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Semiconductor fabrication facility

Abstract

A semiconductor fabrication facility including raceways on a ceiling of a structural construction and extending in one direction, a vehicle rail assembly coupled to the raceways, outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly, and an outer jig on the outer jig rails and configured to allow the vehicle rail assembly to move along the outer jig rails may be provided.

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References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
4341161	12/1981	Morita	104/172.4	B61B 10/022
4408539	12/1982	Wakabayashi	105/156	E01B 25/22
4724944	12/1987	Koshigai	105/156	B62D 65/18
5996771	12/1998	Estes	198/465.4	B62D 65/18
6089161	12/1999	Saban	N/A	N/A
10899546	12/2020	Munday et al.	N/A	N/A
2022/0073284	12/2021	Nobuta	N/A	H01L 21/67727

FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC
1019940005347	12/1993	KR	N/A
1019970010895	12/1996	KR	N/A
100768249	12/2006	KR	N/A
101087066	12/2010	KR	N/A
101676718	12/2015	KR	N/A
101973103	12/2018	KR	N/A
101974063	12/2018	KR	N/A

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION

(1) This U.S. nonprovisional application claims priority under 35 U.S.C § 119 to Korean Patent Application No. 10-2022-0008813 filed on Jan. 20, 2022 in the Korean Intellectual Property Office, the disclosure of which is hereby incorporated by reference in its entirety.

BACKGROUND

(2) The present inventive concepts relate to a substrate fabrication system, and more particularly, to a semiconductor fabrication facility.

(3) In general, semiconductor devices are fabricated by applying a plurality of unit processes. The unit processes may include a film deposition process, a diffusion process, an annealing process, a photolithography process, a grinding process, an etching process, an ion implantation process, and a cleaning process. Substrate fabrication apparatuses may independently perform the unit

processes. The substrate fabrication apparatuses may be installed in a clean room. A substrate may be delivered by an overhead hoist transport (OHT) in the clean room.

SUMMARY

(4) The present inventive concepts provide a semiconductor fabrication facility capable of establishing a vehicle rail assembly on raceways.

(5) According to an example embodiment of the present inventive concepts, a semiconductor fabrication facility includes raceways on a ceiling of a structural construction, the raceways extending in one direction, a vehicle rail assembly coupled to the raceways, outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly, and an outer jig on the outer jig rails, the outer jig configured to allow the vehicle rail assembly to move along the outer jig rails.

(6) According to an example embodiment of the present inventive concepts, a semiconductor fabrication facility includes raceways on a ceiling of a structural construction, the raceways extending in one direction, a vehicle rail assembly coupled to the raceways, outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly, an outer jig on the outer jig rails, the outer jig configured to allow the vehicle rail assembly to move along the outer jig rails, inner jig rails on inner sidewalls of the raceways, and an inner jig on the inner jig rails, the inner jig configured to allow the vehicle rail assembly to move along the inner jig rails.

(7) According to an example embodiment of the present inventive concepts, a semiconductor fabrication facility includes raceways on a ceiling of a structural construction, the raceways extending in one direction, a vehicle rail assembly coupled to the raceways, outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly, an outer jig on the outer jig rails, the outer jig configured to allow the vehicle rail assembly to move along the outer jig rails, inner jig rails on inner sidewalls of the raceways, an inner jig on the inner jig rails, the inner jig configured to allow the vehicle rail assembly to move along the inner jig rails, a table lifting unit configured to support the vehicle rail assembly, and a lever on the table lifting unit, the lever configured to lift the inner jig and the vehicle rail assembly.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. **1** illustrates a cross-sectional view showing an example of a semiconductor fabrication facility according to an example embodiment of the present inventive concepts.

(2) FIG. **2** illustrates a cross-sectional view showing an example of an outer jig rail depicted in FIG. **1**.

(3) FIG. **3** illustrates a perspective view showing an example of an outer jig depicted in FIG. **1**.

(4) FIG. **4** illustrates a perspective view showing an example of a table lifting unit depicted in FIG. **1**.

(5) FIG. **5** illustrates a cross-sectional view showing an example of raceways and a vehicle rail assembly depicted in FIG. **1**.

