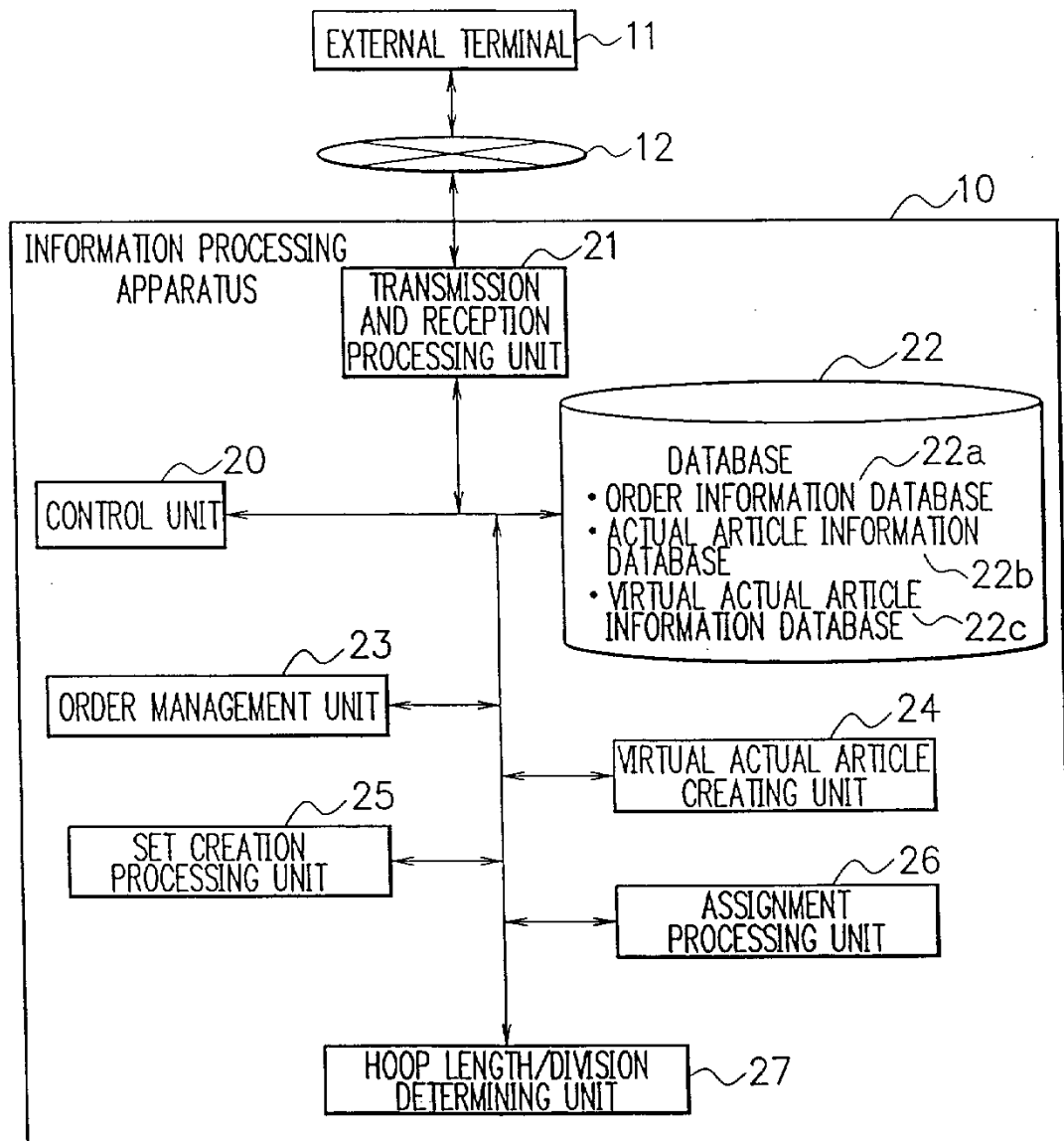


FIG. 1



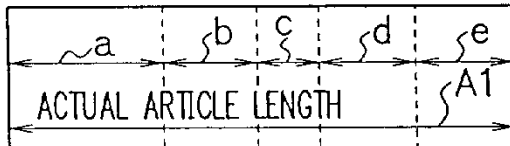
F I G. 2A

ACTUAL ARTICLE WIDTH	ACTUAL ARTICLE TOTAL PROLONGATION	VIRTIAL ACTUAL ARTICLE LENGTH	VIRTIAL ACTUAL ARTICLE
900	10,000	49,000	D
950	12,000	39,000	C
1,000	14,000	27,000	B
1,050	13,000	13,000	A

