

FIG. 1

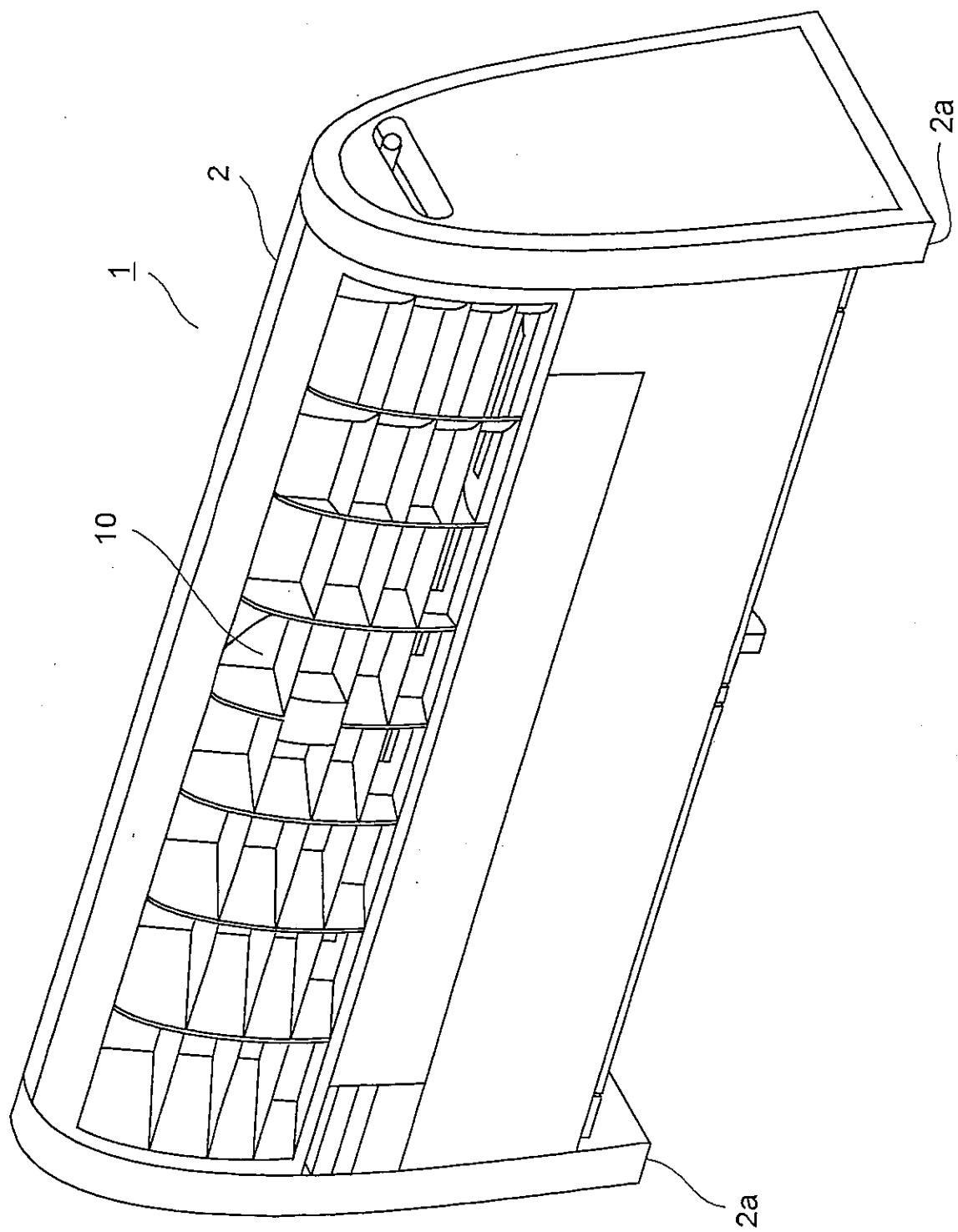


FIG.2

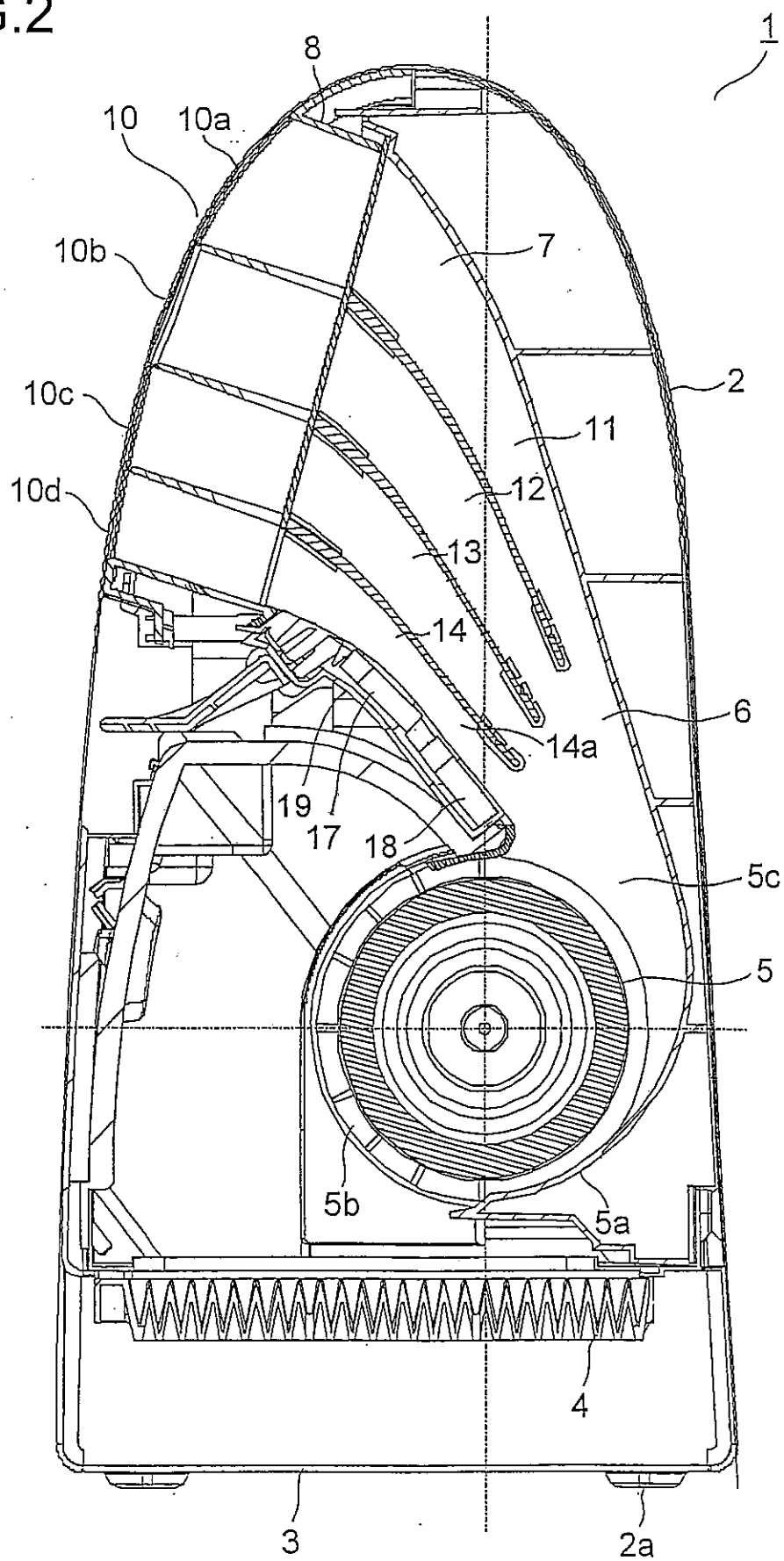


FIG.3A

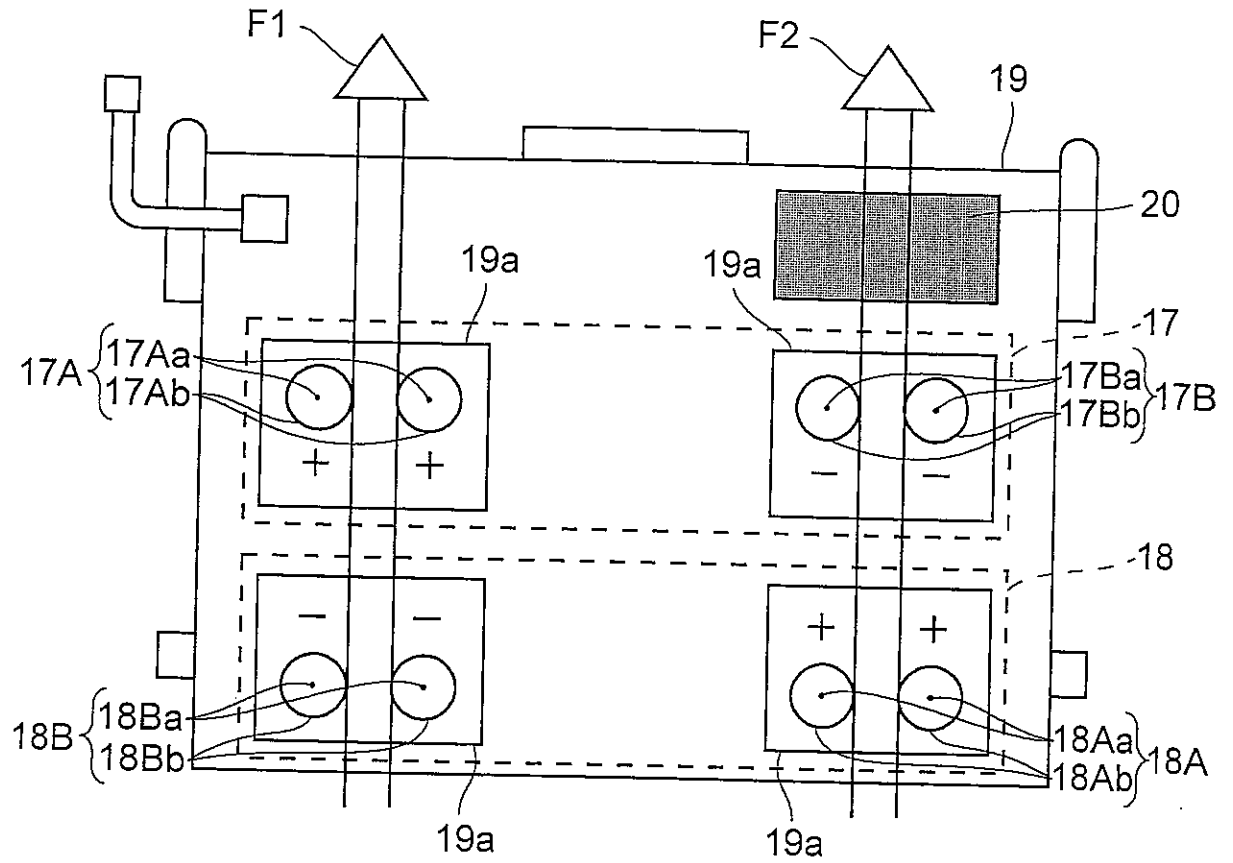


FIG.3B

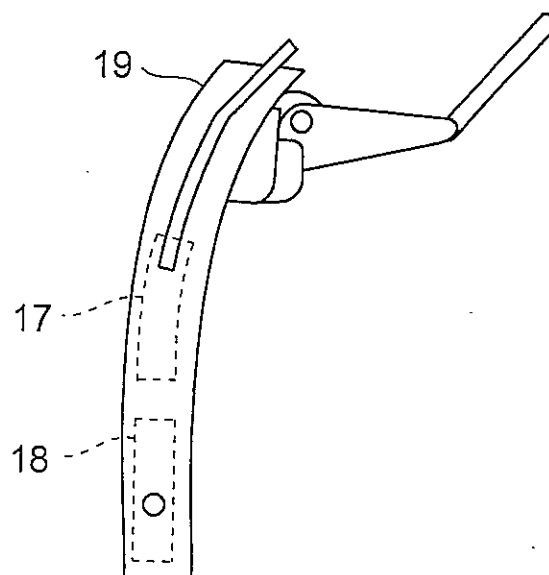


FIG.4

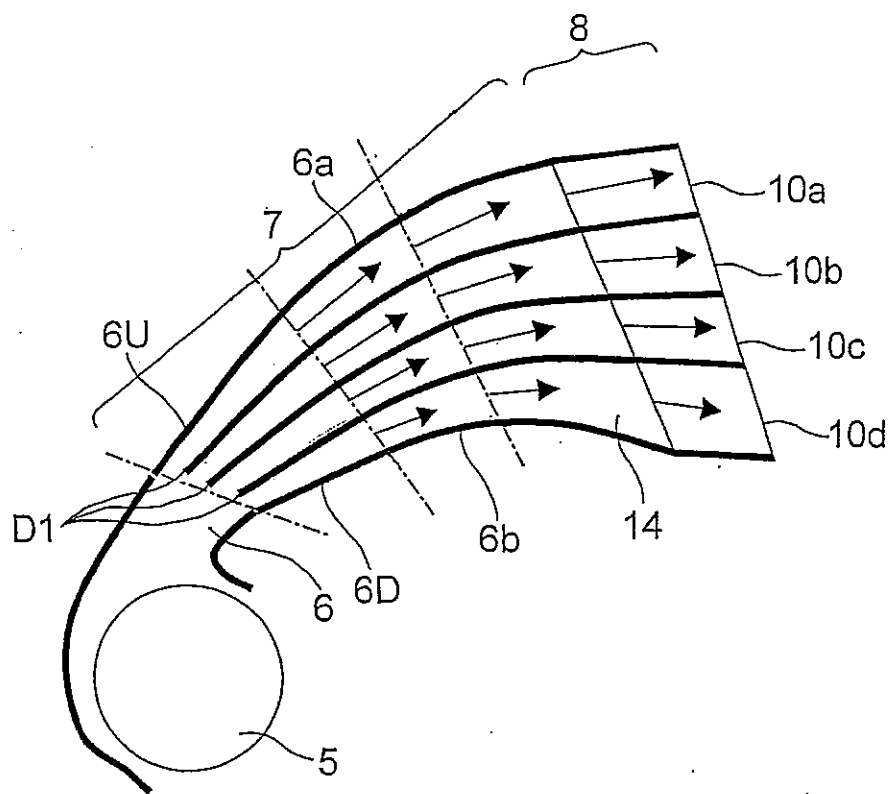


FIG. 5

