

Nov. 25, 1969

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3,479,683

CARGO CONTAINER HINGE CONSTRUCTION

Filed Oct. 18, 1967

3 Sheets-Sheet 1

Fig. 1.

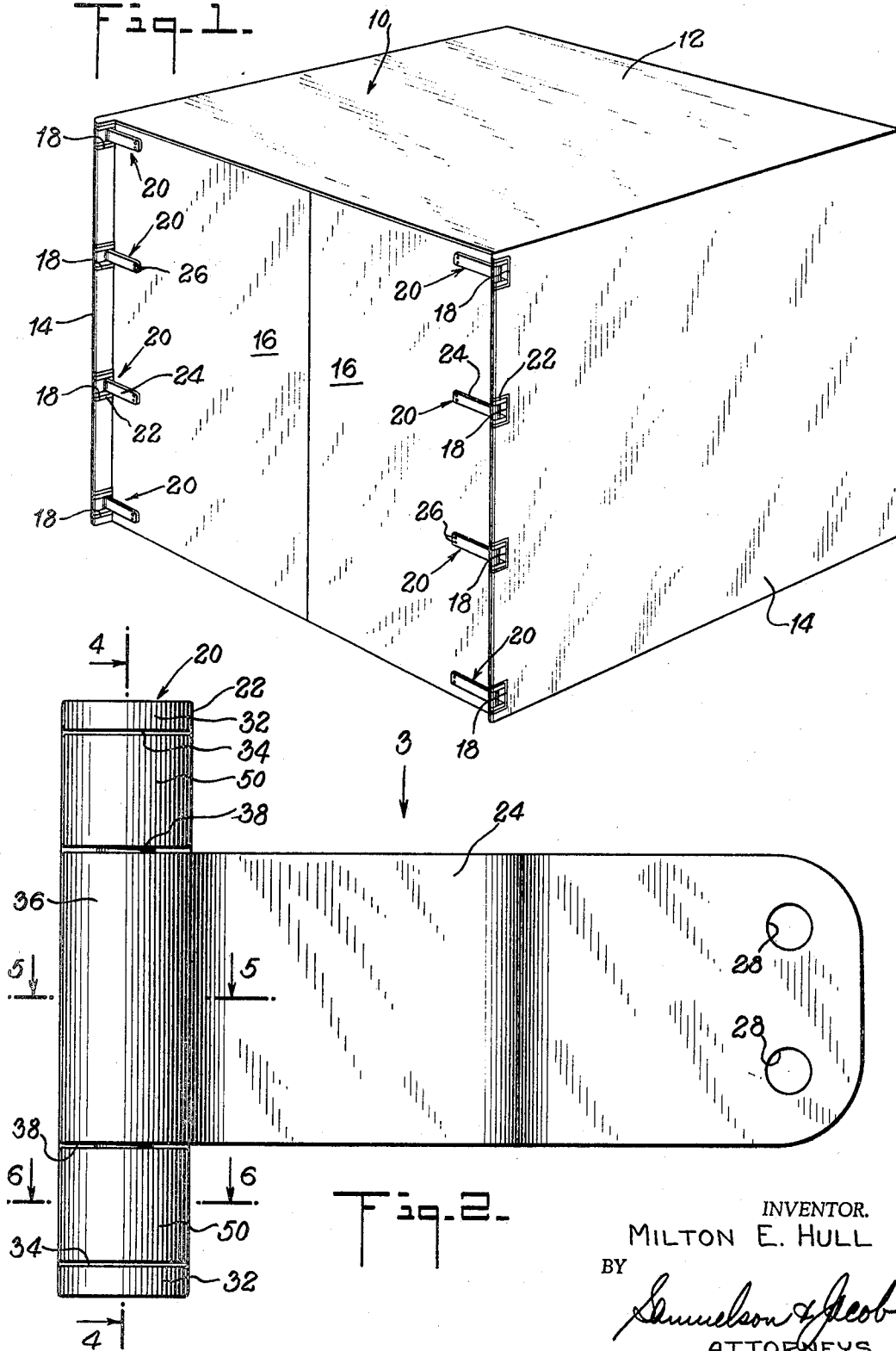


Fig. 2.

