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(54) **TOOL TROLLEY**

(57) The tool trolley comprises a small trolley part (1) and a big trolley part (2) arranged directly opposite to each other. Small roller wheels (1-1) are arranged at the bottom of the inner side surface of the small trolley part (1), a positioning groove (2-1) is arranged at the corresponding position of the big trolley part (2), the positioning groove has one side opened for in-out of the small roller wheels, and a connection buckle (2-2) is arranged at the

top of the big trolley part (2) and used for being clamped into a connection notch (1-2) at the top of the small trolley part (1), so as to realize closing and fixation of the big and small trolley parts. The small trolley part has outer side opened and is provided with layers of storage racks for placing tools. The big trolley part is also provided with layers of storage racks.

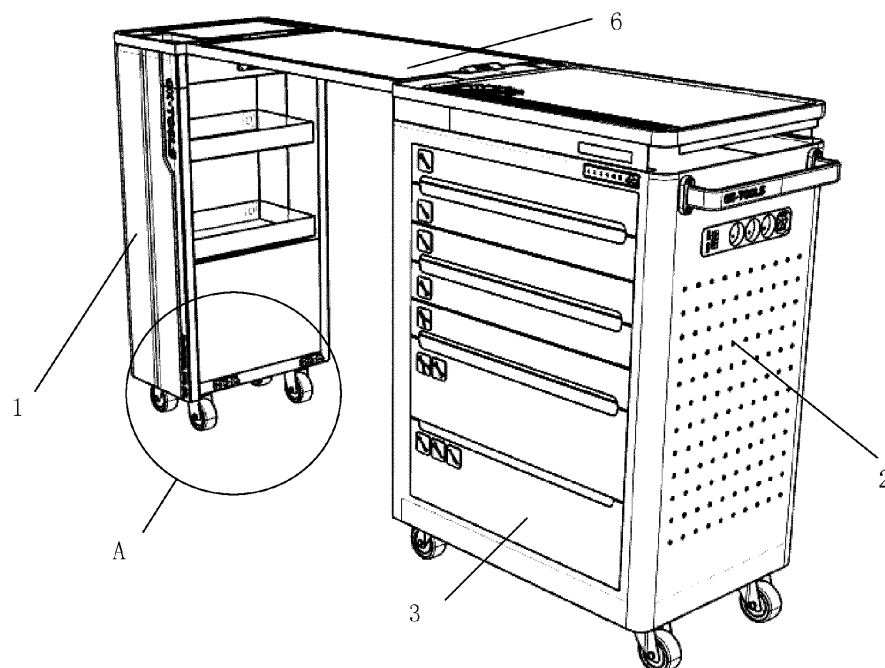


FIG. 4

Description

FIELD OF THE PRESENT INVENTION

[0001] The present invention relates to the field of work tool. More particularly, this invention describes a detachable tool trolley with extendable worktable.

BACKGROUND OF THE PRESENT INVENTION

[0002] A series of tools such as screwdrivers, wrenches and nipper pliers are often needed in production operation sites. If a large number of tools are not classified and stored, it is easy to cause disorder in the production site, thus affecting production operation efficiency. The emergence of tool trolley is a good solution to this problem. The operator can access the tools inside the tool trolley at any time, but the existing tool trolley still has the following defects that: the tools in the trolley are placed randomly, there is no indicator, workers need to spend time to find the required tools, working efficiency is affected owing to length limit of existing tool trolley when operator needs to use or detect parts that exceed the length of the tool trolley worktable in a specific station, and additional measurement tools are required for measurement operations.

OBJECTS AND SUMMARY OF THE PRESENT INVENTION

[0003] It is a first object of the present invention to overcome the shortcomings of the prior art and provide a tool trolley with an extendable worktable, having closing and extending two working states with convenient and quick switching.

[0004] The object of the present invention is completed by the following technical scheme. The tool trolley with extendable worktable comprises a small trolley part and a big trolley part arranged directly opposite to each other. The small trolley part has outer side opened and is provided with a number of layers of storage racks for placing tools. The big trolley part is also provided with a number of layers of storage racks. Universal wheels are arranged at the bottoms of both the big and small trolley parts. Handles are arranged at the tops of the outer side surfaces of both the big and small trolley parts and used for pushing and pulling the small trolley part and/or the big trolley part. A connection bracket is hinged at the top of the inner side surface of the big trolley part, and a connection plate is covered on the connection bracket, so that the connection plate can rotate between a first position and a second position. When the connection plate is located at the first position, the connection bracket is fitted to the inner side surface of the big trolley part, a connection buckle is arranged at the top of the big trolley part and used for being clamped into a connection notch at the top of the small trolley part, so as to realize closing and fixation of the big and small trolley parts. When the

connection plate is located at the second position, the connection bracket has an angle of 90 degree with the inner side surface of the big trolley part and supports the connection plate, and the connection plate is provided with a projection at end part for being clamped into the connection notch, so as to connect and fix the big and small trolley parts and realize extension of the worktable of the tool trolley.

[0005] As a further technical scheme, a group of small roller wheels are arranged at the bottom of the inner side surface of the small trolley part, a positioning groove is arranged at the corresponding position of the big trolley part, and the positioning groove has one side opened for in-out of the small roller wheels, so as to achieve closing or separation of the big and small trolley parts.

[0006] It is a second object of the present invention to overcome the shortcomings of the prior art and provide a tool trolley with an extendable worktable, having closing and extending two working states with convenient and quick switching.

[0007] The purpose of the present invention is completed by the following technical scheme. A detachable tool trolley comprises a small trolley part and a big trolley part arranged directly opposite to each other. A group of small roller wheels are arranged at the bottom of the inner side surface of the small trolley part, a positioning groove is arranged at the corresponding position of the big trolley part, the positioning groove has one side opened for in-out of the small roller wheels, and a connection buckle is arranged at the top of the big trolley part and used for being clamped into a connection notch at the top of the small trolley part, so as to realize closing and fixation of the big and small trolley parts. The small trolley part has outer side opened and is provided with a number of layers of storage racks for placing tools. The big trolley part is also provided with a number of layers of storage racks. Universal wheels are arranged at the bottoms of both the big and small trolley parts. Handles are arranged at the tops of the outer side surfaces of both the big and small trolley parts and used for pushing and pulling the small trolley part and/or the big trolley part.

[0008] As a further technical scheme, the detachable tool trolley also comprises a connection bracket hinged at the top of the big trolley part, and a connection plate is covered on the connection bracket, so that the connection plate can rotate between a first position and a second position. When the connection plate is located at the first position, the connection bracket is fitted to the inner side surface of the big trolley part. When the connection plate is located at the second position, the connection bracket has an angle of 90 degree with the inner side surface of the big trolley part and supports the connection plate.

[0009] As a further technical scheme, a projection is arranged at the end part of the connection plate. When the connection plate is located at the second position, the projection is clamped into the connection notch of the small trolley part, so as to realize extending and fixation

of the big and small trolley parts.

[0010] As a further technical scheme, a button is arranged on the projection and used for pressing control of a bolt arranged in the projection, so as to achieve fixation or separation of the connection plate and the connection notch.

[0011] As a further technical scheme, a connection frame is arranged at one end of the connection bracket away from the big trolley part, and the bottom of the connection frame is provided with a clamping slot. A hinge pin with a torsional spring passes through the connection frame to hinge the supporting legs and the connection bracket, so that the supporting legs can rotate around the hinge pin. The supporting legs are provided thereon with a sliding block, and both ends of the sliding block extend out from two sides of the supporting legs. A sliding slot is opened on the side wall of each supporting leg and used for up-and-down sliding of the sliding block. A projection is arranged at the bottom of the sliding block and used for fitting a draw bar telescoping mechanism at the lower part of the supporting leg. When the projection moves downwards along with the sliding block and against a trigger button of the draw bar telescoping mechanism, the draw bar telescoping mechanism is in free telescoping. The inner side surface of the big trolley part is sunken inwardly to form a rectangular groove. When the connection plate is located at the first position, the supporting legs are fitted with the connection bracket and received into the rectangular groove. When the connection plate is located at the second position and the supporting legs rotate to be perpendicular to the connection bracket, two ends of the sliding block are clamped into the clamping slot at the bottom of the connection frame, and the supporting legs are contacted with and supported by the ground through the draw bar telescoping mechanism to form an independent supporting structure of the big trolley part.

[0012] As a further technical scheme, the length of the draw bar telescoping mechanism after extension is larger than the height of the rectangular groove, and the length of the draw bar telescoping mechanism after contraction is smaller than the height of the rectangular groove.

[0013] As a preferable technical scheme, mark stickers are stuck on the outer surfaces of the storage racks by magnetic suction and used for indicating the types of placed tools.

[0014] As a preferable technical scheme, a socket is provided on the outer surface of the big trolley part. A power cord exit is opened on side of the socket and used for being connected with an external circuit.

[0015] As a preferable technical scheme, a scale area is provided on the top surface of the big trolley part to facilitate measuring operation.

[0016] The beneficial effects of the present invention are as follows:

1. Magnetic suction mark stickers are provided on the storage racks to make tools in the tool trolley

orderly placed and achieve convenient and efficient access.