(6) FIG. **6** illustrates a cross-sectional view showing an example of an upper plate that supports a vehicle rail assembly depicted in FIG. **1**.

(7) FIG. **7** illustrates a flow chart showing a method of establishing a vehicle rail assembly depicted in FIG. **1**.

(8) FIGS. **8** to **10** illustrate cross-sectional views showing a process of establishing a vehicle rail assembly.

(9) FIG. **11** illustrates a cross-sectional view showing an example of a semiconductor fabrication facility according to an example embodiment of the present inventive concepts.

(10) FIG. **12** illustrates a cross-sectional view showing an example of inner jig rails depicted in FIG. **11**.

DETAIL DESCRIPTION

(11) FIG. **1** shows an example of a semiconductor fabrication facility **100** according to an example embodiment of the present inventive concepts.

(12) Referring to FIG. **1**, a semiconductor fabrication facility **100** according to an example embodiment of the present inventive concepts may be provided in a structural construction (e.g., clean room). The semiconductor fabrication facility **100** may be provided between a ceiling **200** and a floor **300** of the structural construction. The ceiling **200** may include a mold bar (not shown). In some example embodiments, the ceiling **200** may include the framework of a building. For example, the semiconductor fabrication facility **100** may include raceways **10**, outer jig rails **22**, an outer jig **30**, a table lifting unit **40**, and a vehicle rail assembly **50**.

(13) The raceways **10** may be disposed on the ceiling **200**. The raceways **10** may extend in one direction. The raceways **10** may be parallel to each other. The raceways **10** may be fixed through bolts to the ceiling **200**. The raceways **10** may include, for example, iron or tungsten. The raceways **10** may have therebetween an interval of about 50 cm to about 130 cm, but the present inventive concepts are not limited thereto.

(14) The outer jig rails **22** may be located on opposite outer sidewalls of the raceways **10** and adjacent to the vehicle rail assembly **50**. The outer jig rails **22** may extend in a direction the same as that in which the raceways **10** extend. The outer jig rails **22** may support the outer jig **30**. For example, each of the outer jig rails **22** may include metal, such as iron or tungsten, but the present inventive concepts are not limited thereto.

(15) FIG. **2** shows an example of the outer jig rail **22** shown in FIG. **1**.

(16) Referring to FIGS. **1** and **2**, the outer jig rail **22** may have an L-type cross-section. One side of the outer jig rail **22** may be fixed through bolts to a corresponding outer sidewall of a corresponding raceway **10**. The outer jig **30** may move along another side of the outer jig rail **22**. According to an example embodiment, the outer jig rail **22** may have a stopper **23**. The stopper **23** may be provided on the another side of the outer jig rail **22**. The stopper **23** may fix a first roller (see **38** of FIG. **3**) of the outer jig **30**.

(17) FIG. **3** shows an example of the outer jig **30** shown in FIG. **1**.

(18) Referring to FIGS. **1** and **3**, the outer jig **30** may support the vehicle rail assembly **50**. The outer jig **30** may deliver the vehicle rail assembly **50** along the outer jig rail **22**. For example, the outer jig **30** may include metal, such as iron or tungsten. In some example embodiments, the outer jig **30** may include a polymer compound such as plastic, but the present inventive concepts are not limited thereto. According to an example embodiment, the outer jig **30** may include a first outer jig (alternatively, referred to as a first outer support) **32**, a second outer jig (alternatively, referred to as a second outer support) **34**, connection bars **36**, and first rollers **38**.

(19) The first outer jig **32** may be spaced apart from the second outer jig **34**. The first outer jig **32** may have a U shape. The first outer jig **32** may support one side of the vehicle rail assembly **50**.

(20) The second outer jig **34** may have the same shape as that of the first outer jig **32**. The second outer jig **34** may have a U shape. The first outer jig **32** and the second outer jig **34** may support an opposite side of the vehicle rail assembly **50**.

(21) The connection bars **36** may connect the first outer jig **32** to the second outer jig **34**. The connection bars **36** may be disposed on lateral surfaces of the first and second outer jigs **32** and **34**. The first outer jig **32** and the second outer jig **34** may be fixedly spaced apart at a constant interval from each other across the connection bars **36**.

