

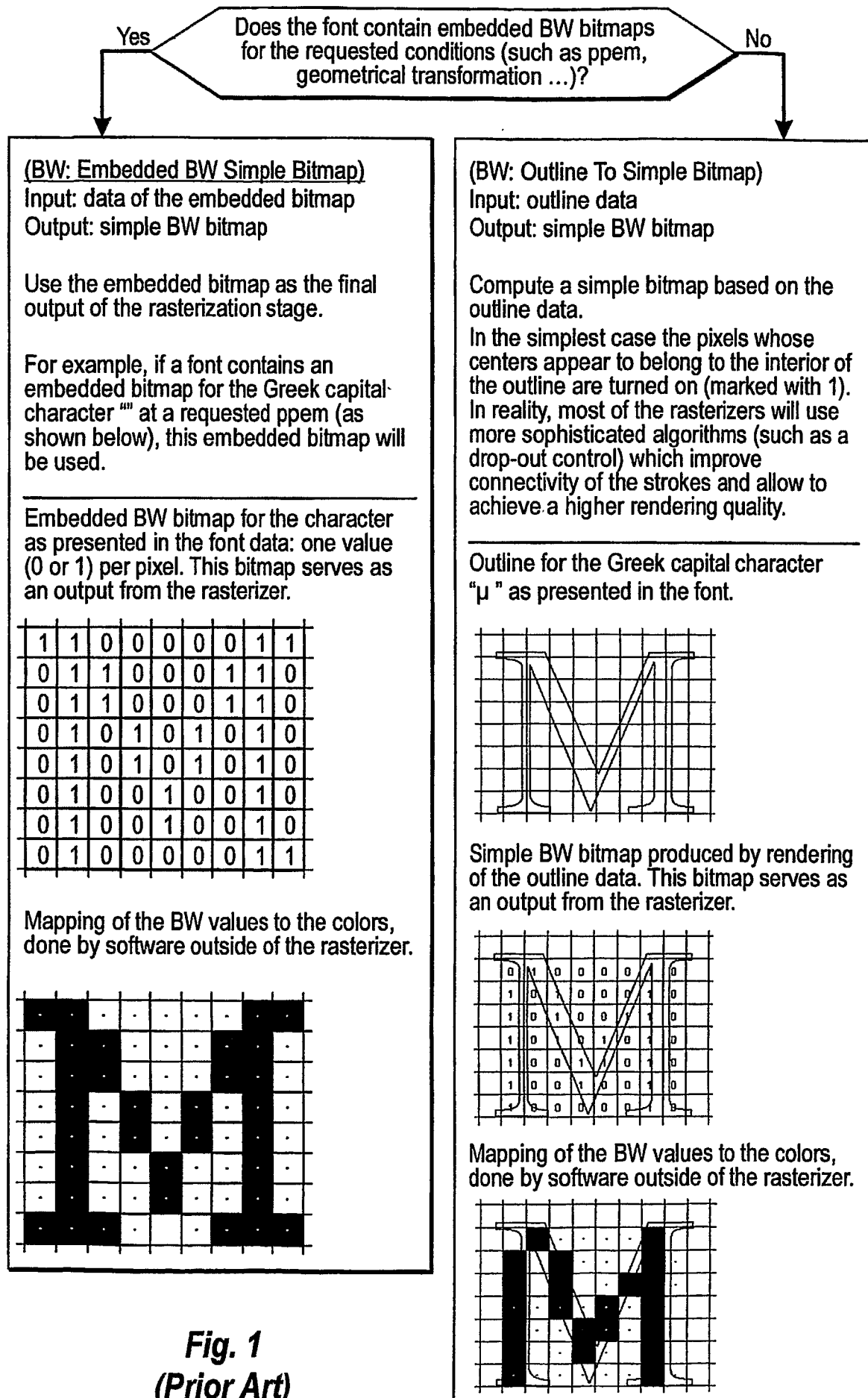


Fig. 1
(Prior Art)

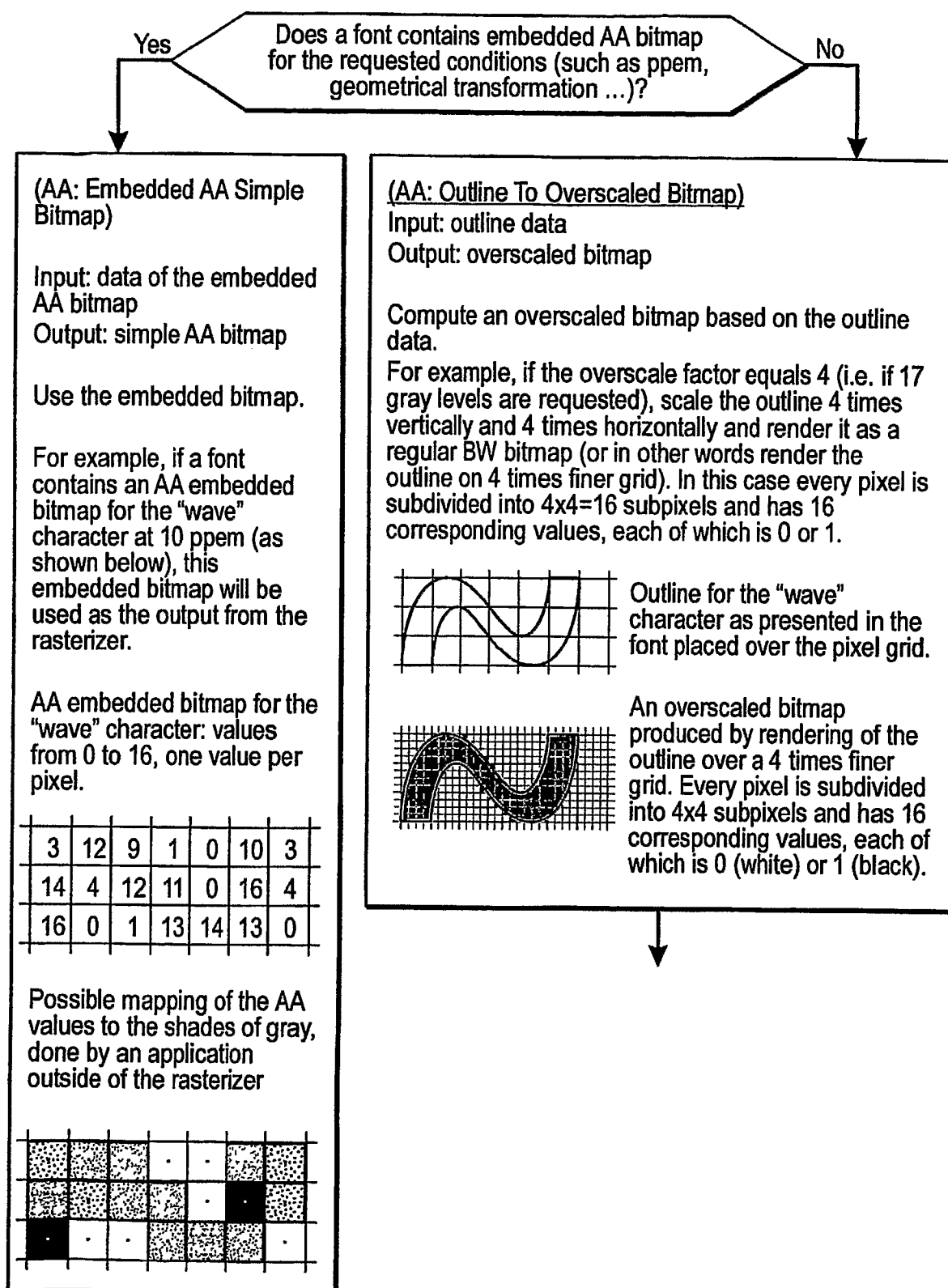


Fig. 2A
(Prior Art)

