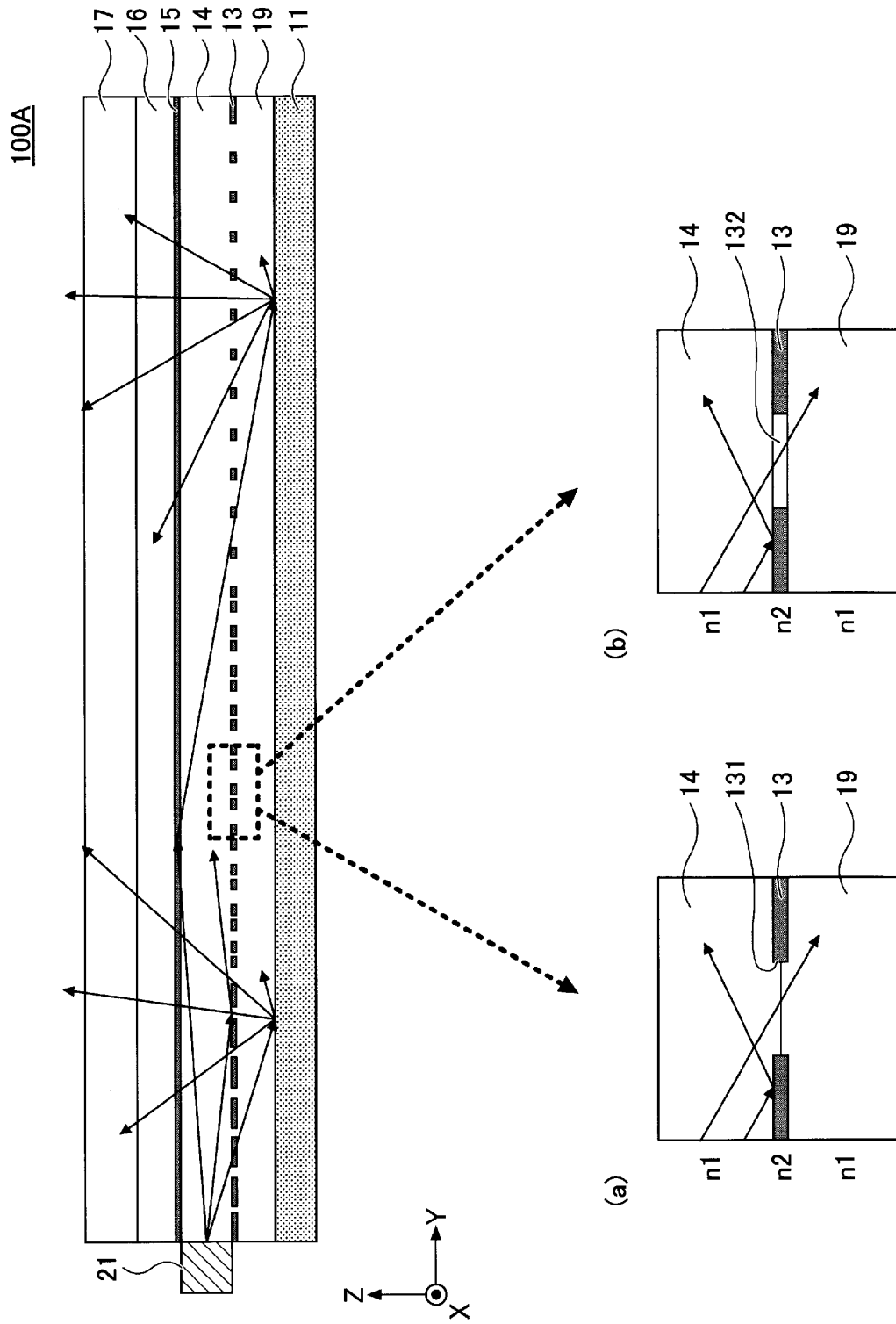
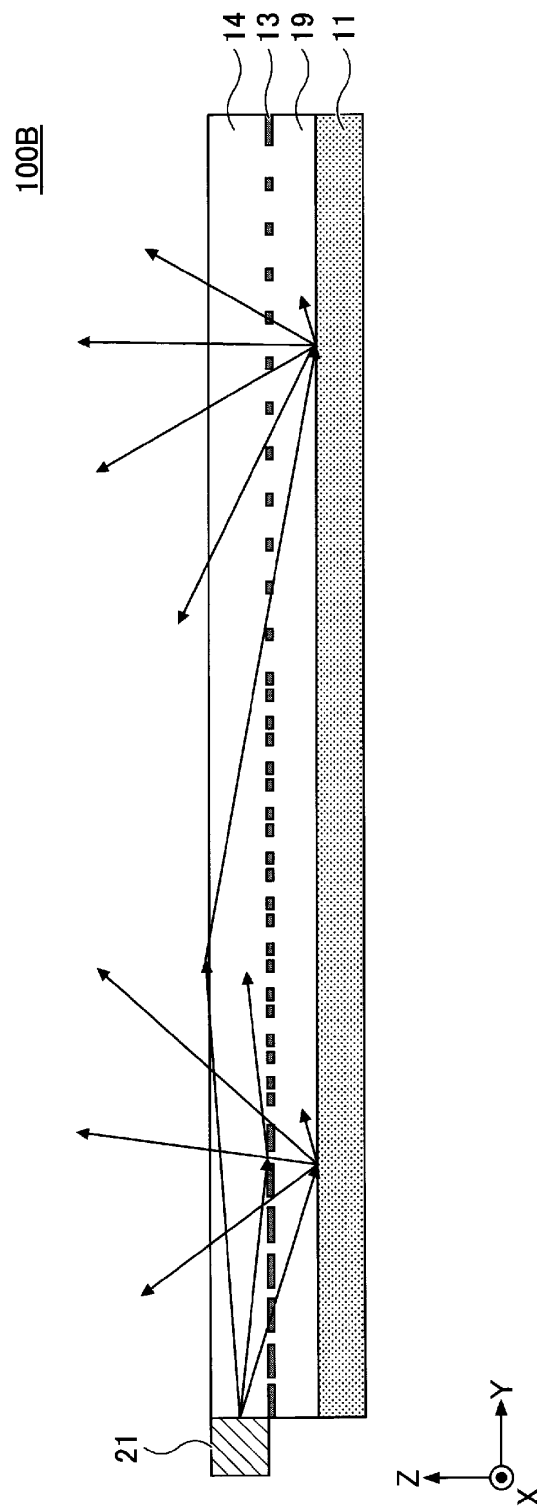


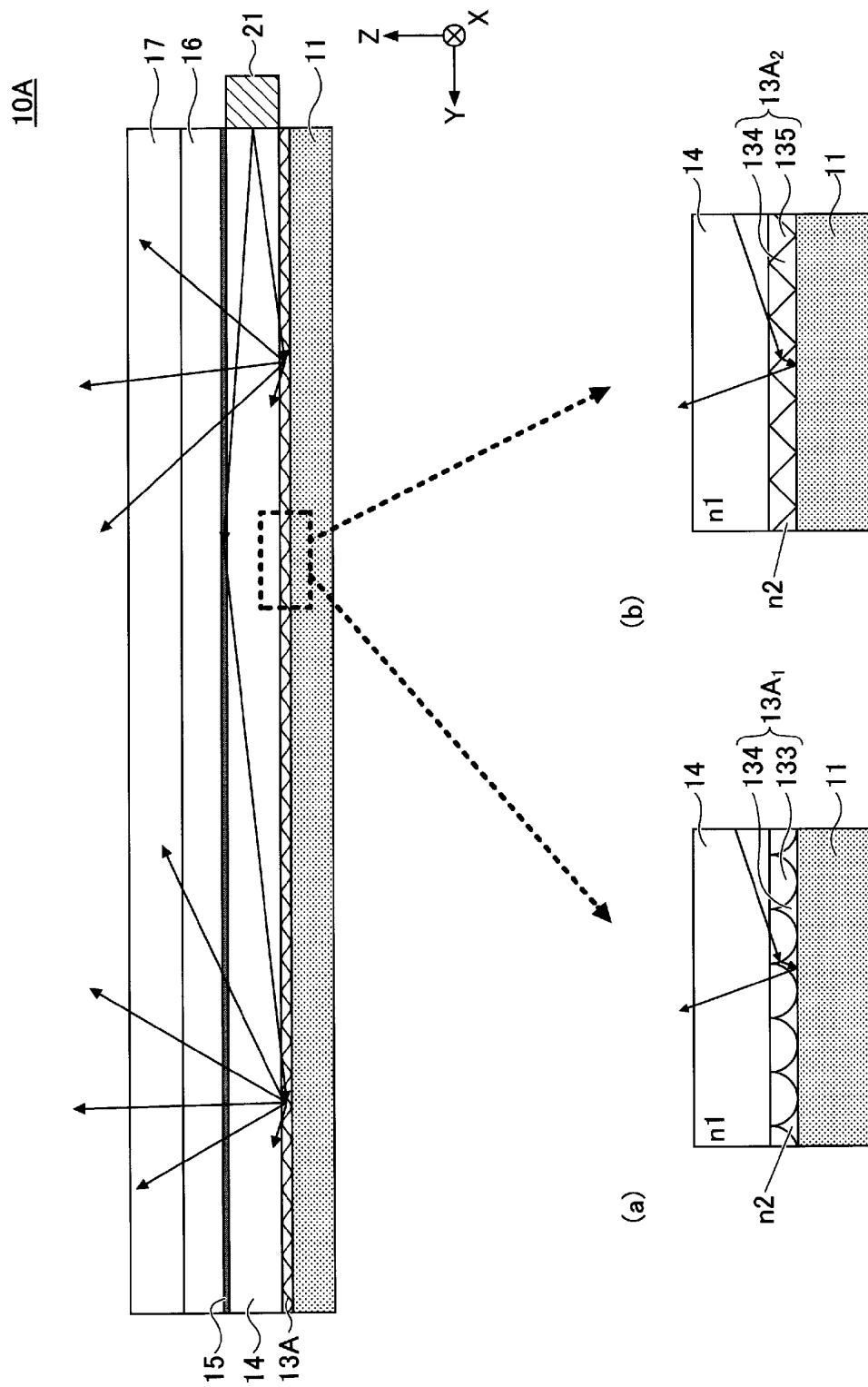
[図1A]



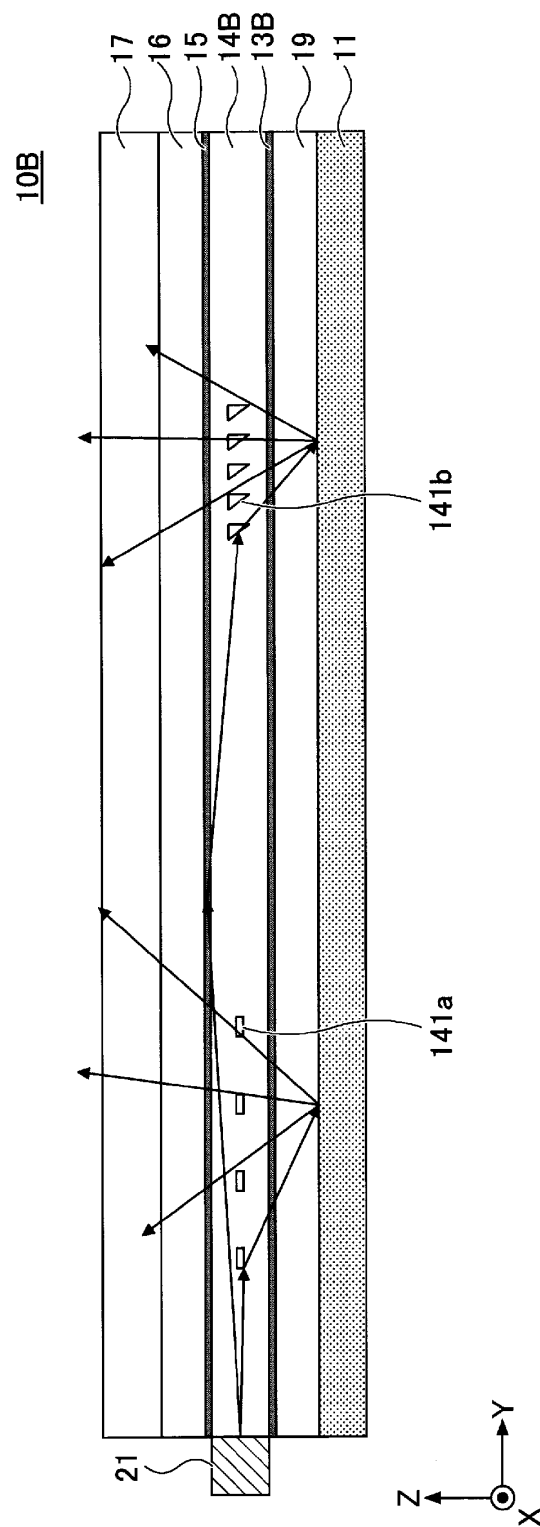
[図1B]



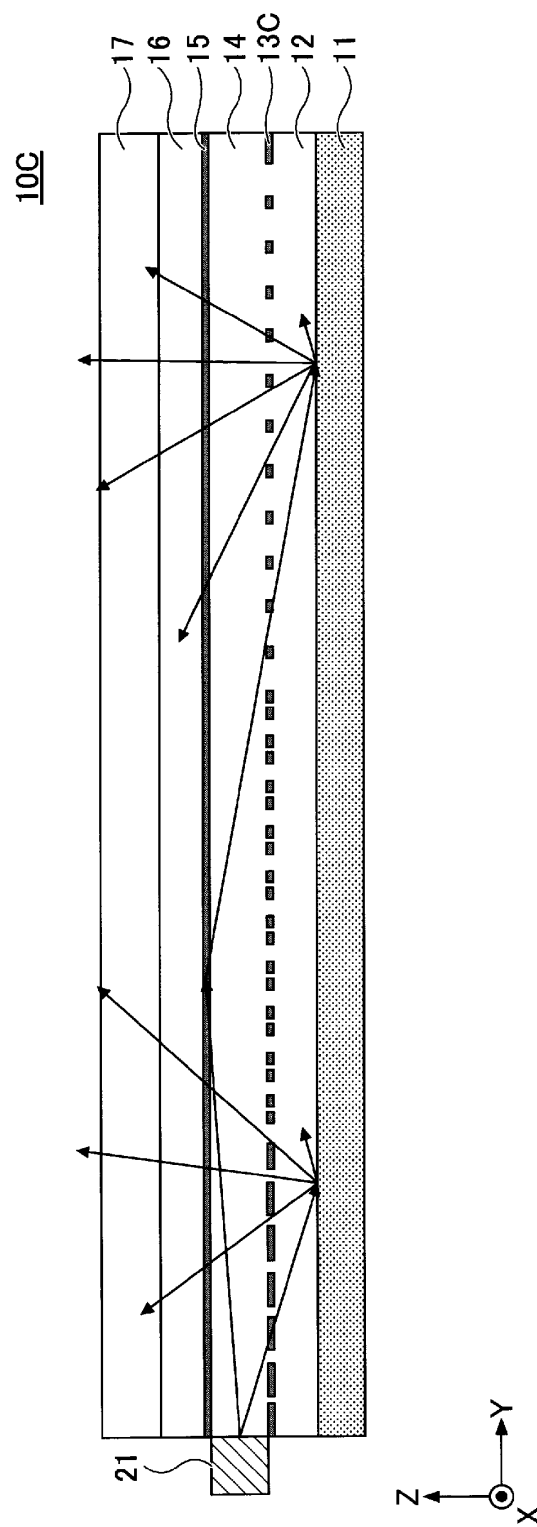
[図2A]