2. Closing and extending two working states are provided to facilitate operation of super-long parts by worker.

3. Measuring operation can be performed without additional measurement tools.

4. The trolley body has its own power supply, which can service electric power tools.

5. The big and small trolley parts can be detached for independent use.

BRIEF DESCRIPTION OF FIGURES

[0017] Other advantages, objects and features of the present invention are shown non-restrictively by reference to the figures:

Fig. 1 is structure drawing 1 of the tool trolley in the present invention at closing state;

Fig. 2 is top view of Fig. 1;

Fig. 3 is structure drawing 2 of the tool trolley in the present invention at closing state;

Fig. 4 is structure drawing 1 of the tool trolley in the present invention at extending state;

Fig. 5 is top view of Fig. 4;

Fig. 6 is structure drawing 2 of the tool trolley in the present invention at extending state;

Fig. 7 is local magnification drawing of region A in Fig. 4;

Fig. 8 is local magnification drawing of region B in Fig. 6;

Fig. 9 is structure drawing of the small trolley part;

Fig. 10 is structure drawing of the big trolley part;

Fig. 11 is structure drawing of the big trolley part (without connection plate);

Fig. 12 is structure drawing of connection bracket;

Fig. 13 is local magnification drawing of region C in Fig. 12;

Fig. 14 is structure drawing of supporting legs at rotating state; and

Fig. 15 is drawing of the big trolley part at independent support and use state.

[0018] Description of signs in the figures: small trolley part 1, small roller wheel 1-1, connection notch 1-2, big trolley part 2, positioning groove 2-1, connection buckle 2-2, rectangular groove 2-3, scale area 2-4, storage rack 3, universal wheel 4, handle 5, connection plate 6, projection 6-1, button 6-2, connection bracket 7, supporting leg 7-1, draw bar telescoping mechanism 7-2, hinge pin 7-3, torsional spring 7-4, clamping slot 7-5, sliding block 7-6, sliding slot 7-7, connection frame 7-8, projection 7-9, mark sticker 8, socket 9, power cord exit 10.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0019] A detailed description of the present invention

in combination with the figures are as follows.

[0020] Example 1. Referring to Fig. 1, the detachable tool trolley comprises a small trolley part 1 and a big trolley part 2 arranged directly opposite to each other. A group of small roller wheels 1-1 (referring to Fig. 7, four roller wheels in this example) are arranged at the bottom of the inner side surface of the small trolley part 1. A positioning groove 2-1 (referring to Fig. 8) is arranged at the corresponding position of the big trolley part 2. The positioning groove 2-1 has one side opened for in-out of the small roller wheels 1-1. A connection buckle 2-2 is arranged at the top of the big trolley part 2 and used for being clamped into a connection notch 1-2 at the top of the small trolley part 1 to realize closing and fixation of the big trolley part 2 and the small trolley part 1 (referring to Figs. 1 and 3). The small trolley part 1 has outer side opened and is provided with a number of layers of storage racks 3 for placing tools. The big trolley part 2 is also provided with a number of layers of storage racks 3. Universal wheels 4 are arranged at the bottoms of both the big trolley part 2 and the small trolley part 1. Handles 5 are arranged at the tops of the outer side surfaces of both the big trolley part 2 and the small trolley part 1 and used for pushing and pulling the small trolley part 1 and/or the big trolley part 2.

[0021] Referring to Figs. 10 and 11, a connection bracket 7 is hinged at the top of the big trolley part 2, and a connection plate 6 is covered on the connection bracket 7, so that the connection plate 6 can rotate between a first position and a second position. Referring to Figs. 12 and 13, a connection frame 7-8 is arranged at one end of the connection bracket 7 away from the big trolley part 2, and the bottom of the connection frame 7-8 is provided with a clamping slot 7-5. A hinge pin 7-3 with torsional spring 7-4 (limiting the rotation range of the supporting legs 7-1 to 0-90 degrees) passes through the connection frame 7-8 to hinge the supporting legs 7-1 and the connection bracket 7, so that the supporting legs 7-1 can rotate around the hinge pin 7-3. The supporting legs 7-1 are provided thereon with a sliding block 7-6, and both ends of the sliding block 7-6 extend out from two sides of the supporting legs 7-1. A sliding slot 7-7 is opened on the side wall of each supporting leg 7-1 and used for up-and-down sliding of the sliding block 7-6. A projection 7-9 is arranged at the bottom of the sliding block 7-6 and used for fitting a draw bar telescoping mechanism 7-2 (structure similar to draw bar of draw bar box) at the lower part of the supporting leg 7-1. When the projection 7-9 moves downwards along with the sliding block 7-6 and against a trigger button of the draw bar telescoping mechanism 7-2, the draw bar telescoping mechanism 7-2 is in free telescoping. Referring to Fig. 6, the inner side surface of the big trolley part 2 is sunken inwardly to form a rectangular groove 2-3. When the connection plate 6 is located at the first position (that is, the connection plate 6 and the connection bracket 7 are fitted to the inner side surface of the big trolley part 2, referring to Fig. 10), the supporting legs 7-1 are fitted with the connection bracket

7 and received into the rectangular groove 2-3. When the connection plate 6 is located at the second position (that is, the connection bracket 7 has an angle of 90 degree with the inner side surface of the big trolley part 2 and supports the connection plate 6) and the supporting legs 7-1 rotate to be perpendicular to the connection bracket 7, two ends of the sliding block 7-6 are clamped into the clamping slot 7-5 at the bottom of the connection frame 7-8, and the supporting legs 7-1 cannot continue to rotate around the hinge pin 7-3. The supporting legs 7-1 are contacted with and supported by the ground through the draw bar telescoping mechanism 7-2 to form an independent supporting structure of the big trolley part 2. When the sliding block 7-6 moves downwardly along the sliding slot 7-7 and is released from the clamping slot 7-5, the supporting legs 7-1 automatically rotate under the action of torsional spring 7-4 and are fitted with the connection bracket 7, and projection 7-9 is abutted against the trigger button of the draw bar telescoping mechanism 7-2, so that the draw bar telescoping mechanism 7-2 can be contracted. The length of the draw bar telescoping mechanism 7-2 after complete extension is larger than the height of the rectangular groove 2-3, to ensure contact with the ground for supporting, at the same time, the draw bar telescoping mechanism 7-2 can be not received into the rectangular groove 2-3 at extending state. The length of the draw bar telescoping mechanism 7-2 after contraction is smaller than the height of the rectangular groove 2-3, to ensure the draw bar telescoping mechanism 7-2 after contraction can be received by the rectangular groove 2-3 (referring to Fig. 11).

[0022] Referring to Figs. 4, 5 and 6, when the connection plate 6 is located at the second position, a projection 6-1 at the end part of the connection plate 6 can be clamped into the connection notch 1-2 of the small trolley part 1 to realize extension and fixation of the big trolley part 2 and small trolley part 1. Referring to Fig. 10, a button 6-2 is arranged on the projection 6-1 and used for pressing control of a bolt arranged in the projection 6-1, so as to achieve fixation or separation of the connection plate 6 and the connection notch 1-2.

[0023] As a preferable technical scheme, mark stickers 8 are stuck on the outer surfaces of the storage racks 3 by magnetic suction and used for indicating the types of placed tools. More preferably, the storage racks 3 of the small trolley part 1 are semi-opened (referring to Figs. 4 and 6) for flexible access, and the storage racks 3 of the big trolley part 2 are drawer type (referring to Fig. 1) for storage of tools.

[0024] As a preferable technical scheme, a socket 9 is provided on the outer surface of the big trolley part 2. A power cord exit 10 is opened on side of the socket 9 and used for being connected with an external circuit.

[0025] As a preferable technical scheme, a scale area 2-4 is provided on the top surface of the big trolley part 2 to facilitate measuring operation.

[0026] Working processes of the present invention are

as follows.

[0027] When the tool trolley is at closing state, the small roller wheels 1-1 of the small trolley part 1 are embedded in the positioning groove 2-1 of the big trolley part 2, while the connection plate 6 has an angle of 90 degree with the horizontal plane and is abutted in the rectangular groove 2-3 (the supporting legs 7-1 are received in the rectangular groove 2-3, referring to Fig. 3), the connection buckle 2-2 is buckled into the connecting notch 1-2, and the big trolley part 2 and the small trolley part 1 are closely used as the conventional tool trolley, referring to Figs. 1 and 3.

[0028] When the operator needs to use or detect super-long parts, the buckle 2-2 is released, the small roller wheels 1-1 of the small trolley part 1 are pushed out from the positioning groove 2-1 to achieve separation of the big trolley part 2 and the small trolley part 1 (referring to Figs. 9 and 10), and then the connection bracket 7 is rotated to make it form an angle of 90 degree with the inner side surface of the big trolley part 2 to support the connection plate 6. The projection 6-1 is aligned with the connection notch 1-2 of the small trolley part 1, the button 6-2 is pressed to make the bolt enter the connection notch 1-2, and then the big trolley part 2 and the small trolley part 1 are connected and fixed by the connection plate 6 and used as extending state. Referring to Figs. 4 and 6, the operator can directly place the super-long parts on the worktable of the tool trolley for operation.

[0029] Referring to Figs. 9 and 10, when the big trolley part 2 is separated from the small trolley part 1, the big trolley part 2 can be used as an independent tool trolley often in fixed workplace, and the small trolley part 1 as moving tool trolley can be flexibly moved to other working sites for use. After separation, the connection bracket 7 of the big trolley part 2 also can be extended, has an angle of 90 degree with the inner side surface and supports the connection plate 6, the supporting legs 7-1 are rotated to be perpendicular to the connection bracket 7 (rotating from the state in Fig. 14 to the state shown in Fig. 15), and two ends of the sliding block 7-6 in the supporting legs 7-1 are clamped into the clamping slot 7-5 at the bottom of the connection frame 7-8, so that the supporting legs 7-1 cannot continue to rotate around the hinge pin 7-3. The draw bar telescoping mechanism 7-2 is pulled to elongate the supporting legs 7-1 and be in contact with the ground for supporting, forming an independent supporting structure of the big trolley part 2 (referring to Fig. 15). When the supporting legs 7-1 are needed to be withdrawn, the sliding block 7-6 is pressed downwards by hand. When the sliding block 7-6 moves downwards along the sliding slot 7-7 and is released from the clamping slot 7-5, the supporting legs 7-1 automatically rotate under the action of the torsional spring 7-4 and are fitted with the connection bracket 7. The projection 7-9 is pressed on the trigger button of the draw bar telescoping mechanism 7-2, so that the draw bar telescoping mechanism 7-2 can be automatically constricted.

