ABSTRACT: A freight bracing sidefiller assembly adapted to engage and brace freight at spaced distances from a cargo area sidewall. The sidefiller assembly is comprised of a bracing panel that is supported by pairs of scissors type linkage assemblies for movement between a storage position adjacent the sidewall and a plurality of bracing positions spaced from the sidewall. A position locking mechanism is incorporated for locking the panel in selected ones of the bracing positions and a latching mechanism is provided for assisting in the holding of the panel in its storage position. Both the position locking and the storage latching mechanisms are operated by a single operating handle.
SIDE FiLLER ASSEMBLY EMBODYING IMPROVED LATCHING MECHANISM

BACKGROUND OF THE INVENTION

This invention relates to a freight bracing device and more particularly to an improved latching mechanism for such a device.

Freight bracing sidefiller assemblies and their function are well known. One such type of bracing assembly is shown in U.S. Pat. No. 3,344,750, entitled "Freight Bracing Apparatus," issued Oct. 3, 1967, in the name of John J. Kostrewa. As noted in that patent, such bracing assemblies are particularly useful for bracing loads spaced at different distances from the sidewalls of a railroad car or other freight transporting vehicle. In addition to a position locking mechanism for locking the bracing panel in preselected bracing positions, it has been common to provide a storage latching mechanism for holding the bracing panel in a storage position adjacent the supporting wall. These mechanisms for holding the panel in position have been separate from each other and have required heretofore separate operators. In addition to the aforementioned duplication, additional access must be provided for each operating mechanism.

It is, therefore, a principal object of this invention to provide an improved position locking and storage latching mechanism for a freight bracing assembly.

It is another object of this invention to provide a position locking and storage latching mechanism for a freight bracing assembly having a common operating handle.

It is a further object of this invention to provide a locking and latching mechanism of the type heretofore described wherein the mechanisms are operated by a single operating handle and in a predetermined sequence.

SUMMARY OF THE INVENTION

A freight bracing device embodying this invention is adapted to brace freight at different distances from a component of a cargo area. The bracing device includes a bracing member adapted to engage freight in the cargo area and supporting means for supporting the bracing member for movement relative to the cargo area component form a storage position to any of a plurality of bracing positions. A position locking mechanism is provided for locking the bracing member in selected ones of its bracing positions. A storage latching mechanism is also provided for latching the bracing member in its storage position. A single operating handle is also provided and means couple this single operating handle to both the locking mechanism and the latching mechanism for operating both of these mechanisms through a single operating handle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a freight carrying vehicle taken from the outside and with a portion of one of its walls broken away to show the rear side of a freight bracing assembly embodying this invention.

FIG. 2 is a perspective view, in part similar to FIG. 1, and shows the bracing device in storage position.

FIG. 3 is a reduced scale front elevational view of the bracing device.

FIG. 4 is a side elevational view of the bracing device in a position corresponding to the position of FIG. 1.

FIG. 5 is a side elevational view of the bracing device in a position corresponding to the position shown in FIG. 2.

FIG. 6 is an enlarged view of the area encompassed by the circle 6 in FIG. 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A freight bracing device in the form of a sidefiller assembly, identified generally by the reference numeral 21, embodies the invention and is particularly adapted for bracing freight within a cargo area. The side filler assembly 21 is supported for movement between a storage position and a plurality of spaced freight engaging positions relative to a component of the cargo area in a manner which will become apparent. In the described embodiment, the cargo area comprises a railroad freight car and the supporting component comprises a car sidewall, indicated generally by the reference numeral 22.

The sidewall filler assembly 21 is comprised of a freight bracing panel 23 which may be formed from plywood or the like and which is adapted to engage and brace freight adjacent the sidewall 22. Secured to the side of the panel 23 adjacent the sidewall 22 is a pair of vertically extending members 24 and 25, each of which has a channel shape with a long leg 26 that is affixed in any known manner to the panel 23. A short leg 27 is spaced from the long leg 26 by a leg 28 extends perpendicularly to the panel 23 and sidewall 22.

A supporting assembly coacts with the members 24 and 25 to support the panel 23 for adjustable movement relative to the sidewall 22. The supporting assembly is comprised of a pair of upper scissor linkage assemblies 29 and 31 and a pair of lower scissor linkage assemblies 32 and 33. Each of the scissor linkage assemblies 29, 31, 32 and 33 is comprised of a pair of links 34 and 35 that are pivotally interconnected intermediate their ends by pivot pins 36 (FIG. 4). The upper or outer ends of the links 34 are pivotally connected about fixed pivot points to the panel 23 by means of brackets 37, which brackets are affixed in any suitable manner to the long legs 26 of the members 24 and 25. The opposite ends of the links 34 are slidably supported in channel shaped members 38 that are affixed to one of a respective pair of vertically extending wall plates 39 and 41. The wall plates 39 and 41 are tied together by horizontally extending plates 42 and 43 and the plates 39, 41, 42 and 43 form that is affixed to the sidewall 22 in any suitable manner.