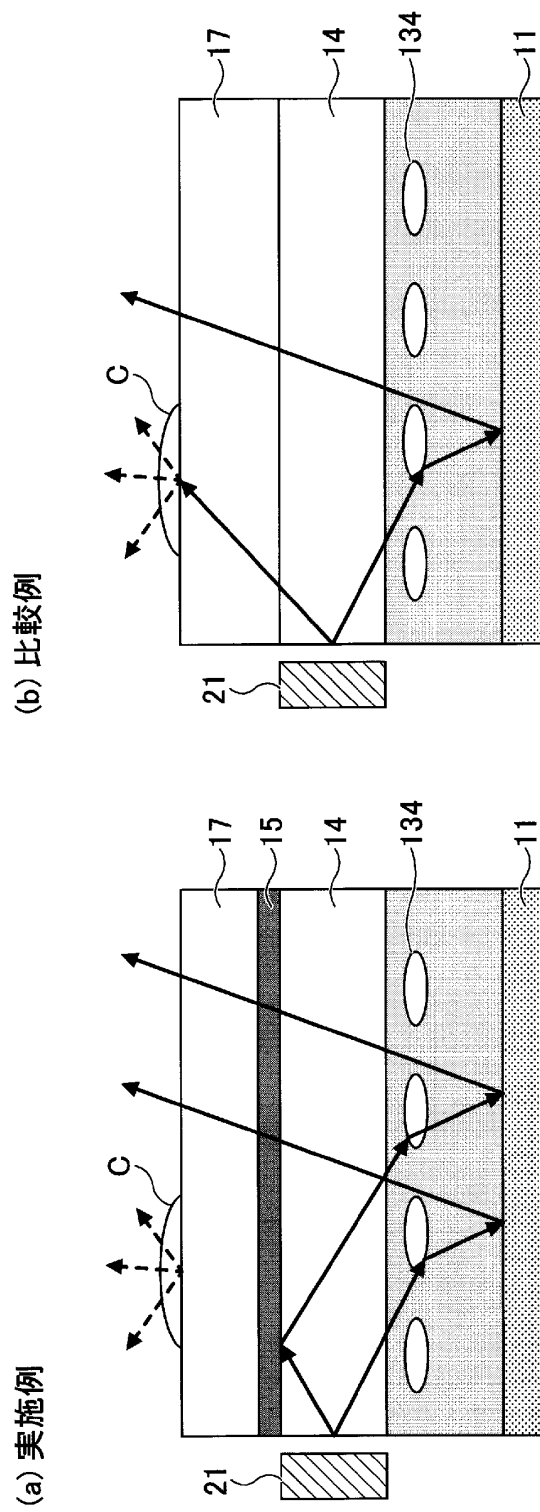
[図2B]



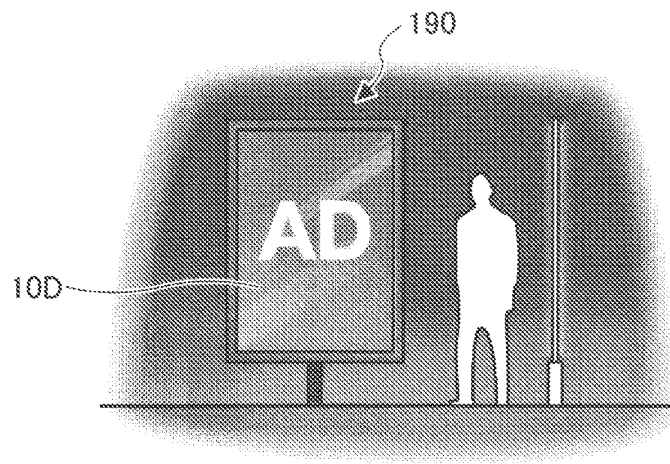
[図2C]



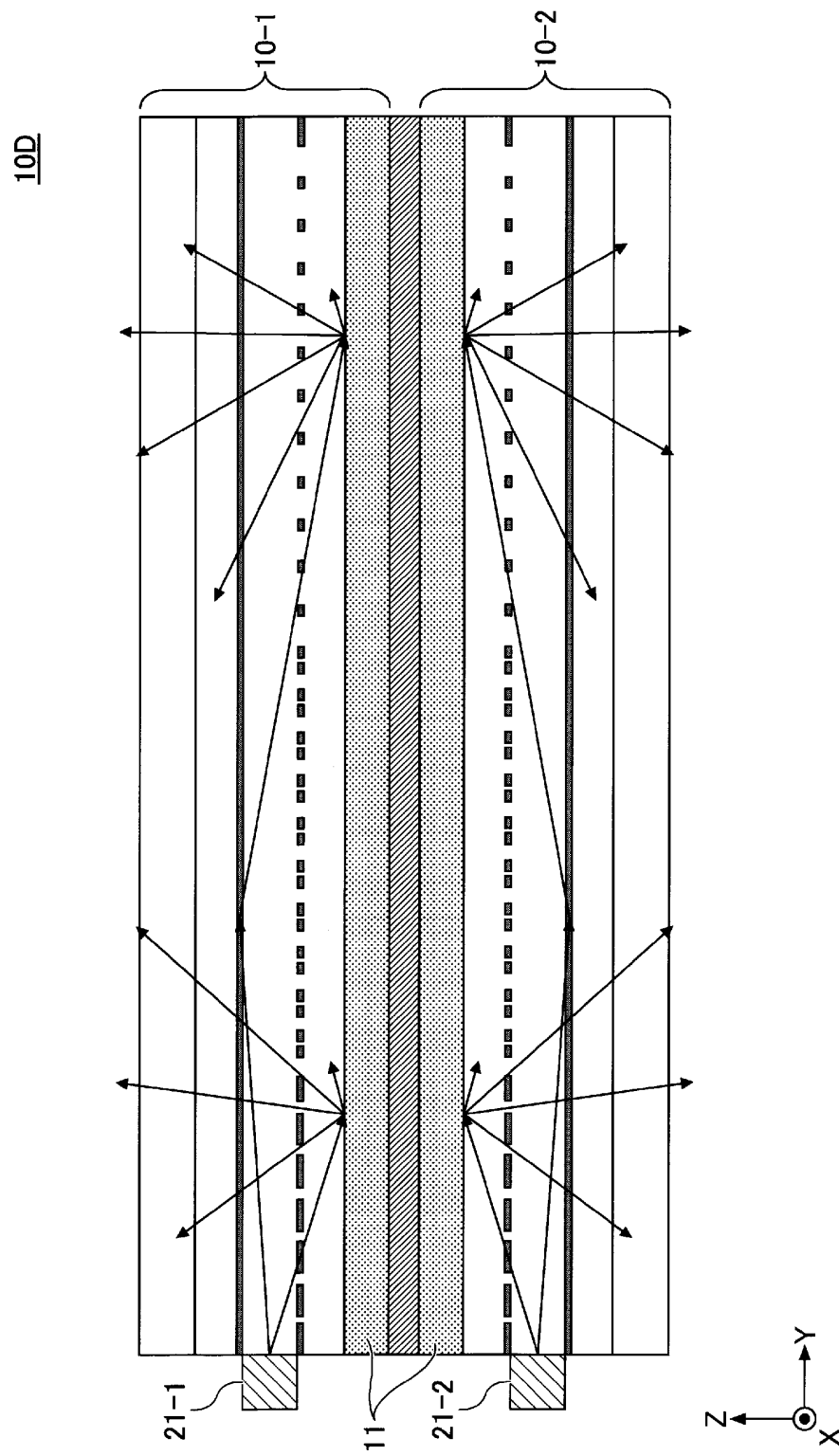
[図2D]



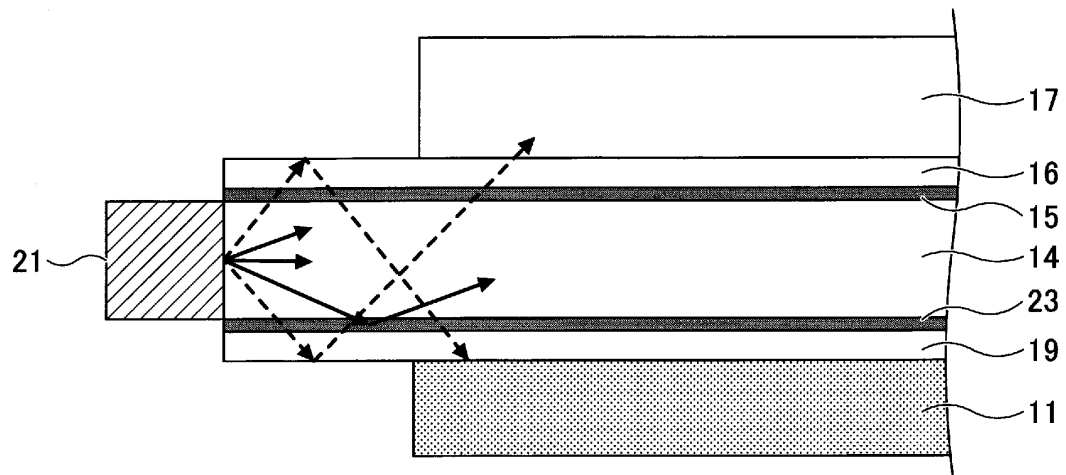
[図2E]



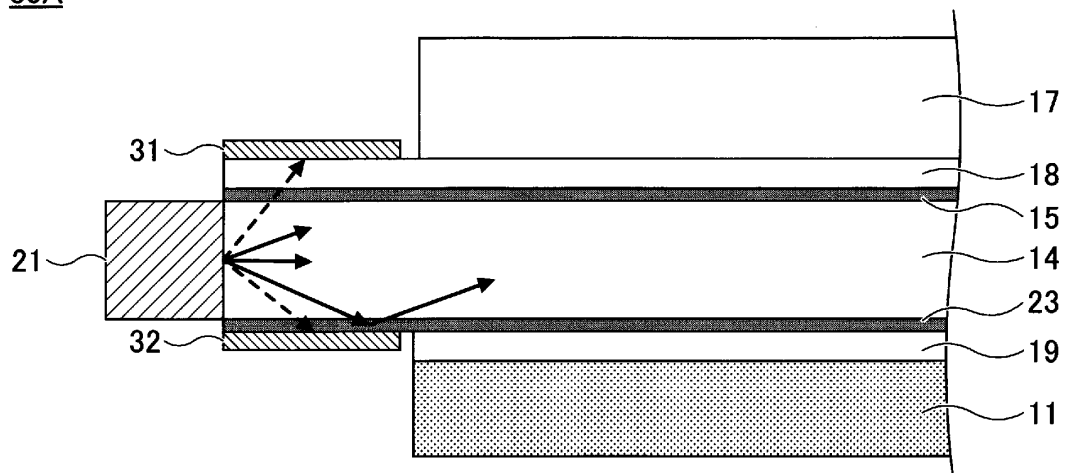
[図2F]



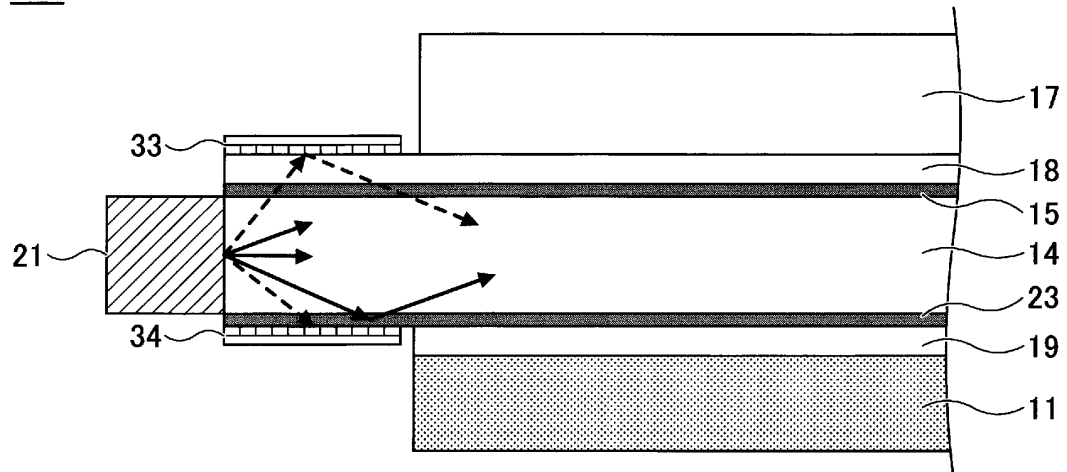
[図3A]



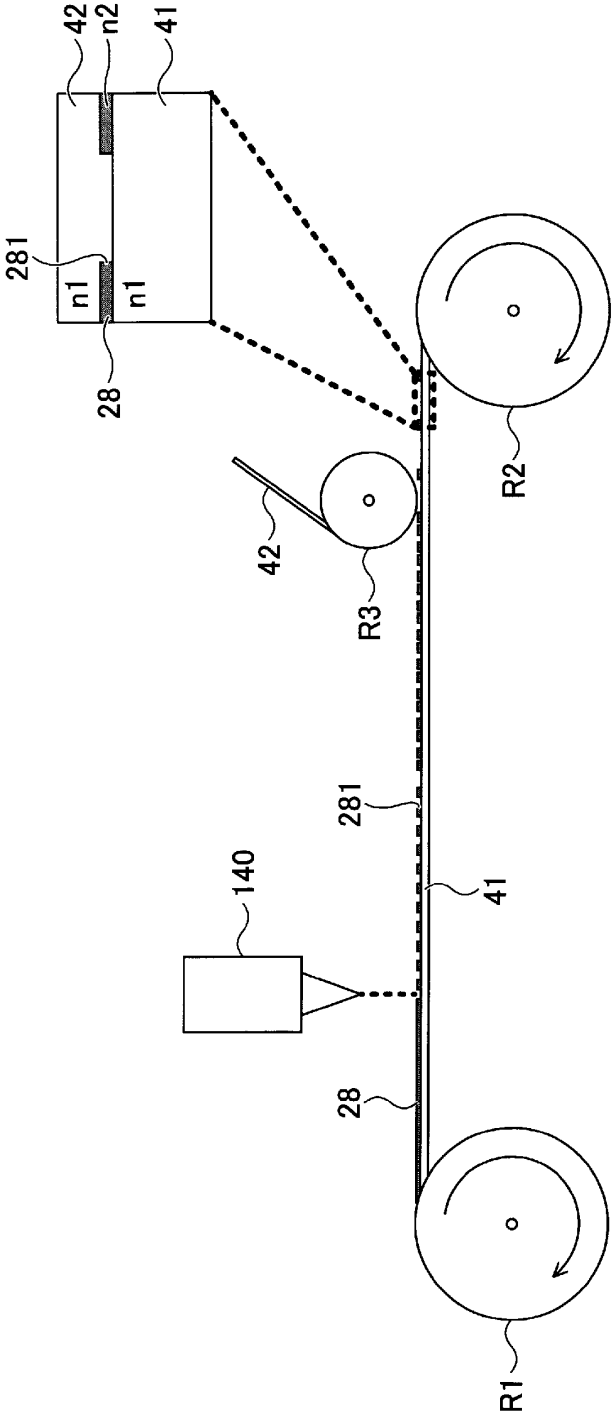
[図3B]