C1
D1
B1
A1

F I G. 2B

VIRTUAL ACTUAL ARTICLE A WIDTH:1,050mm LENGTH:13,000m



VIRTUAL ACTUAL ARTICLE B WIDTH:1,000mm LENGTH:27,000m

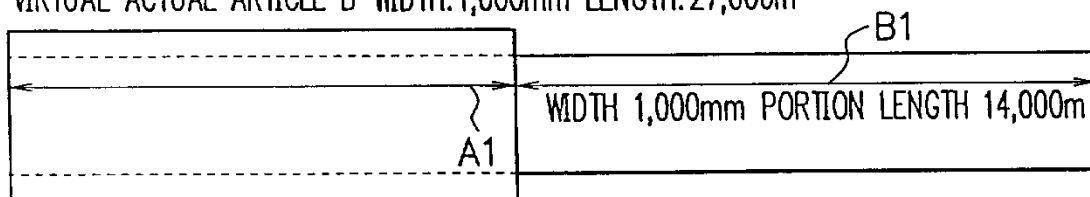
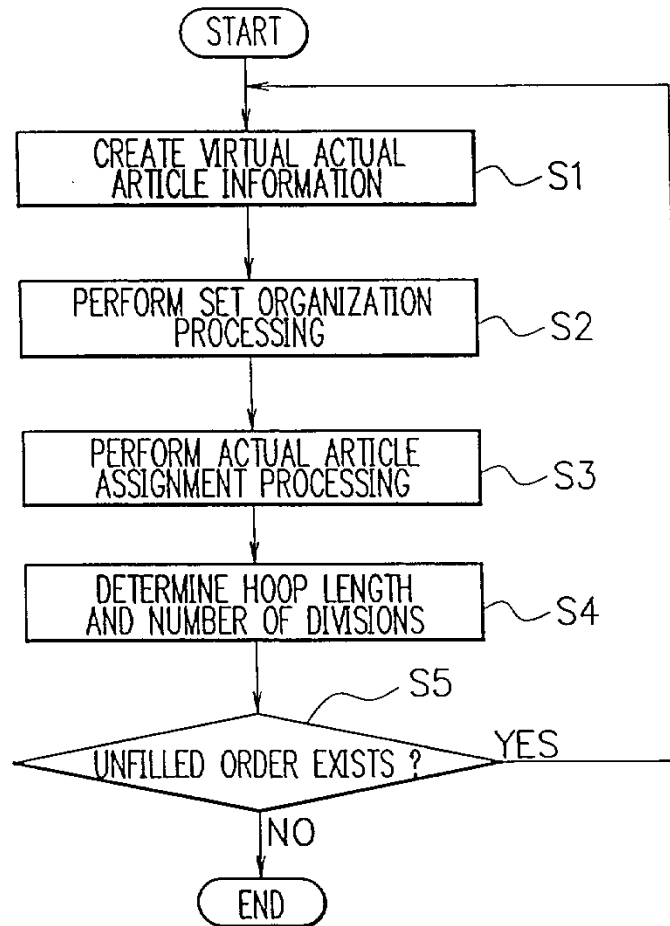
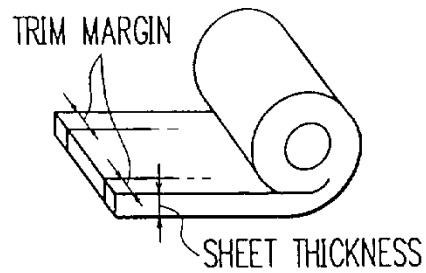


FIG. 3



F I G. 4A



SHEET THICKNESS (mm)	0.5
SPECIFIC GRAVITY (g/cm ³)	7.5
TRIM MARGIN (mm)	25

F I G. 4B

ORDER	ORDER WIDTH (mm)	ORDER WEIGHT (kg)	ORDER AREA (m ²)	SINGLE WEIGHT CONSTRAINT (kg)	OUTER DIAMETER CRITERION (m)
a	250	6,000	1,600	XXX	XX
b	300	3,000	800	YYY	YY
c	600	3,300	880	ZZZ	ZZ

