TELESCOPIC SHELTER SYSTEM

Inventor: Wan Young Lee, Seoul (KR)

Correspondence Address:
SHERIDAN ROSS PC
1560 BROADWAY
SUITE 1200
DENVER, CO 80202

Assignee: KEOWON INDUSTRY CO., LTD.

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ABSTRACT

A telescopic shelter system comprises two pairs of guide rails having a pair of parallel outer rails and a pair of parallel inner rails arranged at an inner side of the outer rails, a plural of shelters comprising two side walls facing each other and a roof connecting at the top of the two side walls, the two side walls and the roof are tapered at one end of the shelter, each shelter arranged on the guide rail in a row, a plural wheels provided at each lower portion of two side walls of each shelter along movement direction of the shelter, having a pair of first wheel running on the outer rail and a pair of second wheel running on the inner rail, and a motor mounted on the shelter for providing a clockwise-counterclockwise movement of the wheel.

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Diagram showing a telescopic shelter system with various parts labeled: 20F, 23, 20b, 20, 20a, 20R, 20, 11(12), 31, 32, 22, and 30.
FIG. 2

- Prior Art -
TELESCOPIC SHELTER SYSTEM

1. FIELD OF THE INVENTION

[0001] The present invention relates to a shelter system which is used at an outdoor workshop for large structures, such as an airplane shed, or gymnasium. More particularly, the invention relates to a telescopic shelter system in which several shelter sections are arranged in a row, and can be retracted or expanded, if necessary.

2. BACKGROUND OF THE INVENTION

[0002] Since large articles are used at a shipyard, or a steel fabrication plant, the manufacturing process is held mainly outdoors depending the working environment and it also adds convenience of transfer and handling.

[0003] A large vessel structure has a heavy weight and an extra large size which varies from few to several meters. The transfer and handling of the production is achieved by a large crane, which also includes a welding process, which is better suited for the outdoor environment.

[0004] Therefore, in a shipyard, work is sometimes more difficult due to bad weather such as snow, rain and wind. Moreover, work is frequently cancelled. It keenly requires a working condition, by which rain, snow and wind can be avoided to continue to work outside, regardless of the weather.

[0005] To satisfy the need in a ship and a steel fabrication work shop, as shown in FIG. 1, a pair of rails “R” is positioned on the floor of an outdoor workshop. A large shelter section “S” is then placed on the rails “R”. Work can then be processed in the shelter section “S”, regardless of the weather condition.

[0006] If a product “W” must be transferred, the shelter section “S” moves along the rails “R” as shown in a phantom line of FIG. 1, and the product “W” is exposed, a crane (not shown) can then lift the product very easily.

[0007] However, several shelters “S” can be placed on the rails “R”, which differ depending on the workshop environment. Since the width of respective shelter sections “S” of the conventional art is the same, each shelter section must be arranged in a row, which brings a problem that the space occupied by the shelter section becomes excessively large.

[0008] In other words, in clear weather, some or all of the shelter sections can be removed to utilize the clear weather. Even if the shelter section “S” or a few sections are omitted, work is still possible; (e.g. one or two shelter sections can be used depending on the product’s extent).

[0009] However, when many shelter sections are used, they must be arranged in a row, and a space the same volume as the shelter section is allotted to the other shelters, which leads excessive space.

[0010] Moreover, the space required for the entire shelters must be the sum of all the shelter section plus, at a minimum, one more shelter section, for enough space to divide the shelter sections, in order to transfer a product “W” using a crane. Additional rail “R” must be installed for recession of the shelter section. Thus, a space of a workshop must be widened beyond necessity.

[0011] Furthermore, in the case that the product “W” to be moved is disposed at the middle of the shelter section array, several shelter sections must be moved successively in order to pick up the product “W”, which brings another problem.

[0012] Furthermore, on a clear day, it is preferable that a shelter section “S” is removed from the working location to receive better lighting and better air circulation. But, an open space can be attained by shelter section’s movement. Even though the weather is good, work is performed under poor working condition, which leads other problem.

[0013] To solve the problem, an additional rail “R” is provided to remove all shelter sections from the working location under good weather, though it extends the length of the entire workshop space.

