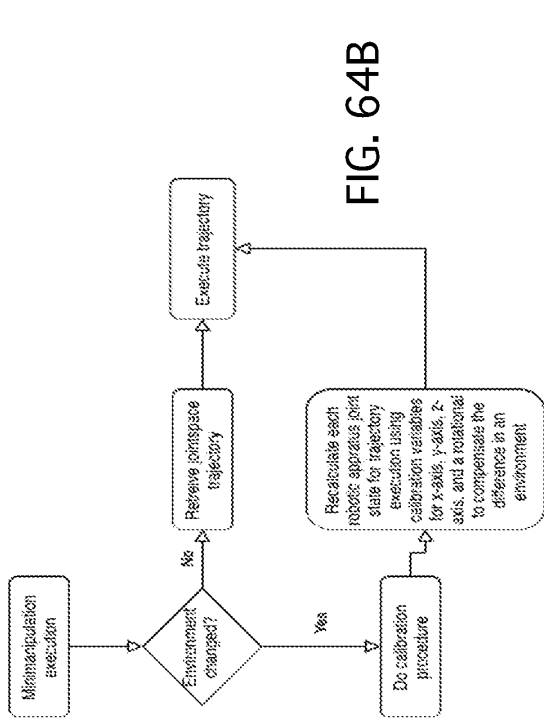


FIG. 62B





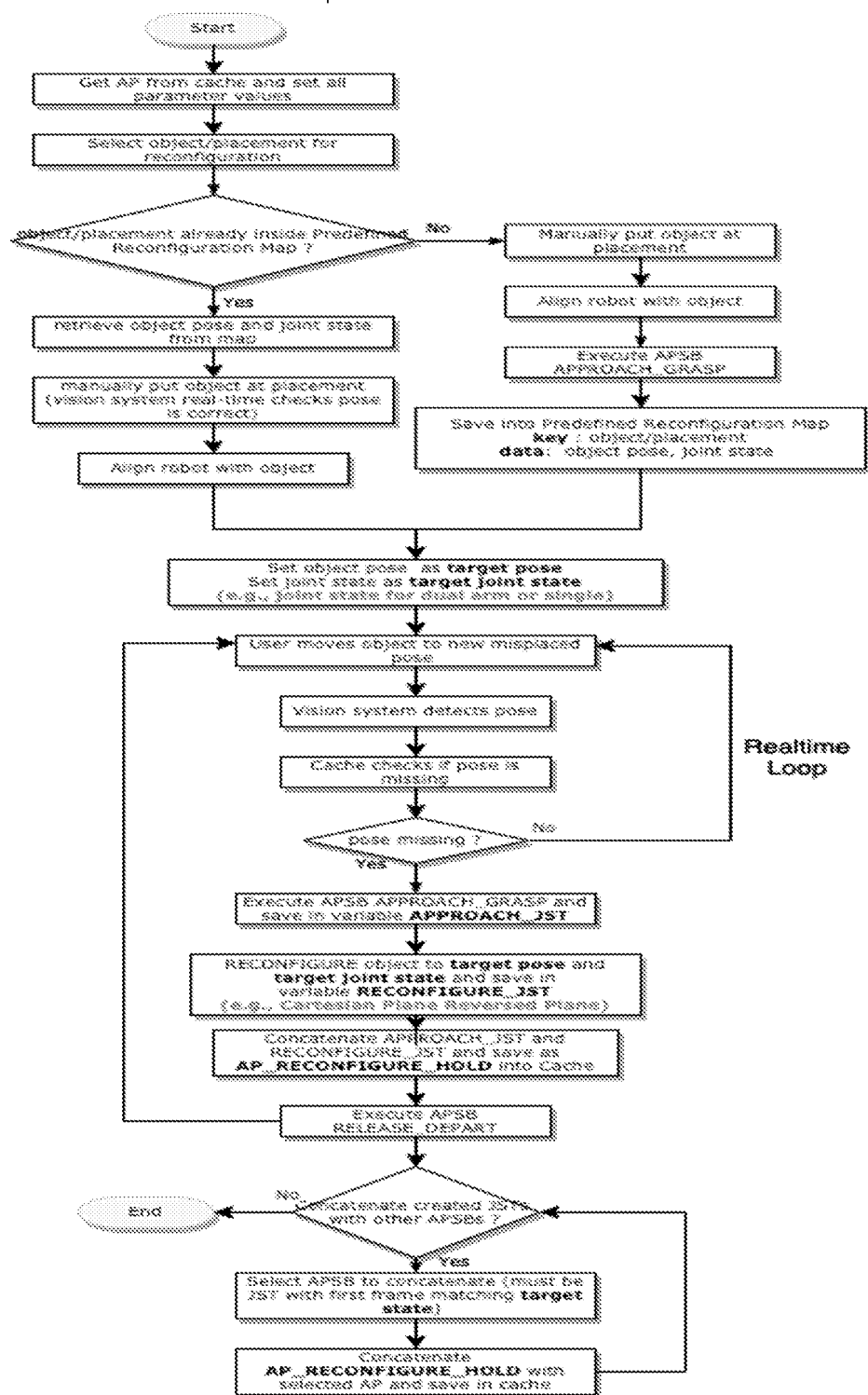


FIG. 65

Take Object from current placement and place at TargetPlacement	RobotSide	StringParameter	Robot sides	Selected by Robotic Team after Chef created recipe	ROBOT_SIDE_LEFT
	Object	ObjectParameter (type, number)	Any Object	Selected by Chef at recipe creation time	Frying Pan 1 (CW-FP-RUF-1)
	TargetPlacement	PlacementParameter (type, number)	All Object Placements	Selected by Chef at recipe creation time	Worktop Zone 10 (WT-X4-Y1)
	ManipulationStartTime	NumericParameter	Min: 0 Max: 7200	Selected by Chef at recipe creation time	95
	StartTimeShift	NumericParameter	Shift Time Formula	Coming from AP	0
	ManipulationDuration	NumericParameter	Duration Formula	Coming from AP	20

FIG. 66A

Take Object and keep it in default posture	L/R/D	D	Object	Coming from Manipulation Parameter: Object	Frying Pan 1 (CW-FP-RUF-1)
			duration	Permanently Defined by Robotic Team in ExecutionVariation	10
Place Object from hand at Target Placement then go to default posture	L/R/D	D	Object	Coming from Manipulation Parameter: Object	Frying Pan 1 (CW-FP-RUF-1)
			TargetPlacement	Coming from Manipulation Parameter: TargetPlacement	Worktop Zone 10 (WT-X4-Y1)
			duration	Permanently Defined by Robotic Team in ExecutionVariation	10

FIG. 66B

MACROAP-Stir into Cookware with Utensil then go to default posture
*** MACRO AP EXPANSION INTO MICRO APS ***
MICROAP-Stir Approach to micro ap posture
Approach and holds cookware and puts spoon inside it
REPETITIONS START (number of repetitions is calculated at execution time based on StirDuration)
MICROAP-Stir Stir then go to micro ap posture
Note: micro ap posture with spoon inside the cookware
MICROAP-Stir Stir then go to micro ap posture
Note: micro ap posture with spoon inside the cookware
MICROAP-Stir Stir then go to micro ap posture
Note: micro ap posture with spoon inside the cookware
REPETITIONS END
MICROAP-Stir Depart from micro ap posture to default posture
Release cookware and move spoon away from cookware

FIG. 66C

MACRO-AP-Pour contents of SourceObject into TargetObject at TargetZones then go to default posture
<i>Note: number of zones determines also the number of repetitions</i>
*** MACRO AP EXPANSION INTO MICRO APS ***
MICROAP-Pour Approach to micro ap posture
REPETITIONS START (calculated at runtime based on number of zones)
MICROAP-Pour Pour into Zone 1 and go to micro ap posture
MICROAP-Pour Pour into Zone .. and go to micro ap posture
MICROAP-Pour Pour into Zone N and go to micro ap posture
REPETITIONS END
MICROAP-Pour Depart from micro ap posture to macro ap default posture

FIG. 66D

FIG. 66E

MACROAP-SetOvenTemperature then go to default posture
TemperatureParameter: 180 (example)
*** MACRO AP EXPANSION INTO MICRO APS ***
MICROAP-ApproachTouchscreen going to microap posture (brings robot index finger to center of touchpanel at 1 cm distance)
MICROAP-OperateTouchScreen Press ButtonSequence then goto microap posture
ButtonSequenceParameter contains the trajectory which presses in sequence the specific touchscreen locations until the temperature digit setting
MICROAP-OperateTouchScreen Press ButtonSequence then goto microap posture
ButtonSequenceParameter contains the button press for the first digit, calculated from MACRO-AP TemperatureParameter: in this case: '1'
MICROAP-OperateTouchScreen Press ButtonSequence then goto microap posture
ButtonSequenceParameter contains the button press for the first digit, calculated from MACRO-AP TemperatureParameter: in this case: '8'
MICROAP-OperateTouchScreen Press ButtonSequence then goto microap posture
ButtonSequenceParameter contains the button press for the first digit, calculated from MACRO-AP TemperatureParameter: in this case: '0'
MICROAP-OperateTouchScreen Press ButtonSequence then goto microap posture
ButtonSequenceParameter contains the trajectory which presses in sequence the specific touchscreen locations until the setting is confirmed and executed
MICROAP-DepartFromTouchscreen going to default posture

Object/Placement	Worktop Zone 1	Worktop Zone 2	...	Induction Hob Left Burner 1	Induction Hob Left Burner 2	...
Medium Pot	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...
Frying Pan	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...
Resting Tray	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...	Pose: <i>(data)</i> JointState: <i>(data)</i>	Pose: <i>(data)</i> JointState: <i>(data)</i>	...
...	...	...	...	...	...	...

FIG. 66F

AP/MANIPULATION NAME	PARAM NAME	PARAM TYPE	PARAM ALLOWED VALUES	PARAM SELECTION ACTOR	PARAM VALUE (EXAMPLE)
Stir ingredients with a Utensil into a Cookware then place Utensil at Target Placement	RobotState	StringParameter	RobotState	Selected by Robot's Item after Chef creates recipe	RobotState_001
	Ingredient ID	IngredientParameter	All possible ingredient IDs	Selected by Chef at recipe creation time	ID 002
	Cookware	ObjectParameter (type, number)	Cookware	Selected by Chef at recipe creation time	Baking Pot 1 (35W-20-300-1)
	Hold Parameter	PlacementParameter (type, number)	Hold	Selected by Chef at recipe creation time	Induction Table Left Burner 1 (14-40-100-1)
	Utensil	ObjectParameter (type, number)	Stir Utensils	Selected by Chef at recipe creation time	Spoon 2 (U-SPL-2)
	Utensil Source Location	LocationParameter	All Object Locations	Selected by Robot's Item after Chef created recipe	Sponge Under Refrigerator 4 - Robot 2 (U-34-42)
	Utensil Target Placement	PlacementParameter (type, number)	Utensil Parameters	Selected by Chef at recipe creation time	Sponge Under Refrigerator 4 - Robot 2 (U-34-42)
	Stir Duration	NumericalParameter	Min: 0 Max: 60	Selected by Chef at recipe creation time	5
	Stir Speed	StringParameter	Speed Types	Selected by Chef at recipe creation time	SPEEDTYPE_SLOW
	Target Stir Type	StringParameter	Stir Types	Selected by Chef at recipe creation time	STIRTYPE_STIR_3000
	Top Utensil On Cookware End	StringParameter	True/False	Selected by Chef at recipe creation time	False
	ManipulationStartTime	NumericalParameter	Min: 0 Max: 7200	Selected by Chef at recipe creation time	160
	StartTimeShift	NumericalParameter	Shift time Formula	Coming from AP	-14
	ManipulationDuration	NumericalParameter	Duration Formula	Coming from AP	30

FIG. 66G

Index	Object	Simple Parameter	Robot state	Subcategory for a parameter that is used in logs	Report ID (SIP, RUP)
Place Object from hand at Target Placement or Object then go to default posture					
IST includes reconfiguration if target is an object on worktop	Object	ObjectParameter (type, number)	All Objects	Coming from Manipulation Parameters: Usual	Spot 2 (USP1-C-2)
	Target Placement	PlacementParameter	All Object Locations	Coming from Manipulation Parameters: Usual/Target Placement	Storage Unit: Report 4 + Book 2 (S1-B4-15)
	keyPointTimeShift	NumericParameter	Min: 0 Max: 0	Permanently Defined by Robotic Team in Execution/variation	0
	FixedDuration	NumericParameter	Min: 0 Max: 9999	Permanently Defined by Robotic Team in Execution/variation	10
	InertiaDuration	NumericParameter	Min: 0 Max: 0	Permanently Defined by Robotic Team in Execution/variation	0

75/172

Appl. No. 16/900,842
Response Dated 21 November 2020
Notice to Incomplete Reply of 22 June 2020
Replacement Sheet

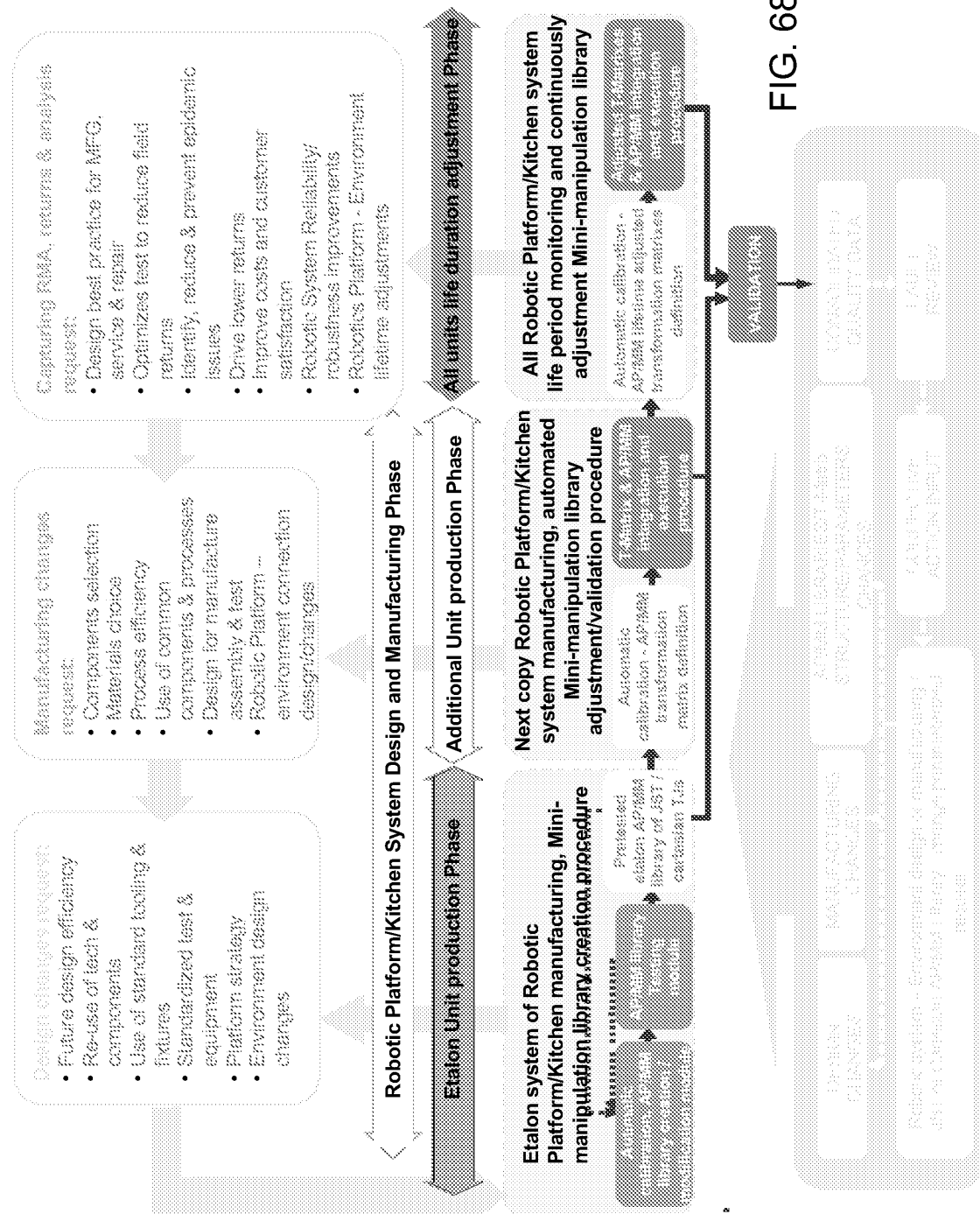
[illegible]

FIG. 67A

[illegible]

FIG. 67B

Environment & Robot, Perception & Modelling



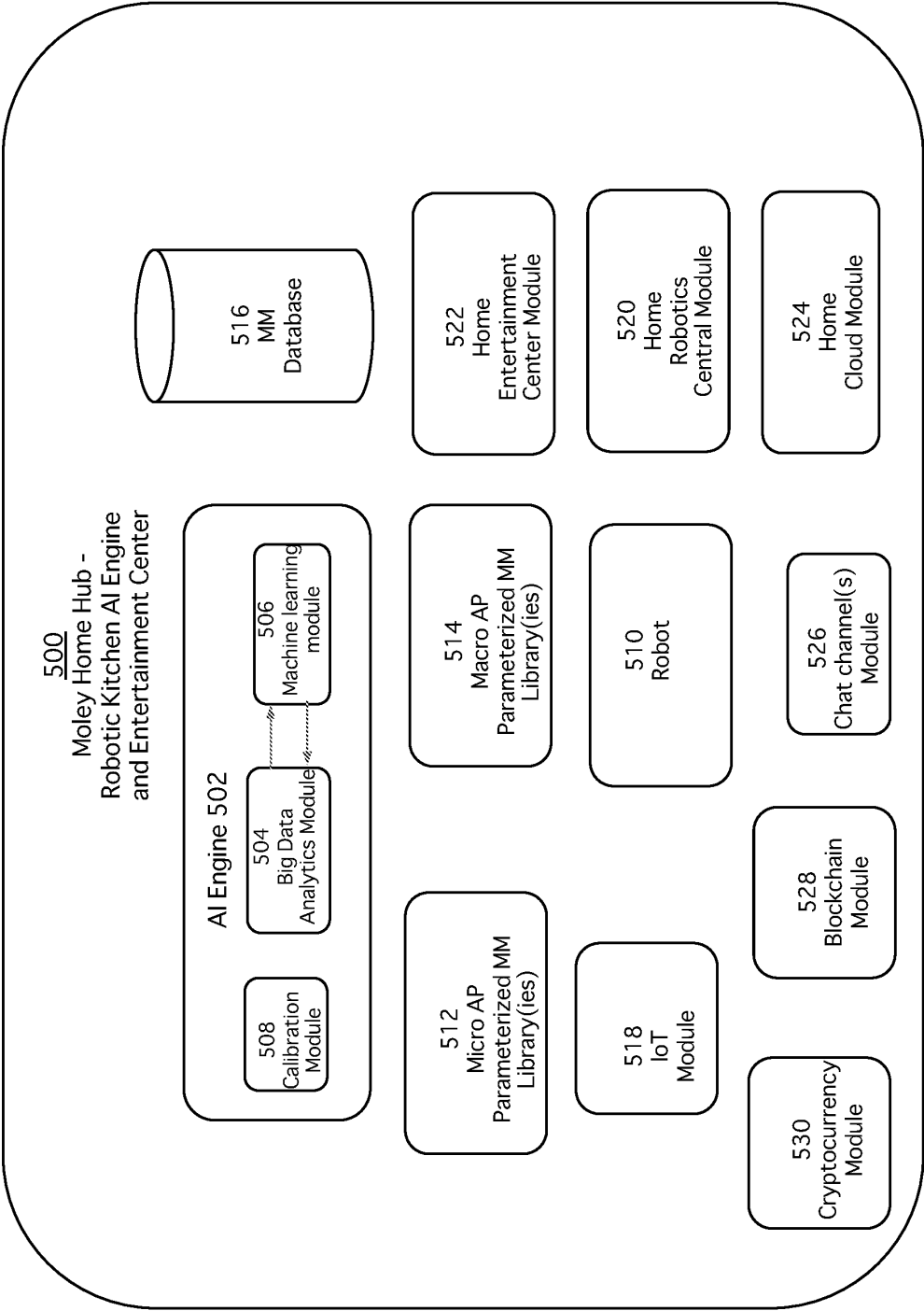


FIG. 69

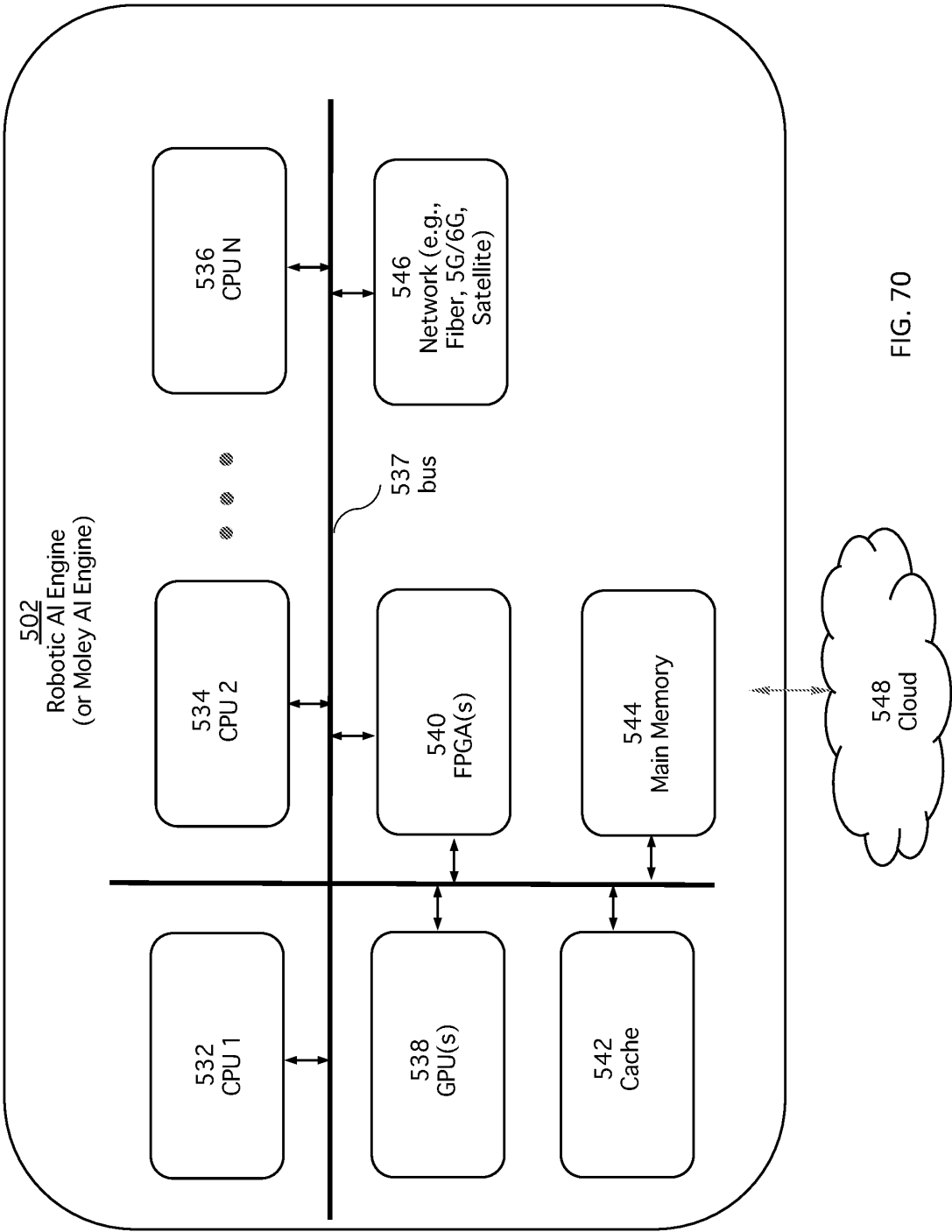
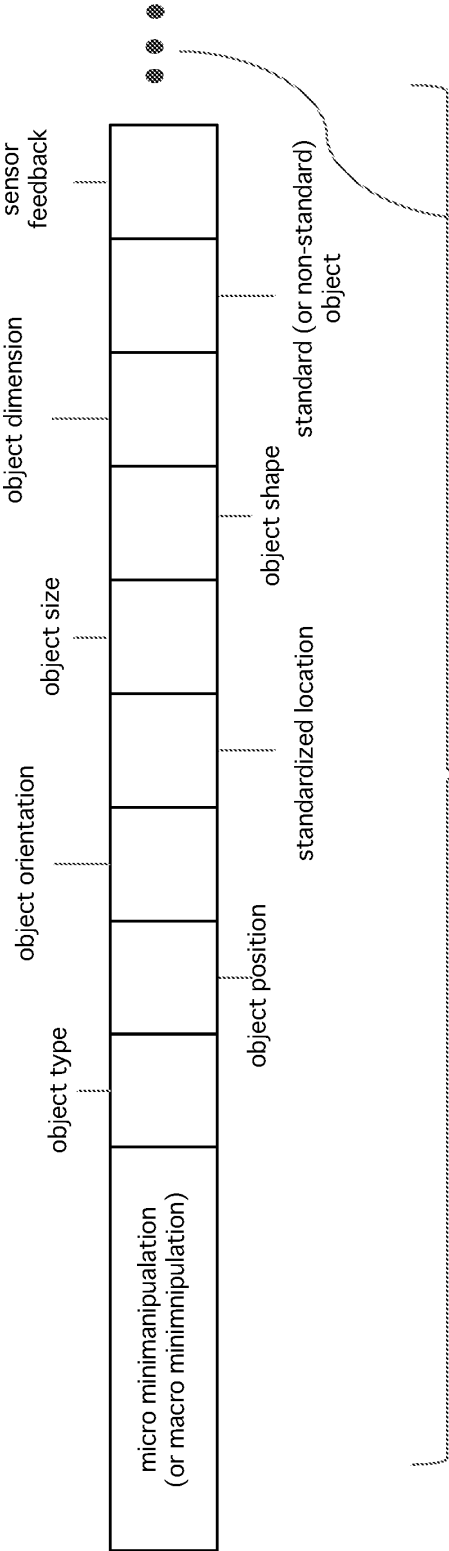


FIG. 70

(Sample) Parameterized Minimanipulation



Other possible additional parameters:
object texture,
ingredient amount,
object temperature,
current status of smart appliance,
control data for smart appliance(s),
timing parameters (start time, end time, duration),
speed,
trajectory, e.g., stirring trajectory, etc.

550

FIG. 71

CLOUD INVENTORY CENTRAL DATABASE STRUCTURE																			
Date/time	Object name/ID	Object manufacturer	Object number	Object owner	Object weight	Object color	Object texture	Object shape	Object size	Object temperature	Object position	Object position ID	Object premises / room / zone	Object POS	RFID	Object - Equipment status data	Object - Equipment control data	Other Object relevant data	Other object sensor reading data
01.10.2020 01:12:22:11	Spatula 123	Moley	2	Smith	204.6 gr	gold (ralxxx) / polished steel	photo1	model 1	23x8x13	23 C	hook	15	kitchen / address	POST-4	RFD1			...	...
01.10.2020 01:12:22:11	Medium pot 456	Moley	1	Smith	1030 gr	black	photo2	model 2	30x50x25	50 C	induction	1	kitchen / address	POS	RFD2			...	...
01.10.2020 01:12:22:11	Flat keys		1	Smith	80.5 gr	metal/ black	photo3	model 3	3x1.2x0.3	23 C	shelf	10	living room / address	POS	RFD3			...	...
01.10.2020 01:12:22:11	Phone X	Apple	1	John	250 gr	gold	photo4	model 4		20 C	drawer	5	entrance / address	POS	RFD4	unlocked mode	XXXXXXXXXX	...	...
01.10.2020 01:12:22:11	Medium container 678	Media	5	n/a	340.7 gr	transparent	photo5	model 5	16x18x20	23 C	slot	3	kitchen / address	POS 1	RFD5			...	...
01.10.2020 01:12:22:11	Suit	Dior	1	Michael	1256.6 gr	brown / ral xxx	photo6	model 6	100x8x40	23 C	wardrobe man	15	bedroom 1 / address	POS 1-2	RFD6			...	...
01.10.2020 01:12:22:11	Dress	Zara	1	Clara	856.5 gr	green/ ral xxx	photo7	model 7	160x8x35	23 C	wardrobe woman	15	bedroom 2 / address	POS 1-2	RFD7			...	...
01.10.2020 01:12:22:11	thermometr	n/a	1	Smith	31 gr	light blue ral xxxx	photo8	model 8	10x1x2.3	23C	medical storage	12	bedroom 1 / address	POS	RFD8	measuring mode		...	37.2 c
01.10.2020 01:12:22:11	shampoo / Genesis	Kerastase	1	n/a	830 gr	pink ral xxx	photo9	model 9	11x5x2	23 C	shelf 2	7	bathroom/ laboratory 11 / address	POS	RFD9				
01.10.2020 01:12:22:11	beaker	Tecan	122	Biobab	12 gr	glass	photo10	model 10	11x1x1	16 C	biochemical cabinet	22	address	POS	n/a			empty	
01.10.2020 01:12:22:11	Heartstart FRx AED	Philips	1	n/a	1305 gr	white / ral xxx	photo11	model 11	25x25x10	23 c	hook	2	entrance / address	POS 1-2	RFD 10	Standby mode		...	...
01.10.2020 01:12:22:11	steam oven / DG7140	Miele	1	n/a	26000gr	clean steel	photo 12	model 12	45x59x55	28 c	kitchen integrated		kitchen / address	n/a	n/a		Stop in 34 sec	UK series,...	door closed, water loaded
01.10.2020 01:12:22:11	Object N	Manufacturer N	Number N	Owner N	N gr	N ral	photo N	model N	NWXNLXND	N C	position ID N	N	zone N / address	POS N	RFD N			... N	... N

