May 19, 1953 M. J. NIELSEN 2,638,647

TIGHTENING DEVICE FOR GRAIN BOXES AND LIKE STRUCTURES

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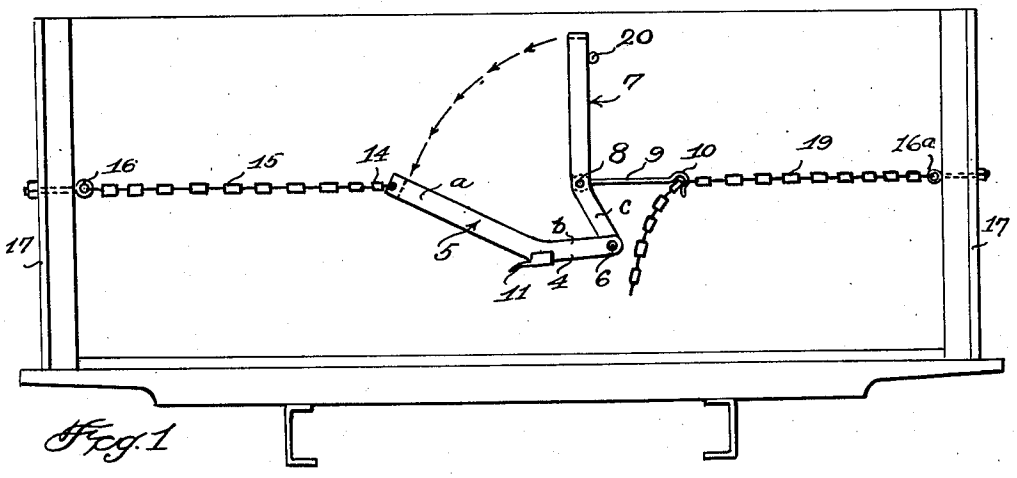


Fig. 1

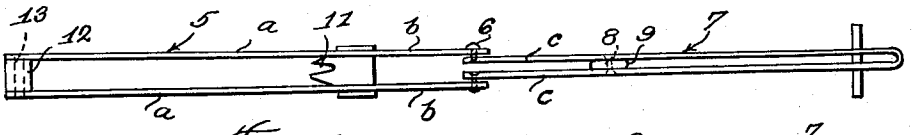


Fig. 3

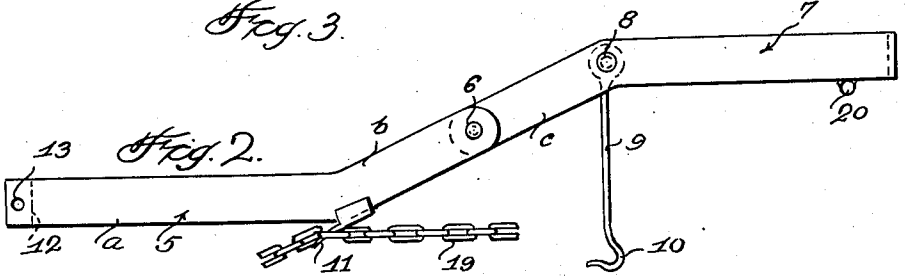


Fig. 2.

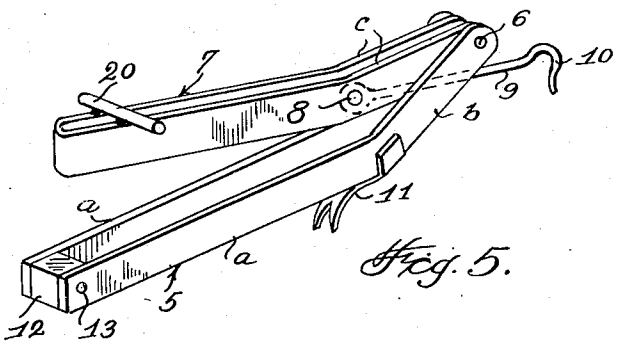


Fig. 5.

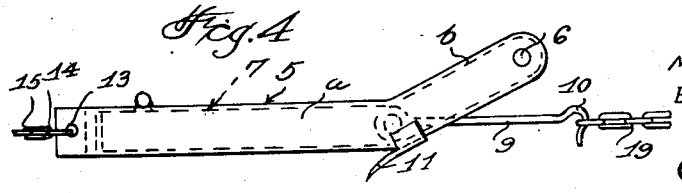


Fig. 4

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TIGHTENING DEVICE FOR GRAIN BOXES AND LIKE STRUCTURES

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1 Claim. (Cl. 24—68)

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This invention relates to improvements in tightening devices and more particularly to a tightening device for grain boxes and such other structures as end gates on trucks.