[0014] Furthermore, a problem issued by the shelter section’s placement on the rail is shown in FIG. 2. The shelter section is comprised of the side wall “P” and the roof “R”, not a floor, even though the shelter section has very large volume and heavy weight. Due to this heavy weight the walls have a tendency to spread away from each other. Both side walls “P” cannot maintain a vertical configuration due to its own weight. Each bottom end of respective side walls “P” slopes outward.

[0015] Therefore, it is very difficult that the shelter section is placed on the guide rail “R” because the wheel installed at the bottom end of the shelter section “S” is out of alignment with the guide rail “R”.

SUMMARY OF THE INVENTION

[0016] According to the present invention, to order to resolve these problems, an object of the present invention is to provide a telescopic shelter system, whereby several shelter sections arranged on the guide rail in a row can be retracted or expanded, if necessary, possession space of the shelter section can be reduced at a minimum, and it adds the efficient use of the workshop.

[0017] It is a further object of the present invention to provide a telescopic shelter system, whereby extra rails are not needed for the moving allowance of the shelter sections for transferring a production, and the movement of respective shelter sections can be achieved, and also the movement of only the specific shelter section covering the production can be attained in an easy way.

[0018] It is a further object of the present invention to provide a telescopic shelter system, whereby all of shelter sections can be easily telescoped under clear weather, which contribute comfortable working conditions to a work shop.

[0019] In order to accomplish the object of the present invention, a telescopic shelter system has two pairs of guide rails having a pair of parallel outer rails and a pair of parallel inner rails arranged at an inner side of the outer rails, and a plural of shelters comprising two side walls facing each other and a roof connecting at the top of the two side walls, at one shelter, a width of the two side walls and a height of the roof at one end of the shelter become gradually small toward another end of the shelter, each shelter arranged on the guide rail in a row. Furthermore, the telescopic shelter has a plural wheels provided at each lower portion of two side walls of each shelter along movement direction of the shelter, having a pair of first wheel running on the outer rail.
and a pair of second wheel running on the inner rail, and a motor mounted on the shelter for providing a clockwise-
counter-clockwise movement of the wheel.

[0020] According to the present invention, it is preferable
that the shelter is comprised of a frame assembly and an
enclosure attached on an outside of the frame assembly, the
frame assembly having a first main frame, a second main
frame that is arranged against the first main frame in a
movement direction of the shelter, a plural of sub-frames
that are arranged between the first main frame and the
second main frame and arranged at a place farther from the
first main frame and arranged at a place farther from the
second main frame and a plural of cross beams that connect
each of main frame and sub-frame, a width between two
posts of the first main frame is the same as that of the outer
rail, a width between two posts of the second main frame is
the same as that of the inner rail, and the enclosure covers
both two side walls and the roof.

[0021] It is preferable that the first main frame extends
perpendicularly outward to both each side wall and the roof,
and the second main frame extends perpendicularly inward
to both each side wall and the roof.

[0022] It is preferable that the system is further comprised
of a braking means that stops the movement of the shelter.

[0023] It is preferable that a collision sensor is provided at
the shelter, by which a distance between two shelters
approaching to each other, a signal sends to the motor to stop
the movement of the motor, and the braking means operates,
and a position sensor is provided at the shelter, by which a
relative moving position of one shelter to another shelter is
detected during expansion of the shelters, a signal sends to
the motor to stop the movement of the motor, and the
braking means is operated, thus a separation of one shelter
from another shelter is prevented.

[0024] Accordingly, several shelter sections arranged on
the guide rail in a row can be retracted or expanded. If
necessary, possession space of the shelter section can be
reduced at a minimum, and it adds the efficient use of the
workshop. More, under clear weather, all of shelter sections
can be easily telescoped, which contribute comfortable
working conditions to a work shop.

[0025] Moreover, extra rails are not needed for the moving
allowance of the shelter sections for transferring a prosecu-
tion. The movement of respective shelter sections can be
achieved, and also the movement of only the specific shelter
section covering the production can be attained in an easy
way.