30A

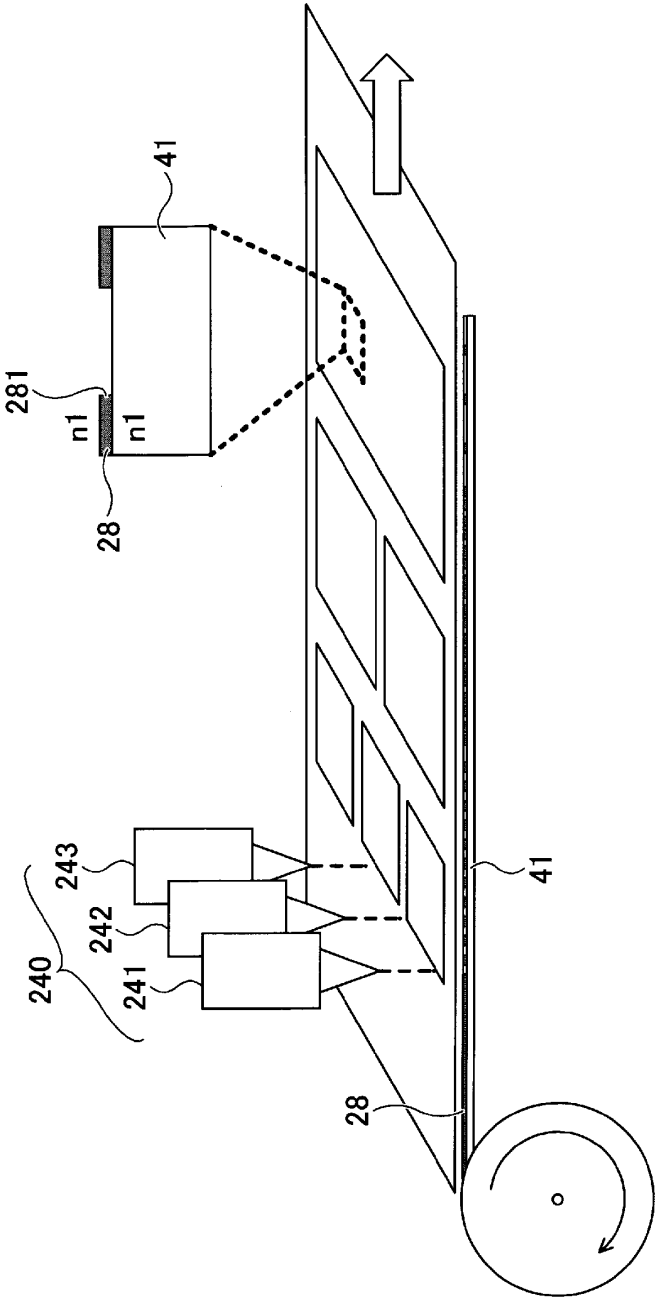
[図3C]

30B

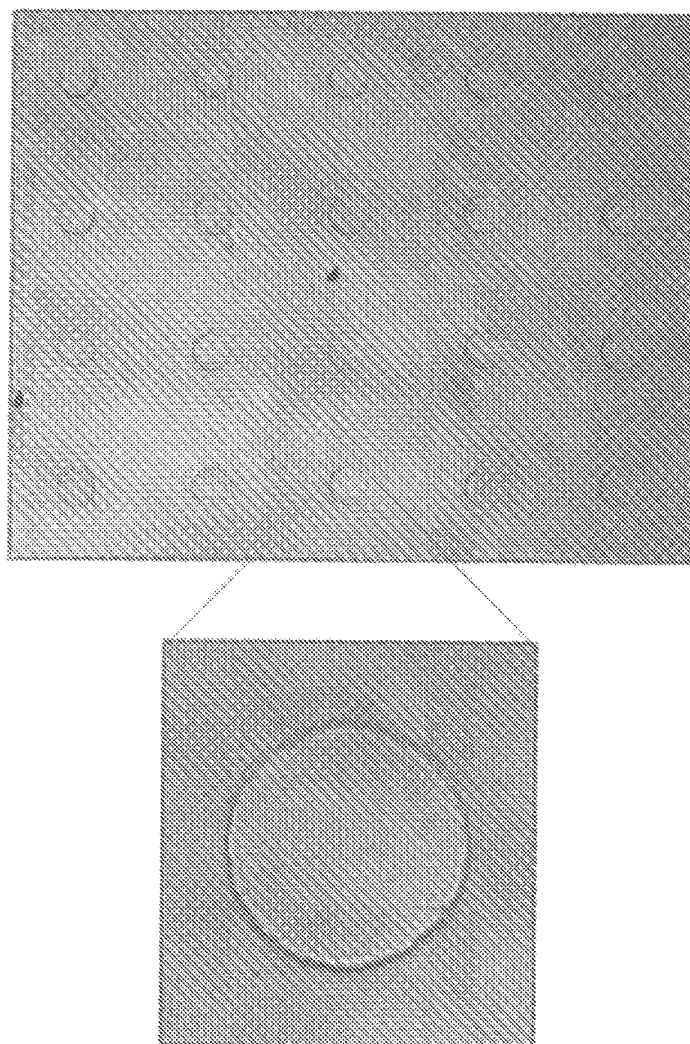
[図4]



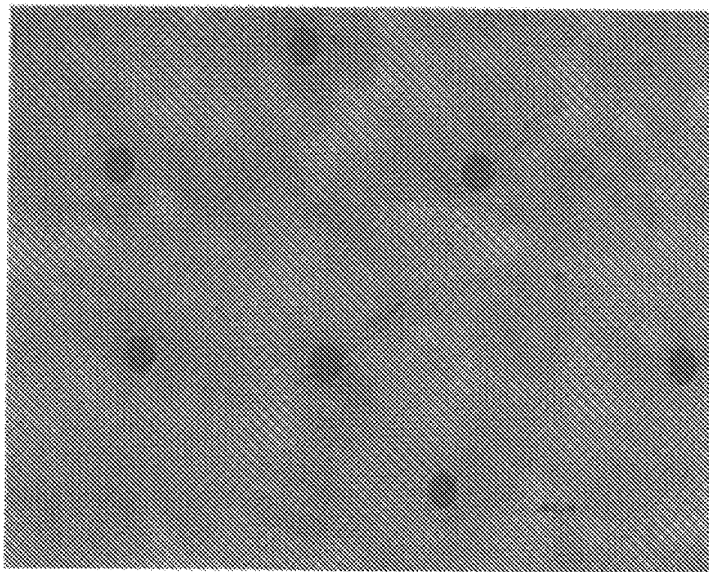
[図5]



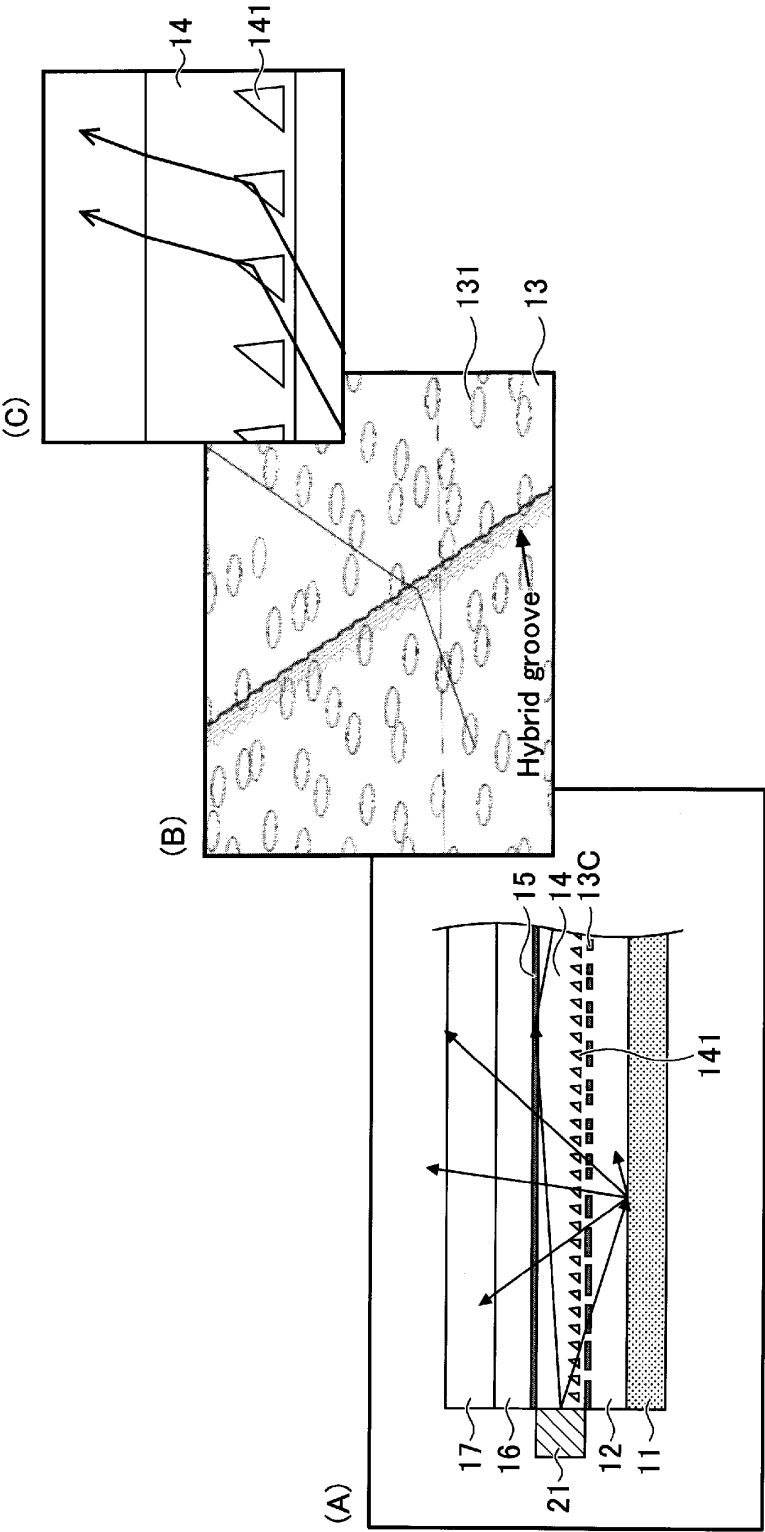
[図6A]



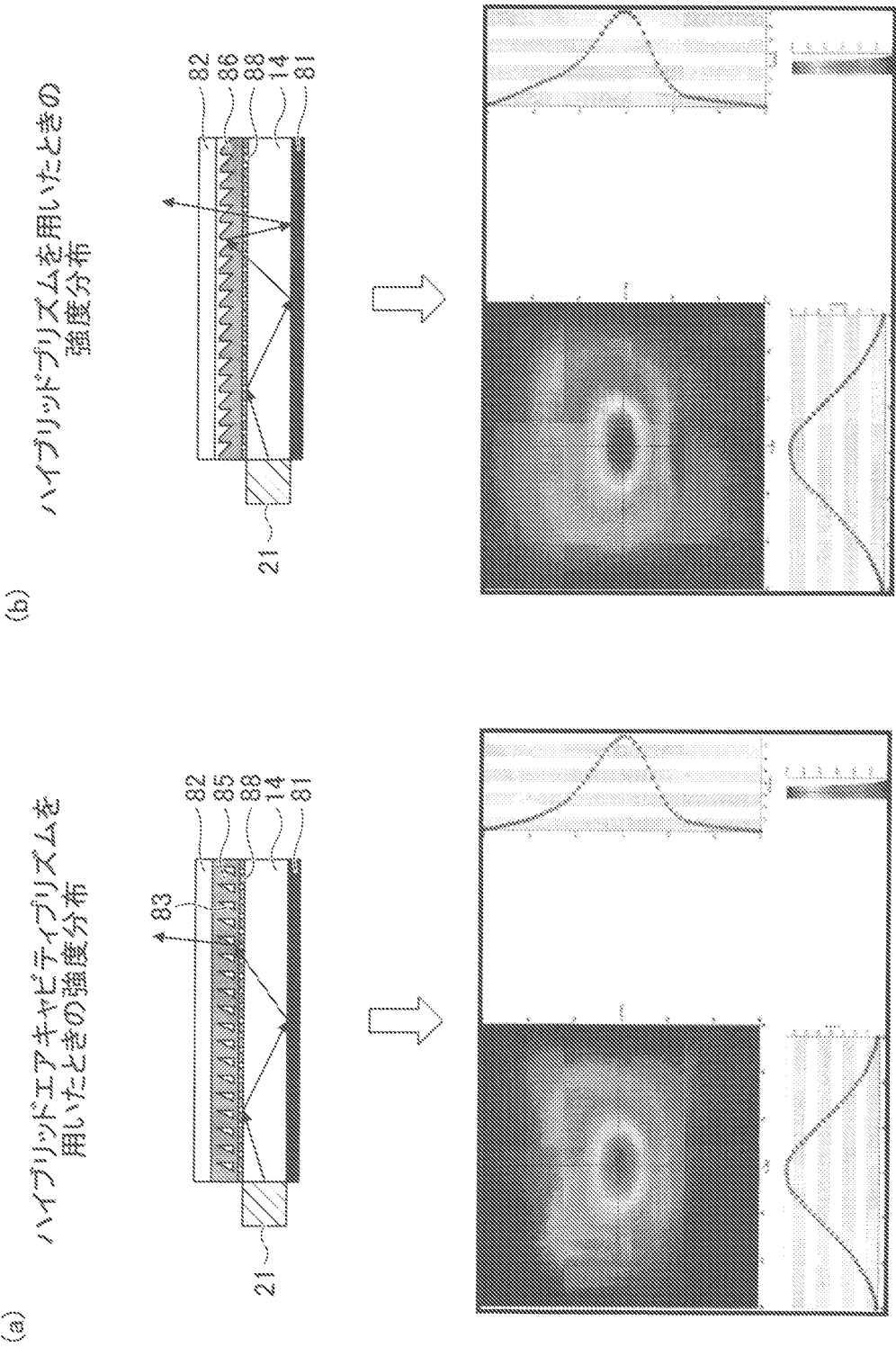
[図6B]



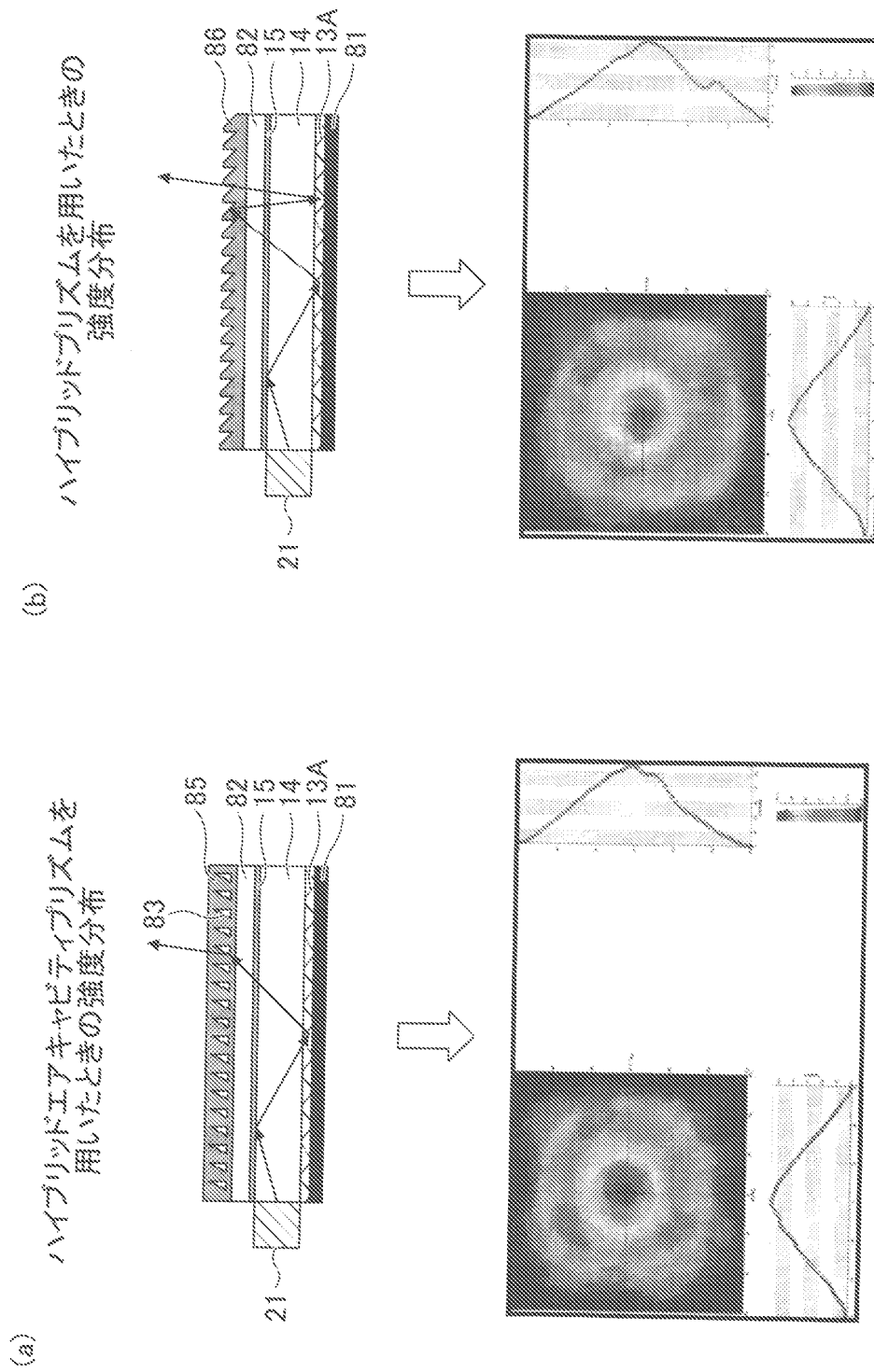
[図7]