FIG. 72

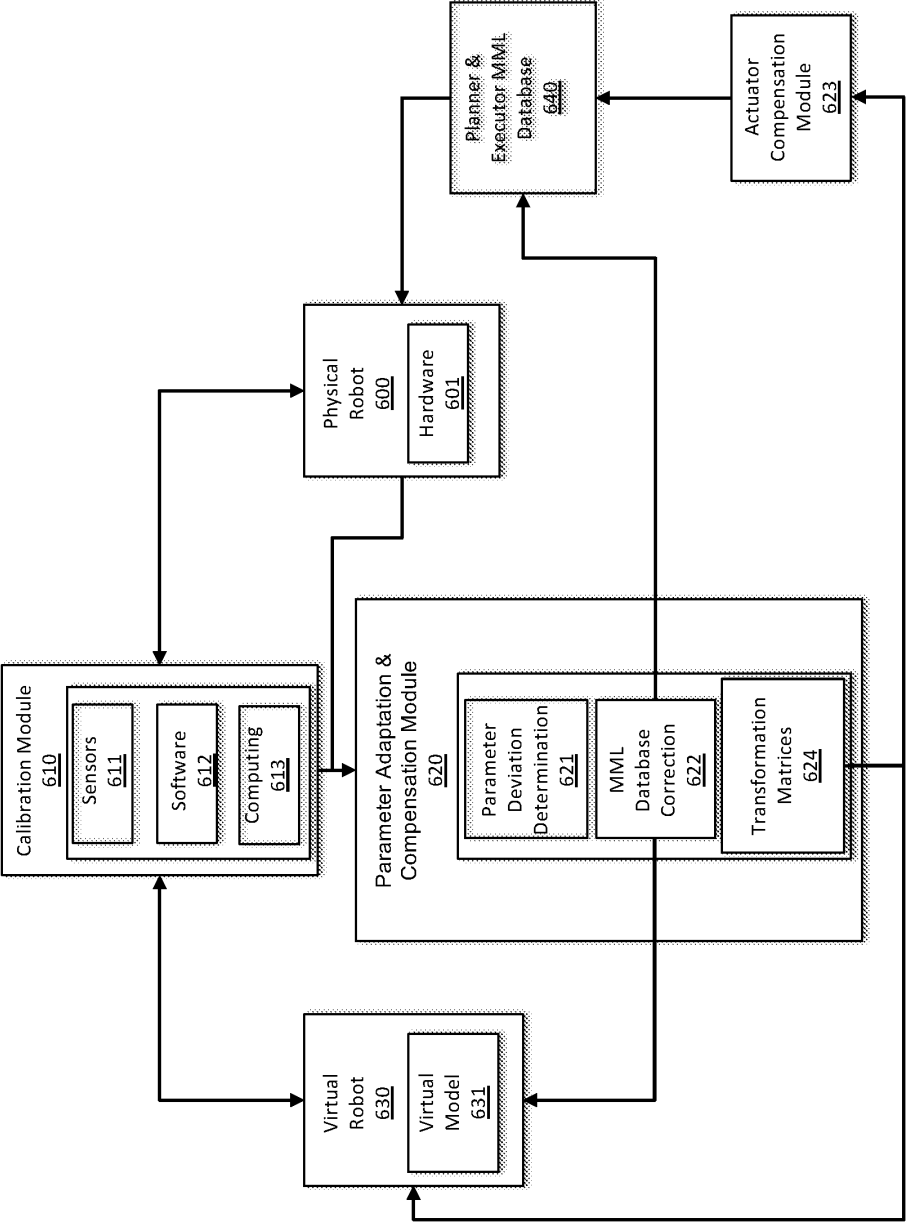


FIG. 73

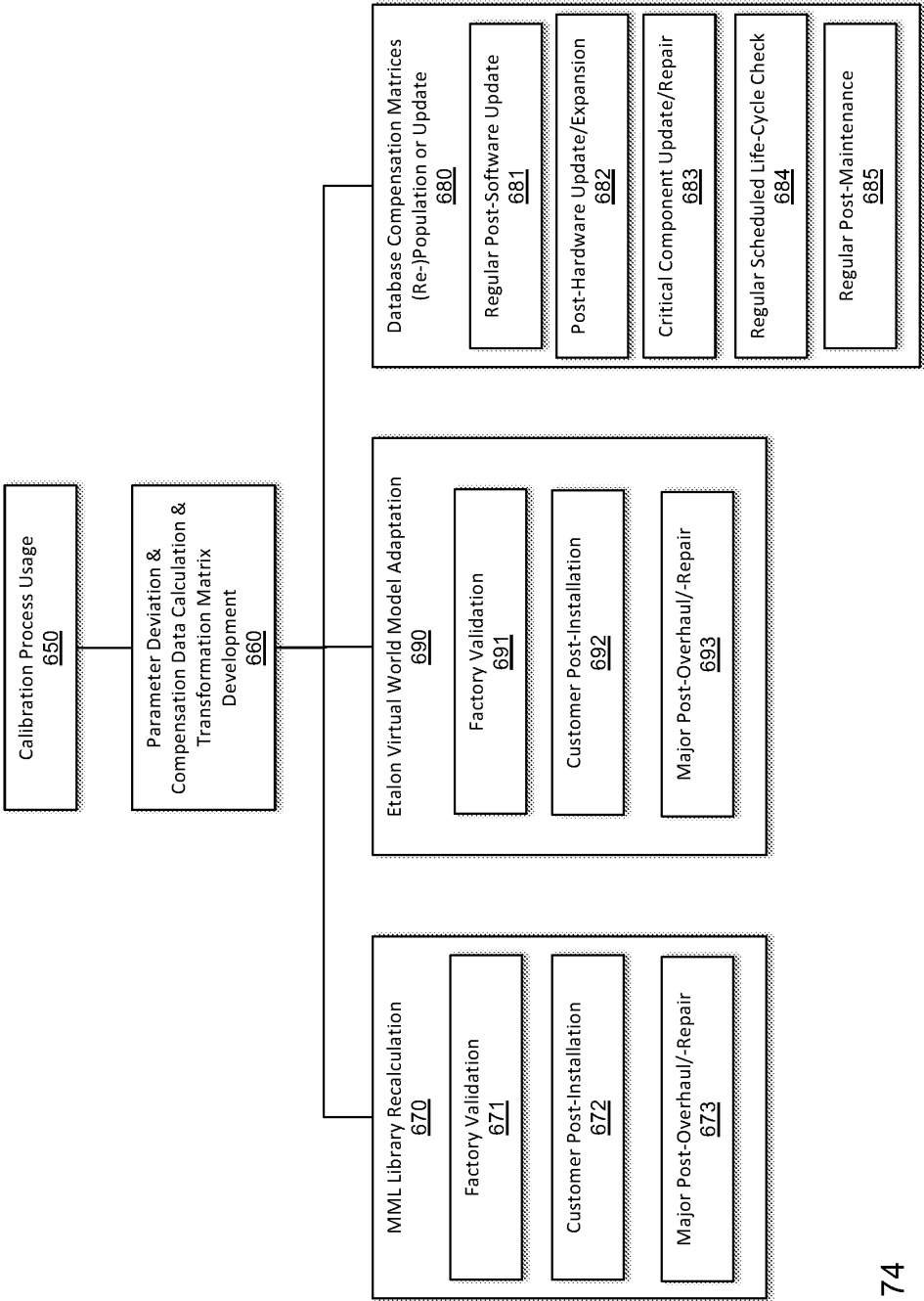


FIG. 74

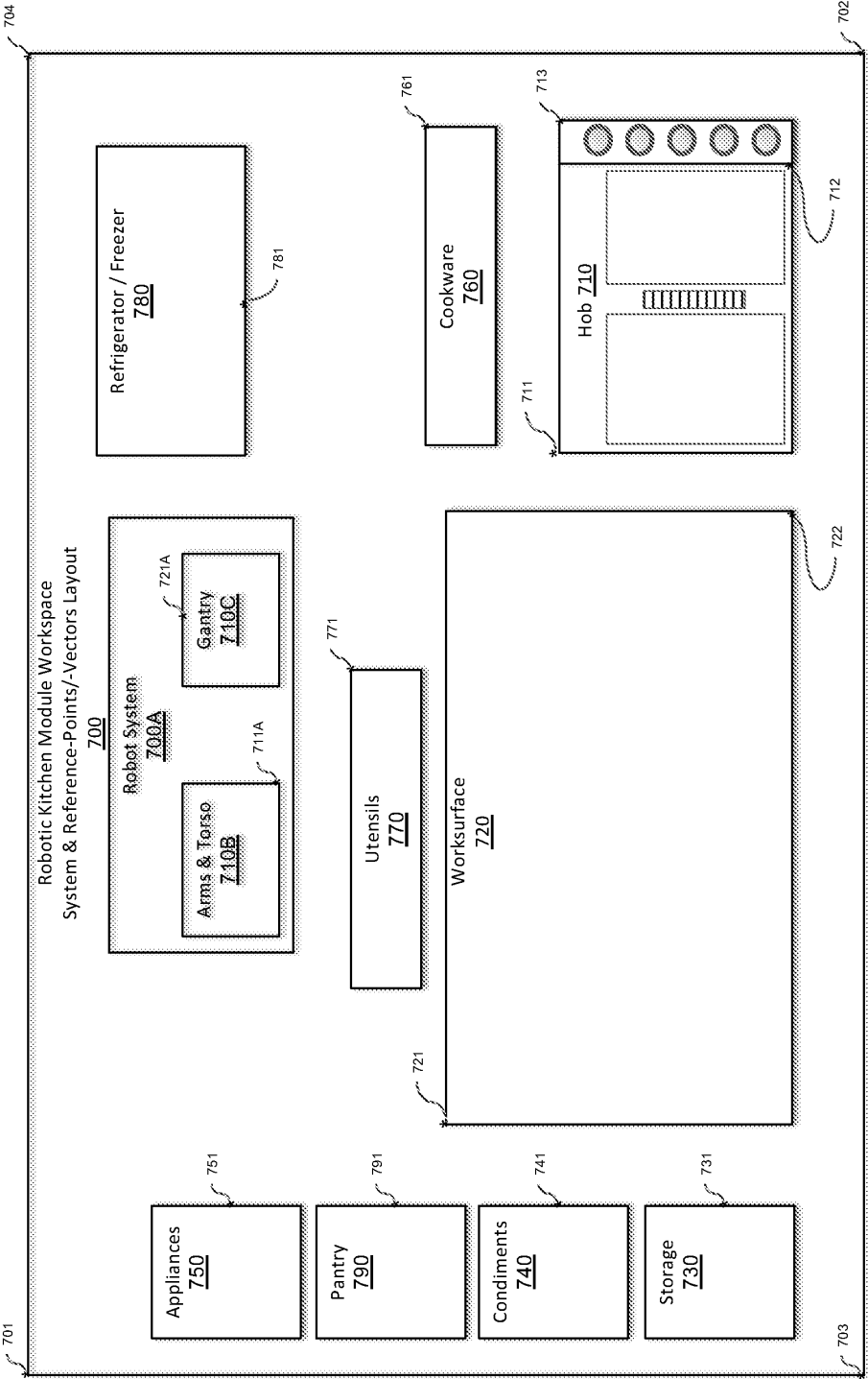


FIG. 75

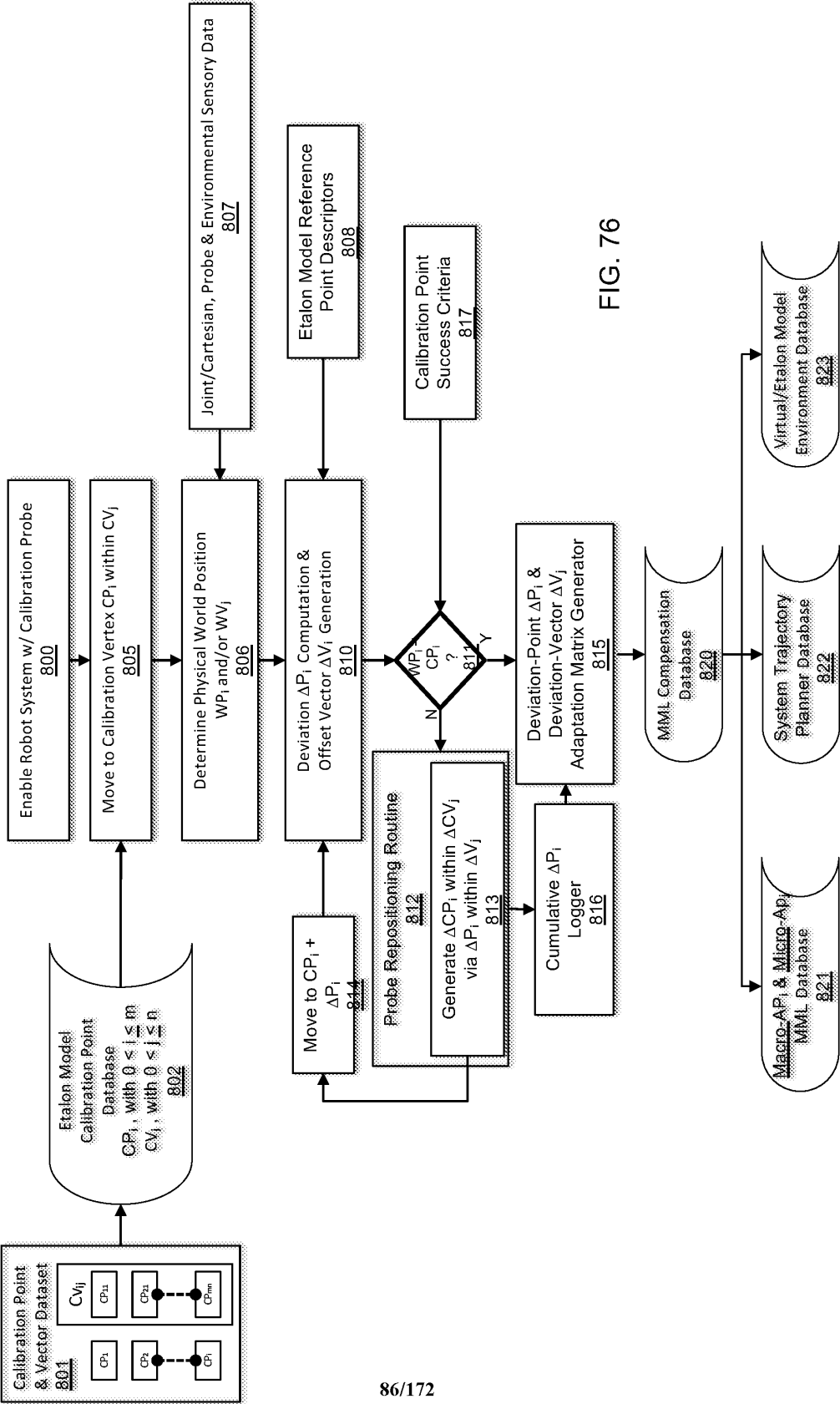


FIG. 76

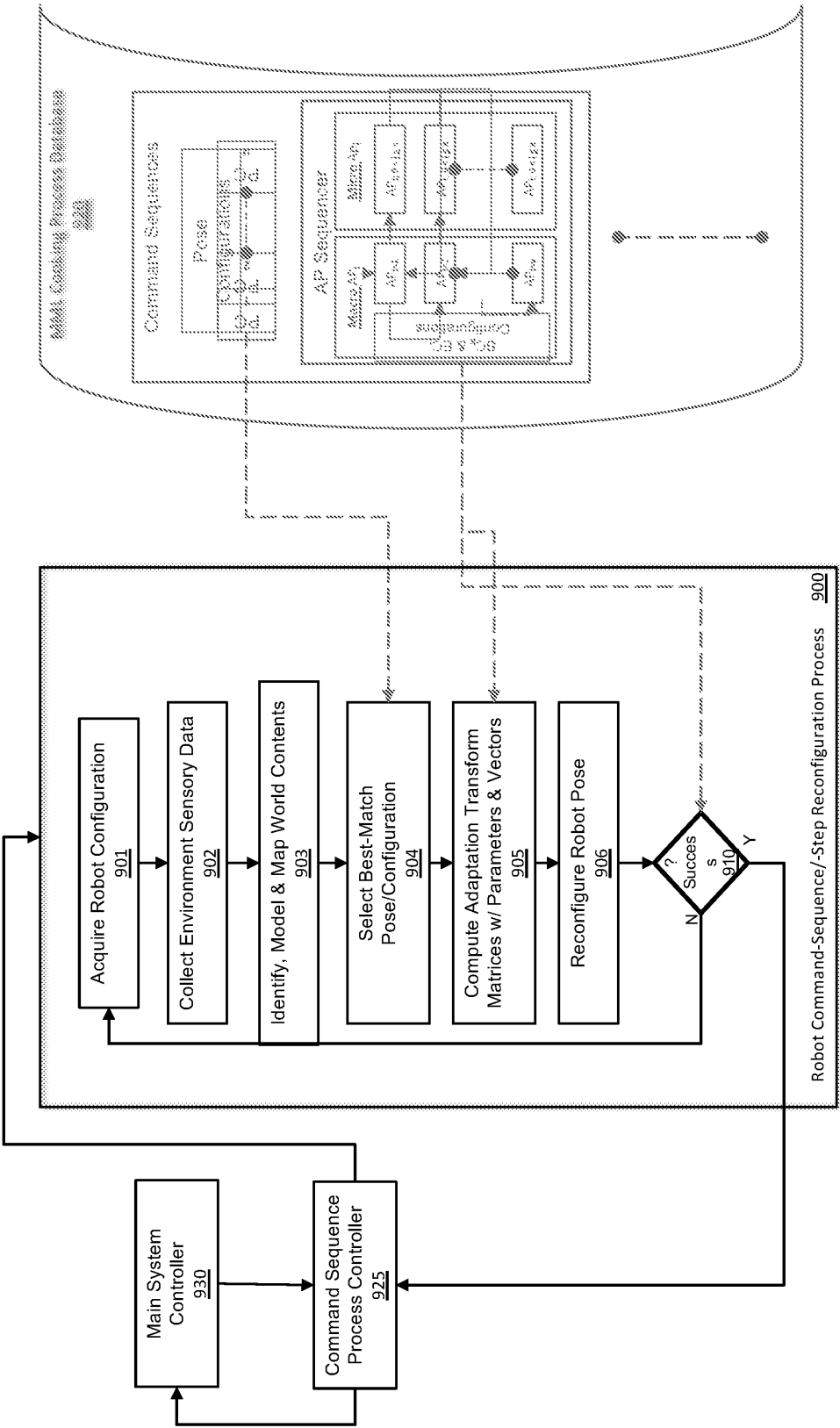


FIG. 77

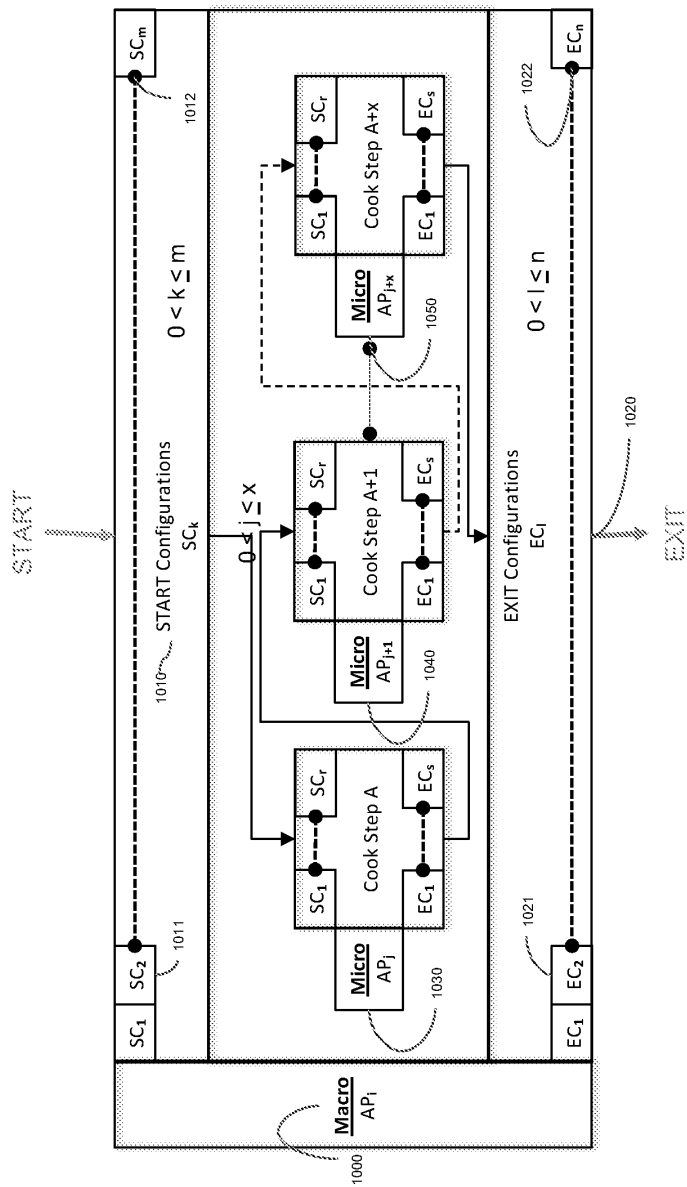


FIG. 78

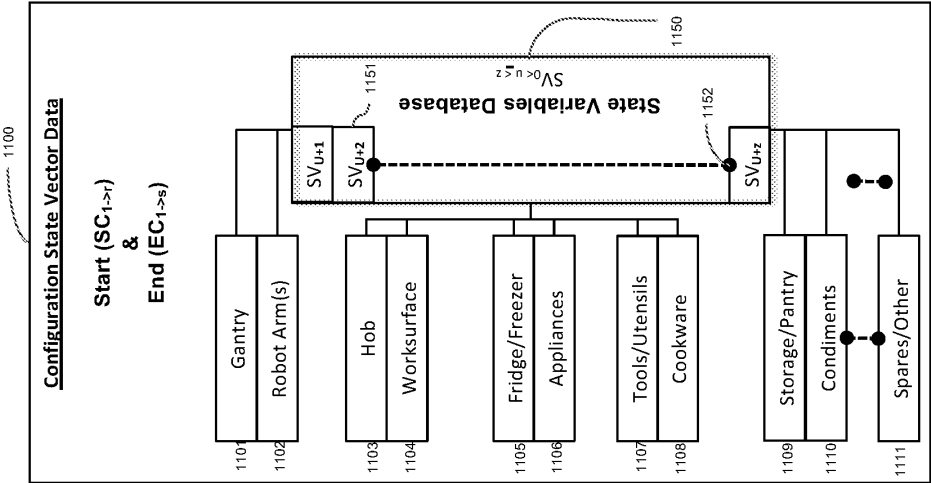
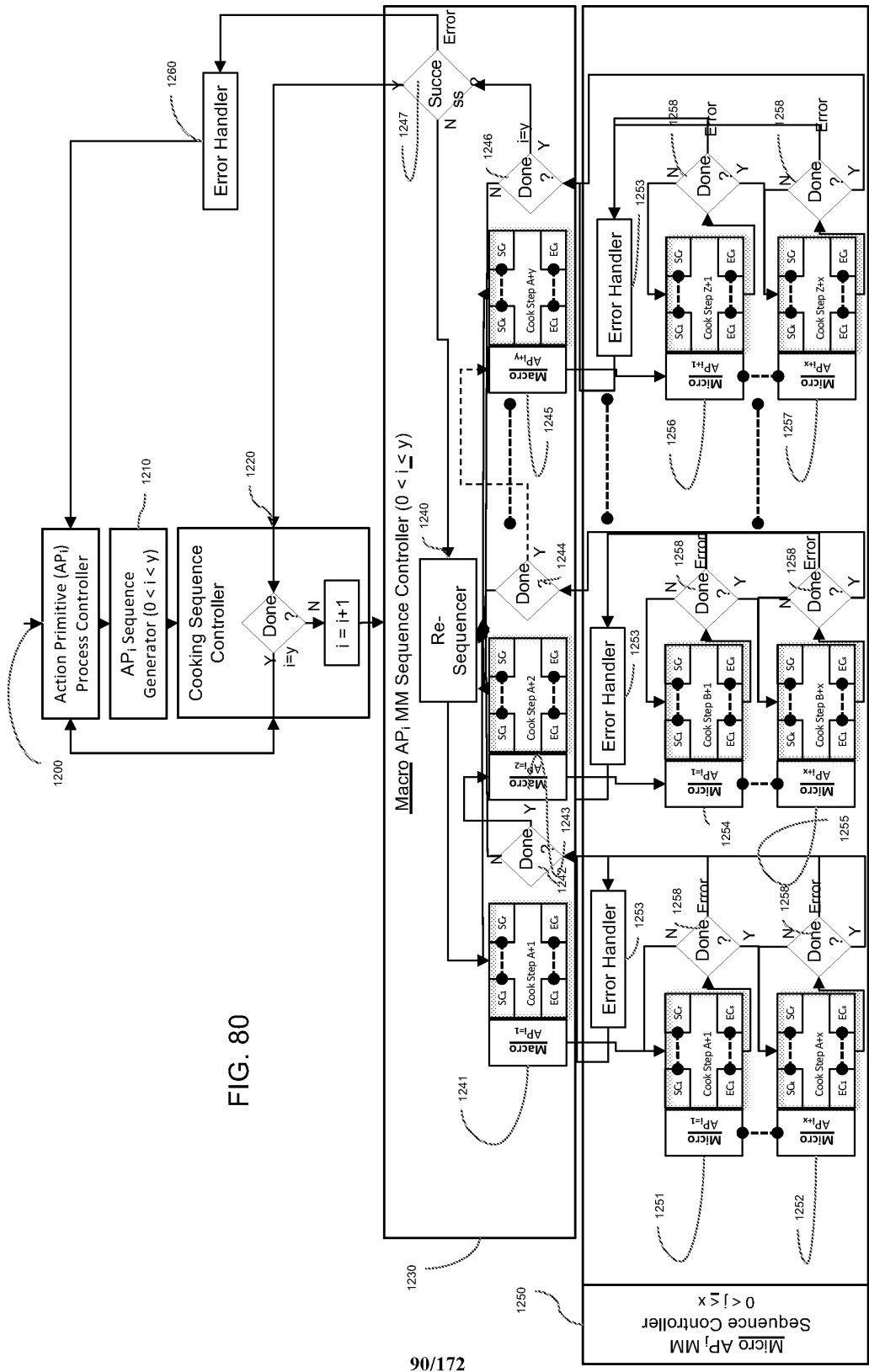


FIG. 79



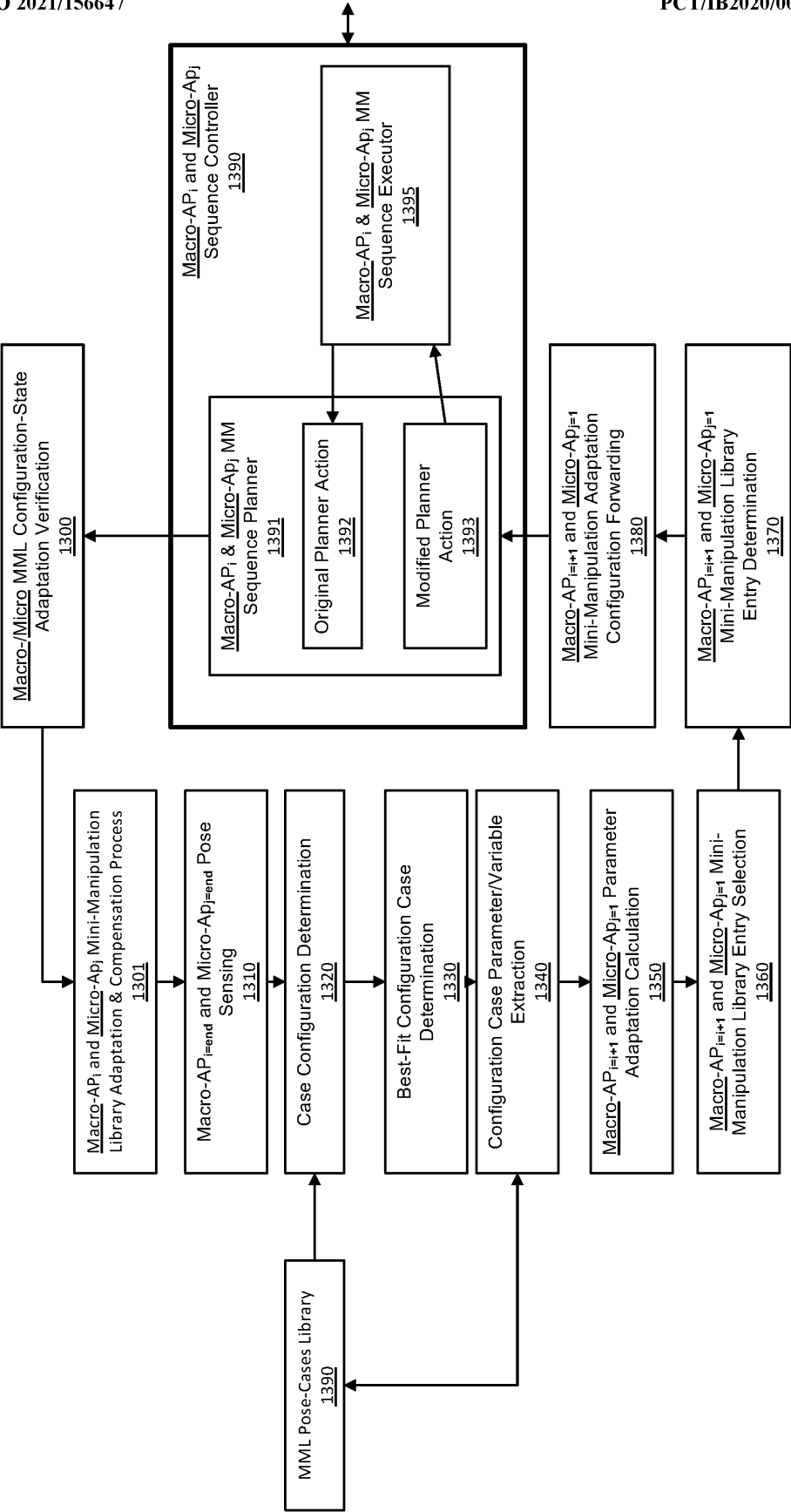
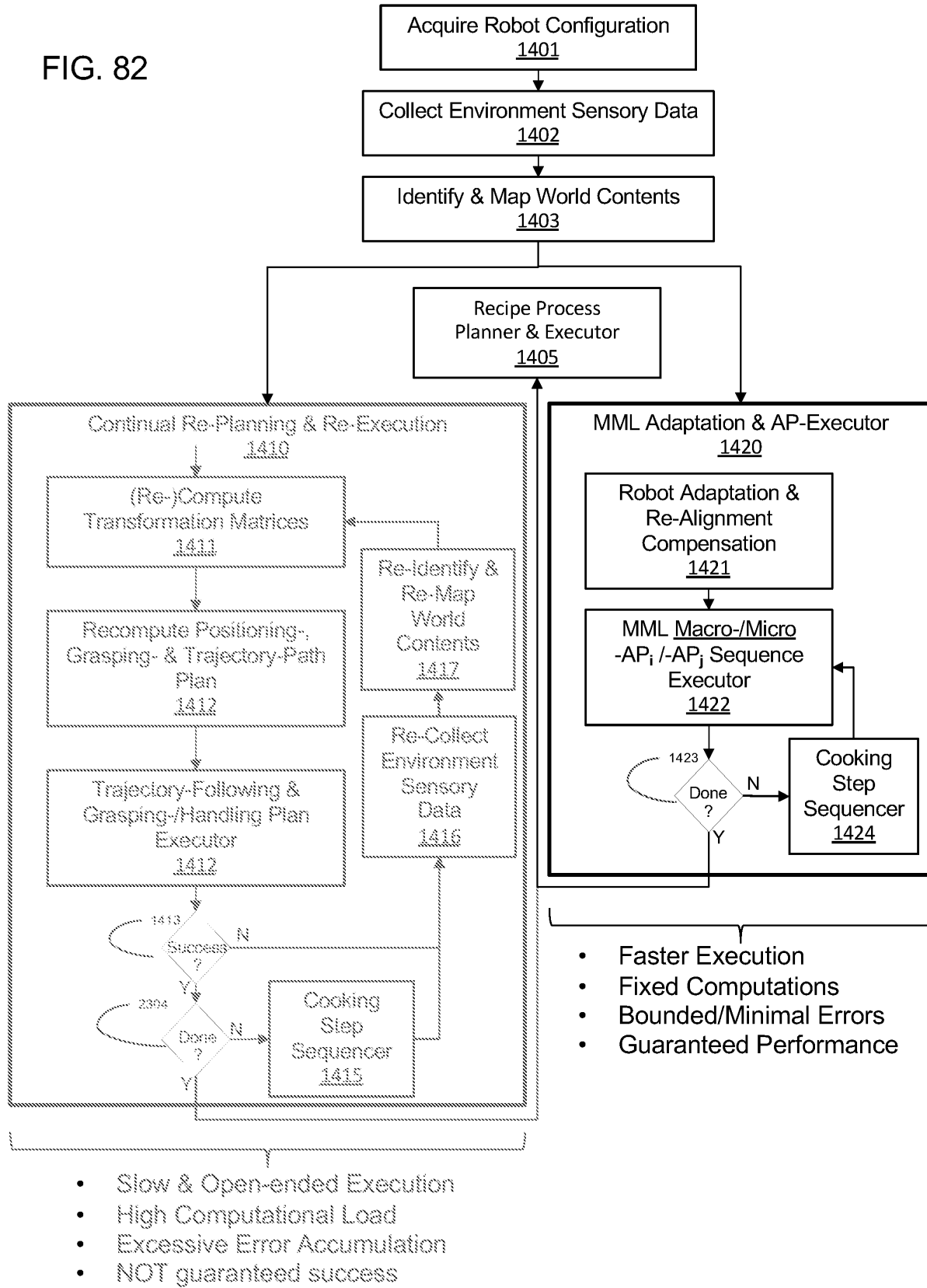
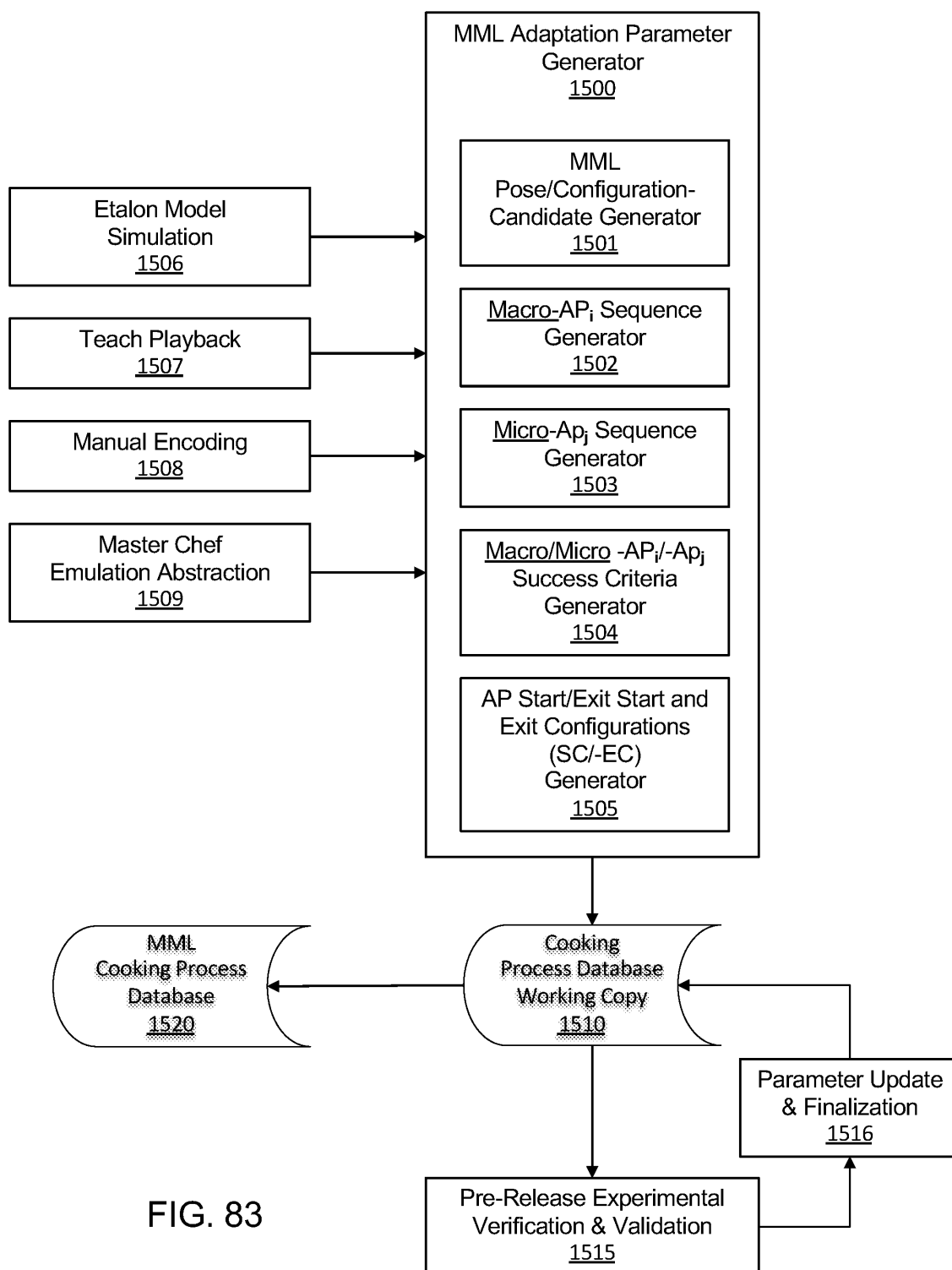


FIG. 81

FIG. 82





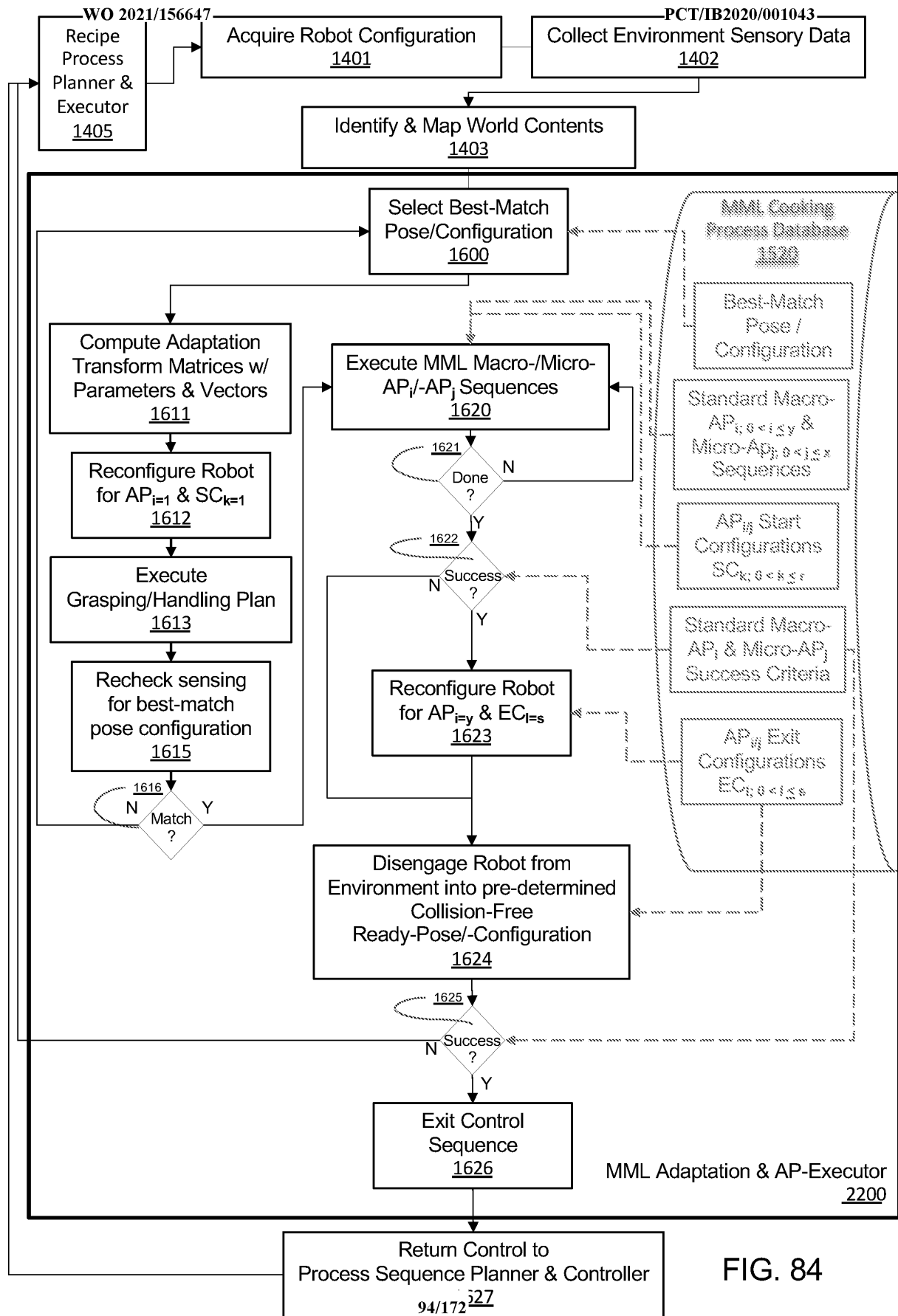
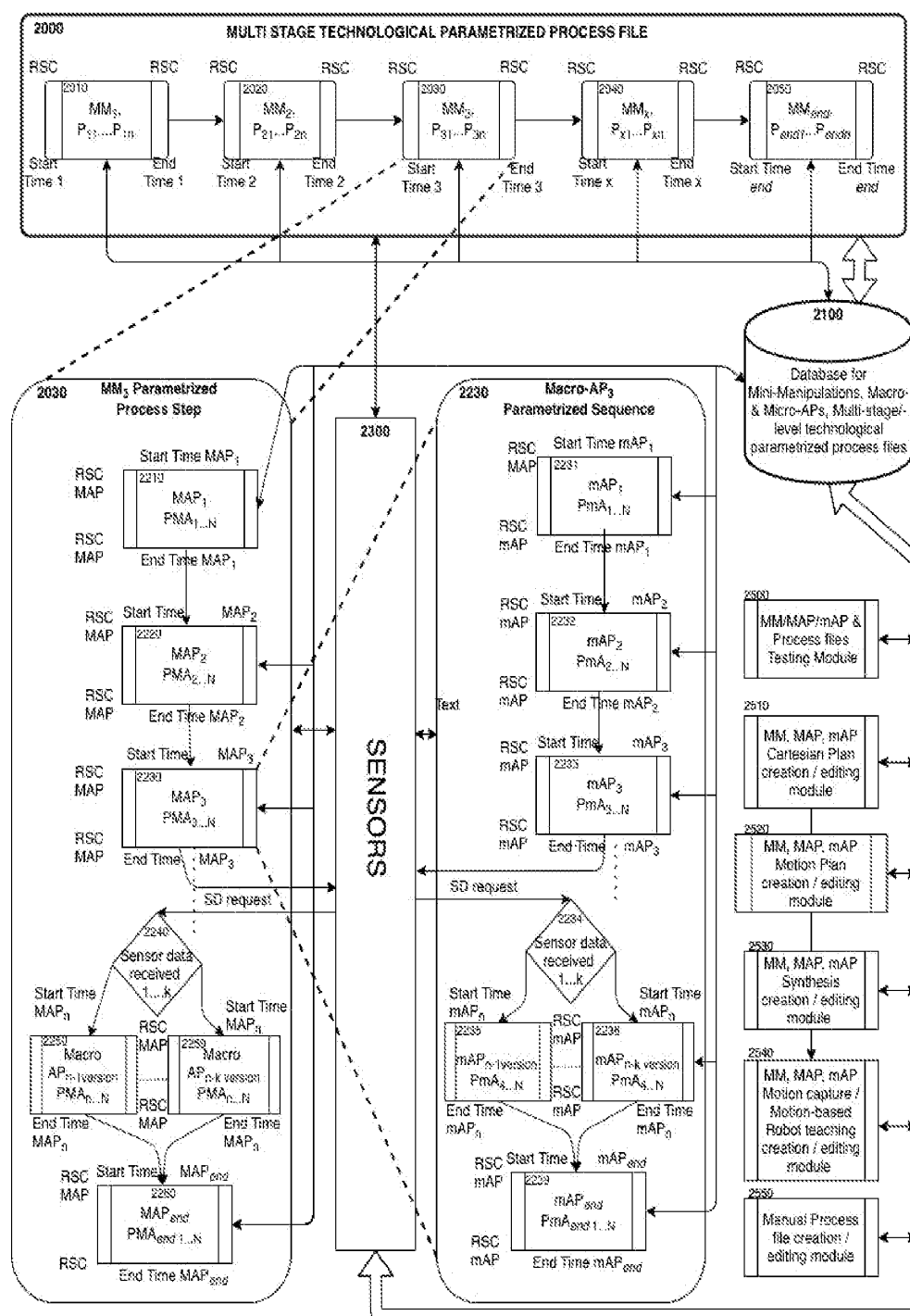


FIG. 84



RSC - Mini-manipulation Robot Standard Configuration, excluding or including a defined initial position of a multi-dimensional (XYZ) gantry system

RSC MAP - Macro-AP Robot Standard Configuration, excluding or including a defined initial position of a multi-dimensional (XYZ) gantry system

RSC mAP - Micro-AP Robot Standard Configuration, excluding or including a defined initial position of a multi-dimensional (XYZ) gantry system

SD - Sensor Data **P** - Parameter **PMM** - Mini-Manipulation Parameters **PMA** - Macro AP Parameters **PmA** - Micro AP Parameters

RSC - Robot Standard Configuration **MAP** - Macro Action Primitive (AP) **mAP** - Micro Action Primitive (AP) ... - denotes sequence not depicted

Note - any acronym above may have subscripts denoting the presence of one or more values for said acronym within a possible sequence