(22) The first rollers **38** may be disposed at corresponding ends of the first and second outer jigs **32** and **34**. The first rollers **38** may be provided on the outer jig rails **22**. The first rollers **38** may rotate along the outer jig rails **22**. The first outer jig **32**, the second outer jig **34**, and the connection bars **36** may move due to the rotation of the first rollers **38**.

(23) Therefore, the outer jig rails **22** and the outer jig **30** may drive the vehicle rail assembly **50** to easily move along the raceways **10**.

(24) Referring back to FIG. **1**, the table lifting unit **40** may be provided below the outer jig **30** and the vehicle rail assembly **50**. When the vehicle rail assembly **50** is provided on the table lifting unit **40**, the table lifting unit **40** may lift the vehicle rail assembly **50** on the first and second outer jigs **32** and **34** of the outer jig **30**.
(25) FIG. **4** shows an example of the table lifting unit **40** depicted in FIG. **1**.
(26) Referring to FIGS. **1** and **4**, the table lifting unit **40** may include wheels **42**, a lower plate **44**, an upper plate **46**, and ladder bars **48**.
(27) The wheels **42** may support the lower plate **44**. The wheels **42** may allow the lower plate **44**, the upper plate **46**, and the ladder bars **48** to move along the floor **300**.
(28) The lower plate **44** may be provided on the wheels **42**. The wheels **42** may be fixed to a bottom surface of the lower plate **44**. The lower plate **44** may be parallel to the floor **300**.
(29) The upper plate **46** may be disposed above the lower plate **44**. The upper plate **46** may be parallel to the lower plate **44**. The ladder bars **48** may cause the upper plate **46** to move away from or close to the lower plate **44**.
(30) The ladder bars **48** may be provided between the lower plate **44** and the upper plate **46**. The ladder bars **48** may adjust a distance between the lower plate **44** and the upper plate **46**. The ladder bars **48** may constitute an X shape. A cylinder (not shown) may drive the ladder bars **48** to lift or lower the upper plate **46**.
(31) FIG. **5** shows an example of the raceways **10** and the vehicle rail assembly **50** depicted in FIG. **1**. FIG. **6** shown an example of the upper plate **46** that supports the vehicle rail assembly **50** depicted in FIG. **1**.
(32) Referring to FIGS. **1** and **3** to **6**, the upper plate **46** may be provided between the first outer jig **32** and the second outer jig **34**. The upper plate **46** may support the vehicle rail assembly **50**. The upper plate **46** may lift the vehicle rail assembly **50**.
(33) Referring to FIGS. **5** and **6**, the vehicle rail assembly **50** may be coupled to the raceways **10**. When the table lifting unit **40** is removed, the vehicle rail assembly **50** may guide an overhead hoist transport (OHT) (not shown). According to an example embodiment, the vehicle rail assembly **50** may include vehicle rails **52**, a rail connector **54**, and rail hangers **56**.
(34) The vehicle rails **52** may be provided below the rail connector **54** and the rail hangers **56**. The vehicle rails **52** may be parallel to the raceways **10**. The vehicle rails **52** may be guide rails or traveling rails for the OHT, but the present inventive concepts are not limited thereto.
(35) The rail connector **54** may be provided between the vehicle rails **52**. The vehicle rails **52** may be fixedly spaced apart at a constant interval from each other across the rail connector **54**. The rail connector **54** may have a π shape.
(36) The rail hangers **56** may be connected to the vehicle rails **52** and the rail connector **54**. The vehicle rails **52** and the rail connector **54** may be connected through the rail hangers **56** to the raceways **10**. The rail hangers **56** may have a plurality of nuts **58**. The nuts **58** may connect the rail hangers **56** to lower portions of the raceways **10**.
(37) The semiconductor fabrication facility **100** according to the above example embodiment of the present inventive concepts may be configured such that the outer jig rails **22**, the outer jig **30**, and the table lifting unit **40** are used to easily couple the vehicle rail assembly **50** to the raceways **10**.
(38) When the outer jig **30** is separated from the outer jig rails **22**, a wiring duct **102** may be provided on the outer jig rails **22**. The wiring duct **102** may surround an electric line (see **104** of FIG. **12**).
(39) The following will describe in detail a method of establishing the vehicle rail assembly **50** by using the semiconductor fabrication facility **100** configured as discussed above according to the above example embodiment of the present inventive concepts.
(40) FIG. **7** shows a method of establishing the vehicle rail assembly **50** depicted in FIG. **1**. FIGS. **8** to **10** illustrate cross-sectional views showing a process of establishing the vehicle rail assembly **50**.