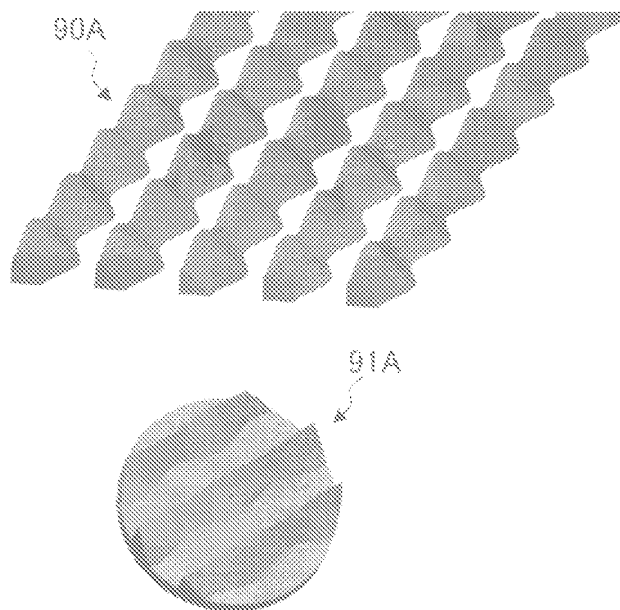
[図8A]



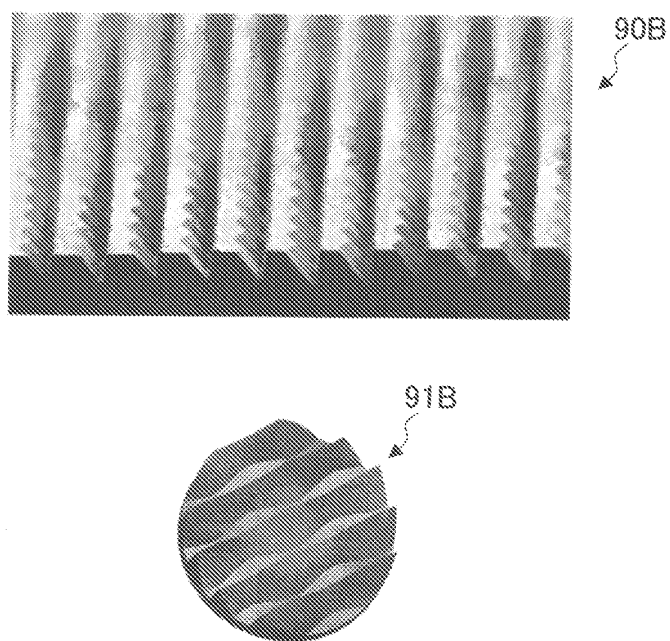
[図8B]



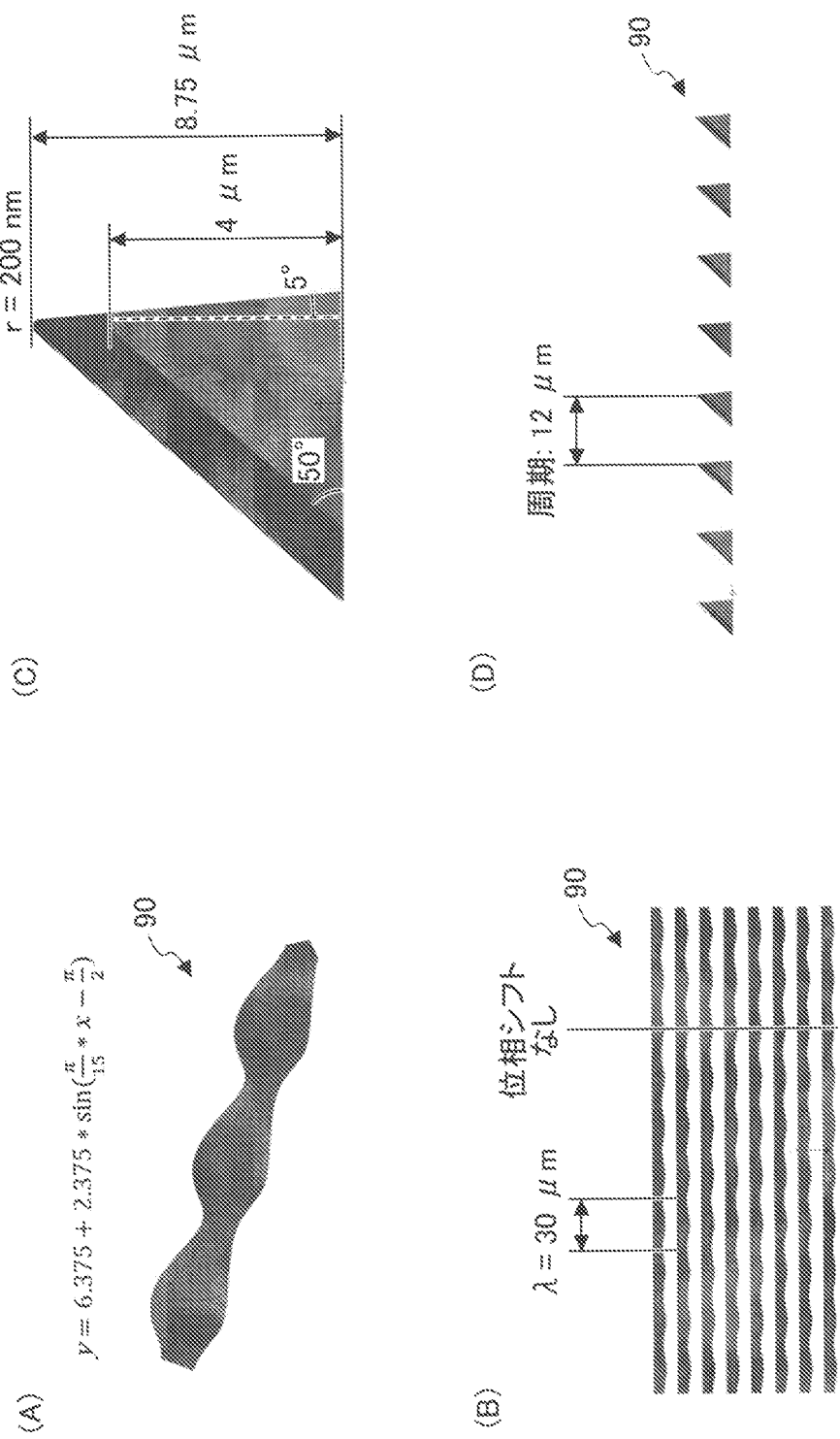
[図9A]



[図9B]

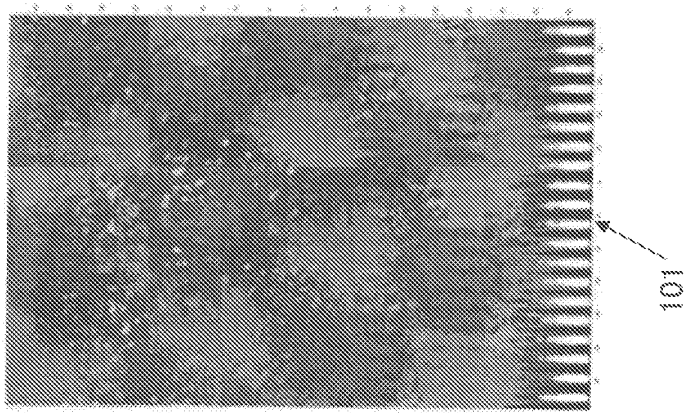


[図10]

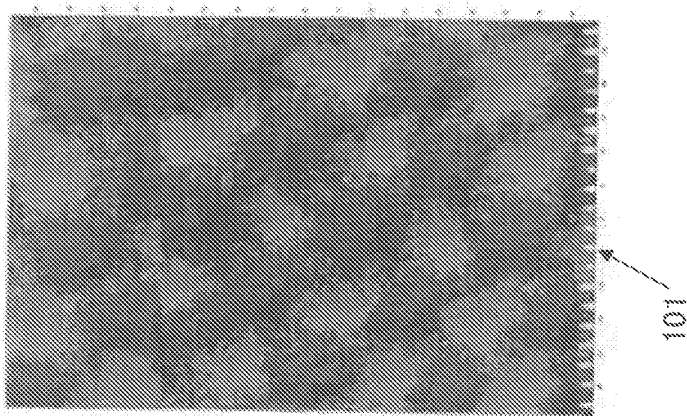


[図11]

(B) リニアパターン



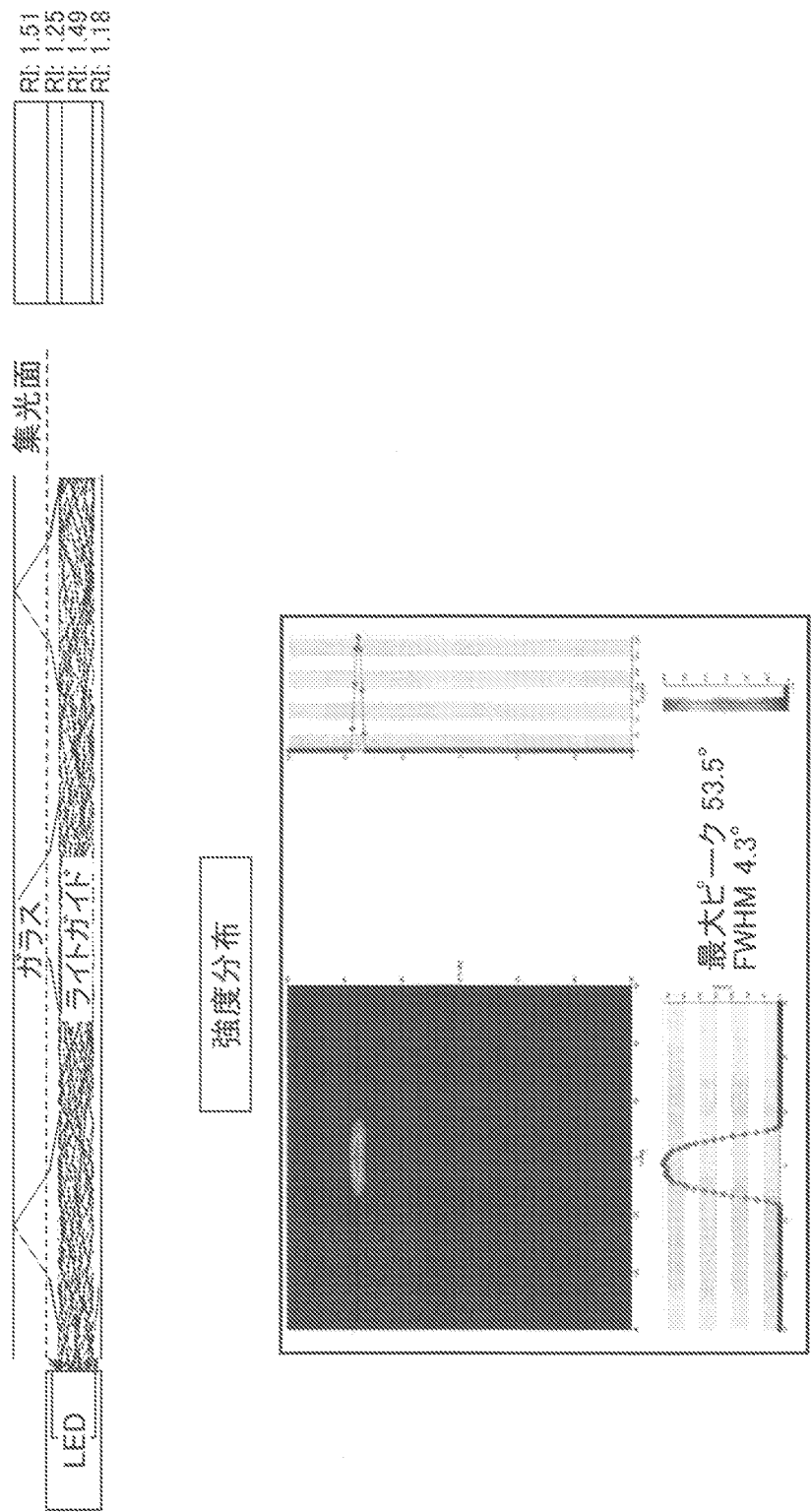
(A) ハイブリッドパターン



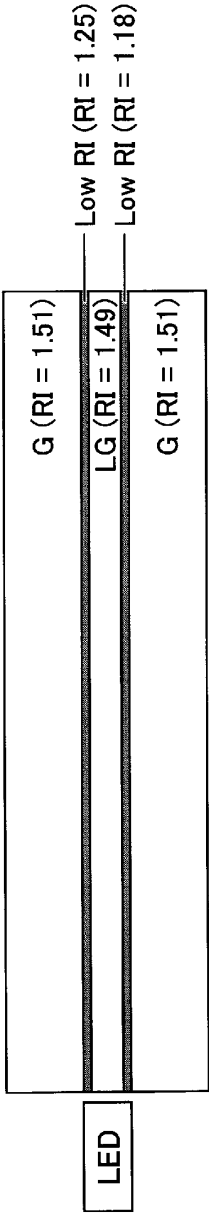
[図12]

	リニア角錐 プリズム	リニア角錐 プリズム	リニア ブレード プリズム	最適化された ハイブリッド プリズム	波状 ハイブリッド プリズム	波状 ハイブリッド プリズム
パターン角度	50° + 50°	50° + 50°	50° + 85°	50° + 85°	50° + 85°	50° + 85°
配置比率: 周期/幅	3	2	3	1.50	3	2
フラット開口設計 充填率/%	20.0	20.0	20.0	20.0	20.0	20.0
取り出しピーク角/°	1.5	4.5	1.5	-1.5	1.5	4.5
半球取り出し効率/%				83	81	82
最大強度/cd	83	86	88	88	83	86
水平 FWHM/°	99	100	96	77	78	75
垂直 FWHM/°	39	41	38	43	40	45
平均空間輝度/ cd/m ²	15615	15621	16412	16739	15450	15862

