

**Dec. 3, 1946.**

E. C. SEWARD

**2,411,900**

CARGO STOP

Filed July 5, 1944

2 Sheets-Sheet 1

Attorneys

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2 Sheets-Sheet 2

Fig. 5.

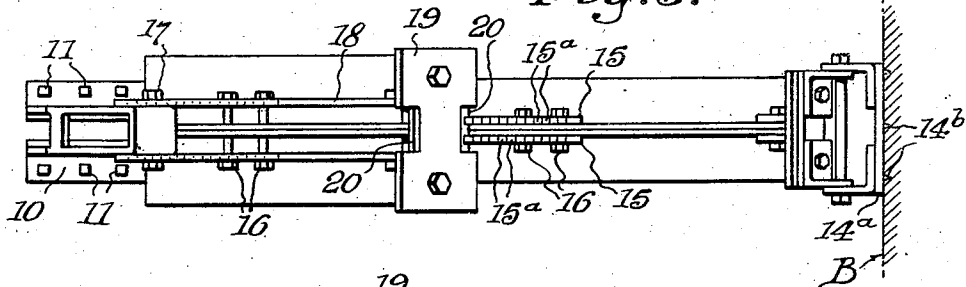


Fig. 7.

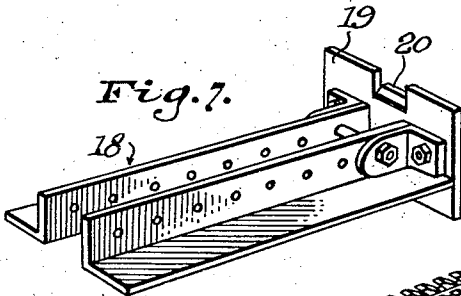


Fig. 6.

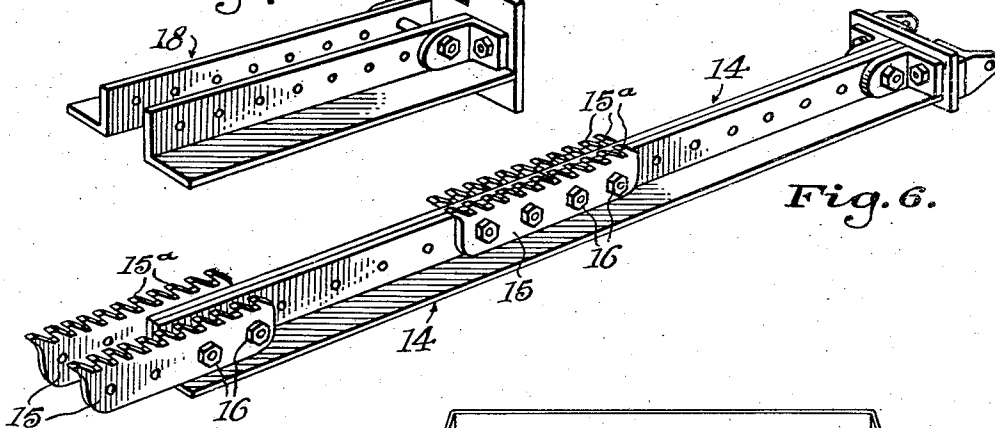


Fig. 8.