[0026] Therefore, the present invention can increase the
convenience, safety, and reliability of a shelter system. It
improves space efficiency of a workshop (such as a shipyard
or steel fabrication plant) that needs the shelter system. It
can largely contribute to utilizing space, by which a very
great effect can be achieved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] The above and other objects, features and other
advantages of the present invention will be more clearly
understood from the following detailed description taken in
conjunction with the accompanying drawings, in which:

[0028] FIG. 1 is a general plan view of a conventional
shelter section having a problem;

[0029] FIG. 2 is a front view illustrating a problem issued
by the shelter section’s placement on the rail;

[0030] FIGS. 3A and 3B are perspective views illustrating
an expanding state and a contracting state of a telescopic
shelter section of the present invention;

[0031] FIG. 4 is a front view of a telescopic shelter section
of the present invention;

[0032] FIG. 5 is a plan view of FIG. 4;

[0033] FIG. 6 is a sectional view along line VI of FIG. 5;

[0034] FIG. 7 is a perspective view illustrating a frame
structure of a telescopic shelter section of the present
invention;

[0035] FIG. 8 is a sectional view along line VIII-VIII of
FIG. 7;

[0036] FIG. 9 is a sectional view along line IX-IX of FIG.
7;

[0037] FIG. 10 is an enlarged sectional view along line
X-X of FIG. 4;

[0038] FIG. 11 is an enlarged sectional view along line
XI-XI of FIG. 4;

[0039] FIG. 12 is a side view showing an operation of a
wheel employed in a telescopic shelter system;

[0040] FIG. 13 is a front view along line XIII of FIG. 12;

[0041] FIG. 14 is a top plan view showing a travel
restriction means of a telescopic shelter system according
to the present invention;

[0042] FIG. 15 is an enlarged sectional view along line
XV-XV of FIG. 14;

[0043] FIGS. 16A and 16B are enlarged front views
showing one embodiment of a method for avoiding the
widening of the shelter section’s wall;

[0044] FIGS. 17A and 17B are enlarged front views
showing other embodiment of a method for avoiding the
widening of the shelter section’s wall;

[0045] FIGS. 18A and 18B are enlarged front views
showing further other embodiment of a method for avoiding
the widening of the shelter section’s wall; and

[0046] FIG. 19 is a conceptual view illustrating other
embodiment of the telescopic shelter system.

DETAILED DESCRIPTION OF THE
INVENTION

[0047] This invention will be described in further detail by
way of exemplary embodiments with reference to the
accompanying drawings.

[0048] As shown in FIGS. 3A to 5, the telescopic shelter
system is comprised of a guide rail 10 mounted in the
ground, several shelter sections 20 arranged in a row along
the guide rail 10, telescope along the guide rail 10, a number
of wheels 30 provided at the lower portion of each shelter
section 20 and travel on the guide rail 10, and a motor 40
mounted on the shelter section 20 for providing a clockwise/ counterclockwise movement of the wheel 30.

[0049] The guide rail 10 is comprised of a pair of outer rails 11 arranged in parallel at a certain distance "s1" and a pair of parallel inner rails 12 arranged at an inner side of the outer rails 11, also at a certain distance. The interval between the outer rail 11 and the inner rail 12 exists within the slope of a side wall 20a of the shelter section 20, that is, the slope of the side wall 20a exists from a front portion toward a rear portion, which will be illustrated later in FIG. 5.

[0050] Each lower portion of the respective outer and inner rail 11, 12 is grounded in concrete 13, while each upper portion of respective outer and inner rail 11, 12 protrudes above the ground. It is why that the guide rail 10 should support the weight-heavy shelter section 20, and minimal obstruction of passing can be obtained at a workshop.

[0051] The shelter section 20, as shown in FIGS. 6 to 9, is comprised of two side walls 20a facing each other and a roof 20b connecting to the top of the two side walls 20a. The shelter section 20 has a configuration which is able to telescope into a neighboring shelter section 20R. The two side walls 20a and the roof 20b of the shelter section 20 are tapered.

[0052] The shelter section 20 has a frame assembly 21 set in an array with I shape steel beam and an enclosure 22 attached on the outside of the frame assembly 21 for protection from rain and snow.