FIG. 85

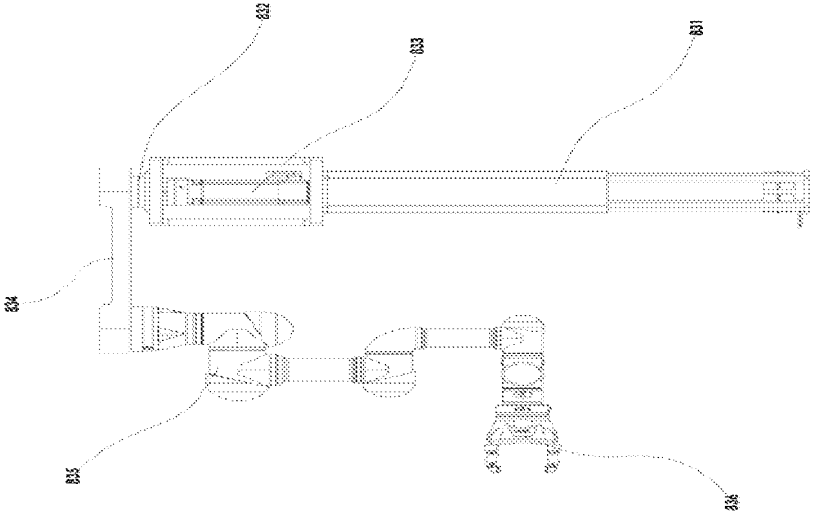


FIG. 87

830

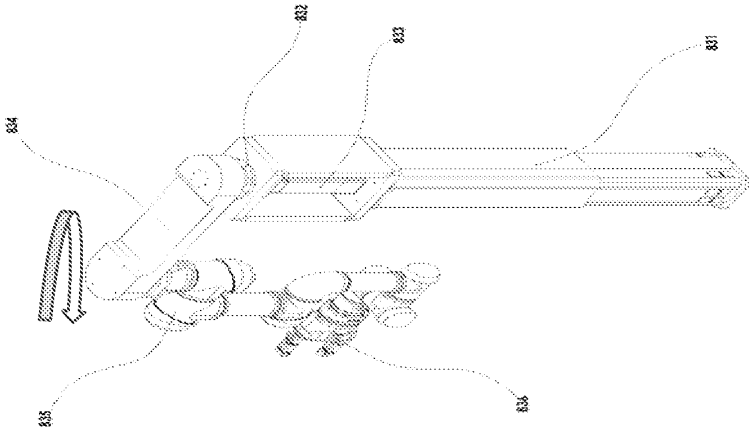


FIG. 86

830

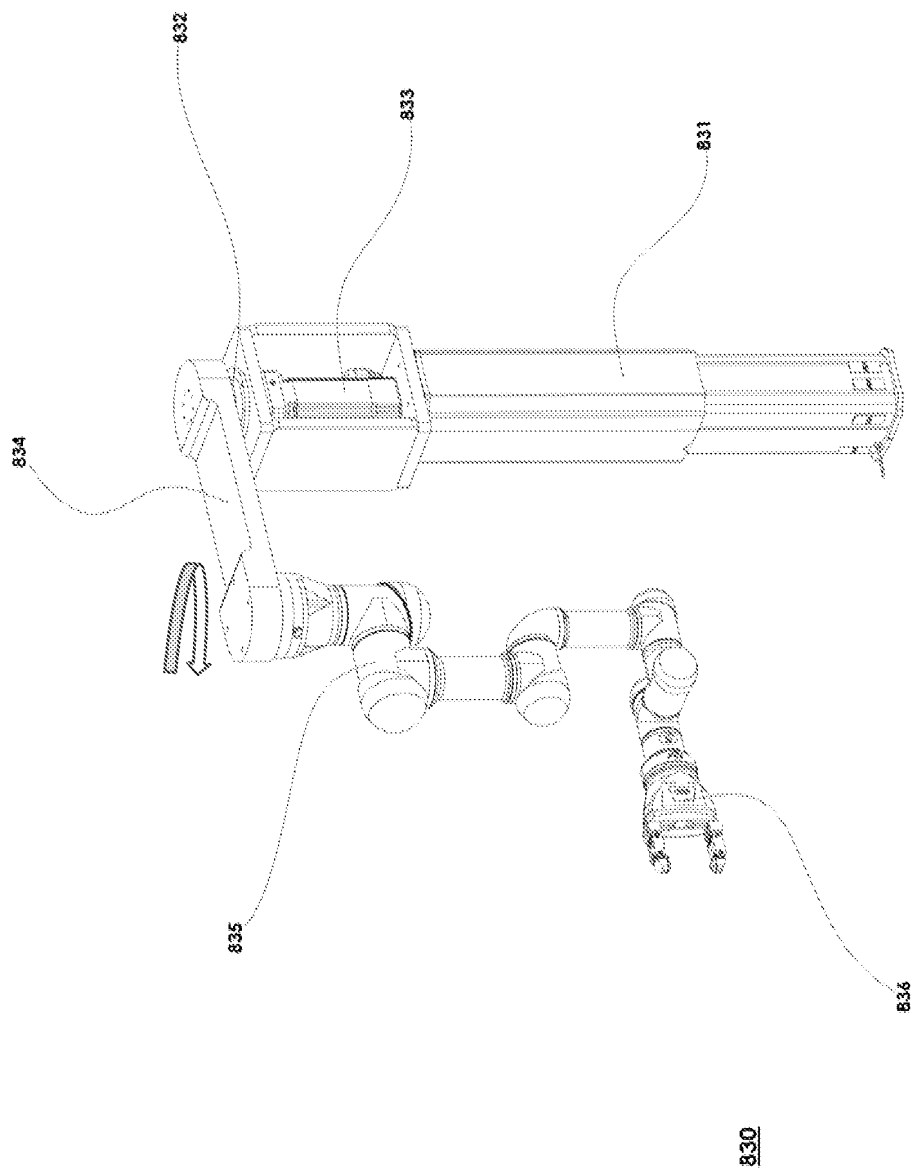


FIG. 88

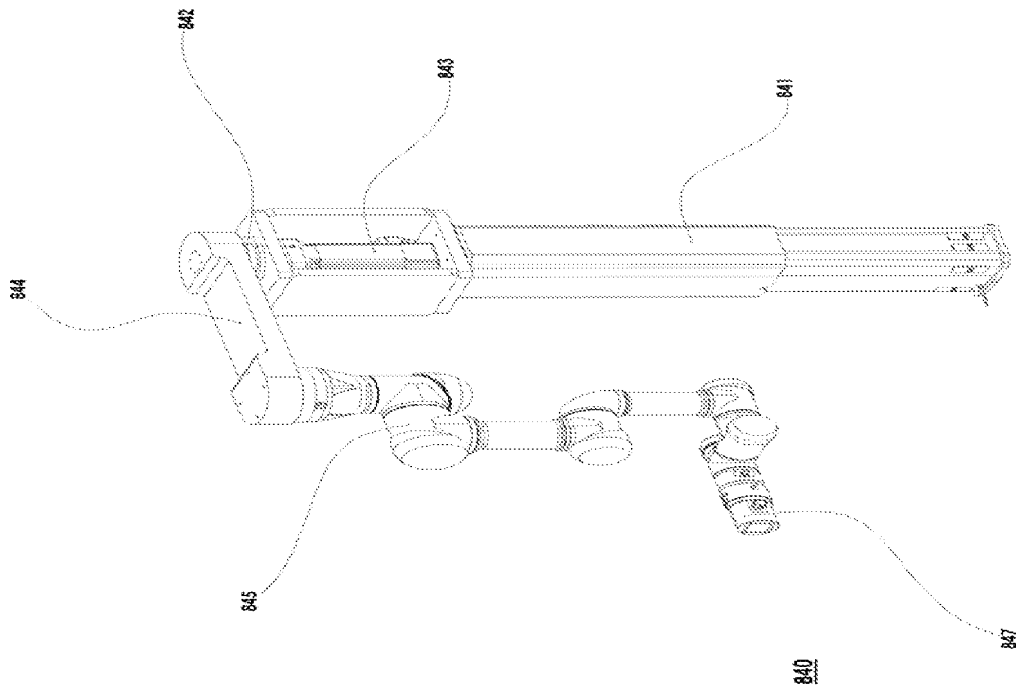


FIG. 90

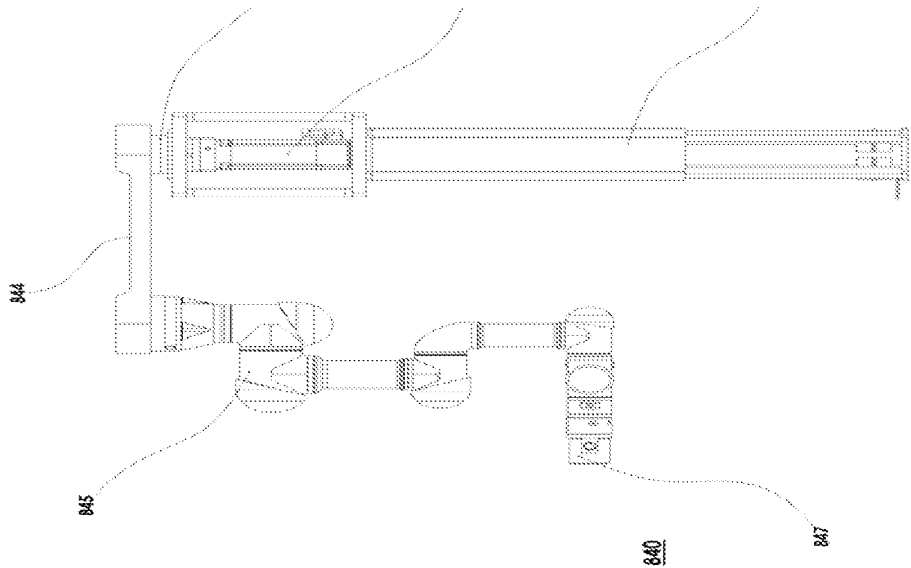


FIG. 89

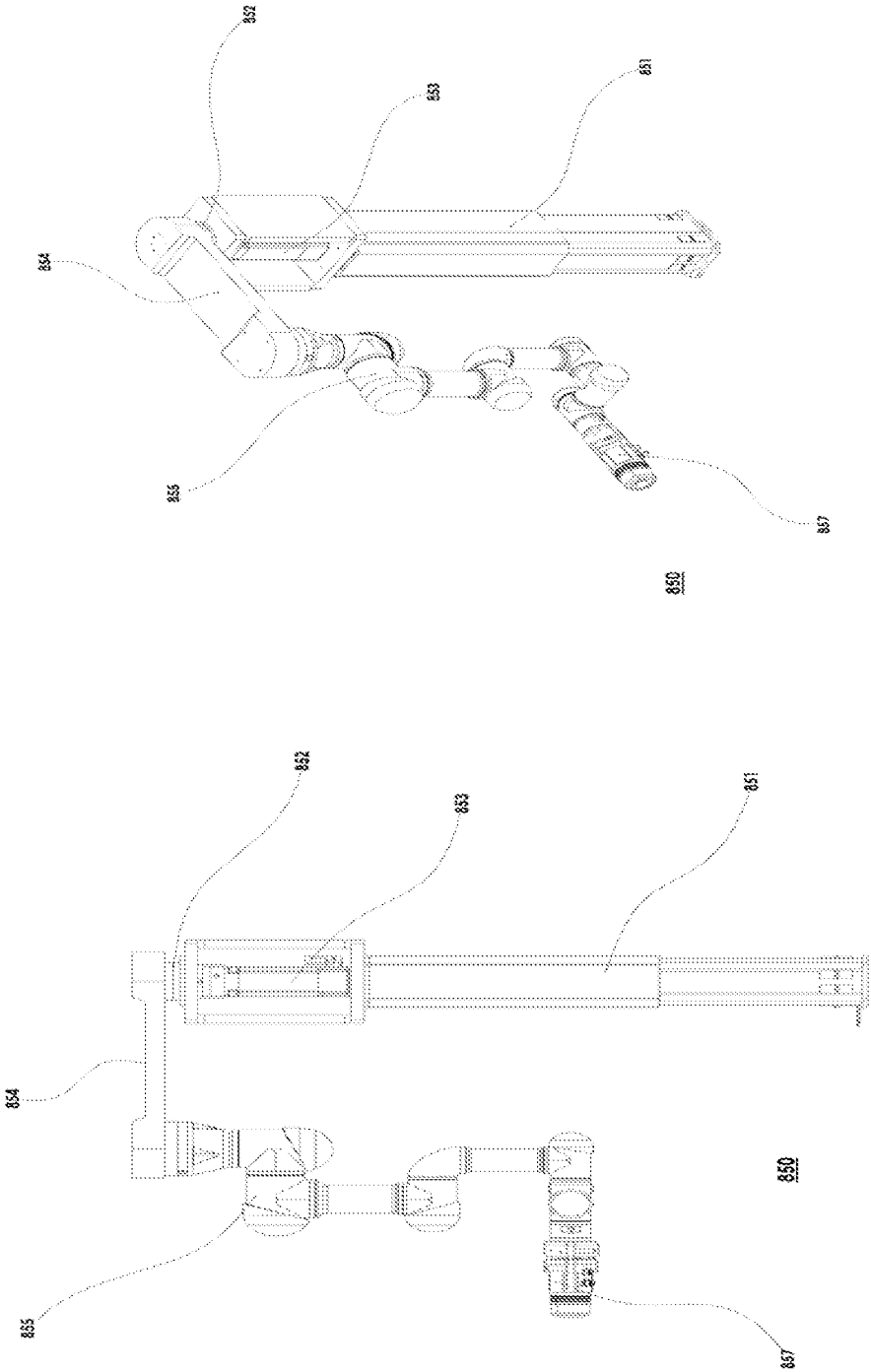


FIG. 92

FIG. 91

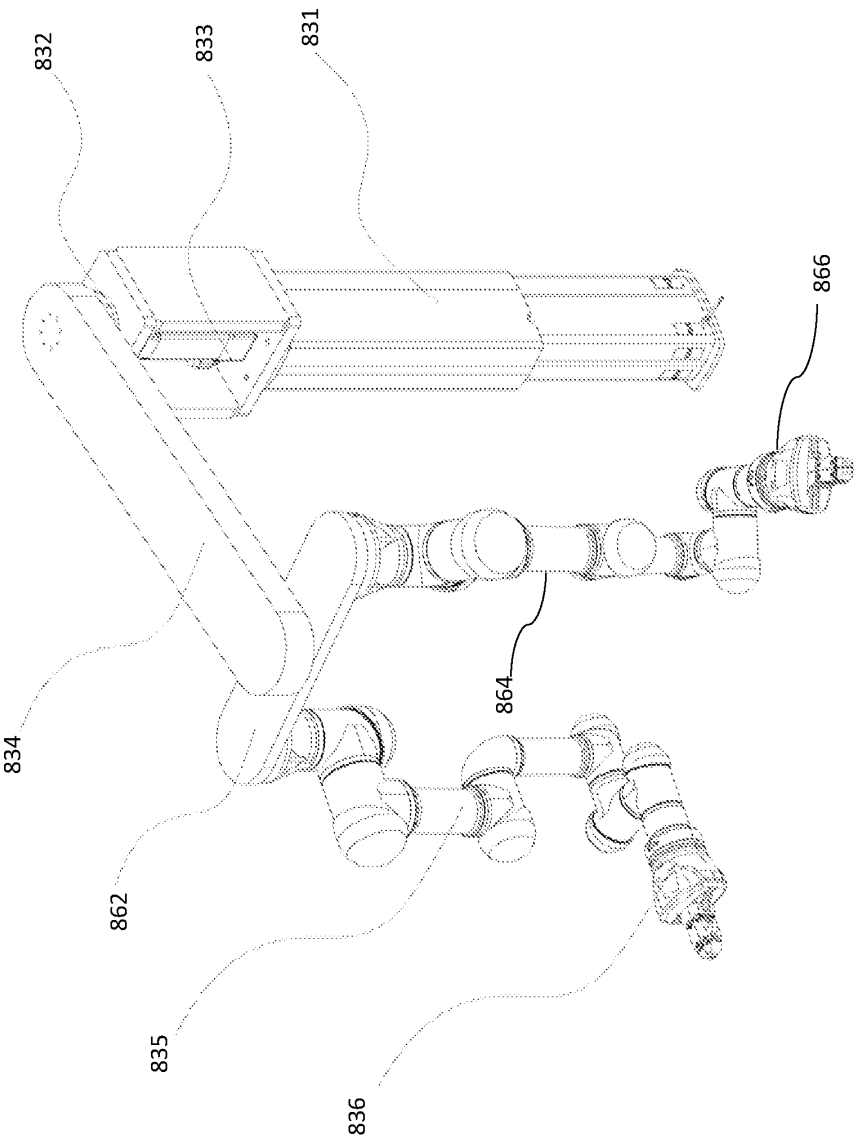
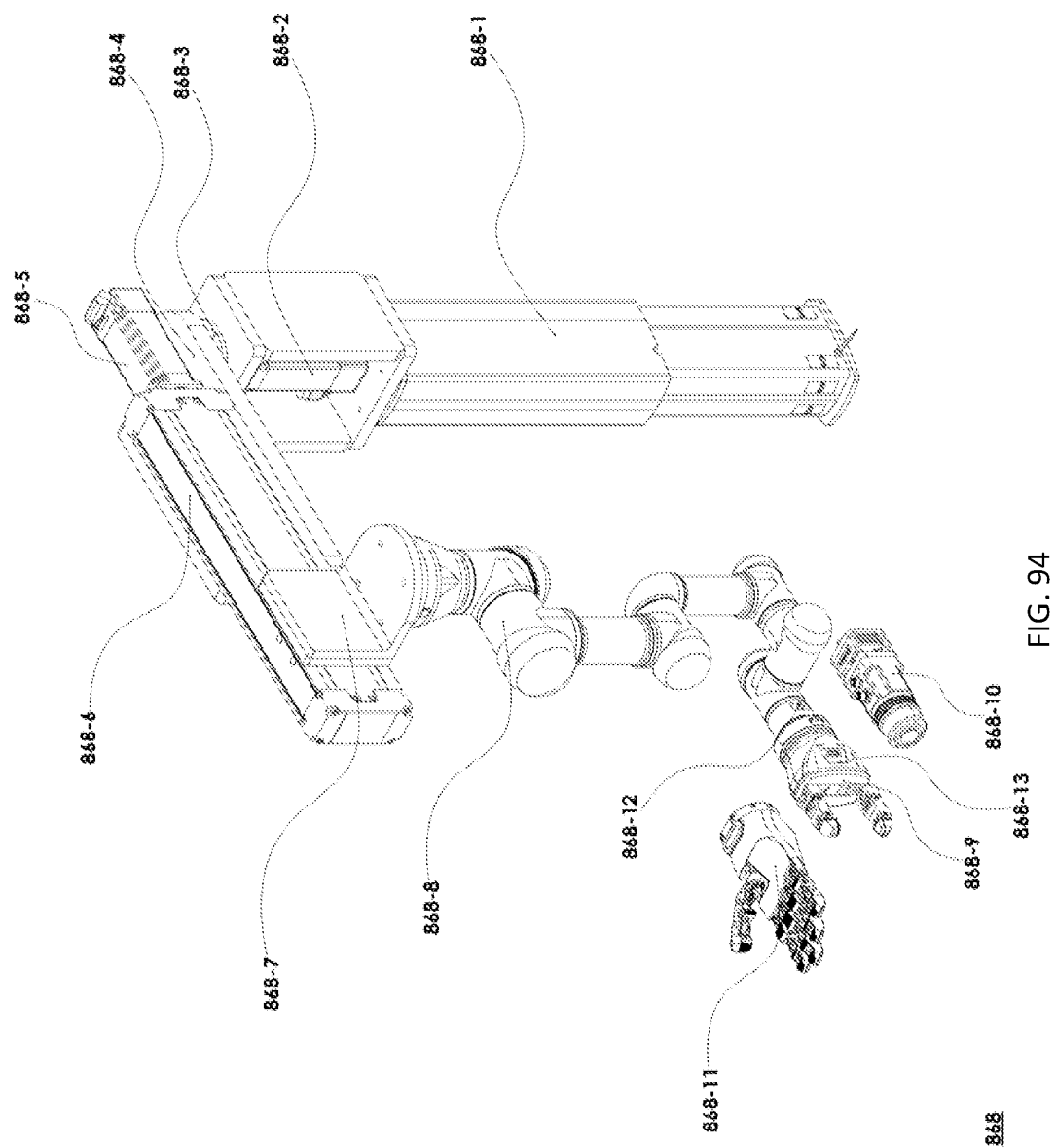


FIG. 93

860



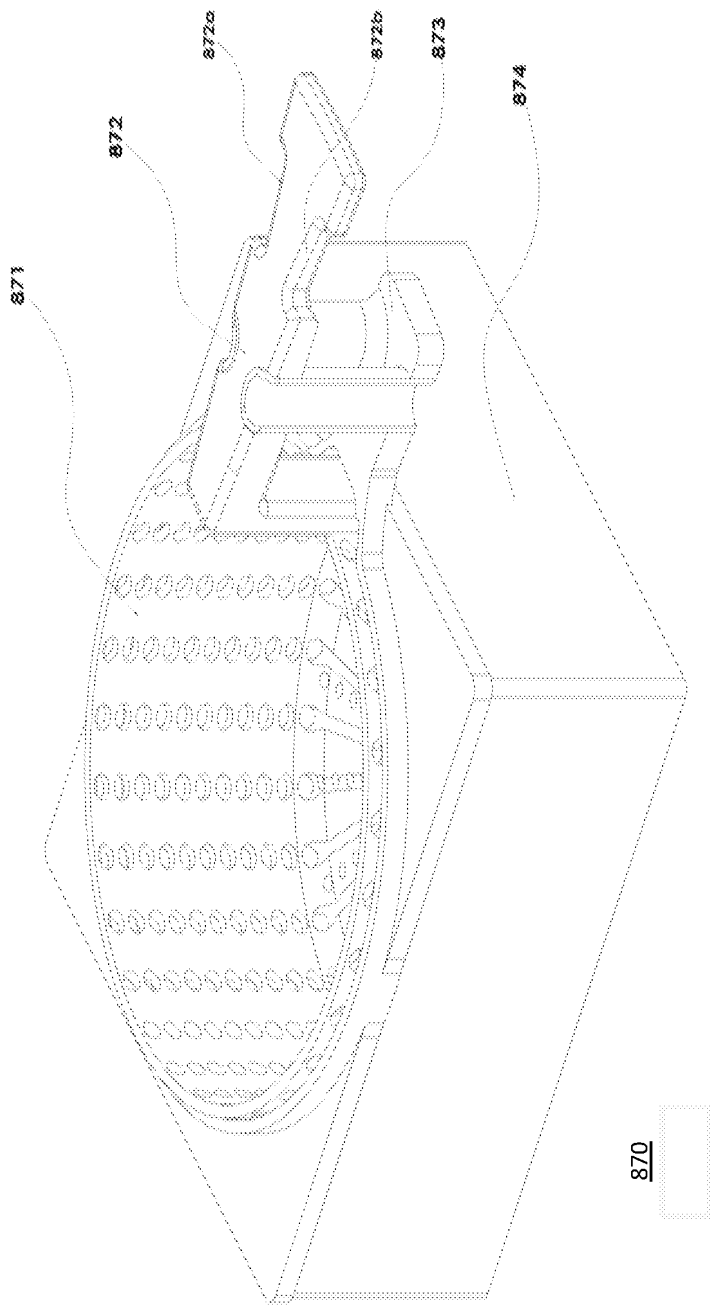


FIG. 95

870

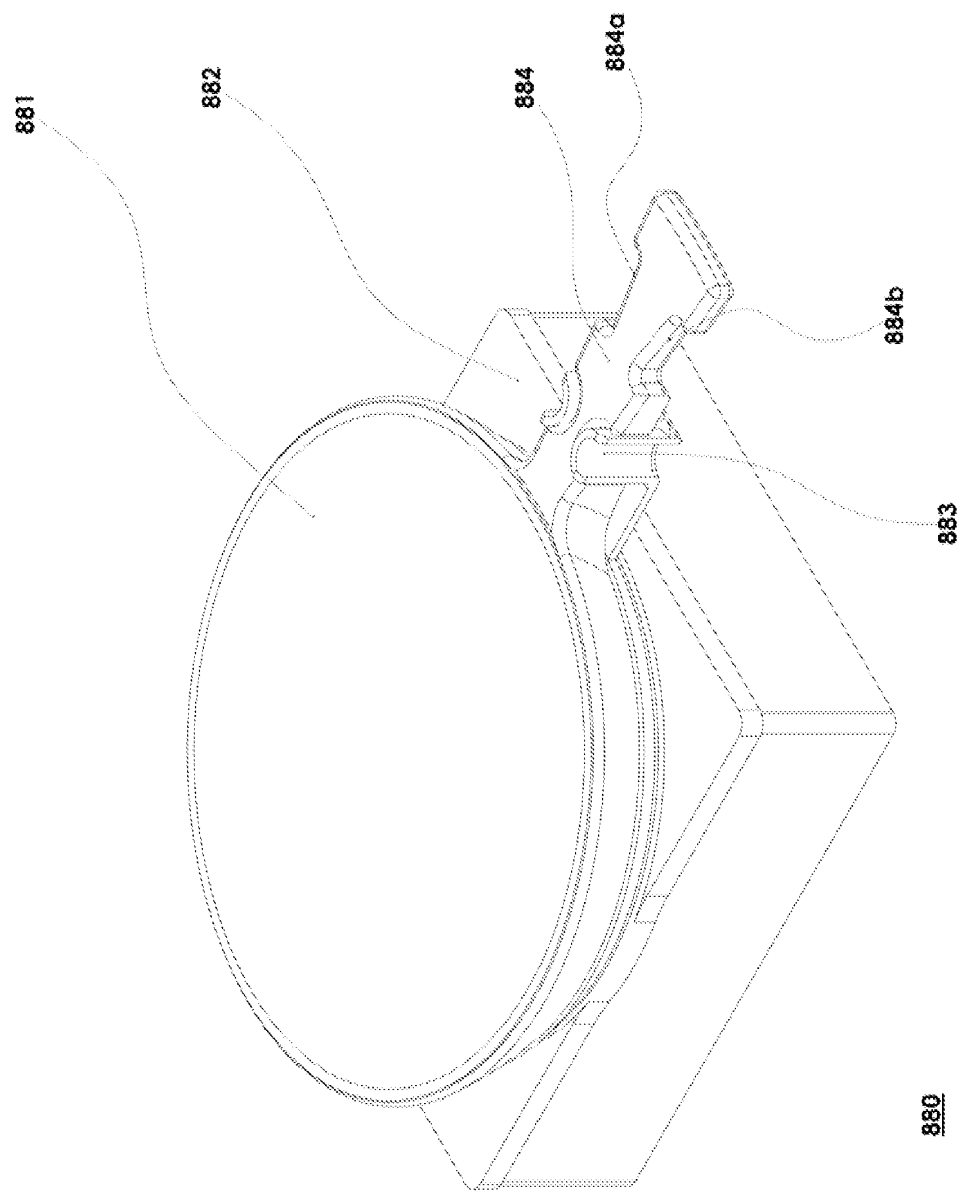
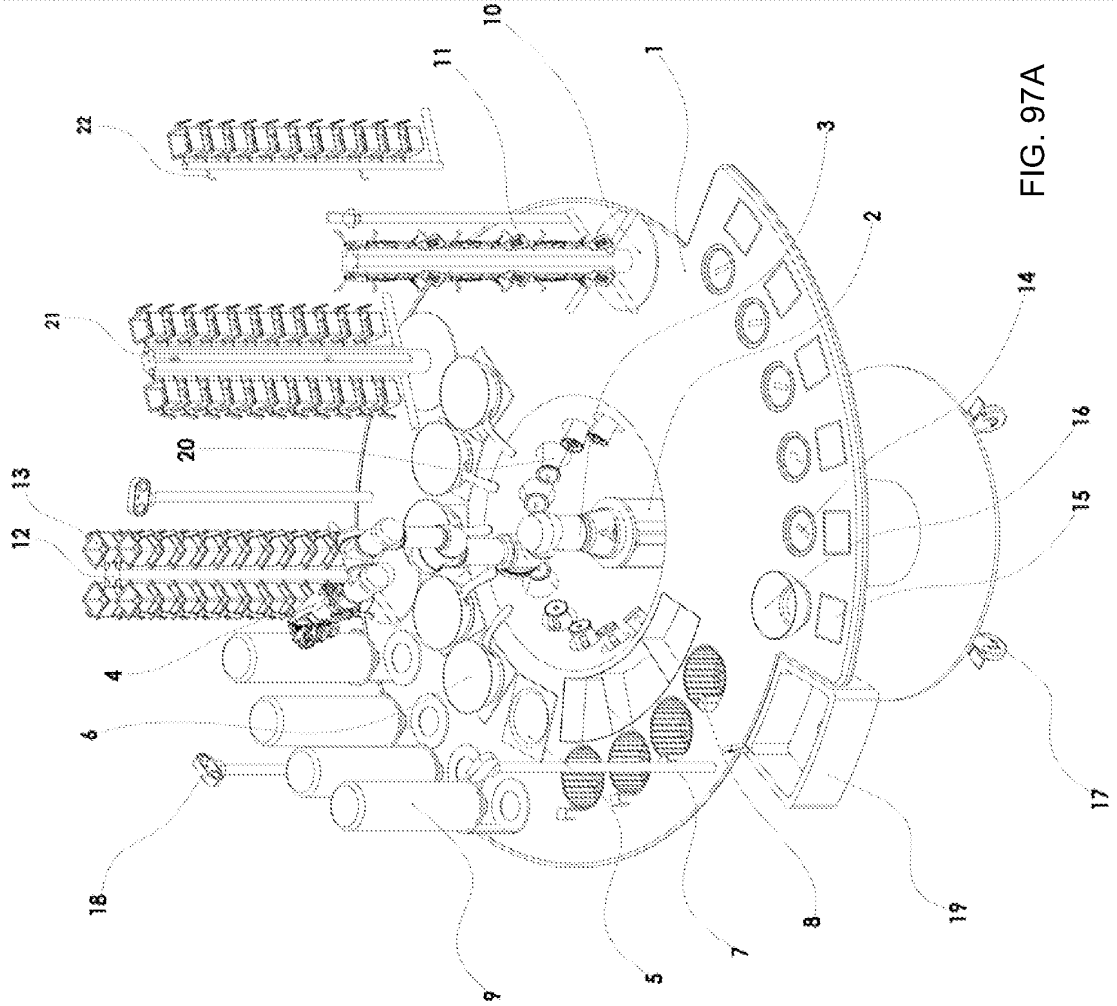


FIG. 96

1	Robot Platform
2	User actuator
3	Robot
4	End Effector (Robot Hand)
5	Induction Cook
6	Wok
7	Stock
8	Frying Basket
9	Dosing Device (Manual & Automatic)
10	Utensil Carousel
11	Utensil
12	Container carousel
13	Container
14	Weight Sensing Platform
15	Touch Screens
16	Serving Bowl
17	Wheel with locking feature
18	Camera & Sensors
19	Sink & Tap
20	Space for Baffles, Grinder & Spice Containers
21	Container Carousel insert feature (Female)
22	Container Carousel insert feature (male)



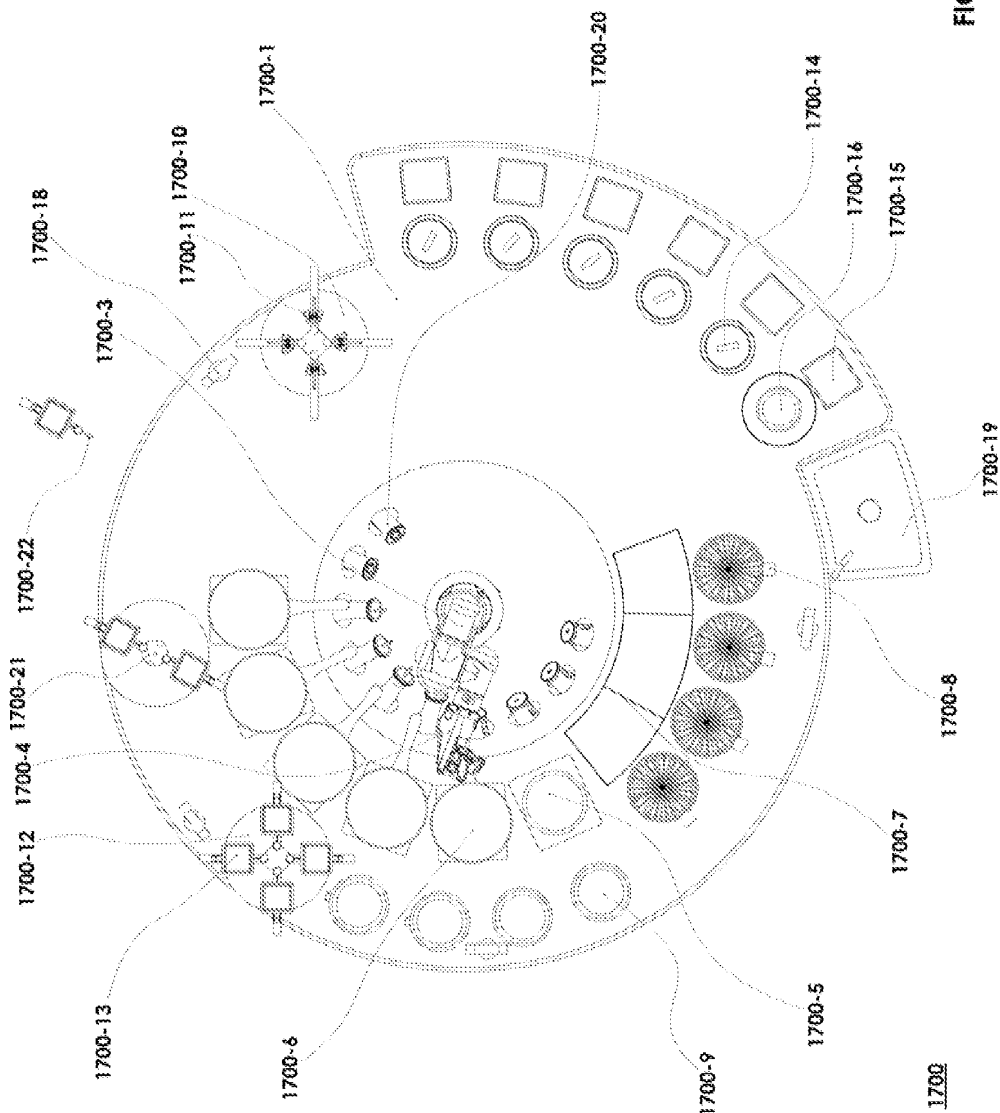


FIG. 97B

No.	Component
1	Robot Platform
2	Linear Actuator
3	Robot
4	End Effector (Robotic Hand/Gripper)
5	Induction Wok
6	Wok
7	Stock
8	Frying Basket
9	Dosing Device (Manual & Automatic)
10	Utensil Carousel
11	Utensil
12	Container Carousel
13	Container
14	Weight Sensing Platform
15	Touch Screen
16	Serving Bowl
17	Wheel with locking feature
18	Camera & Sensors
19	Sink & Tap
20	Space for Bottles, Grinders & Spice Containers
21	Container Carousel Insert Feature (Female)
22	Container Carousel Insert Feature (Male)
23	Induction Teppanyaki
24	Resting Tray
25	Autonomous Order Delivery Robot