(41) Referring to FIGS. **1**, **2**, **7**, and **8**, an engineer **90** or a robot may couple the outer jig rails **22** to opposite outer sidewalls of the raceways **10** (S**10**). The outer jig rails **22** may be fastened through bolts (not shown) to opposite outer sidewalls of the raceways **10**. Afterwards, the outer jig **30** may be provided on the outer jig rails **22**. The outer jig **30** may be connected to a wire rope **92**. A stacker **80** may provide the vehicle rail assembly **50** toward the outer jig **30**.
(42) Referring to FIGS. **3**, **7**, and **9**, the engineer **90** or the robot may provide the vehicle rail assembly **50** into the outer jig **30** (S**20**). The vehicle rail assembly **50** may be provided on the first and second outer jigs **32** and **34** of the outer jig **30**.
(43) Referring still to FIGS. **5**, **7**, and **9**, the engineer **90** or the robot may pull the wire rope **92** from one side of the raceways **10** toward other side of the raceways **10**, and thus the outer jig **30** may move (S**30**). When the outer jig **30** and the vehicle rail assembly **50** move to the another side of the raceways **10**, the table lifting unit **40** may lift the vehicle rail assembly **50**.
(44) Referring to FIGS. **5** to **7** and **10**, the engineer **90** or the robot may couple the vehicle rail assembly **50** to the raceways **10** (S**40**). The rail hangers **56** of the vehicle rail assembly **50** may be combined with the raceways **10**. Thereafter, the engineer **90** or the robot may use the wire rope **92** to move the outer jig **30** from the another side of the raceways **10** toward the one side of the raceways **10**. In addition, the table lifting unit **40** may be separated from the vehicle rail assembly **50**.
(45) The robot may determine whether the vehicle rail assembly **50** is additionally desired or not (S**50**).
(46) When the vehicle rail assembly **50** is not additionally desired, the outer jig **30** may be removed from the outer jig rails **22** (S**60**). When the outer jig **30** is separated from the outer jig rails **22**, the wiring duct **102** may be provided on the outer jig rails **22**.
(47) When the vehicle rail assembly **50** is additionally desired, the engineer **90** or the robot may provide the vehicle rail assembly **50** into the outer jig **30** (S**20**). The steps S**20** to S**50** may be repeatedly carried out.
(48) FIG. **11** shows an example of the semiconductor fabrication facility **100** according to an example embodiment of the present inventive concepts.
(49) Referring to FIG. **11**, the semiconductor fabrication facility **100** according to an example embodiment of the present inventive concepts may further include inner jig rails **24**, an inner jig **60**, and a lever **70**. The raceways **10**, the outer jig rails **22**, the outer jig **30**, the table lifting unit **40**, and the vehicle rail assembly **50** may be configured identical to those of FIG. **1**.
(50) The inner jig rails **24** may be placed between the outer jig rails **22**. The inner jig rails **24** may be located on opposite facing inner walls of the raceways **10**. The inner jig rails **24** may support the inner jig **60**. Each of the inner jig rails **24** may have an L-type cross-section. For example, the inner jig rails **24** may include metal, such as iron or tungsten.
(51) FIG. **12** shows an example of the inner jig rails **24** depicted in FIG. **11**.
(52) Referring to FIG. **12**, when the vehicle rail assembly **50** is coupled to the raceways **10**, and when the outer jig **30**, the table lifting unit **40**, the inner jig **60**, and the lever **70** are removed, each of the outer and inner jig rails **22** and **24** may receive electric lines **104**. The electric lines **104** may include a power line or communication line, but the present inventive concepts are not limited thereto.
(53) Referring back to FIG. **11**, the inner jig **60** may be provided in or within the outer jig **30**. The inner jig **60** may be provided between or on the inner jig rails **24**. The inner jig **60** may allow the rail connector **54** and the lever **70** to be supported by the inner jig rails **24**. In other words, the inner jig **60** may allow the vehicle rail assembly to move along the inner jig rail **24**. For example, the inner jig **60** may include metal, such as iron or tungsten. In some example embodiments, the inner jig **60** may include a polymer compound such as plastic, but the present inventive concepts are not limited thereto. According to an example embodiment, the inner jig **60** may include a horizontal bar **62**, a vertical bar **64**, second rails **66**, an upper clamp **67**, a middle clamp **68**, and a lower clamp **69**.

