

What is claimed is,

1. A collimator comprising:

a collimator body comprising a first part, a second part, and a collimating slit formed between the first part and the second part, the collimating slit having a first end and a second end in a longitudinal direction thereof; and

a shielding member which is movable relative to the collimator body such that a beam divergent angle of a ray beam propagating through the collimating slit is varied or both a beam divergent angle and an elevation angle of a ray beam propagating through the collimating slit are varied.

2. The collimator according to claim 1, wherein the shielding member is movable relative to the collimator body to completely shield the ray beam propagating through the collimating slit.

3. The collimator according to claim 1, wherein the shielding member is configured to shield at least a part of the collimating slit as it moves relative to the collimator body, so as to allow the ray to propagate through a remaining part of the collimating slit to form a continuous ray beam, the beam divergent angle of the continuous ray beam or both the beam divergent angle and the elevation angle of the continuous ray beam being varied as the shielding member moves relative to the collimator body.

4. The collimator according to claim 1, wherein the shielding member is capable of adjusting steplessly the beam divergent angle of the ray beam propagating through the collimating slit or both the beam divergent angle and the elevation angle of the ray beam propagating through the collimating slit as the shielding member moves relative to the collimator body.

5. The collimator according to claim 1, wherein the shielding member comprises a first shielding part which is disposed adjacent to the first end of the collimating slit and is movable in the longitudinal direction of the collimating slit relative to the collimator body; and/or a second shielding part which is disposed adjacent to the second end of the collimating slit and is movable in the longitudinal direction of the collimating slit relative to the collimator body.

6. The collimator according to claim 5, wherein the shielding member comprises a first shielding part which is disposed at a side of the first part of the collimator body and is movable in a direction perpendicular to the longitudinal direction of the collimating slit in a plane passing through the collimating slit and perpendicular to a beam profile relative to the collimator body; and/or a second shielding part which is disposed at a side of the second part of the collimator body and is movable in a direction perpendicular to the longitudinal direction of the collimating slit in a plane passing through the collimating slit and perpendicular to the beam profile relative to the collimator body.

7. The collimator according to claim 6, wherein the first shielding part and/or the second

shielding part each have a cross section in a multi-stepped shape or triangular shape.

8. The collimator according to claim 1, wherein the shielding member comprises a first shielding part and a first pivot which both are disposed adjacent to the first end of the collimating slit, the first pivot extending in a direction perpendicular to the longitudinal direction of the collimating slit in a plane parallel to a beam profile, the first shielding part being pivotable about the first pivot relative to the collimator body; and/or a second shielding part and a second pivot which both are disposed adjacent to the second end of the collimating slit, the second pivot extending in the direction perpendicular to the longitudinal direction of the collimating slit in the plane parallel to the beam profile, the second shielding part being pivotable about the second pivot relative to the collimator body.

9. The collimator according to claim 8, wherein the first shielding part and/or the second shielding part each has a planar plate-like structure having a semi-circular cross section.

10. The collimator according to claim 8, wherein the first shielding part and the second shielding part are spaced from the collimating slit by different distances in a ray propagating direction.

11. The collimator according to claim 1, wherein the shielding member comprises a first shielding part and a first pivot which both are disposed adjacent to the first end of the collimating slit, an axis of the first pivot extending in a direction perpendicular to a beam profile, the first shielding part being pivotable about the first pivot relative to the collimator body in the plane where the beam profile is located; and/or a second shielding part and a second pivot which both are disposed adjacent to the second end of the collimating slit, the second pivot extending in the direction perpendicular to the beam profile, the second shielding part being pivotable about the second pivot relative to the collimator body in the plane where the beam profile is located.

12. The collimator according to claim 1, wherein the shielding member comprises a first shielding part which is disposed at a side of the first part of the collimator body and a first pivot which is disposed adjacent to the first end of the collimating slit, an axis of the first pivot extending in a direction parallel to the longitudinal direction of the collimating slit in a plane parallel to a beam profile, the first shielding part being pivotable about the first pivot relative to the collimator body to shield at least a part of the collimating slit; and/or a second shielding part which is disposed at a side of the second part of the collimator body and a second pivot which is disposed adjacent to the second end of the collimating slit, an axis of the second pivot extending in the direction parallel to the longitudinal direction of the collimating slit in the plane parallel to the beam profile, the second shielding part being pivotable about the second pivot relative to the collimator body to shield at least a part of the collimating slit.

13. The collimator according to claim 12, wherein the first shielding part and/or the second shielding part each is formed by cutting a quarter of an annular cylinder.

14. The collimator according to claim 5, wherein the first shielding part and the second

shielding part are movable relative to the collimator body independently from each other.

15. The collimator according to claim 5, wherein the first shielding part and the second shielding part are movable relative to the collimator body in synchronization with each other.

16. An inspection system comprising:

a ray source for emitting ray;

the collimator according to claim 1 configured for collimating the ray emitted from the ray source;

a detector configured to receive the ray; and

a controller configured to be electrically connected to the collimator and control the shielding member to move relative to the collimator body.

17. An inspection method for scanning a vehicle, comprising steps of:

selecting a scanning mode;

emitting ray by a ray source;

enabling the ray to propagate through a collimating slit of a collimator so as to form a ray beam;

measuring a boundary dose rate of a radiation supervised area; and

controlling a shielding member of the collimator to move relative to a collimator body based on the selected scanning mode and the measured boundary dose rate.

18. The inspection method according to claim 17, wherein the scanning mode comprises a standard scanning mode in which the ray propagating through the collimating slit scans the whole vehicle and a secondary scanning mode in which the ray propagating through the collimating slit performs a secondary scan on a suspected area of the vehicle determined through the standard scanning.

19. The inspection method according to claim 18, wherein the step of controlling a shielding member of the collimator to move relative to a collimator body based on the selected scanning mode and the measured boundary dose rate comprises:

controlling the shielding member of the collimator to move relative to the collimator body so as to shield at least a part of the ray beam propagating through the collimating slit in the standard scanning mode.

20. The inspection method according to claim 18, wherein the step of controlling a shielding member of the collimator to move relative to a collimator body based on the selected scanning mode and the measured boundary dose rate comprises: controlling the shielding member of the collimator to move relative to the collimator body while increasing the dose rate and/or an energy of the ray source in the secondary scanning mode, so as to improve an image quality while keeping an area of the radiation supervised area and the boundary dose rate to be constant.