

Fig.1

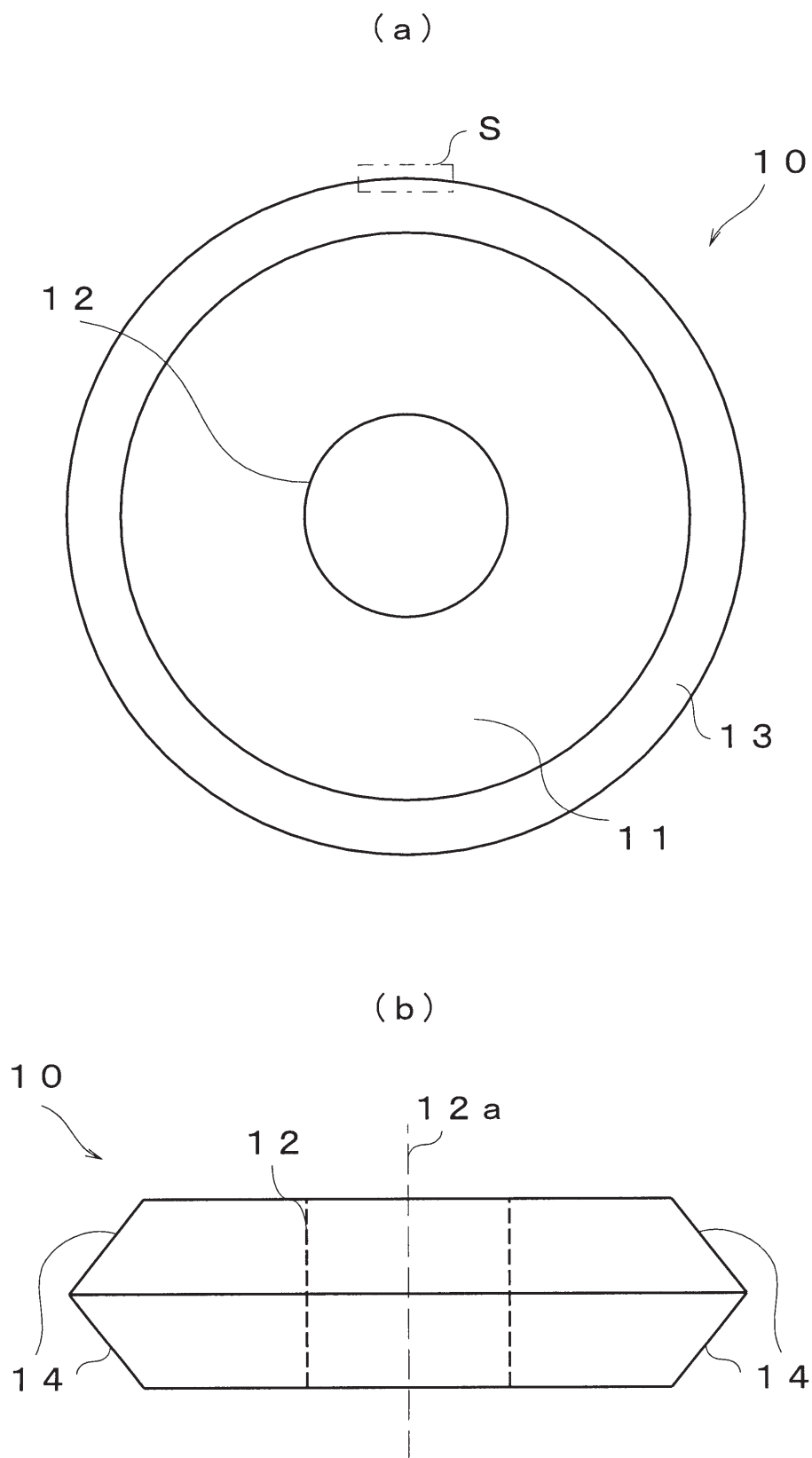


Fig.2

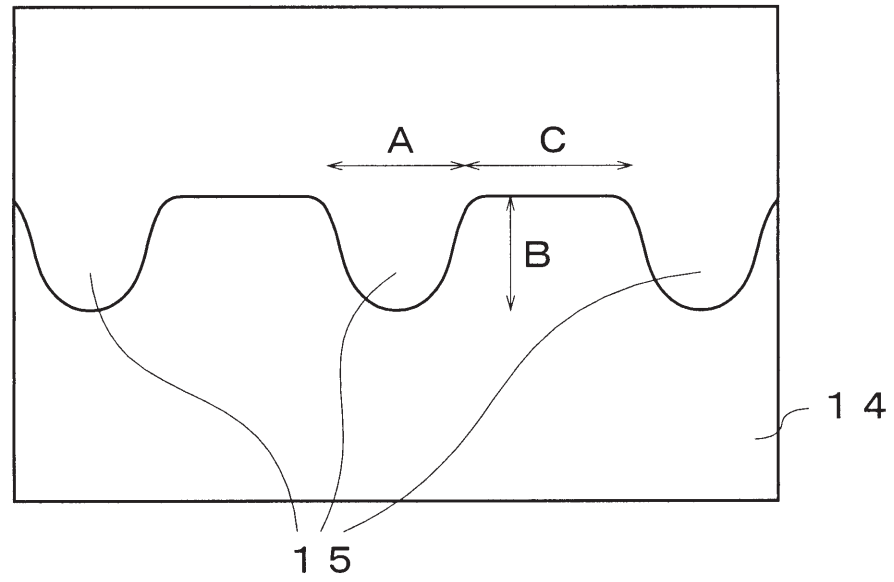


Fig.3

	Groove length	Groove depth	Ridge length	Groove-ridge ratio	Blade edge angle
	A (μm)	B (μm)	C (μm)	A / C	D ($^{\circ}$)
Example 1	1 2	3	6	2.00	115
Example 2	9	3	6	1.50	115
Example 3	9	1.5	6	1.50	115
Example 4	1 2	3	8.5	1.41	115
Example 5	9	3	8.5	1.06	115
Example 6	9	2	8.5	1.06	115
Example 7	9	4	8.5	1.06	115
Comparative example 1	1 2	3	1 2	1.00	115
Comparative example 2	6	3	6	1.00	115
Comparative example 3	9	3	1 2	0.75	115
Comparative example 4	6	3	8.5	0.71	115

Fig.4

		Scribing load (N)				
		1.20	1.43	1.68	1.95	2.22
Example 1	Scribing Cross section	△ —	○ ○	○ ○	× ○	× ×
Example 2	Scribing Cross section	△ —	○ ○	○ ○	× ×	× ×
Example 3	Scribing Cross section	△ —	○ ○	○ ×	× ×	× ×
