WHAT IS CLAIMED IS:

1. A method of determining a mark position, comprising:

capturing, by using a scope, an image of a chart for measuring a distortion of the scope;

generating, based on the image of the chart captured by using the scope, a distortion map indicating a two-dimensional distribution of distortion amounts of the scope;

acquiring, by using the scope, an image of a mark;

determining, based on a position of a mark image on ~~an~~ the image of the mark acquired by using ~~a~~ the scope ~~that captures an image of a mark~~, a temporary position of the mark image;

determining a correction amount for correcting the temporary position based on ~~a distortion map indicating a two-dimensional distribution of distortion amounts of the scope, and the mark image~~ edges of the mark image and distortion amounts, provided by the distortion map, which respectively correspond to positions of the edges; and

determining a position of the mark by correcting the temporary position based on the correction amount.

~~2. The method according to claim 1, wherein in the determining the correction amount, the correction amount is determined based on the distortion amount in the distortion map, which corresponds to a position of an edge of the mark image.~~

~~3~~2. The method according to claim 1, wherein the edges of the mark image has a first edge crossing a first direction and a second edge crossing a second

direction orthogonal to the first direction,

the distortion amount includes a first distortion amount in the first direction and a second distortion amount in the second direction,

the correction amount includes a first correction amount concerning the first direction and a second correction amount concerning the second direction, and

in the determining the correction amount, the first correction amount is determined based on the first distortion amount in the distortion map, which corresponds to a position of the first edge, and the second correction amount is determined based on the second distortion amount in the distortion map, which corresponds to a position of the second edge.

43. The method according to claim 32, wherein in the determining the correction amount, the first correction amount is determined by performing statistical processing of a plurality of first distortion amounts corresponding to a plurality of positions of the first edge, and the second correction amount is determined by performing statistical processing of a plurality of second distortion amounts corresponding to a plurality of positions of the second edge.

54. The method according to claim 43, wherein the statistical processing includes processing of obtaining an average value.

65. The method according to claim 54, wherein the average value is an arithmetic mean value.

76. The method according to claim 54, wherein the average value is a weighted average value.

87. The method according to any one of claims 1 to 76, ~~further comprising generating the distortion map based on an image obtained by capturing an image of~~ a dot chart having a plurality of dots respectively arranged ~~by using the scope~~ at lattice elements of a square lattice.

~~9. The method according to any one of claims 1 to 7, further comprising generating the distortion map based on an image captured by using the scope upon sequentially arranging a mark at a plurality of positions in a visual field of the scope.~~

~~10. The method according to claim 9, wherein the mark is a dot mark.~~

~~11. The method according to claim 9, wherein the mark is an alignment mark.~~

~~12. The method according to any one of claims 1 to 11, wherein the temporary position of the mark image, which is determined based on the position of the mark image on the image acquired by using the scope, is a position influenced by a distortion of the scope.~~

~~13~~8. A lithography method of transferring a pattern onto a substrate, the method comprising:

detecting a position of a mark provided on the substrate in accordance with a mark position determination method defined in any one of claims 1 to ~~12~~7; and

transferring a pattern to a target position on the substrate based on the position of the mark detected in the detecting.

~~14~~9. A method of manufacturing an article, the method comprising:

transferring a pattern onto a substrate by a lithography method defined in claim ~~13~~8;

processing the substrate having undergone the transferring; and

obtaining the article from the substrate having undergone the processing.

~~15~~10. A program causing a computer to execute a mark position determination method defined in any one of claims 1 to ~~12~~7.

~~16~~11. A lithography apparatus comprising a scope configured to capture an image of a mark provided on a substrate and a processor configured to detect a

position of the mark based on an image captured by the scope, and configured to transfer a pattern to a target position on the substrate based on the position of the mark detected by the processor,

the processor is configured to:

capture, by using the scope, an image of a chart for measuring a distortion of the scope;

generate, based on the image of the chart captured by using the scope, a distortion map indicating a two-dimensional distribution of distortion amounts of the scope;

acquire, by using the scope, an image of a mark;

determine, based on a position of a mark image on ~~an~~ the image of the mark acquired by using the scope ~~configured to capture an image of the mark~~, a temporary position of the mark image,

determine a correction amount for correcting the temporary position based on ~~a distortion map indicating a two-dimensional distribution of distortion amounts of the scope and the mark image~~ edges of the mark image and distortion amounts, provided by the distortion map, which respectively correspond to positions of the edges, and

determine the position of the mark by correcting the temporary position based on the correction amount.

~~17. The apparatus according to claim 16, wherein the temporary position of the mark image, which is determined based on the position of the mark image on the image acquired by using the scope, is a position influenced by a distortion of the scope.~~