One end of each of the links 35 is supported for pivotal movement about a fixed pivot axis relative to the wall 22 by means including a bracket 45. The bracket 45 is affixed to the wall frame members 39 and 41. The opposite ends of the links 35 are pivotally connected to vertically extending plates 46 (FIGS. 4 through 6), plates are trapped in the channels defined by the legs 26 and 27 of the members 24 and 25. The pivotal connections between the links 35 and plates 46 are accomplished by means including elongated pins 47 that span the upper and lower links 35 to time their motion.

It should be readily apparent that the described supporting arrangement and particularly the scissor linkages assemblies 29, 31, 32 and 33 permit the panel 23 to be moved from a storage position adjacent the sidewall 22 (FIGS. 2 and 5) to any of a plurality of spaced positions from the sidewall 22 for bracing freight (one of such positions being shown in FIGS. 4 and 5).

In order to lock the sidewall filler assembly 21 in any of its preselected freight bracing positions, a position locking mechanism, indicated generally by the reference numeral 51, is provided. The position locking mechanism 51 includes vertically spaced apertures 52 formed in the plates 46 (FIG. 6). A pair of locking pins 53 and 54 are slidably supported in bearing members 55 and 56, respectively. These pins are affixed to a crosspiece 57 that spans the members 24 and 25 and which with these members form a frame assembly that carries the panel 23. The locking pins 53 and 54 are adapted to enter selected ones of the apertures 52 to hold the panel 23 in preselected bracing positions, as will become more apparent as this description proceeds. An operating handle 58 is pivotally supported upon the frame member 57, by means of a pivot 59. Opposite ends of this handle 58 are accessible from the cargo area side of the wall 22 and of the panel 23 by means of access openings 61 and 62 formed in the face of the panel 23. The inner ends of the locking pins 53 and 54 are offset, as at 63 and 64, and are pivotally connected to the handle 58 by means of pivot pins 65 and 66. Some clearance is permitted between the pins 65 and 66 and the locking pin portions 63.
What I claim is:

1. A freight bracing device for bracing freight at different distances from a component of a cargo area comprising a bracing member adapted to engage freight in the cargo area, supporting means for sporting means for supporting said bracing member for movement relative to the cargo area component from a storage position to any of a plurality of bracing positions, a position locking mechanism for locking said bracing member in selected ones of said bracing positions, a storage latch mechanism for latching said bracing member in its storage position, a single operating handle, and means for coupling said operating handle to said locking mechanism and to said latching mechanism for operation both of said mechanisms by operation of said operating handle.

2. A freight bracing device as set forth in claim 1 wherein the last named means is effective to operate the latching mechanism prior to operation of the locking mechanism.

3. A freight bracing device as set forth in claim 1 wherein the operating handle is movable in a first range of movement during which the latching mechanism is moved from its engaged to its disengaged position and while the locking mechanism remains in its engaged position, further movement of the operating handle being effective to move the locking mechanism from its disengaged position.

4. A freight bracing device as set forth in claim 1 wherein each of the locking and latching mechanisms includes at least one slidable pin.

5. A freight bracing device as set forth in claim 4 wherein the operating handle is pivotally supported upon the bracing member and is pivotally connected to each of the pins.

6. A freight bracing device as set forth in claim 5 wherein the pin of the latching mechanism is pivotally connected to the operating handle at a point spaced a greater distance from the pivot axis of the operating handle than the point where the pin of the locking mechanism is pivotally connected to the operating handle for movement of the latching mechanism to a greater degree than the movement of the locking mechanism for a given degree of movement of the operating handle.

7. A freight bracing sidefiller assembly for bracing freight at different distances from a side wall of a cargo area comprising a bracing panel, scissors linkage assemblies for supporting said panel for movement relative to the cargo area wall from a storage position adjacent the wall to a plurality of bracing positions spaced from the wall, a position locking mechanism cooperating with said scissors linkage assemblies for locking said bracing member in selected ones of said bracing positions, said position locking mechanism comprising at least one locking pin slidable supported relative to said panel, a storage latch mechanism for latching said bracing member in its storage position, a single operating handle, and means for coupling said operating handle to said locking mechanism and to said latching mechanism for operation both of said mechanisms by operation of said operating handle.