F I G. 4C

VIRTUAL ACTUAL ARTICLE	VIRTUAL ACTUAL ARTICLE WIDTH (mm)	VIRTUAL ACTUAL ARTICLE LENGTH (m)	VIRTUAL AVAILABLE WIDTH
X	1,050	10,400	1,000
Y	1,150	4,800	1,100

F I G. 5

SET 1

ORDER	NUMBER OF LINES	TEMPORARY NUMBER OF DIVISIONS	TEMPORARY NUMBER OF HOOPS	TEMPORARY HOOP LENGTH (m)	OBTAINED AREA (m ²)	EXCESS AREA	UNFILLED ORDER AREA
a	4	2	8	800	1,600	0	0
b	0	0	0	0	0	0	800
c	0	0	0	0	0	0	880

SET 2

ORDER	NUMBER OF LINES	TEMPORARY NUMBER OF DIVISIONS	TEMPORARY NUMBER OF HOOPS	TEMPORARY HOOP LENGTH (m)	OBTAINED AREA (m ²)	EXCESS AREA	UNFILLED ORDER AREA
a	0	0	0	0	0	0	1,600
b	3	1	3	890	801	0	0
c	0	0	0	0	0	0	880

SET 3

ORDER	NUMBER OF LINES	TEMPORARY NUMBER OF DIVISIONS	TEMPORARY NUMBER OF HOOPS	TEMPORARY HOOP LENGTH (m)	OBTAINED AREA (m ²)	EXCESS AREA	UNFILLED ORDER AREA
a	0	0	0	0	0	0	1,600
b	1	2	2	734	440	0	360
c	1	2	2	734	881	0	0

SET 4

ORDER	NUMBER OF LINES	TEMPORARY NUMBER OF DIVISIONS	TEMPORARY NUMBER OF HOOPS	TEMPORARY HOOP LENGTH (m)	OBTAINED AREA (m ²)	EXCESS AREA	UNFILLED ORDER AREA
a	2	2	4	734	734	0	866
b	0	0	0	0	0	0	800
c	1	2	2	734	881	0	0

SET 5

ORDER	NUMBER OF LINES	TEMPORARY NUMBER OF DIVISIONS	TEMPORARY NUMBER OF HOOPS	TEMPORARY HOOP LENGTH (m)	OBTAINED AREA (m ²)	EXCESS AREA	UNFILLED ORDER AREA
a	2	2	4	800	800	0	800
b	2	2	4	800	960	160	0
c	0	0	0	0	0	0	880

FIG. 6

1050 mm WIDE VIRTUAL ACTUAL ARTICLE X		61	
SET LENGTH	1,600		
SET WIDTH	1,000		
AVAILABLE REMAINING WIDTH	0	x1000	66
TOTAL EXCESS AREA	0	x100	
TOTAL UNFILLED ORDER AREA	1,680	x1	
TOTAL EVALUATION VALUE	1,680		

1050 mm WIDE VIRTUAL ACTUAL ARTICLE X		62	
SET LENGTH	890		
SET WIDTH	900		
AVAILABLE REMAINING WIDTH	100	x1000	66
TOTAL EXCESS AREA	0	x100	
TOTAL UNFILLED ORDER AREA	2,480	x1	
TOTAL EVALUATION VALUE	102,480		

1050 mm WIDE VIRTUAL ACTUAL ARTICLE X		63	
SET LENGTH	1,468		
SET WIDTH	900		
AVAILABLE REMAINING WIDTH	100	x1000	66
TOTAL EXCESS AREA	0	x100	
TOTAL UNFILLED ORDER AREA	1,960	x1	
TOTAL EVALUATION VALUE	101,960		

1050 mm WIDE VIRTUAL ACTUAL ARTICLE X		64	
SET LENGTH	1,468		
SET WIDTH	1,100		
AVAILABLE REMAINING WIDTH	(100)	x1000	66
TOTAL EXCESS AREA	0	x100	
TOTAL UNFILLED ORDER AREA	1,666	x1	
TOTAL EVALUATION VALUE	-98,334		

1050 mm WIDE VIRTUAL ACTUAL ARTICLE X		65	
SET LENGTH	1,600		
SET WIDTH	1,100		
AVAILABLE REMAINING WIDTH	(100)	x1000	66
TOTAL EXCESS AREA	160	x100	
TOTAL UNFILLED ORDER AREA	1,680	x1	
TOTAL EVALUATION VALUE	-82,320		