Example 4	Scribing Cross section	△ —	△ —	○ ○	× ○	× ○
Example 5	Scribing Cross section	△ —	△ ○	○ ○	× ×	× ×
Example 6	Scribing Cross section	△ —	△ ○	○ ○	× ×	× ×
Example 7	Scribing Cross section	△ —	△ ○	○ ×	× ×	× ×
Comparative example 1	Scribing Cross section	×	×	×	×	×
		—	×	×	×	×
Comparative example 2	Scribing Cross section	○ ×	×	×	×	×
		×	×	×	×	×
Comparative example 3	Scribing Cross section	△ ×	×	×	×	×
		×	×	×	×	×
Comparative example 4	Scribing Cross section	△ —	○ ×	×	×	×
		—	×	×	×	×

Fig.5

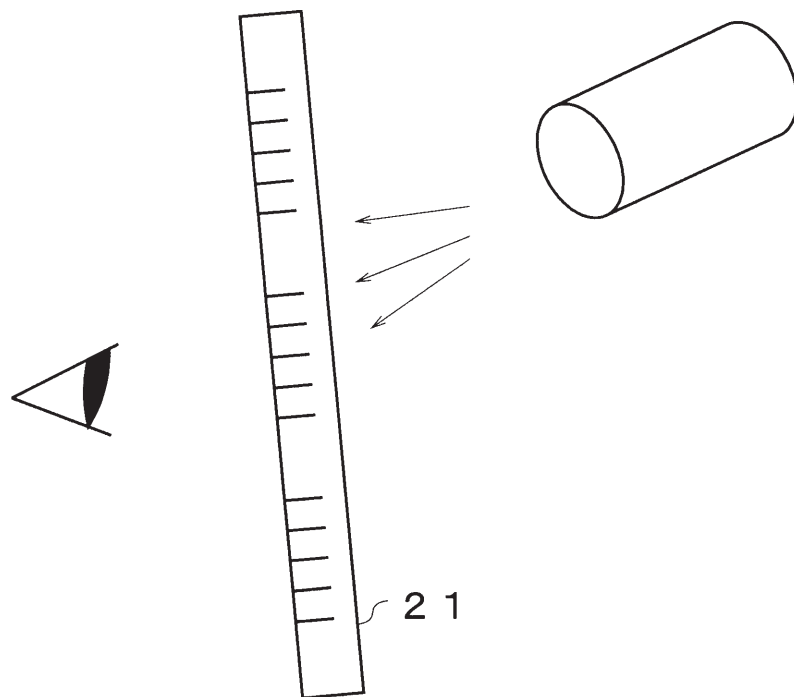


Fig.6A

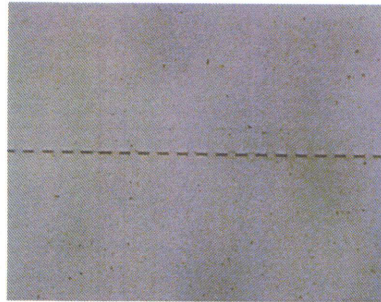


Fig.6B

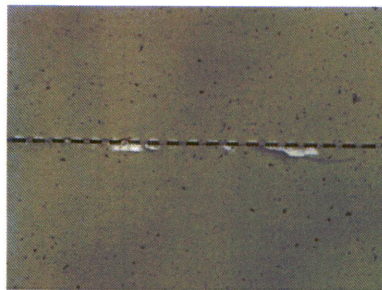


Fig.7A

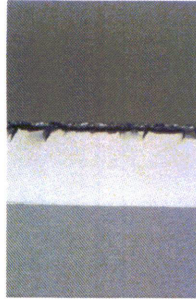


Fig.7B

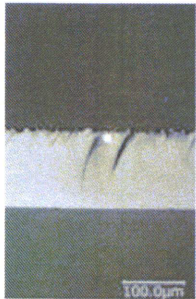


Fig.7C