[0030] In addition, when using tools, the corresponding

storage racks 3 can be opened according to instructions of the mark stickers 8, and tools are put back correspondingly after use. When some parts are needed to be measured, the to-be-measured parts are directly placed in the scale area 2-4, and length, angle and other data can be measured. When power electric tool is used, plug is plugged into the socket 9 to power the power electric tool, and the socket 9 is connected with the external circuit through the power cord exit 10.

[0031] Example 2. Referring to in Figs. 4-6, a tool trolley with extendable worktable comprises a small trolley part 1 and a big trolley part 2 arranged directly opposite to each other. The small trolley part 1 has outer side opened and is provided with a number of layers of storage racks 3 for placing tools. The big trolley part 2 is also provided with a number of layers of storage racks 3. Universal wheels 4 are arranged at the bottoms of both the big trolley part 2 and the small trolley part 1. Handles 5 are arranged at the tops of the outer side surfaces of both the big trolley part 2 and the small trolley part 1 and used for pushing and pulling the small trolley part 1 and/or the big trolley part 2. Referring to Figs. 10 and 11, a connection bracket 7 is hinged at the top of the inner side surface of the big trolley part 2, and a connection plate 6 is covered on the connection bracket 7, so that the connection plate 6 can rotate between a first position and a second position. When the connection plate 6 is located at the first position, the connection bracket 7 is fitted to the inner side surface of the big trolley part 2, a connection buckle 2-2 is arranged at the top of the big trolley part 2 and used for being clamped into a connection notch 1-2 at the top of the small trolley part 1, so as to realize closing and fixation of the big trolley part 2 and the small trolley part 1. When the connection plate 6 is located at the second position, the connection bracket 7 has an angle of 90 degree with the inner side surface of the big trolley part 2 and supports the connection plate 6, and the connection plate 6 is provided with a projection 6-1 at end part for being clamped into the connection notch 1-2, so as to connect and fix the big trolley part 2 and the small trolley part 1 and realize extension of the worktable of the tool trolley. Preferably, referring to Fig. 10, a button 6-2 is arranged on the projection 6-1 for pressing control of a bolt arranged in the projection 6-1, so as to achieve fixation or separation of the connection plate 6 and the connection notch 1-2.

[0032] Referring to Figs. 7 and 8, a group of small roller wheels 1-1 (referring to Fig. 7, four roller wheels in this example) are arranged at the bottom of the inner side surface of the small trolley part 1. A positioning groove 2-1 (referring to Fig. 8) is arranged at the corresponding position of the big trolley part 2. The positioning groove 2-1 has one side opened for in-out of the small roller wheels 1-1, so as to realize closing or separation of the big trolley part 2 and small trolley part 1.

[0033] Referring to Figs. 12 and 13, a connection frame 7-8 is arranged at one end of the connection bracket 7 away from the big trolley part 2, and the bottom of the

connection frame 7-8 is provided with a clamping slot 7-5. A hinge pin 7-3 with torsional spring 7-4 (limiting the rotation range of the supporting legs 7-1 to 0-90 degree) passes through the connection frame 7-8 to hinge the supporting legs 7-1 and the connection bracket 7, so that the supporting legs 7-1 can rotate around the hinge pin 7-3. The supporting legs 7-1 are provided thereon with a sliding block 7-6, and both ends of the sliding block 7-6 extend out from two sides of the supporting legs 7-1. A sliding slot 7-7 is opened on the side wall of the supporting leg 7-1 and used for up-and-down sliding of the sliding block 7-6. A projection 7-9 is arranged at the bottom of the sliding block 7-6 and used for fitting a draw bar telescoping mechanism 7-2 (structure similar to draw bar of draw bar box) at the lower part of the supporting leg 7-1. When the projection 7-9 moves downwards along with the sliding block 7-6 and against a trigger button of the draw bar telescoping mechanism 7-2, the draw bar telescoping mechanism 7-2 is in free telescoping. Referring to Fig. 6, the inner side surface of the big trolley part 2 is sunken inwardly to form a rectangular groove 2-3. When the connection plate 6 is located at the first position (that is, the connection plate 6 and the connection bracket 7 are fitted to the inner side surface of the big trolley part 2, referring to Fig. 10), the supporting legs 7-1 are fitted with the connection bracket 7 and received into the rectangular groove 2-3. When the connection plate 6 is located at the second position (that is, the connection bracket 7 has an angle of 90 degree with the inner side surface of the big trolley part 2 and supports the connection plate 6) and the supporting legs 7-1 rotate to be perpendicular to the connection bracket 7, two ends of the sliding block 7-6 are clamped into the clamping slot 7-5 at the bottom of the connection frame 7-8, and the supporting legs 7-1 cannot continue to rotate around the hinge pin 7-3. The supporting legs 7-1 are contacted with and supported by the ground through the draw bar telescoping mechanism 7-2 to form an independent supporting structure of the big trolley part 2. When the sliding block 7-6 moves downwardly along the sliding slot 7-7 and is released from the clamping slot 7-5, the supporting legs 7-1 automatically rotate under the action of torsional spring 7-4 and are fitted with the connection bracket 7, and projection 7-9 is abutted against the trigger button of the draw bar telescoping mechanism 7-2, so that the draw bar telescoping mechanism 7-2 can be contracted. The length of the draw bar telescoping mechanism 7-2 after complete extension is larger than the height of the rectangular groove 2-3, to ensure contact with the ground for supporting, at the same time, the draw bar telescoping mechanism 7-2 can be not received into the rectangular groove 2-3 at extension state. The length of the draw bar telescoping mechanism 7-2 after contraction is smaller than the height of the rectangular groove 2-3, to ensure the draw bar telescoping mechanism 7-2 after contraction can be received in the rectangular groove 2-3 (referring to Fig. 11).

[0034] As a preferable technical scheme, mark stickers

8 are stuck on the outer surfaces of the storage racks 3 by magnetic suction and used for indicating the types of placed tools. More preferably, the storage racks 3 of the small trolley part 1 are semi-opened (referring to Figs. 4 and 6) for flexible access, and the storage racks 3 of the big trolley part 2 are drawer type (referring to Fig. 1) for storage of tools.

[0035] As preferable technical scheme, a socket 9 is provided on the outer surface of the big trolley part 2. A power cord exit 10 is opened on side of the socket 9 and used for being connected with an external circuit.

[0036] As a preferable technical scheme, a scale area 2-4 is provided on the top surface of the big trolley part 2 to facilitate measuring operation.

[0037] Working processes of the present invention are as follows.

[0038] When the operator needs to use or detect super-long parts, the buckle 2-2 is released, the small roller wheels 1-1 of the small trolley part 1 are pushed out from the positioning groove 2-1 to achieve separation of the big trolley part 2 and the small trolley part 1 (referring to Figs. 9 and 10), and then the connection bracket 7 is rotated to make it form an angle of 90 degree with the inner side surface of the big trolley part 2 to support the connection plate 6. The projection 6-1 is aligned with the connection notch 1-2 of the small trolley part 1, the button 6-2 is pressed to make the bolt enter the connection notch 1-2, and then the big trolley part 2 and the small trolley part 1 are connected and fixed by the connection plate 6 and used as extending state. Referring to Figs. 4 and 6, the operator can directly place the super-long parts on the worktable of the tool trolley for operation.

[0039] Referring to Figs. 9 and 10, when the big trolley part 2 is separated from the small trolley part 1, the big trolley part 2 can be used as an independent tool trolley often in fixed workplace, and the small trolley part 1 as moving tool trolley can be flexibly moved to other working sites for use. After separation, the connection bracket 7 of the big trolley part 2 also can be extended, has an angle of 90 degree with the inner side surface and supports the connection plate 6, the supporting legs 7-1 are rotated to be perpendicular to the connection bracket 7 (rotating from the state in Fig. 14 to the state shown in Fig. 15), and two ends of the sliding block 7-6 in the supporting legs 7-1 are clamped into the clamping slot 7-5 at the bottom of the connection frame 7-8, so that the supporting legs 7-1 cannot continue to rotate around the hinge pin 7-3. The draw bar telescoping mechanism 7-2 is pulled to elongate the supporting legs 7-1 and be in contact with the ground for supporting, forming an independent supporting structure of the big trolley part 2 (referring to Fig. 15). When the supporting legs 7-1 are needed to be withdrawn, the sliding block 7-6 is pressed downward by hand. When the sliding block 7-6 moves downward along the sliding slot 7-7 and is released from the clamping slot 7-5, the supporting legs 7-1 automatically rotate under the action of the torsional spring 7-4 and are fitted with the connection bracket 7. The projection 7-9

is pressed on the trigger button of the draw bar telescoping mechanism 7-2, so that the draw bar telescoping mechanism 7-2 can be automatically constricted.

[0040] When the tool trolley is closed, the small roller wheels 1-1 of the small trolley part 1 are embedded in the positioning groove 2-1 of the big trolley part 2, while the connection plate 6 has an angle of 90 degree with the horizontal plane and is abutted in the rectangular groove 2-3 (the supporting legs 7-1 are received in the rectangular groove 2-3, referring to Fig. 3), the connection buckle 2-2 is buckled into the connecting notch 1-2, and the big trolley part 2 and the small trolley part 1 are closely used as the conventional tool trolley, referring to Figs. 1 and 3.