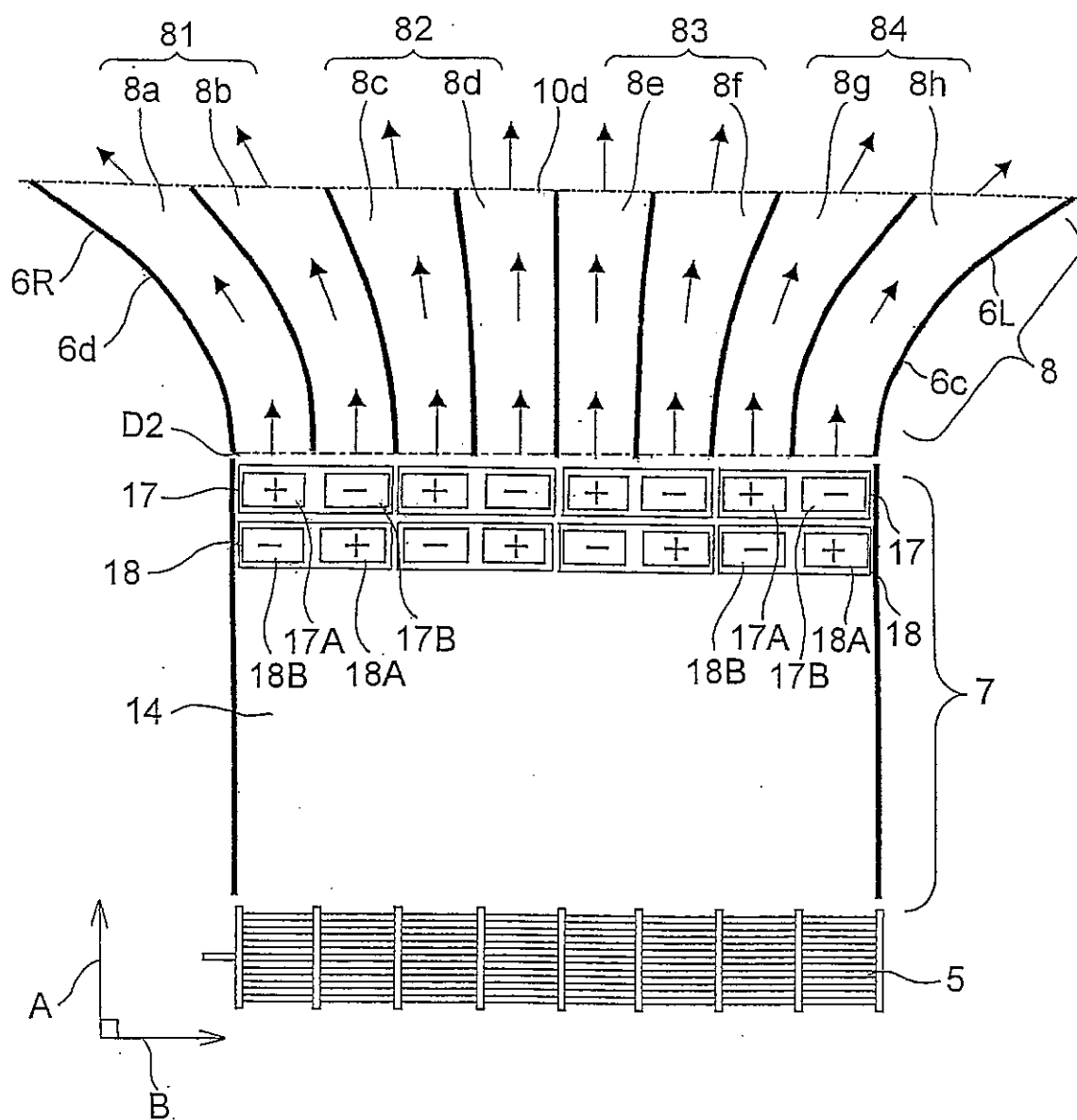


FIG.6

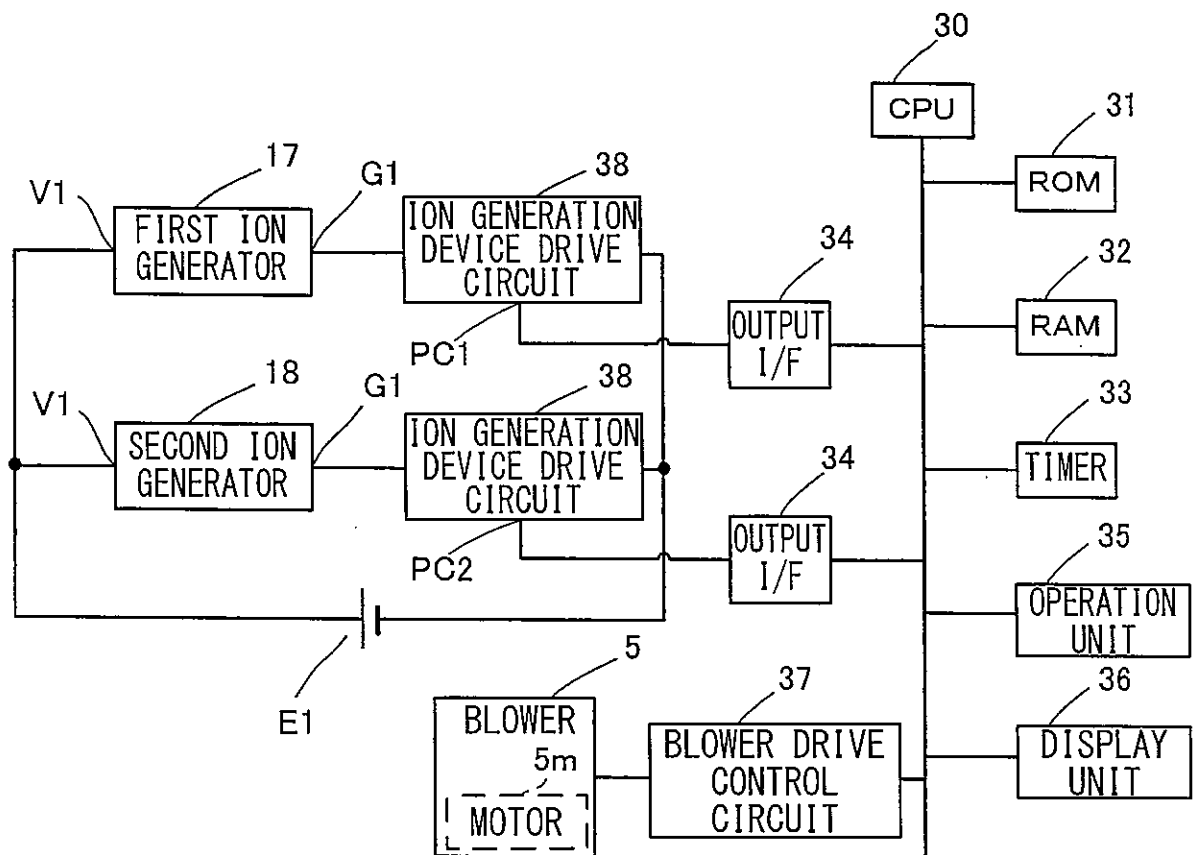


FIG.7

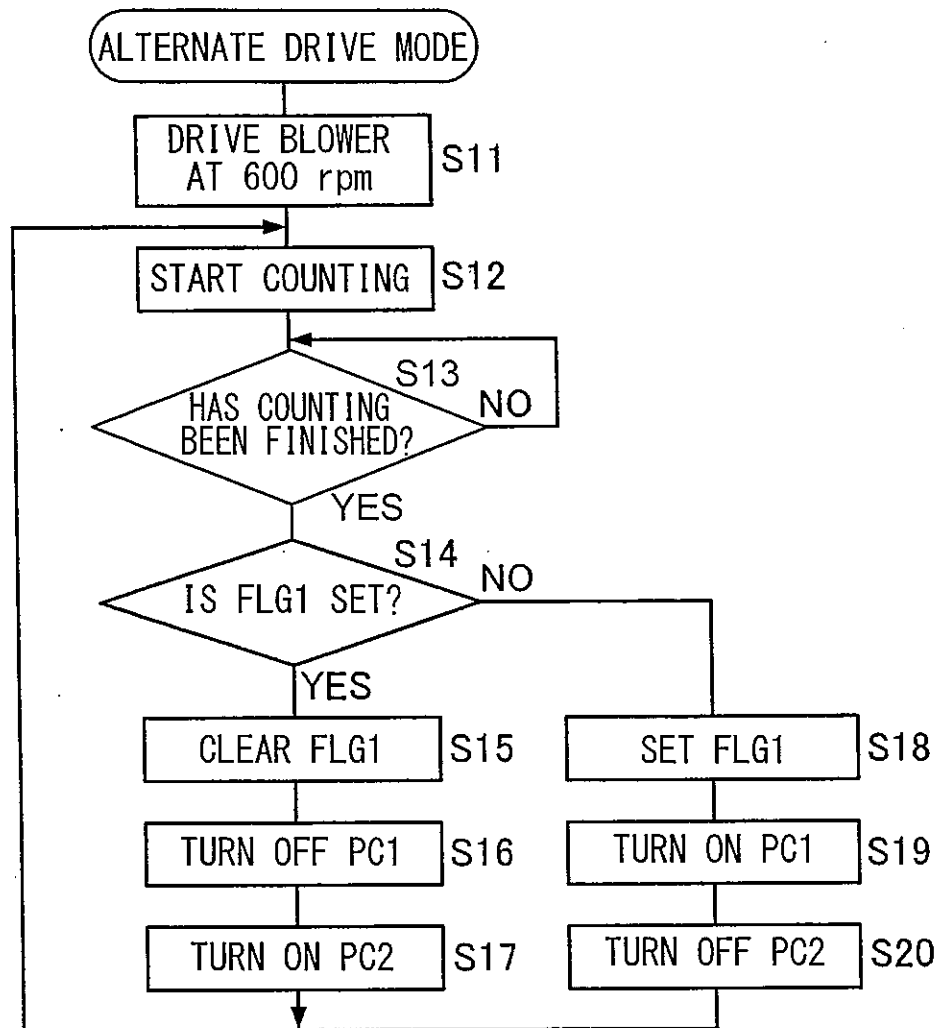


FIG.8

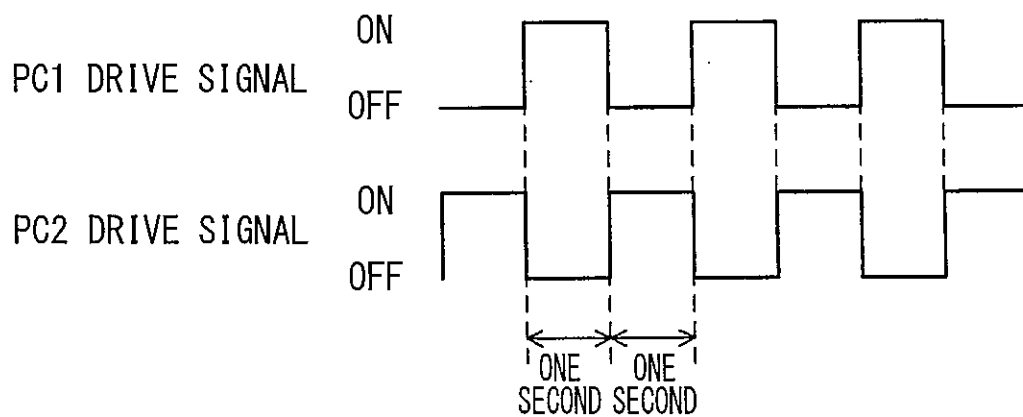


FIG.9A

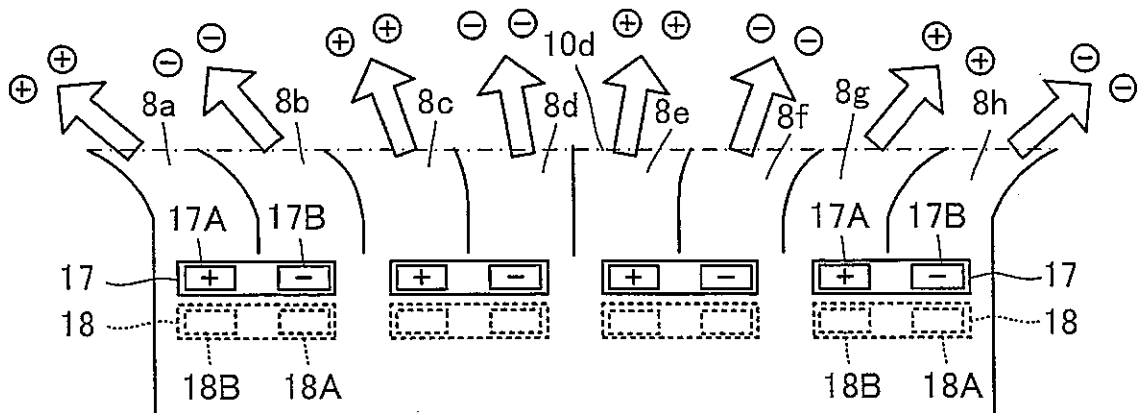


FIG.9B