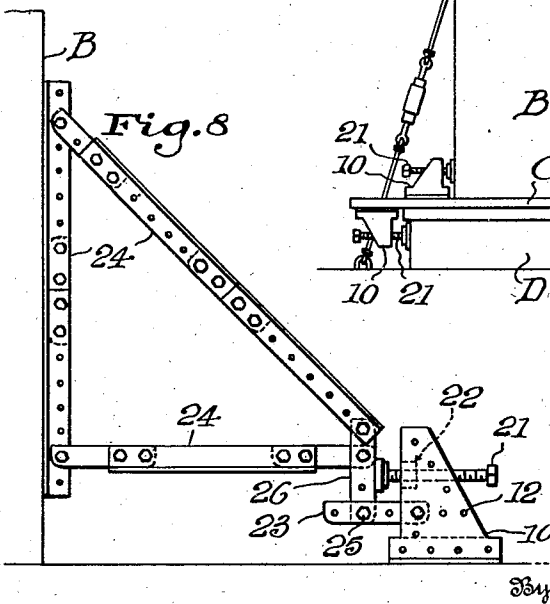
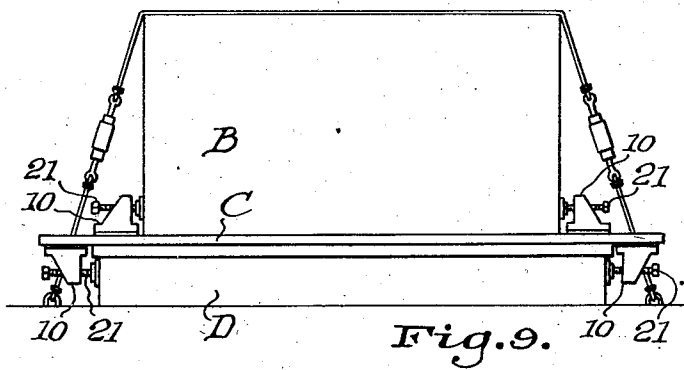


Fig. 9.



Inventor

Edgar C. Seward

Thayer R. Sanderson and  
Joseph H. Brown

Attorneys

## UNITED STATES PATENT OFFICE

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## CARGO STOP

Edgar C. Seward, South Arlington, Va.

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10 Claims. (Cl. 248—354)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to cargo stops and is intended to provide a simple, novel and improved device for lashing or securing cargo on board ship, or on railroad cars or other places where movable cargo is required to be secured against shifting and loss.

The invention contemplates, so far as possible, the use of standard structural shapes which are available in quantity as by-products of ship construction, although the invention is not limited thereto as will appear in the description hereinafter developed.

One of the objects of the invention is to provide a cargo stop or lashing which can quickly and efficiently be applied to the deck of a ship, floor of a railroad car or elsewhere to prevent shifting of cargo.

Another object is to provide a device which can be used repeatedly, thereby saving much critical material. The use of this device will also effect a saving in other critical materials such as rope, chain and lumber which it is intended to replace and which are used to lash and secure cargo.

An additional object of the invention is the provision of a device of the kind described which will considerably reduce the time and labor required to lash and secure cargoes.

A further object of the invention is the provision of a device which can be effectively applied by unskilled labor.

For a further and more complete understanding of the invention, reference is made to the accompanying drawings and specification, illustrating and describing several forms of the invention without limiting the same thereto.

Figure 1 is a side elevation of one form of the invention, showing the device in operative position against a shipping crate or container.

Figure 2 is an enlarged view of the device shown in Figure 1, with parts shown in vertical cross section.

Figure 3 is a vertical cross section taken along the line 3—3 of Figure 2, in the direction of the arrows.

Figure 4 is a vertical cross section taken along the line 4—4 of Figure 2, in the direction of the arrows.

Figure 5 is a top plan view of the device shown in Figure 1.

Figure 6 is an enlarged perspective view of a detail of Figure 1.

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Figure 7 is an enlarged perspective view of a further detail of Figure 1.

Figure 8 is a side elevation of a modified form of the invention.

Figure 9 is a side elevation of another form of the invention, and

Figure 10 is an enlarged detail of a modification of the device shown in Figure 9.