[図13]

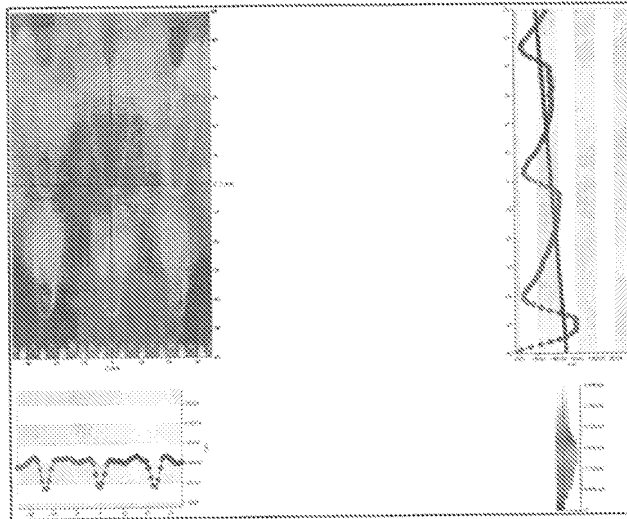


[図14]



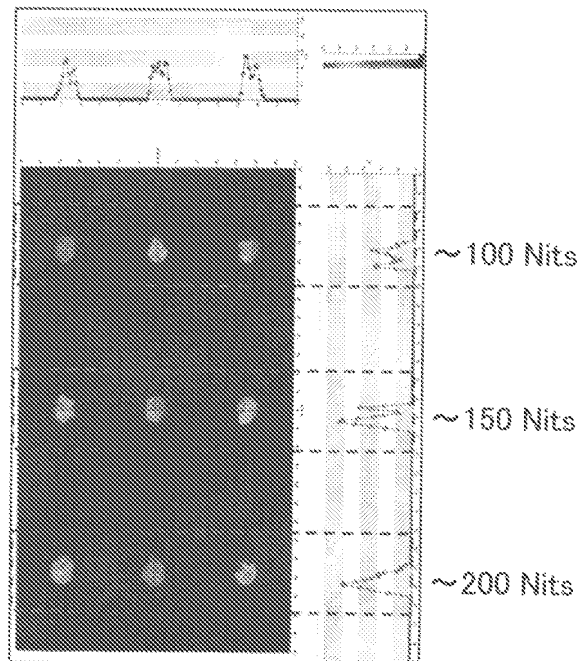
[図15A]

ガラス円部の光束への指紋の影響



[図15B]

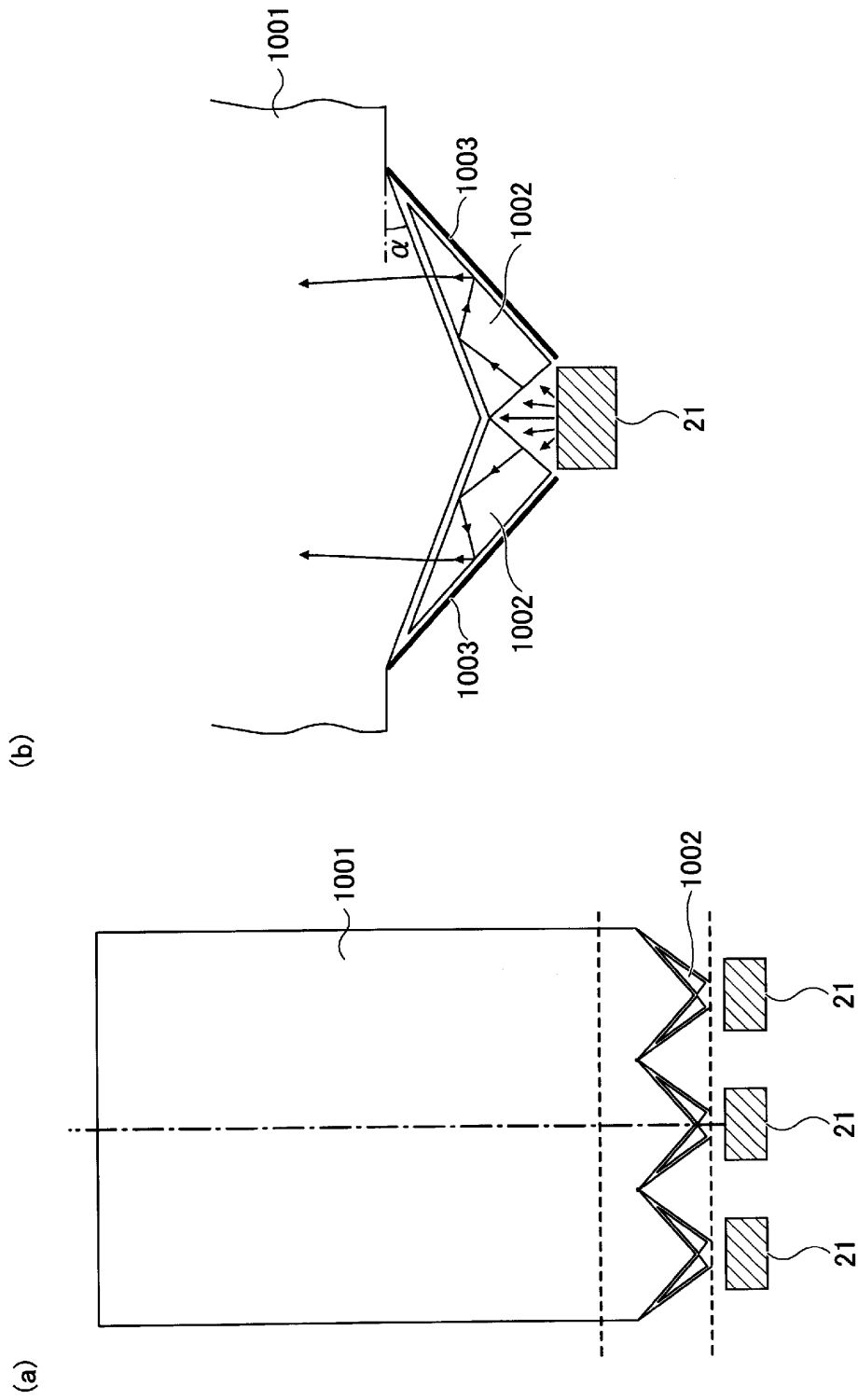
9点での指紋シュミレーション



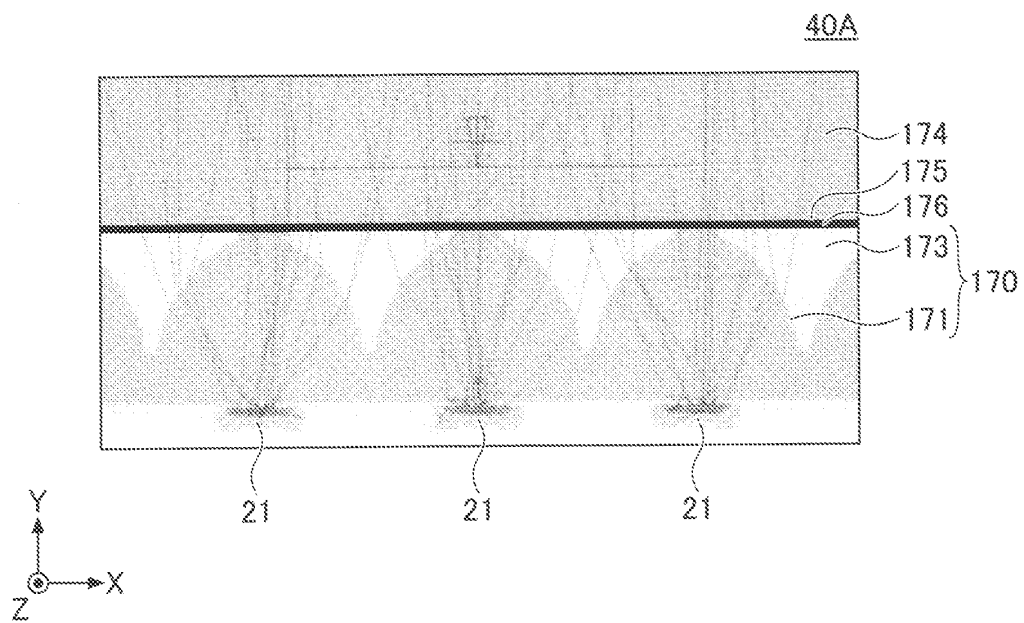
[図16]



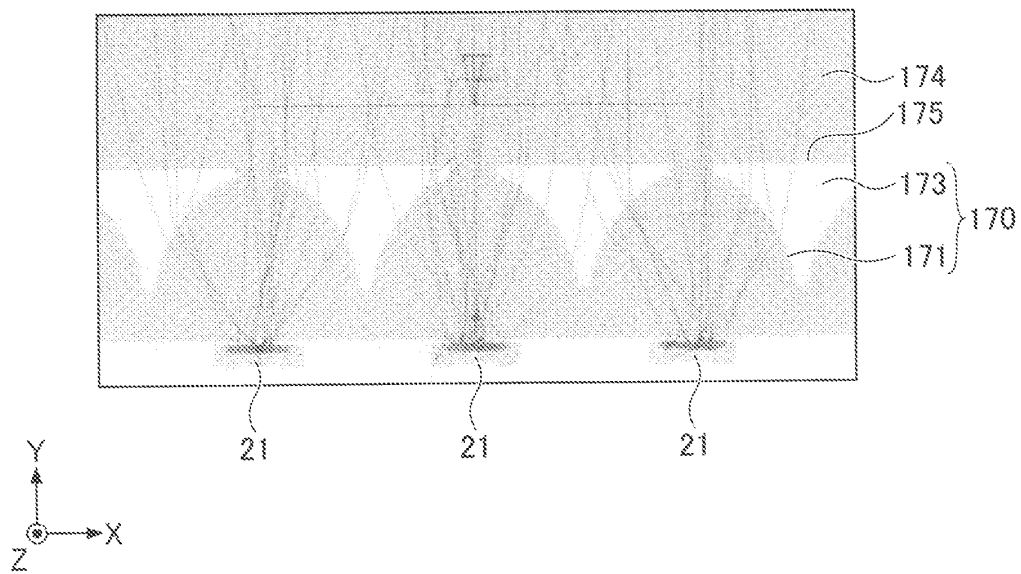
[図17A]



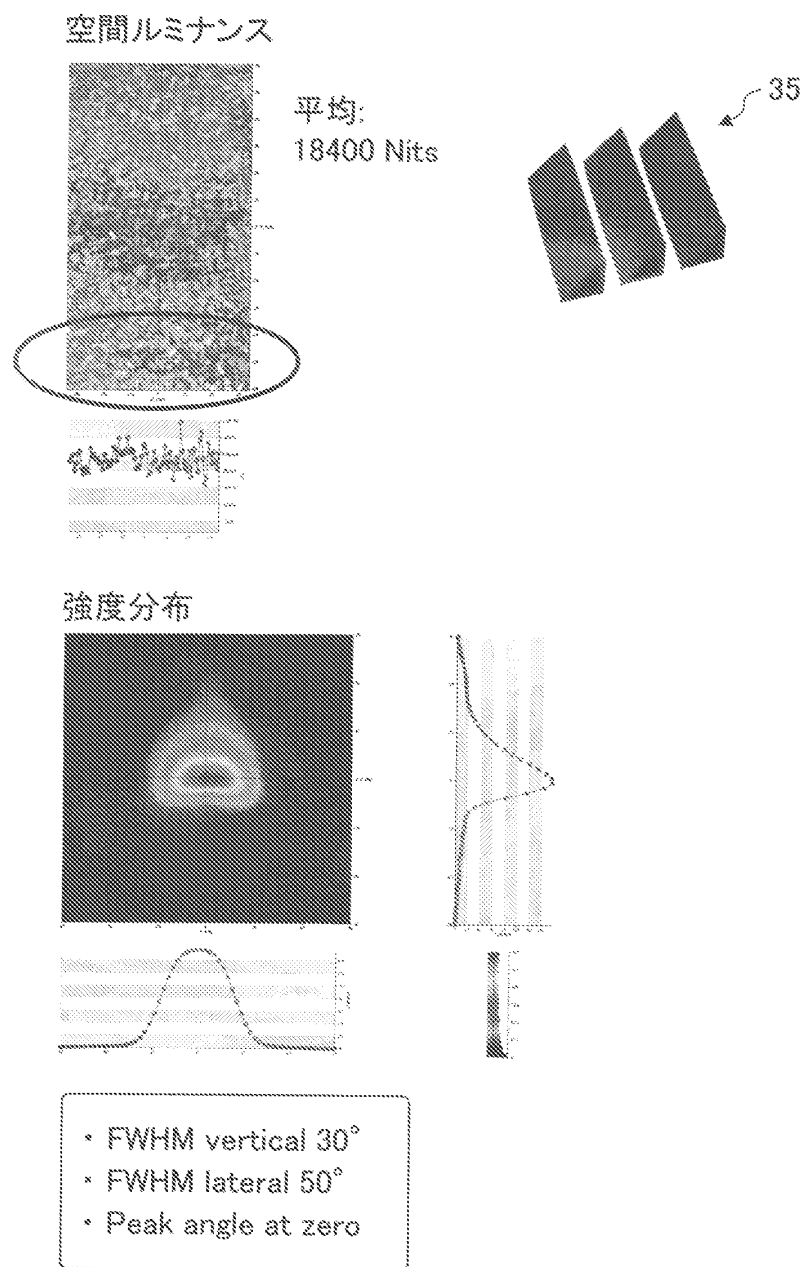
[図17B]



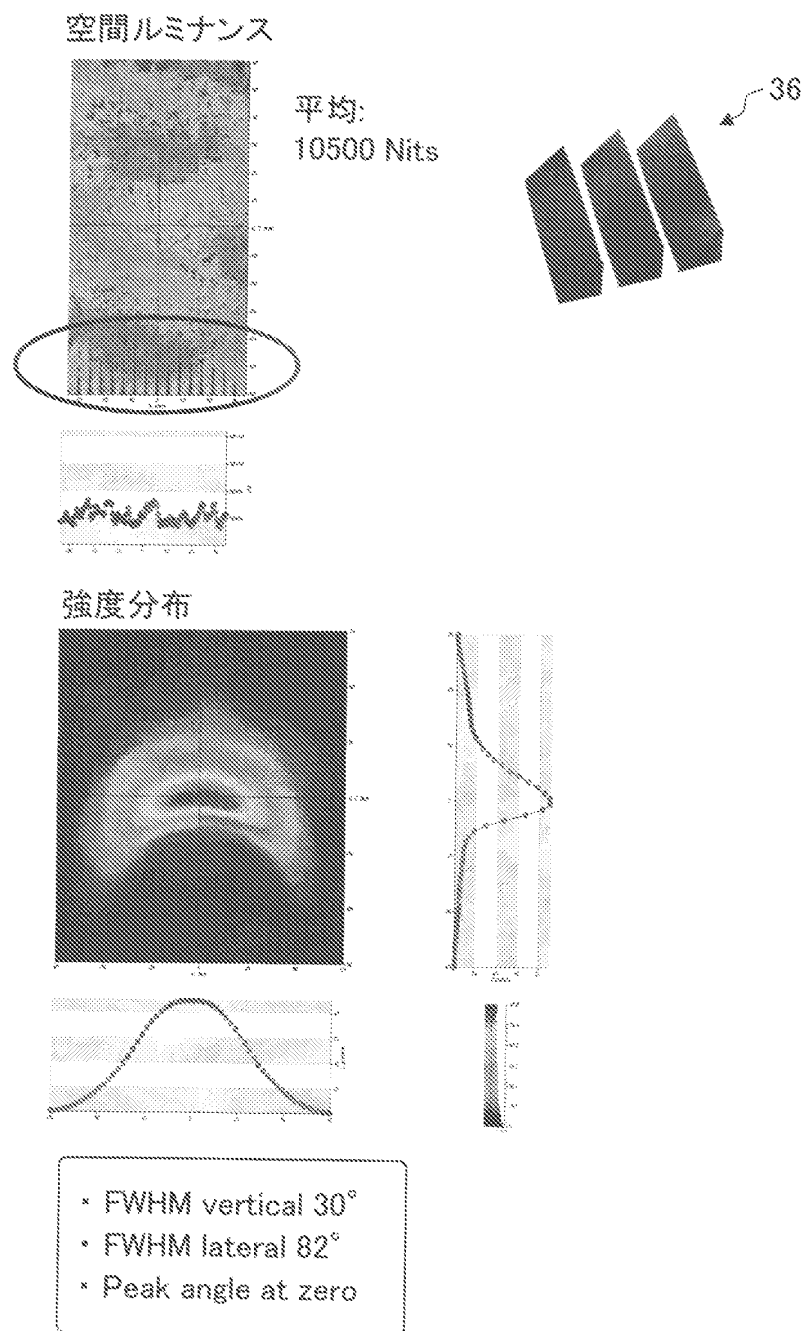
[図17C]