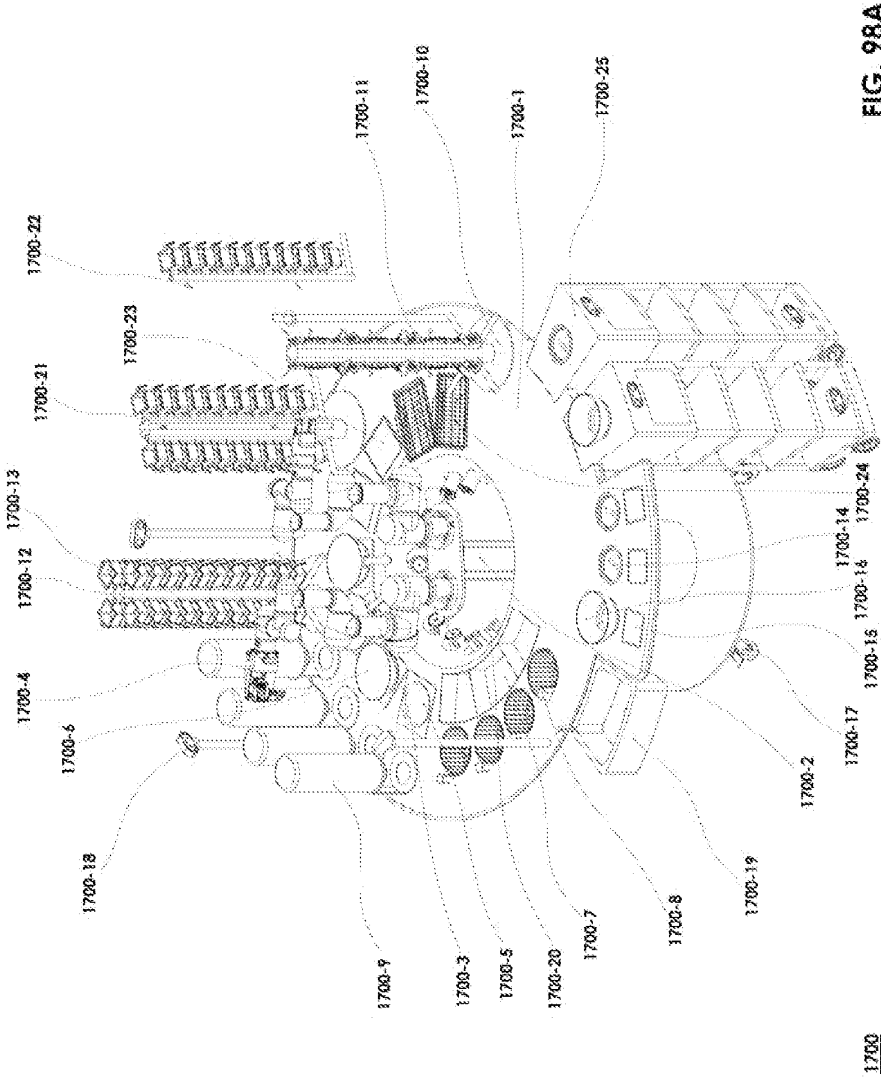


FIG. 98A

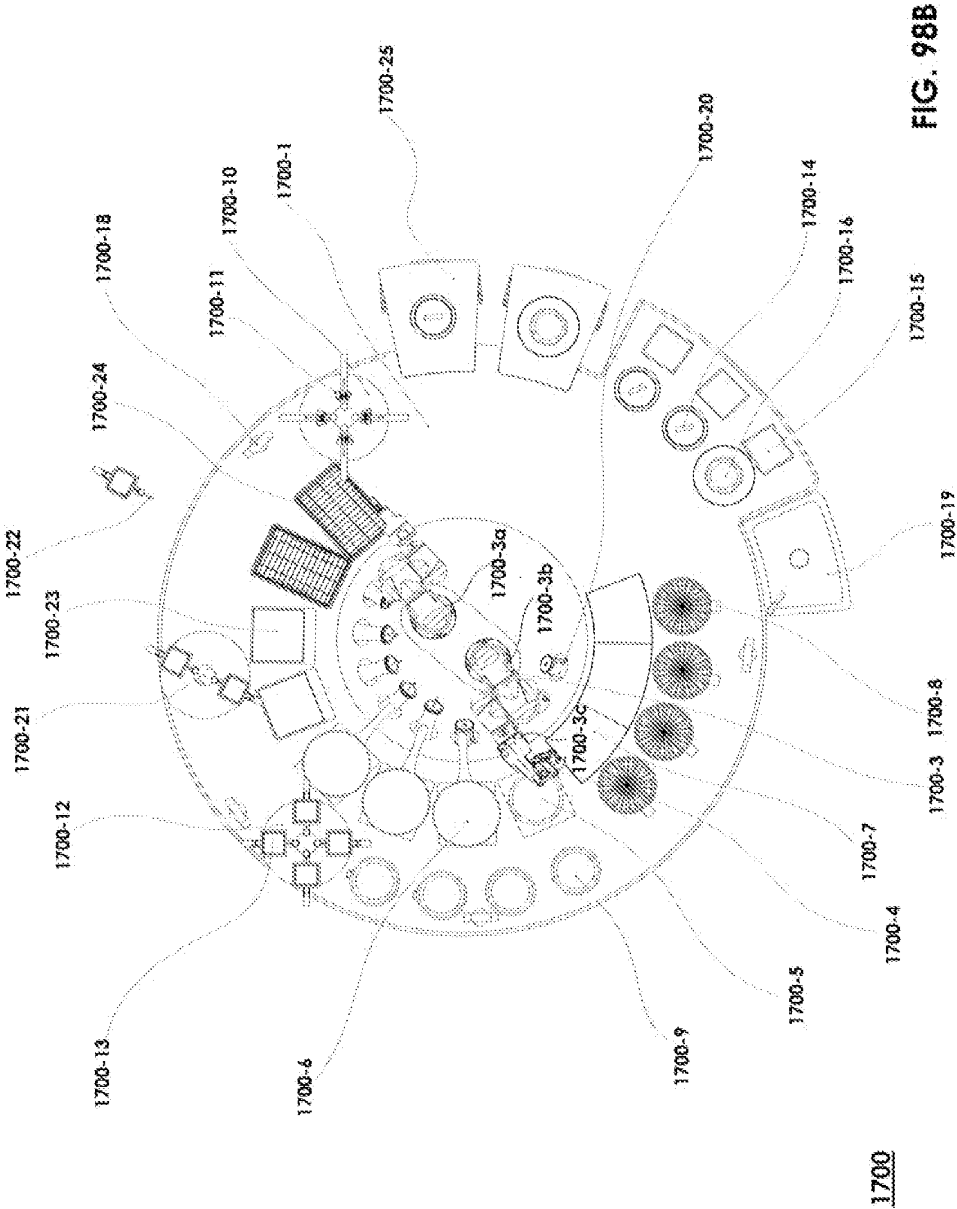


FIG. 98B

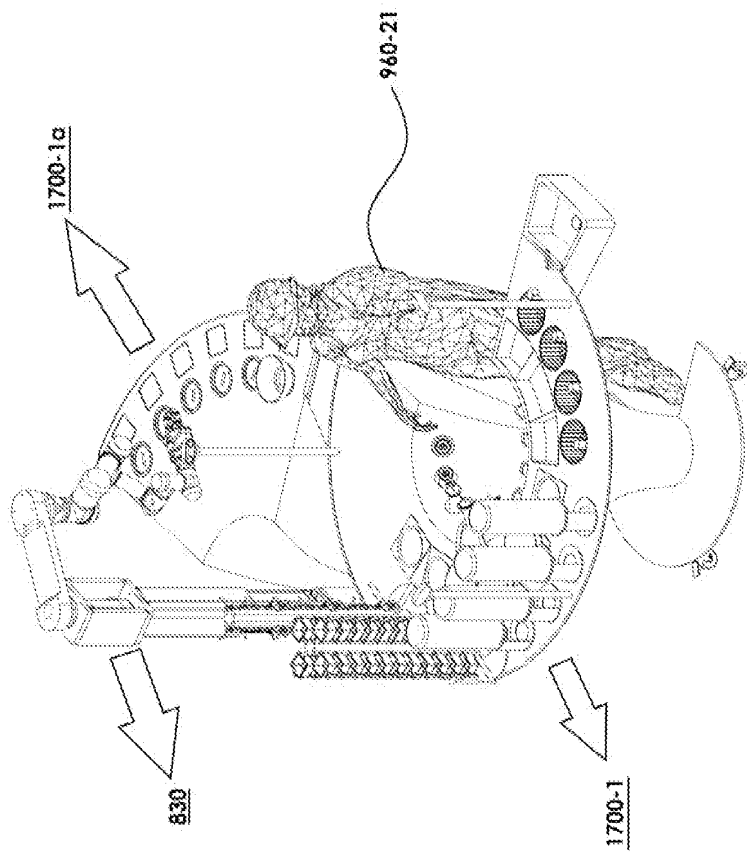


FIG. 99A

1700

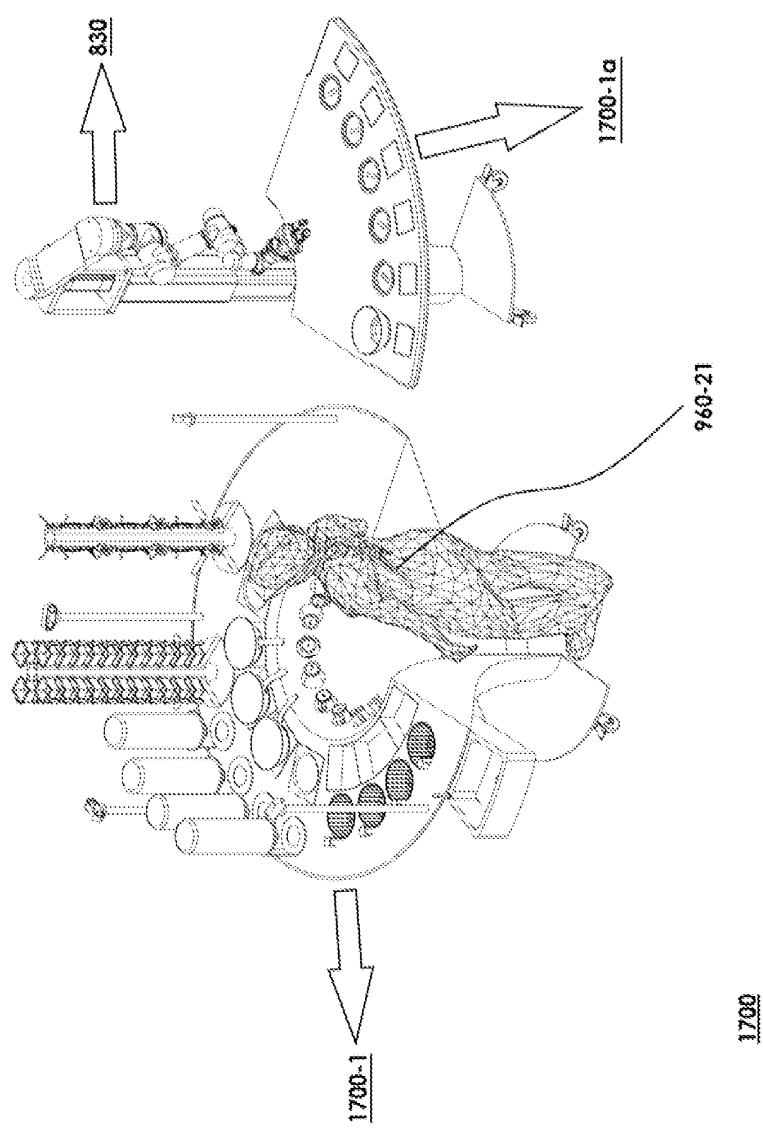
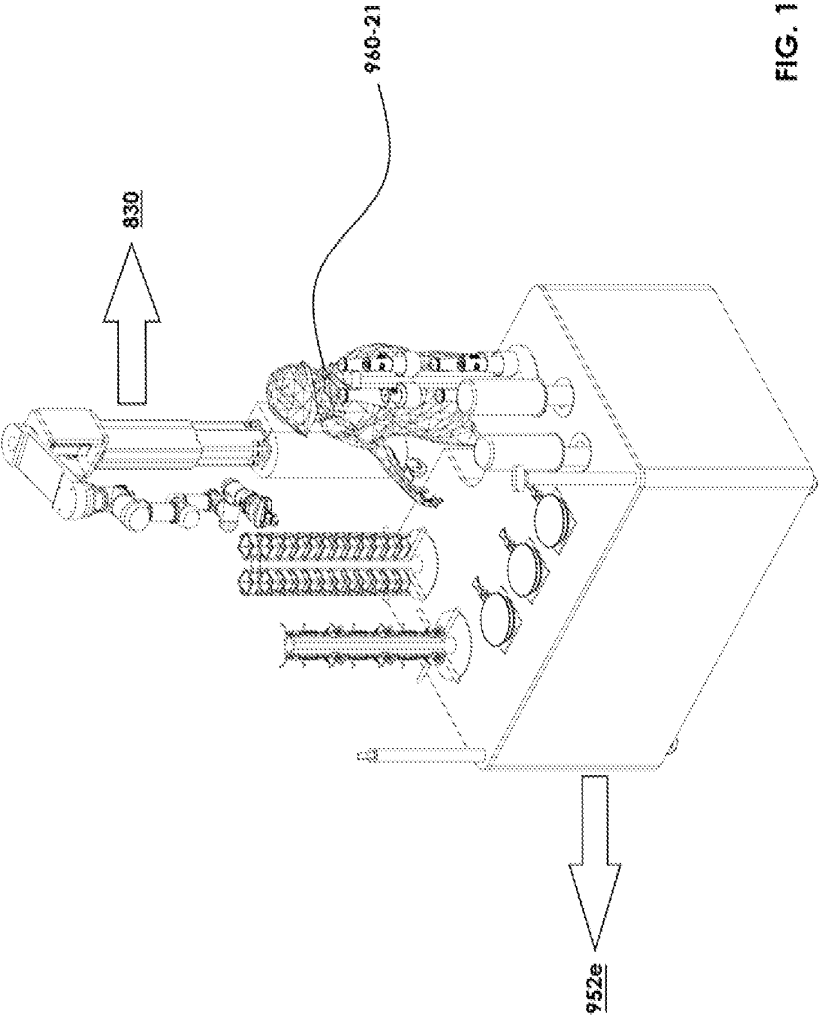
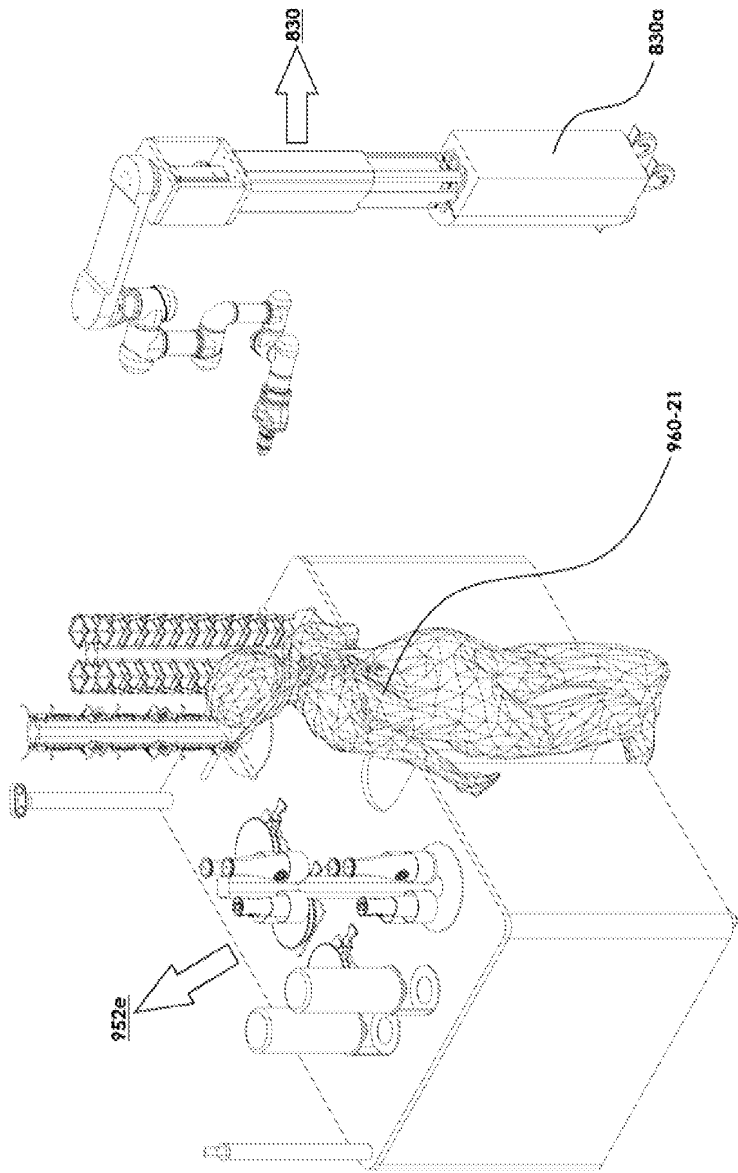
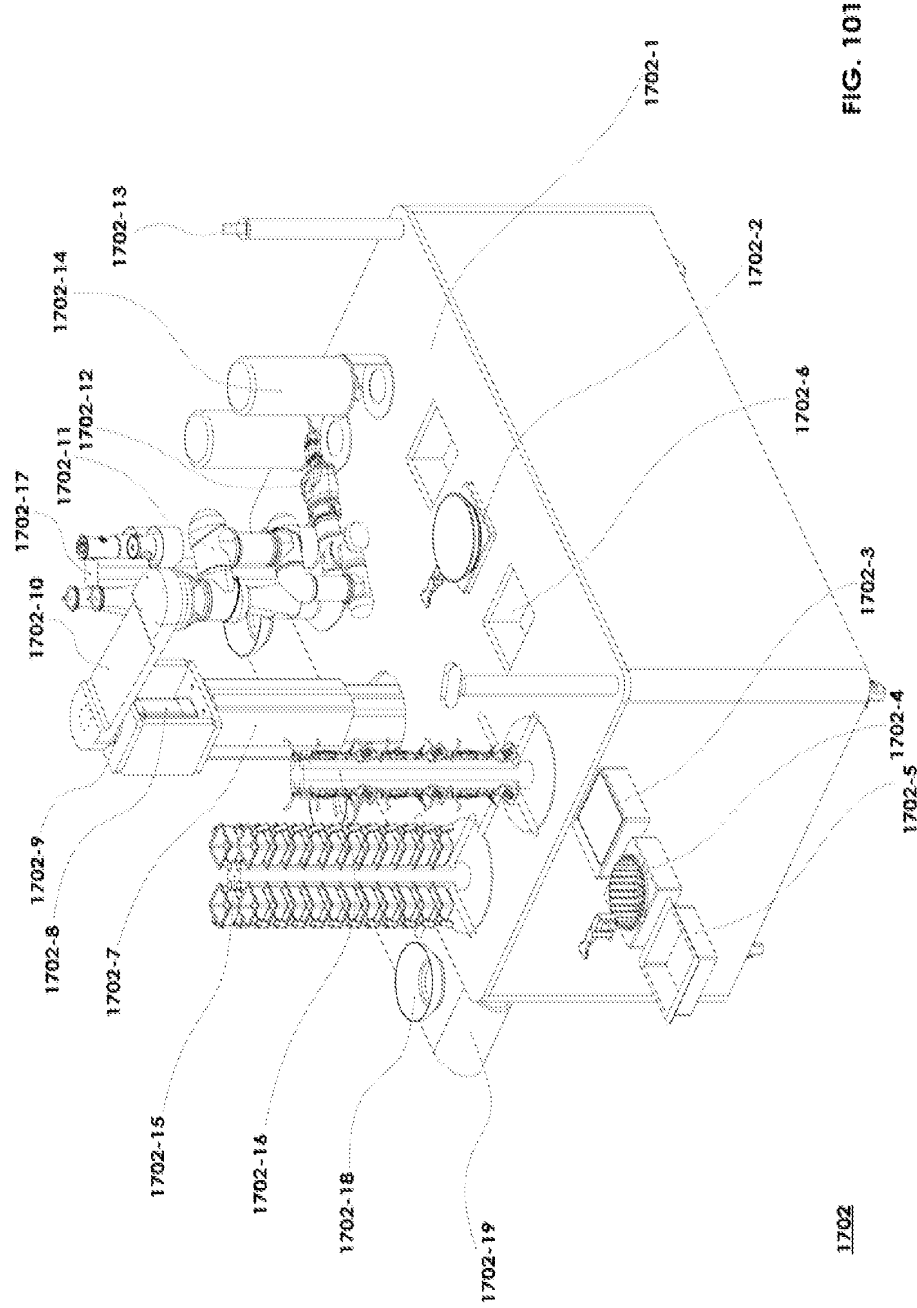
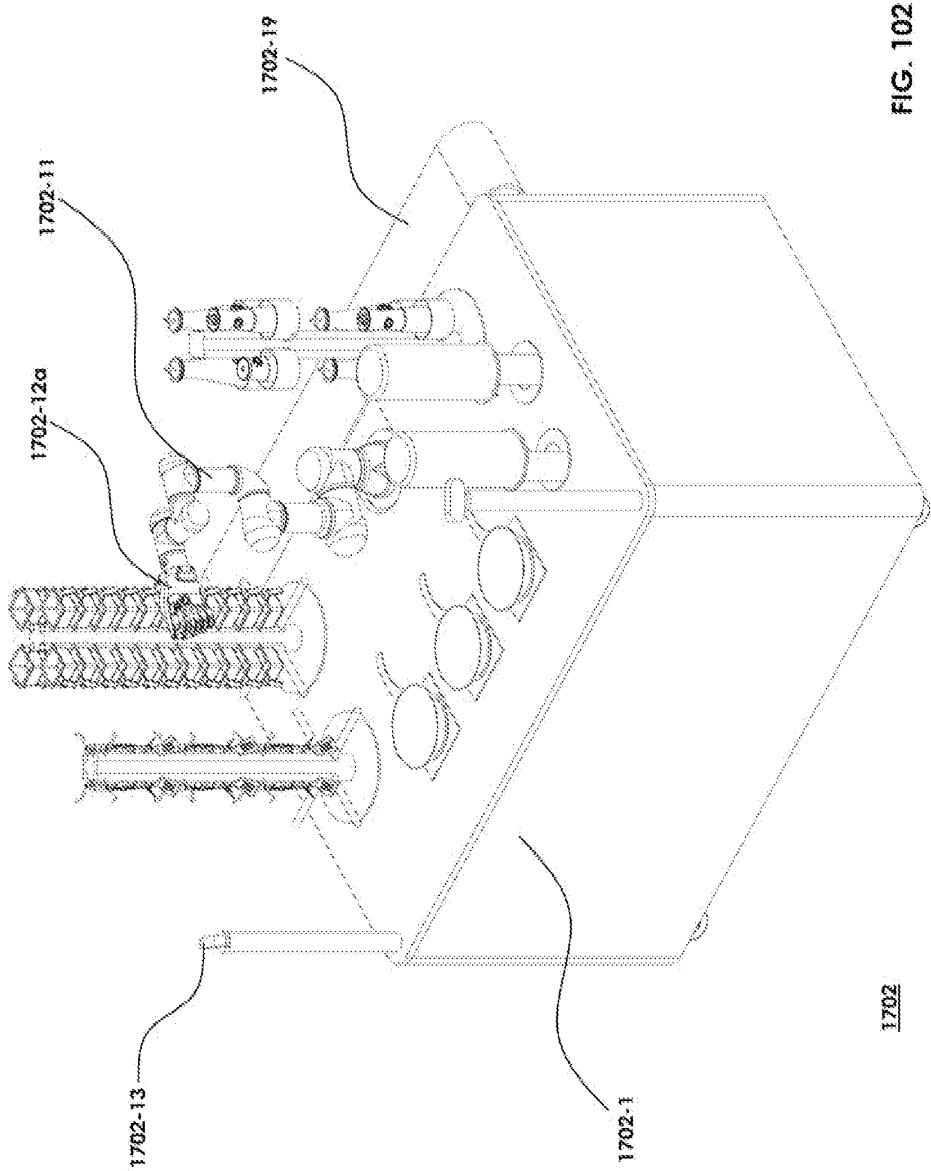


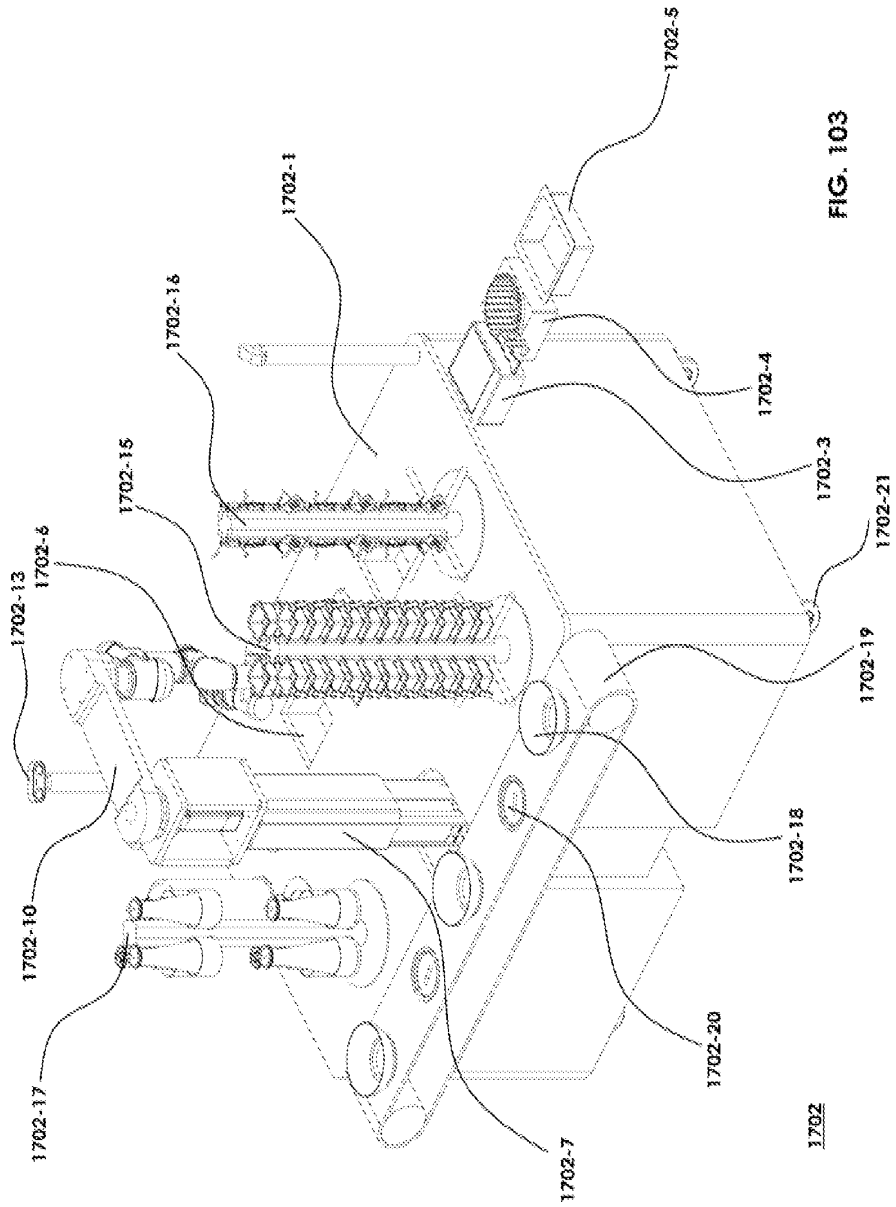
FIG. 99B

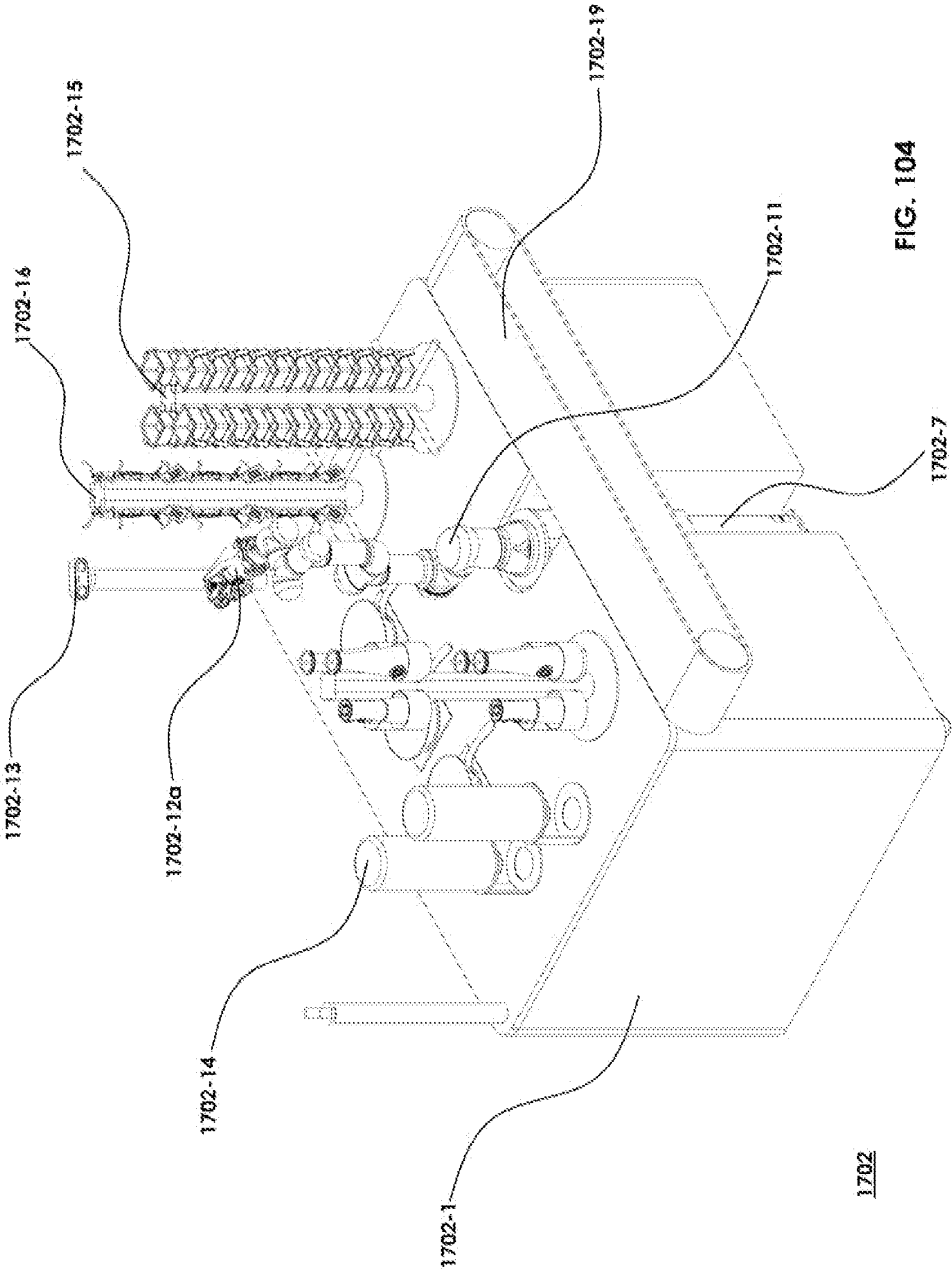












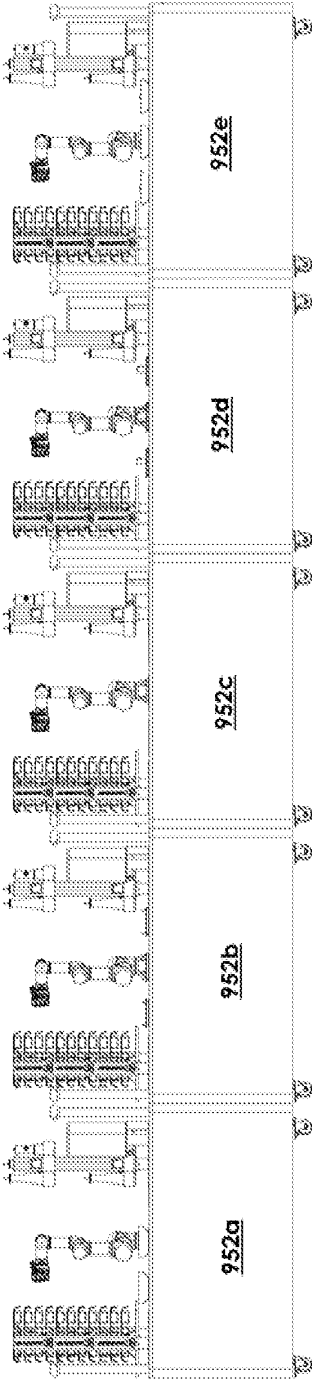


FIG. 105

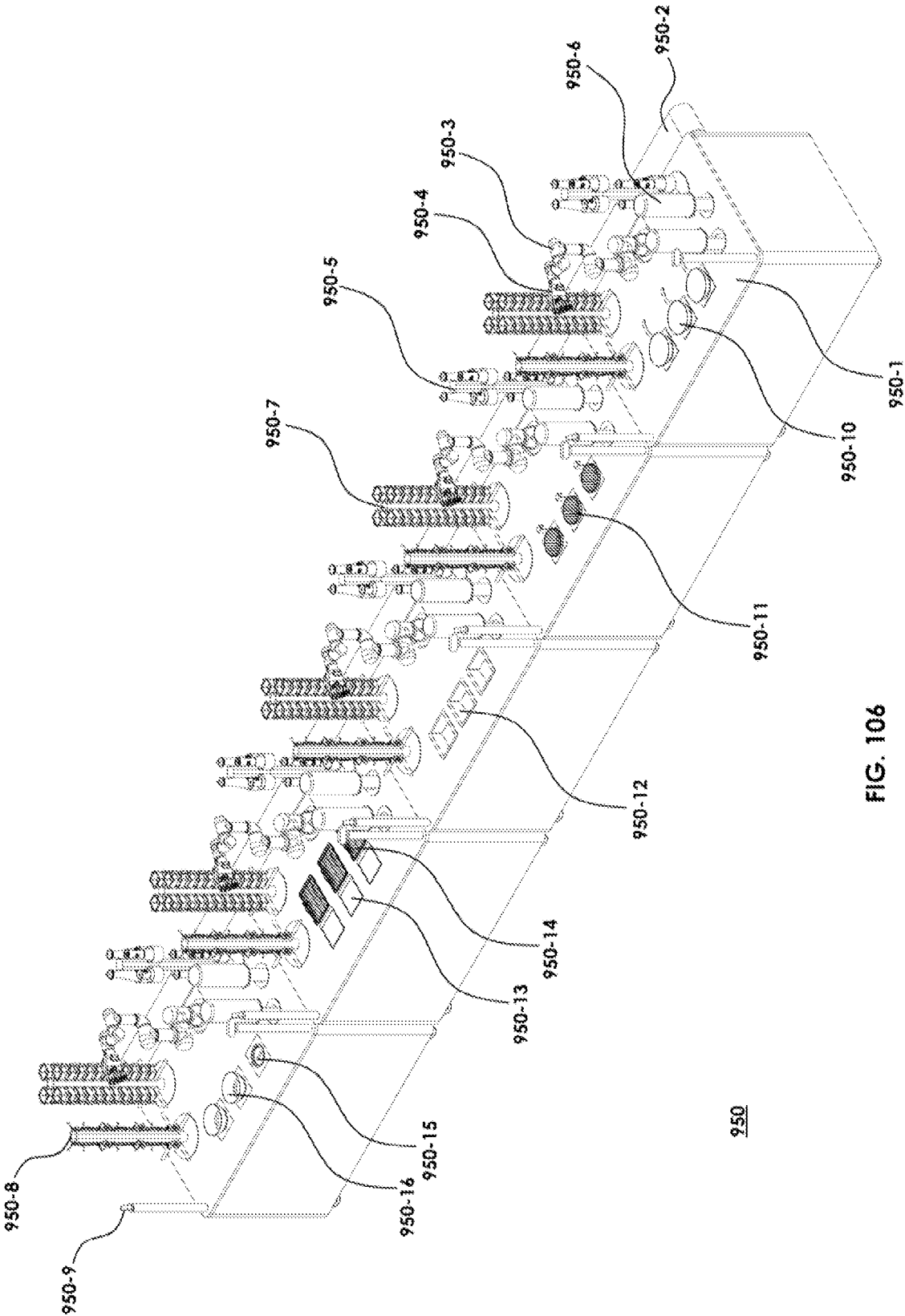


FIG. 106

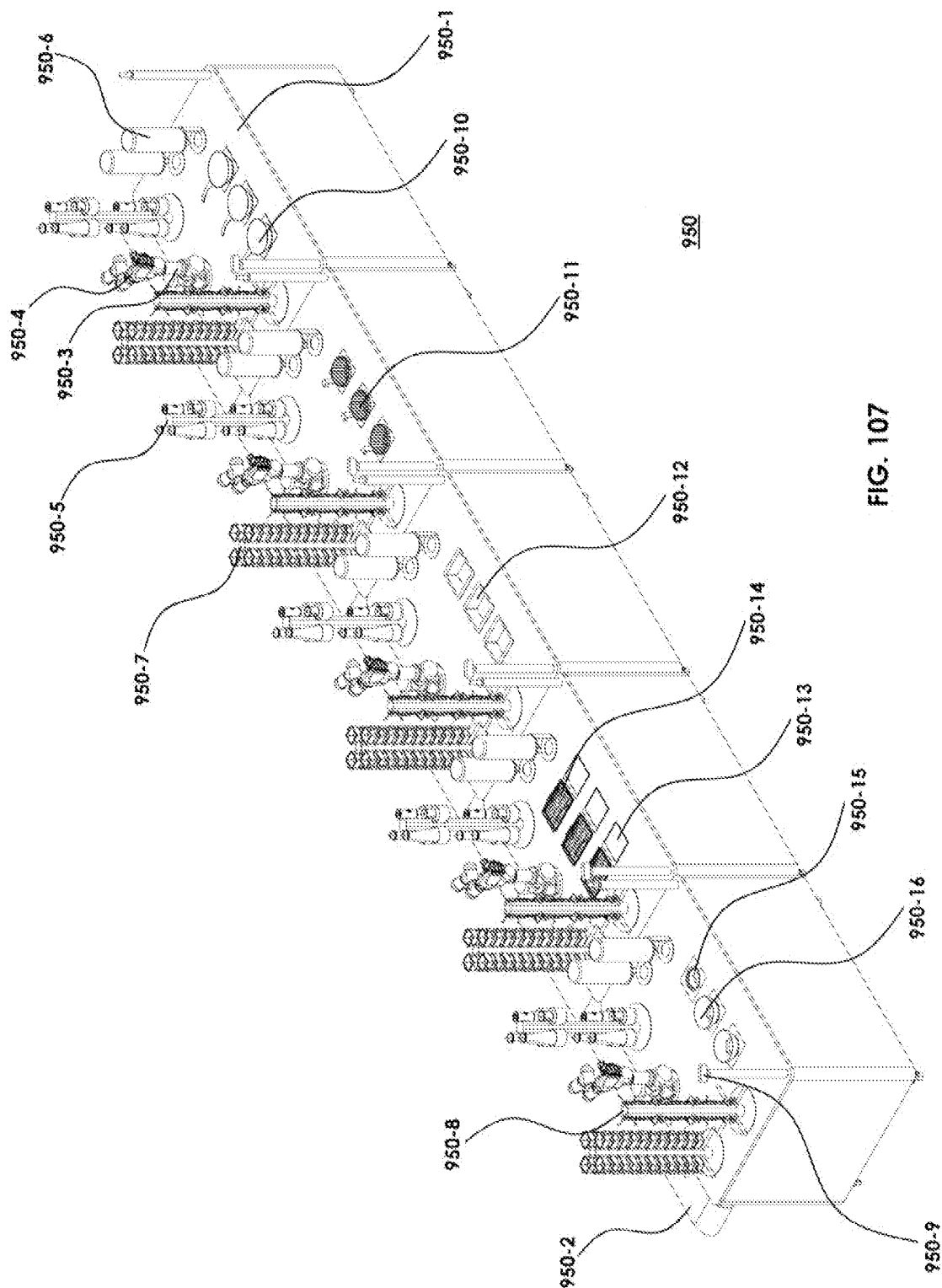


FIG. 107

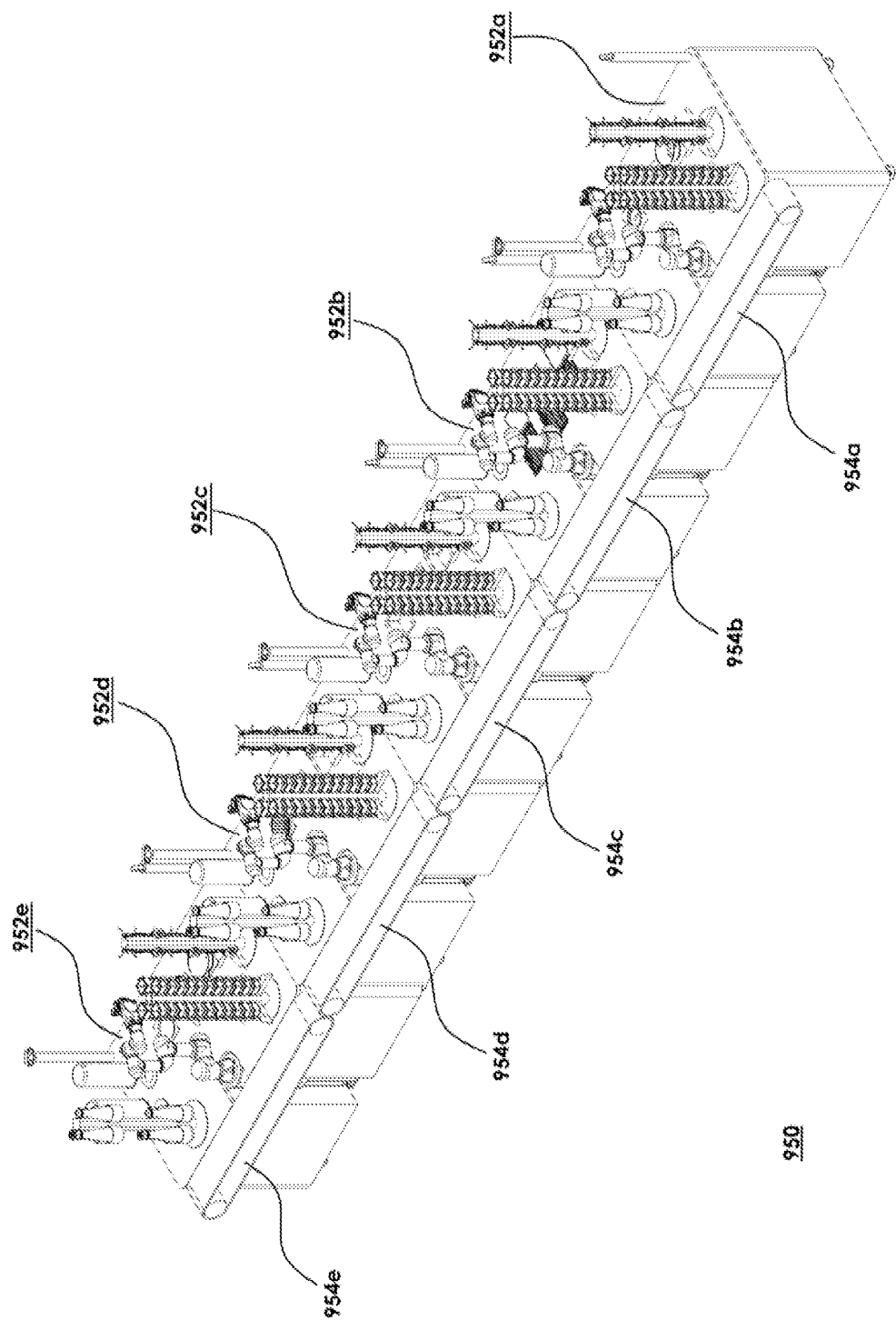


FIG. 108

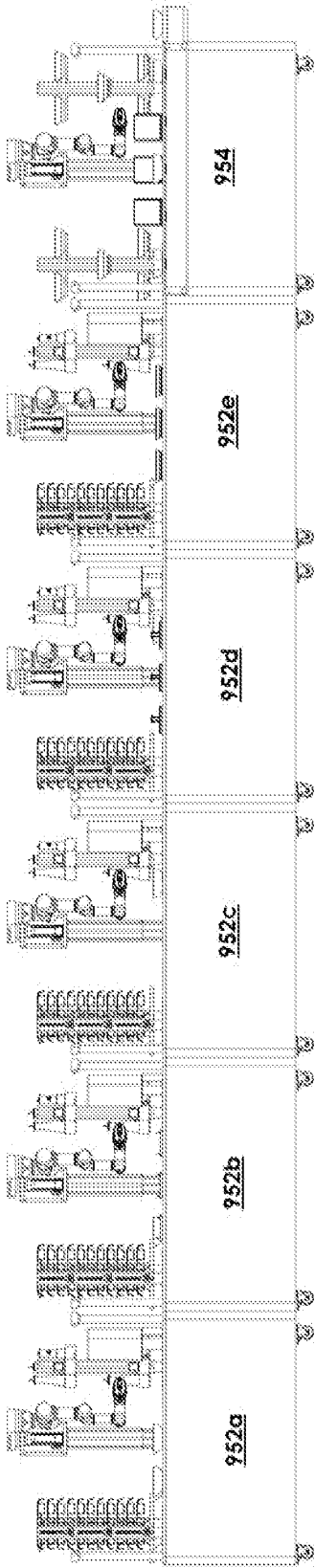


FIG. 109

960

S.No.	Component
1	Ordering Station
2	End Effector (Robotic Hand/Gripper)
3	Serving Bowl Carousel
4	Dosing Device (Manual & Automatic) Bottles, Grinders & Spice Containers
5	Carousel
6	Cooking Station-1 (Wok Station)
7	Container Carousel
8	Cooking Station-2 (Frying Station)
9	Cooking Station-3 (Stock Station)
10	Cooking Station-4 (Teppenyaki Station)
11	Utensil Carousel
12	Camera & Sensors
13	Serving Bowl
14	Weight Sensing Platform
15	Heating Tray for Serving Bowl
16	Resting Tray
17	Stock
18	Frying Basket
19	Wok
20	Wheel with locking feature
21	Customer/User
22	Touch Screen for Ordering
23	Robotic Arm
24	Serving Station
25	Conveyor
26	Linear Actuator
27	Robotic Arm and Rotary Module Interface Bracket
28	Rotary Module & Motor