[0041] In addition, when using tools, the corresponding storage racks 3 can be opened according to instructions of the mark stickers 8, and tools are put back correspondingly after use. When some parts are needed to be measured, the to-be-measured parts are directly placed in the scale area 2-4, and length, angle and other data can be measured. When power electric tool is used, plug is plugged into the socket 9 to power the power electric tool, and the socket 9 is connected with the external circuit through the power cord exit 10.

[0042] Understandably, for person skilled in the art, the claims of the present invention cover the protection scope of equivalent substitutions or alterations of the technical schemes and ideas of the present invention.

Claims

1. A tool trolley, comprising a small trolley part (1) and a big trolley part (2) arranged directly opposite to each other, wherein:

the small trolley part (1) has outer side opened and is provided with a number of layers of storage racks (3) for placing tools;
the big trolley part (2) is also provided with a number of layers of storage racks (3);
universal wheels (4) are arranged at the bottoms of both the big trolley part (2) and the small trolley part (1);
handles (5) are arranged at the tops of the outer side surfaces of both the big trolley part (2) and the small trolley part (1) and used for pushing and pulling the small trolley part (1) and/or the big trolley part (2);
a connection bracket (7) is hinged at the top of the inner side surface of the big trolley part (2), and a connection plate (6) is covered on the connection bracket (7), so that the connection plate (6) can rotate between a first position and a second position;
when the connection plate (6) is located at the first position, the connection bracket (7) is fitted to the inner side surface of the big trolley part

(2), a connection buckle (2-2) is arranged at the top of the big trolley part (2) and used for being clamped into a connection notch (1-2) at the top of the small trolley part (1), so as to realize closing and fixation of the big trolley part (2) and the small trolley part (1);

when the connection plate (6) is located at the second position, the connection bracket (7) has an angle of 90 degree with the inner side surface of the big trolley part (2) and supports the connection plate (6), and the connection plate (6) is provided with a projection (6-1) at end part for being clamped into the connection notch (1-2), so as to connect and fix the big trolley part (2) and the small trolley part (1) and realize extension of the worktable of the tool trolley;

a group of small roller wheels (1-1) are arranged at the bottom of the inner side surface of the small trolley part (1);

a positioning groove (2-1) is arranged at the corresponding position of the big trolley part (2);

the positioning groove (2-1) has one side opened for in-out of the small roller wheels (1-1);

a connection buckle (2-2) is arranged at the top of the big trolley part (2) and used for being clamped into a connection notch (1-2) at the top of the small trolley part (1) to realize closing and fixation of the big trolley part (2) and the small trolley part (1);

the small trolley part (1) has outer side opened and is provided with a number of layers of storage racks (3) for placing tools, and the big trolley part (2) is also provided with a number of layers of storage racks (3); and

universal wheels (4) are arranged at the bottoms of both the big trolley part (2) and the small trolley part (1), and handles (5) are arranged at the tops of the outer side surfaces of both the big trolley part (2) and the small trolley part (1) and used for pushing and pulling the small trolley part (1) and/or the big trolley part (2).

2. The tool trolley in claim 1, further comprising a connection bracket (7) hinged at the top of the big trolley part (2), wherein:

a connection plate (6) is covered on the connection bracket (7), so that the connection plate (6) can be fitted with side surface at the first position; and

when the connection plate (6) is located at the second position, the connection bracket (7) has an angle of 90 degree with the inner side surface of the big trolley part (2) and supports the connection plate (6).

3. The tool trolley in claim 2, wherein:

- a projection (6-1) is arranged at the end part of the connection plate (6); and
when the connection plate (6) is located at the second position, the projection (6-1) is clamped into the connection notch (1-2) of the small trolley part (1) to realize extension and fixation of the big trolley part (2) and small trolley part (1).
4. The tool trolley in claim 3, wherein a button (6-2) is arranged on the projection (6-1) and used for pressing control of a bolt arranged in the projection (6-1), so as to achieve fixation or separation of the connection plate (6) and the connection notch (1-2).
5. The tool trolley in claim 4, wherein:
- a connection frame (7-8) is arranged at one end of the connection bracket (7) away from the big trolley part (2), the bottom of the connection frame (7-8) is provided with a clamping slot (7-5), and a hinge pin (7-3) with torsional spring (7-4) passes through the connection frame (7-8) to hinge supporting legs (7-1) and the connection bracket (7), so that the supporting legs (7-1) can rotate around the hinge pin (7-3); the supporting legs (7-1) are provided thereon with a sliding block (7-6), both ends of the sliding block (7-6) extend out from two sides of the supporting legs (7-1), a sliding slot (7-7) is opened on the side wall of each supporting leg (7-1) and used for up-and-down sliding of the sliding block (7-6), a projection (7-9) is arranged at the bottom of the sliding block (7-6) and used for fitting a draw bar telescoping mechanism (7-2) at the lower part of the supporting leg (7-1), and when the projection (7-9) moves downwards along with the sliding block (7-6) and against a trigger button of the draw bar telescoping mechanism (7-2), the draw bar telescoping mechanism (7-2) is in free telescoping;
the inner side surface of the big trolley part (2) is sunken inwardly to form a rectangular groove (2-3), when the connection plate (6) is located at the first position, the supporting legs (7-1) are fitted with the connection bracket (7) and received into the rectangular groove (2-3); and when the connection plate (6) is located at the second position and the supporting legs (7-1) rotate to be perpendicular to the connection bracket (7), two ends of the sliding block (7-6) are clamped into the clamping slot (7-5) at the bottom of the connection frame (7-8), and the supporting legs (7-1) are contacted with and supported by the ground through the draw bar telescoping mechanism (7-2) to form an independent supporting structure of the big trolley part (2).
6. The tool trolley in claim 5, wherein:
- the length of the draw bar telescoping mechanism (7-2) after extension is larger than the height of the rectangular groove (2-3); and the length of the draw bar telescoping mechanism (7-2) after contraction is smaller than the height of the rectangular groove (2-3).
7. The tool trolley in claim 6, wherein mark stickers 8 are stuck on the outer surfaces of the storage racks (3) by magnetic suction and used for indicating the types of placed tools.
8. The tool trolley in claim 7, wherein:
- a socket (9) is provided on the outer surface of the big trolley part (2); and a power cord exit (10) is opened on side of the socket (9) and used for being connected with an external circuit.
9. The tool trolley in claim 8, wherein a scale area (2-4) is provided on the top surface of the big trolley part (2) to facilitate measuring operation.
10. The tool trolley in claim 9, wherein a group of small roller wheels (1-1) are arranged at the bottom of the inner side surface of the small trolley part (1), a positioning groove (2-1) is arranged at the corresponding position of the big trolley part (2), and the positioning groove (2-1) has one side opened for in-out of the small roller wheels (1-1), so as to realize closing or separation of the big trolley part (2) and small trolley part (1).
11. The tool trolley in claim 10, wherein:
- a connection frame (7-8) is arranged at one end of the connection bracket (7) away from the big trolley part (2), the bottom of the connection frame (7-8) is provided with a clamping slot (7-5), and a hinge pin (7-3) with torsional spring (7-4) passes through the connection frame (7-8) to hinge supporting legs (7-1) and the connection bracket (7), so that the supporting legs (7-1) can rotate around the hinge pin (7-3); the supporting legs (7-1) are provided thereon with a sliding block (7-6), both ends of the sliding block (7-6) extend out from two sides of the supporting legs (7-1), a sliding slot (7-7) is opened on the side wall of each supporting leg (7-1) and used for up-and-down sliding of the sliding block (7-6), a projection (7-9) is arranged at the bottom of the sliding block (7-6) and used for fitting a draw bar telescoping mechanism (7-2) at the lower part of the supporting leg (7-1); and when the projection (7-9) moves downwards

along with the sliding block (7-6) and against a trigger button of the draw bar telescoping mechanism (7-2), the draw bar telescoping mechanism (7-2) is in free telescoping;
the inner side surface of the big trolley part (2) 5
is sunken inwardly to form a rectangular groove (2-3), when the connection plate (6) is located at the first position, the supporting legs (7-1) are fitted with the connection bracket (7) and received into the rectangular groove (2-3); and 10
when the connection plate (6) is located at the second position and the supporting legs (7-1) rotate to be perpendicular to the connection bracket (7), two ends of the sliding block (7-6) 15
are clamped into the clamping slot (7-5) at the bottom of the connection frame (7-8), and the supporting legs (7-1) are contacted with and supported by the ground through the draw bar telescoping mechanism (7-2) to form an independent supporting structure of the big trolley 20
part (2).