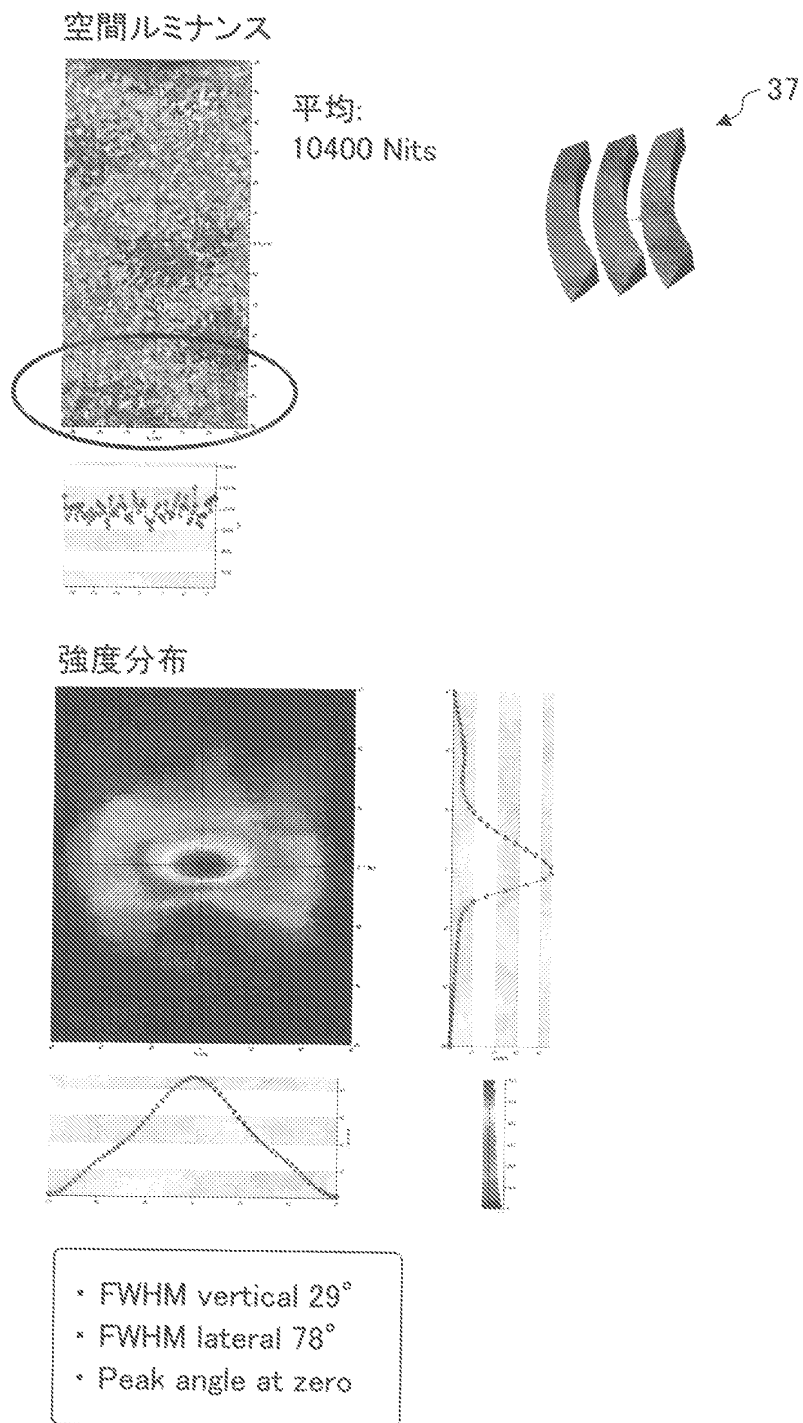
[図17D]



[図17E]



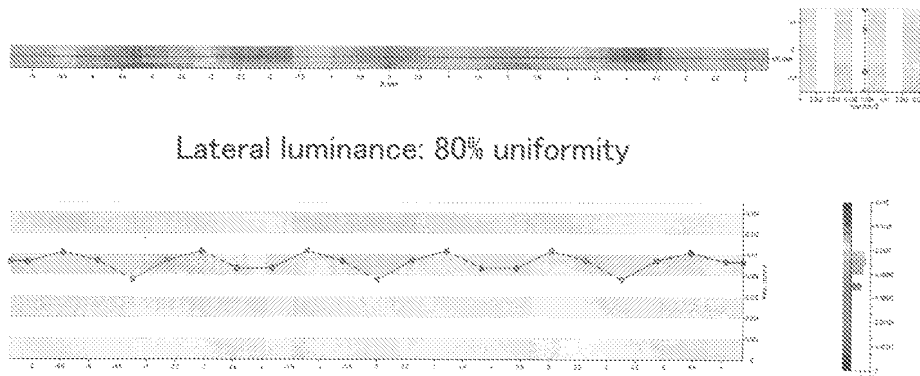
[図17F]



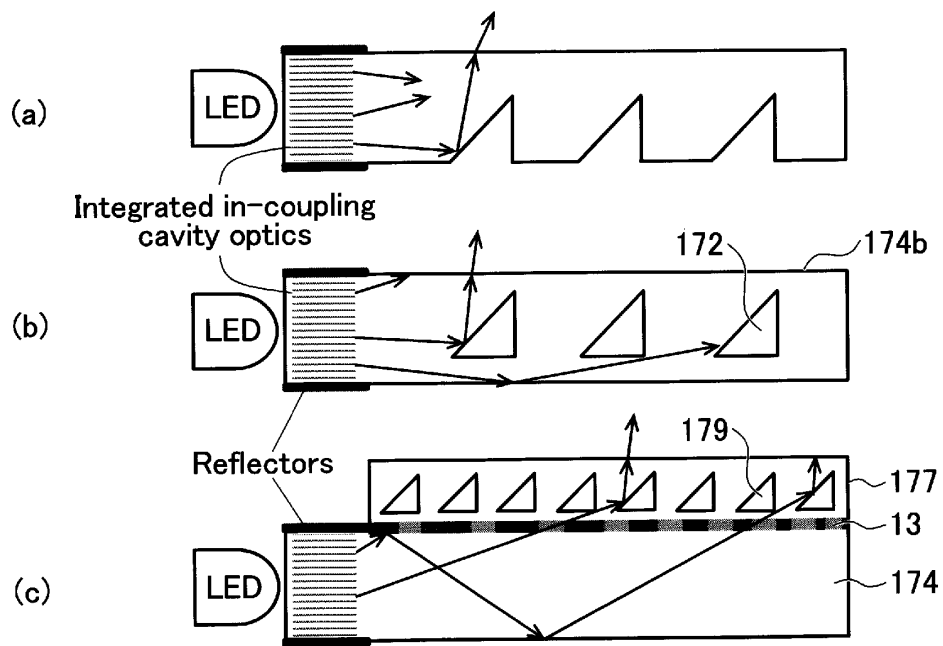
[図17G]

	従来の XBEF 付き マイクロレンズ BLU	比較例1 (エアキャビティ BLU; リニアグレーティング)	比較例2 (エアキャビティ BLU; カーブドグレーティング)	実施形態 (インカップリング付き エアキャビティ BLU)
				
輝度 (Luminance)	9500 Nits	10500 Nits	10400 Nits	18400 Nits
相対値	100%	110%	109%	194%
FWHM (X/Y)	44° / 41°	82° / 30°	78° / 29°	50° / 30°
端面均一性	高	低	高	高
インカップリング	無し	無し	無し	有り

[図17H]

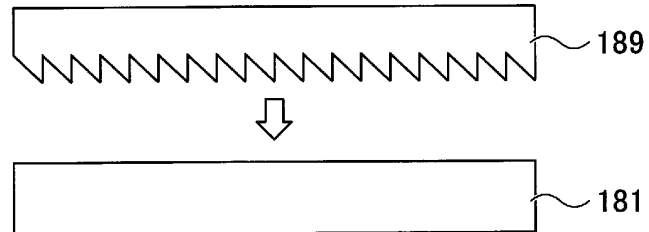


[図17I]



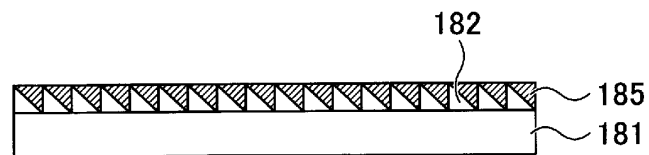
[図18A]

サブマスタのインプリント



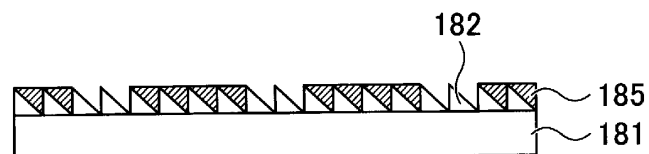
[図18B]

フォトリソ形成

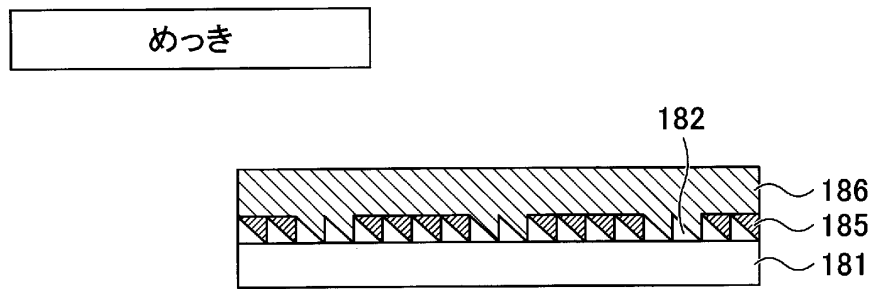


[図18C]

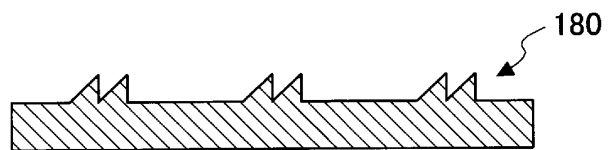
露光と現像



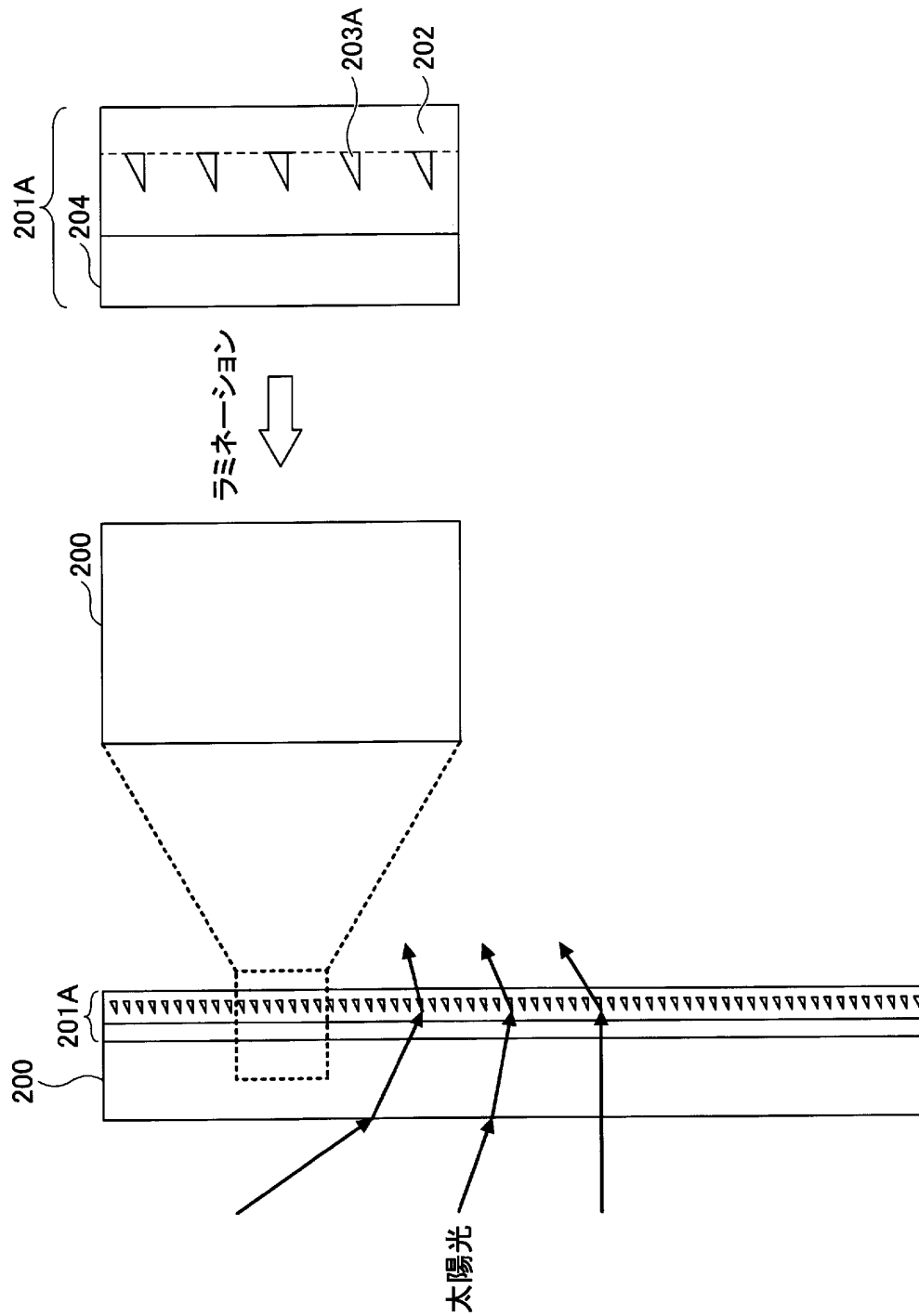
[図18D]



