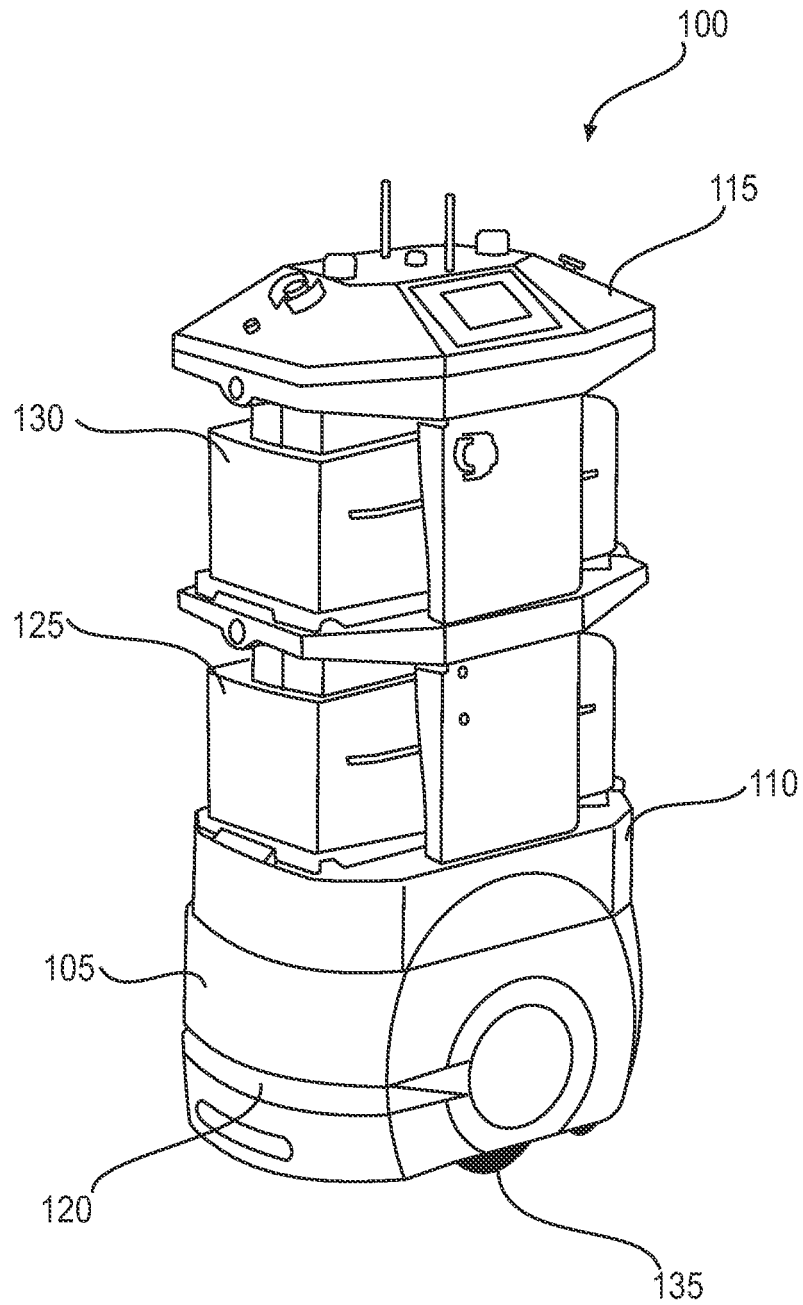


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**FIG. 1**

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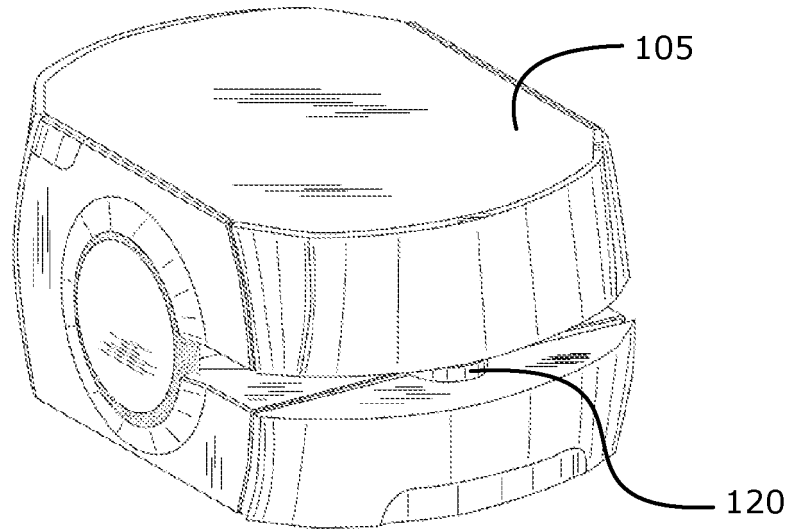