As shown in Figure 1, the reference character 10 A may represent the deck of a ship, the floor of a freight car or other transportation facility, and B may represent a shipping crate to be secured against displacement. In applying the invention, a bracket or base 10, which is shown as built up of suitable angles and plates, but which may be a pair of spaced structural shelf angles, is bolted, as at 11, to any suitable cross member on the deck of a ship. The side faces of the base or shelf angles are perforated at spaced points, as at 12, for adjustment of the parts about to be described. Pivoted to said base at 13 and extending diagonally upwardly therefrom is a brace 14 which is shown as formed of a plurality of angle-irons butt-joined together by means of a pair of fish plates 15. The brace is shown as pivoted at 13 to the base 10 by means of a pair of similar fish plates which are bolted at 16 to the brace 14. While the brace 14, and other parts of the device, may be shown as built up of many separate parts, it will be understood that these parts may be made in one piece. It is intended that these devices shall be made up of small lengths of waste structural materials which accumulate in shipyards as the by-products of ship construction, to conserve materials needed for the present emergency, but that when the emergency ceases, these devices may be formed of more appropriate design. The brace 15, for example, may be made in one length, although the short lengths are desirable, lending flexibility to the device whereby several lengths may be joined together as circumstances may require to effect a proper securing of any specified cargo. Where short lengths are used, they are joined by means of fish plates 15. These fish plates are provided with teeth 15A, suitably punched or cut along one edge thereof, for a purpose which will hereinafter be described. These fish plates 15 are made of a standard size so that they may be interchangeable where necessary in the construction of the device. Pivoted to the base at 17 at a point spaced from the pivot 13 is an arm 18 which carries a plate 19 at its other extremity. The plate 19 is rigidly secured to the arm 18 at right angles thereto and is provided with a tooth 20 which is suitably stamped or punched from the plate 19.

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Such a tooth is punched at the upper and lower edge of the plate, so as to provide an emergency tooth to replace breakage. This tooth 20 is adapted to engage any one of the teeth 15A of the fish plate 15 for the purpose of locking the brace 14 against vertical movement as will hereinafter be described. The brace 14 carries at its free end a pivoted cargo-engaging plate 14A which is provided with teeth 14B projecting from one face thereof and which are adapted to engage the side walls of a crate or shipping container in a manner which will be clearly understood by reference to the drawings.

In the operation of this device, when it is placed against a shipping container, such as B, with the arm 14 and plate 14A engaging said container, a shifting of the container B to the right, due to the roll of the vessel, or direct action of water, would cause the brace 14 to become disengaged from the case B to an extent which would permit it to drop slightly. Since the case B is engaged on its opposite side by a similar device, the case B could not shift very far and the plate 14A and teeth 14B would re-engage the case at a lower point when the case returned to its original position, due to the reaction caused by the roll of the ship or action of the water. As the brace 14 drops, the tooth 20 of the plate 19 would become disengaged from the fish plate 15, and if the drop of the brace 14 were great enough, the tooth 20 would engage the next succeeding tooth of the fish plate 15, so that the return roll of the ship, returning the case B to its original position, would find the case braced by the brace 14 which is locked against vertical movement by the arm 18, plate 19, and tooth 20 engaging the teeth 15A. Thus, it will appear that while the brace may move downwardly with respect to the roll of the ship sufficiently to cause disengagement of the teeth of fish plate 15 and plate 19, the return of the ship to its righted position will always cause a re-engagement of these parts to such an extent as to prevent upward vertical movement of the brace. The brace 14 and arm 18 may move downwardly to take up slack in cargo, but cannot move upwardly. Thus, the cargo is always maintained in locked or braced position. It will be understood, of course, that a device similar to that described will be placed on each side of the cargo as dictated by requirements.

In the modified form of the invention shown in Figure 8, a base 10 similar to the construction heretofore described is provided carrying a threaded screw 21 which rotates in a nut 22. Pivoted to the base at a point below this nut are a pair of angle-irons 23 supporting a triangular frame 24 which is pivoted to said angles at 25. The frame 24 is maintained against the shipping container or crate B by its own weight, pivoting about the point 25. It is further secured against the vertical face of the crate B by means of the threaded screw 21 which is forced against the angles 26, which in turn transmit said force through two sides of the triangle to the vertical portion thereof bearing against the crate B. Any shifting of the cargo to the left of the device as shown in Figure 8 would be corrected by the weight of the triangle 24 which would slide downwardly along the wall of the crate, pivoting about the point 25. The screw 21 would then require manual adjustment to bring it again into pressure contact with the angles 26.