[0053] The frame assembly 21 has a first main frame 23 having an up-side-down U shape, a second main frame 24 also having an up-side-down U shape, and that is arranged against the first main frame 23 in line with the shelter section 20. The frame assembly 21 further has three sub-frames 25a, 25b, 25c having a same shape. The sub-frame 25b is arranged between the first main frame 23 and the second main frame 24, and the sub-frame 25c is arranged at a place farther from the first main frame 23, and the sub-frame 25a is arranged at a place farther from the second main frame 24. The frame assembly 21 has furthermore many cross beams 26 that connect each of main frames 23, 24 and sub-frames 25a, 25b, 25c.

[0054] A width between two posts 23a of the first main frame 23 is the same as that of the outer rail 11. A width between two posts 24a of the second main frame 24 is the same as that of the inner rail 12.

[0055] The sub-column 25a, 25b, 25c has different width against three sub frames 25a, 25b, 25c and are placed on a connecting point between the main columns 23a, 24b in a straight manner.

[0056] In the sub-frame 25a that is arranged at the narrow opening of the shelter section 20, the width between two sub columns 25a is smaller than that of the main column 24a of the second main frame 24. In the sub frame 25c that is arranged at the wide opening of the shelter section 20, the width between two sub columns 25c is larger than that of the main column 23a of the first main frame 23. In the sub frame 25b that is arranged between the sub frames 25a, 25c, the width between two sub columns 25b is larger than that of two columns 24a of the second main frame 24, and is smaller than that of two columns 23a of the first main frame 23.

[0057] Each cross beam 26 crosses each of frames 23, 24, 25a, 25b, 25c along a grade of the side walls 20a and the roof 20b, which connects the frames 23, 24, 25a, 25b, 25c with each other. The cross beam 26 that connects the lower end of each frame 23, 24, 25a, 25b, 25c, supports each of the frames 23, 24, 25a, 25b, 25c. The lower end frame will be named as a base beam 27 for the following explanation.

[0058] Furthermore, a lot of bracings 28 are provided in a predetermined pattern between the first main frame 23 and the second main frame 24 to enhance the structural stability of the frame assembly 23.

[0059] As shown in FIGS. 10 and 11, the enclosure 22 can be configured with various shape and material. Preferably, as shown in FIGS. 10 and 11, the enclosure 22 is attached to the outside of the frame assembly by means of a girth 29a and a purlin 29b.

[0060] As shown in FIG. 7, the first main frame 23, specifically, is extended outward from the side wall 20a and the roof 20b, but the second main frame 24, specifically, is extended inward from the side wall 20a and the roof 20b. In other words, the main column 23a and the main girder 23b of the first main frame 23 are extended above the enclosure 22. The main column 24a and the main girder 24b of the second main frame 24 are extended below the sub-frames 25a, 25b, 25c and the cross beam 26.

[0061] As shown in FIGS. 8 and 10, when the shelter section 20 comes close to the neighboring shelter sections 20R, 20L, the gap generated between the shelter sections can be minimized. Two corresponding ends of the shelter sections are blocked by the first and second main frame 23, 24. Without the additional stopper, the distance the shelter section can telescope can be properly restricted.

[0062] The flexible strip 90 is attached along the edge of the wide opening of the shelter section 20. The flexible strip 90 can elastically contact on the edge of the side wall 20a and the roof 20b of the neighboring shelter section 20R so that snow or rain cannot permeate into the shelter section through the gap. The flexible strip 90, which can be made of a rubber plate, has a width that can touch on the outer cover of the neighboring shelter section 20R when the one shelter section 20 is fully distanced from the neighboring shelter section 20R.

[0063] As shown in FIGS. 4 and 6, the wheel 30 is provided at each lower portion of two side walls 20a of each shelter section 20 in the direction of the shelter section’s movement. The wheel 30 is comprised of a set of first wheels 31 running on the outer rail 11 and a set of second wheels 32 running on the inner rail 12.

[0064] As shown in FIGS. 7 and 8, the respective first wheels 31 are provided at the respective base beam 27 at a predetermined angle to the base beam 27, on which the main column 23a is posted. Furthermore, the respective second wheels 32 are provided at the respective base beam 28 at a predetermined angle to the base beam 28, on which the main column 24a is posted.