FIG. 2A

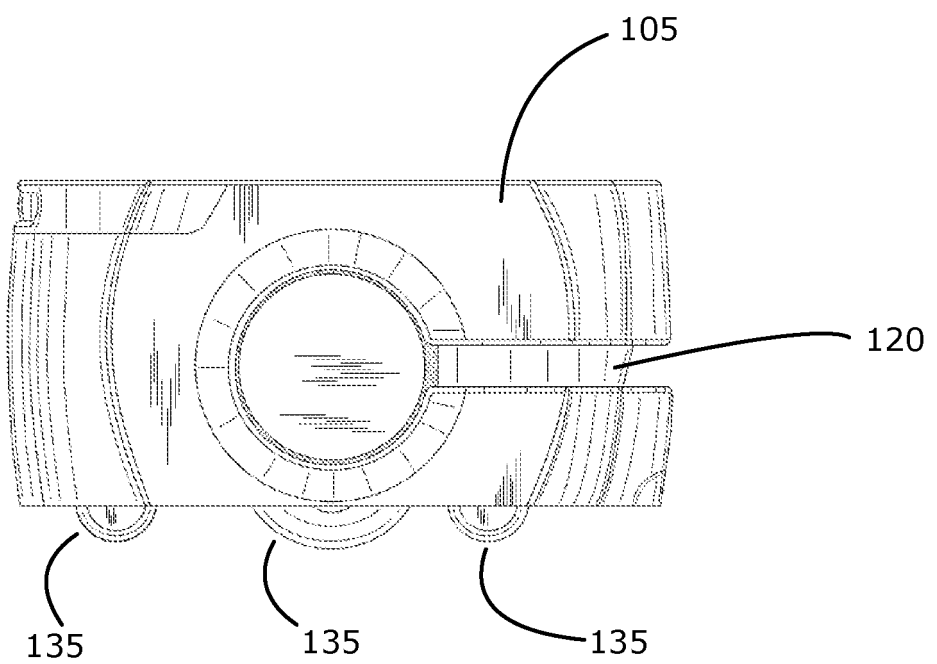


FIG. 2B

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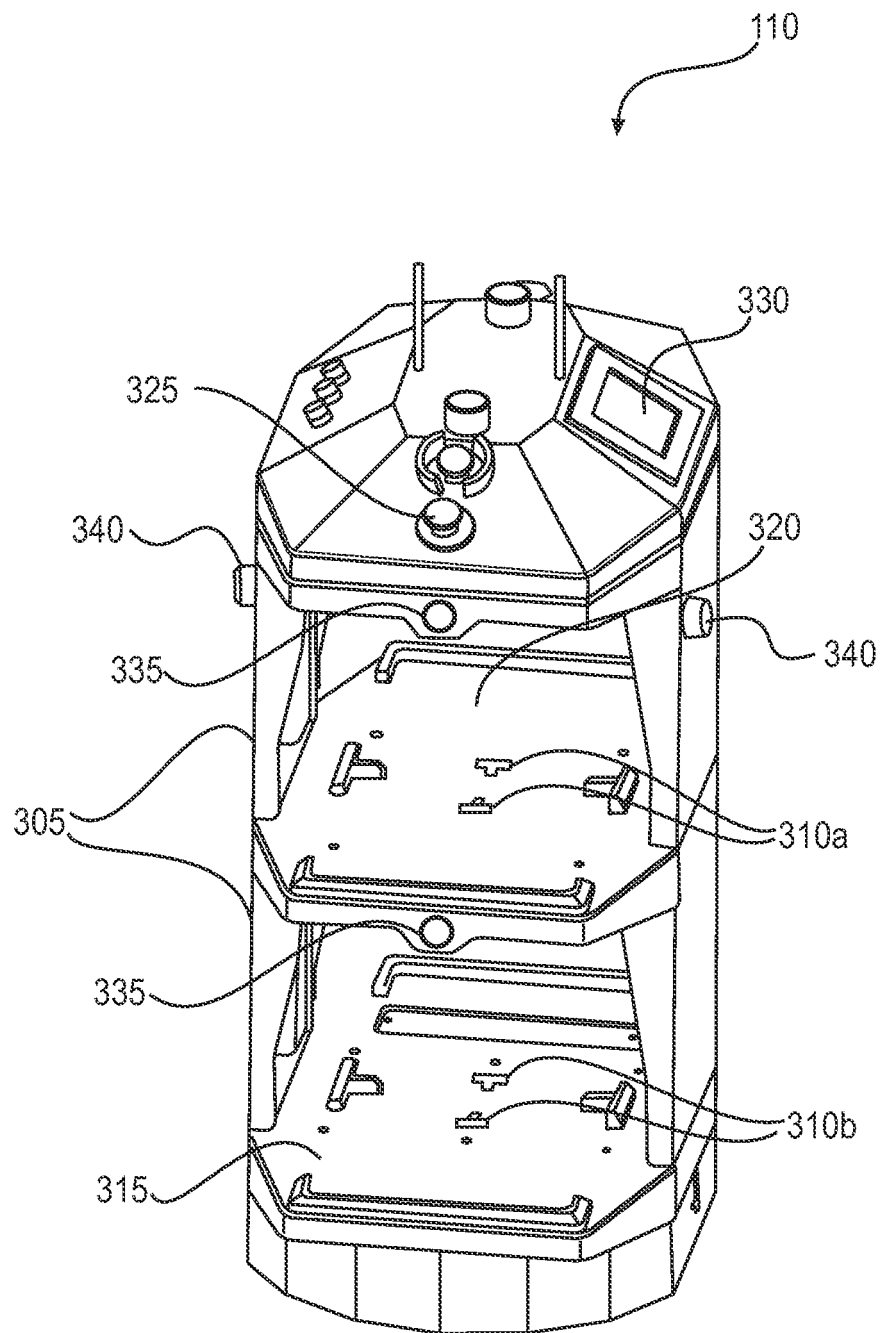