In the form of the invention shown in Figure 9, a support C is provided at each end with a base

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bracket 10 having the screw device 21, 22, as previously described, at each end thereof on opposite sides thereof. The lower brackets are shown as engaging the coaming of the hatch of a ship, with the support C resting on the hatch and a cargo B, to be secured, resting on the support C. The cargo is secured against displacement on the support by engaging the same with the screw device 21 at each end thereof. The support C is clamped to the hatch coaming by the brackets secured to the under surface thereof as will appear by reference to the drawings.

In the form illustrated in Figure 10, the base is shown as bolted to any suitable cross member, as a timber, upon which cargo may be supported.

While I have thus described several forms of the invention, it will be understood that the invention is not limited to the constructions described, but may be modified in accordance with the spirit thereof as defined by the appended claims.

I claim as my invention:

1. A cargo stop comprising a base, a brace with teeth on one surface thereof secured at one end to said base, cargo-engaging means secured to the free end of said brace, an arm secured to said base for locking said brace when in cargo-engaging position, said arm having teeth-engaging means for engaging the teeth on said brace.
2. A cargo stop comprising a base, a toothed brace pivoted at one end to said base, a cargo-engaging plate pivoted at the free end of said brace, an arm pivoted to said base at a point spaced from said brace pivot, said arm extending between said base and brace, and toothed means at the free end of said arm for engaging said toothed brace to lock same in braced position when said brace is in cargo-engaging position.
3. A cargo stop comprising a base, a toothed brace pivoted at one end to said base, a cargo-engaging plate pivoted at the free end of said brace, an arm pivoted to said base at a point spaced from said brace pivot, said arm extending between said base and brace, said arm having a plate at its free end, said plate having teeth for engagement with said toothed brace to lock same in braced position when said brace is in cargo-engaging position.
4. A cargo stop comprising a base, a brace having one end secured to said base and engaging a draft of cargo at the other end thereof, an arm extending between said base and brace, said arm and brace having cooperating adjustable means for releasably locking said brace against substantial movement in at least one direction when said brace is engaging a shifting cargo, said arm being adjustable with respect to said brace under shifting cargo conditions to maintain said stop in cargo-stopping position.
5. A cargo stop comprising a base, a toothed brace having one end pivoted to said base and engaging a draft of cargo at the other end thereof, an arm extending between said base and brace with toothed means at the free end thereof, said arm and toothed means releasably and successively engaging the teeth of said brace to adjust said brace in locking position as it moves in response to a shifting cargo.
6. A cargo stop comprising a base, a cargo engaging brace having one end secured to said base, and a clamp on said base for forcing said brace into cargo engaging position.
7. A cargo stop comprising a base, a cargo engaging frame having one end secured to said

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base, an adjustable clamp on said base, said clamp engaging said frame to urge same into cargo engaging position.

8. A cargo support comprising a base, clamping means on one side of said base comprising a bracket, an adjustable clamp thereon for securing said base to a support, and clamping means on the opposite side of said base for securing a load of cargo thereon.

9. A lashing for a shiftable cargo comprising an adjustable stop positioned on at least two sides of said cargo, each stop being so constructed and arranged as to automatically and alternately take up slack space occurring between said stop

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and cargo when the cargo shifts in a direction away from said stop.

10. A lashing for a shiftable cargo comprising a stop positioned on at least two sides of said cargo, each stop including a base, a brace having one end secured to said base, the other end thereof being adapted to engage a cargo, said brace having arm engaging means disposed along one side, an arm extending from said base and adjustably cooperating with said brace and engaging means to maintain said brace in braced position against a shifting cargo.

EDGAR C. SEWARD.