[0065] As shown in FIGS. 4 and 9, the angle of each wheel 31, 32 corresponds to the horizontal slope of the side wall 20 so that each wheel 31, 32 is able to run smoothly on the rail guide rail 10.
The wheel 30, as shown in FIGS. 12 and 13, is comprised of two pulleys 33 arranged in line with the movement of the shelter section 20 at a distance, and a wheel bracket 34, which is provided at the base beam 27 of the shelter section 20.

The motor 40 is, as shown in FIGS. 12 and 13, located in a channel of the base beam 27, and a driving sprocket wheel 42 is provided at a shaft 41 of the motor 40, and a driven sprocket wheel 43 is provided at a pulley shaft 35 that is installed in any one of the wheel 30. A chain 44 connects the driving sprocket wheel 42 and the driven sprocket wheel 43 so that the wheel 30 operates. The motor 40 can be installed at each of the wheel 30 or at any one—a pair of the first wheel 31 or the second wheel 32—of the wheel 30.

The telescopic shelter system, preferably, has a braking means 50 to stop the shelter section 20 that is run by the motor 40.

The moving shelter section 20 can be stopped at a predetermined position only by the operation stop of the motor 40 because the heavy-weight shelter section 20 might move at a very slow speed. Especially, in the conventional shelter having same width at each opening, a moving shelter can be stopped only by contact with a stationary shelter. However, in the present invention, there is no contact between the neighboring shelter sections, but one shelter section can be retracted into or extended from the neighboring shelter section. Therefore, it is necessary that the shelter be stopped at an accurate point.

The braking means 50 is, as shown in FIG. 12, installed at the wheel brake 34 of the wheel 30, which can be configured by a hydraulic brake. A brake shoe 51 makes contact with the circumference of any one of the pulleys 33 by operation of hydraulic power.

Furthermore, the telescopic shelter system has, as shown in FIGS. 14 and 15, a collision sensor 60 to avoid a collision between two approaching shelter sections 20 when in a retracted stage and a position sensor 70 to avoid a full separation of the moving shelter section 20 from the neighboring shelter section 20R when in an expanding stage.

When the stop of the motor 40 and the operation of the brake means 50 are achieved by an operator, it is difficult to stop the shelter section 20 at an accurate point. It leads to a possibility of either the collision or the separation of two neighboring shelter sections 20F, 20R. That is why the sensors 60, 70 are employed in the telescopic shelter system.

The collision sensor 60 can be comprised of a distance sensor, which is installed on a protrusion of the first main frame 23, by which a distance between a counter end of the stationary neighboring shelter section 20R and the end of the moving shelter section 20 can be detected so that the motor 40 is stopped and the brake means 50 is operated.

In the telescopic shelter, as shown in FIGS. 6 and 8, the shelter section 20 can move inside of the neighboring shelter section 20R, or the shelter section 20 can move toward the outside of the shelter section 20F. Therefore, it is desirable that the collision sensor 60 is comprised of a first sensor 61 installed in a channel of the first main frame 23 and a second sensor 62 installed in a channel of the second main frame 24.
weight. The shelter section is placed on the guide rail “R” because the wheel installed at the bottom end of the shelter section “S” is out of alignment with the guide rail “R”.

To overcome this problem, in the embodiment, as shown in FIG. 16A, an intended gap “G” is given to the central bottom end of the main girder 23b, 24b that are respectively formed at the first and second main frame 23, 24, by which each bottom end of the side walls 20a should be widened. When the shelter section 20 is placed on the guide rail 10, each bottom end of the respective side walls 20a is narrowed. Then a bolt is fastened near the gap between the main girders 23b, 24b as shown in FIG. 16B, thus accomplishing the shelter section’s placement on the guide rail 10.

On the other hand, FIGS. 17A to 18B show other embodiment. Contrary to the previous embodiment, there is a gap allowed at a mating flange between the main column 23a, 24a and the main girder 23b, 24b. Both bottom ends of the side wall 20a make separate, and a bolt is fastened near the gap between the main girder 23b, 24b and the main column 23a, 24a, thus accomplishing the shelter section’s placement on the guide rail 10.

FIGS. 17A and 17B show that the main girder 23b, 24b is in contact with the inner surface of the main column 23a, 24a, and FIGS. 18A and 18B illustrate that the main column 23a, 24a is in contact with the bottom surface of the main girder 23a, 24a.