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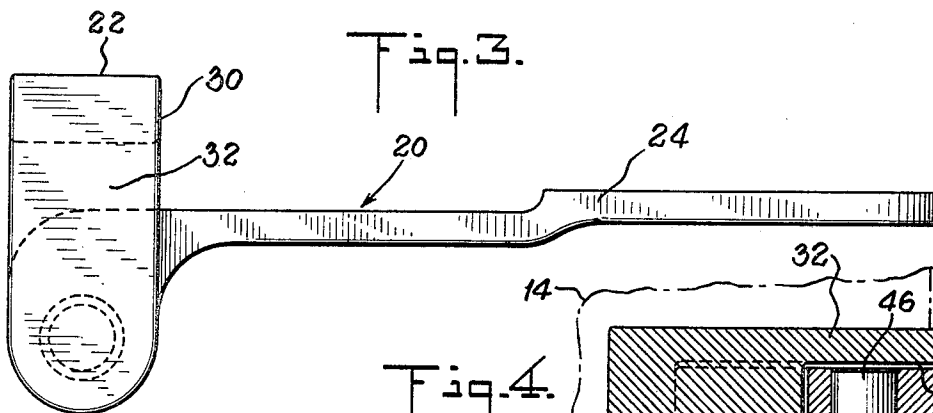
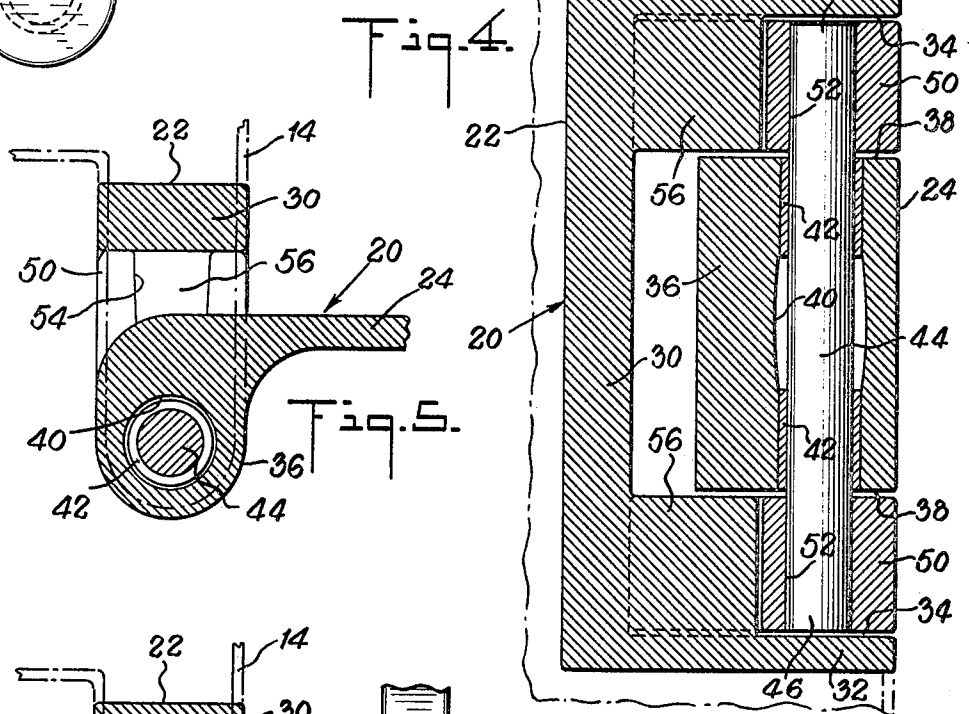
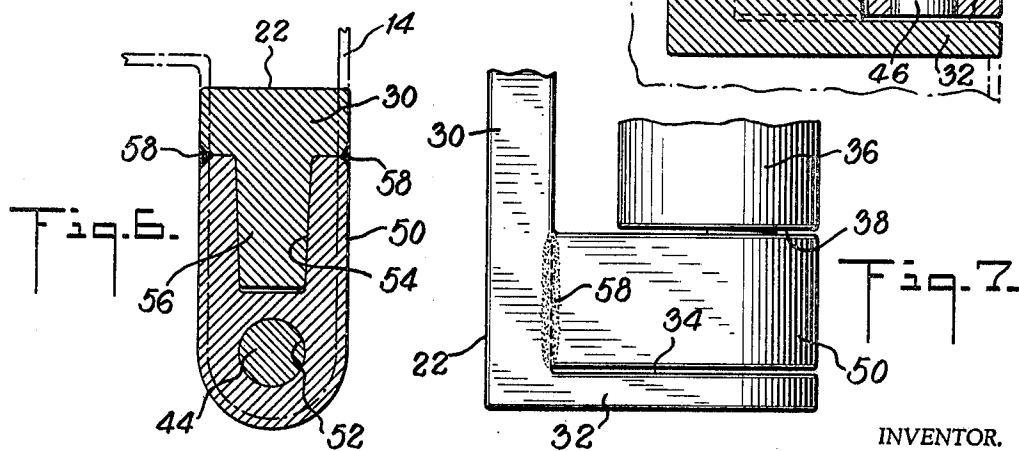