FIG. 3

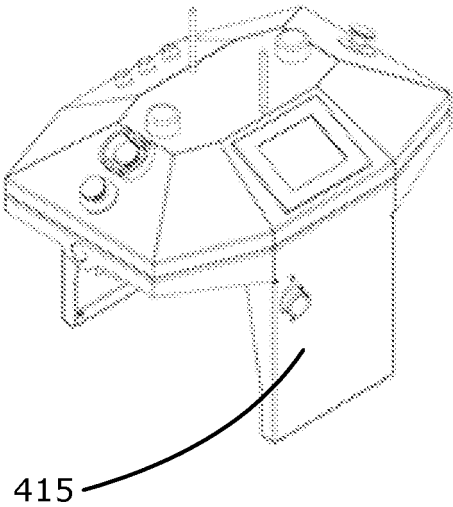


FIG. 4A

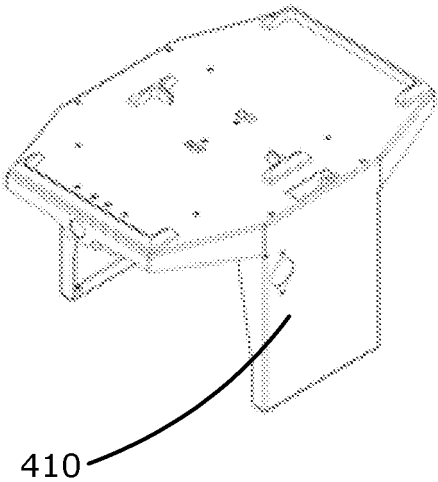


FIG. 4B

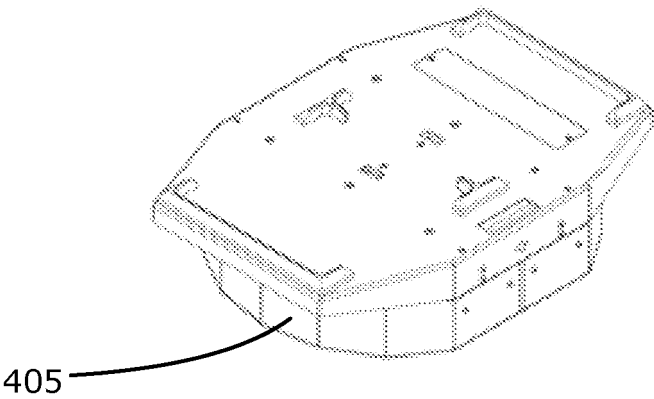


FIG. 4C

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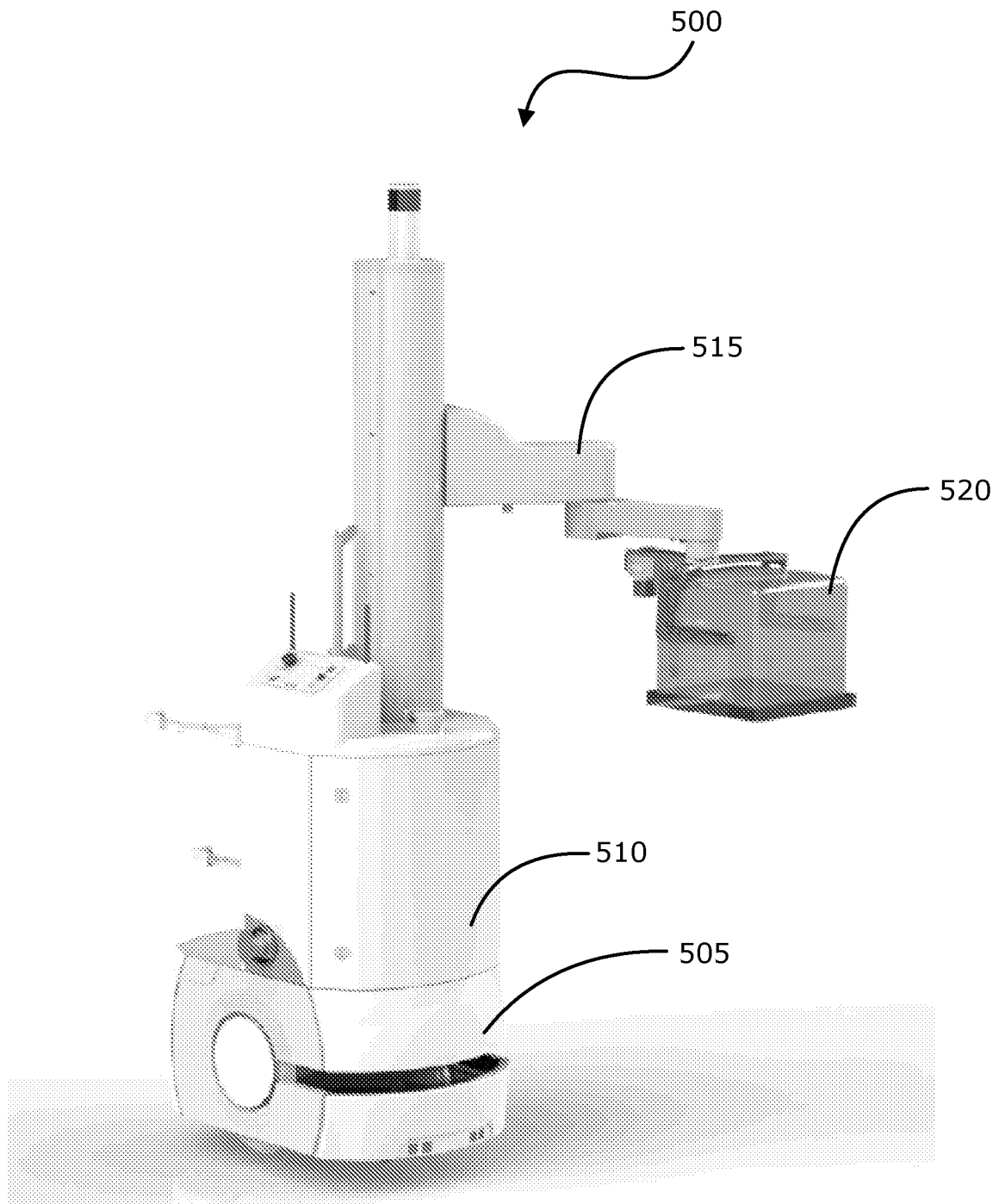