The operation of the telescopic system will be described hereinafter.

Firstly, as shown in FIGS. 3A and 14, when every shelter section 20 is expanded and covers a workshop, the emitter 71 and the receiver 72 that are installed on each shelter section 20 are in a position facing to each other.

Under a condition, when more than one shelter section should be moved in order to receive the sun light and circulate the air on a clear day or to put or remove a production into/from a workshop, the motor 40 of the corresponding shelter section 20 is operated through a controller (not shown).

As shown in FIGS. 3A, 12 and 14, the wheel that is connected with the motor 40 via a chain 44 rotates in the same direction as the motor, and runs along the guide rail 10, by which the shelter section 20 moves on the guide rail 10. Since both side walls 20a and the roof 20b have a slope configuration, the moving shelter section 20 telescopes into the neighboring shelter section 20R or covers the neighboring shelter section 20F.

The movement of the shelter section 20 continues, and the correlative end of the shelter section 20 approach the second main frame 24 of the neighboring shelter section 20R or the first main frame 23 of the neighboring shelter section 20R. The collision sensor 60 detects the distance to the approaching shelter section 20. As the distance is within a predetermined value, the sensor 60 generates a stop signal for the operation of the motor 40 as well as an operation signal for the braking means 50. Finally, the movement of the shelter section 20 stops.

With the movement of each shelter section 20, as shown in FIG. 3B, all of shelter sections telescopes into place in a narrow space. Otherwise, one or more shelter sections 20 can be moved without reference to a position of the moving shelter section, and the proper area can be opened to allow the transfer of the production.

Next, in contrast, as shown in FIG. 3B, under the condition that every shelter section 20 is telescoped, the shelter section 20 should be moved out in order to protect from rain, snow or wind, and the motor 40 of the corresponding shelter section 20 is operated through a controller (not shown).

As shown in FIGS. 12 and 19, the wheel that is connected with the motor 40 via a chain 44 rotates in the same direction as the motor, and runs along the guide rail 10, by which the shelter section 20 moves on the guide rail 10. The moving shelter section 20 moves out from the neighboring shelter section 20R or recedes from the neighboring shelter section 20F.

The movement of the shelter section 20 continues, and the correlative end of the shelter section 20 arrives at the other end of the neighboring shelter section 20R or of the neighboring shelter section 20F.

The emitter 71 and the receiver 72 are facing each other, each of which is installed as a pair in the respective shelter section. The receiver 72 located at the moving shelter section 20 detects a light emitted from the emitter 71 located at either the shelter section 20R or the shelter section 20F.

The position sensor 70 generates a stop signal for the operation of the motor 40 as well as an operation signal for the braking means 50. Finally, the movement of the shelter section 20 stops.

With the movement of each shelter section 20, as shown in FIG. 3A, all of the shelter sections are expanded to cover whole space of the workshop.

Furthermore, as shown in FIG. 19, in case one or more shelter sections 20 can be adapted depending on the work volume, a controller stops the operation of the position sensor 70, and the motor 40 is operated.

Even if the moving shelter section 20 moves out from the neighboring shelter section 20R or recedes from the neighboring shelter section 20F, there is no operation to the position sensor 70. Thus, the shelter section 20 can separate from the neighboring shelter sections 20R, 20F. The shelter section 20 moves to the necessary position, and a controller generates stop signal to the operation of the motor 40 as well as an operation signal for the braking means 50. Finally, the movement of the shelter section 20 stops.

When more shelter section 20 is necessary, the same as previous description, the shelter section is taken from the telescoped shelter section array. The position sensor 70 disposed on both the already moved shelter section 20 and the now moving shelter section 20 is activated. With the operation of the motor 40, two shelter sections approach each other. Finally, the position sensor 70 is activated at the fully retracted position of two shelter sections.

In other words, the front end of the moving shelter section 20 moves to the partial covering to the rear end of the shelter section 20F, and the receiver 72 provided at the shelter section 20 can detect the light emitted from the emitter 71 provided at the shelter section 20F, and generates
the signal for stopping the motor 40 and for activating the braking means 50, thus stopping the movement of the shelter section 20. The above step can be applied to the condition between the shelter section and the shelter section 20R. Therefore, no whole fully telescope between the shelter section 20 and the shelter section 20R, 20F is taken place.