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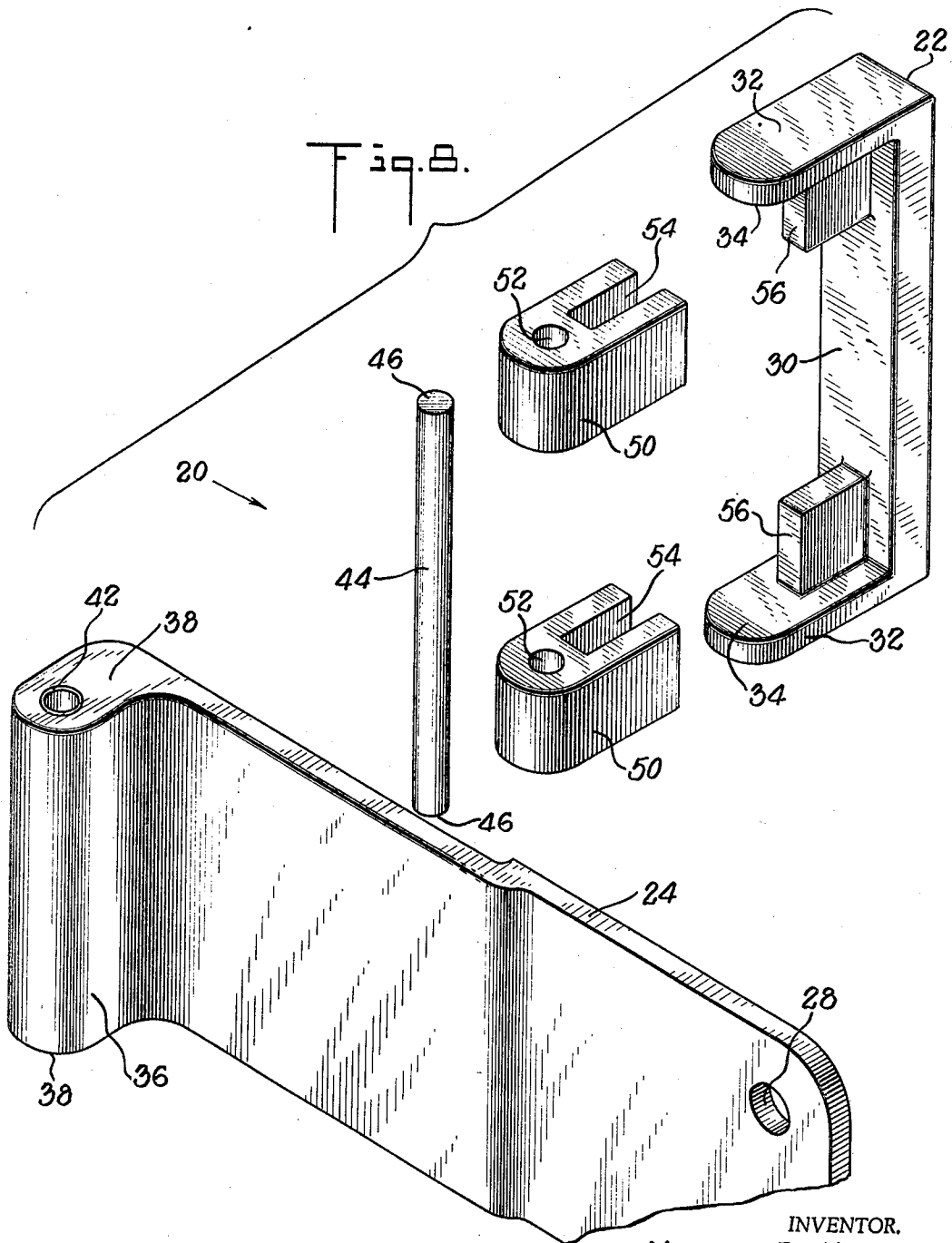
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CARGO CONTAINER HINGE CONSTRUCTION