8. A freight bracing device as set forth in claim 7 wherein the operating handle is pivotally supported on the panel adjacent its center and further including at least one access opening in said panel whereby an operator may grasp said operating handle from the cargo area side of said panel.

9. A freight bracing device as set forth in claim 8 further including an auxiliary operating handle pivotally connected to the operating handle and accessible from a side of said panel.

and 64 so that as the operating handle 58 is pivoted about its pivot pin 59, the locking pins 53 and 54 will be reciprocated through the bearings 55 and 56 from a disengaged or unlocked position wherein they are free of the apertures 52 to a locked position wherein they enter the apertures 52. A coil spring 67 is interconnected between the locking pin 54 and the frame member 57 for urging the locking pin 57 to its engaged or locked position. The spring also acts through the operating handle 58 upon the locking pin 53 to urge this locking pin to its engaged position.

It should be readily apparent that the operating handle 58 may be grasped and rotated to move the locking pins 53, 54 free of the apertures 52 so that the panel 23 may be slid to any of a plurality of preselected bracing positions. Release of the handle 58 will permit the spring 67 to drive the pins 53 and 54 to their locked position. The spacing of the holes 52 and the number of these holes determines the spacing of the bracing positions of the panel 23 with respect to the sidewall 22 and the number of bracing positions permissible.

A latching mechanism, indicated generally by the reference numeral 71, is provided for holding the panel 23 in a storage or unlocked position adjacent the sidewall 22 (FIGS. 2 and 5). The latching mechanism 71 is comprised of a pair of latch pins 72 and 73 that are slidable supported on the rear face of the panel 23 by means of brackets 74 and 75. The latch pins 72 and 73 are adapted to enter apertures formed in brackets 76 and 77 affixed to the wall frame members 39 and 41, respectively to hold the panel 23 adjacent this wall frame and, accordingly, to the wall 22.

The inner ends of the latch pins 72 and 73 have a pivotal connection to the operating handle 58 provided for in part by pivot pins 78 and 79. Hence, pivotal movement of the operating handle 58 about its pivot pin 59 causes reciprocation of the latch pins 72 and 73 between latched and unlatched positions. The spring 67 which acts upon the operating handle 58 through the locking pin 54 also will cause the latch pins 72 and 73 to be biased toward their latching positions. Since the pivot pins 76 and 79 are displaced radially outwardly from the pivot pins 65 and 66 relative to the pivot point 59 of the operating handle 58, the latch pins 72 and 73 will undergo a greater movement for a given pivotal movement of the operating handle 58 than will the locking pins 53 and 54. As a result, the latch pins 72 and 73 will be released prior to release of the locking pins 53 and 54.

It has been previously noted that the operating handle 58 is accessible at the center of the sidefiller assembly 21 through the access openings 61 and 62. In some instances, it may be desirable to operate the latching mechanism 51 and latching mechanism 71 from the side of the panel 23. To accomplish this, an auxiliary operating handle 81 is provided at one side of the sidewall filler assembly 21. The auxiliary operating handle 81 includes an elongated shank portion 82 that is connected to the operating handle 58 by the pivot pin 79. Hence, pulling of the auxiliary operating handle 81 will also pivot the operating handle 58 and operate the latching mechanism 51 and the latching mechanism 71.

If desired, an indicator opening 83 may be provided in the face of the panel 23 adjacent the pivot pin member 47 of the upper scissors linkage assembly. As disclosed in the aforementioned U.S. Letters Patent of John J. Kostrewa, suitable indicia 84 may be provided on the front face of the panel 23. As the panel 23 is moved relative to the sidewall 22, the pin member 47 will traverse the slot 83 and provide a position indication as noted in the Kostrewa patent.
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,590,746 Dated July 6, 1971

Inventor(s) Ben S. Gibson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 44, "form" should be -- from --, column 1, line 61, after "in"insert -- a --, column 1, line 66, delete "of" and substitute therefor -- shown in --, column 2, line 35, after "form" insert -- a frame --, column 2, line 42, before "plates" insert -- which --, column 2, line 53, after "Figures" insert -- 1 --, column 2, line 69, after "pivot" insert -- pin --, column 3, line 30 "1" should be -- loose --, column 4, line 24, claim 3, after "its" insert -- engaged to its --, column 4, line 49, claim 7, after "storage" insert -- position, said storage --.

Signed and sealed this 4th day of January 1972.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR. ROBERT GOTTSCHALK
Attesting Officer Acting Commissioner of Patents