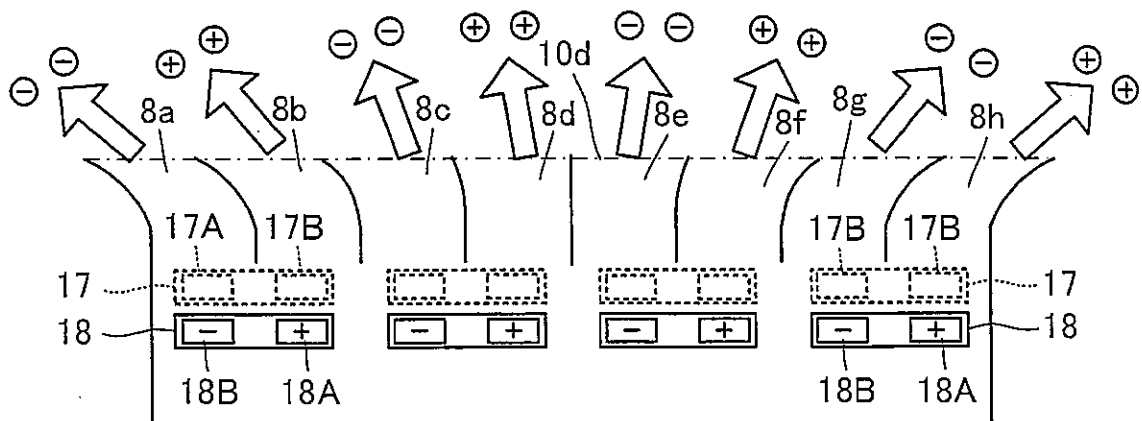


FIG.10

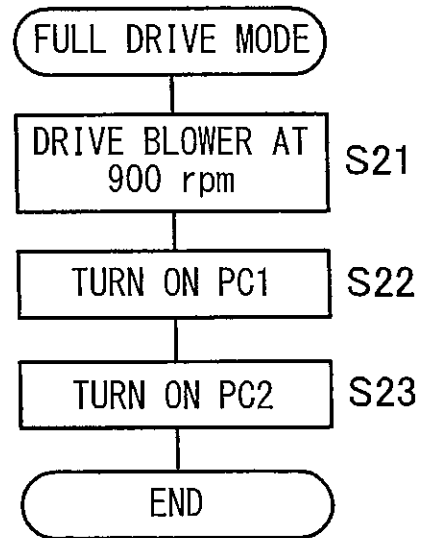


FIG.11

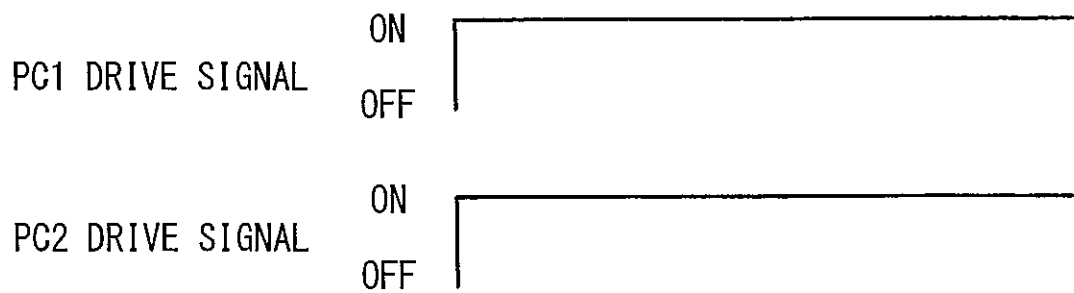


FIG.12

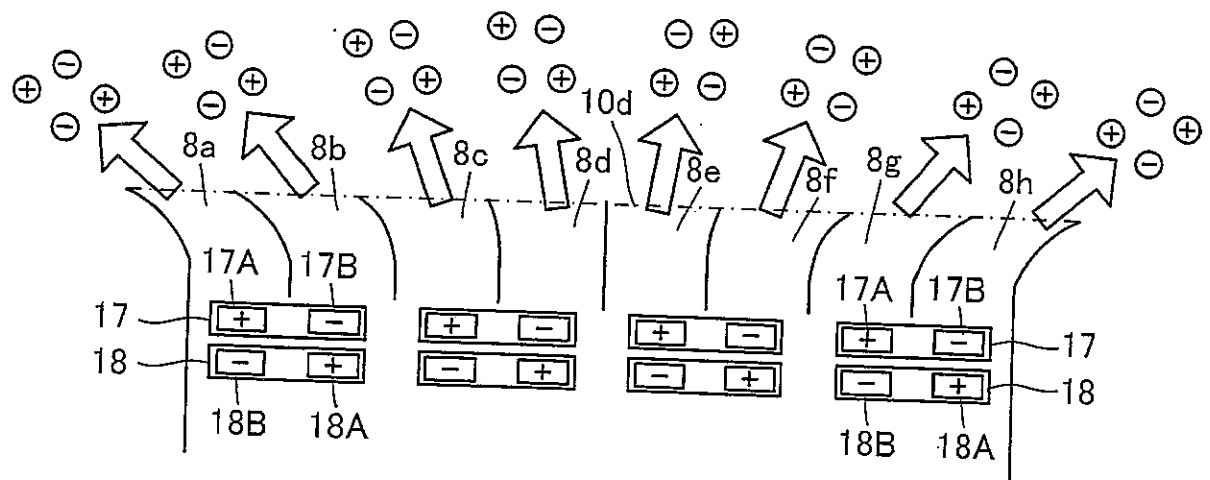


FIG. 13

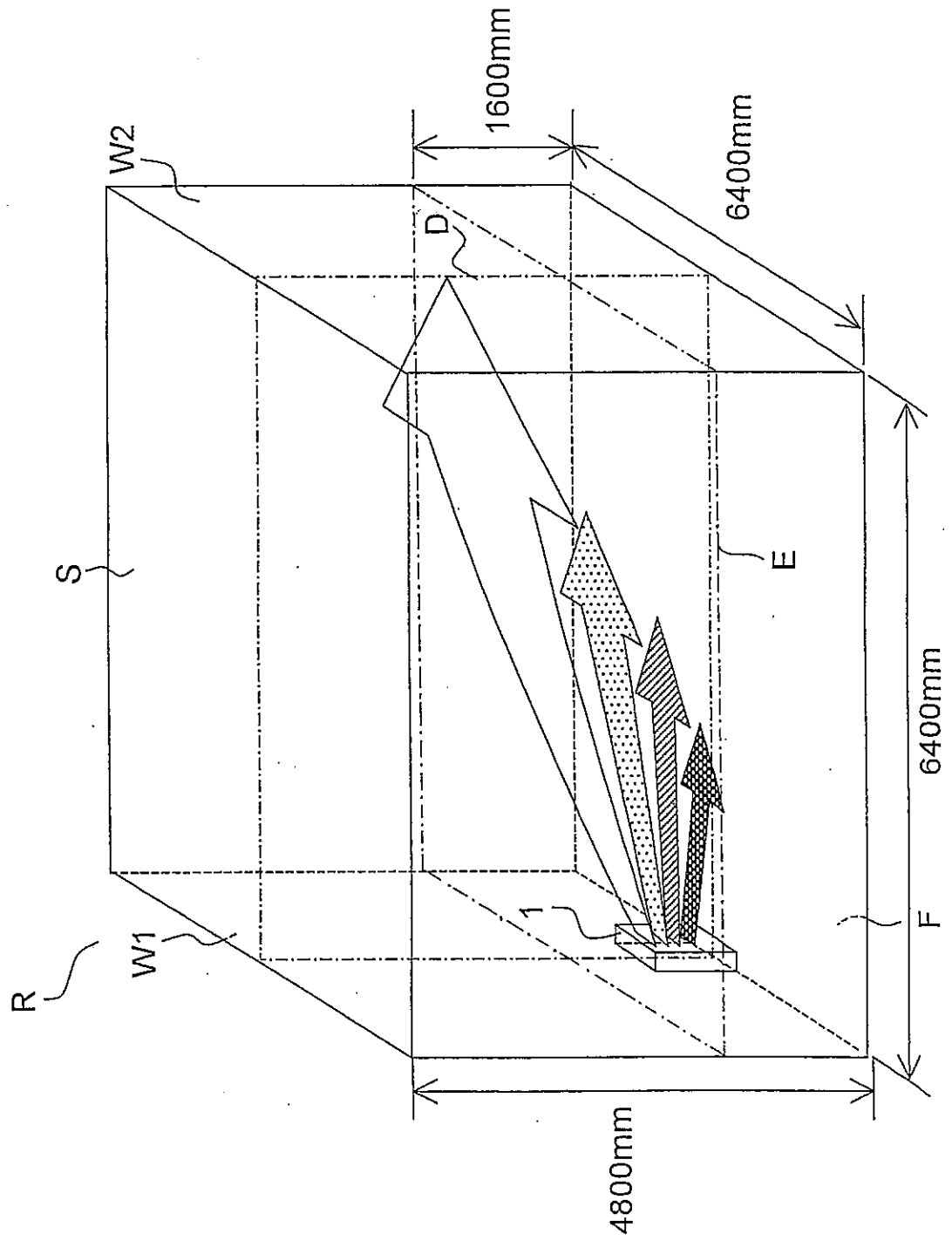


FIG. 14