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3 Sheets-Sheet 3



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CARGO CONTAINER HINGE CONSTRUCTION
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Filed Oct. 18, 1967, Ser. No. 676,225

Int. Cl. E05d 9/00, 5/06, 7/10

U.S. Cl. 16-128

6 Claims

ABSTRACT OF THE DISCLOSURE

A cargo container hinge in which the hinge butt has confronting laterally extending members spaced longitudinally from one another, the hinge plate includes a barrel portion lying between the confronting members and being spaced longitudinally from each confronting member, and the pintle projects longitudinally from each end of the barrel portion, each end of the pintle being received within a barrel member which is secured to the hinge butt adjacent a confronting member such that the pintle, the hinge plate and the barrel members are located between the confronting members of the hinge butt. The barrel members may be released from the hinge butt, but are not readily released so that the pintle is thus securely captivated between the confronting members but can be removed by release of the barrel members from the hinge butt.

The present invention relates generally to hinge constructions and pertains, more specifically, to cargo container hinges.

Cargo containers, by the nature of their use, are subjected to a great deal of handling and are thus particularly susceptible to damage as a result of externally applied forces. The walls of such containers are often dented, twisted or otherwise deformed or broken as a result of abuses during handling and transportation. In those containers which have hinged access doors, the hinge structure is likewise subjected to such abuse and component parts of the hinge may suffer similar damage. Hence, it would be advantageous to have available a hinge construction which can either withstand such abuse or in which damaged component parts may be replaced with relative ease.

In addition, cargo containers are often subjected to vandalic acts or may be broken into for purposes of theft and it would be advantageous to have a hinge construction which is not easily damaged or dismantled, yet which can be dismantled, when necessary, to replace damaged portions of the container or the hinge.

It is therefore an important object of the invention to provide a ruggedly constructed cargo container hinge which can withstand abuse, yet which can be dismantled, when necessary, for the replacement of damaged component parts of the hinge or of the cargo container itself.

Another object of the invention is to provide a cargo container hinge which can be dismantled without destruction of the component parts of the hinge, yet is not so easily dismantled as to encourage vandalism or thievery.

A further object of the invention is to provide a cargo container hinge which is simple in configuration and construction, yet will withstand the rigors of service and is economically fabricated of relatively high strength materials.

The above objects, as well as further objects and advantages, are attained by the invention which may be described briefly as a cargo container hinge comprising a hinge butt having confronting laterally extending means spaced longitudinally from one another, a hinge plate including at least a portion having a longitudinal extent between extremities less than the longitudinal spacing of

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the laterally extending means of the hinge butt, a pintle associated with the portion of the hinge plate and having ends projecting longitudinally from the extremities of the portion, a barrel member juxtaposed with each extremity of the portion of the hinge plate and receiving the projecting ends of the pintle, and means locating and securing each barrel member upon the hinge butt with the barrel members and the pintle lying between the laterally extending means to captivate the pintle between the confronting laterally extending means such that the pintle may be removed by release of the barrel members from the hinge butt.

The invention will be more fully understood and further objects and advantages thereof will become apparent in the following detailed description of an embodiment of the invention illustrated in the accompanying drawing, wherein:

FIGURE 1 is a perspective view of a cargo container employing hinges constructed in accordance with the invention;

FIGURE 2 is an enlarged front elevational view of one of the hinges;

FIGURE 3 is a plan view of the hinge viewed in the direction of the arrow in FIGURE 2;

FIGURE 4 is a cross-sectional view taken along line 4-4 of FIGURE 2;

FIGURE 5 is a cross-sectional view taken along line 5-5 of FIGURE 2;

FIGURE 6 is a cross-sectional view taken along line 6-6 of FIGURE 2;

FIGURE 7 is a fragmentary side elevational view of a portion of the hinge; and

FIGURE 8 is an exploded perspective view of the hinge illustrating the component parts thereof.

Referring now to the drawing, a cargo container 10 is illustrated in FIGURE 1 and is seen to have a top wall 12 and side walls 14 to which are hinged access doors 16. Located within notches 18 in the side walls 14 are hinges 20 which mount the doors 16 to the respective walls 14.