0102] According to the telescopic shelter system described above, several shelter sections arranged on the guide rail in a row can be retracted or expanded. If necessary, possession space of the shelter section can be reduced at a minimum, and it adds the efficient use of the workshop. Moreover, under clear weather, all of shelter sections can be easily telescoped, which contribute comfortable working conditions to a work shop.

0103] Moreover, extra rails are not needed for the moving allowance of the shelter sections for transferring a production. The movement of respective shelter sections can be achieved, and also the movement of only the specific shelter section covering the production can be attained in an easy way.

0104] Furthermore, more shelter sections can be arranged in less space, and also a usable space of the shelter section can be obtained in a variable manner. It can be employed at various locations, such as, at a shipyard, steel fabrication plant, airplane shed, a train depot, or a gymnasium.

0105] Therefore, the present invention can increase the convenience, safety, and reliability of a shelter system. It improves space efficiency of a workshop (such as a shipyard or steel fabrication plant) that needs the shelter system. It can largely contribute to utilizing space, by which a very great effect can be achieved.

What is claimed is:

1. A telescopic shelter system comprising:
   - two pairs of guide rails having a pair of parallel outer rails and a pair of parallel inner rails arranged at an inner side of the outer rails;
   - a plural of shelters comprising two side walls facing each other and a roof connecting at the top of the two side walls, at one shelter, a width of the two side walls and a height of the roof at one end of the shelter become gradually small toward another end of the shelter, each shelter arranged on the guide rail in a row;
   - a plural wheels provided at each lower portion of two side walls of each shelter along movement direction of the shelter, having a pair of first wheel running on the outer rail and a pair of second wheel running on the inner rail; and
   - a motor mounted on the shelter for providing a clockwise- counterclockwise movement of the wheel.

2. The telescopic shelter system according to claim 1, wherein:
   - the shelter is comprised of a frame assembly and an enclosure attached on an outside of the frame assembly, the frame assembly having a first main frame, a second main frame that is arranged against the first main frame in a movement direction of the shelter, a plural of sub-frames that are arranged between the first main frame and the second main frame and arranged at a place farther from the first main frame and arranged at a place farther from the second main frame and a plural of cross beams that connect each of main frame and sub-frame, a width between two posts of the first main frame is the same as that of the outer rail, a width between two posts of the second main frame is the same as that of the inner rail, and the enclosure covers both two side walls and the roof.

3. The telescopic shelter system according to claim 2, wherein:
   - the first main frame extends perpendicularly outward to both each side wall and the roof, and the second main frame extends perpendicularly inward to both each side wall and the roof.

4. The telescopic shelter system according to claim 3, wherein:
   - a flexible strip is provided along an edge of a large opening.

5. The telescopic shelter system according to claim 3, wherein:
   - the system is further comprised of a braking means that stops the movement of the shelter.

6. The telescopic shelter system according to claim 5, wherein:
   - a collision sensor is provided at the shelter, by which a distance between two shelters approaching to each other, a signal sends to the motor to stop the movement of the motor, and the braking means operates.

7. The telescopic shelter system according to claim 6, wherein:
   - a position sensor is provided at the shelter, by which a relative moving position of one shelter to another shelter is detected during expansion of the shelters, a signal sends to the motor to stop the movement of the motor, and the braking means is operated, thus a separation of one shelter from another shelter is prevented.

8. The telescopic shelter system according to claim 6, wherein:
   - the position sensor is comprised of a first sensor provided on the first main frame and a second sensor provided on the second main frame.

9. The telescopic shelter system according to claim 8, wherein:
   - a bumper is further provided at the first main frame or/and the second main frame, by which a collision between the neighboring shelters is reduced.
11. A telescopic shelter system according to claim 2, wherein:

a gap is generated at a central bottom end of a girder of each main frame at prefabrication of the shelter, and the gap is bolted when the shelter is loaded on the guide rail.

12. A telescopic shelter system according to claim 2, wherein:

a gap is generated at an inner joint between a girder and a column of each main frame at prefabrication of the shelter, and the gap is bolted when the shelter is loaded on the guide rail.

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