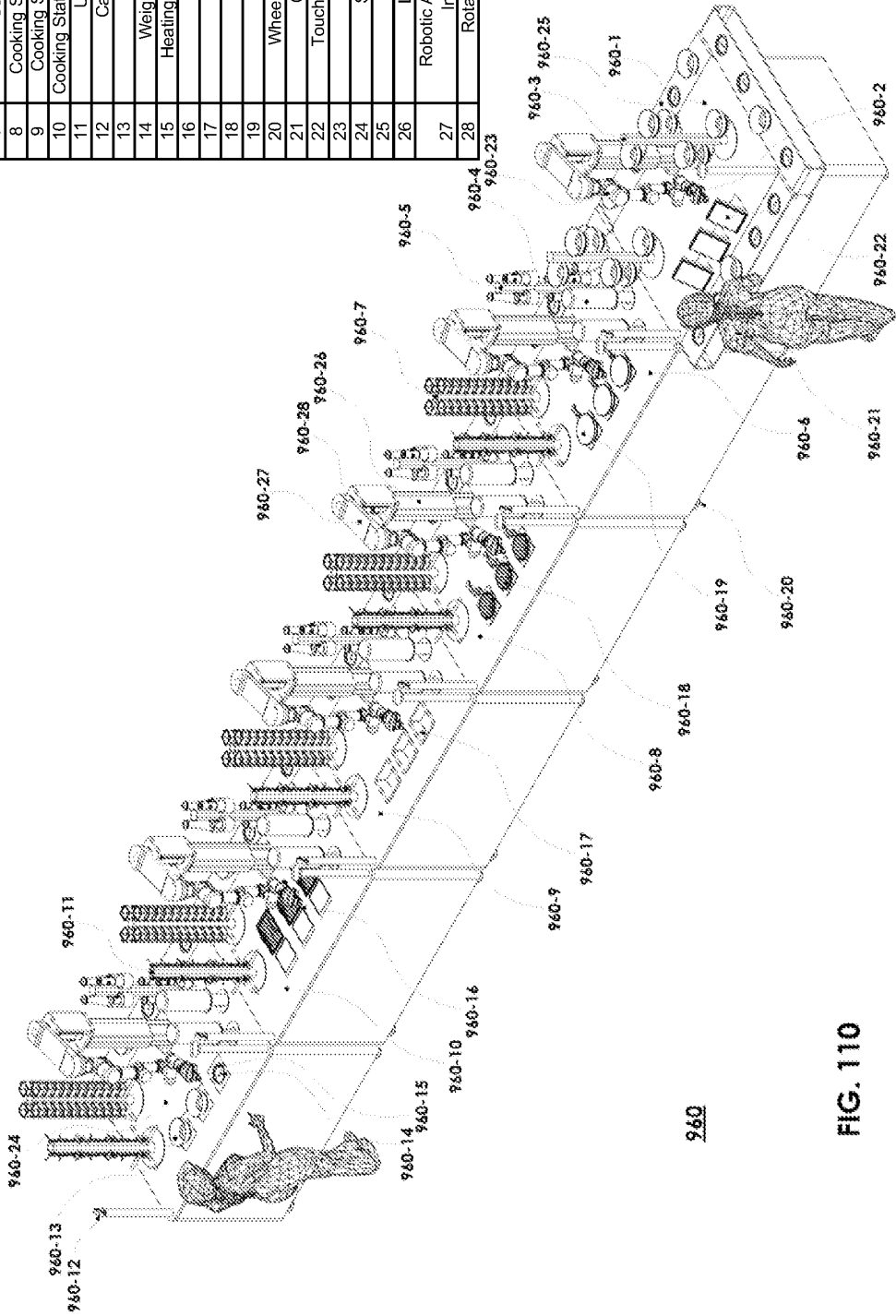
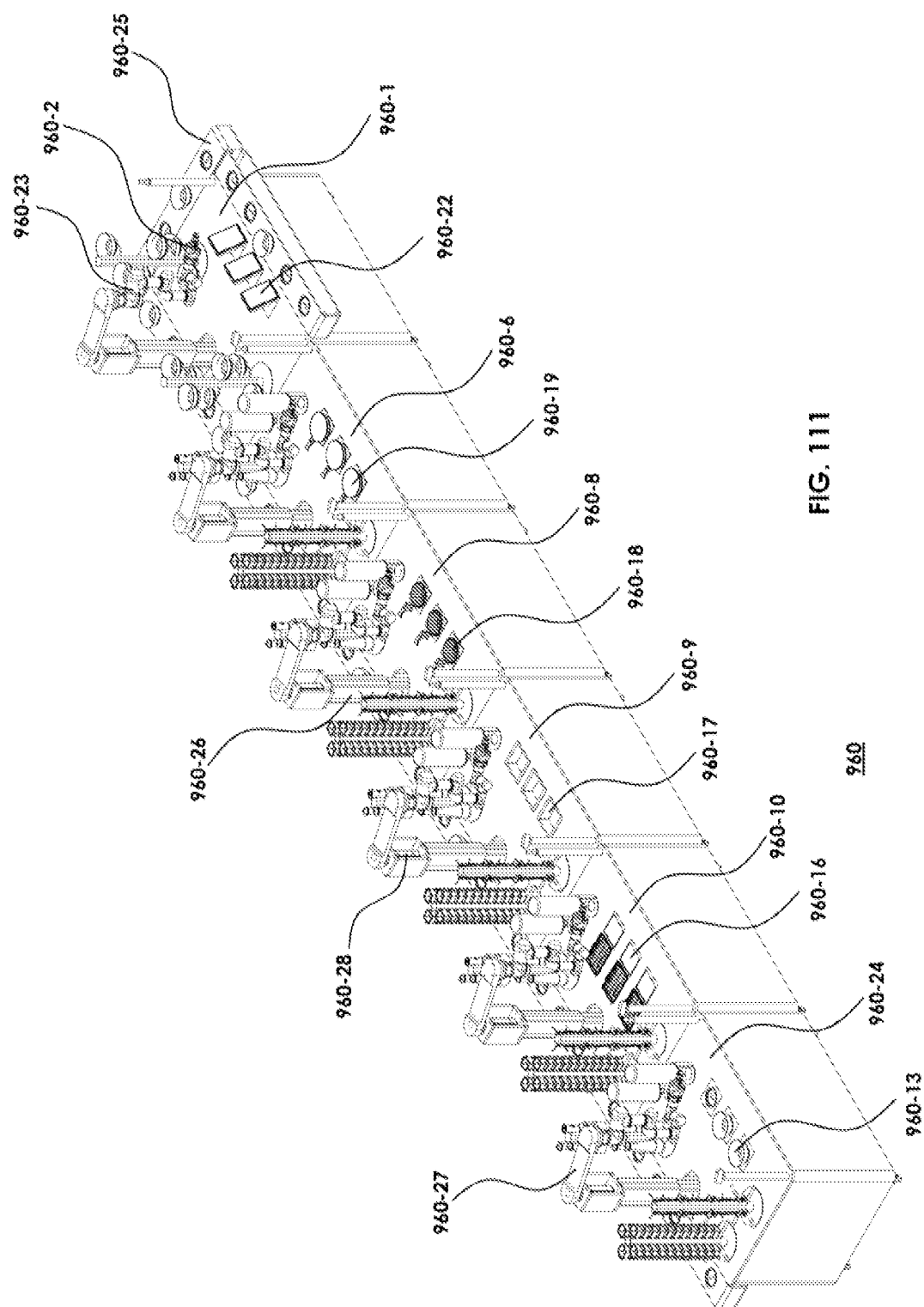
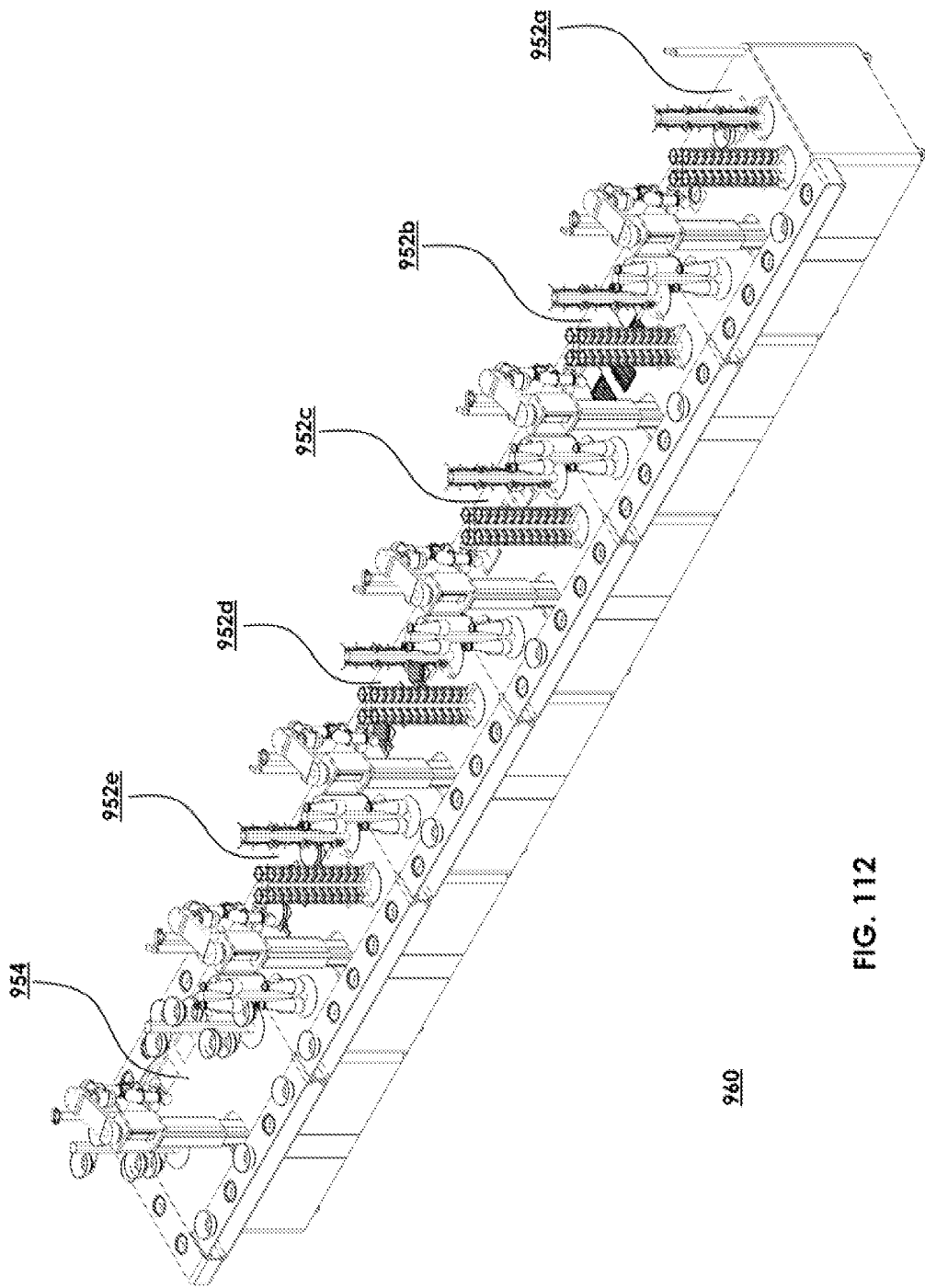


FIG. 110



FILE



Roborestaurant | Robochef
(Moley Restaurant | M Restaurant | MoleyChef | Mchef)



FIG. 113A

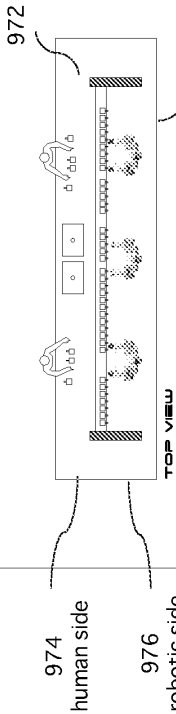
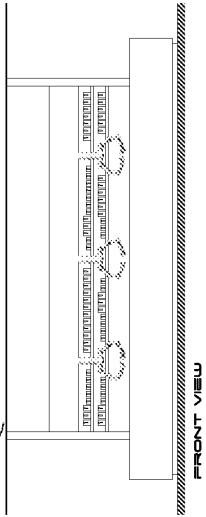


FIG. 113B

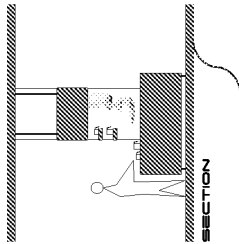


FIG. 113C

970

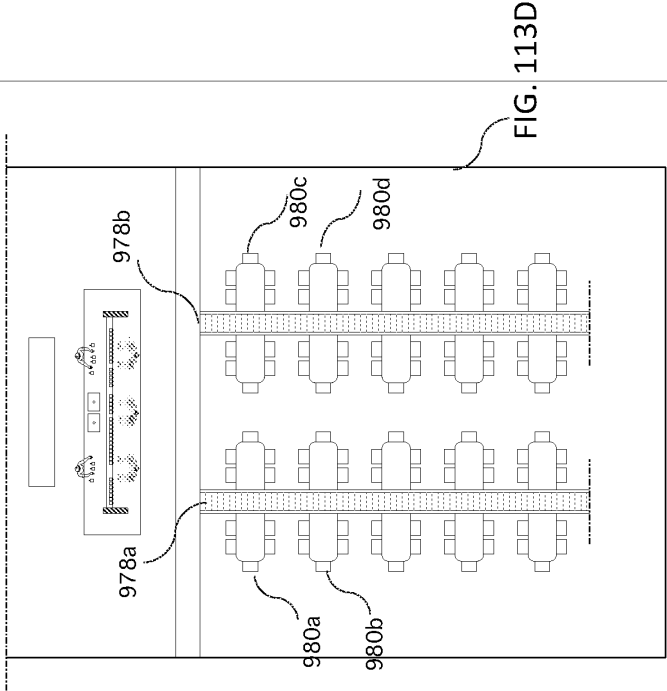
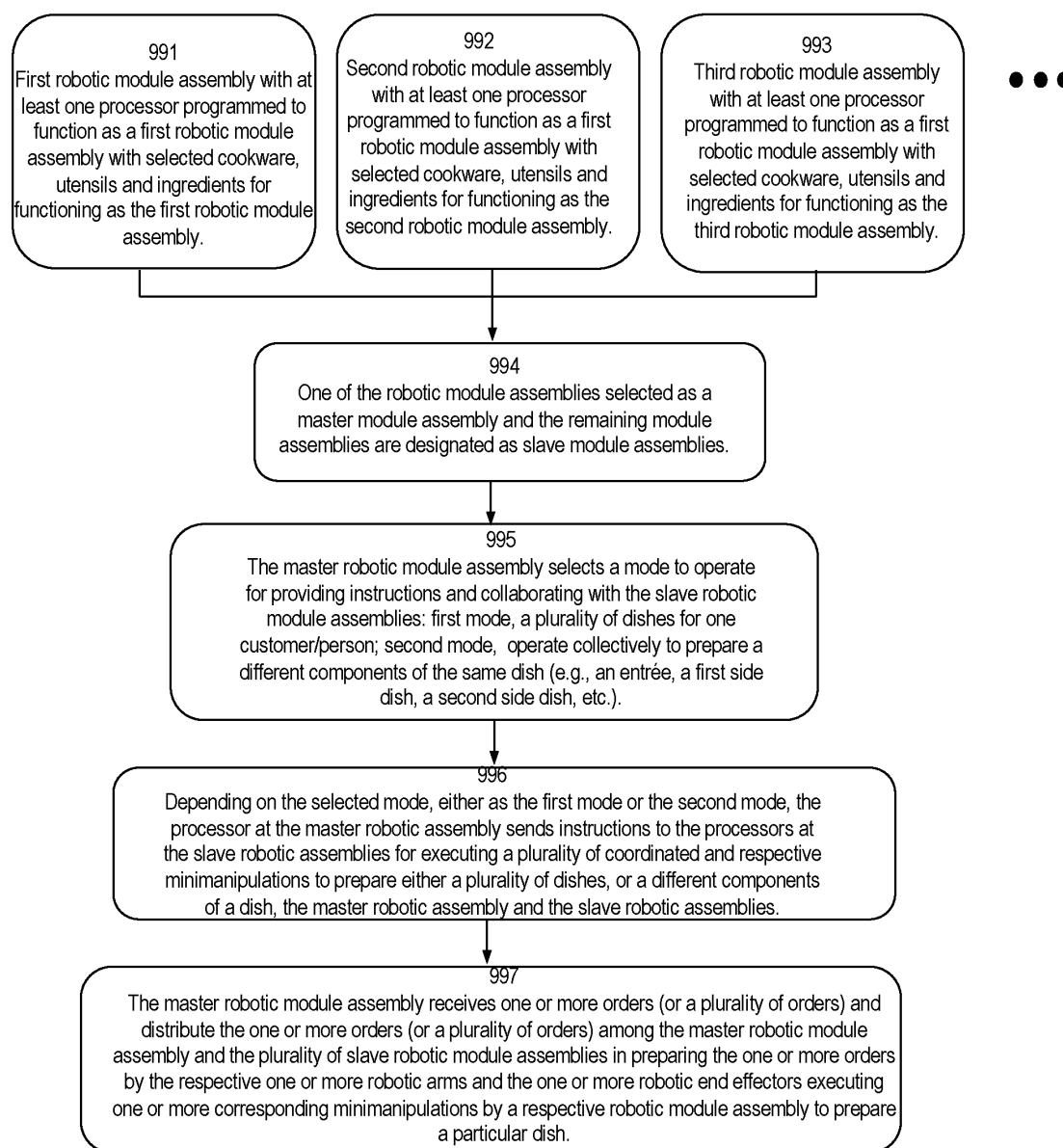
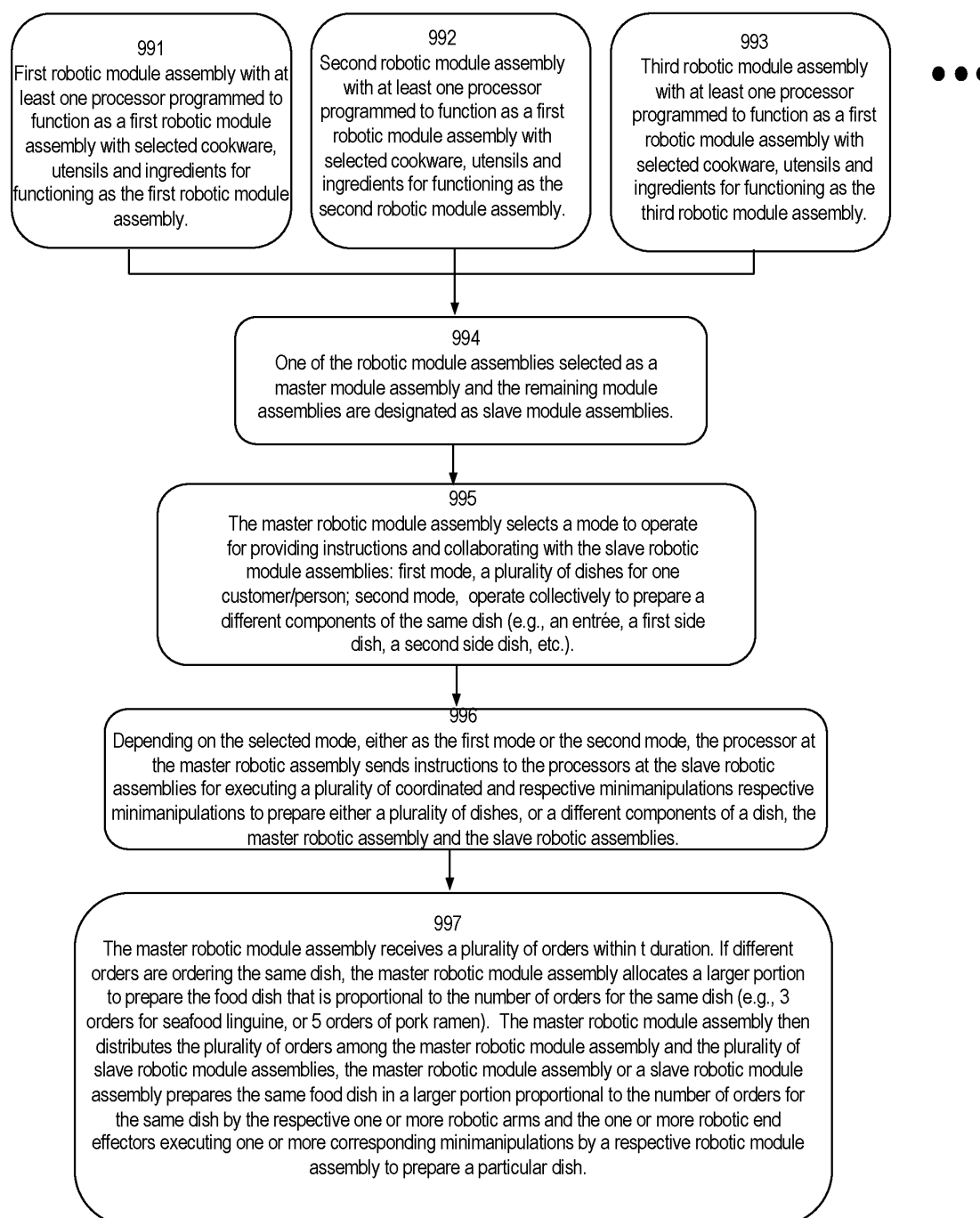


FIG. 113D



990

FIG. 114



990

FIG. 115

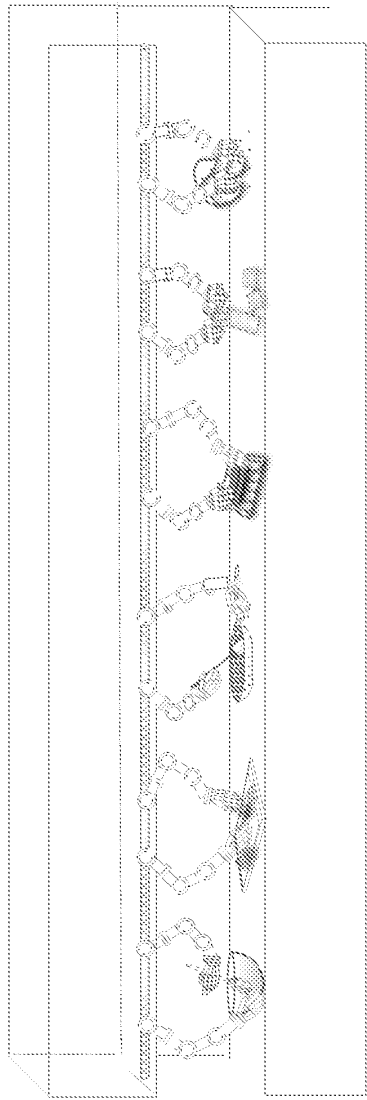


FIG. 116

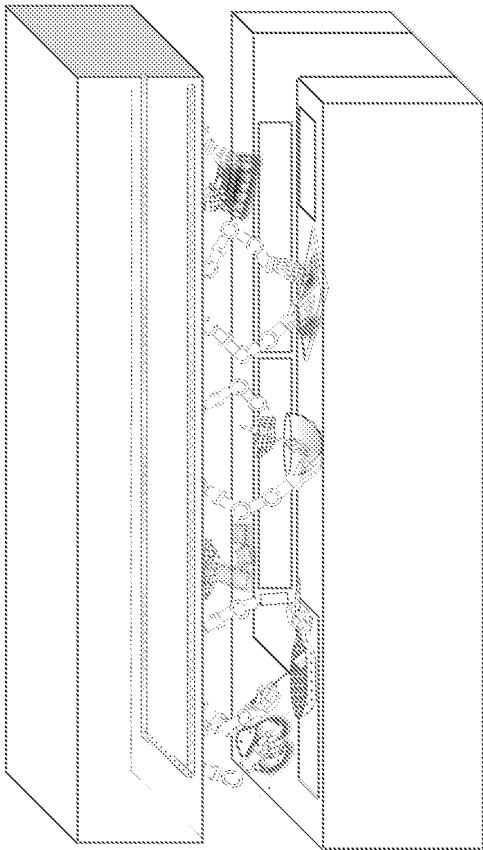


FIG. 117

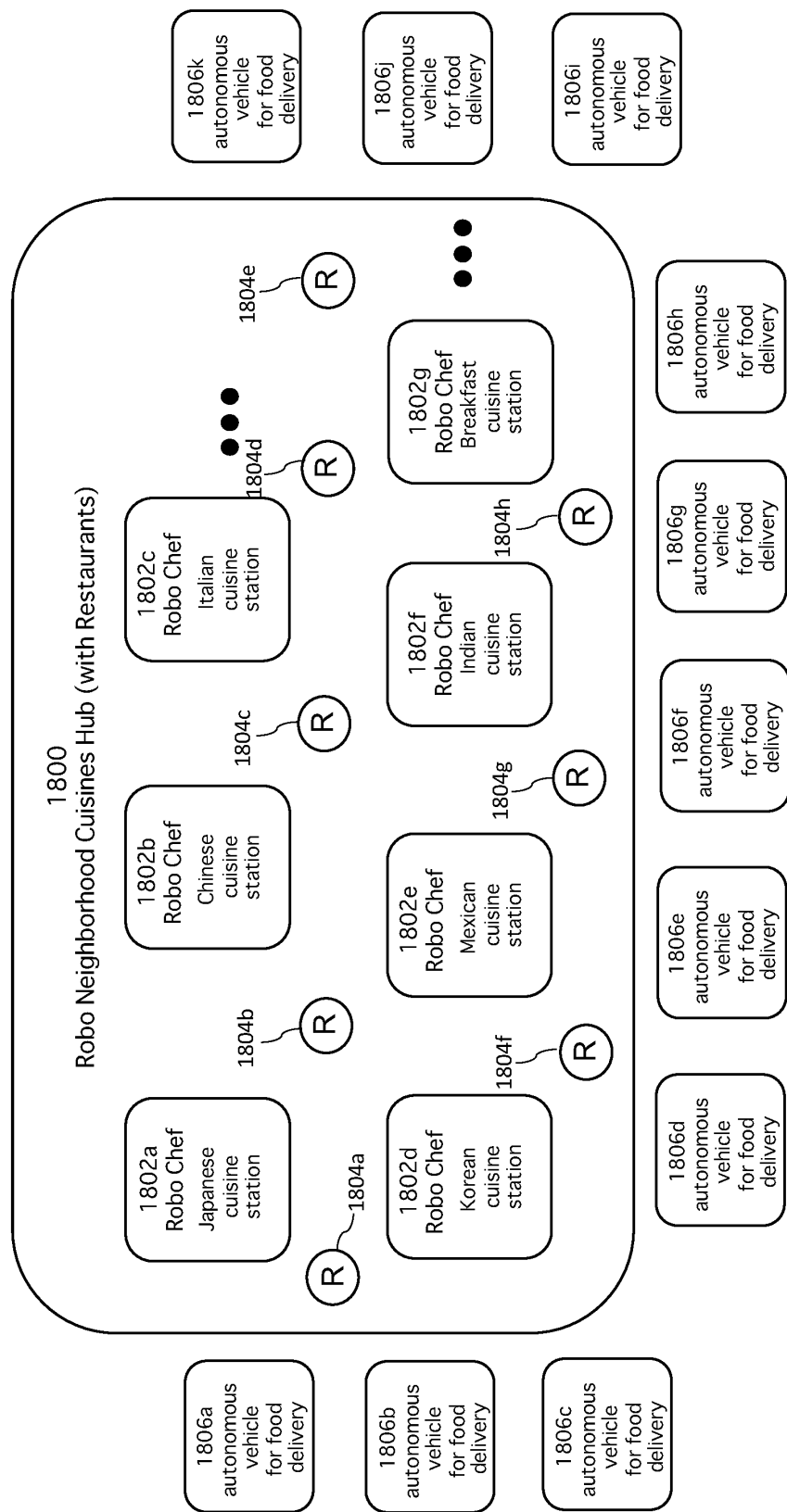


FIG. 118

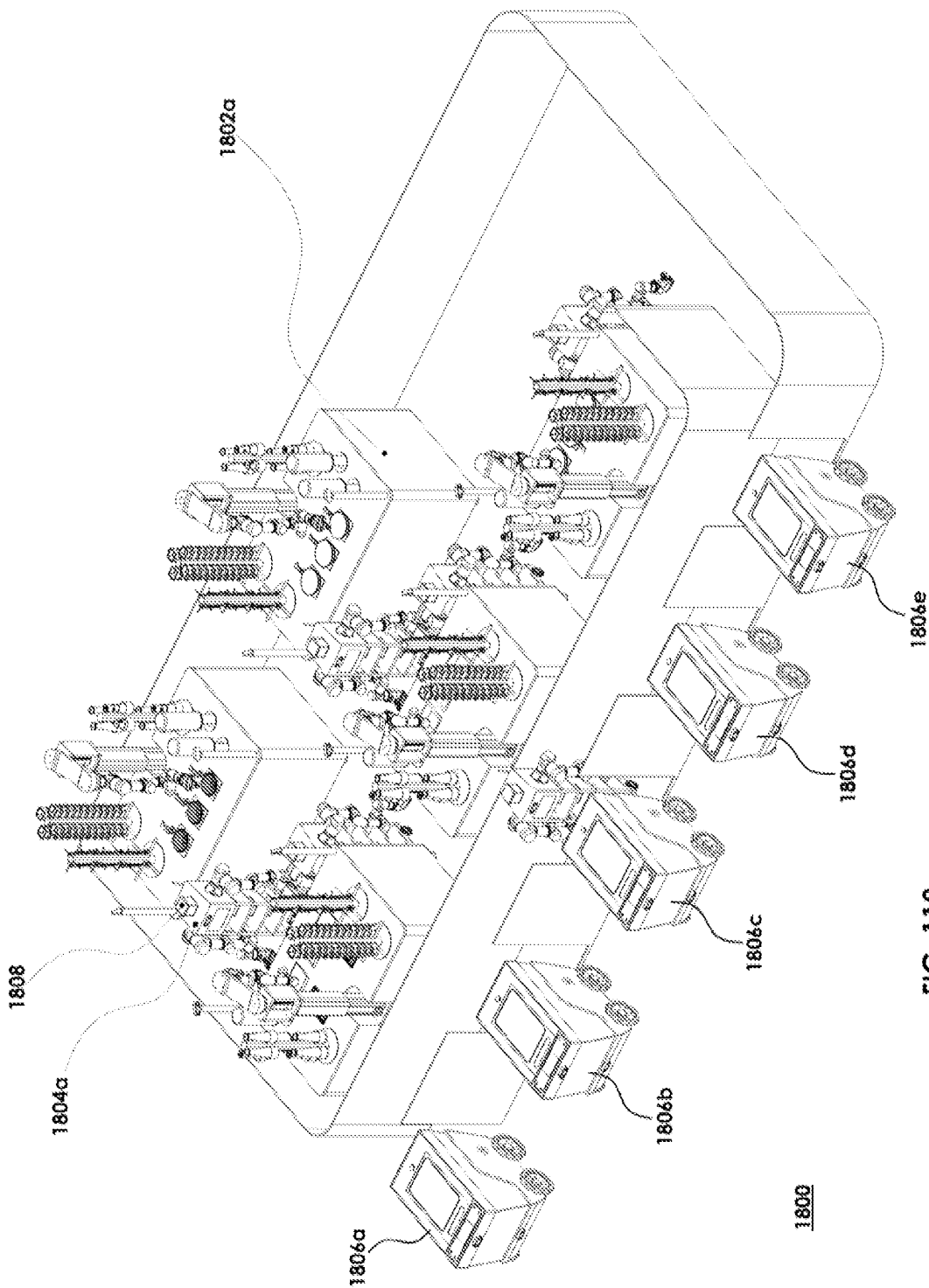


FIG. 119

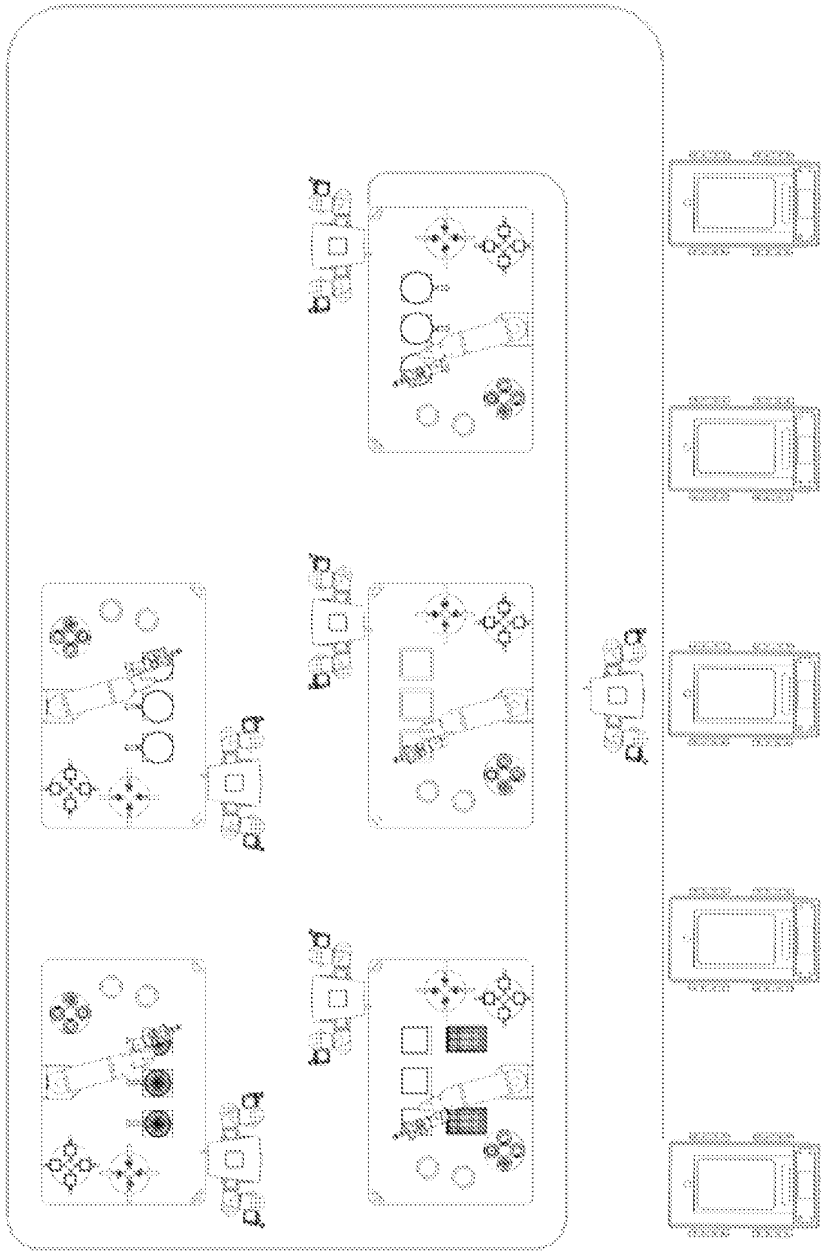


FIG. 120

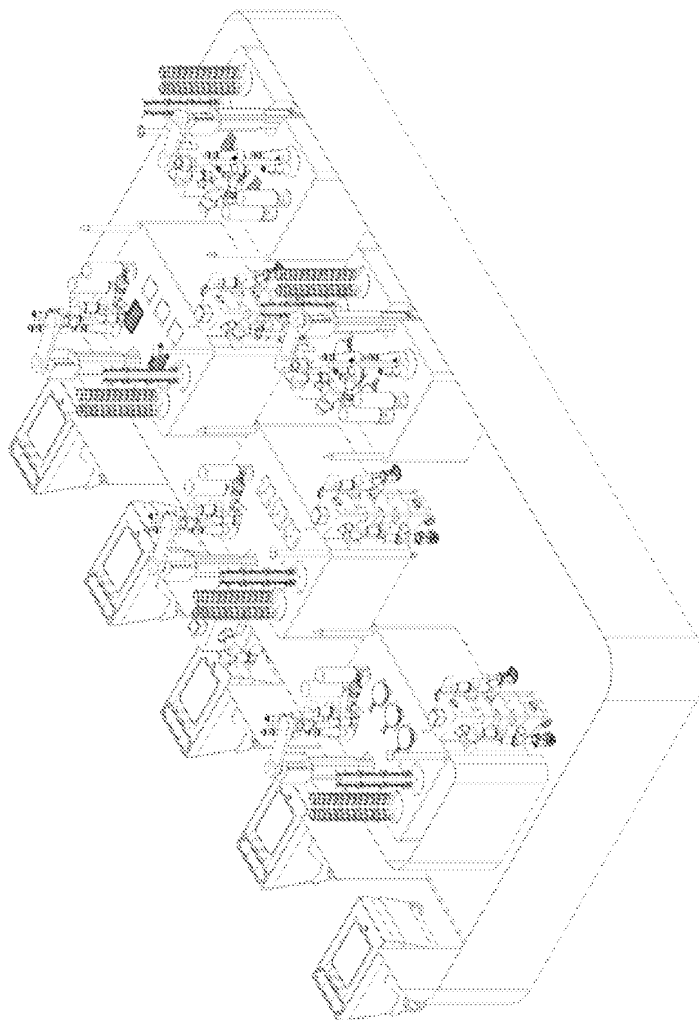
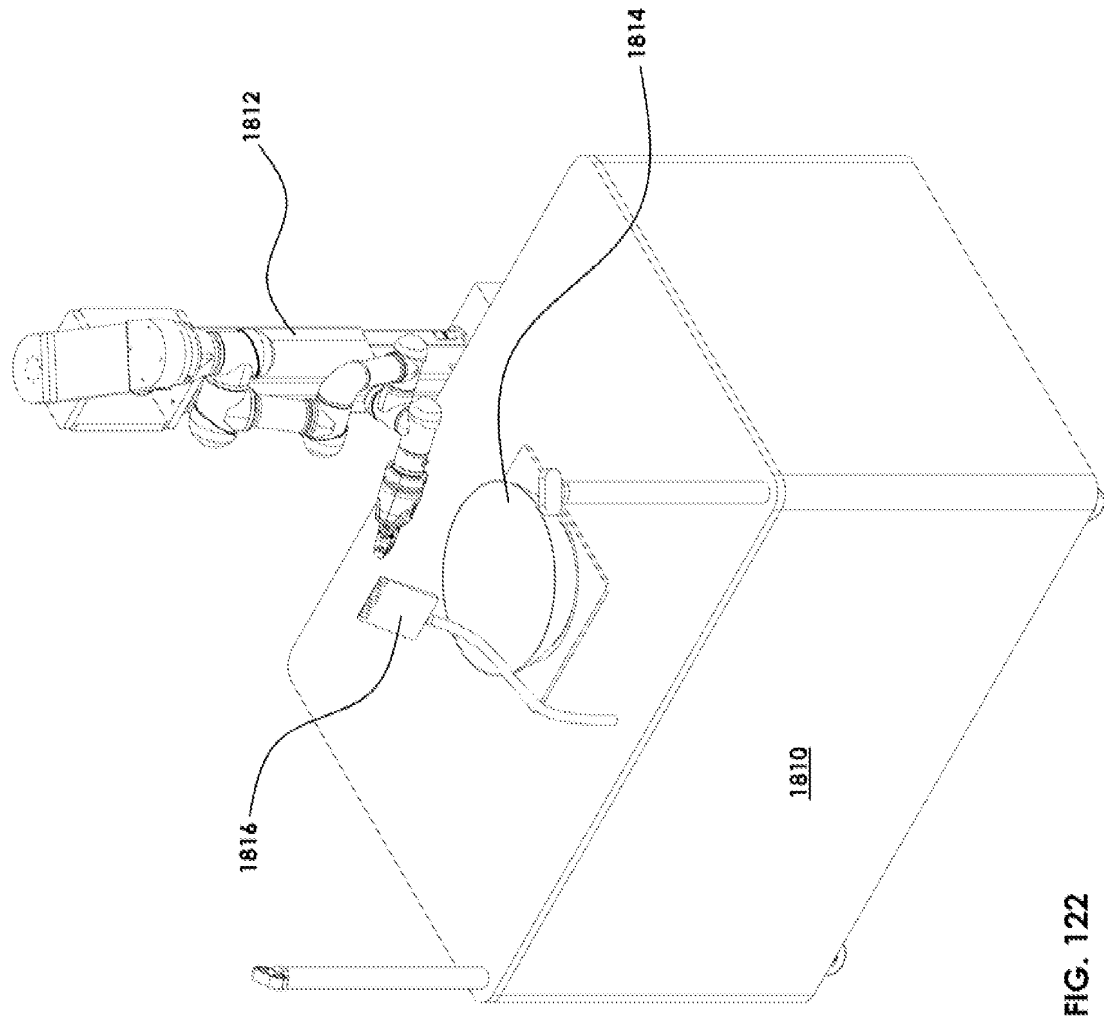
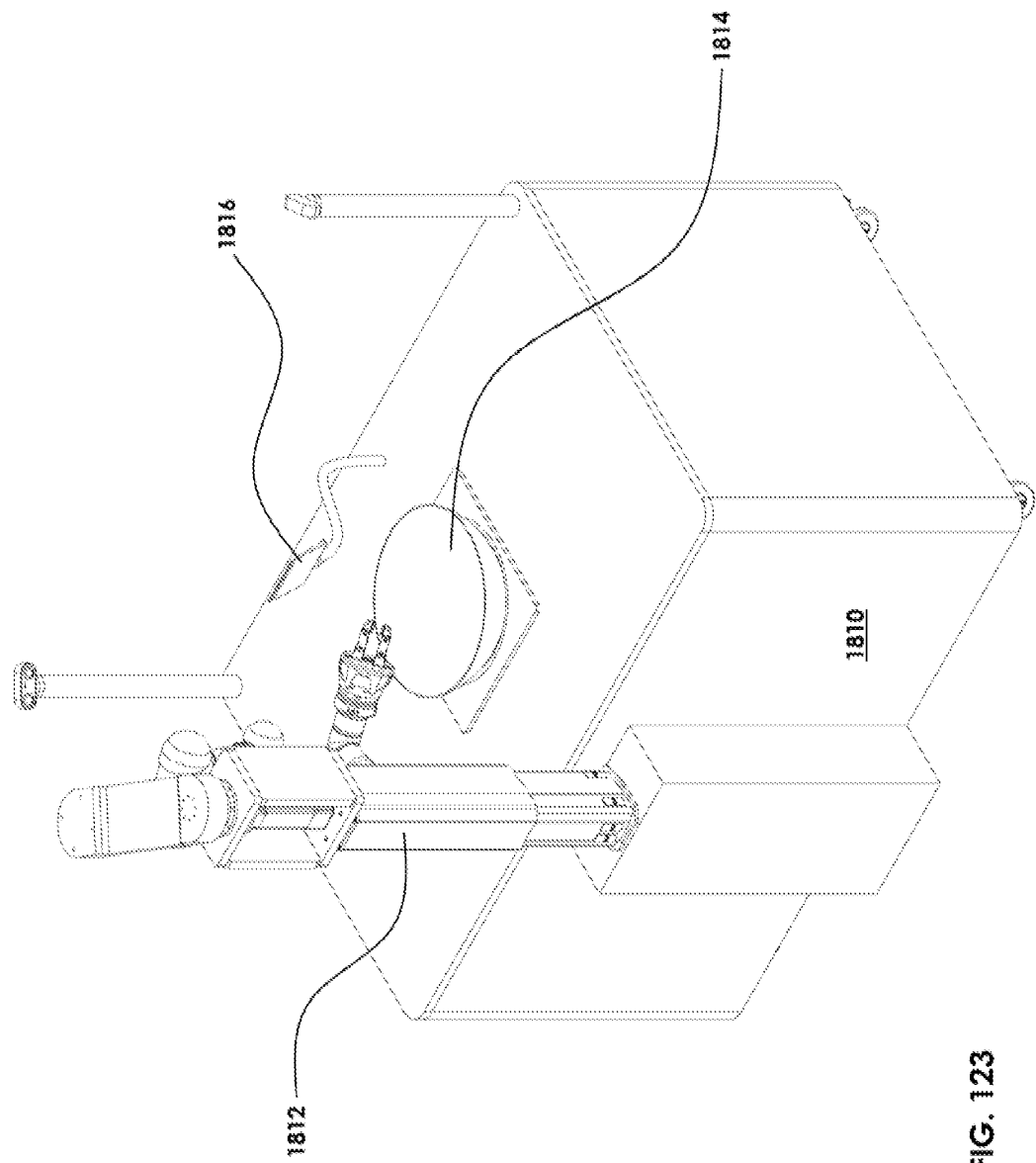