FIG. 7

SET 1	1150 mm WIDE VIRTUAL ACTUAL ARTICLE Y		71
	SET LENGTH	1,600	
	SET WIDTH	1,000	
	AVAILABLE REMAINING WIDTH	100	x1000
	TOTAL EXCESS AREA	0	x100
	TOTAL UNFILLED ORDER AREA	1,680	x1
	TOTAL EVALUATION VALUE	101,680	76
SET 2	1150 mm WIDE VIRTUAL ACTUAL ARTICLE Y		72
	SET LENGTH	890	
	SET WIDTH	900	
	AVAILABLE REMAINING WIDTH	200	x1000
	TOTAL EXCESS AREA	0	x100
	TOTAL UNFILLED ORDER AREA	2,480	x1
	TOTAL EVALUATION VALUE	202,480	76
SET 3	1150 mm WIDE VIRTUAL ACTUAL ARTICLE Y		73
	SET LENGTH	1,468	
	SET WIDTH	900	
	AVAILABLE REMAINING WIDTH	200	x1000
	TOTAL EXCESS AREA	0	x100
	TOTAL UNFILLED ORDER AREA	1,960	x1
	TOTAL EVALUATION VALUE	201,960	76
SET 4	1150 mm WIDE VIRTUAL ACTUAL ARTICLE Y		74
	SET LENGTH	1,468	
	SET WIDTH	1,100	
	AVAILABLE REMAINING WIDTH	0	x1000
	TOTAL EXCESS AREA	0	x100
	TOTAL UNFILLED ORDER AREA	1,666	x1
	TOTAL EVALUATION VALUE	1,666	76
SET 5	1150 mm WIDE VIRTUAL ACTUAL ARTICLE Y		75
	SET LENGTH	1,600	
	SET WIDTH	1,100	
	AVAILABLE REMAINING WIDTH	0	x1000
	TOTAL EXCESS AREA	160	x100
	TOTAL UNFILLED ORDER AREA	1,680	x1
	TOTAL EVALUATION VALUE	17,680	76

F I G. 8

CASE A

ACTUAL ARTICLE	ACTUAL ARTICLE WIDTH(mm)	ACTUAL ARTICLE LENGTH(m)	ACTUAL ARTICLE USE PATTERN	USE LENGTH	USE AREA (m ²)	USED UP
r	1050	2400	12	2400	2520	0
s	1100	3200	12	3200	3520	0
t	1150	4800	12	4800	5520	0

CASE B

ACTUAL ARTICLE	ACTUAL ARTICLE WIDTH(mm)	ACTUAL ARTICLE LENGTH(m)	ACTUAL ARTICLE USE PATTERN	USE LENGTH	USE AREA (m ²)	USED UP
r	1050	2400	12	2400	2520	0
s	1100	3200	9	2400	2640	1
t	1150	4800	0	0	0	0

CASE C

ACTUAL ARTICLE	ACTUAL ARTICLE WIDTH(mm)	ACTUAL ARTICLE LENGTH(m)	ACTUAL ARTICLE USE PATTERN	USE LENGTH	USE AREA (m ²)	USED UP
r	1050	2400	12	2400	2520	0
s	1100	3200	0	0	0	0
t	1150	4800	6	2400	2760	1

CASE D

ACTUAL ARTICLE	ACTUAL ARTICLE WIDTH(mm)	ACTUAL ARTICLE LENGTH(m)	ACTUAL ARTICLE USE PATTERN	USE LENGTH	USE AREA (m ²)	USED UP
r	1050	2400	0	0	0	0
s	1100	3200	12	3200	3520	0
t	1150	4800	4	1600	1840	1

CASE E

ACTUAL ARTICLE	ACTUAL ARTICLE WIDTH(mm)	ACTUAL ARTICLE LENGTH(m)	ACTUAL ARTICLE USE PATTERN	USE LENGTH	USE AREA (m ²)	USED UP
r	1050	2400	0	0	0	0
s	1100	3200	0	0	0	0
t	1150	4800	12	4800	5520	0

FIG. 9

CASE A

91	
TOTAL USE LENGTH	10400
TOTAL OBTAINED AREA	11560
NUMBER OF ACTUAL ARTICLES WHICH CANNOT BE USED UP	0
TOTAL EVALUATION VALUE	11560