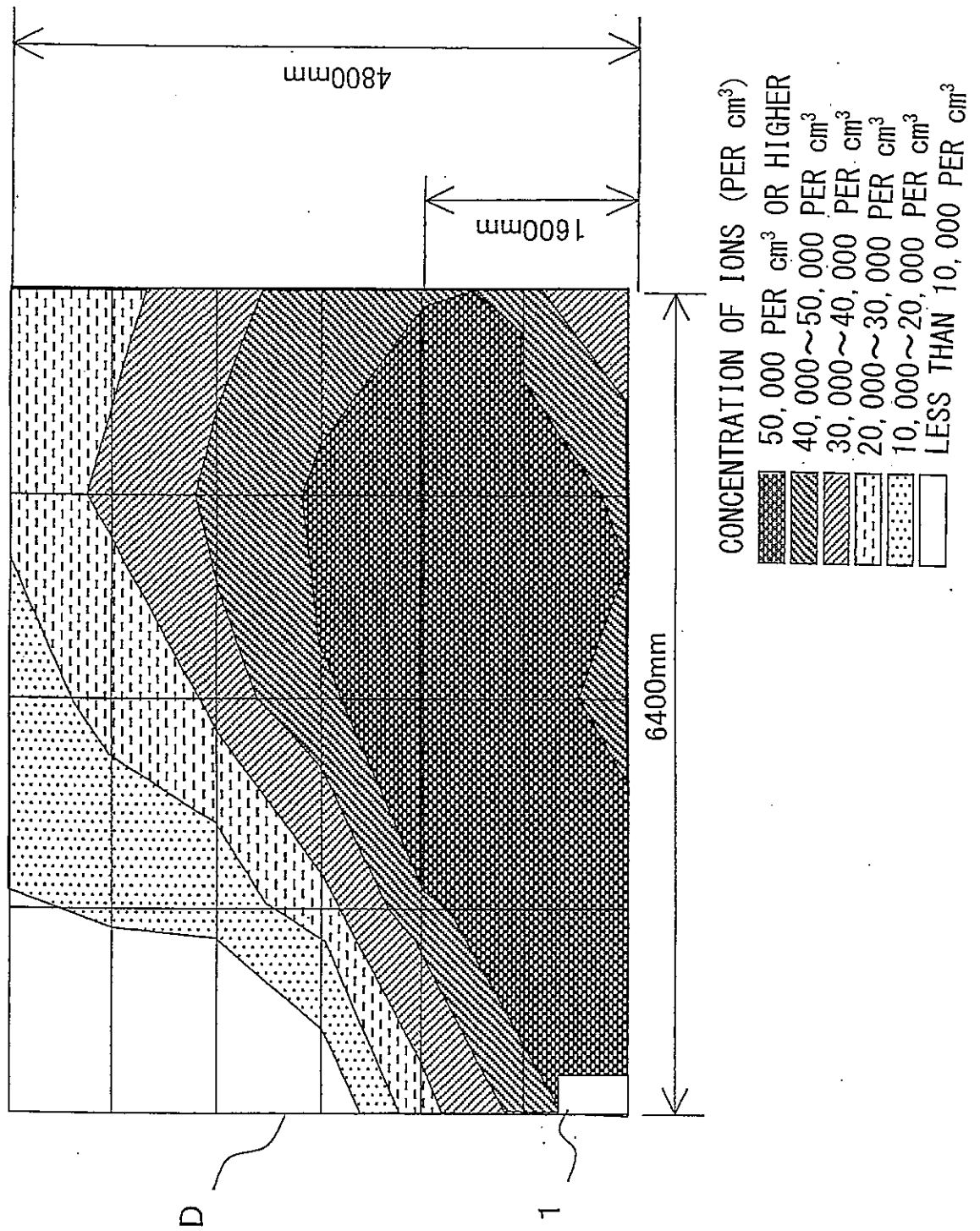
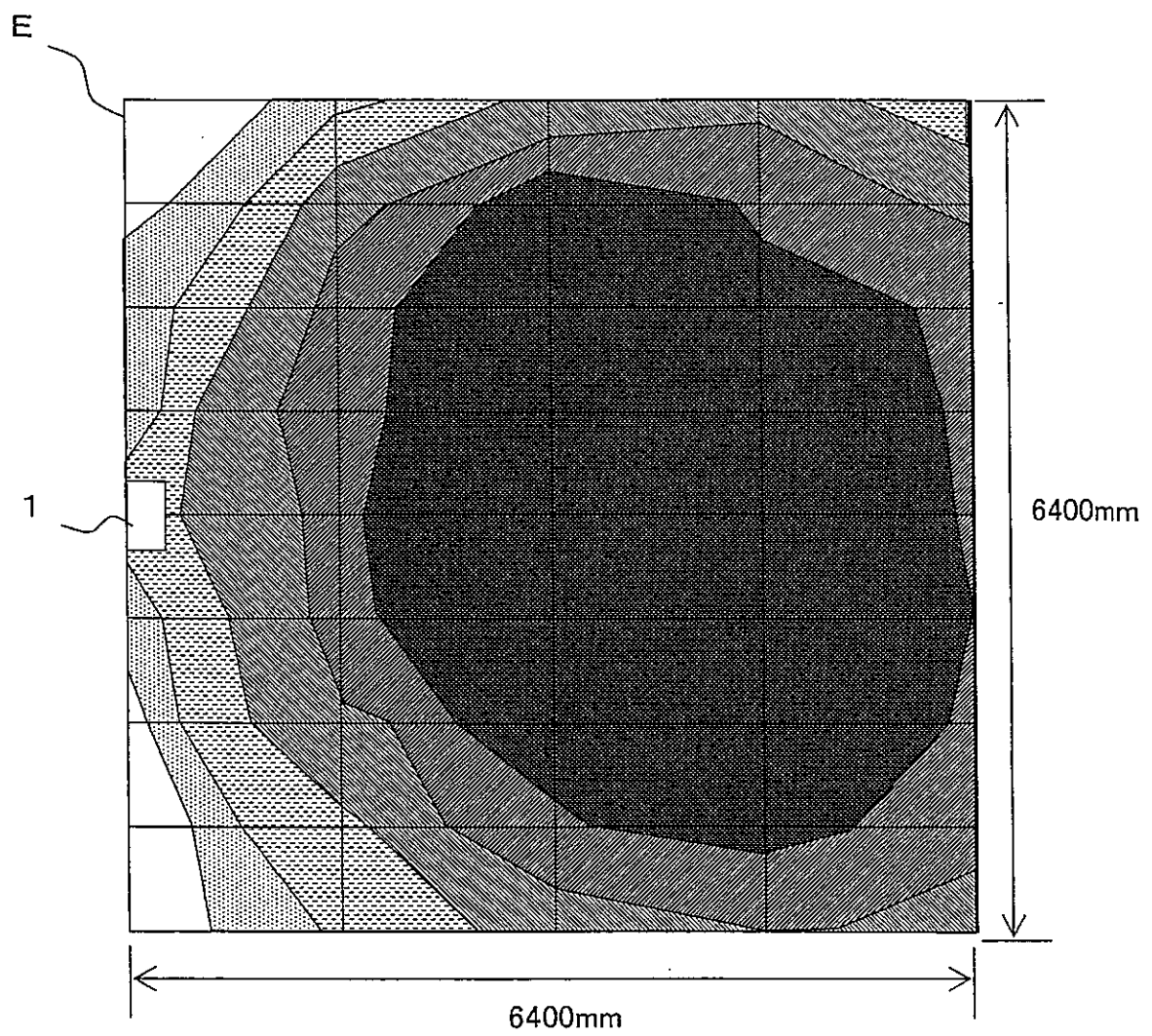


FIG.15



CONCENTRATION OF IONS (PER cm^3)

	50,000 PER cm^3 OR HIGHER
	40,000~50,000 PER cm^3
	30,000~40,000 PER cm^3
	20,000~30,000 PER cm^3
	10,000~20,000 PER cm^3
	LESS THAN 10,000 PER cm^3