FIG. 121





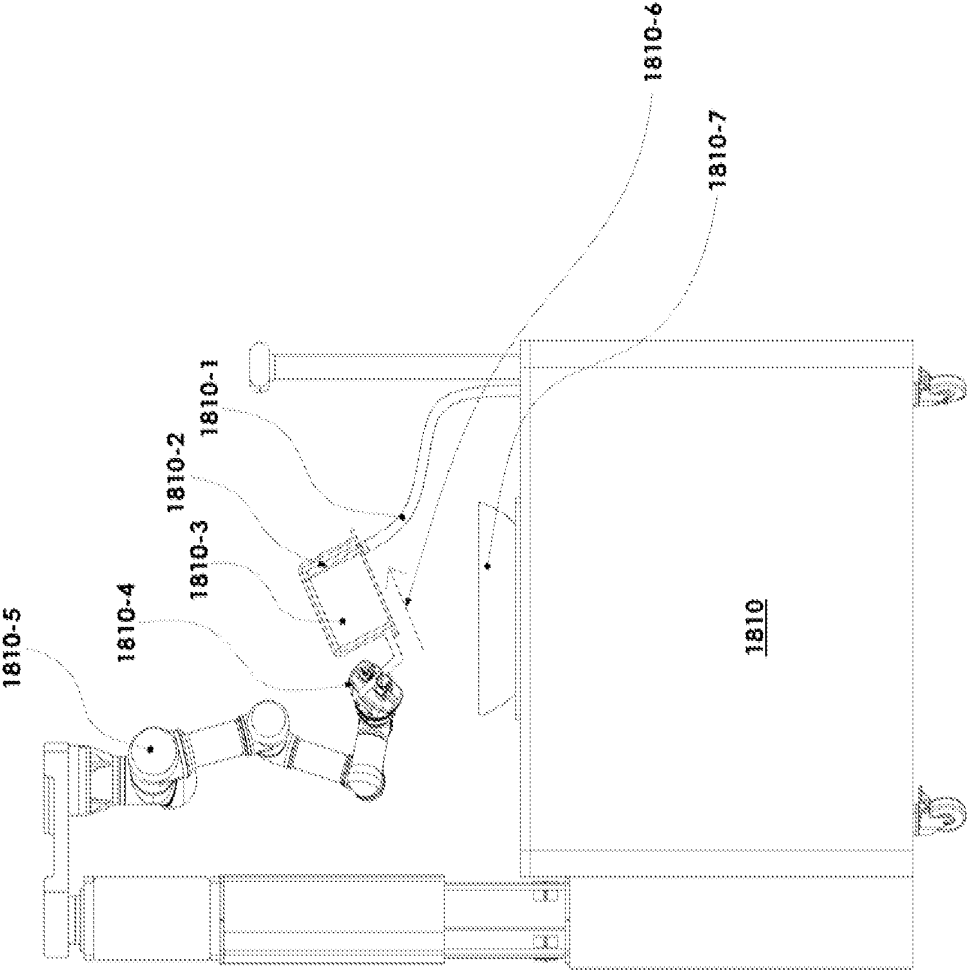
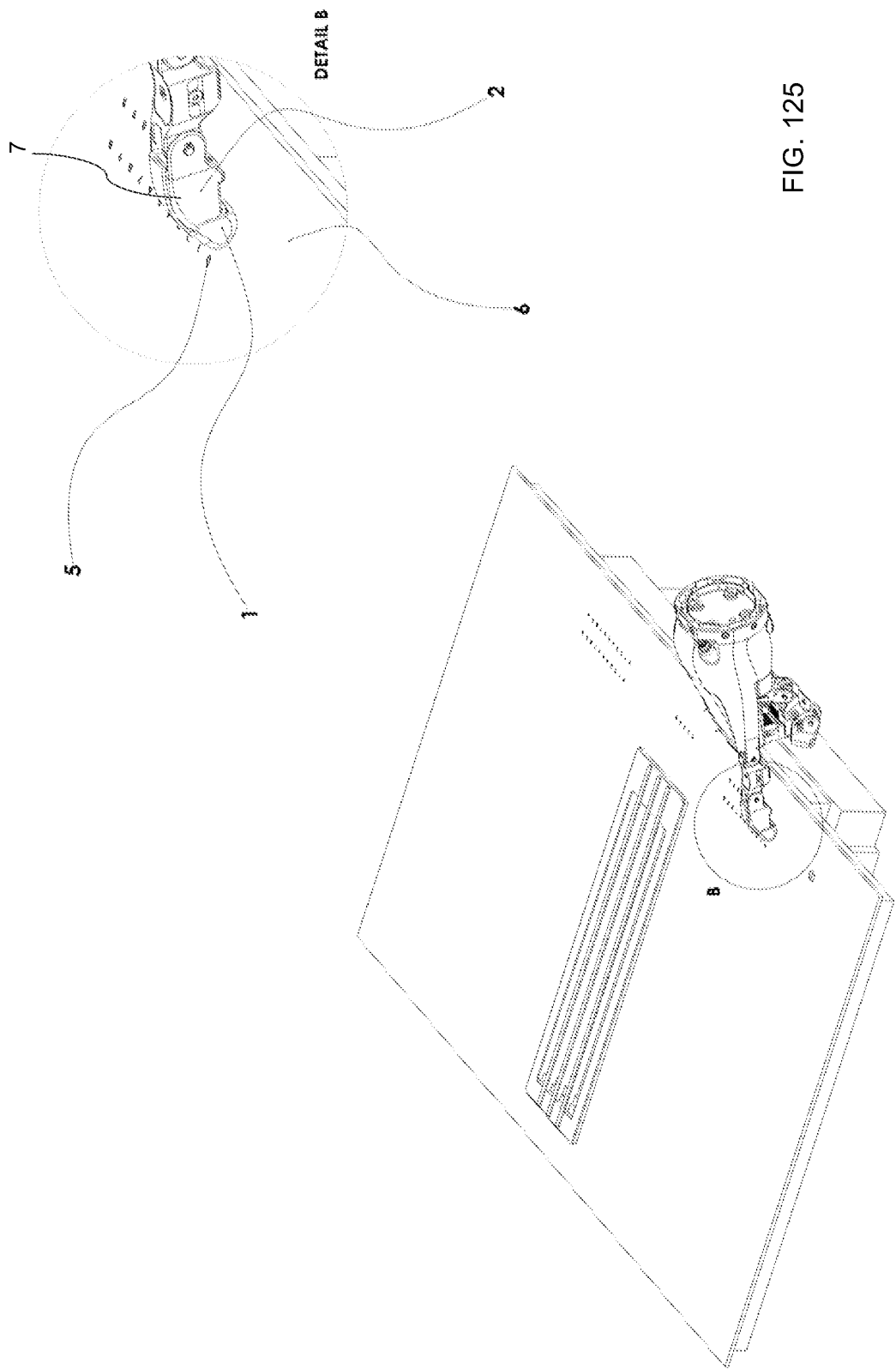


FIG. 124



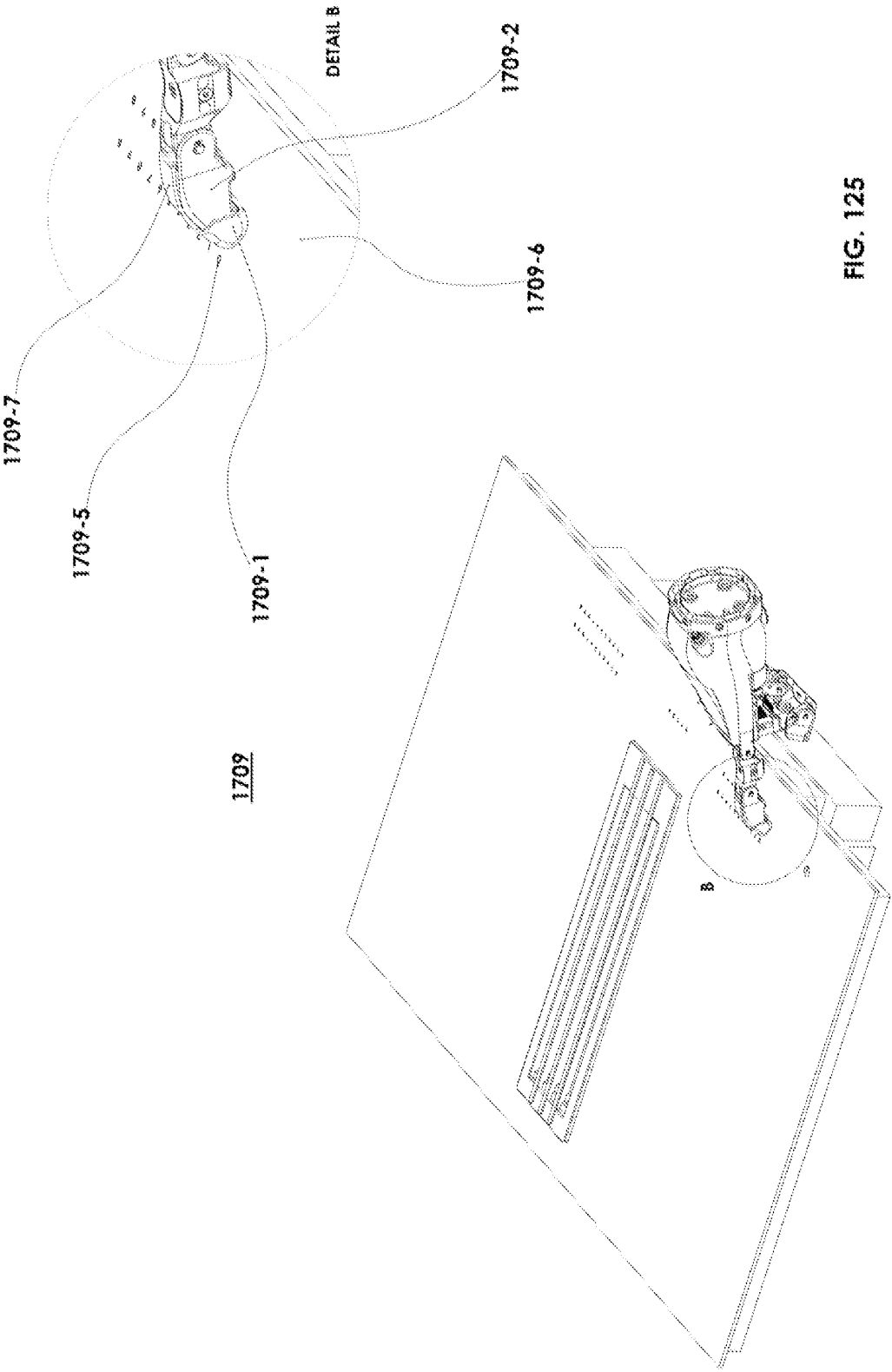
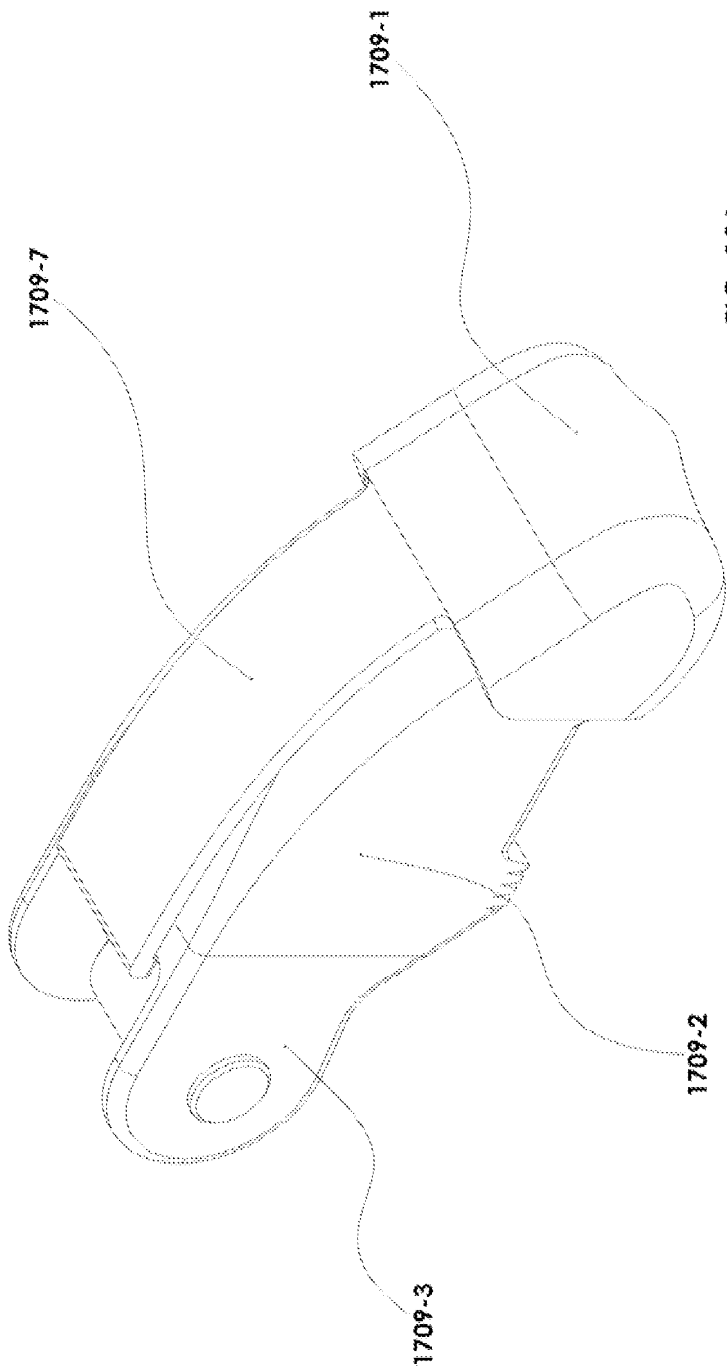


FIG. 125



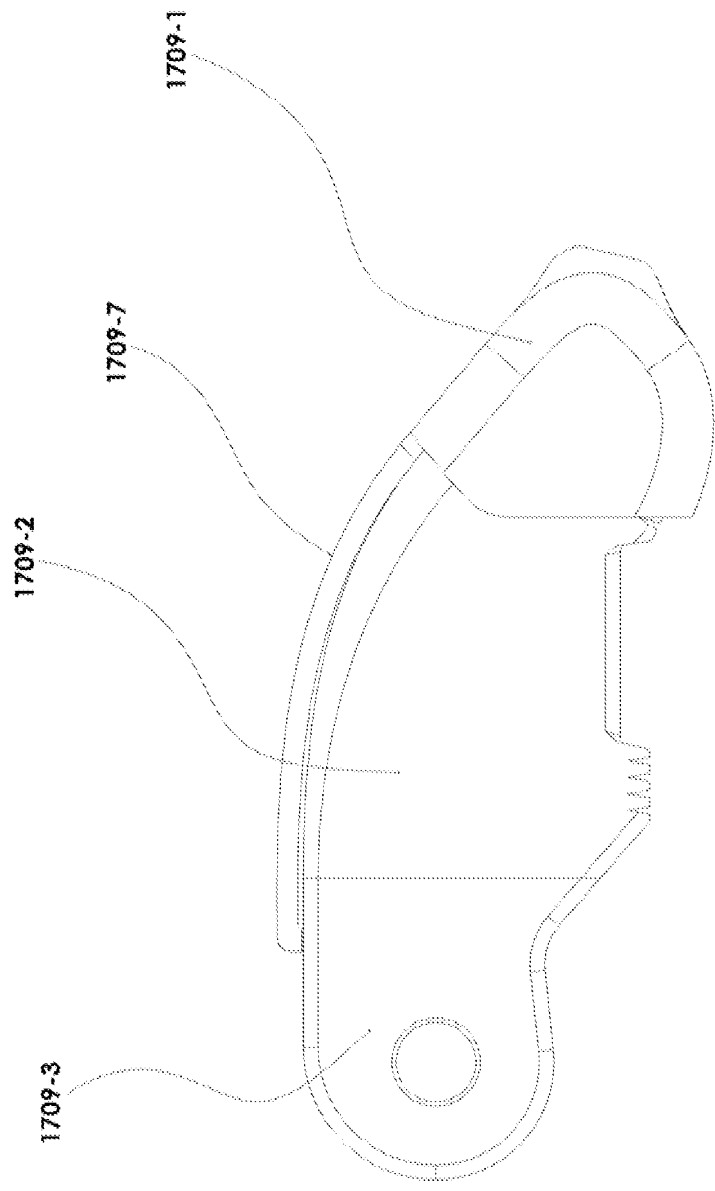


FIG. 127

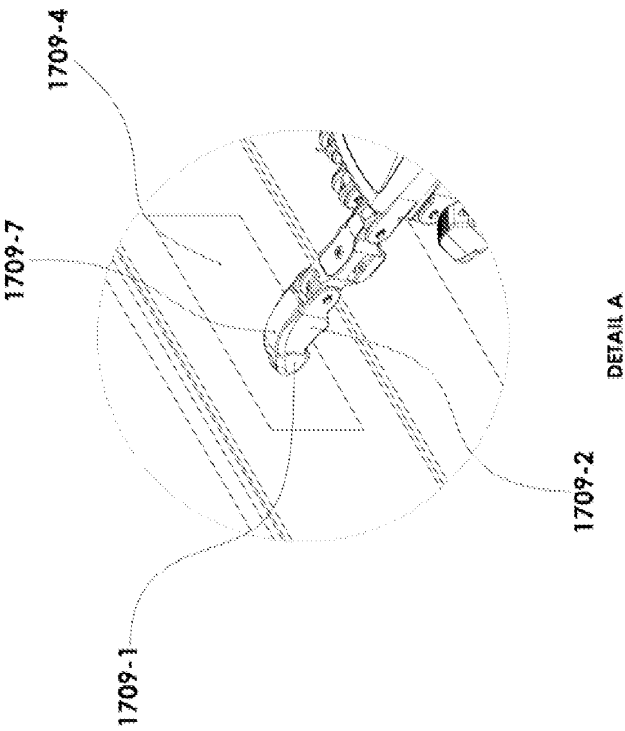
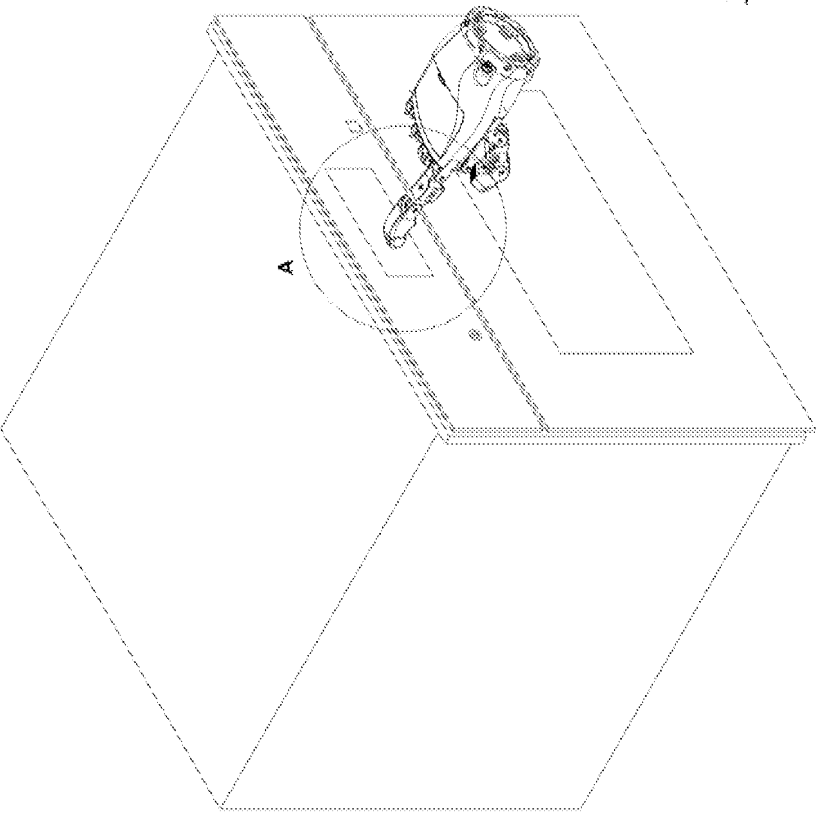


FIG. 128

1709



Mobile Robotic Kitchen

First Embodiment Food Truck

Robotic foodtruck serves fast food ranged from hamburgers, pizzas, sushi, asian noodle and rice dishes, brochettes , croquette, sausage, flatbread and falafel , soup and salad to smoothies, ice cream and desert, or any dishes with mass produced and high speed of service

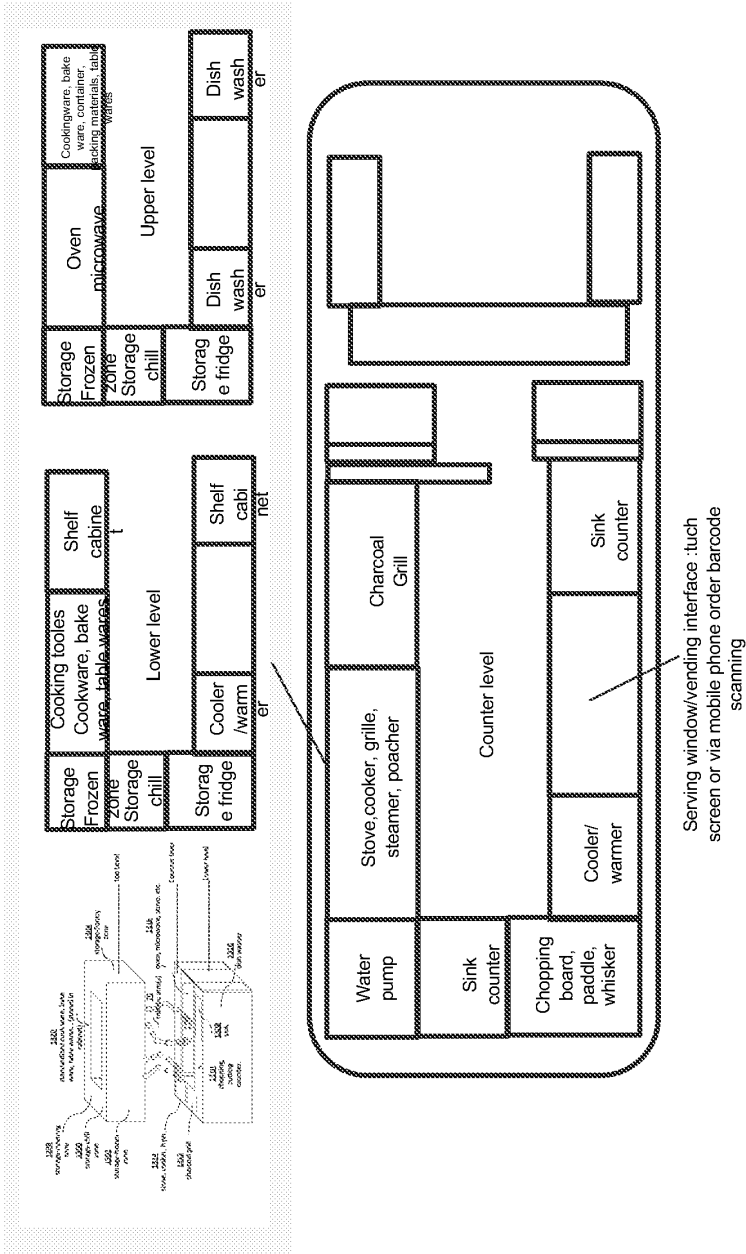


FIG. 129

Mobile Robotic Kitchen

Second Embodiment of a Pop-Up Restaurant or a Food Catering Service

caravan-turn robotic kitchen enables restaurant to serve sophisticated menu to non existing or new market or catering to certain group or event's need such as as popup restaurant or catering service

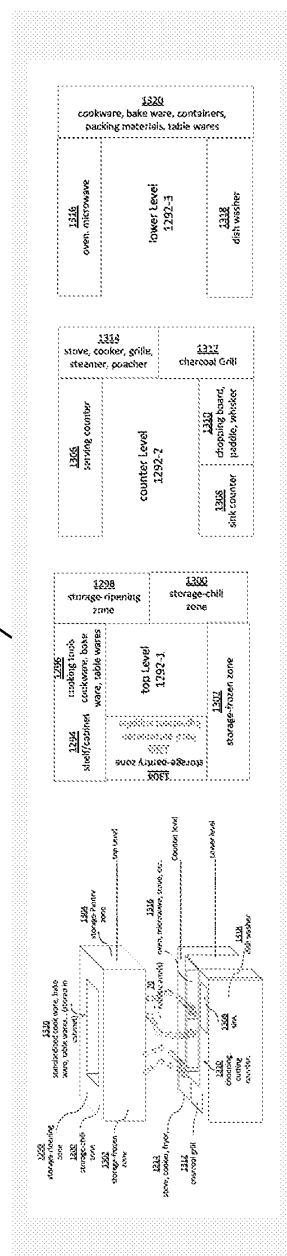
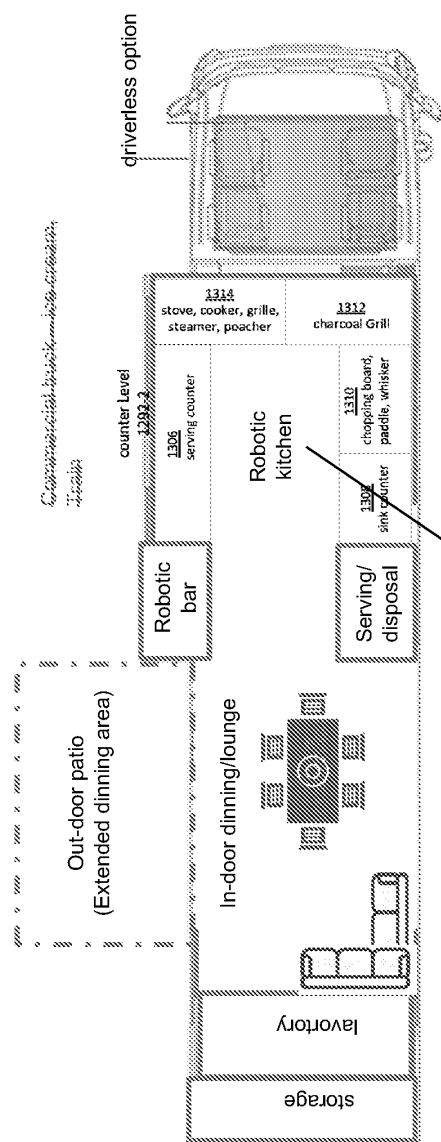


FIG. 130

Examples of manual or modified motorized dosing devices for robotic kitchen

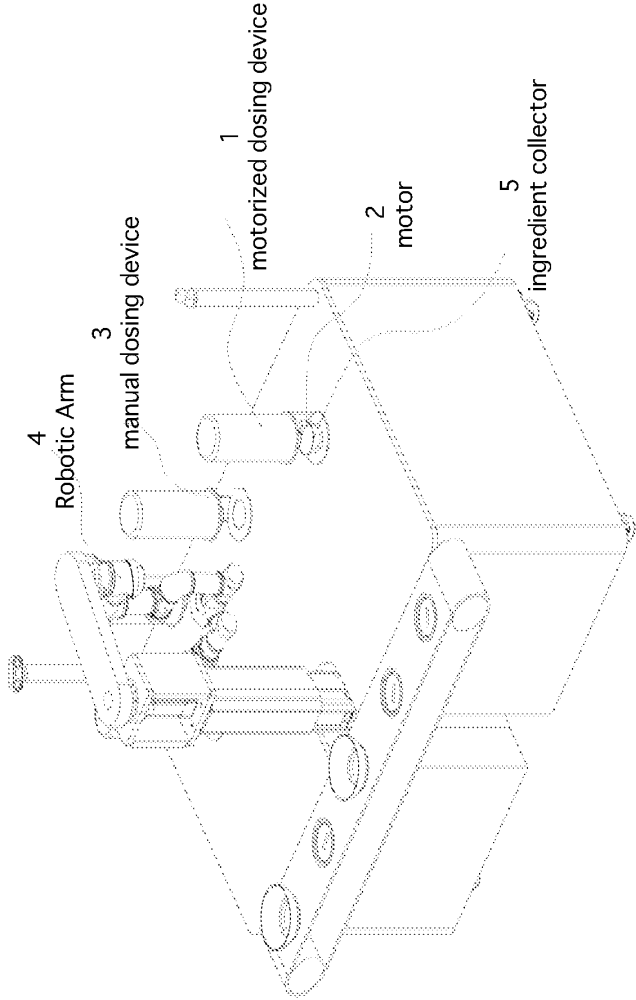


FIG. 131

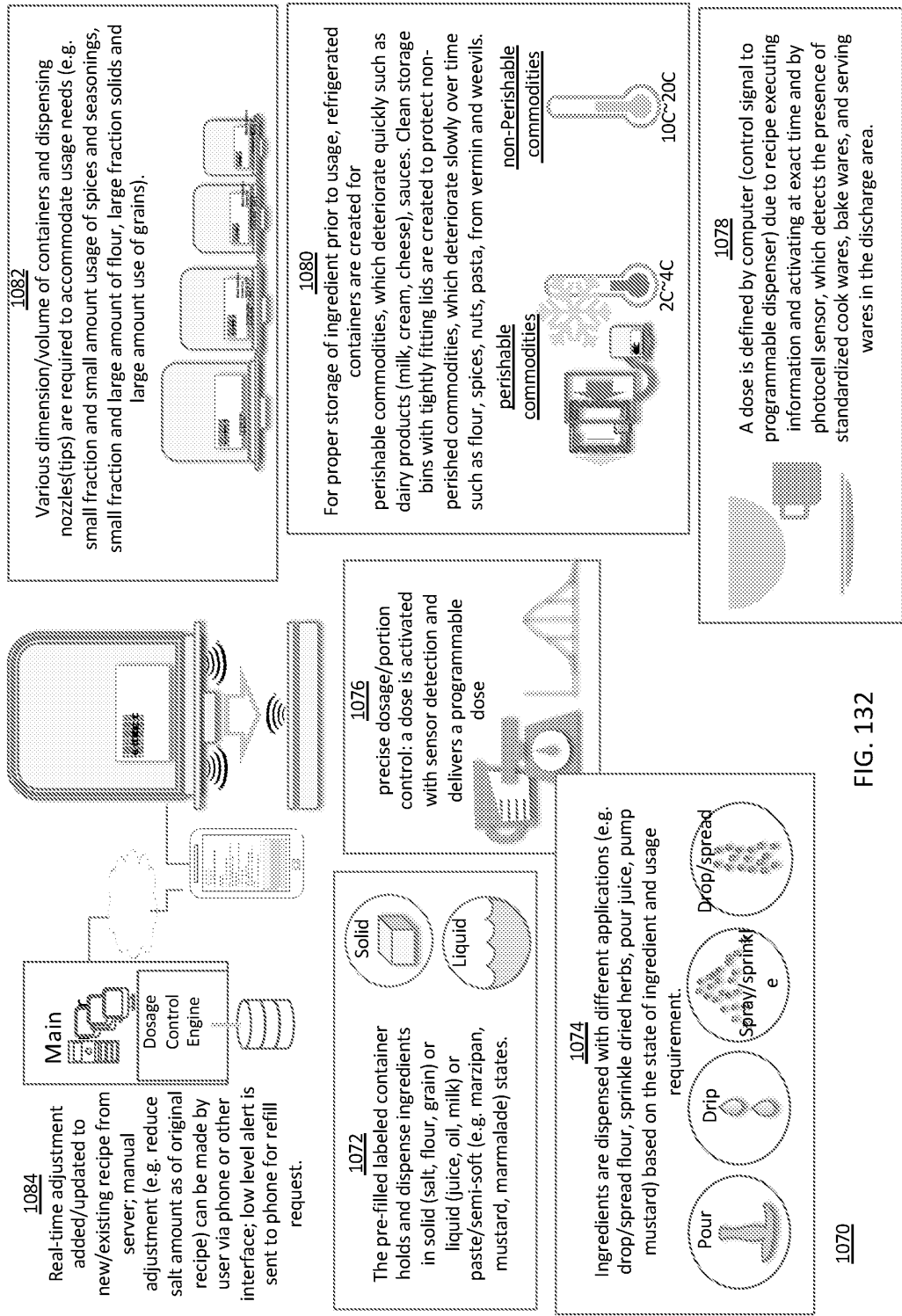
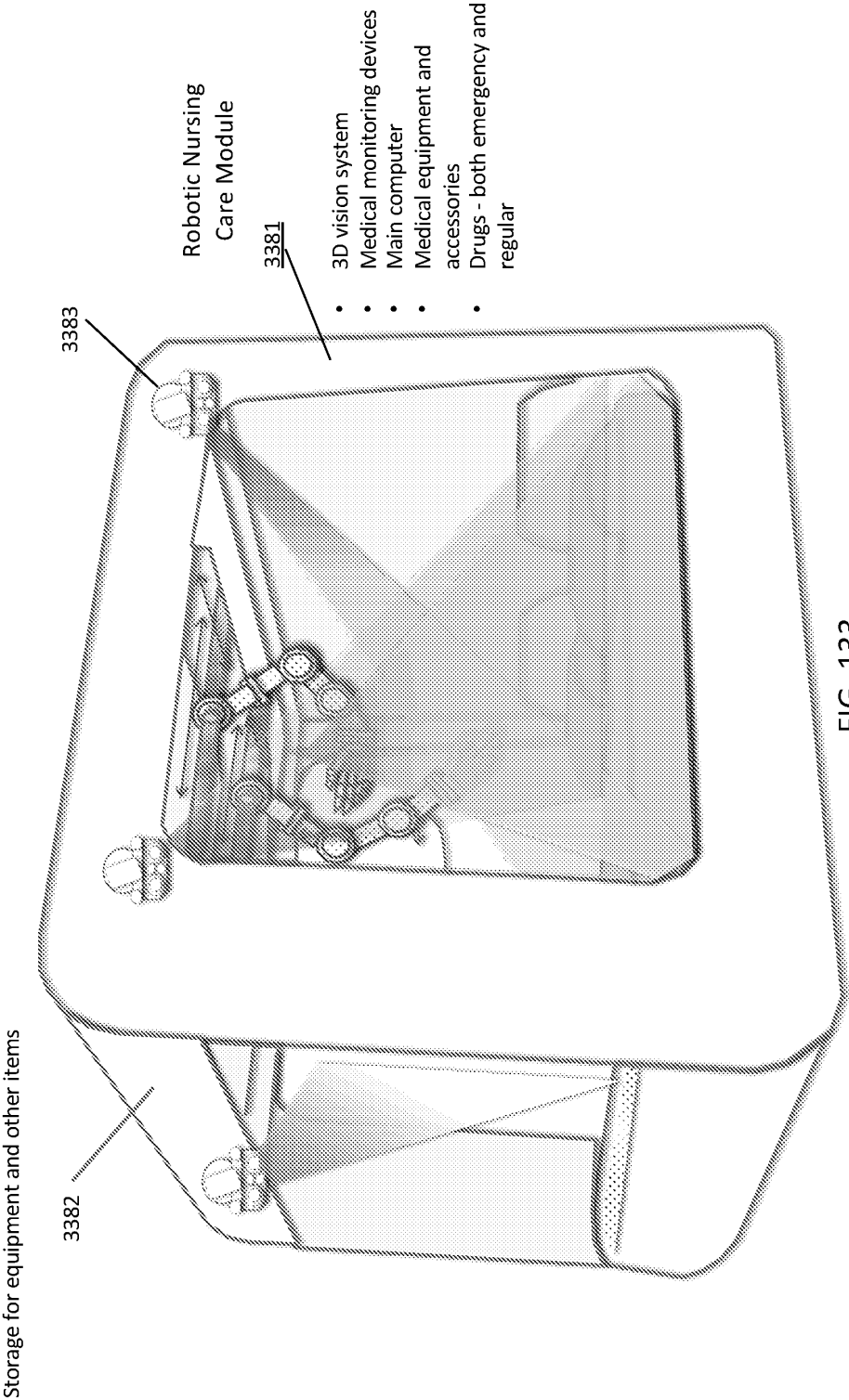