≥SET LENGTH ~ 96
x1 } 97
x100 }

CASE B

92	
TOTAL USE LENGTH	4800
TOTAL OBTAINED AREA	5160
NUMBER OF ACTUAL ARTICLES WHICH CANNOT BE USED UP	1
TOTAL EVALUATION VALUE	5260

≥SET LENGTH ~ 96
x1 } 97
x100 }

CASE C

93	
TOTAL USE LENGTH	4800
TOTAL OBTAINED AREA	5280
NUMBER OF ACTUAL ARTICLES WHICH CANNOT BE USED UP	1
TOTAL EVALUATION VALUE	5380

≥SET LENGTH ~ 96
x1 } 97
x100 }

CASE D

94	
TOTAL USE LENGTH	4800
TOTAL OBTAINED AREA	5360
NUMBER OF ACTUAL ARTICLES WHICH CANNOT BE USED UP	1
TOTAL EVALUATION VALUE	5460

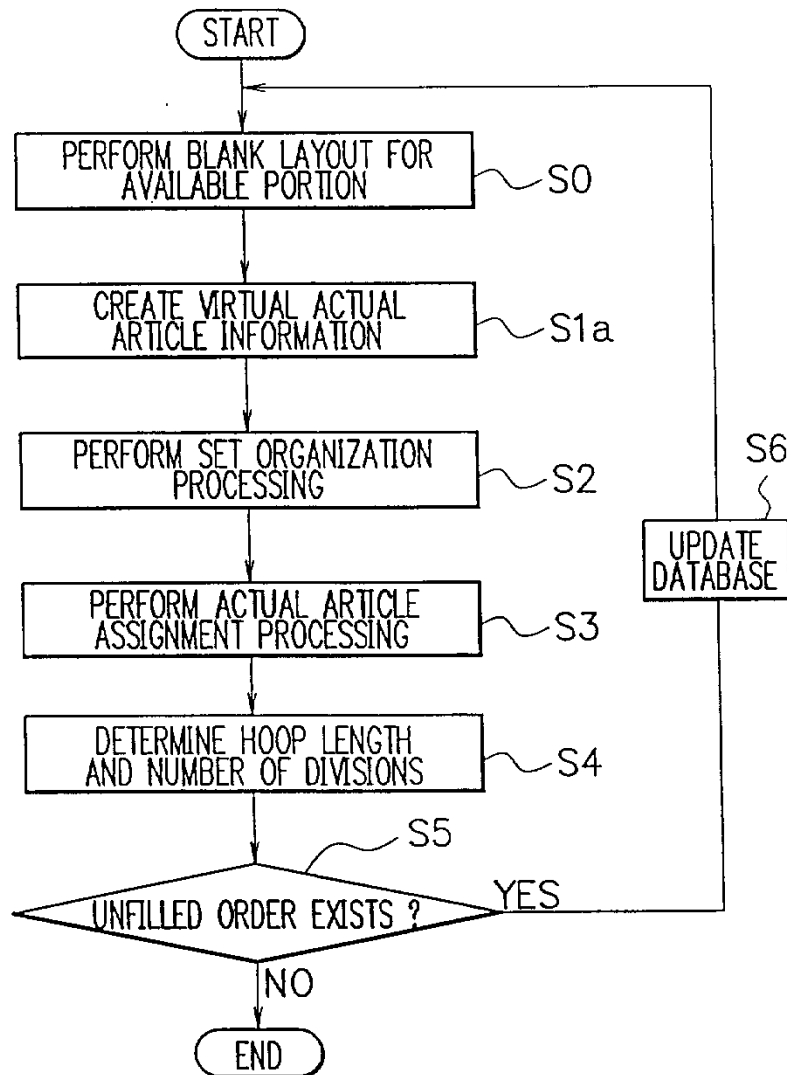
≥SET LENGTH ~ 96
x1 } 97
x100 }

CASE E

95	
TOTAL USE LENGTH	4800
TOTAL OBTAINED AREA	5520
NUMBER OF ACTUAL ARTICLES WHICH CANNOT BE USED UP	0
TOTAL EVALUATION VALUE	5520

≥SET LENGTH ~ 96
x1 } 97
x100 }

F I G. 10



F I G. 11