FIG. 16

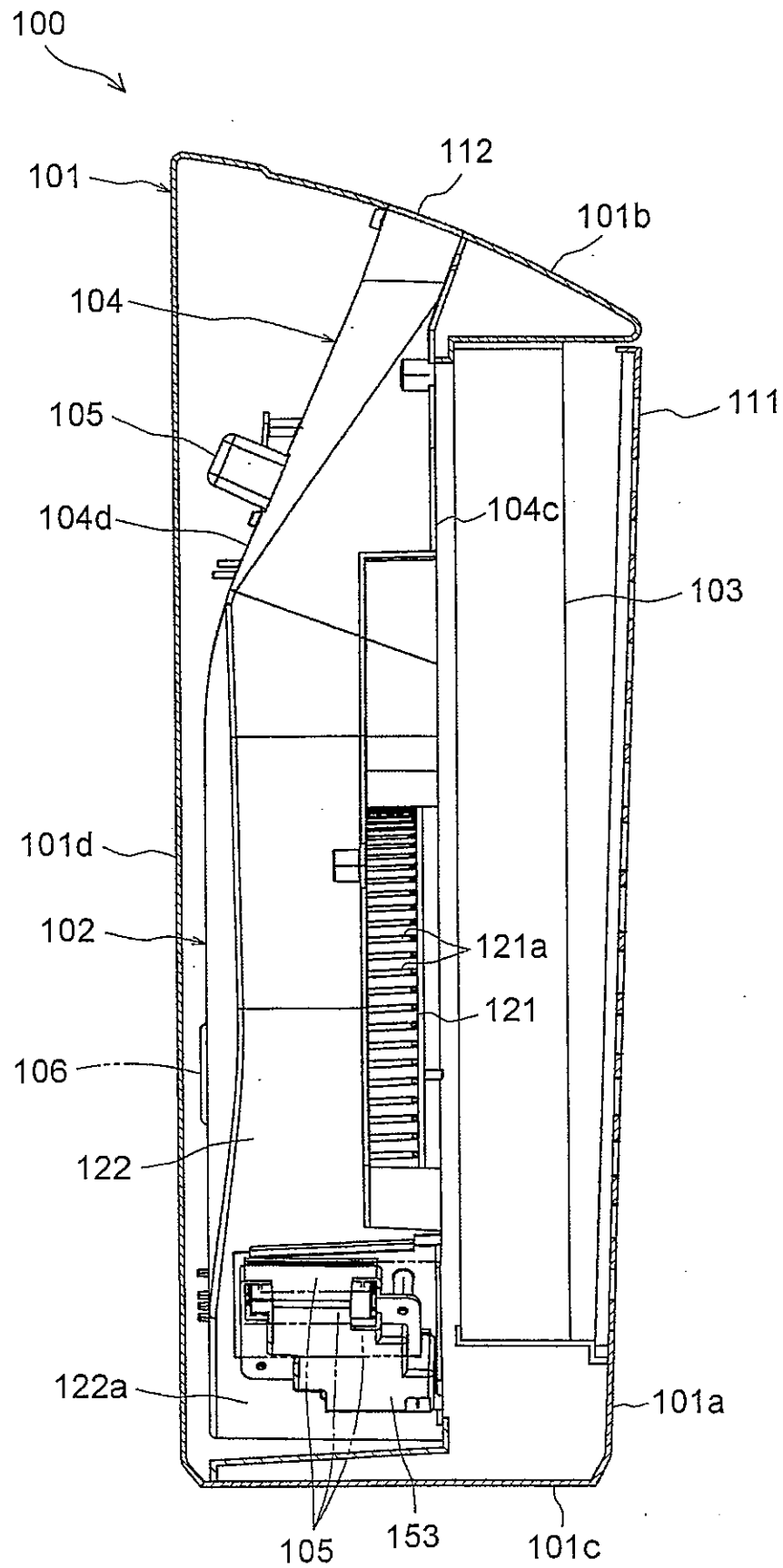


FIG. 17

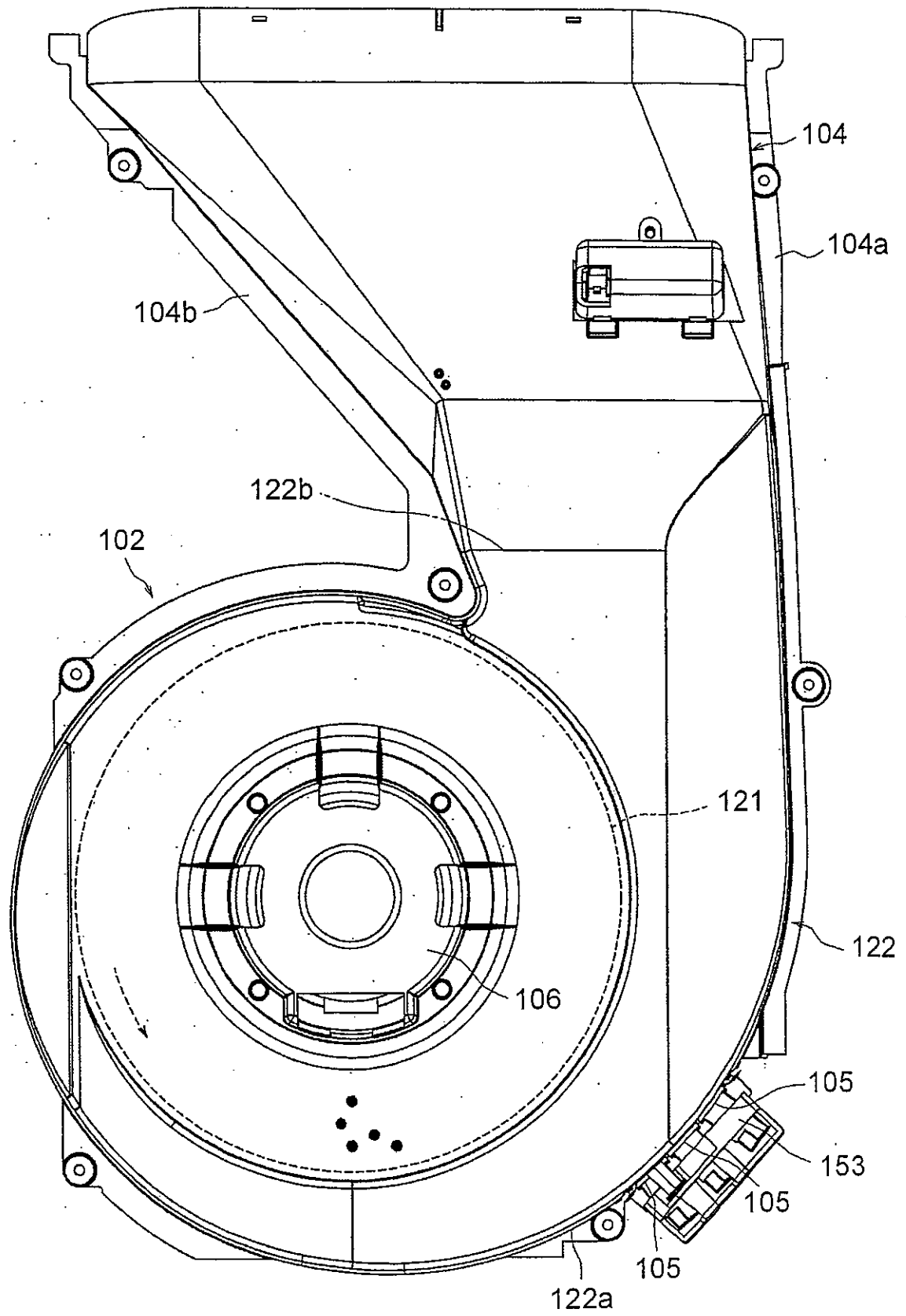


FIG.18

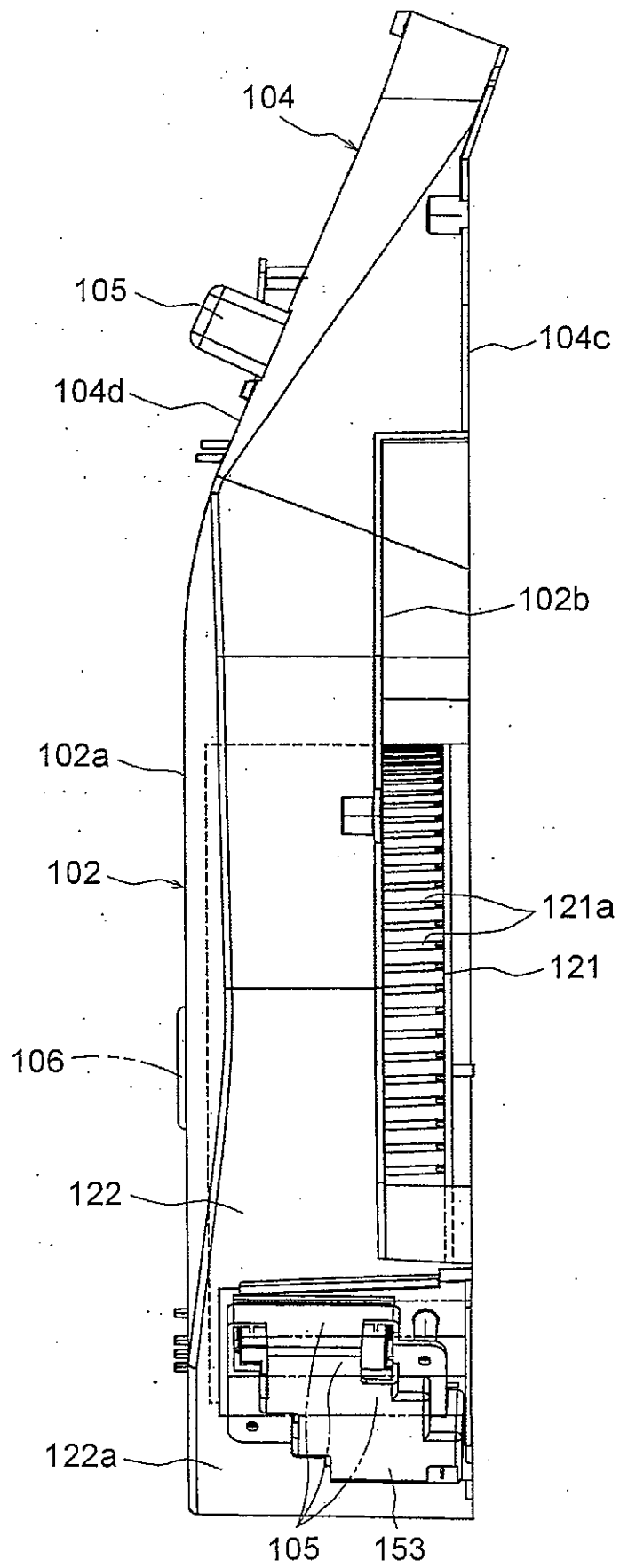


FIG.19A

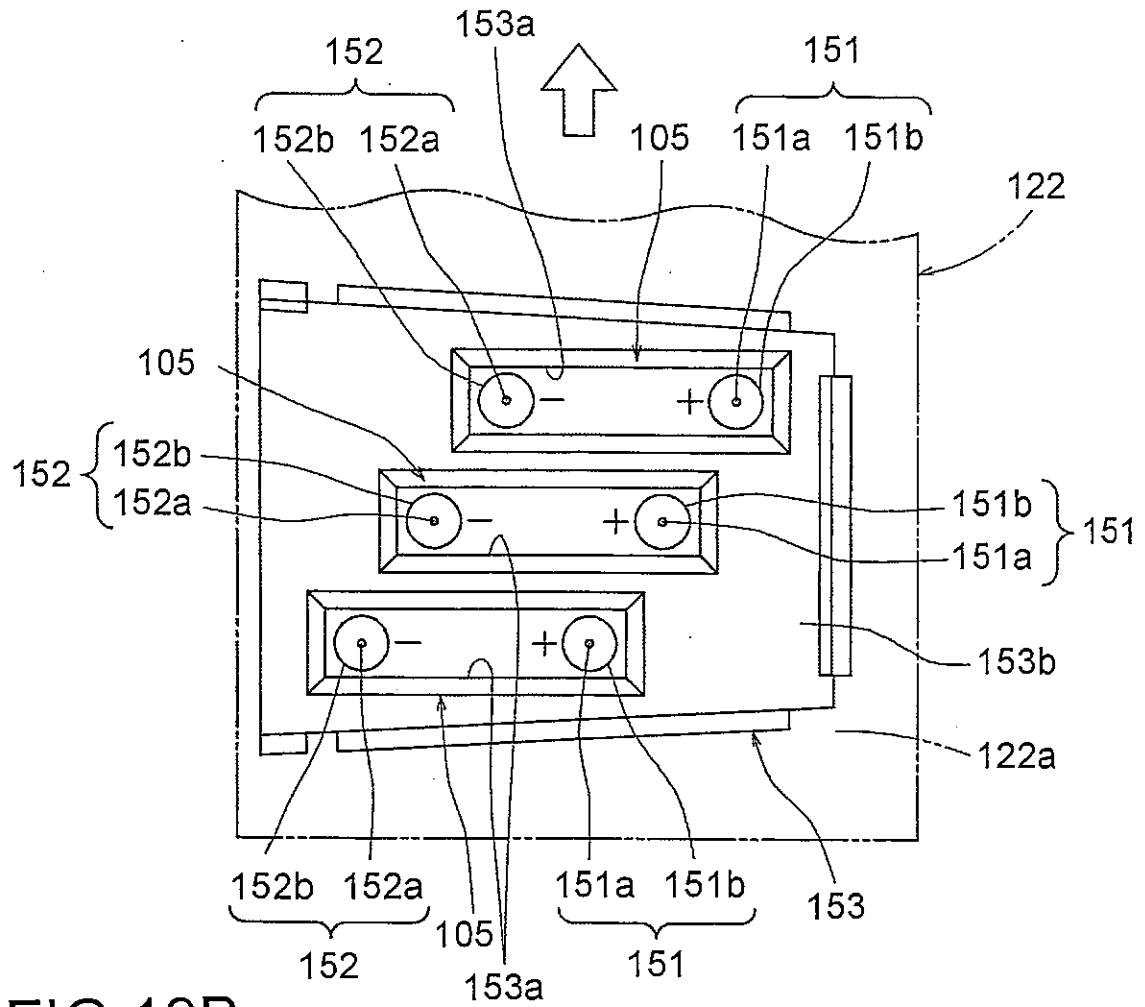


FIG.19B

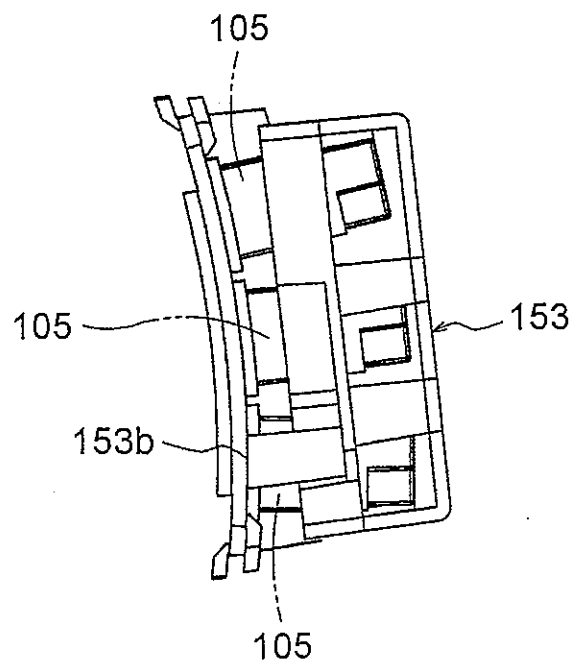
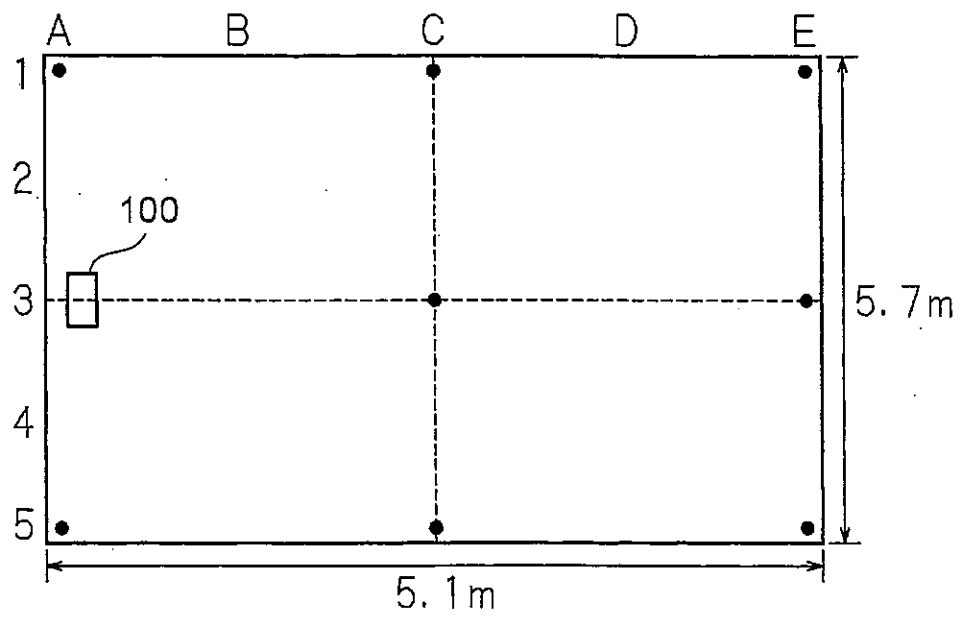