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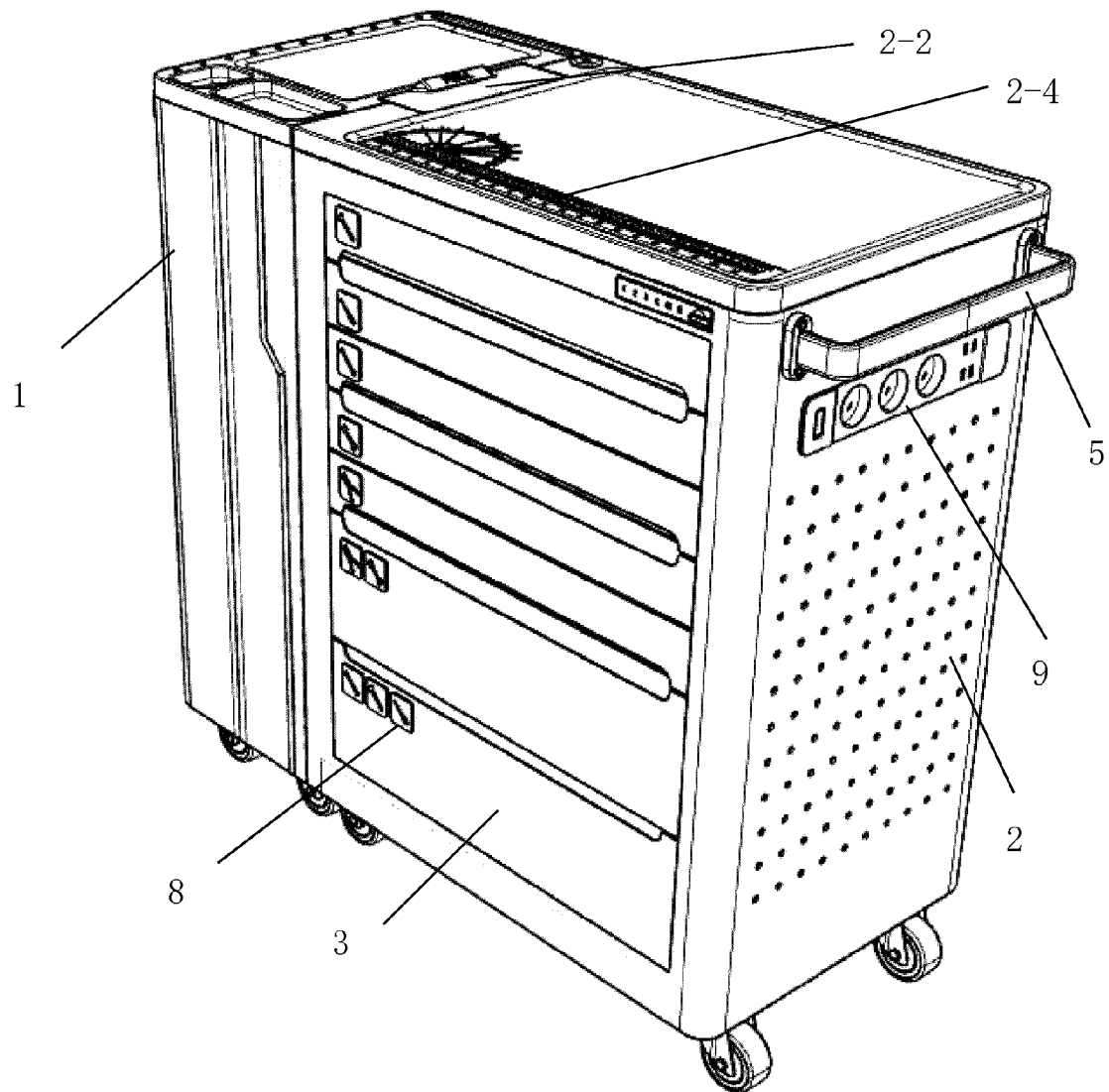