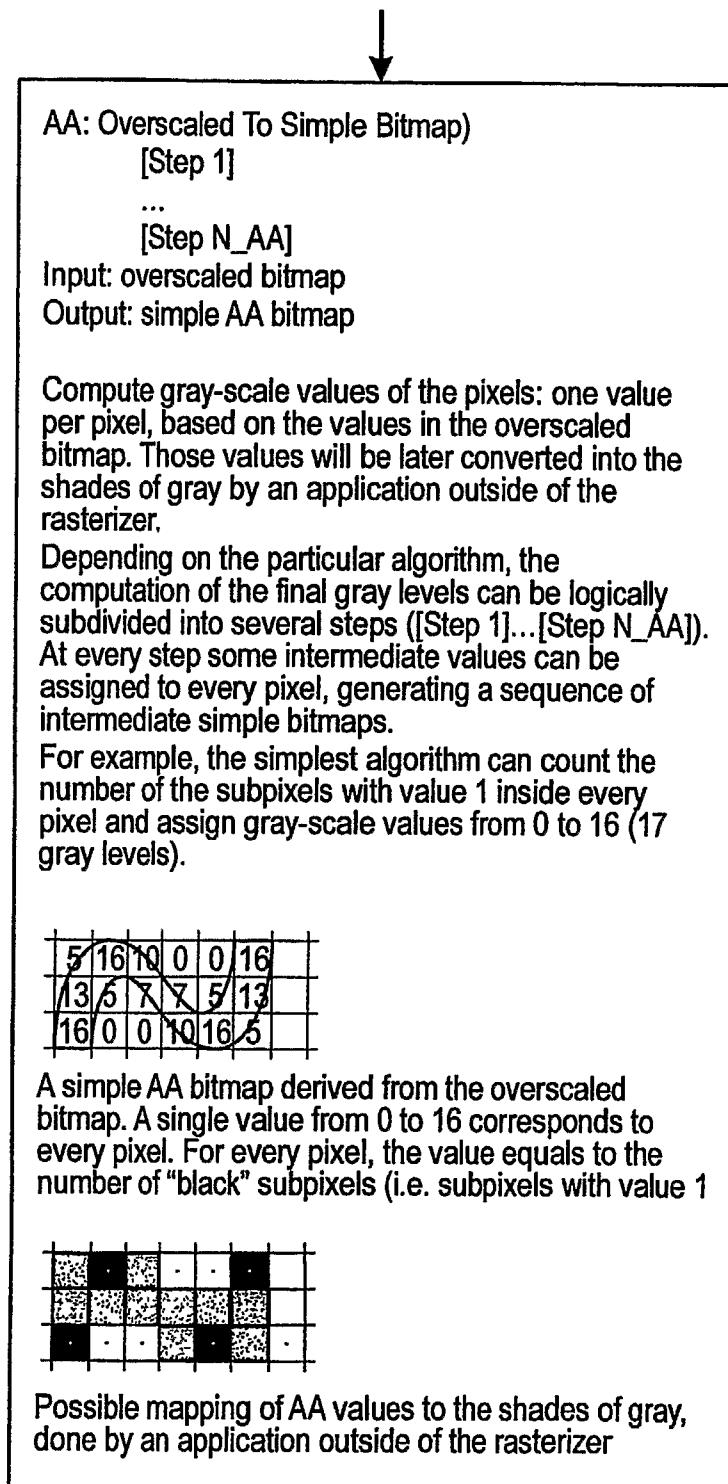


Fig. 2B
(Prior Art)

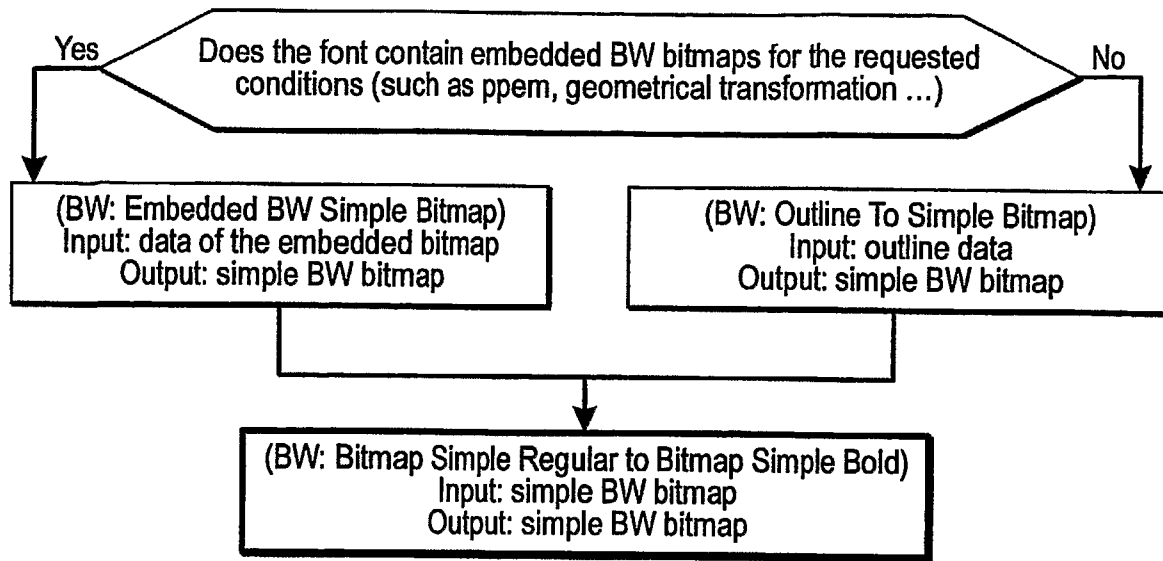


Fig. 3A
(Prior Art)

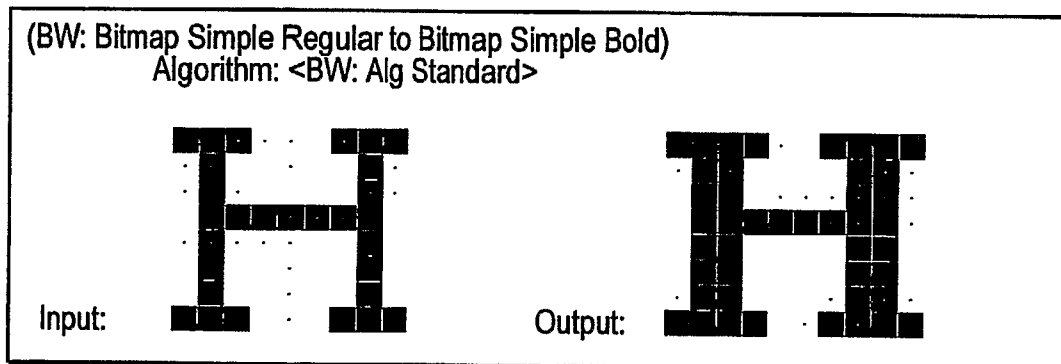


Fig. 3B
(Prior Art)