(54) The horizontal bar **62** may be provided between the inner jig rails **24**. The horizontal bar **62** may be connected between the second rails **66**. The horizontal bar **62** may support the vertical bar **64**.
(55) The vertical bar **64** may be connected to a center of the horizontal bar **62**. The vertical bar **64** may connect the rail connector **54** and the lever **70** to the horizontal bar **62**. The vertical bar **64** may move in a vertical direction when the vehicle rail assembly **50** is coupled to the raceways **10**, but the present inventive concepts are not limited thereto.
(56) The second rails **66** may be connected opposite ends of the horizontal bar **62**. The second rails **66** may be provided on the inner jig rails **24**. The second rails **66** may cause the horizontal bar **62** and the vertical bar **64** to move in a horizontal direction along the raceways **10**.
(57) The upper clamp **67** may be provided on a top end of the vertical bar **64**. The upper clamp **67** may be provided on the center of the horizontal bar **62**. The upper clamp **67** may connect the vertical bar **64** to the horizontal bar **62**. For example, the upper clamp **67** may have a ring shape like question mark "?". In such cases, when the lever **70** ascends, the upper clamp **67** may separate the vertical bar **64** from the horizontal bar **62**, but the present inventive concepts are not limited thereto.
(58) The middle clamp **68** may be provided on the vertical bar **64** between the upper clamp **67** and the lower clamp **69**. When the second rails **66** rotates or when the lever **70** ascends, the middle clamp **68** may support the rail connector **54**. The middle clamp **68** may have a V shape.
(59) The lower clamp **69** may be provided on a bottom end of the vertical bar **64**. The lower clamp **69** may support the lever **70**. The lower clamp **69** may have a ring shape.
(60) The lever **70** may be provided in the lower clamp **69**. The lever **70** may be provided on the connection bars **36** of the outer jig **30**. The lever **70** may allow the rail connector **54** to be supported by the connection bars **36**. In addition, the lever **70** may be used when the vehicle rail assembly **50** is coupled to the raceways **10**. The lever **70** may exactly align the vehicle rail assembly **50** with the raceways **10**. For example, the vehicle rail assembly **50** may ascend when the engineer **90** lift opposite ends of the lever **70**.
(61) Accordingly, the semiconductor fabrication facility **100** according to some example embodiments of the present inventive concepts may increase productivity and efficiency of fastening between the raceways **10** and the vehicle rail assembly **50**.
(62) As discussed above, a semiconductor fabrication facility according to some example embodiments of the present inventive concepts may be configured such that an inner jig rail, an outer jig rail, an inner jig, an outer jig, and a table lifting unit are used to easily establish a vehicle rail assembly to raceways.
(63) Although the present inventive concepts have been described in connection with some example embodiments illustrated in the accompanying drawings, it will be understood to those skilled in the art that various changes and modifications may be made without departing from the technical spirit and essential feature of the disclosed example embodiments. It therefore will be understood that the example embodiments described above are just illustrative but not limitative in all aspects.