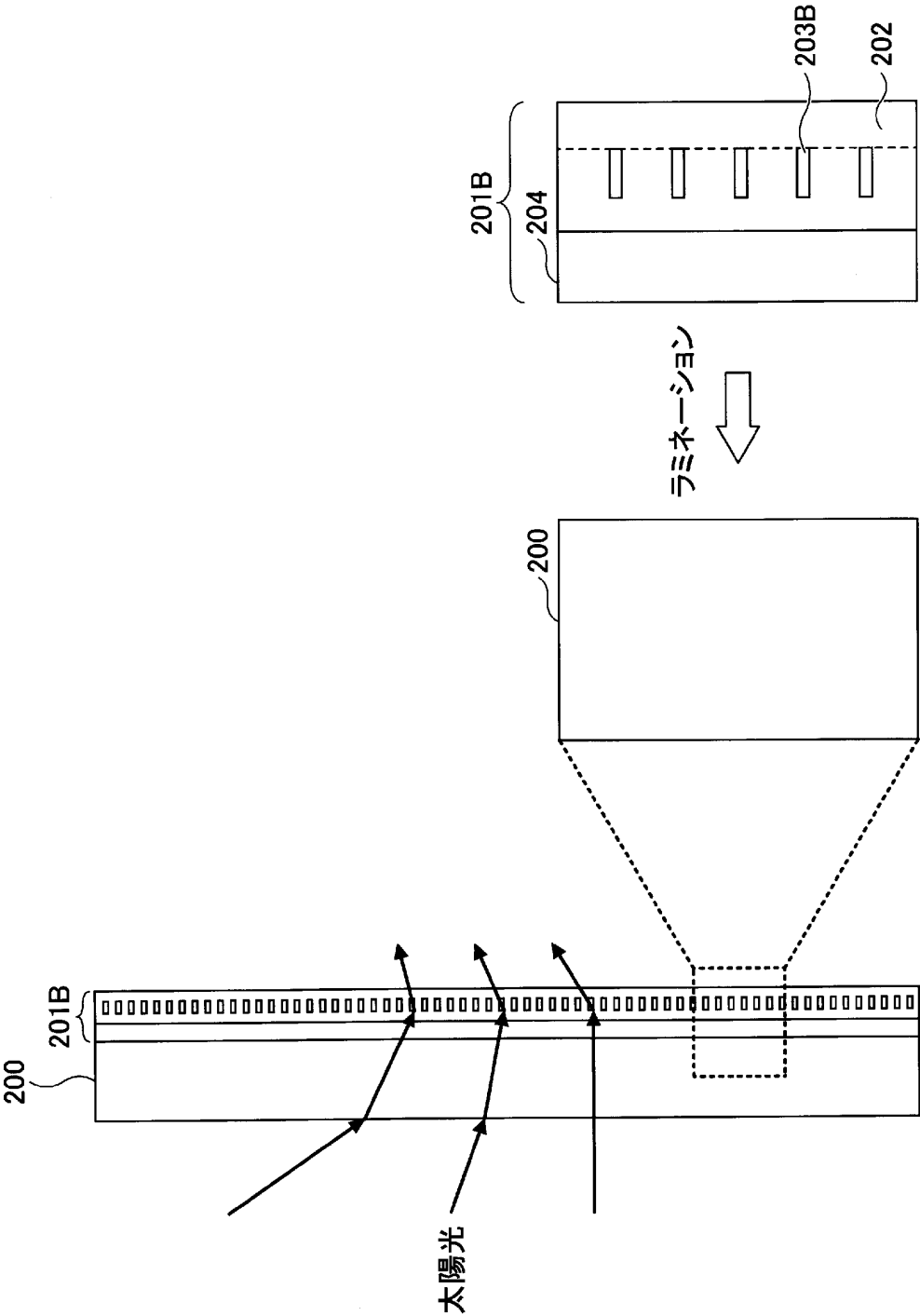
[図18E]



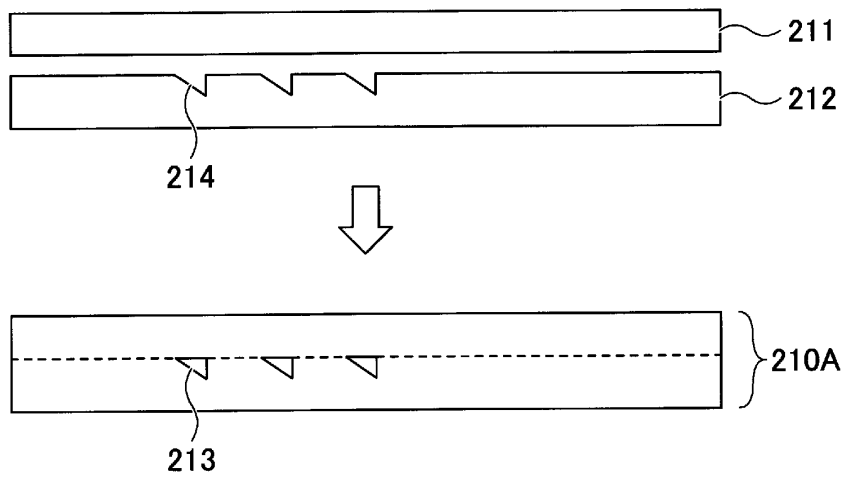
[図19]



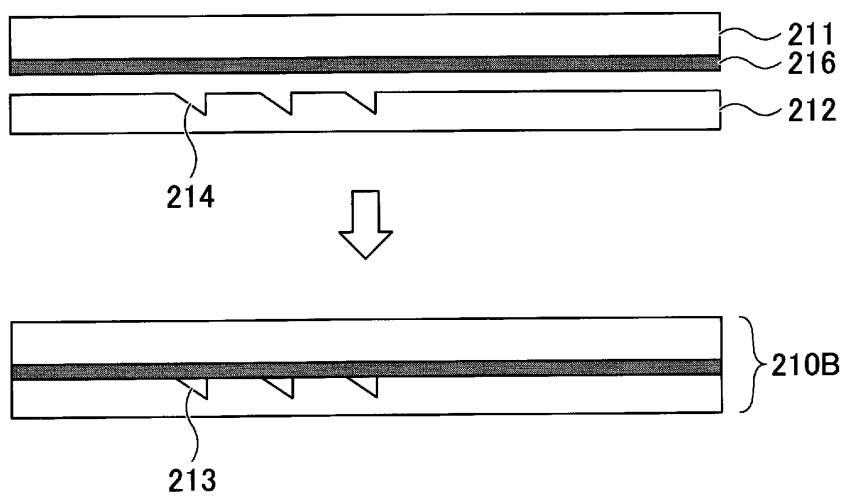
[図20]



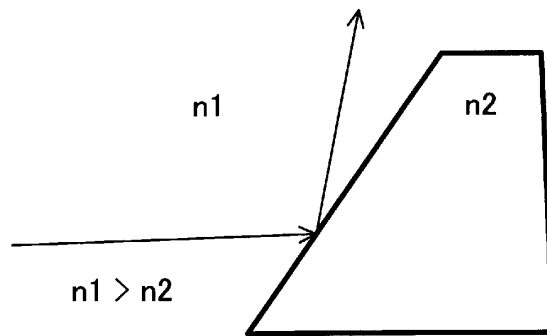
[図21A]



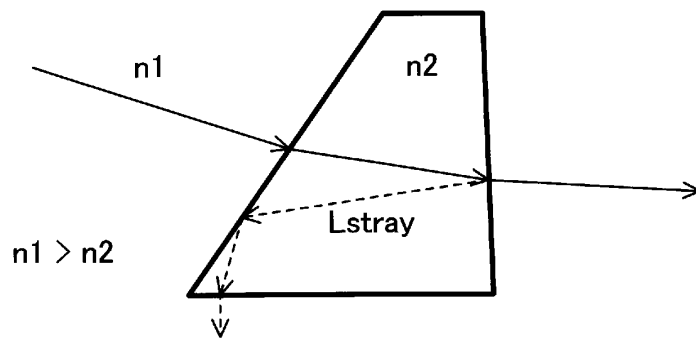
[図21B]



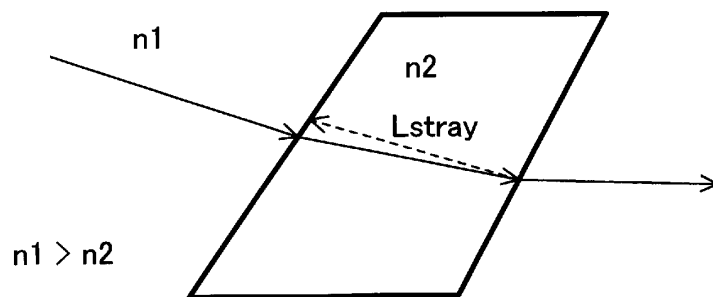
[図22A]



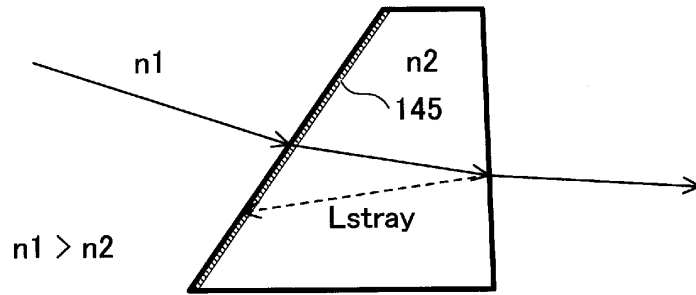
[図22B]



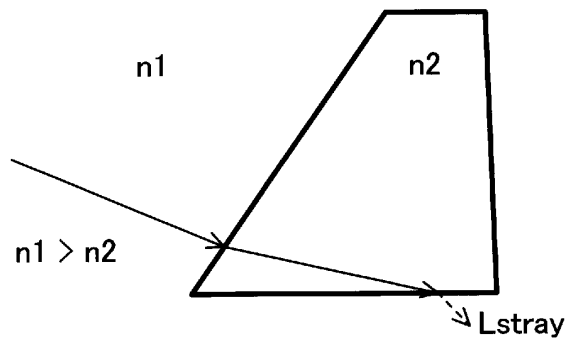
[図22C]



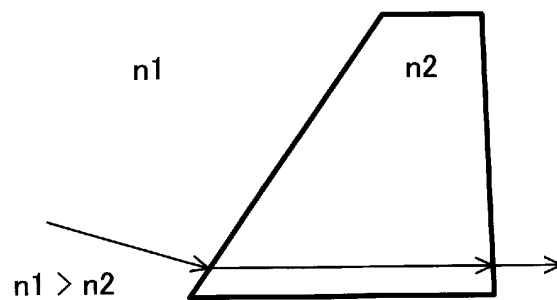
[図22D]



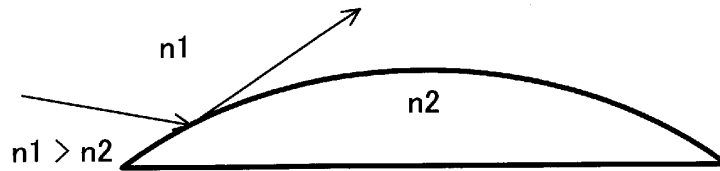
[図22E]



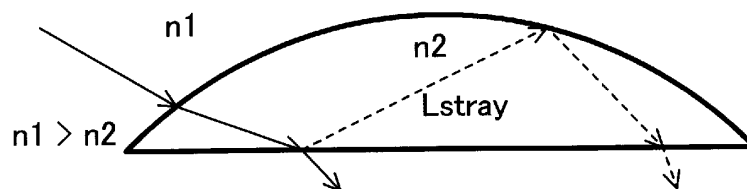
[図22F]



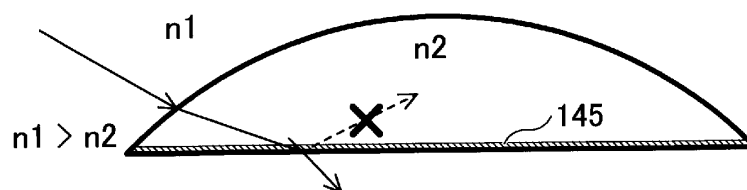
[図22G]



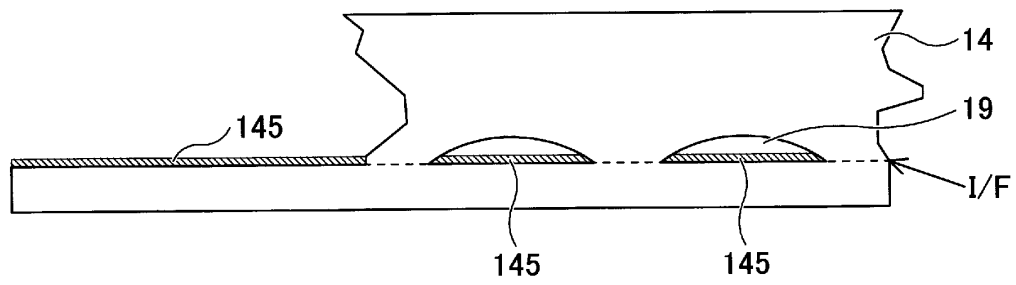
[図22H]



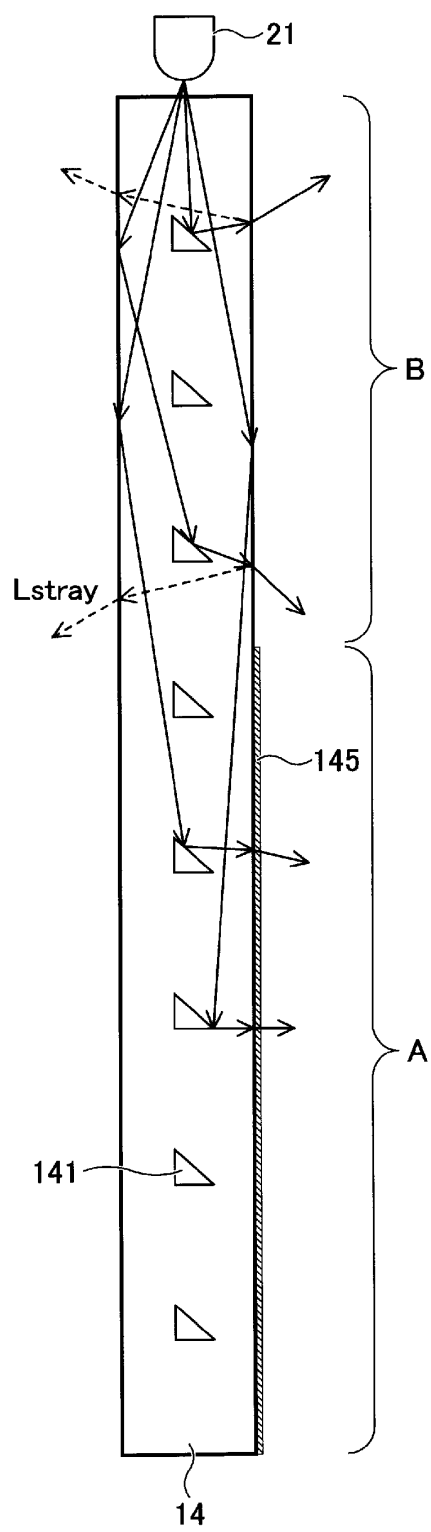
[図22I]