FIG. 5

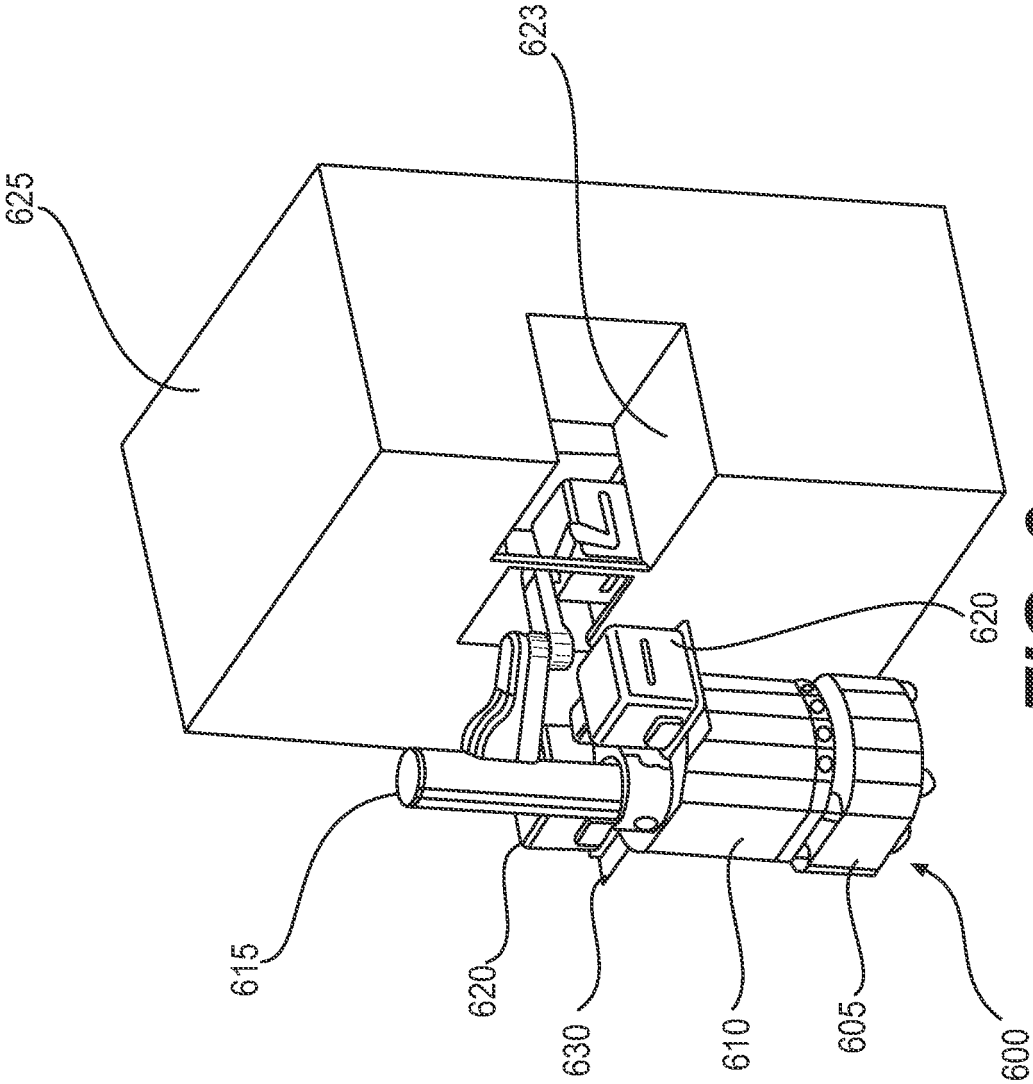