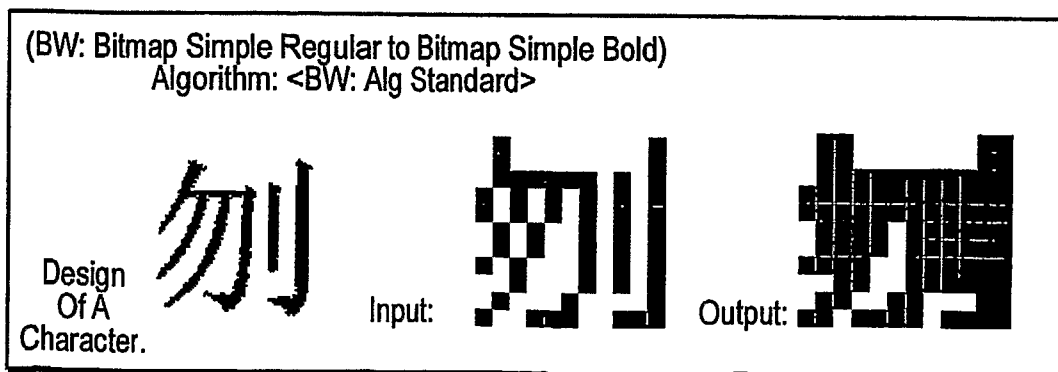


Fig. 3C
(Prior Art)

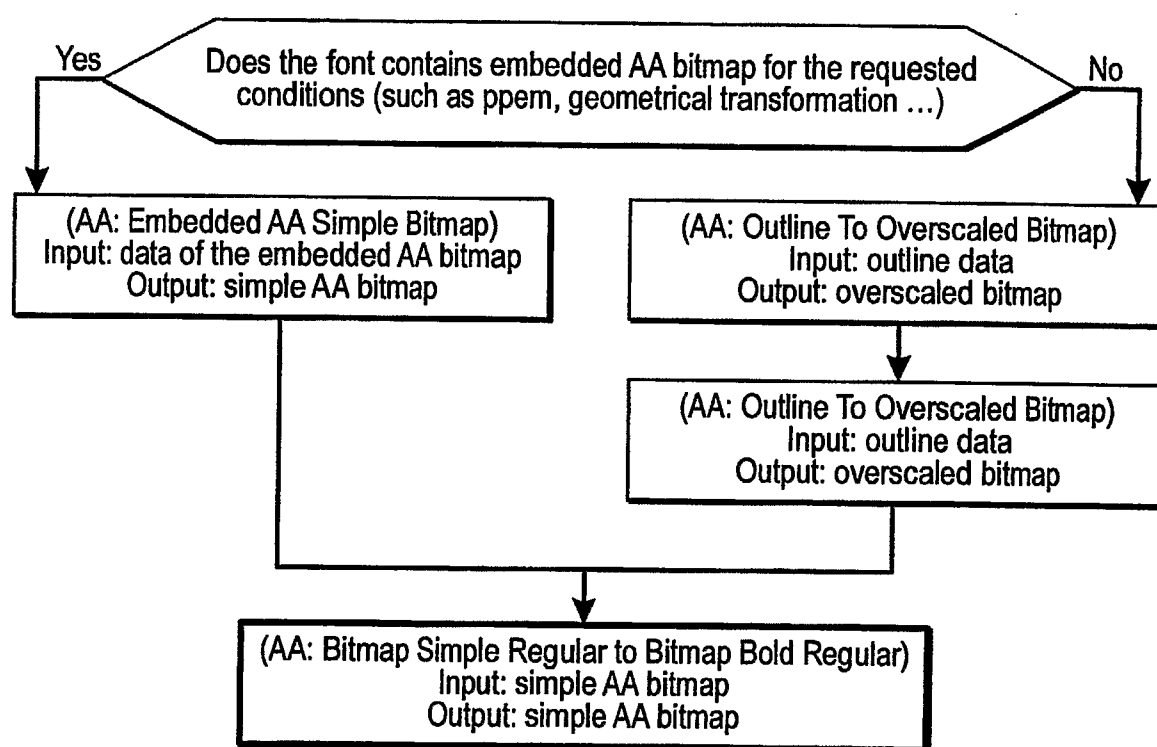


Fig. 4A
(Prior Art)

(AA: Bitmap Simple Regular to Bitmap Bold Regular)

Input: simple AA bitmap

Output: simple AA bitmap

Input

5	16	10	0	0	16
13	5	7	7	5	13
16	0	0	10	16	5

In this example the simple AA bitmap is obtained by overscaling an outline (with overscale factors (4,4)) and counting turned on subpixels for every pixel; so that every pixel has a value between 0 and 16.

However, the emboldening can be applied independently of the source of the input; i.e. it will work equally fine for the input originated from an embedded bitmap with AA values ranging from 0 to 16.

Output

5	16	16	10	0	16	16
13	16	12	14	12	13	13
16	16	0	10	16	15	5

The output has exactly the same format as the input: a simple AA bitmap with values ranging from 0 to 16. Two examples of computations of the output values are shown below.

- (1) Third pixel in the second row (the left highlighted pixel) has value 7 in the input bitmap and its immediate left neighbor has value 5. After emboldening the pixel is assigned value $12=7+5$.
- (2) Second pixel in the second row has value 5 in the input bitmap and its immediate left neighbor has value 13. Since $5+13=18$ is greater than the maximal value (16) allowed in the chosen format, value 16 is assigned to the pixel.

Result of a possible mapping of the output image to the shades of gray, performed by software external to the rasterizer.

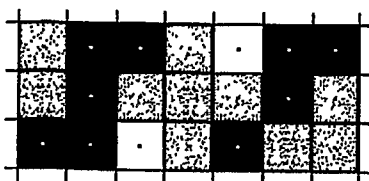


Fig. 4B
(Prior Art)