FIG. 1

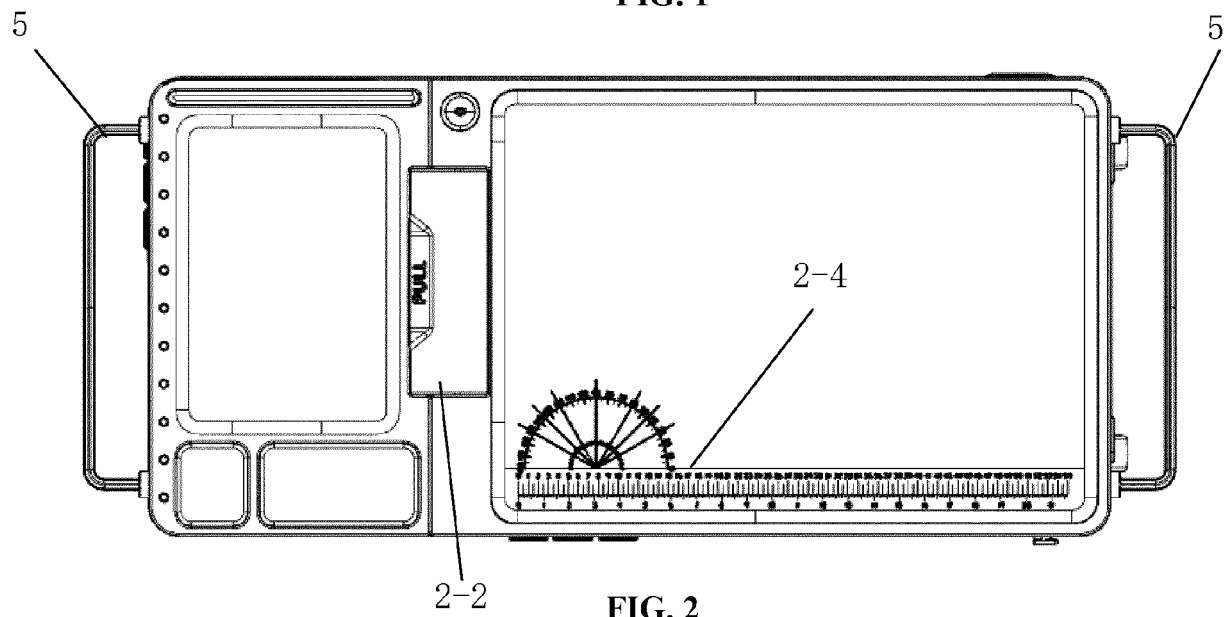


FIG. 2

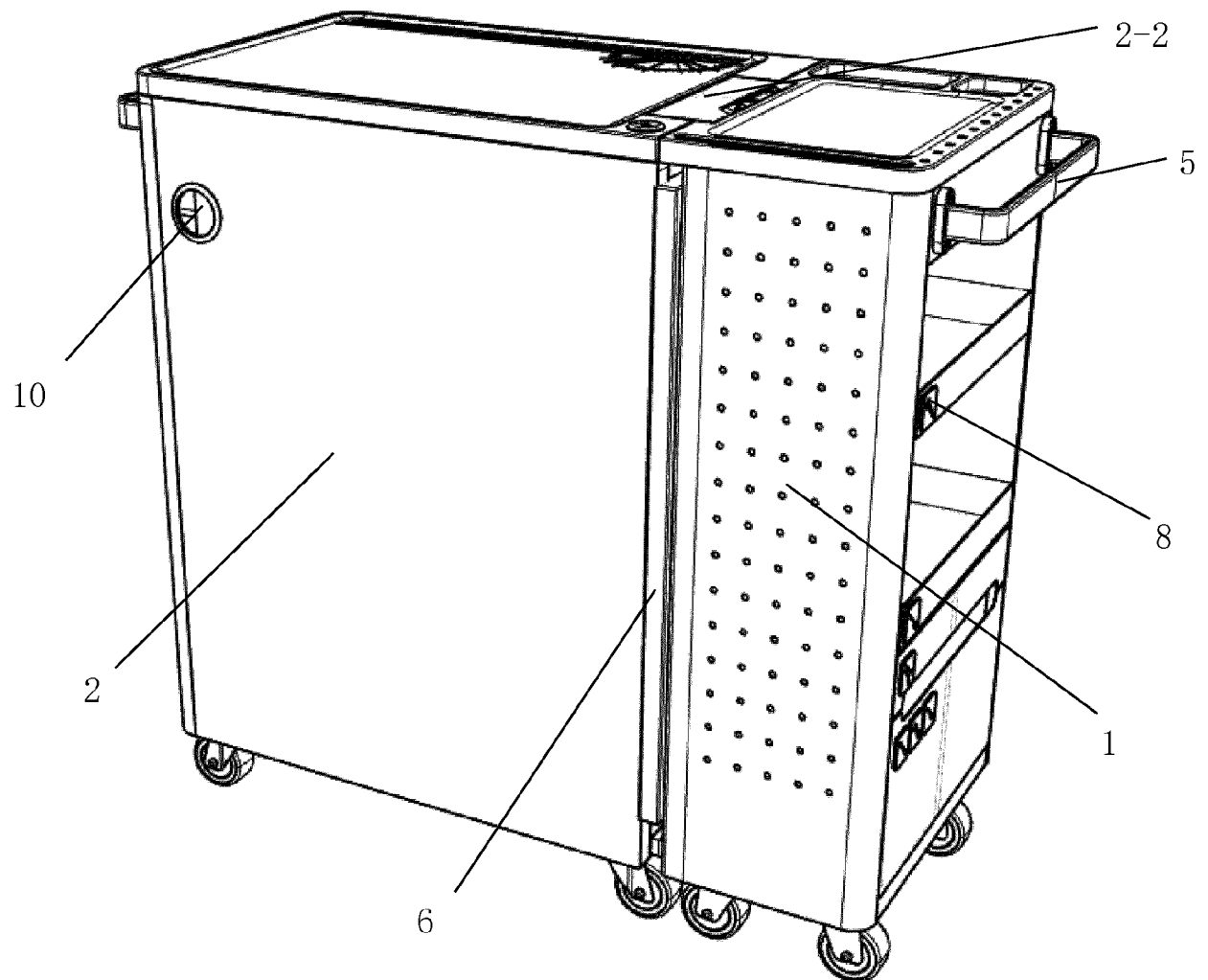


FIG. 3

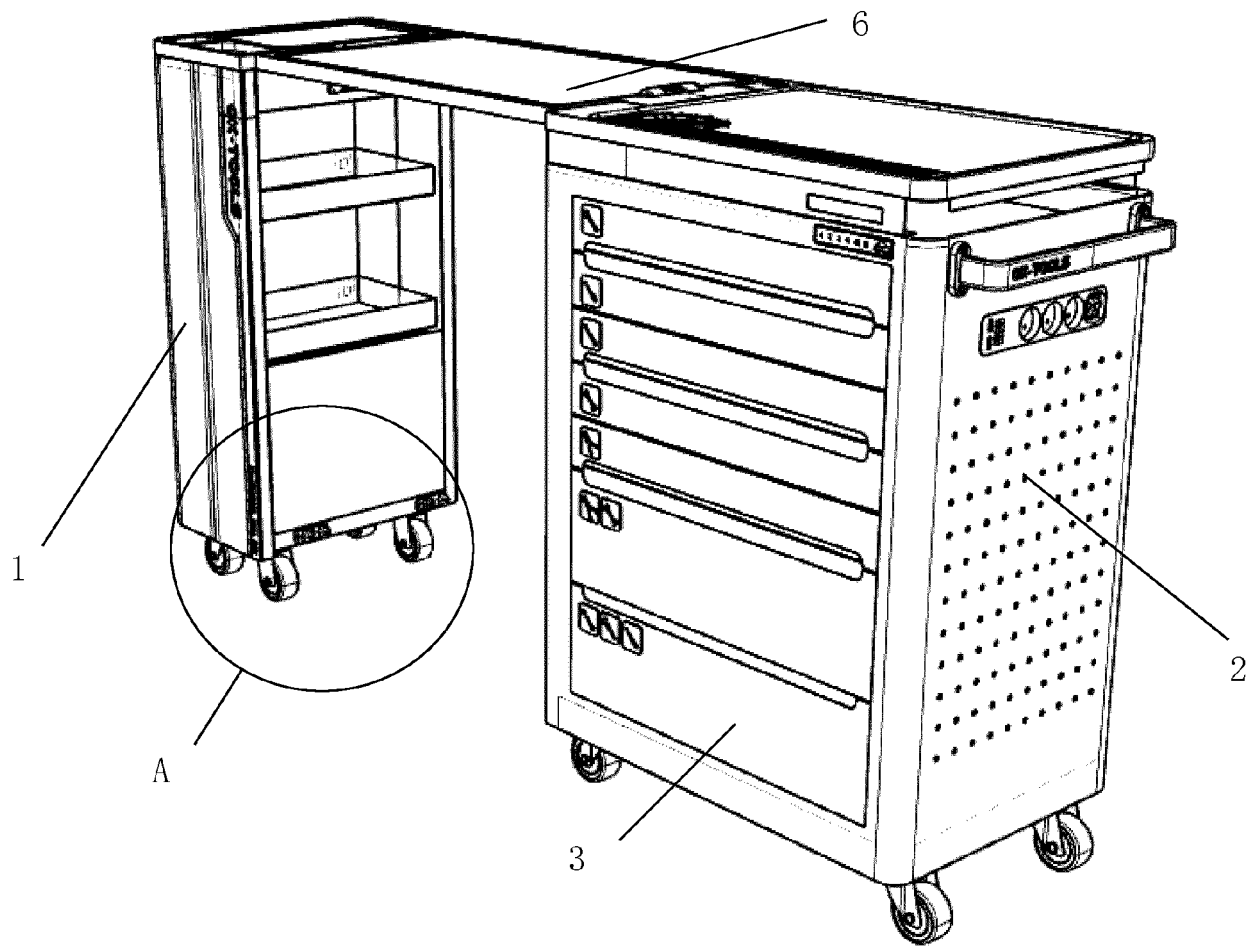


FIG. 4

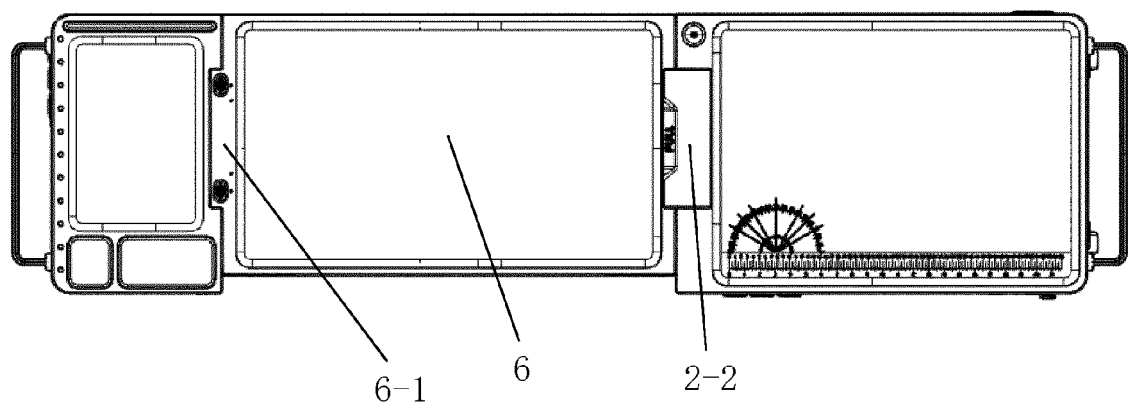


FIG. 5

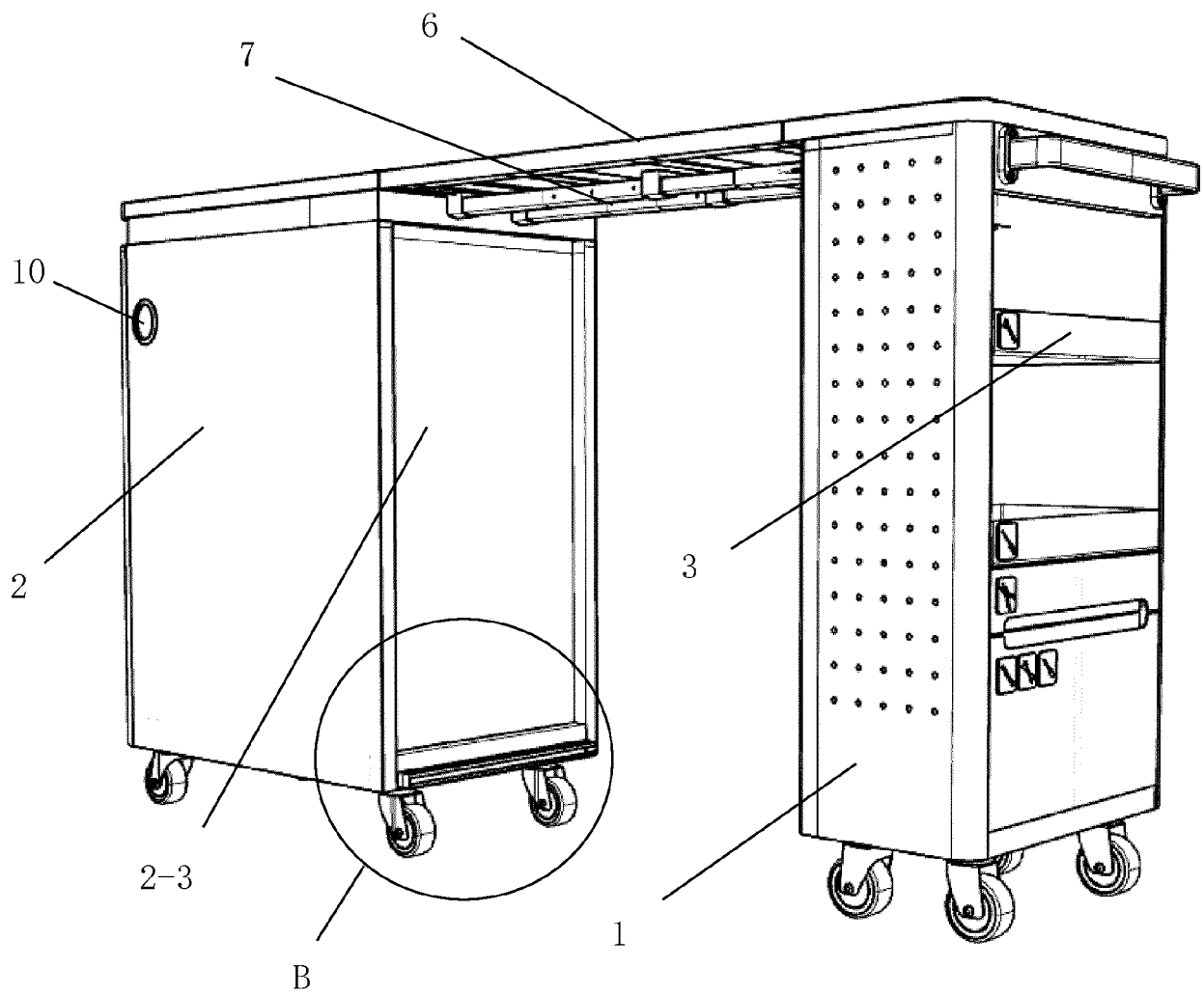


FIG. 6

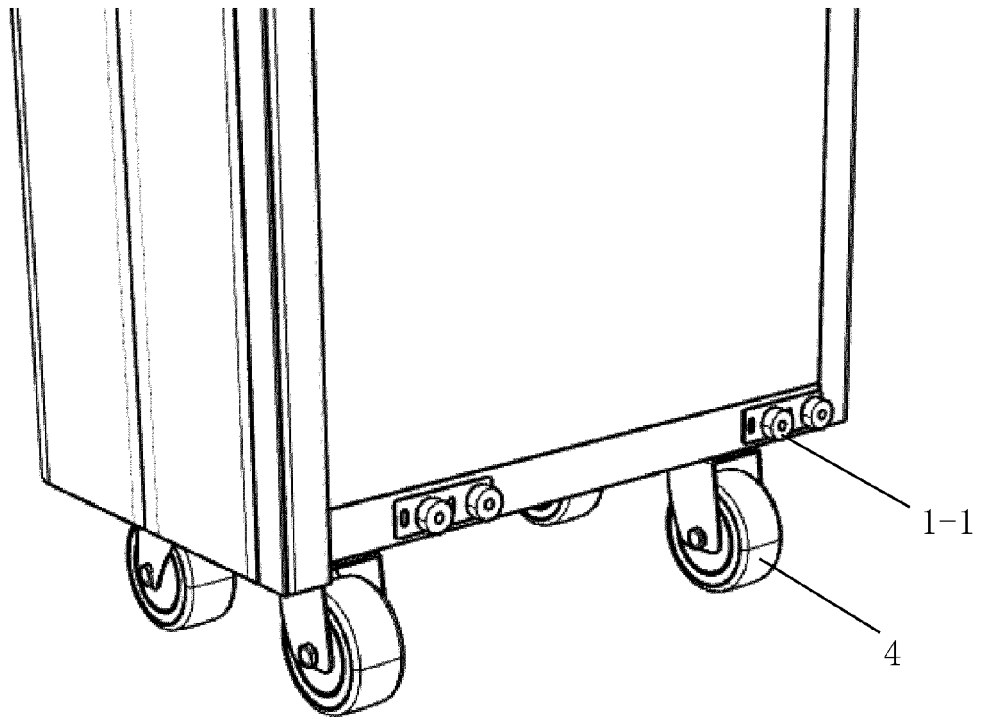


FIG. 7

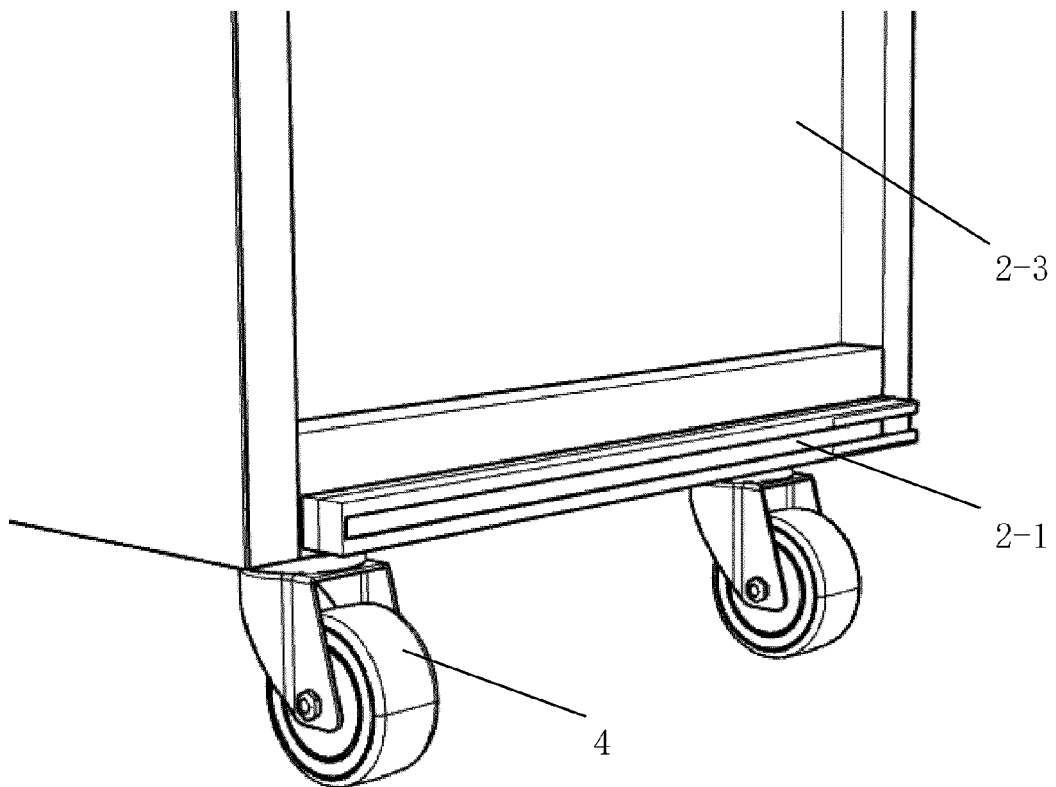


FIG. 8

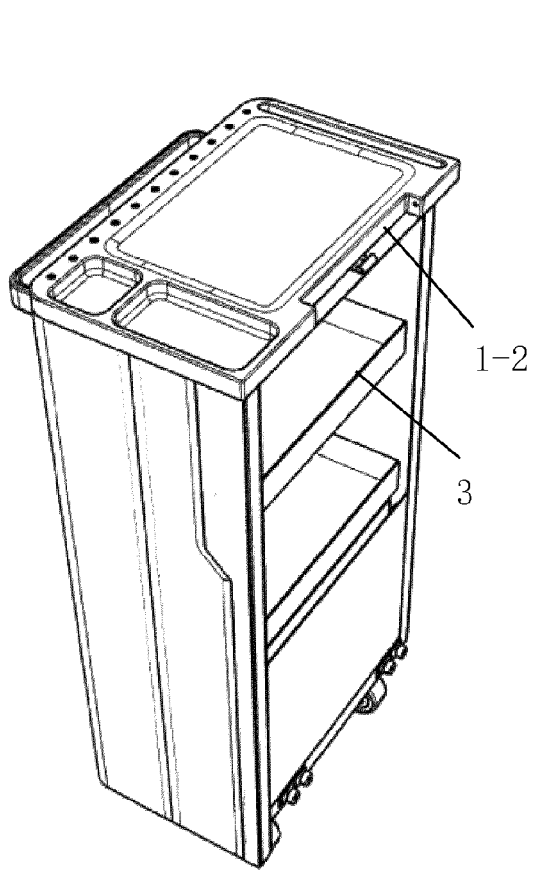


FIG. 9

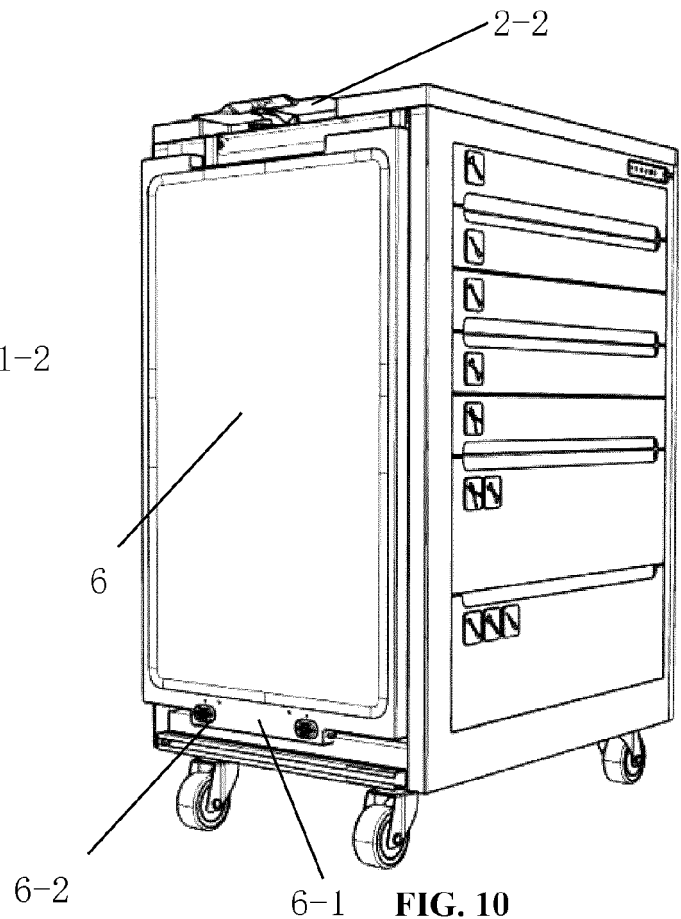


FIG. 10