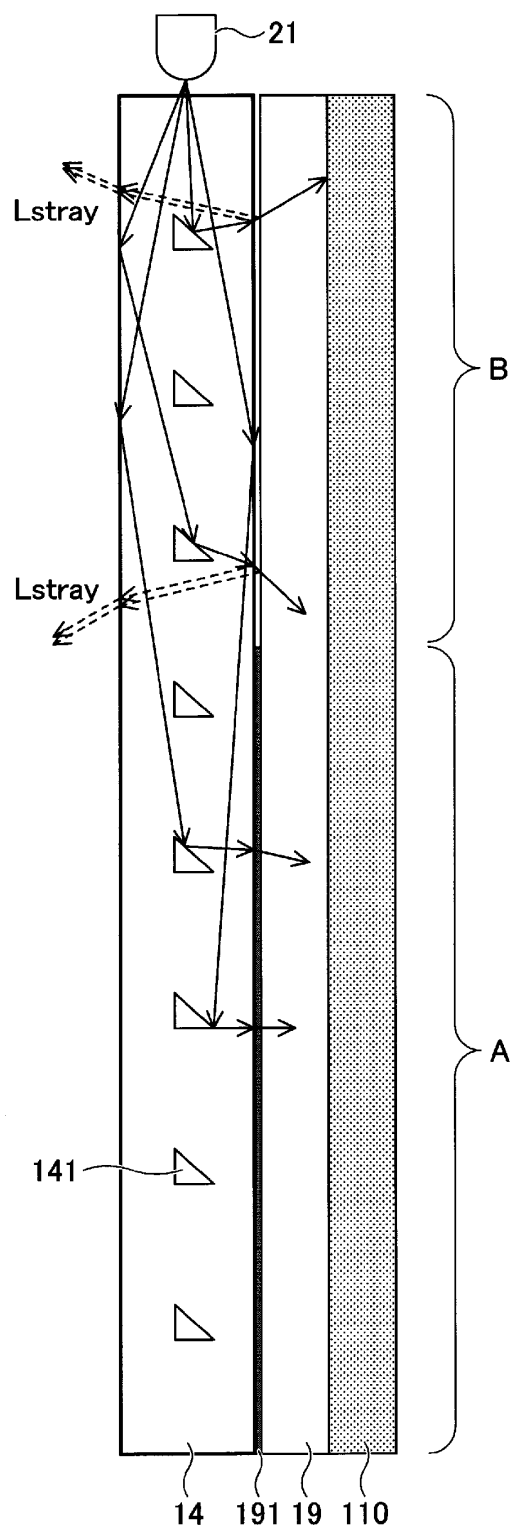
[図22J]



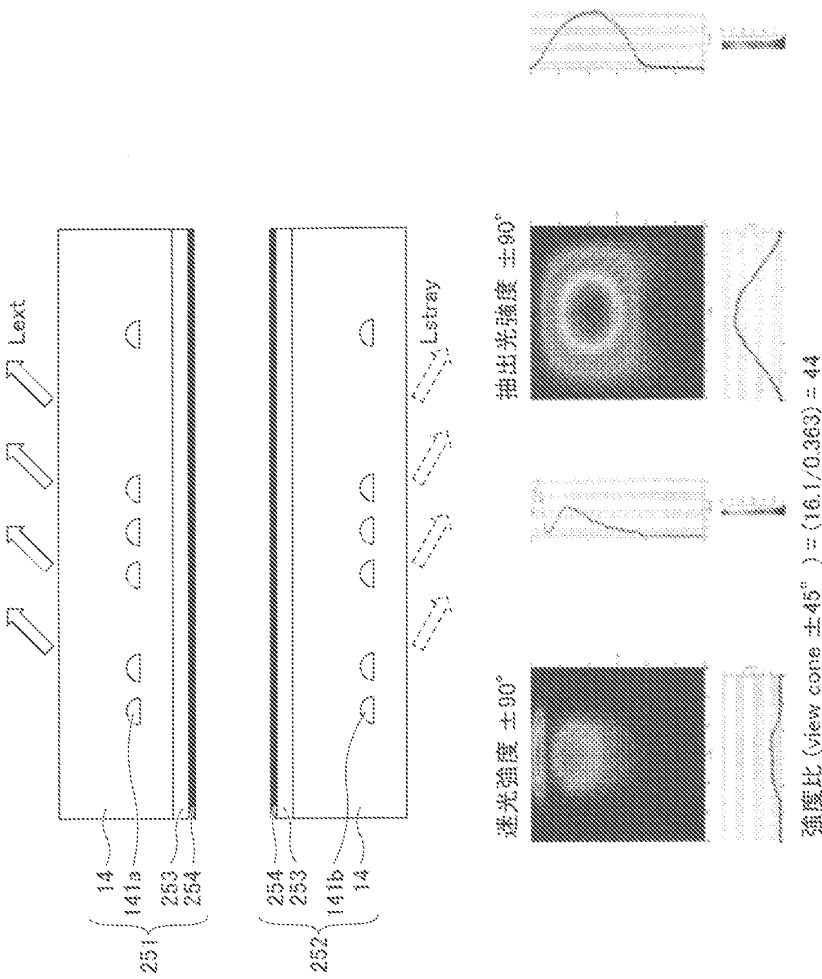
[図23]



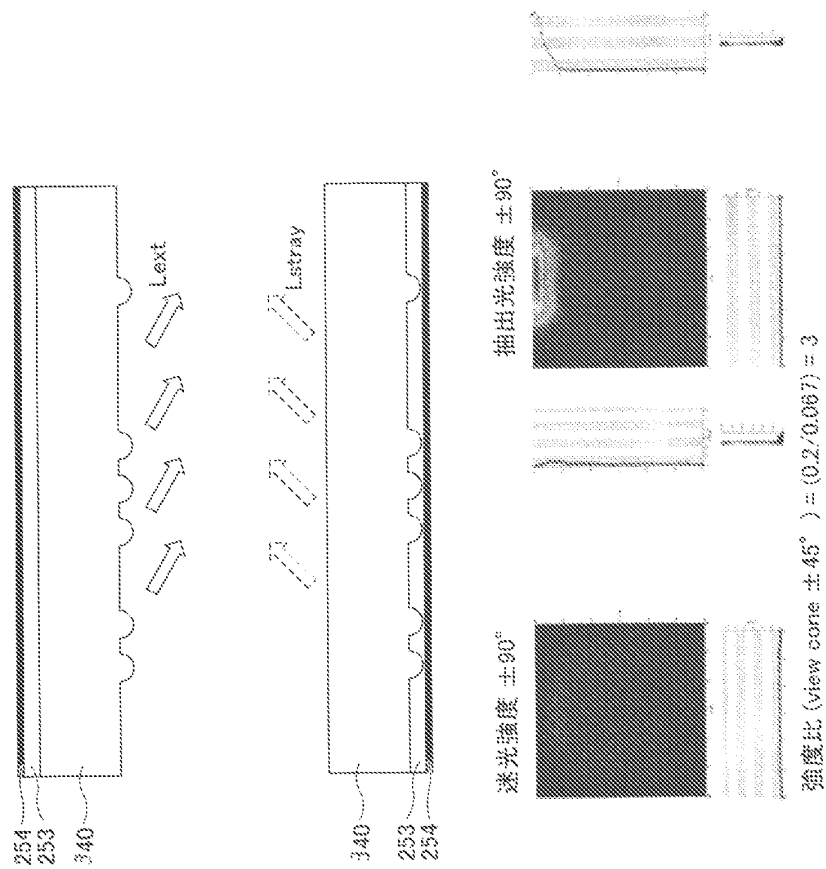
[図24]



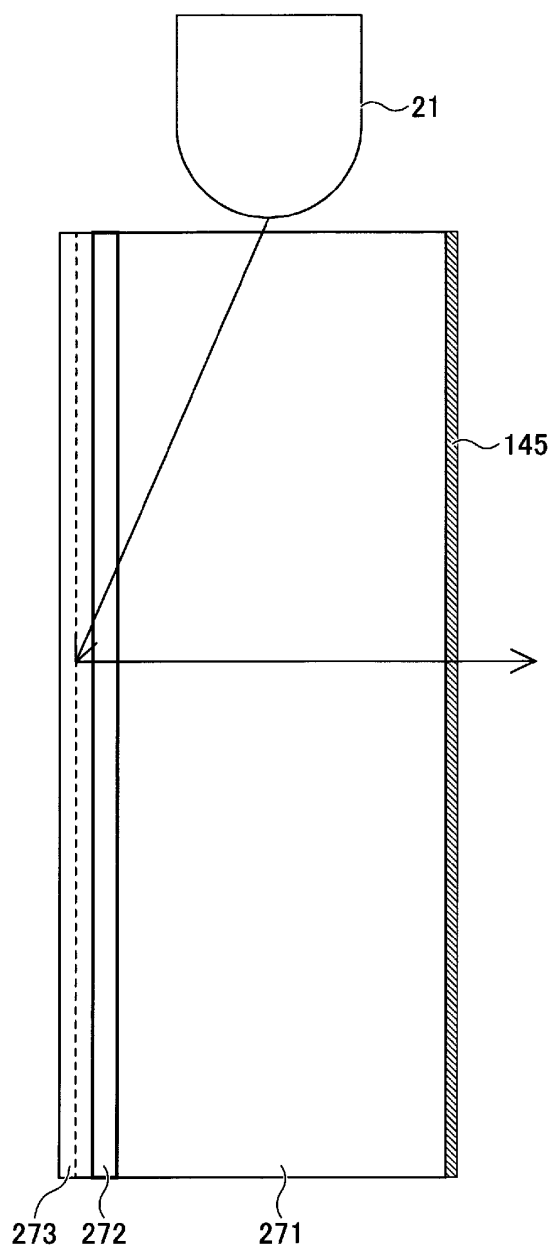
[図25]



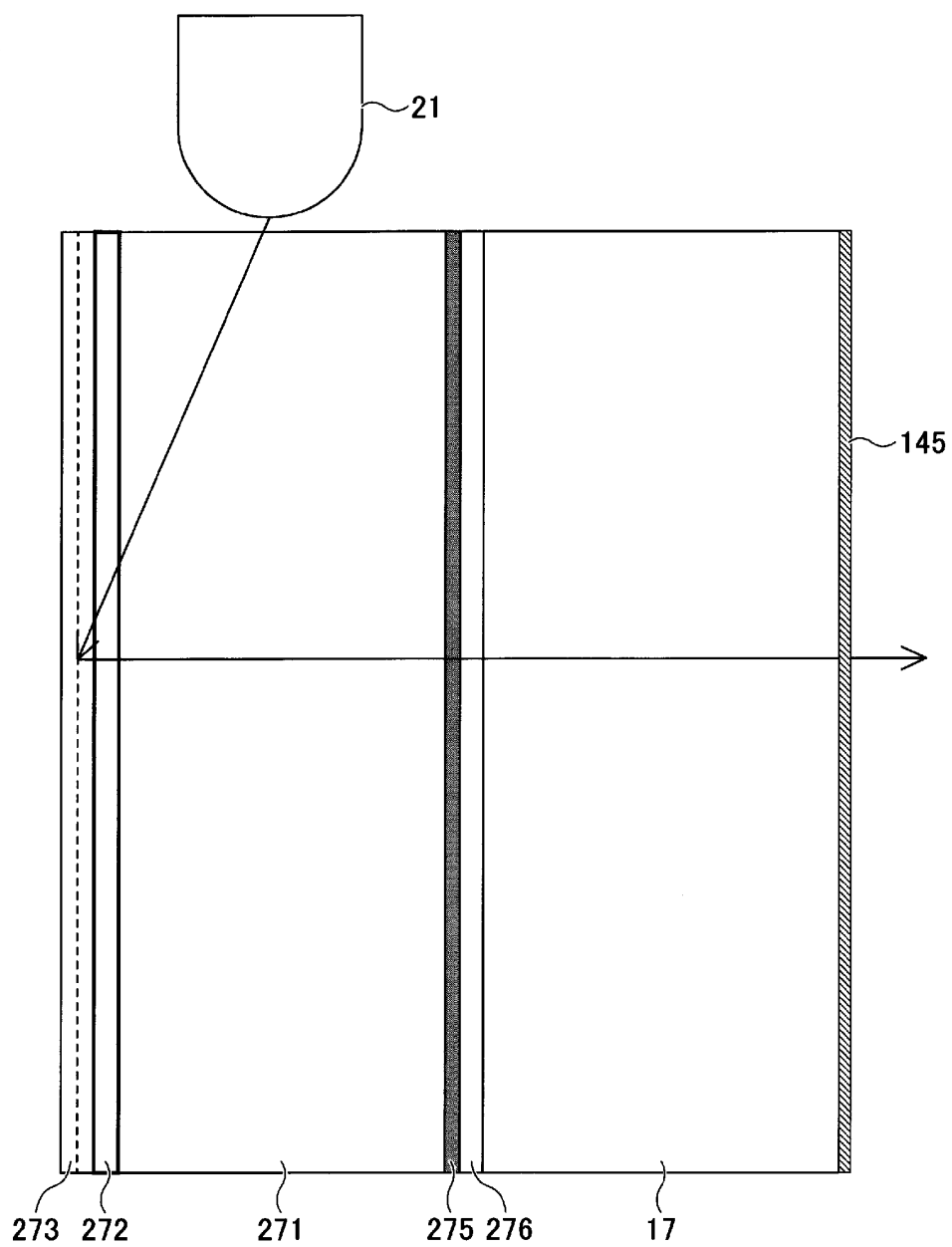
[図26]



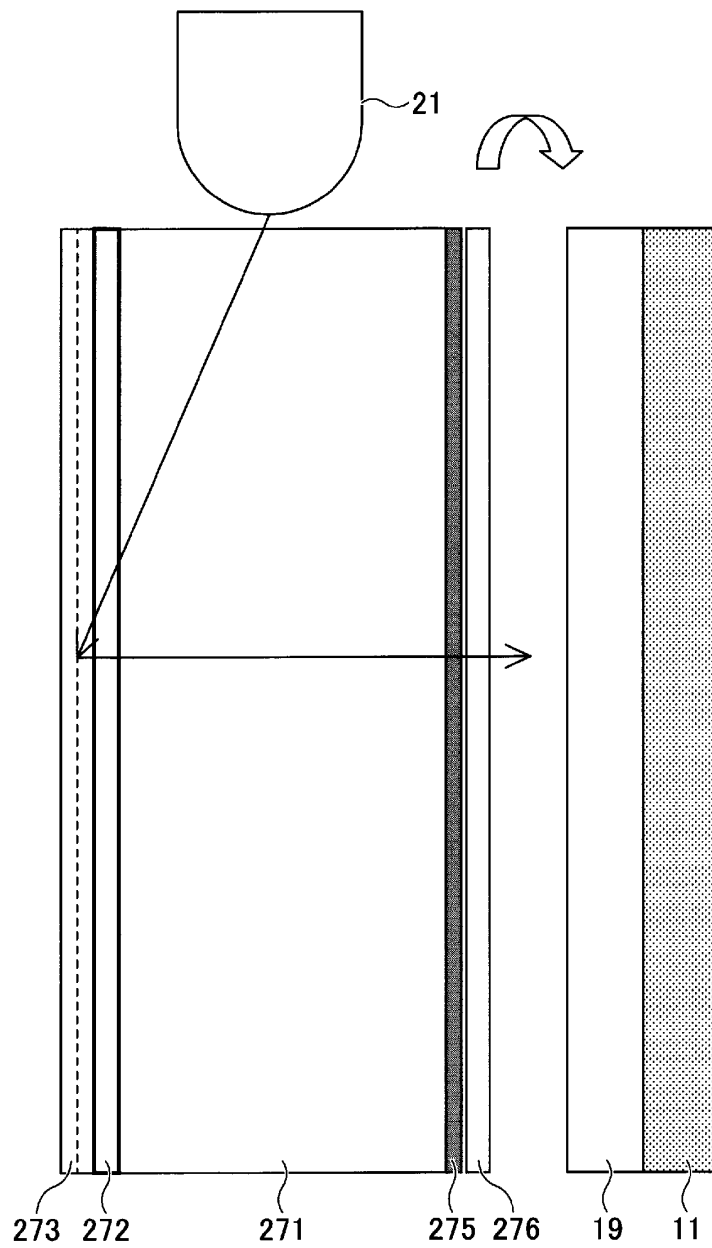
[図27]



[図28]



[図29]



[図30]