FIG.20



•; MEASUREMENT POINT
(HEIGHT: 2.5 m)

FIG.21

MEASUREMENT POINT	(+) IONS (PER cm ³)	(-) IONS (PER cm ³)	STERILIZATION IONS (PER cm ³)
A1	49,000	47,000	47,000
A3	300,000	340,000	63,500
A5	80,000	90,000	80,000
C1	32,000	34,000	32,000
C3	15,000	18,000	15,000
C5	47,000	57,000	47,000
E1	18,000	18,000	18,000
E3	27,000	33,000	27,000
E5	27,000	30,000	27,000
AVERAGE NUMBER OF MEASUREMENT POINTS	66,111	74,111	39,611
GROWTH RATE%	154		

NOTE THAT MEASUREMENT POINT A3 IS AVERAGE VALUE
OF A1 AND A5

FIG.22

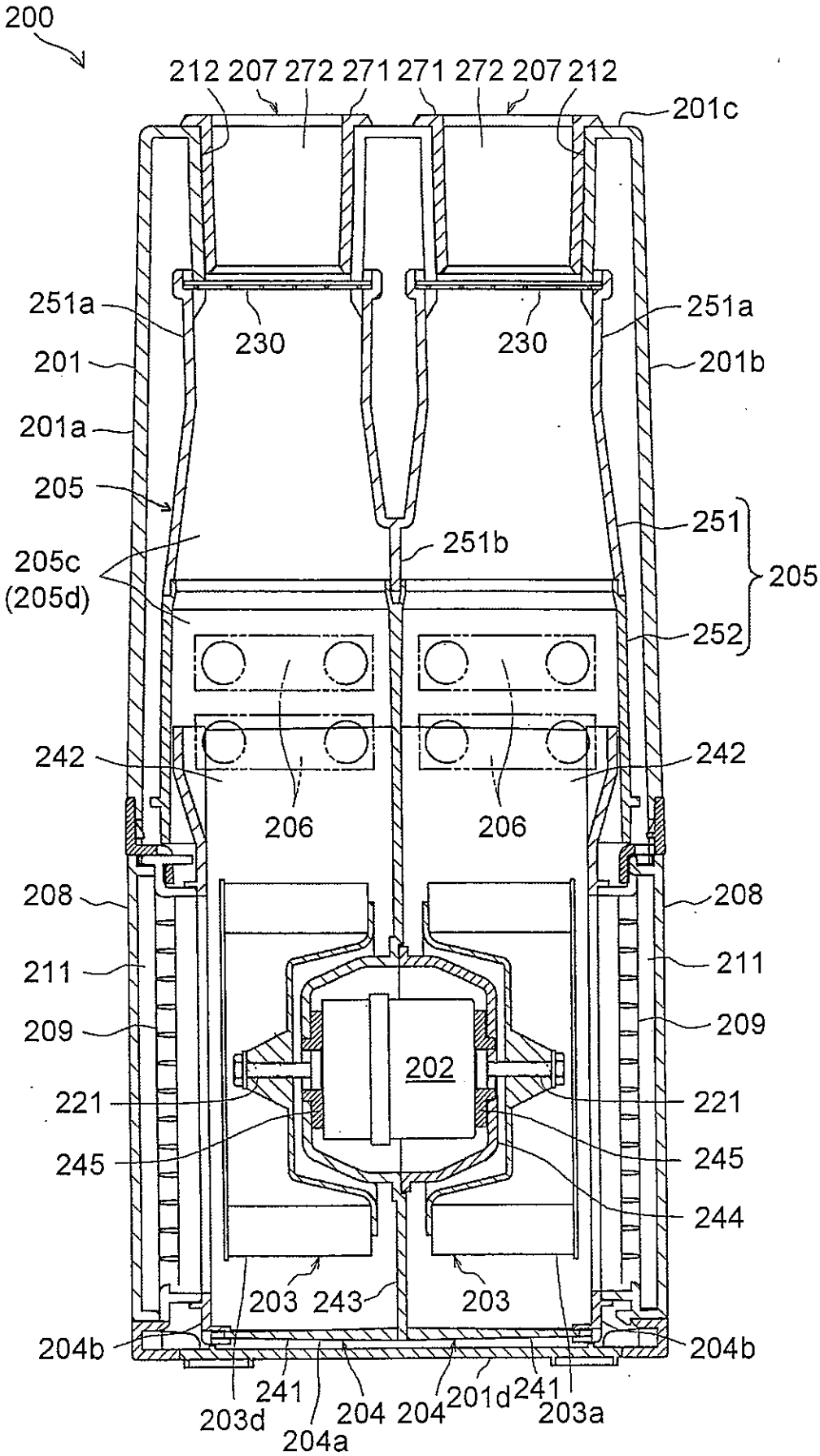


FIG.23

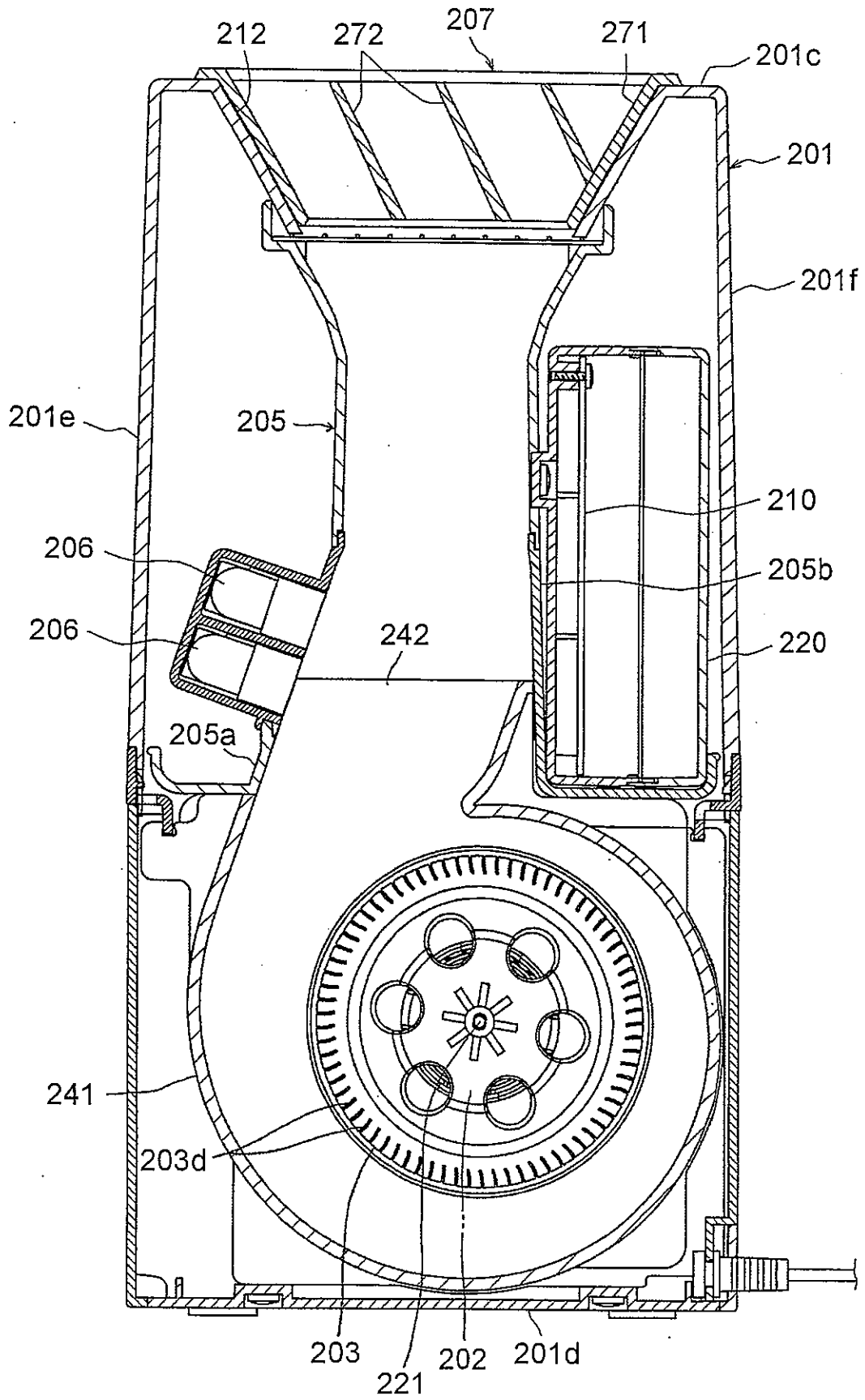


FIG. 24

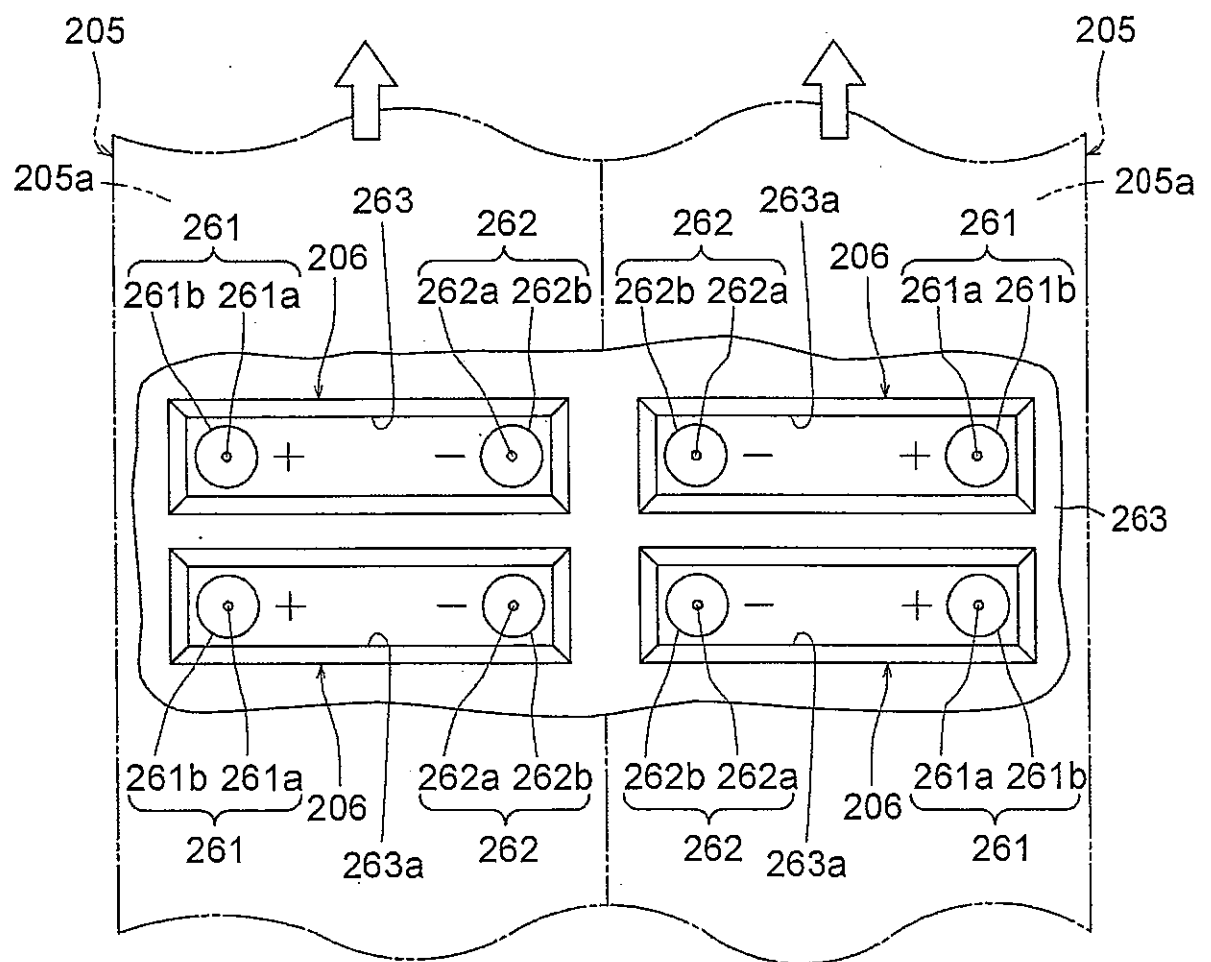


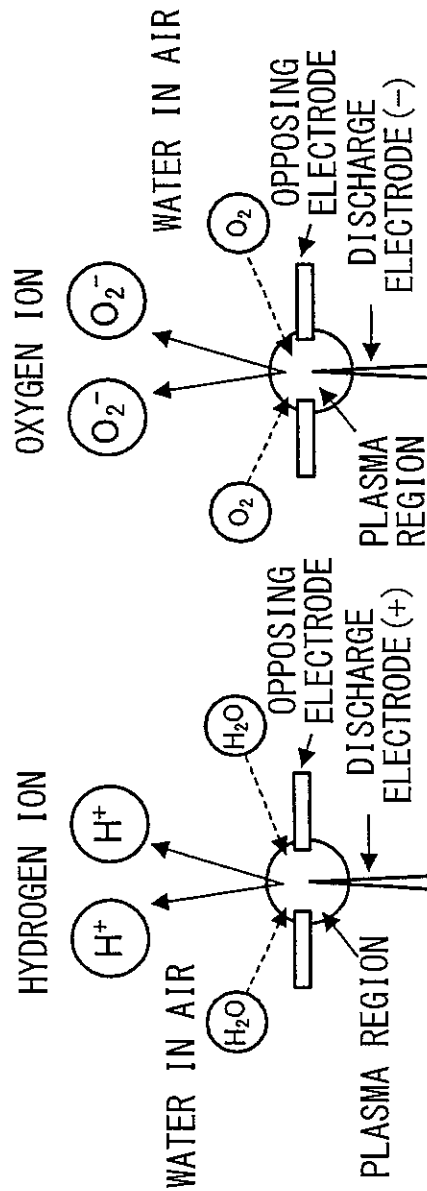
FIG.25

EFFECTS AND EFFICACIES					
CONCENTRATION OF IONS (PER cm ³)	REMOVAL OF AIRBORNE VIRUSES	REMOVAL OF BACTERIA	REMOVAL OF MOLD SPORES	REMOVAL OF AIRBORNE MITE ALLERGENS	REMOVAL OF ABSORBED ODORS
1 100,000 IONS					TIME PERIOD REQUIRED FOR MAKING INTENSITY OF ABSORBED SWEAT ODORS (ISOVALERIC ACID) ONE LEVEL DOWN → 4 HOURS
2 50,000 IONS	- REMOVAL RATE OF HUMAN INFLUENZA A VIRUSES (SUBTYPE H1N1) IN 10 MINUTES IS 96.102% (REMOVAL RATE WITH 1-m³-CHAMBER TEST IN 25 MINUTES IS 99.97%) - REMOVAL RATE OF AVIAN INFLUENZA A VIRUSES IN 10 MINUTES IS 99.9% (SUBTYPE H5N1)	REMOVAL OF ADHERING BACTERIA (STAPHYLOCOCCUS AUREUS AND ESCHERICHIA COLI) IS 99% (TEST RESULTS IN REFRIGERATOR: EXPOSED FOR 7 DAYS)	- GROWTH OF ADHERING MOLD (GLADOSPORIUM) IS INHIBITED (HYPHAL GROWTH IS INCONSPICUOUS: 25% OR SMALLER OF TEST AREA) 99% OF AIRBORNE MOLD SPORES ARE REMOVED		TIME PERIOD REQUIRED FOR MAKING INTENSITY OF ABSORBED SWEAT ODORS (ISOVALERIC ACID) ONE LEVEL DOWN → 12 HOURS
