CLAIMS

1. An abrasion inspection apparatus comprising:

a first imaging unit that is installed on a side of a track, a vehicle traveling along the track, a guide wheel being installed on a side of the vehicle, the first imaging unit imaging an inside of the track via a telecentric lens;

a second imaging unit that is installed in a vehicle traveling direction with respect to the first imaging unit on the side of the track and images the inside of the track via a telecentric lens;

an image acquisition unit that acquires an image which is an image of a boundary of the guide wheel captured by the first imaging unit and is an image of a boundary on a first direction side in the vehicle traveling direction and an image which is an image of the boundary of the guide wheel captured by the second imaging unit at the same time as the capturing of the image by the first imaging unit and is an image of a boundary on an opposite side to the first direction side; and

a guide wheel detection unit that detects an abrasion situation of the guide wheel according to a position of a boundary indicated in the images acquired by the image acquisition unit.

2. The abrasion inspection apparatus according to claim 1, further comprising:

a third imaging unit that is installed on the side of the track along which the vehicle in which the guide wheel is installed on the side travels and images the inside of the track via a telecentric lens; and

a fourth imaging unit that is installed in the vehicle traveling direction with respect to the third imaging unit on the side of the track and images the inside of the track via a telecentric lens,

wherein a rotation mechanism that is in contact with the guide wheel and rotates the guide wheel is installed on the side of the track,

wherein both the first and second imaging units are installed at positions at which the images of the boundary of the guide wheel are captured before the rotation mechanism rotates the guide wheel,

wherein both the third and fourth imaging units are installed at positions at which the images of the boundary of the guide wheel are captured after the rotation mechanism rotates the guide wheel,

wherein the image acquisition unit further acquires an image which is an image of the boundary of the guide wheel captured by the third imaging unit and is an image of a boundary on the first direction side in the vehicle traveling direction and an image which is an image of the boundary of the guide wheel captured by the fourth imaging unit

at the same time as the capturing of the image by the third imaging unit and is an image of the boundary on the opposite side to the first direction side, and

wherein the guide wheel detection unit detects an abrasion situation of the guide wheel according to a position of the boundary indicated in each of the image captured by the first imaging unit and the image captured by the second imaging unit and further detects an abrasion situation of the guide wheel according to the image captured by the third imaging unit and a position of the boundary indicated in each image captured by the fourth imaging unit.

3. The abrasion inspection apparatus according to claim 1, further comprising:

a distance measurement unit that is installed on a lower side of the track and measures a distance to an object located on an upper side which has an inclination in the vehicle traveling direction with respect to a vertical direction; and

a tire detection unit that detects an abrasion situation of a traveling tire according to a distance which is measured by the distance measurement unit and is a distance between the distance measurement unit and the traveling tire installed on a lower side of the vehicle.

4. An abrasion inspection method of an abrasion inspection apparatus including a first imaging unit and a second imaging unit, the first imaging unit being installed on a side of

a track, a vehicle traveling along the track, a guide wheel being installed on a side of the vehicle, the first imaging unit imaging an inside of the track via a telecentric lens, the second imaging unit being installed in the vehicle traveling direction with respect to the first imaging unit on the side of the track, the second imaging unit imaging the inside of the track via a telecentric lens, the abrasion inspection method comprising:

acquiring an image which is an image of a boundary of the guide wheel captured by the first imaging unit and is an image of a boundary on a first direction side in the vehicle traveling direction and an image which is an image of the boundary of the guide wheel captured by the second imaging unit at the same time as the capturing of the image by the first imaging unit and is an image of a boundary on an opposite side to the first direction side; and

detecting an abrasion situation of the guide wheel according to a position of a boundary indicated in the acquired images.

5. A program for a computer used for an abrasion inspection apparatus including a first imaging unit and second imaging unit, the first imaging unit being installed on a side of a track, a vehicle traveling along the track, a guide wheel being installed on a side of the vehicle, the first imaging unit imaging an inside of the track via a telecentric lens, the second imaging unit being installed in the vehicle traveling direction with respect to the

first imaging unit on the side of the track, the second imaging unit imaging the inside of the track via a telecentric lens, the program causing the computer to perform:

acquiring an image which is an image of a boundary of the guide wheel captured by the first imaging unit and is an image of a boundary on a first direction side in the vehicle traveling direction and an image which is an image of the boundary of the guide wheel captured by the second imaging unit at the same time as the capturing of the image by the first imaging unit and is an image of a boundary on an opposite side to the first direction side; and

detecting an abrasion situation of the guide wheel according to a position of a boundary indicated in the acquired images.