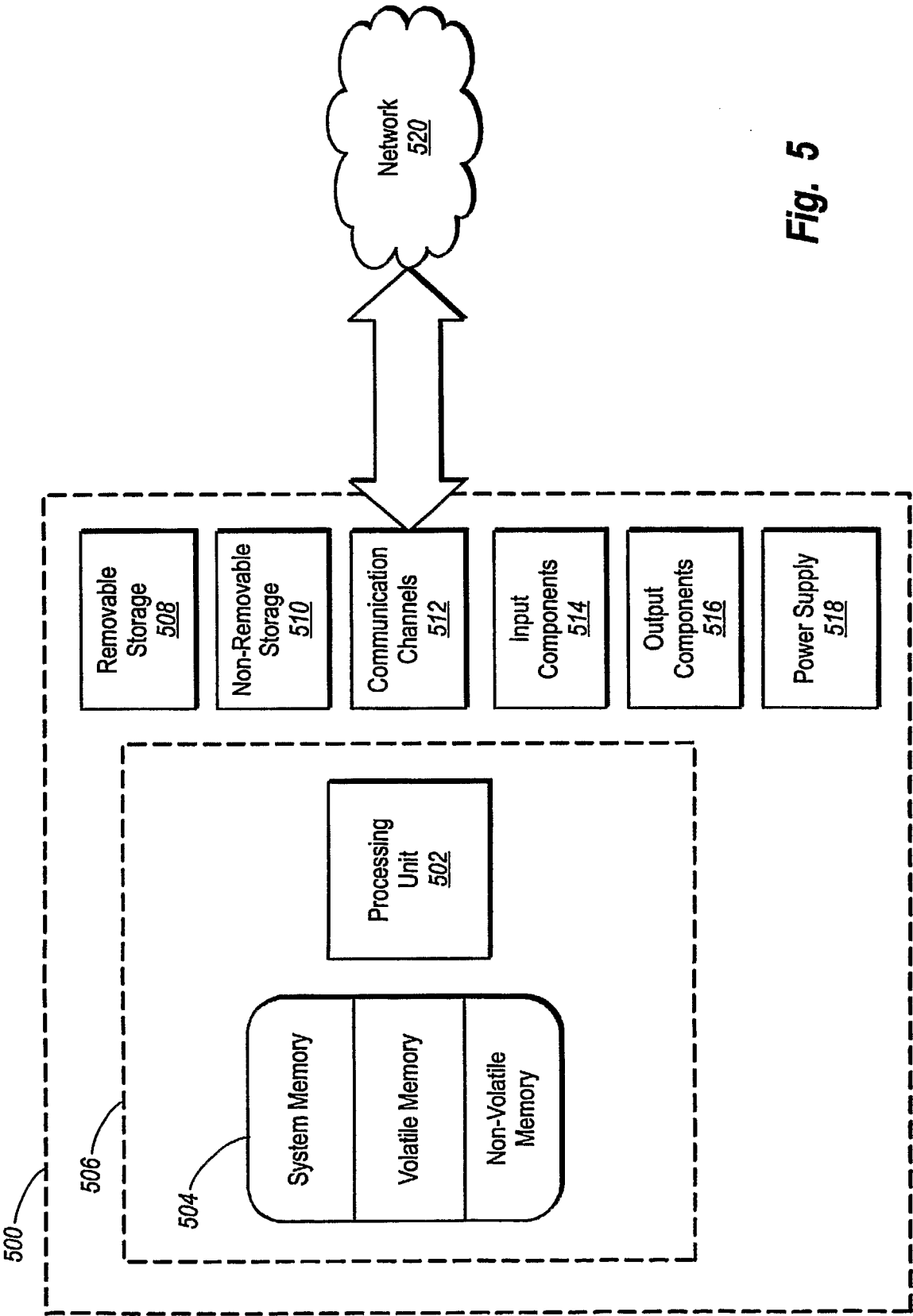


Fig. 5

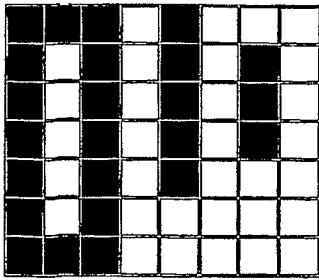


Fig. 6A
(Prior Art)

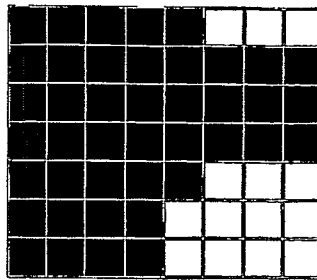


Fig. 6B
(Prior Art)

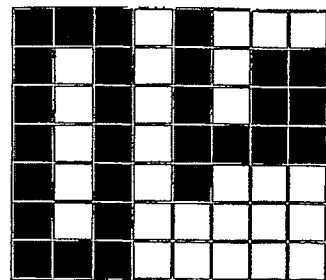


Fig. 6C
(Prior Art)

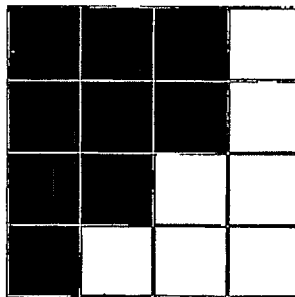


Fig. 7

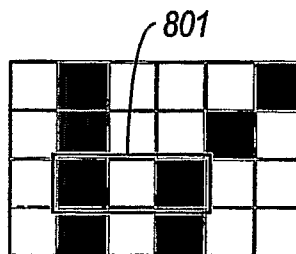


Fig. 8A

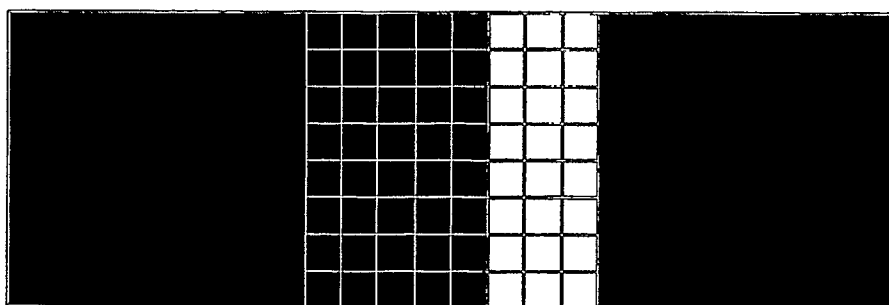


Fig. 8B

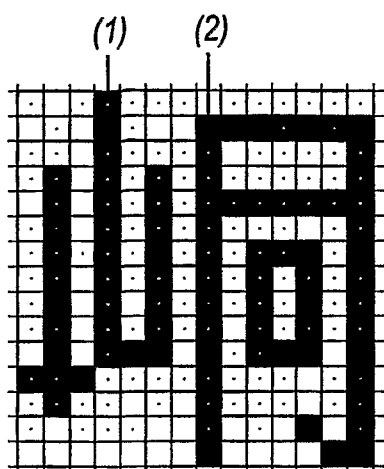


Fig. 9A

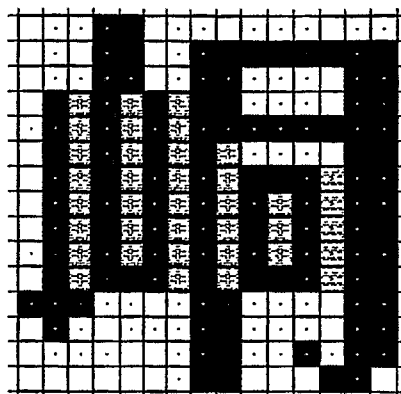


Fig. 9B

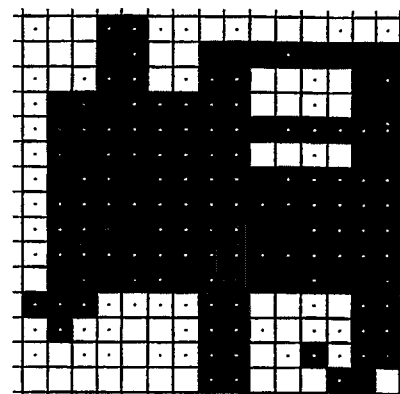


Fig. 9C

鐵冊小酌歌冊娛囑側廚血觀泥血頭微撥叭此間關羽張猛猛騰騰偏腫瘡蛆蟻限缸龍
鐵冊小酌歌冊娛囑側廚血觀泥血頭微撥叭此間關羽張猛猛騰騰偏腫瘡蛆蟻限缸龍
鐵冊小酌歌冊娛囑側廚血觀泥血頭微撥叭此間關羽張猛猛騰騰偏腫瘡蛆蟻限缸龍