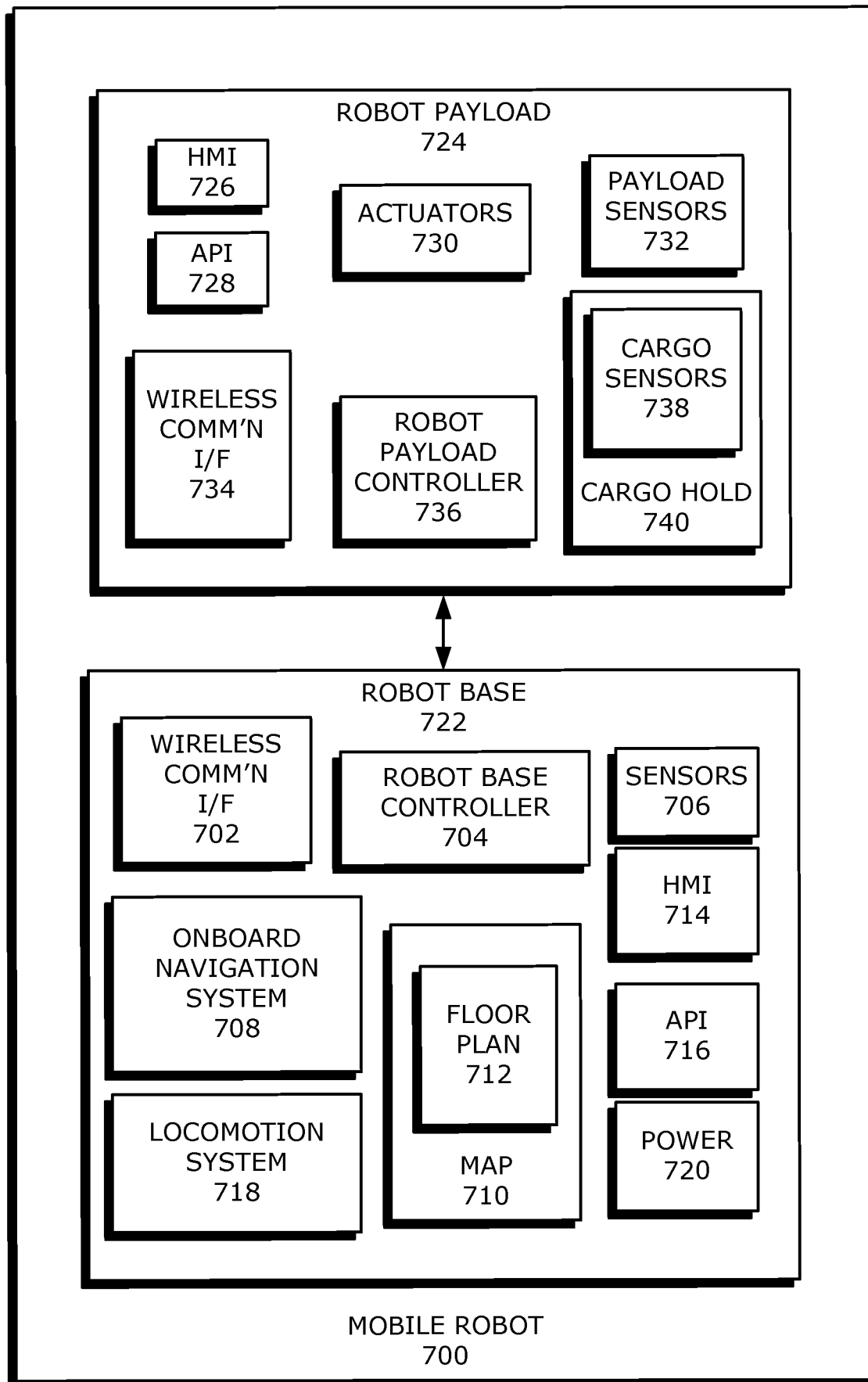