3 30,000 IONS				- GROWTH OF ADHERING MOLD (GLADOSPORIUM) IS INHIBITED (HYPHAL GROWTH IS MODERATE: 25% TO 50% OF TEST AREA) 99% OF AIRBORNE MOLD SPORES ARE REMOVED	TIME PERIOD REQUIRED FOR MAKING INTENSITY OF ABSORBED SMOKE ODORS FROM CIGARETTES ONE LEVEL DOWN IS 22.5 MINUTES - TIME PERIOD REQUIRED FOR MAKING INTENSITY OF ABSORBED SMOKE ODORS FROM CIGARETTES ONE LEVEL DOWN IS APPROXIMATELY 27.5 MINUTES - IN THE CASE OF 20,000 IONS TIME PERIOD REQUIRED FOR MAKING INTENSITY OF SMOKE ODORS FROM CIGARETTES ONE LEVEL DOWN → 40 MINUTES
4 7,000 IONS	REMOVAL RATE OF HUMAN INFLUENZA A VIRUSES (SUBTYPE H1N1) IN 10 MINUTES IS 90.203% (REMOVAL RATE WITH 1-m ³ -CHAMBER TEST IN 25 MINUTES IS 99.7%) REMOVAL RATE OF AVIAN INFLUENZA A VIRUSES IN 10 MINUTES IS 99.0%		99% OF AIRBORNE MOLD SPORES ARE REMOVED	ION CONCENTRATION OF 3,000 74% ARE REMOVED IN 15 MINUTES	TIME PERIOD REQUIRED FOR MAKING INTENSITY OF ABSORBED SMOKE ODORS FROM CIGARETTES ONE LEVEL DOWN IS 57.5 MINUTES
5 2,000 IONS (PRIOR ART)	REMOVAL RATE IS 90% (ONE-PASS TEST, EXPOSURE TIME: 30 SECONDS)	ION CONCENTRATION OF 3,000 REMOVAL RATE OF AIRBORNE ESCHERICHIA COLI IS 90% IN 60 MINUTES	99% OF AIRBORNE MOLD SPORES ARE REMOVED	ION CONCENTRATION OF 2,000 23% ARE REMOVED IN 15 MINUTES	NO EFFECT

FIG.26

MECHANISM FOR GENERATING "CLUSTER IONS"

POSITIVE OR NEGATIVE VOLTAGE IS APPLIED TO DISCHARGE ELECTRODE TO ELECTRICALLY DECOMPOSE WATER MOLECULES AND OXYGEN MOLECULES IN AIR. HYDROGEN IONS AND OXYGEN IONS ARE GENERATED.



WATER MOLECULES IN AIR AGGREGATE AROUND ION LIKE GRAPE CLUSTER, AND EACH ION BECOMES STABLE CLUSTER ION (*CLUSTER: GRAPE CLUSTER)