FIG. 132

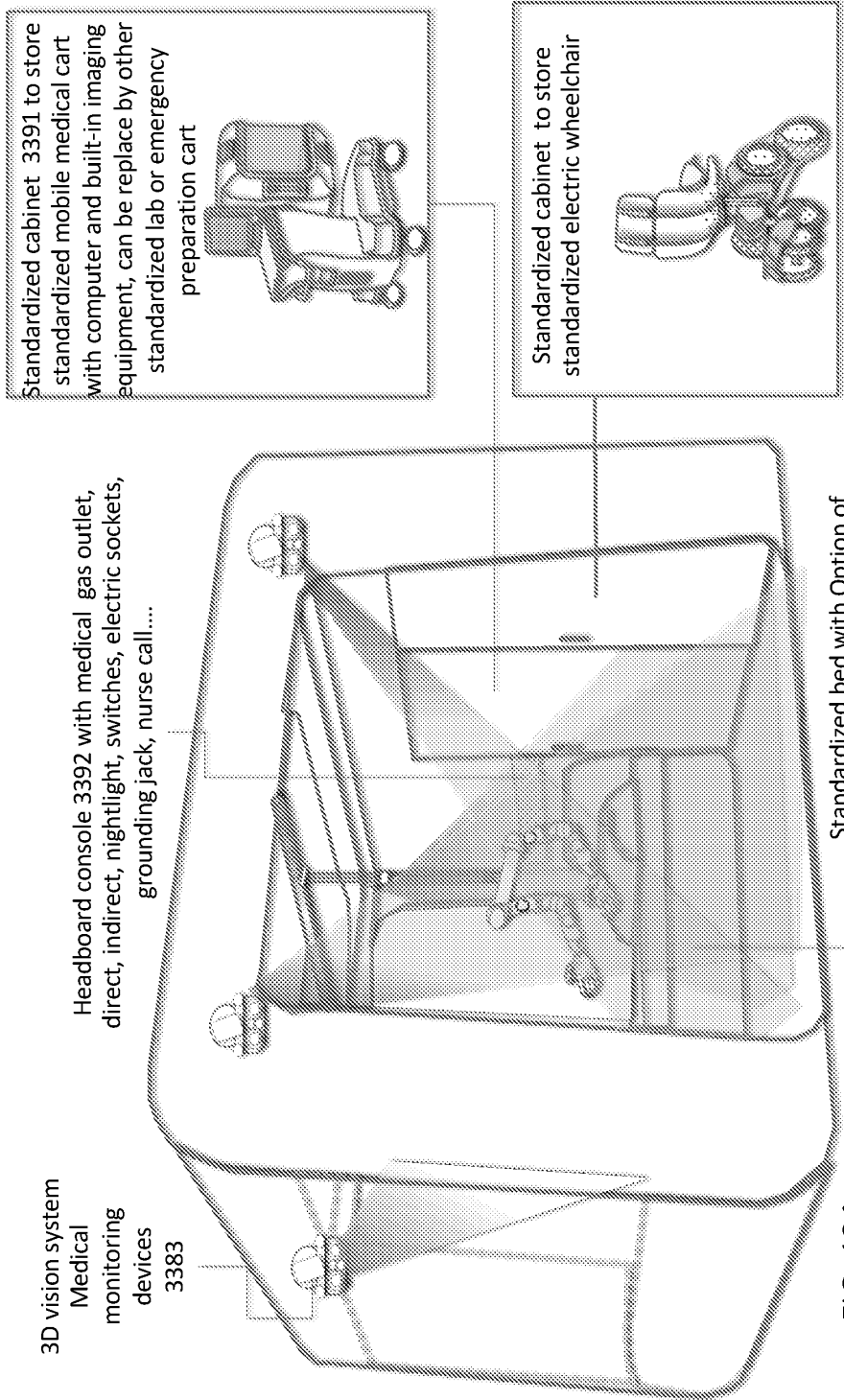
Calibration for Nursery Embodiment



Nursing care suite module 3381 – front view
can be operated by robot arms/hands or manually

3D vision system
Medical
monitoring
devices
3383

Headboard console 3392 with medical gas outlet,
direct, indirect, nightlight, switches, electric sockets,
grounding jack, nurse call....



Standardized bed with Option of
different bed sizes

FIG. 134

- Add robotic arms and x-y-z-rotary actuators
- Add rails for x-rail, y-rail, and z-rail
- Add a perpendicular line – send MO’s engineer, and add calibration points
 - calibration
 - micro and macro AP
- 3381
 - Nursing care suite module – back view
 - can be operated by robot arms/hands or manually

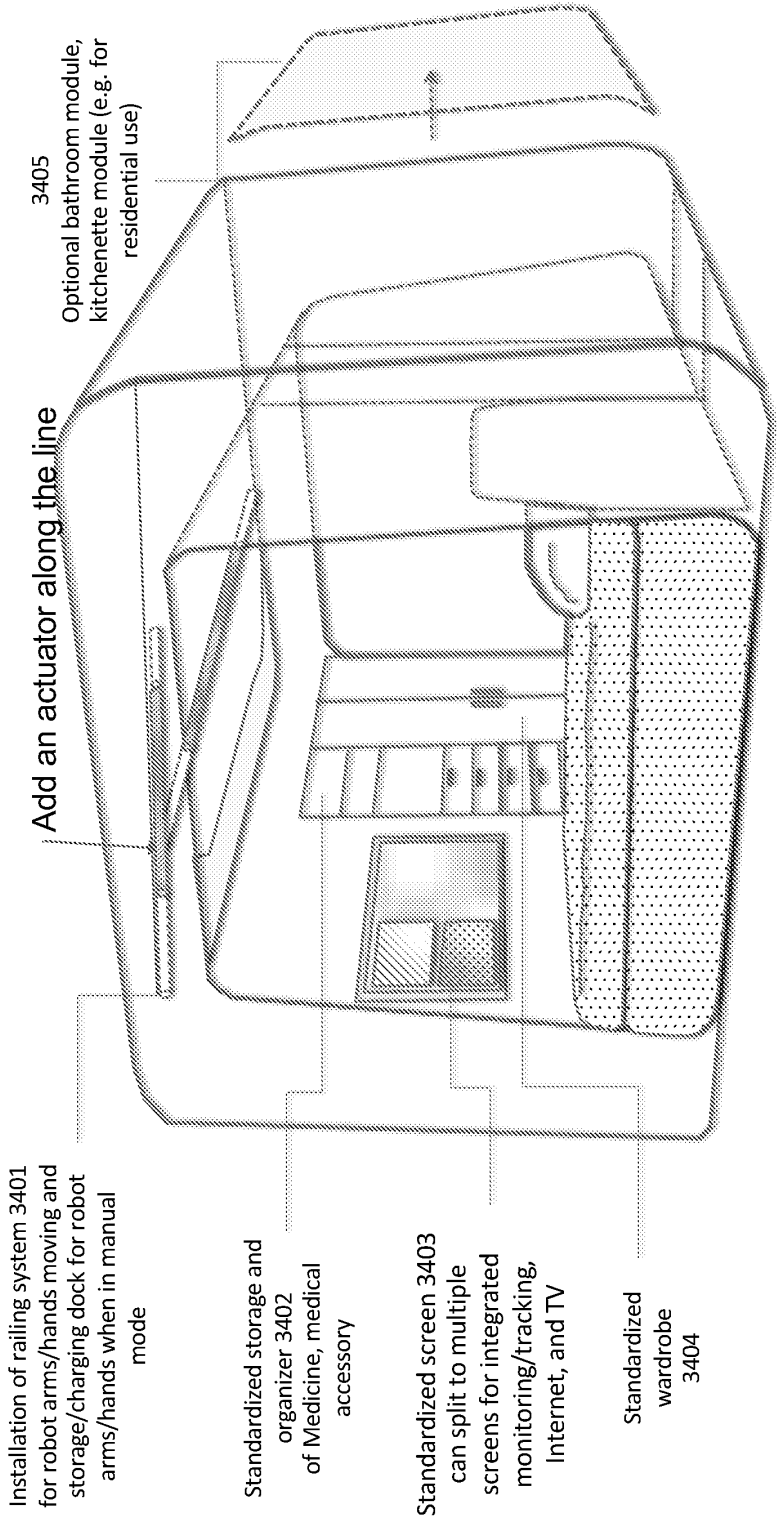


FIG. 135

3381
Nursing care suite module – robot arms/hands operating

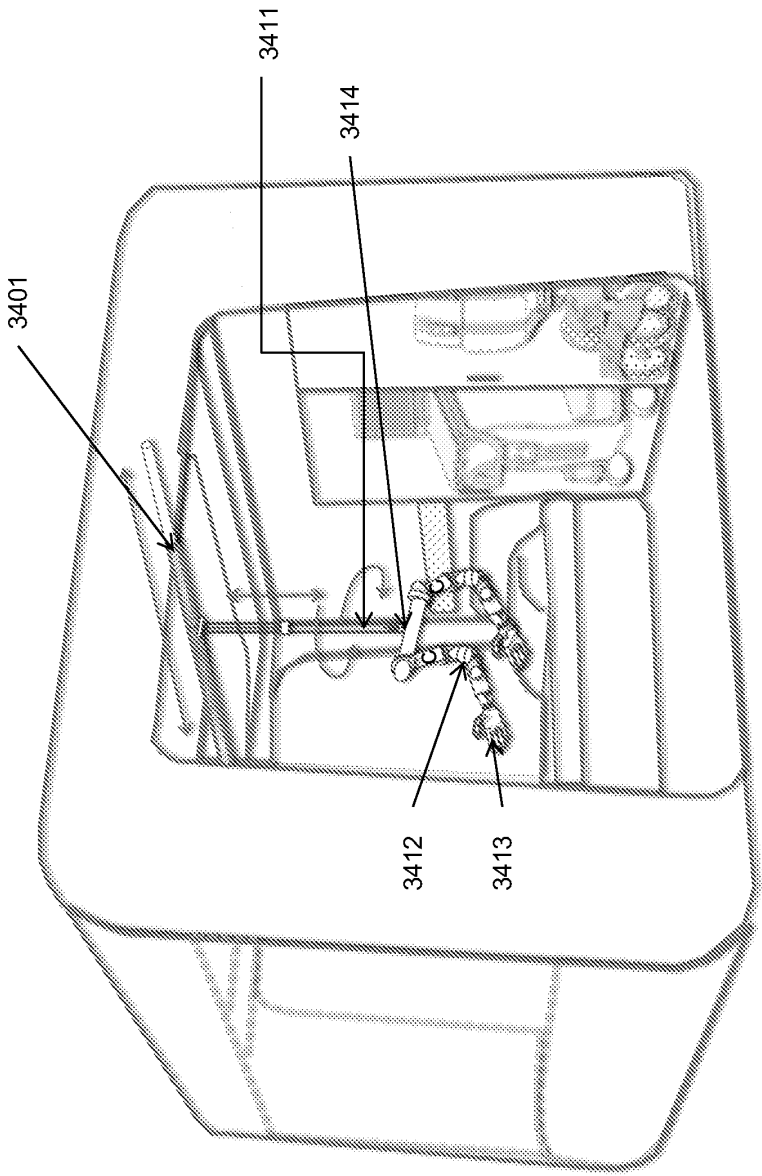
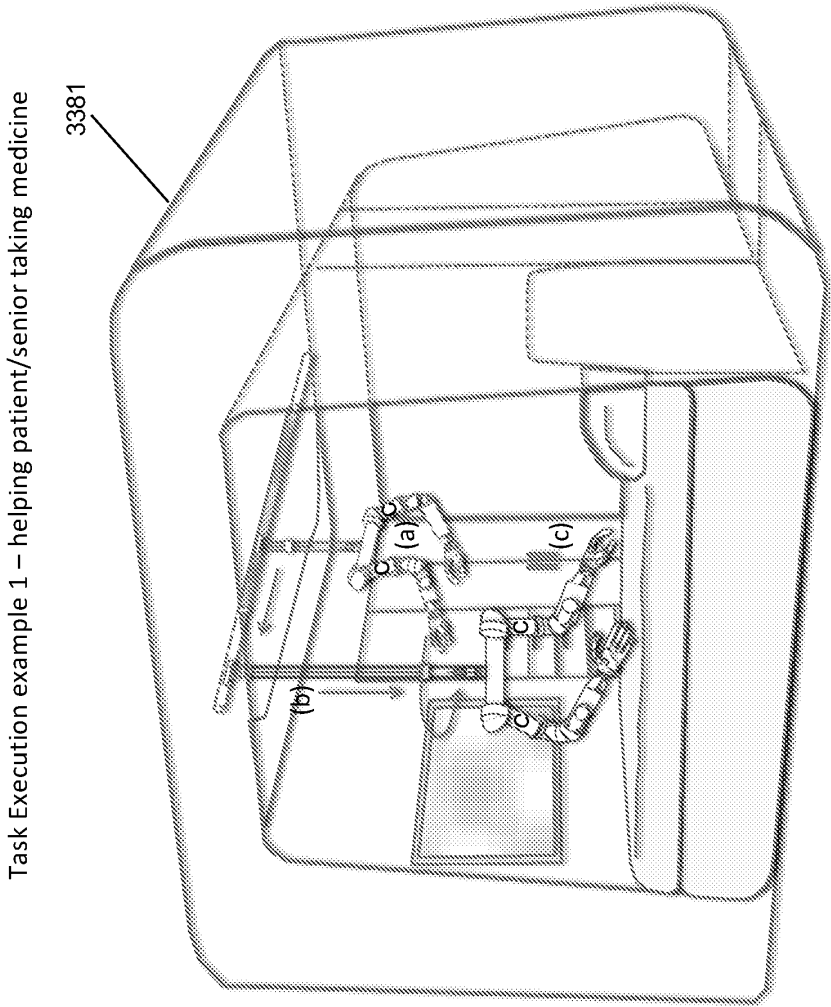


FIG. 136



Task Execution example 2 – helping patient/senior moving

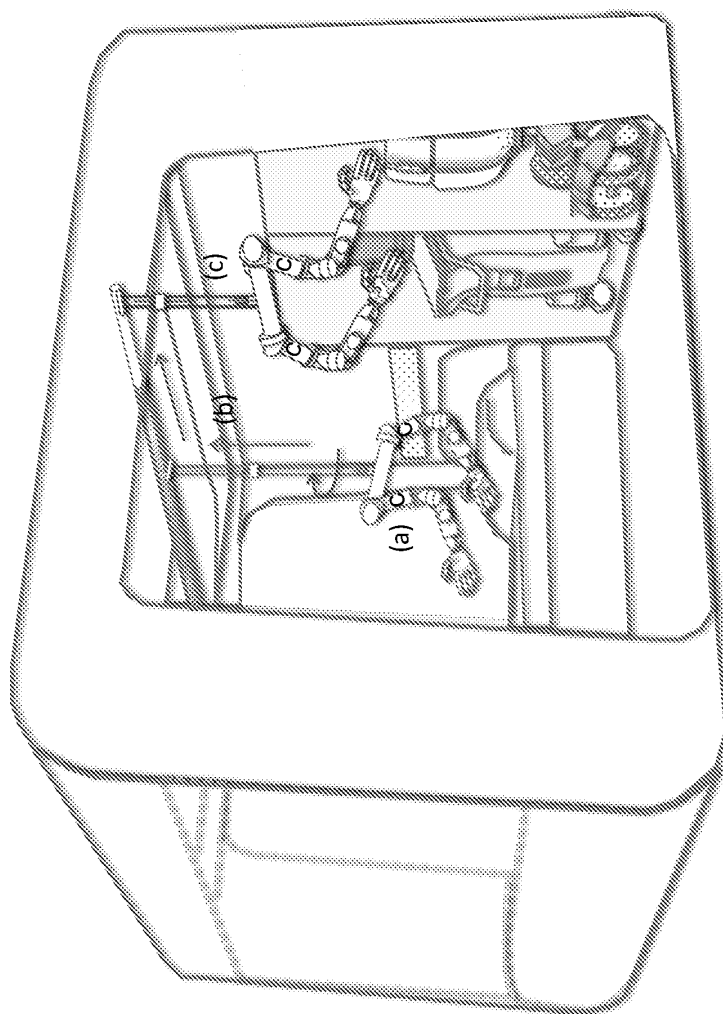


FIG. 138

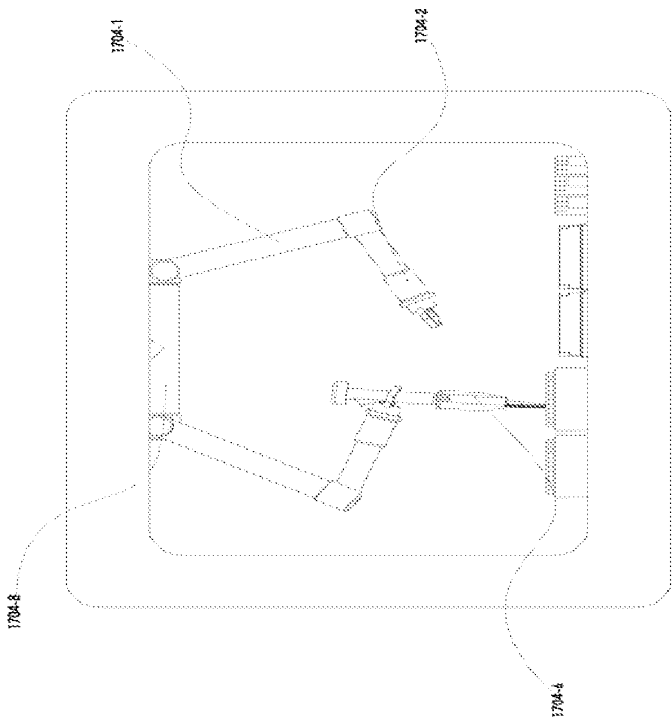


FIG. 140

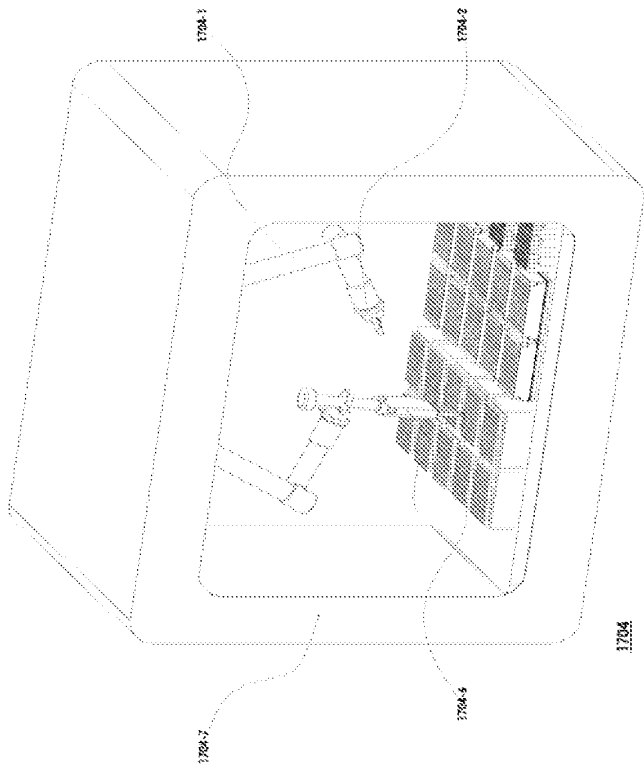


FIG. 139

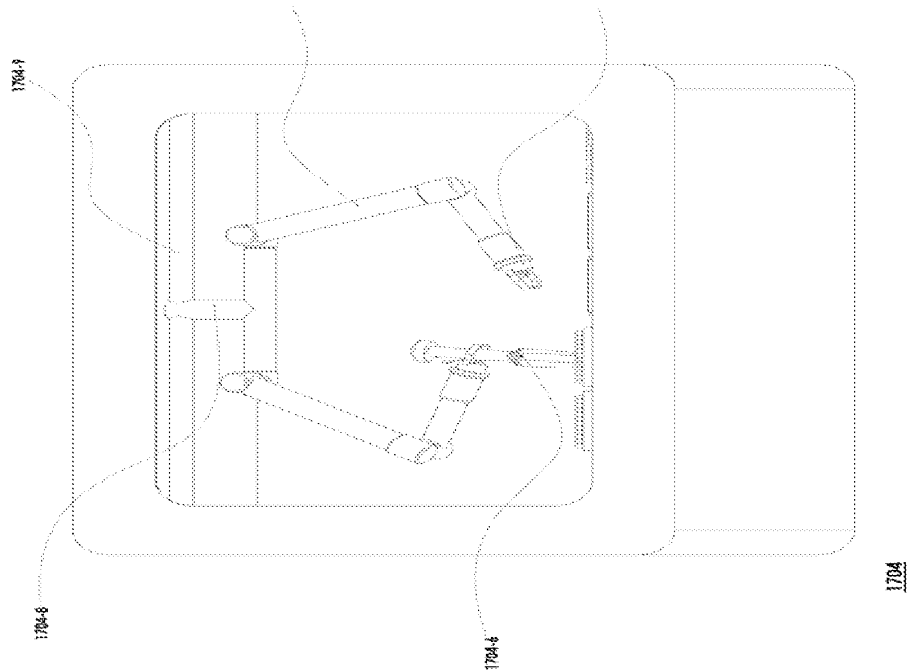


FIG. 141

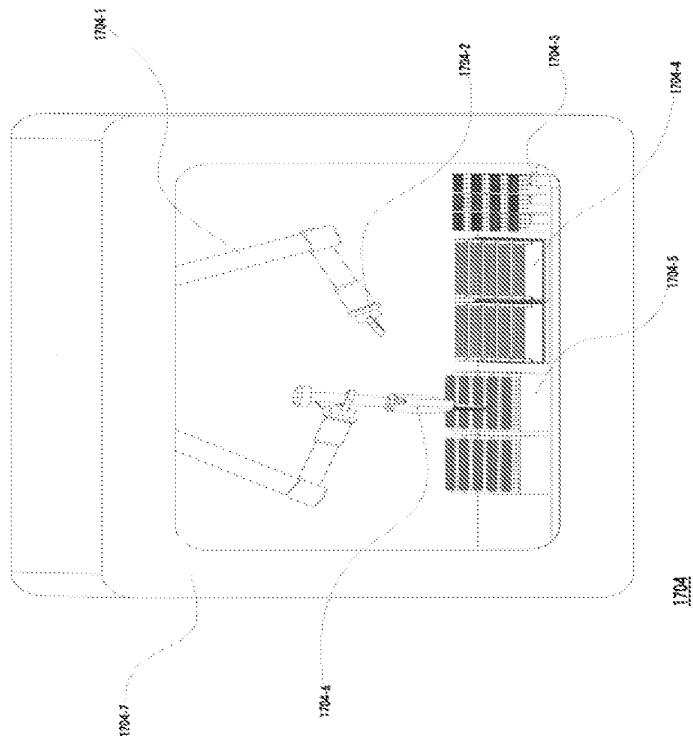
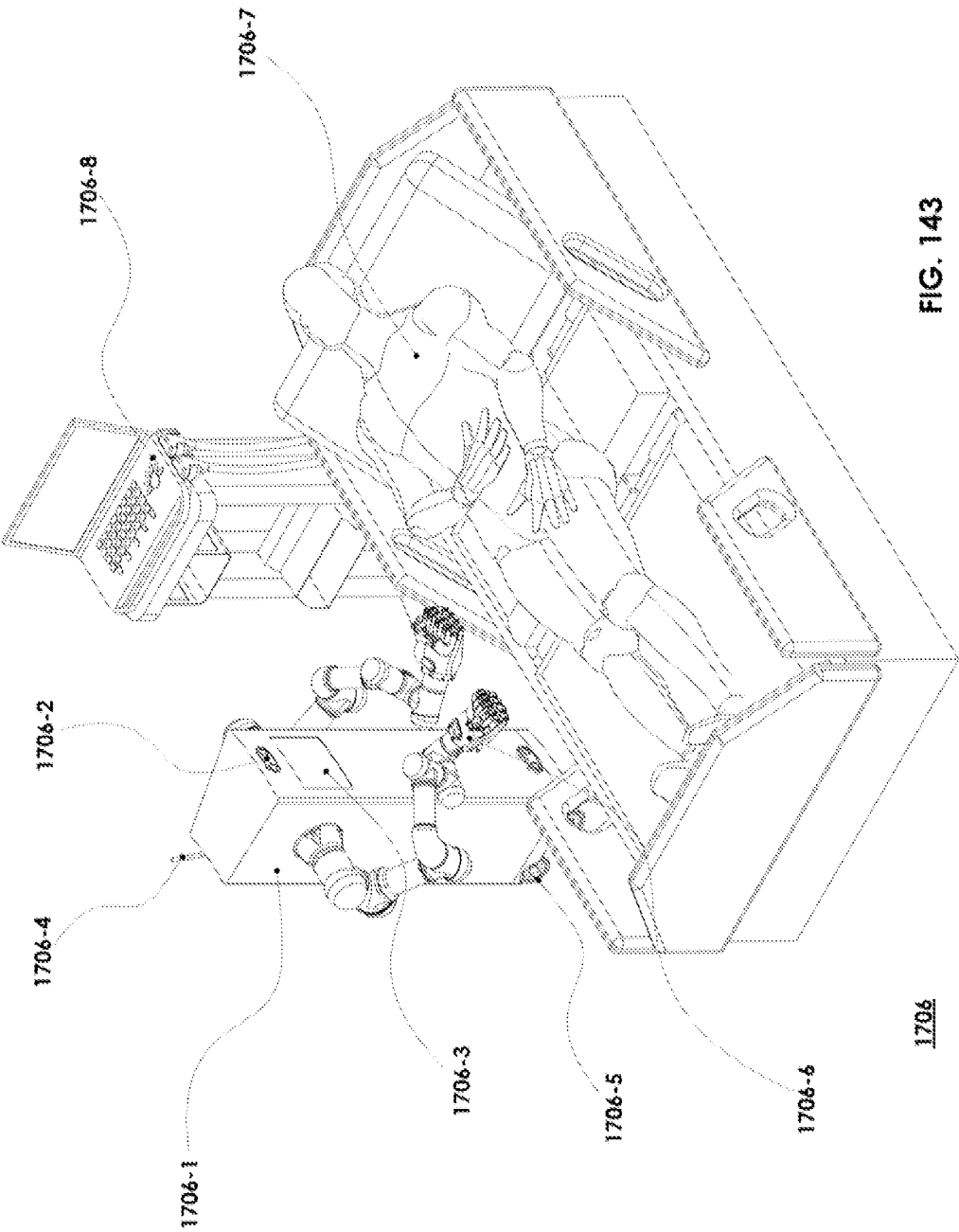
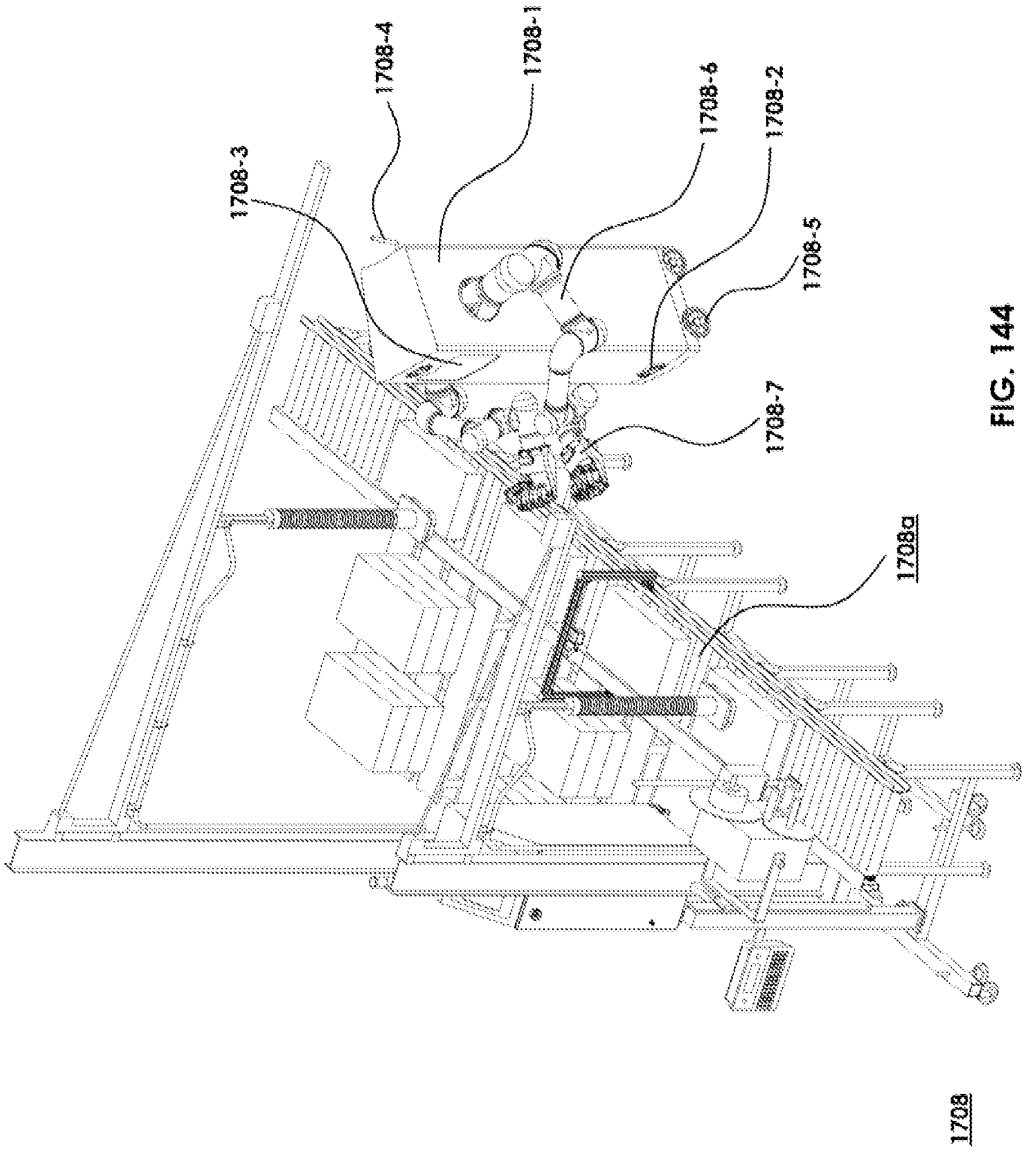