Claims

1. A semiconductor fabrication facility, comprising: raceways on a ceiling of a structural construction, the raceways extending in one direction; a vehicle rail assembly coupled to the raceways; outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly; and an outer jig on the outer jig rails, the outer jig including first rollers configured to rotate along the outer jig rails, stoppers on the outer jig rails, the stoppers configured to fix the first rollers.
2. The semiconductor fabrication facility of claim 1, wherein each of the outer jig rails has an L-

type cross-section.
3. The semiconductor fabrication facility of claim 1, wherein the outer jig further includes: a first outer support; a second outer support separated from the first outer support, the first outer support and the second outer support having a same shape; and connection bars connecting the second outer support to the first outer support.
4. The semiconductor fabrication facility of claim 3, wherein the first rollers are connected to ends of the first and second outer supports.
5. The semiconductor fabrication facility of claim 3, wherein each of the first and second outer supports has a U shape.
6. The semiconductor fabrication facility of claim 1, further comprising: inner jig rails on facing inner sidewalls of the raceways.
7. The semiconductor fabrication facility of claim 6, further comprising: an inner jig on the inner jig rails, the inner jig configured to allow the vehicle rail assembly to move along the inner jig rails.
8. The semiconductor fabrication facility of claim 7, wherein the vehicle rail assembly includes: vehicle rails parallel to the raceways; a rail connector connecting the vehicle rails to each other; and hangers connecting the rail connector and the vehicle rails to the raceways.
9. The semiconductor fabrication facility of claim 8, wherein the inner jig includes: second rails on the inner jig rails; a horizontal bar connecting the second rails to each other; and a vertical bar connecting the horizontal bar to the rail connector.
10. A semiconductor fabrication facility, comprising: raceways on a ceiling of a structural construction, the raceways extending in one direction; a vehicle rail assembly coupled to the raceways; outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly; an outer jig on the outer jig rails, the outer jig including first rollers configured to rotate along the outer jig rails; inner jig rails on inner sidewalls of the raceways; an inner jig on the inner jig rails, the inner jig configured to allow the vehicle rail assembly to move along the inner jig rails; and stoppers on the outer jig rails, the stoppers configured to fix the first rollers.
11. The semiconductor fabrication facility of claim 10, wherein the outer jig further includes: a first outer support; a second outer support separated from the first outer support, the first outer support and the second outer support having a same shape; and connection bars connecting the second outer support to the first outer support.
12. The semiconductor fabrication facility of claim 11, wherein the inner jig includes: second rails on the inner jig rails; a horizontal bar connecting the second rails to each other; and a vertical bar connecting the horizontal bar to the vehicle rail assembly.
13. The semiconductor fabrication facility of claim 12, further comprising: a lever connected to the vertical bar and supported by the connection bars.
14. The semiconductor fabrication facility of claim 13, wherein the inner jig includes: a middle clamp configured to clamp the vehicle rail assembly to the vertical bar; and a lower clamp below the middle clamp, the lower clamp configured to clamp the lever to the vertical bar.
15. A semiconductor fabrication facility, comprising: raceways on a ceiling of a structural construction, the raceways extending in one direction; a vehicle rail assembly coupled to the raceways; outer jig rails on outer sidewalls of the raceways and adjacent to the vehicle rail assembly; an outer jig on the outer jig rails, the outer jig configured to allow the vehicle rail assembly to move along the outer jig rails; inner jig rails on inner sidewalls of the raceways; an inner jig on the inner jig rails, the inner jig configured to allow the vehicle rail assembly to move along the inner jig rails; a table lifting unit configured to support the vehicle rail assembly; and a lever on the table lifting unit, the lever configured to lift the inner jig and the vehicle rail assembly.
16. The semiconductor fabrication facility of claim 15, wherein each of the outer jig rails and the inner jig rails has an L-type cross-section.
17. The semiconductor fabrication facility of claim 15, wherein the outer jig includes: a first outer support; a second outer support separated from the first outer support, the first outer support and

the second outer support having a same shape; and connection bars connecting the second outer support to the first outer support.

18. The semiconductor fabrication facility of claim 17, wherein the inner jig includes: second rails on the inner jig rails; a horizontal bar connecting the second rails to each other; a vertical bar on a center of the horizontal bar; an upper clamp on a top end of the vertical bar, the upper clamp configured to connect the vertical bar to the horizontal bar; a middle clamp on the vertical bar and below the upper clamp, the middle clamp configured to support the vehicle rail assembly; and a lower clamp on a bottom end of the vertical bar, the lower clamp configured to receive the lever.

19. The semiconductor fabrication facility of claim 17, wherein the lever is on the connection bars.