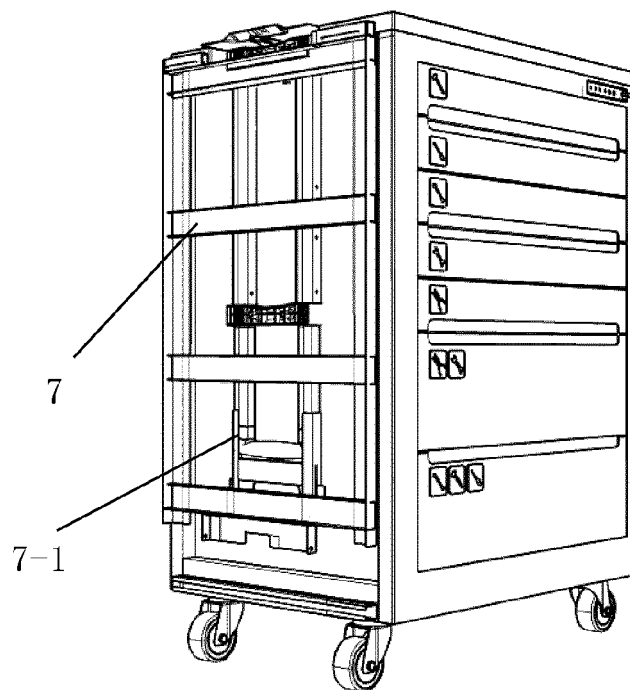


FIG. 11

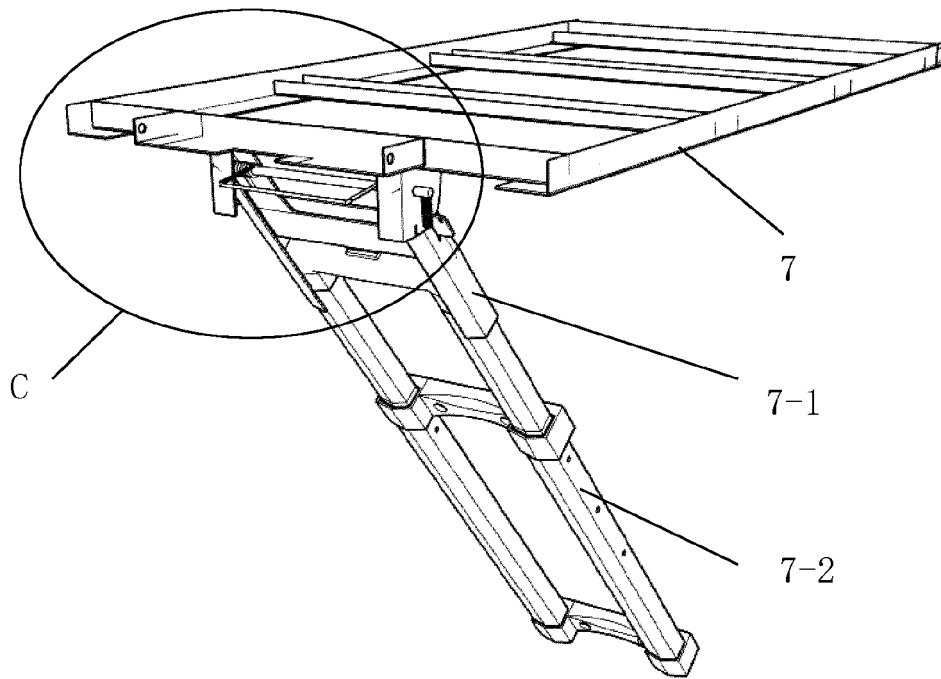


FIG. 12

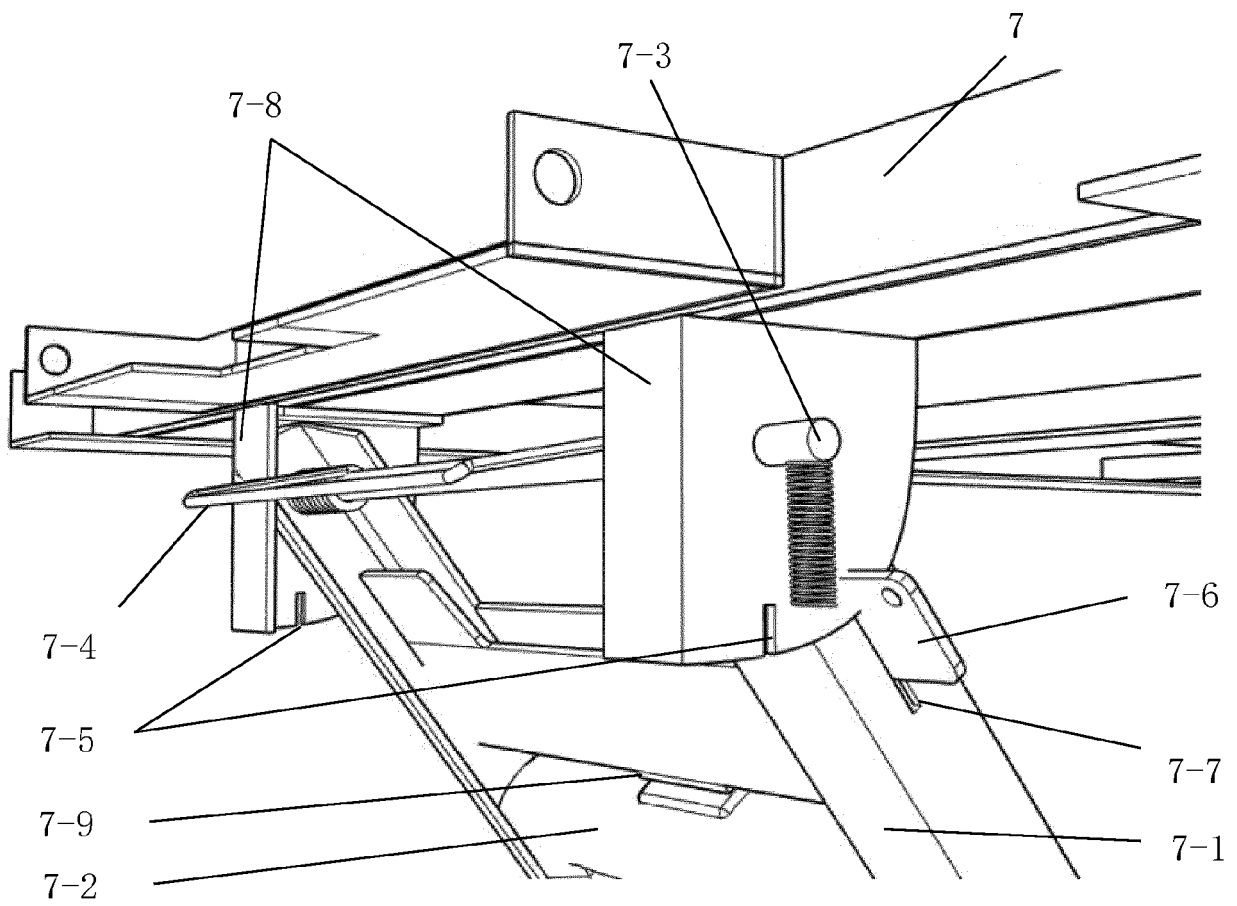


FIG. 13

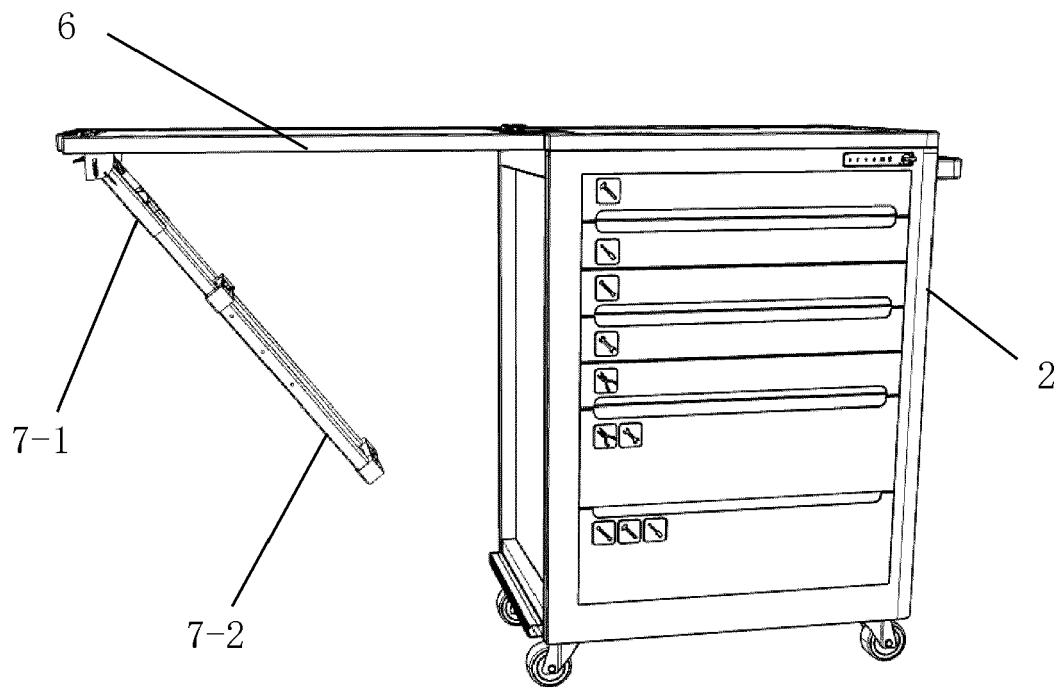


FIG. 14

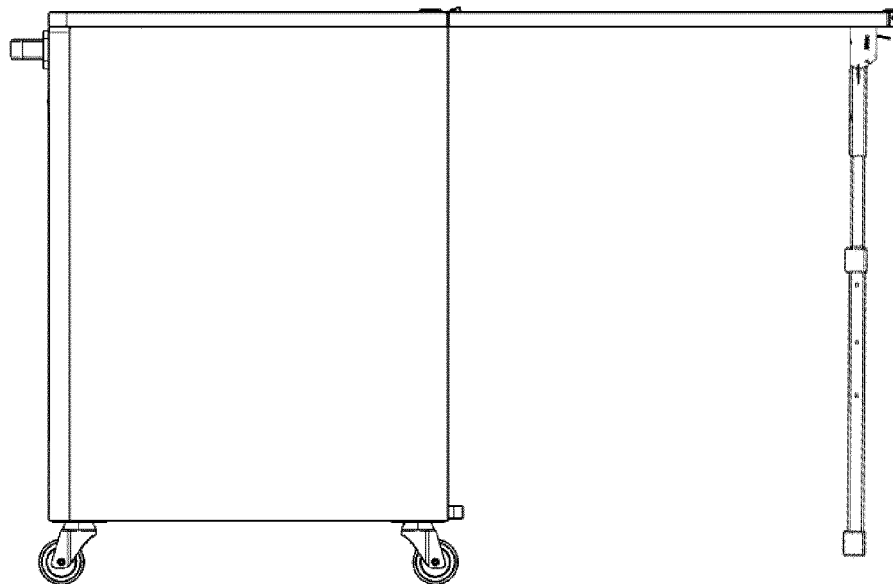


FIG. 15



EUROPEAN SEARCH REPORT

 Application Number
 EP 21 17 7296

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A	EP 2 263 836 A2 (GRELA LARRY MITCHELL [US]) 22 December 2010 (2010-12-22) * figures 1,4 *	1-11	
A	DE 20 2006 003422 U1 (DAVID STEFAN [DE]) 8 June 2006 (2006-06-08) * figures page 4/5, 5/5 *	1-11	
			TECHNICAL FIELDS SEARCHED (IPC)
			B25H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 1 November 2021	Examiner Verkerk, Ewout
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 17 7296

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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01-11-2021

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