When grain boxes are loaded with grain, their side walls generally spread out, if no retention means is established at the center of the box and this condition would also occur on end gates.

The principal object of the present invention is to provide a chain connection between the side walls of a grain box, equipped with tightening means whereby the side walls of the box can be sustained against spreading when the box is loaded.

Another object of the invention is to provide such a tightening means, that is of simple construction, and capable of being manufactured at a low cost.

Still another important object of the invention is to provide a tightening means of the character stated, which is capable of being easily installed and easily operated, and which will be substantially fool-proof at all times.

These and various other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawing:

Figure 1 is a rear elevational view, showing the tightening means installed between the side walls of a grain box;

Figure 2 is a fragmentary side elevational view showing the leverage means with the secondary hook in the act of being used;

Figure 3 is a top plan view of the structure shown in Figure 2;

Figure 4 is a side elevational view of the lever and pivotal hook, after the same has been brought into contracted relation with respect to the link bar;

Figure 5 is a perspective view of the leverage structure.

Referring to the drawing, wherein like numerals designate like parts, it can be seen that numeral 5 generally refers to a link bar, made up of a pair of side members *a*, *a*, each having an oblique extension *b*. Each of these oblique portions *b*, *b* is pivotally connected as at 6 to a corresponding oblique portion *c* of a lever generally referred to by numeral 7. This lever and its oblique portions *c*, *c* is made up of a single strip of strap iron. Where the oblique portions *c*, *c* merge with the lever proper, a pin 8 is disposed therethrough and through the eye of an eye-hook 9, the head portion 10 of which protrudes substantially beyond the oblique portions

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c, *c*. A secondary bifurcated hook 11, is provided on the under portions of the side members *a*, *a*, where they merge with the oblique portions *b*, *b*.

It can be seen that the side portions *a*, *a* have a spacer block 12 between the same and this preferably has an opening 13 through which a ring or other element 14 can be disposed to connect to one end link of a length of chain 15. The length of chain extends to and connects to an eye-bolt 16, which is disposed through one wall 17 of a grain box. On the other wall is a second eye-bolt 16*a* from which a length of chain 19 extends, and through a link with which the hook head 10 can engage.

It can be seen that when the lever 7 is in a vertical position or further to the right, the hook 10 can engage in one of the links of the chain 19, and by moving the lever 7 backwardly in the direction of the arrows, shown in Figure 1, the walls 17 are drawn inwardly as the lengths of chain 15, 19 tighten, and when the lever 7 is brought downwardly to the position shown in Figure 4, with respect to the link bar 5, these chain lengths 15, 19, will be maintained taut, and the side walls of the grain box adequately sustained in position. The cross pin 20 on the lever 7 serves as a stop for the downward movement of the lever 7.

In the event the stretch is insufficient, the free end of the chain 19, that is one of the links thereof, can be engaged under the secondary hook 11, after which the hook 10 can be disengaged from the chain 19 and the lever 7 moved again to the right as in Figure 1. The hook 10 is now engaged with the partially drawn chain length 19 and the operation repeated, and this may be repeated several times, if desired, in order to draw the chain lengths 15, 19 substantially taut.

As can be seen in the drawings, a short cross bar 20 may be welded or otherwise secured in place so that the leverage can be easily broken when it is desired to unloosen the chain sections.

While the foregoing description sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to, without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

A device of the character described comprising a pair of chain lengths adapted to be con-

nected to the side walls of a grain box or the like, a link bar having its outer end connected to the inner end of one of said chain lengths, an extension arm integrally formed with the inner end of said link bar and extending upwardly at an obtuse angle to said link bar, a lever, an extension arm for said lever formed integrally with the inner end thereof and extending downwardly at an obtuse angle to said lever, said extension arms being pivotally interconnected at their inner ends, a downwardly and outwardly extending bifurcated hook affixed to the underside of the extension arm of said link bar adjacent the juncture point between said link bar and the extension arm thereof, an elongated hook pivotally connected at its inner end to the juncture portion of said lever and its extension arm, and a cross bar affixed to the underside of said lever adjacent the outer end thereof, said link bar, lever and extensions being of open frame construction, and said cross bar adapted to abut against the upper side of said link bar when the lever and link bar are brought together.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
947,739	Newland	Jan. 25, 1910
1,758,039	Haubert	May 13, 1930
1,972,346	Juline	Sept. 4, 1934

FOREIGN PATENTS

Number	Country	Date
168,596	Switzerland	July 2, 1934