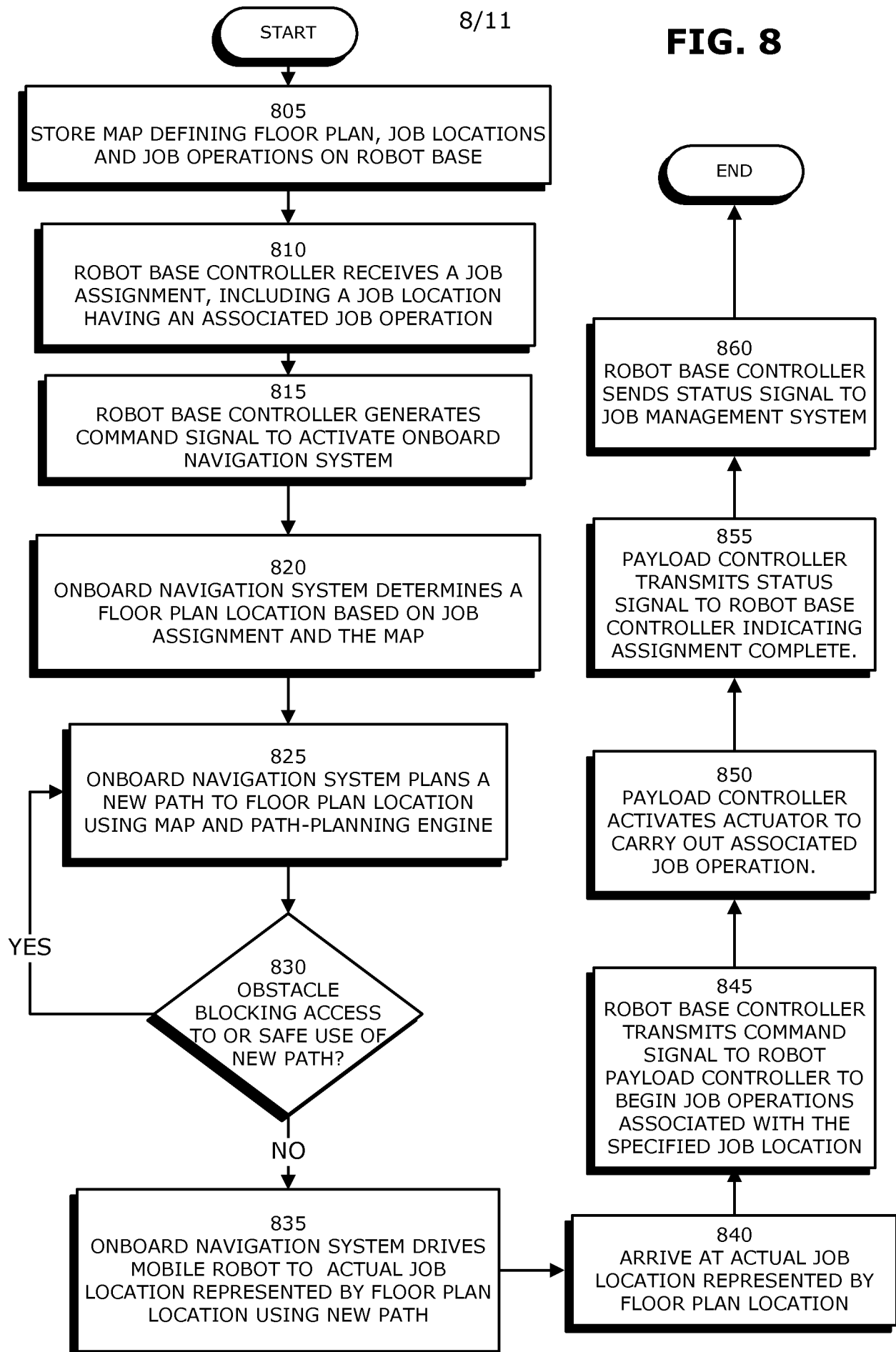