FIG.27

MECHANISM FOR INACTIVATING AIRBORNE VIRUSES

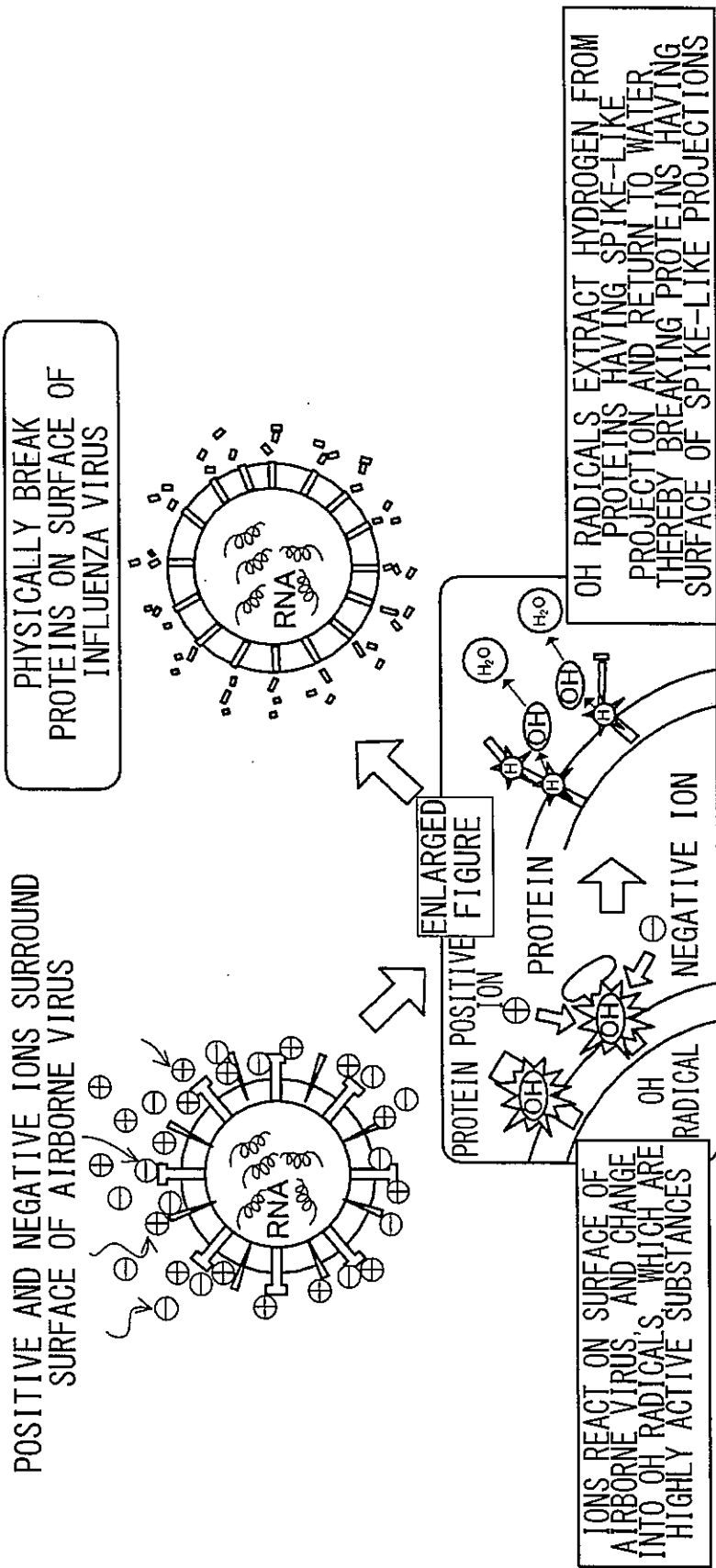


FIG.28

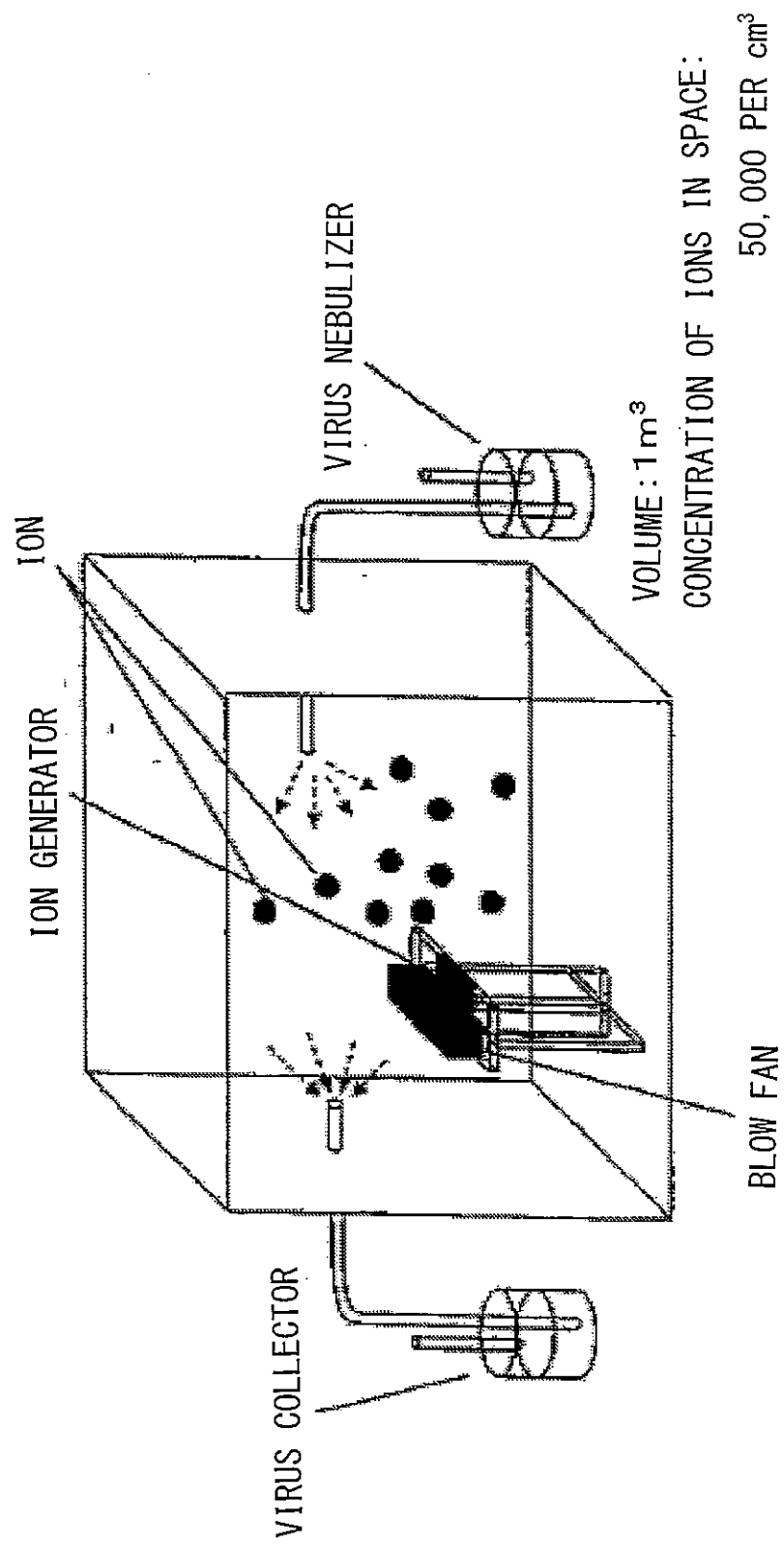


FIG.29

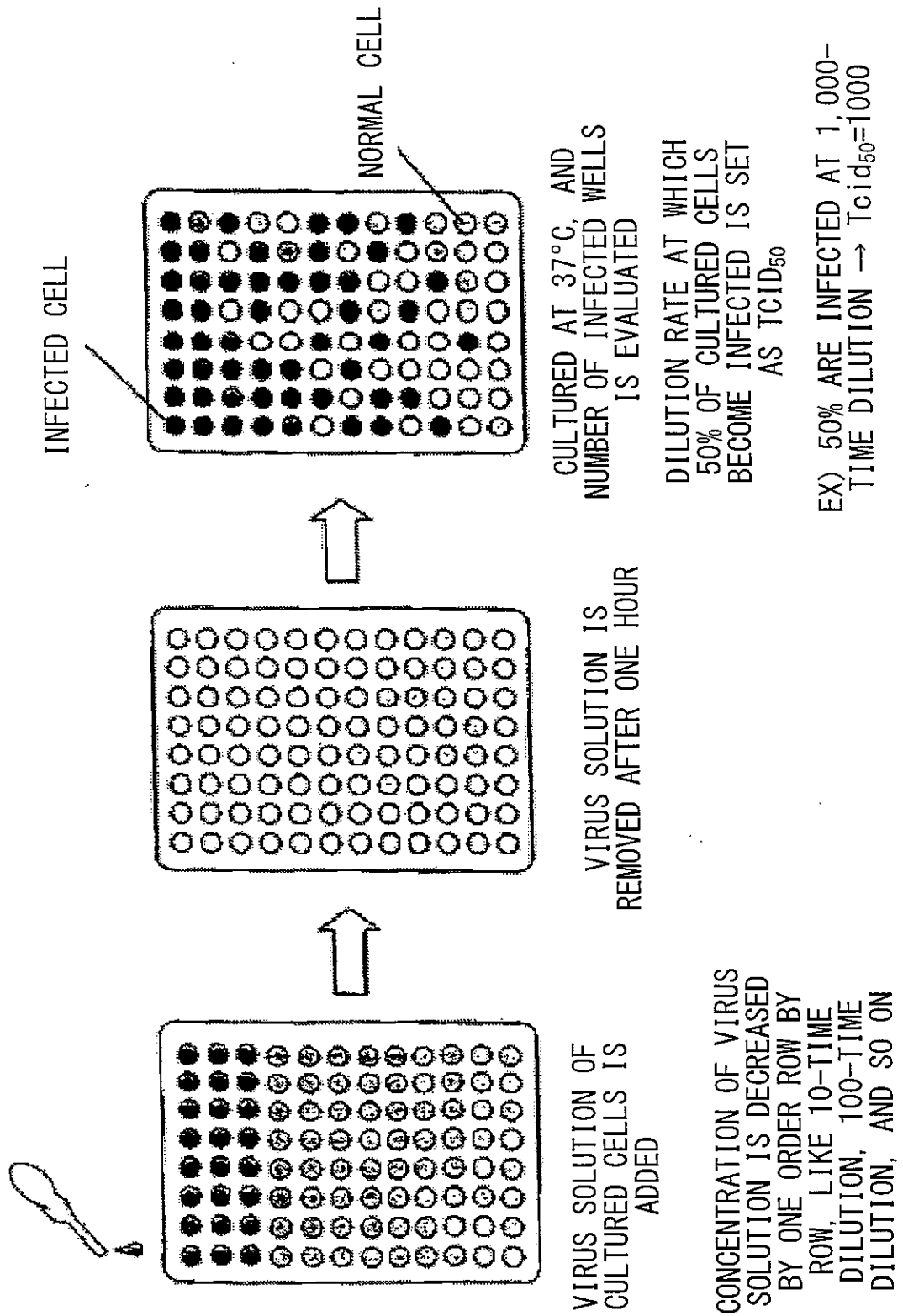


FIG.30

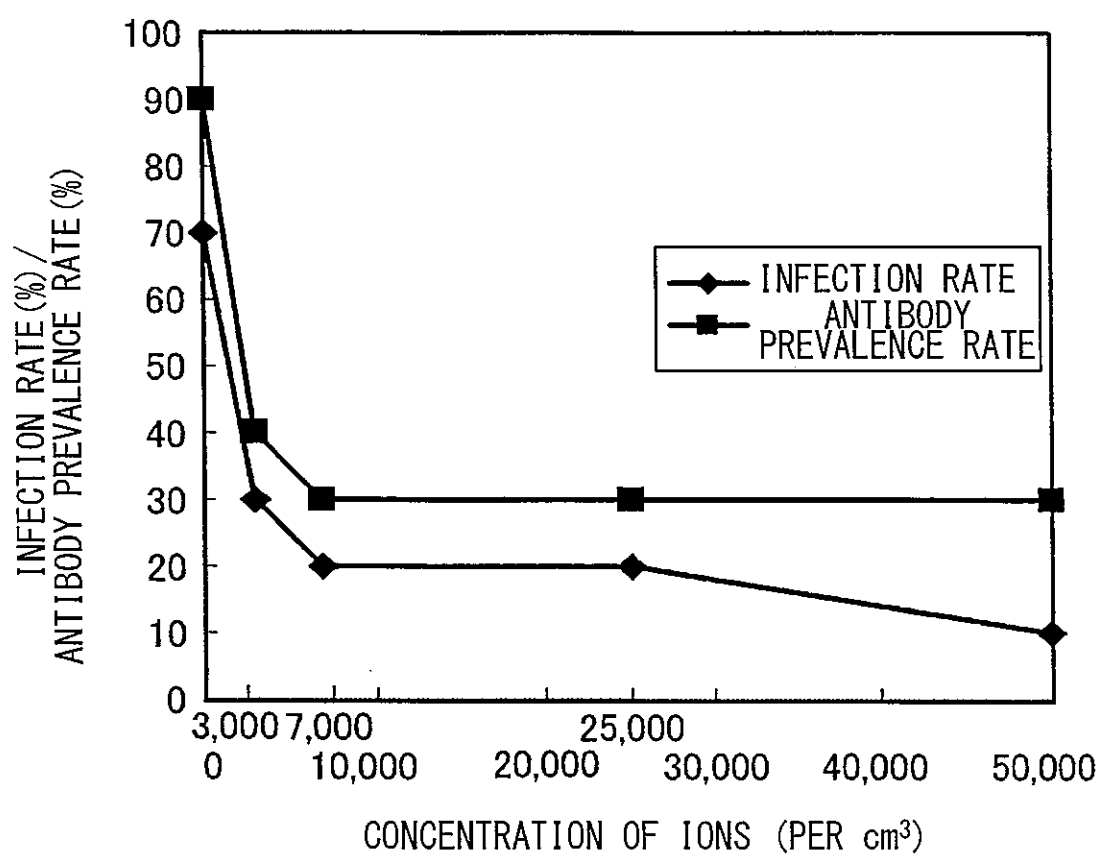


FIG.31

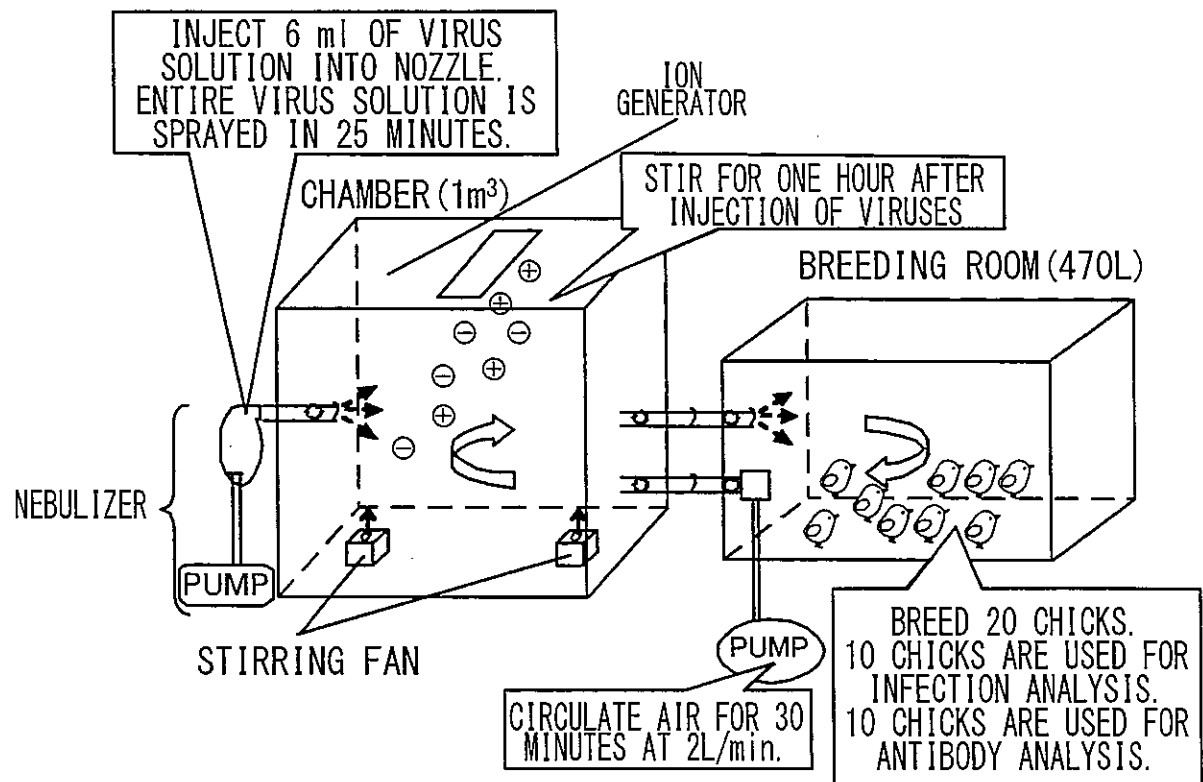


FIG.32