Fig. 10

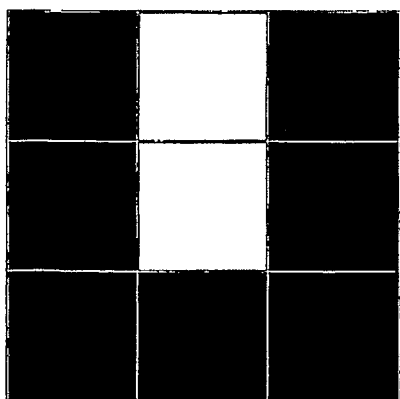


Fig. 11A

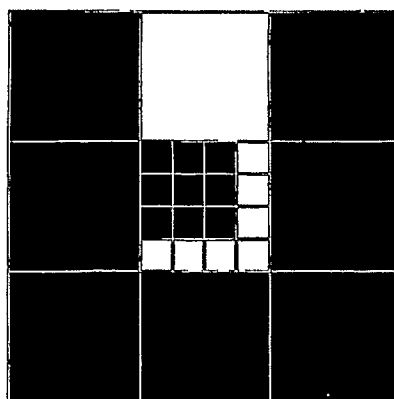


Fig. 11B

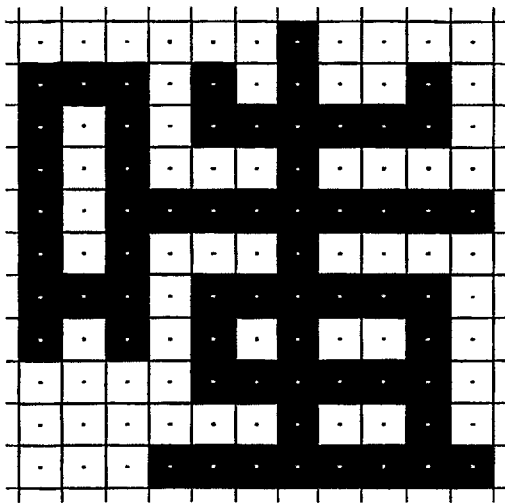


Fig. 12A

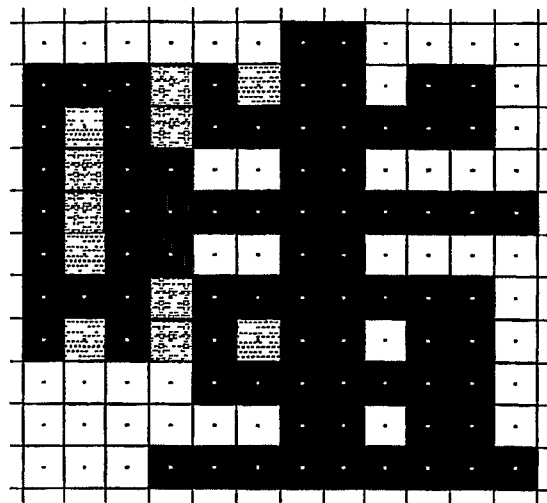


Fig. 12B

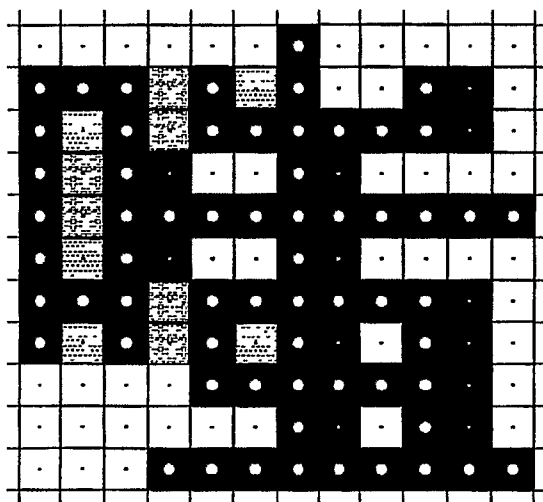


Fig. 12C

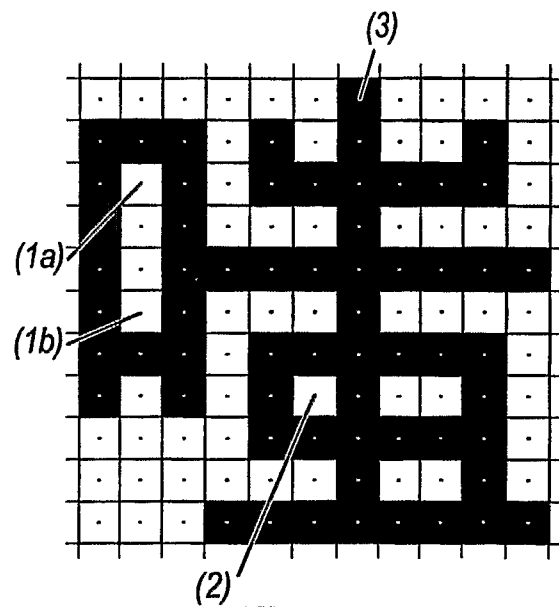


Fig. 12D

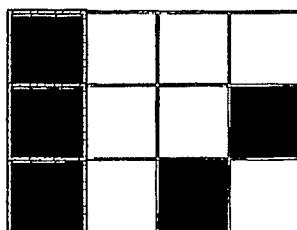


Fig. 13

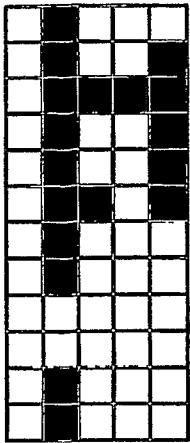


Fig. 14A

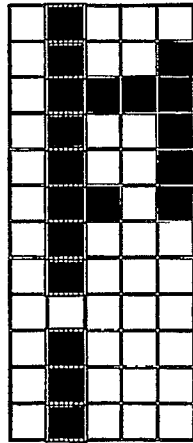


Fig. 14B

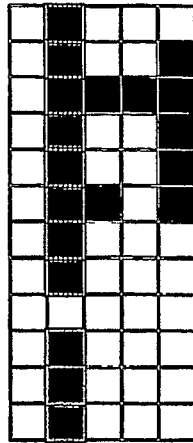


Fig. 14C

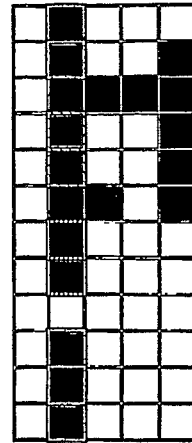


Fig. 14D