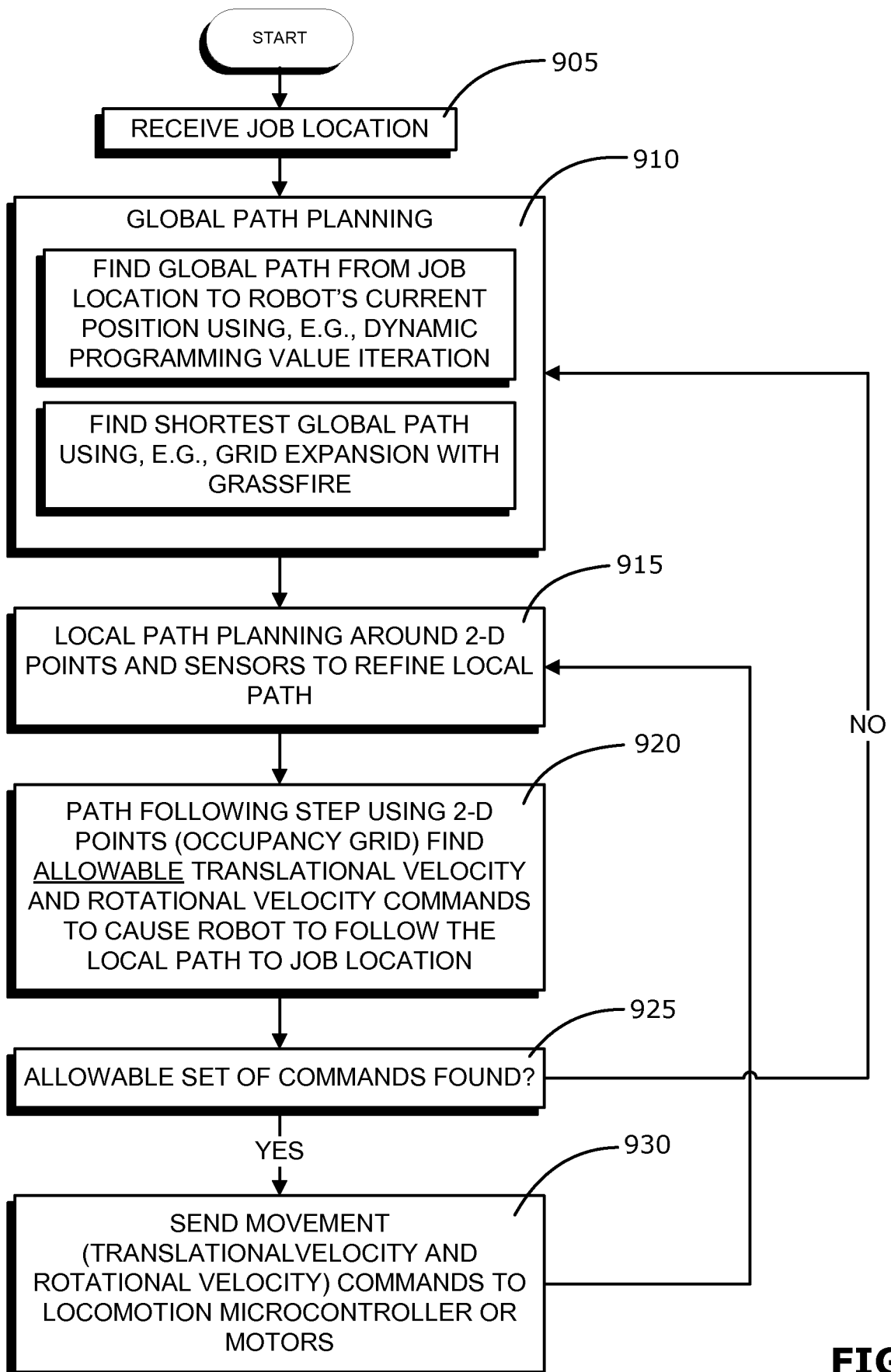
FIG. 6

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**FIG. 7**



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**FIG. 9**

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2D-Map
MapInfo: DockType "Name=Dock" "Label=Dock" "NameRequired=1" "Color0=0xffff00" "Heading=Required"
MapInfo: GoalType "Name=Goal" "Label=Goal" "NameRequired=1" "Color0=0x000000" "Color1=0x00ffff" "Color2=0x000000"
MapInfo: SectorType "Name=ResistedSector" "Label=ResistedSector" "Desc=Area that the robot will try to avoid, but will
drive through if necessary." "NameRequired=1" "Color0=0xf2ea72" "Color1=0xbea4ce" "NameRequired=1"
MapInfo: SectorType "Name=TwoWayDriveOnRightSector" "Label=PreferredDirectionRight" "Desc=Two Way Drive on Right"
"NameRequired=1" "Color0=0xad3b4" "Color1=0x91b899" "Shape=GradTwoWayDriveOnRight" "NameRequired=1"
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector17" -22940 -14446 -14715 -12764
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector14" -22794 -12582 -7732 -10205
Cairn: GoalWithHeading -20215 -8485 -87.900000 " " ICON "Mechanical"
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector18" -18240 -10369 -14050 -9911
Cairn: Goal -13843 -3856 0.000000 " " ICON "Software"