FIG. 142





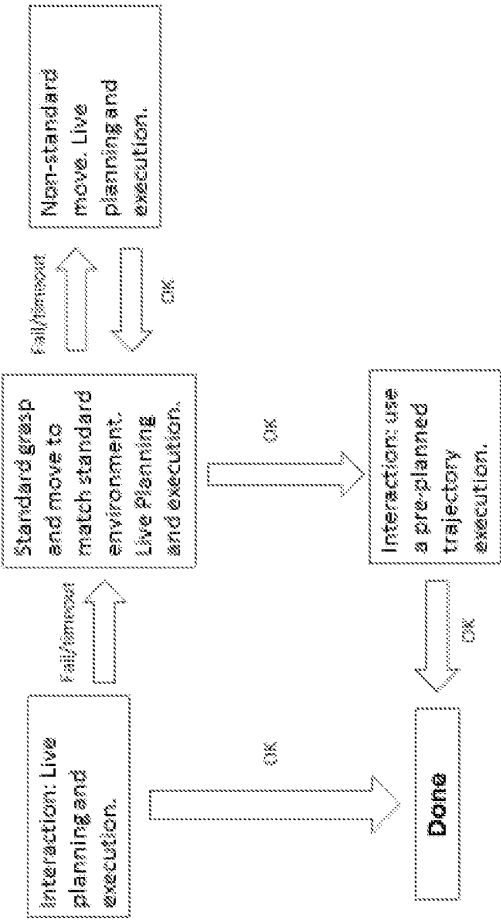


FIG. 145

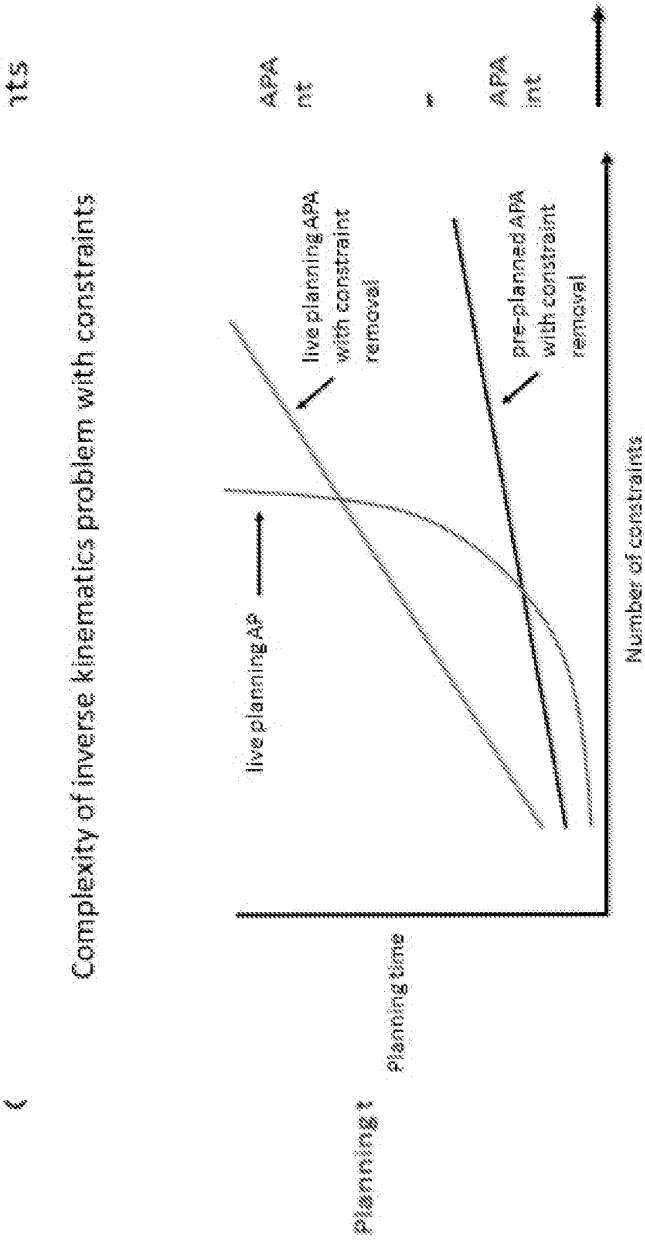


FIG. 146

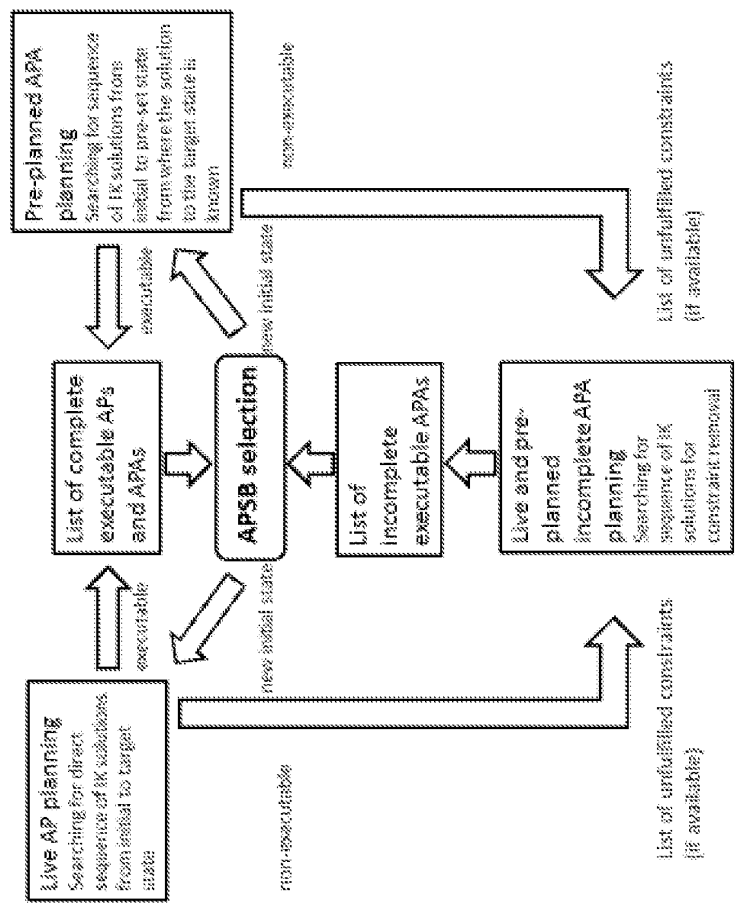


FIG. 147

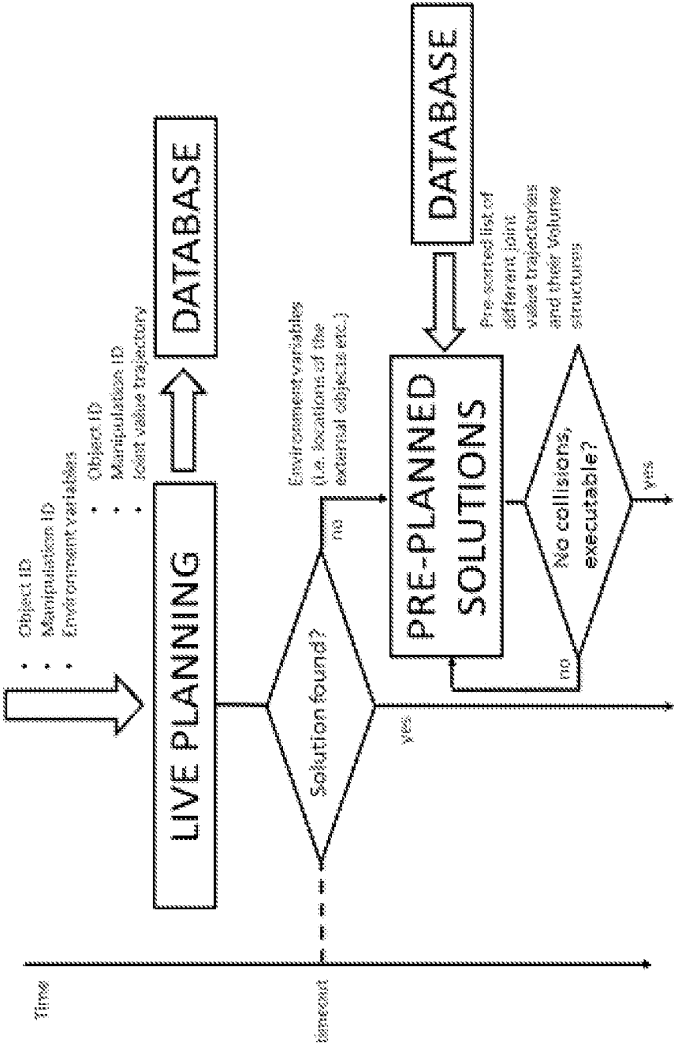


FIG. 148

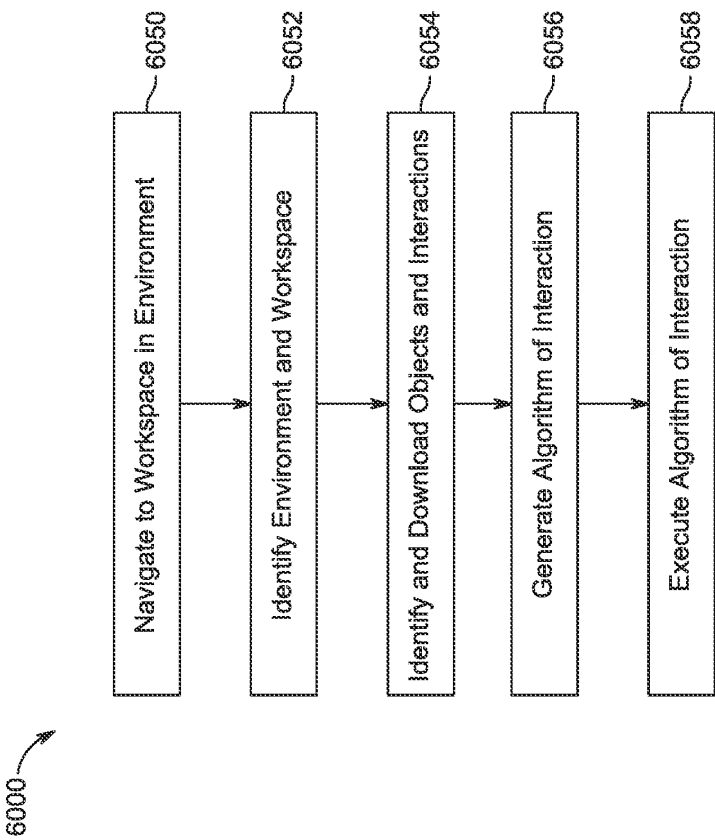


FIG. 149

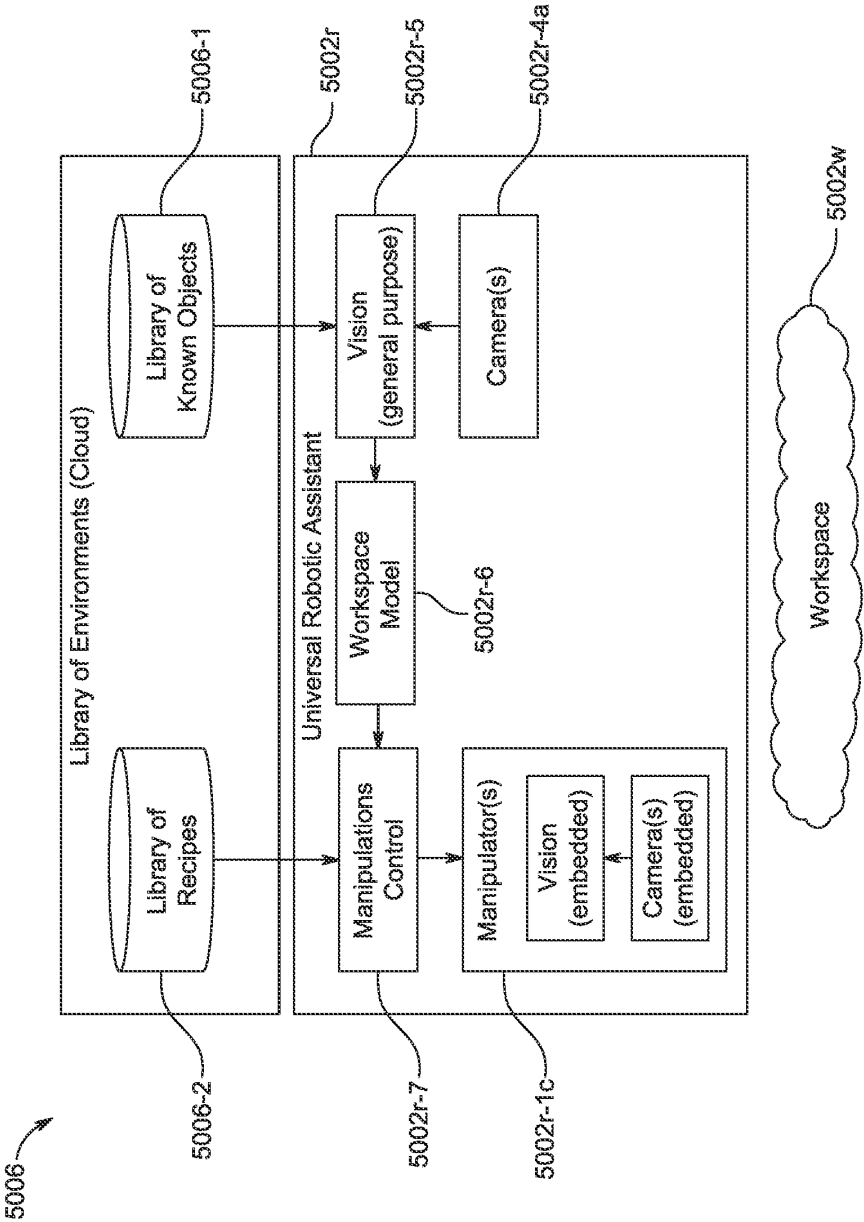


FIG. 150

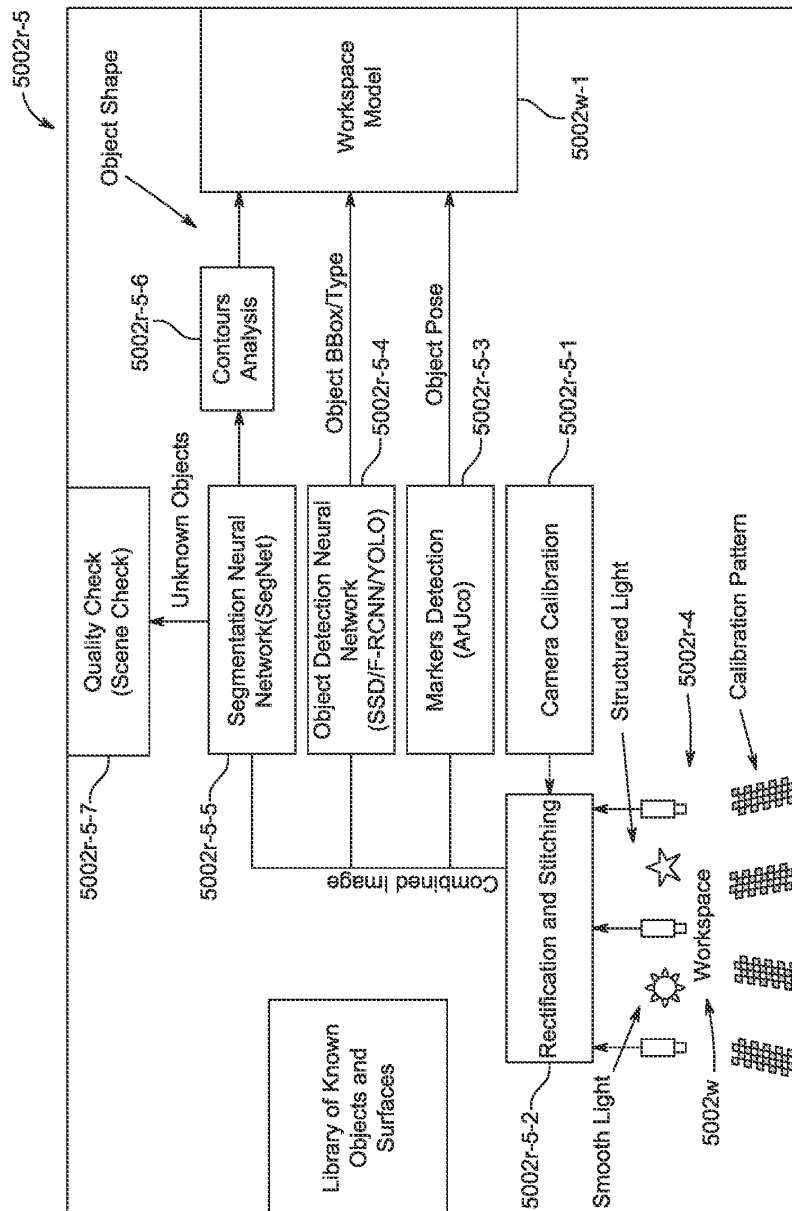


FIG. 151

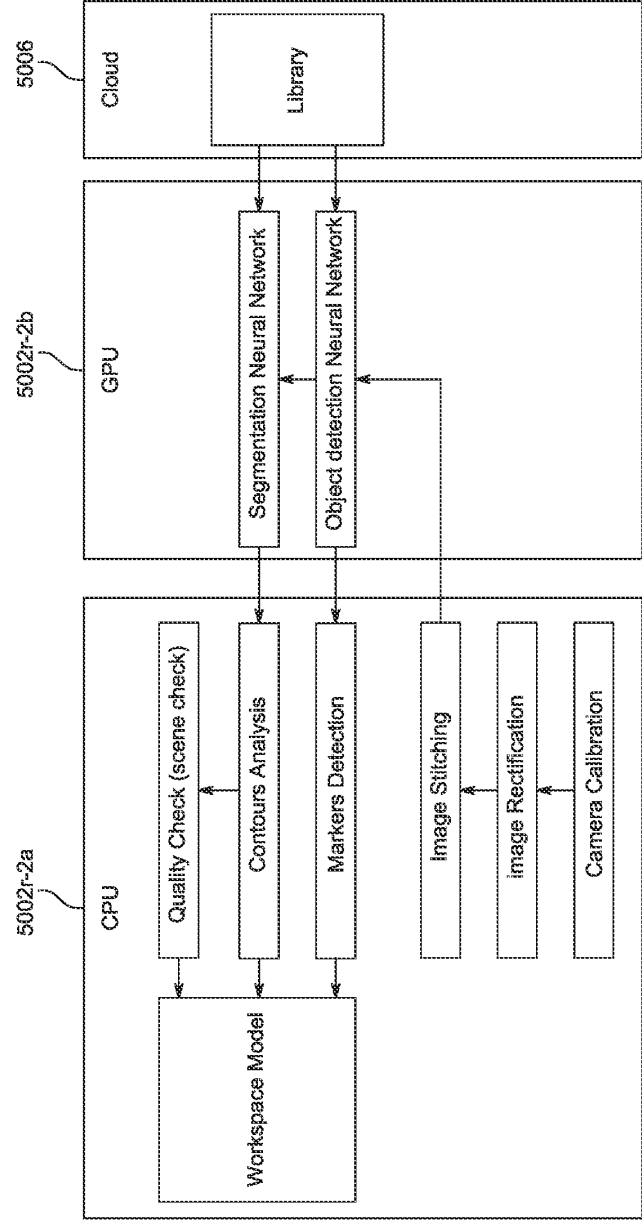


FIG. 152

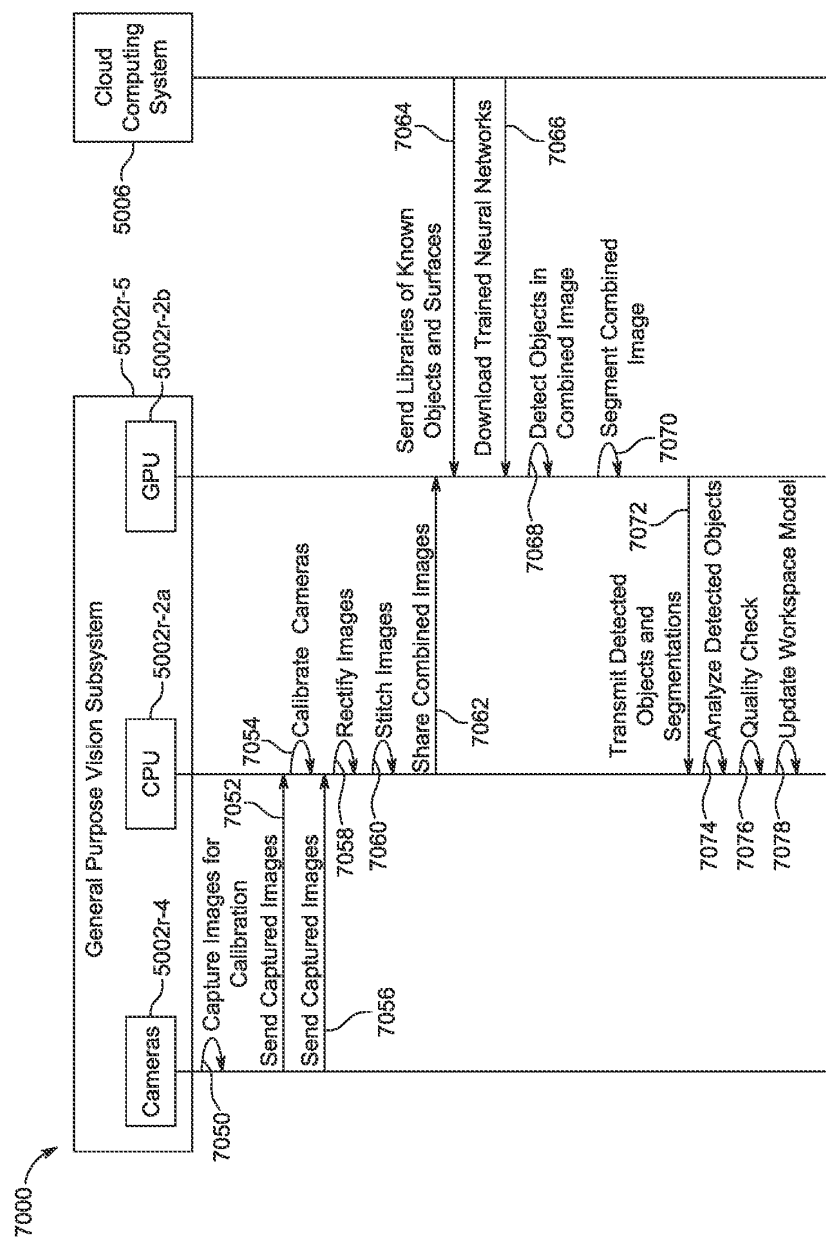


FIG. 153

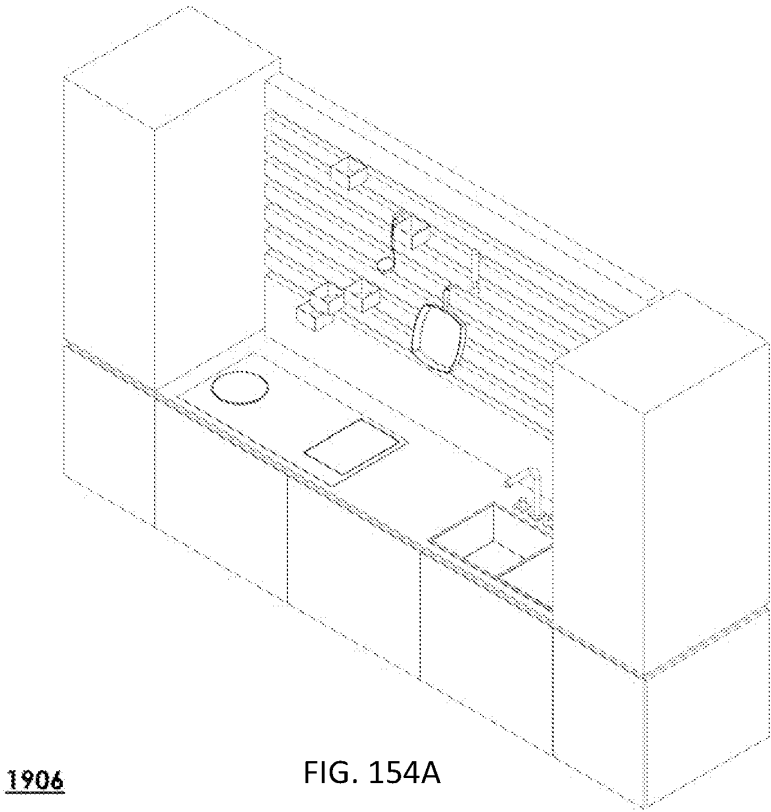


FIG. 154A

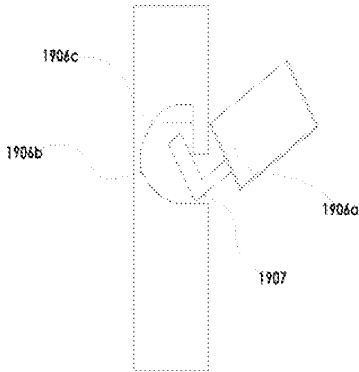


FIG. 154B

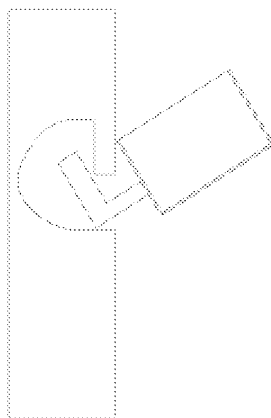


FIG. 154C

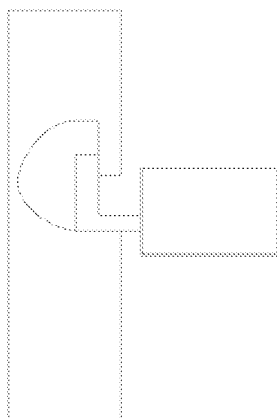


FIG. 154D

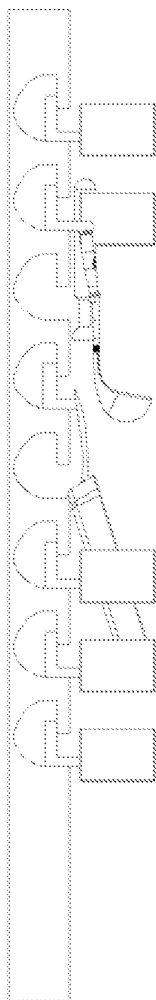
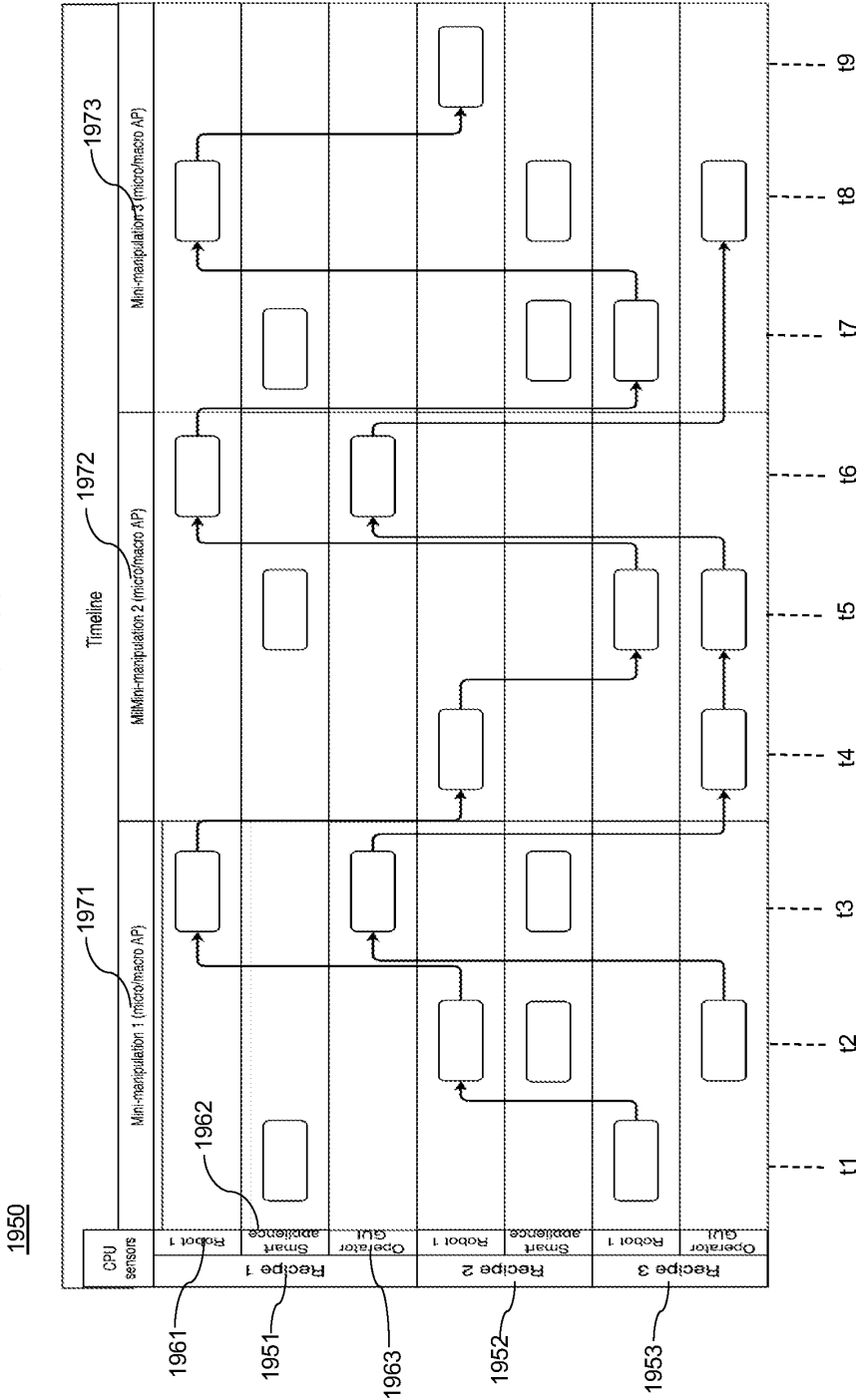


FIG. 154E

FIG. 155



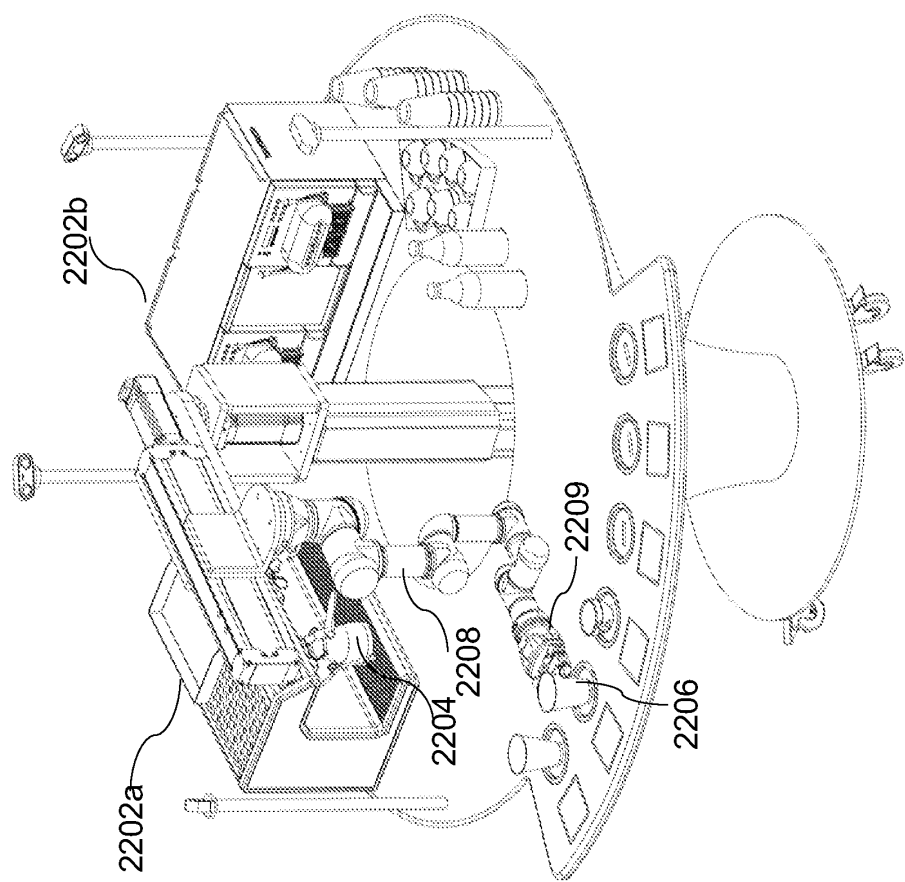


FIG. 156A

2200

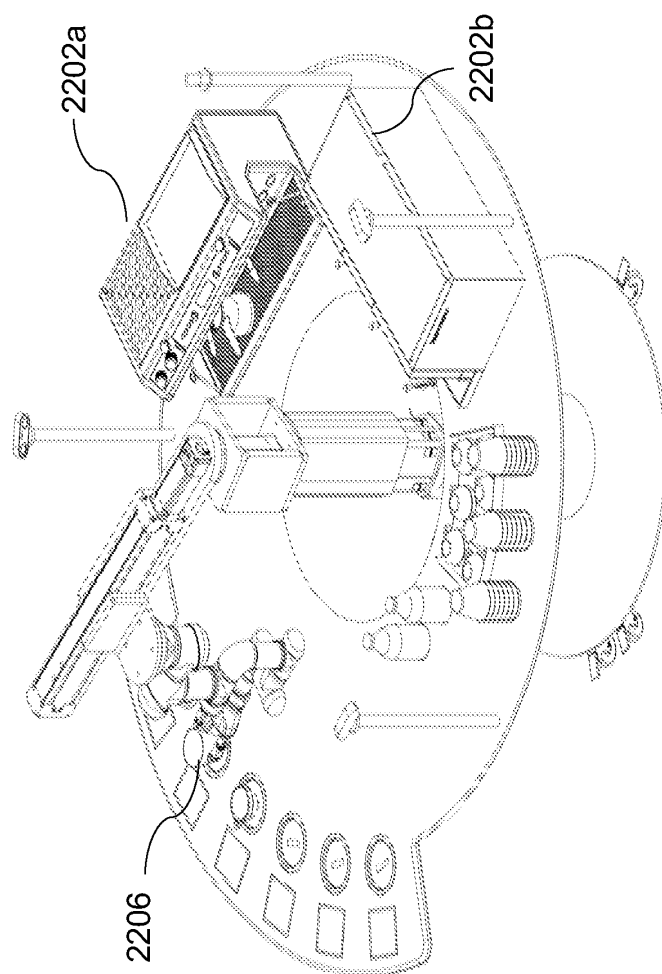


FIG. 156B

2200

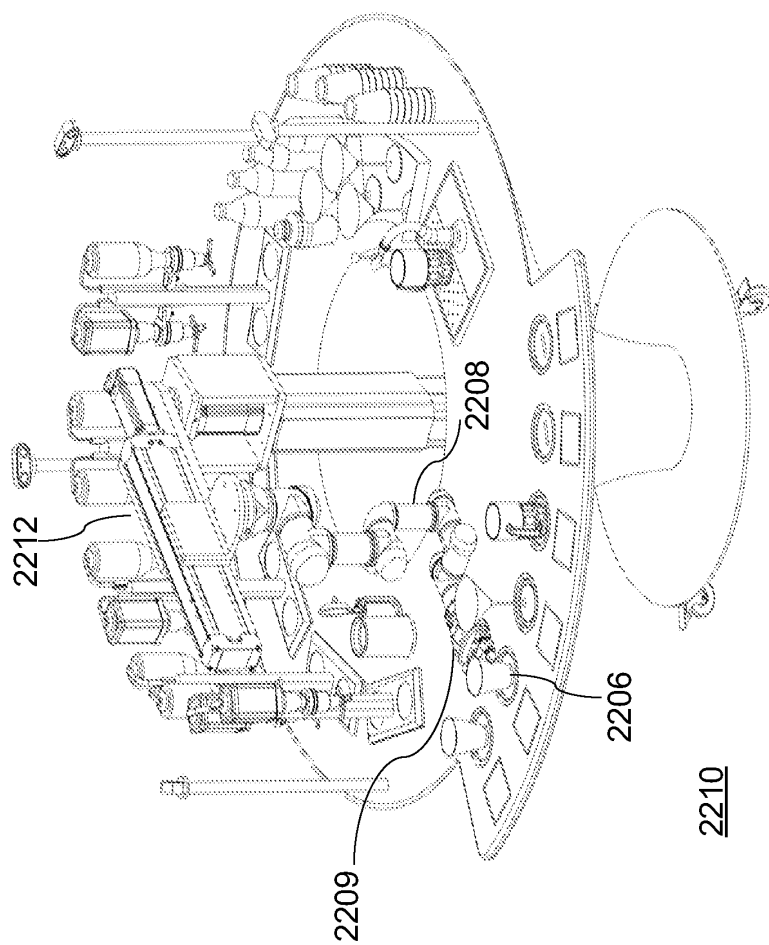


FIG. 157A

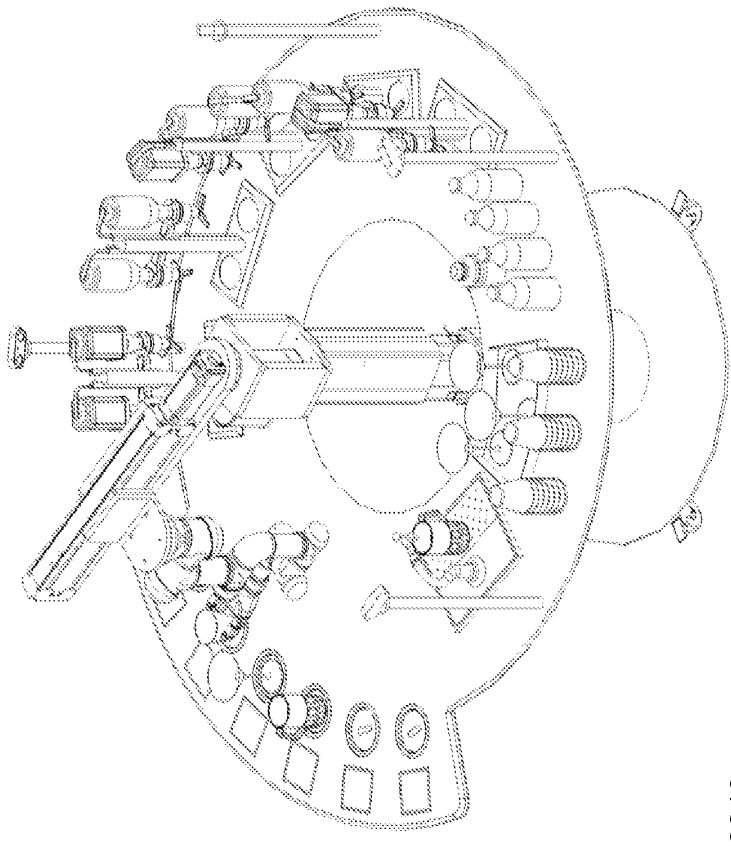


FIG. 157B

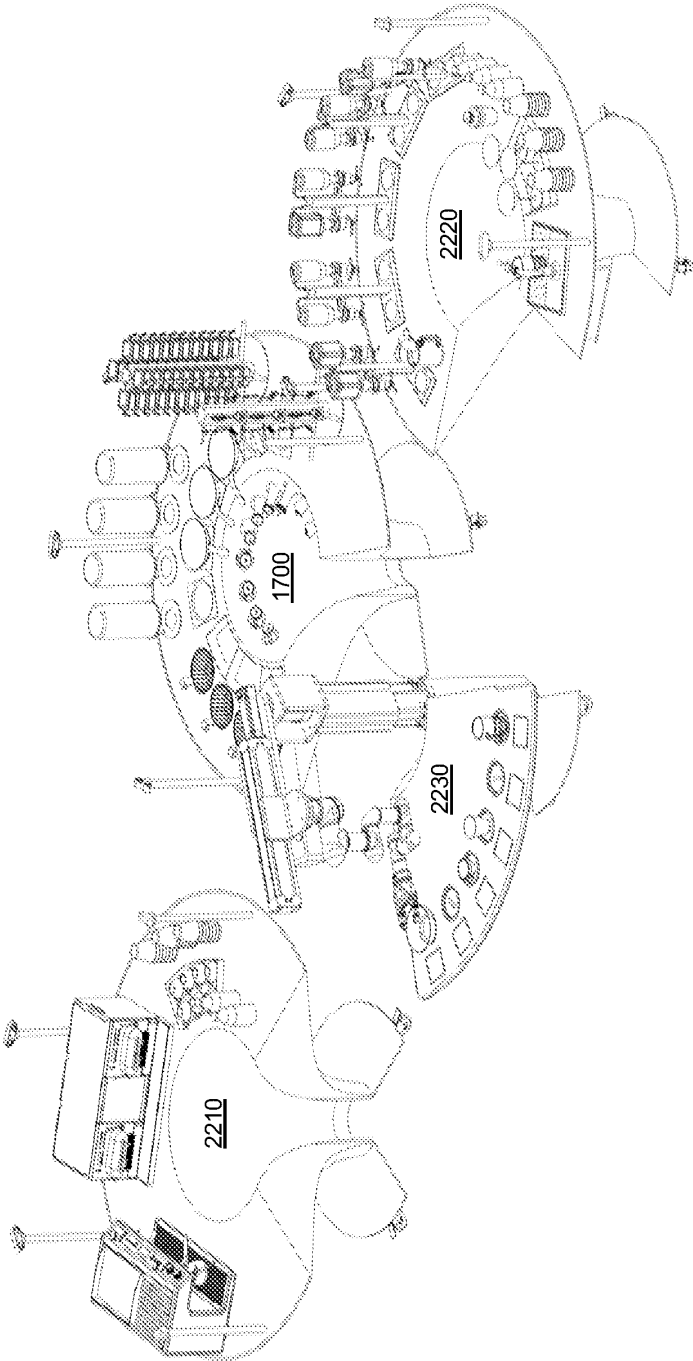


FIG. 158

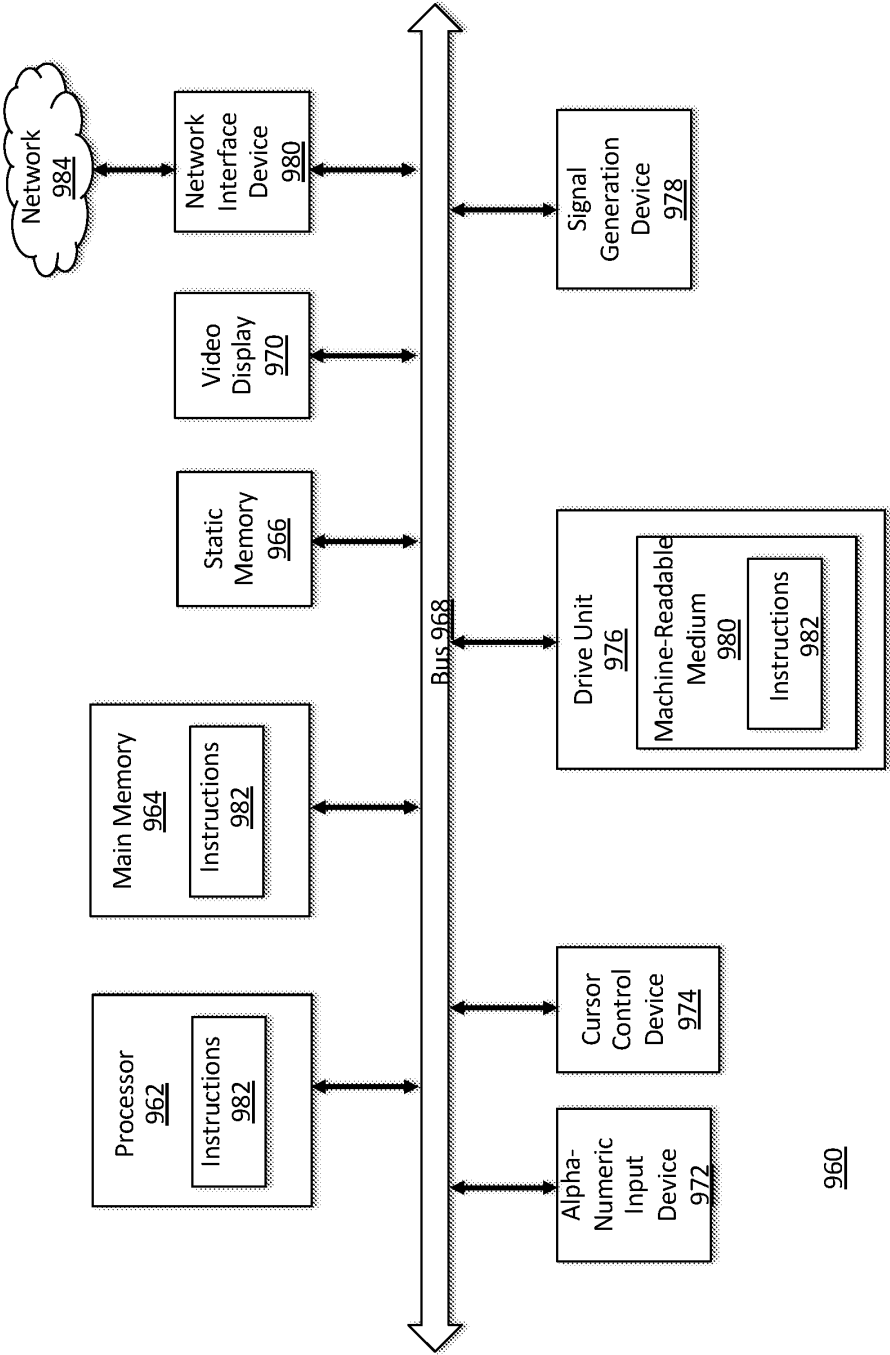


FIG. 159