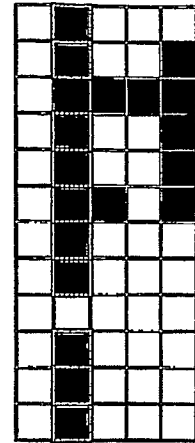


Fig. 14E

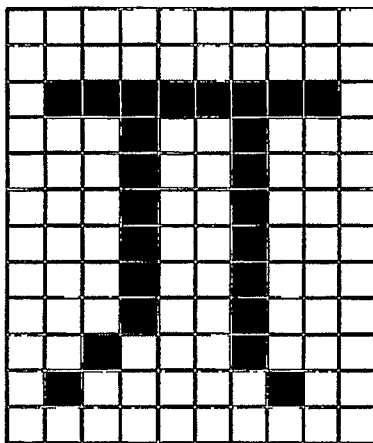


Fig. 15A

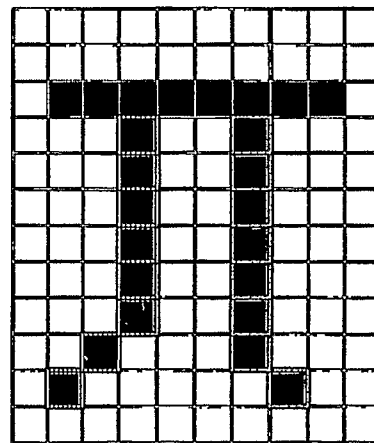


Fig. 15B

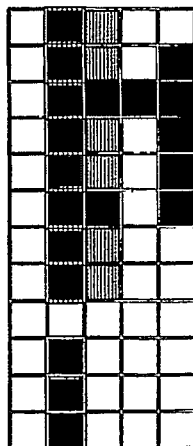


Fig. 16

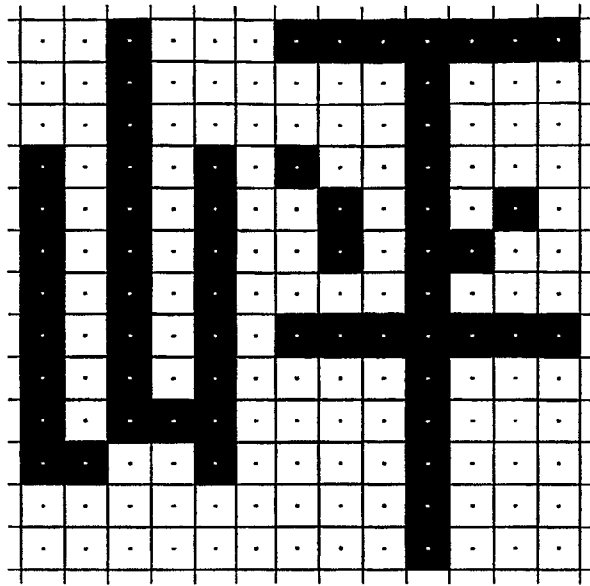


Fig. 15A

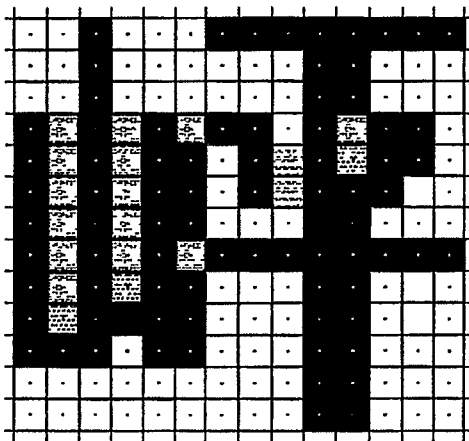


Fig. 17B

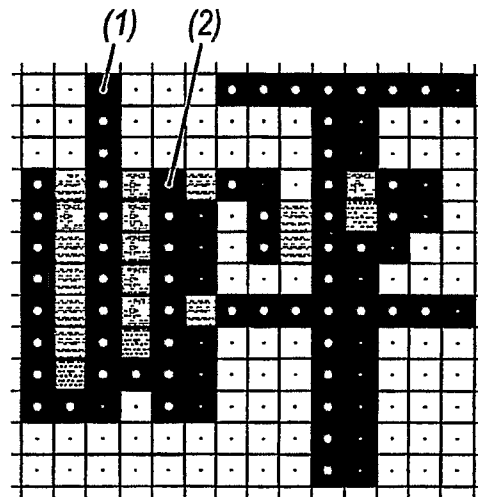


Fig. 17C

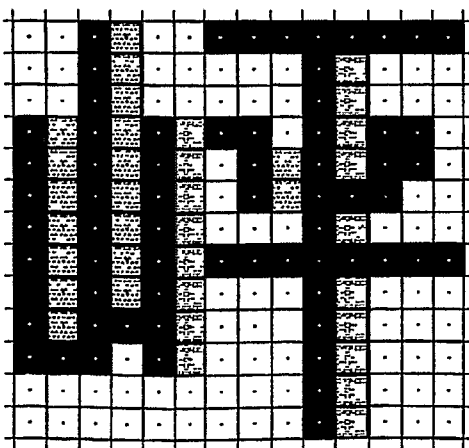


Fig. 17D

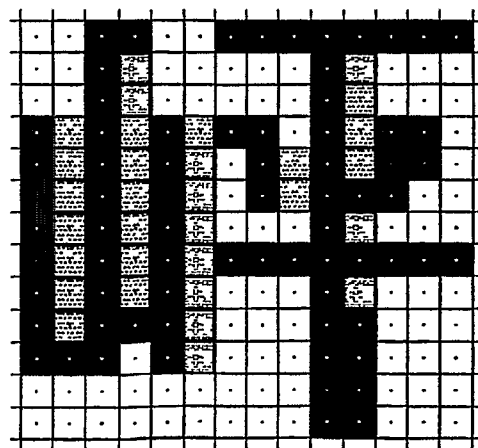
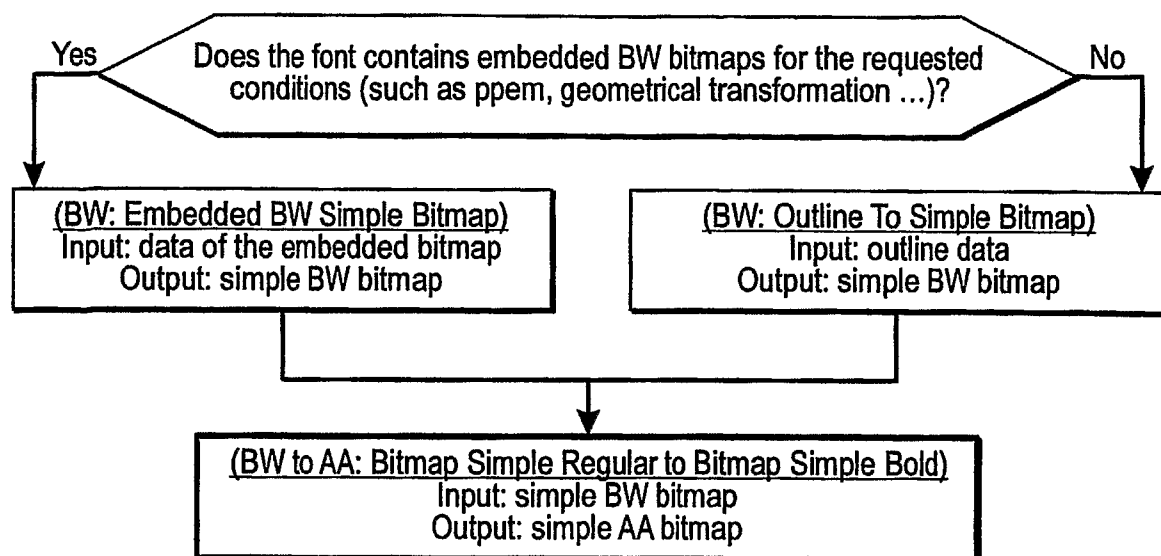
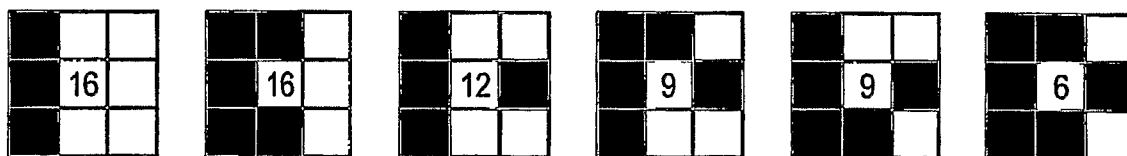
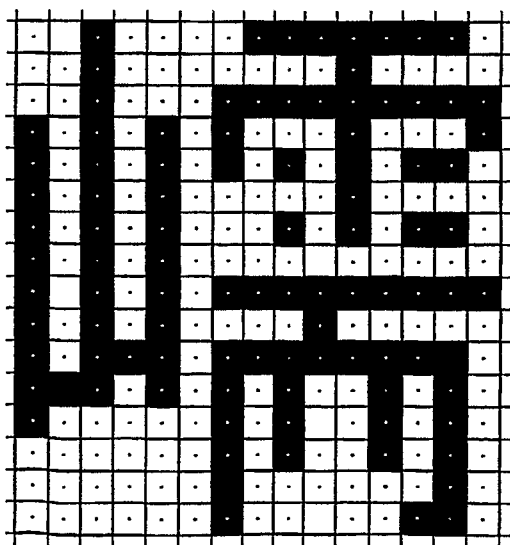
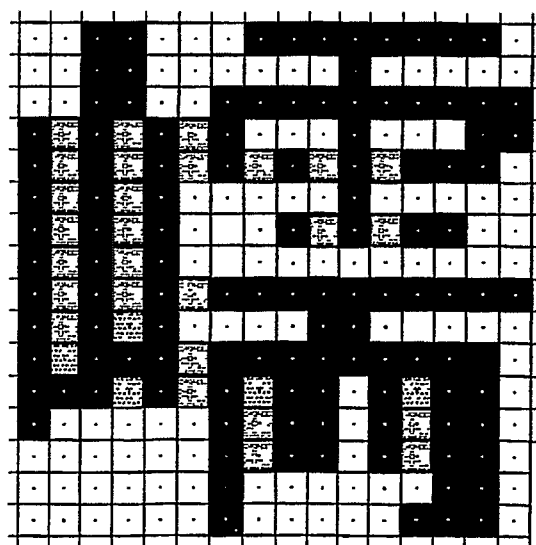