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector15" -12453 -10401 -9276 -9816
Cairn: ResistedSector 0 0 90.000000 " " ICON "ResistedSector13" -7824 15631 -6354 16802
Cairn: Goal -7126 -16086 0.000000 " " ICON "Empty Conference"
Cairn: Goal -5823 -7570 0.000000 " " ICON "RD Lab West Mid"
Cairn: GoalWithHeading -5693 -1653 135.145272 " " ICON "RD Lab West North"
Cairn: GoalWithHeading -3908 -28384 -179.800000 " " ICON "Offices"
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector12" -1804 -10937 1082 -7773
Cairn: TwoWayDriveOnRightSector 0 0 0.000000 " " ID=13346 "PreferredDirectionRight1" 2271 -18108 14449 -13021
Cairn: ResistedSector 0 0 0.000000 " " ICON "ResistedSector16" 3896 -27097 6854 -25557
Cairn: GoalWithHeading 4195 -28833 -80.258274 " " ICON "Hall Entry"
Cairn: GoalWithHeading 5868 -10253 -90.000000 " " ICON "RD Mid"
Cairn: GoalWithHeading 17212 -1515 -90.000000 " " ID=3145776 "RD Northeast"
Cairn: Goal 18401 -17381 0.000000 " " ICON "Closet"
Cairn: GoalWithHeading 19220 -25601 -154.771535 " " ICON "Training"
Cairn: Goal 21597 -7451 0.000000 " " ICON "RD comm_support"
LINES
-24162 -6218 -21563 -6227
-24148 -2057 -24162 -6218
-24141 168 -24148 -2057
-24096 -10015 -24097 -13709
-24096 -1842 -24096 -1843

```

FIG. 10

FIG. 11

