t	Operation	Optical system XY-stage	First field-of-view	Tool XY-stage	Z-axis drive section	Second field-of-view	Calculation
↓	Set bonding point (S31)	Move onto semiconductor chip (S31a)	Semiconductor chip (S31b)				
		Set center of first field-of-view at bonding point (S31c)					
				Move to reference point (S31d)			
						Image reference point (S31e)	
							Set coordinates of tool XY-stage to (x0, y0). Set reference point position (x0s', y0s') in camera coordinates of second field-of-view through image recognition. Obtain coordinates (x0s, y0s) by converting reference point position into coordinates of tool XY-stage. (S31f)
		Evacuate (S31g)					
	Bonding or indentation formation (S32)			Move to bonding point (S32a)			
					Perform bonding (S32b)		
				Evacuate (S32c)			
	Calculate bonding position (S33)	Move onto semiconductor chip (S33a)					
			Image bonding point (S33b)				
							Obtain bonding position with respect to center of first field-of-view. Obtain bonding point (Xb', Yb') on basis of camera coordinates of first field-of-view. Obtain coordinates (Xb, Yb) by conversion into coordinates of tool XY-stage. (S33c)
				Move to reference point (S33d)			
						Image reference point (S33e)	
							Set coordinates of tool XY-stage to (x1, y1). Set reference point position (x1s', y1s') in camera coordinates of second field-of-view through image recognition. Obtain coordinates (x1s, y1s) by converting reference point position into coordinates of tool XY-stage. (S33f)

FIG. 10

(a)

t	Operation	Optical system XY-stage	Image acquisition: First field-of-view (high magnification)	Image acquisition: First field-of-view (low magnification)	Tool XY-stage	Image acquisition: Second field-of-view
	Lead locator (S7)	Move onto individual leads (S7a)				
				Obtain images of individual leads (S7b)		

(b)

t	Operation	Optical system XY-stage	Image acquisition: First field-of-view (high magnification)	Image acquisition: First field-of-view (low magnification)	Tool XY-stage	Image acquisition: Second field-of-view
↓	Alignment (S81)	Move onto first lead alignment point L1, first chip alignment point A1, and second chip alignment point A2 (S81a)				
			Obtain images of first chip alignment point A1 and second chip alignment point A2 (S81b)	Obtain image of first lead alignment point L1 (S81c)		
	Obtain relationship of relative positions between tool XY-stage and camera (S82)				Move to reference point (S82a)	
						Obtain image of reference point (S82b)
	Alignment (S83)	Second lead alignment point L2 (S83a)				
				Obtain image of second lead alignment point L2 (S83b)		
	Obtain relationship of relative positions between tool XY-stage and camera (S84)				Move to reference point (S84a)	
						Obtain image of reference point (S84b)
					Evacuate (S84c)	

FIG. 12

S9

t	Operation	Optical system XY-stage	First field-of-view	Tool XY-stage	Z-axis drive section	Second field -of-view	Calculation
	Set bonding point (S91)	Move onto semicon-ductor chip (S91a)	Semiconductor chip (S91b)				
		Set bonding point by reticle within screen (S91c)					
							Obtain relative position of set bonding point with respect to characteristic pattern A in first field-of-view. Relative position follows camera coordinates (Xb2', Yb2'). (S91d)
		Evacuate (S91e)					
				Move to reference point (S91f)		Reference point (S91g)	
							Obtain reference point position within field-of-view through image recognition of reference point. (S91h)
	Bonding or indentation formation (S92)			Move to bonding point (S92a)			
					Perform bonding (S92b)		
				Evacuate (S92c)			
	Calculate bonding position (S93)	Move onto device (S93a)					
			Image bonding point (S93b)				
							Obtain relative position of set bonding point with respect to characteristic pattern A in first field-of-view. Relative position follows camera coordinates (Xb3', Yb3'). (S93c)

FIG. 18