Fig. 17E

**Fig. 18****Fig. 19****Fig. 20A****Fig. 20B**

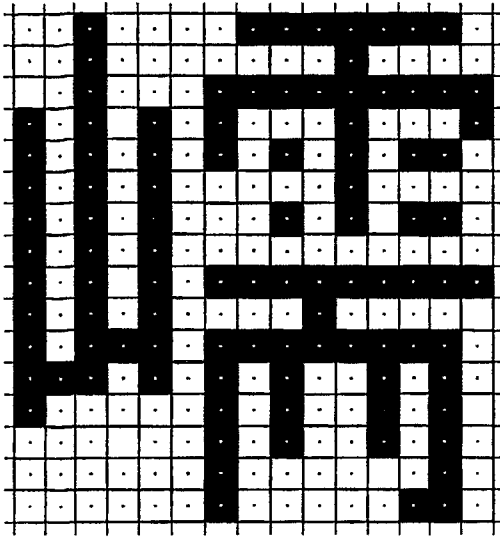


Fig. 21A

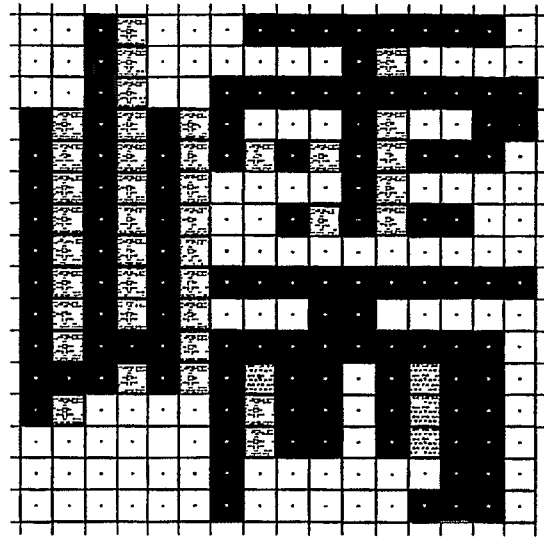


Fig. 21B

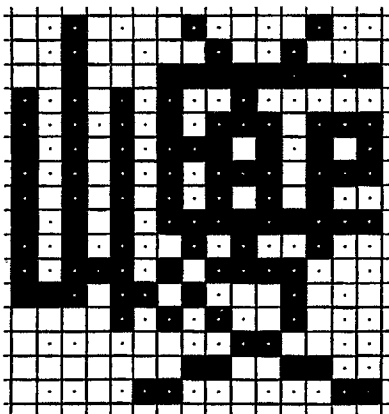


Fig. 22A

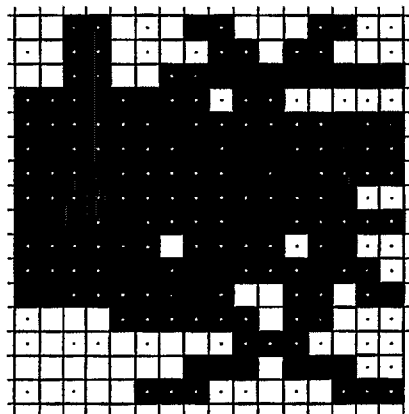


Fig. 22B

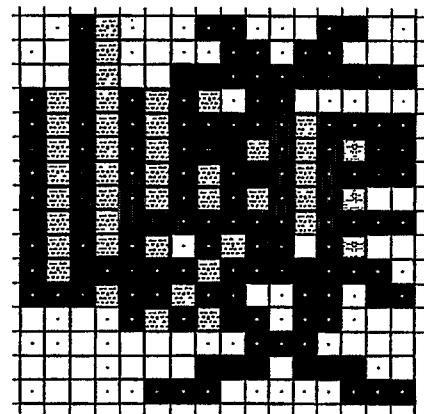


Fig. 22C

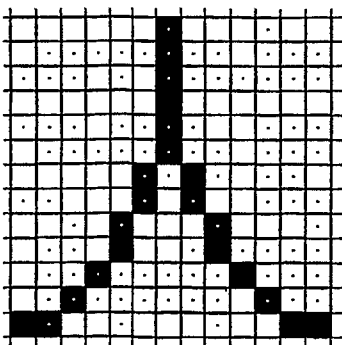


Fig. 23A

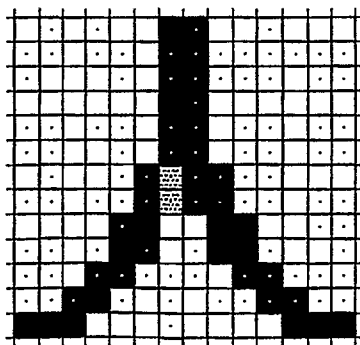


Fig. 23B

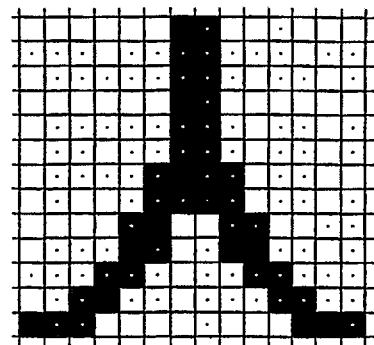


Fig. 23C

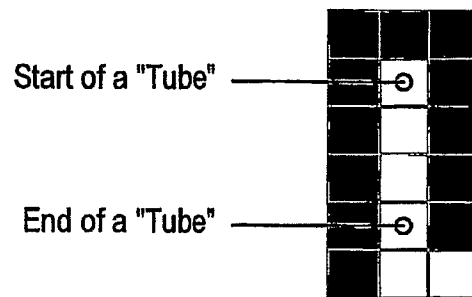


Fig. 24A

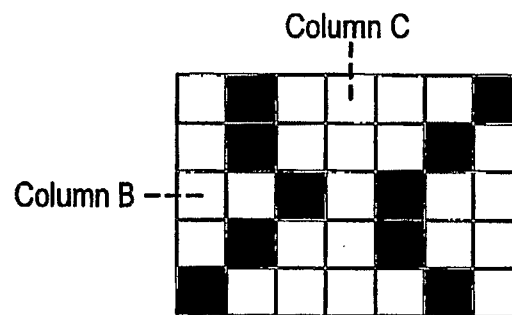


Fig. 25

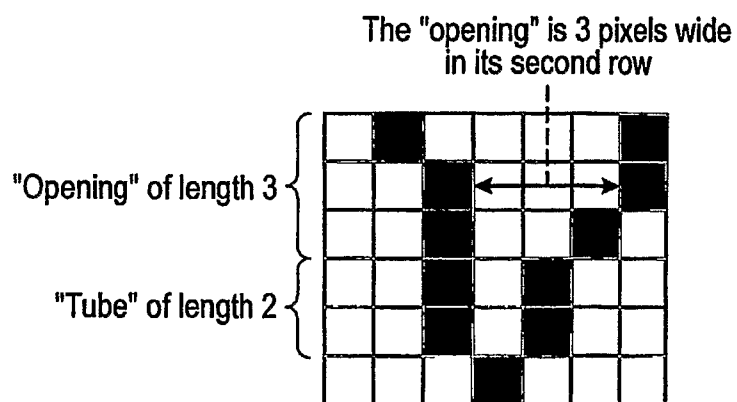
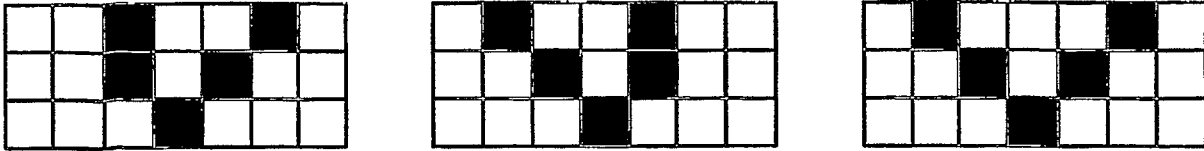
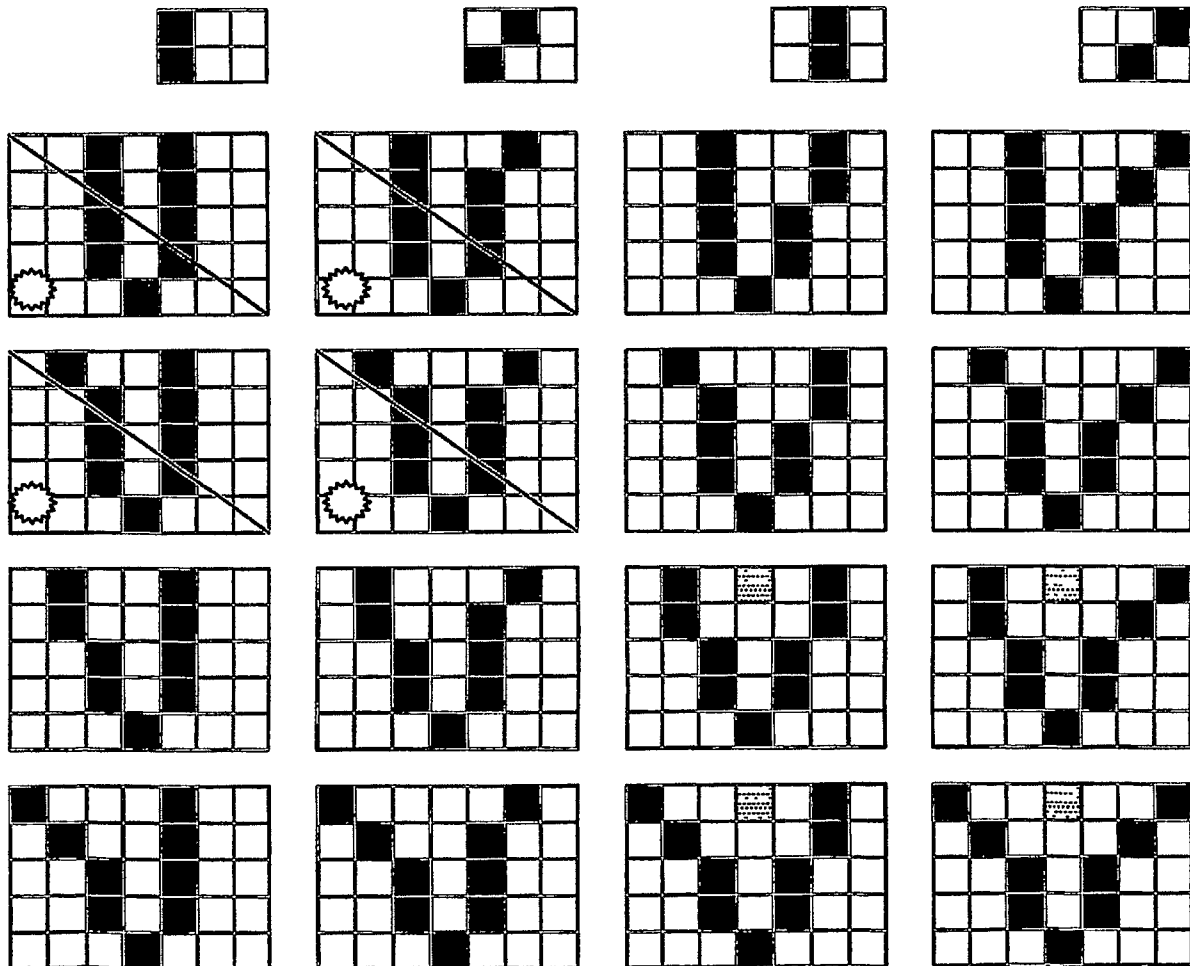


Fig. 26

**Fig. 27**

☼ 1st row of opening is only 1 pixel wide

▨ Pixel can be white or black

**Fig. 28**