Each hinge 20 is constructed in accordance with the invention and is affixed to a wall 14 as by welding the hinge butt 22 of the hinge 20 to the wall along the perimeter of the notch 18. A hinge plate 24 is mounted for pivotal movement with respect to the hinge butt 22 and is affixed to a door 16 by fasteners, such as rivets 26, which pass through apertures 28 (see FIGURE 2) in the hinge plate 24 and extend into the door. It will be noted that the recessed mounting of the hinge butt 22 provided by the notches 18 serves to protect the hinge butt against direct blows aligned parallel to the pivotal axis of the hinge.

Turning now to FIGURES 2 through 8, hinge 20 is seen to have a hinge butt 22 in the form of a unitary body which includes a mounting base 30 and laterally extending means in the form of integral opposite end walls 32 projecting from the mounting base and being perpendicular thereto and spaced longitudinally from one another to establish longitudinally spaced parallel confronting surfaces 34.

The hinge plate 24 is also unitary and is provided with a portion in the form of barrel 36 integral with the hinge plate at one end thereof and having opposite end extremities 38 spaced apart longitudinally a distance less than the longitudinal spacing of confronting surfaces 34. The barrel 36 has a longitudinally extending bore 40 running from one extremity 38 to the other, within which bore are located a pair of bushings 42.

A pintle 44 is associated with the barrel 36 and passes through the bore 44, the pintle 44 having an external diameter corresponding to the internal diameter of the bushings 42 so that the hinge plate can pivot upon the

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pintle. The pintle 44 is longer than the bore 40 and is located so that the opposite ends 46 of the pintle project longitudinally beyond the respective opposite extremities 38 of the barrel 36.

In order to assemble the pintle 44 with the hinge butt 22 so that the hinge plate 24 may pivot with respect to the hinge butt, a pair of barrel members 50 are juxtaposed with the extremities 38 of the barrel 36 and the barrel members 50 are provided with openings 52 which receive the projecting ends 46 of the pintle 44. Means are provided for locating and securing each barrel member 50 in place upon the hinge butt 22 as follows: Each barrel member 50 is in the form of a U-shaped configuration (see FIGURES 4, 6 and 8) having a groove 54 extending laterally into the barrel member 50 and longitudinally along the barrel member from end to end thereof. A complementary tongue 56 (see FIGURES 4, 6 and 8) is provided integral with the hinge butt 22 at each of the confronting surfaces 34 of the end walls 32, each tongue extending perpendicular to the mounting base 30 and perpendicular to the corresponding confronting surface 34 such that upon engaging each tongue 56 with the complementary groove 54 in a barrel member 50, the pair of barrel members will be accurately located between the end walls 32 with the barrel members 50 and the pintle 44 lying between the confronting surfaces 34.

The hinge butt 22 and the barrel members 50 (as well as the hinge plate 24) are advantageously constructed of metal, and for purposes of high strength and ease of fabrication are preferably cast from iron or steel. Thus, the barrel members 50, after having been located properly upon the hinge butt 22 by virtue of the engagement of the tongues 56 within the respective grooves 54, may be secured in place by welds 58 (see FIGURES 6 and 7). The combination of the tongue and groove engagement and the welds provides an exceptionally strong and rugged securement which will not only withstand the rigors of service, but will not be easily disturbed by vandals or thieves. Thus, the end of the pintle 44 are overlapped by the confronting surfaces 34 and the pintle 44 is captivated between the confronting surfaces 34 and may not be easily removed to dismantle the hinge; however, when it becomes necessary to dismantle the hinge in order to either remove an access door from the cargo container or replace a damaged hinge component, i.e., a bent pintle or a twisted hinge plate, the welds 58 may be ground away to release the barrel members 50 and allow removal of the pintle 44. Since most of the stresses placed upon the connection between the barrel members and the hinge butt are borne by the tongues 56 which interengage with the grooves 54, the welds 58 need not be so heavy as to render their removal exceptionally difficult and may be small enough to assure that neither the hinge butt 22 nor the barrel members 50 are damaged or destroyed by such removal of the welds.

The construction of hinge 20 permits the permanent location of a hinge butt 22 within a notch 18 without precluding the dismantling of hinge 20, while rendering such dismantling difficult enough to withstand the rigors of service and discourage vandalism and theft.

It is to be understood that the above detailed description of an embodiment of the invention is provided by way of example only. Various details of design and construction may be modified without departing from the true spirit and scope of the invention as set forth in the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A cargo container hinge comprising:
 - a hinge butt having confronting laterally extending means spaced longitudinally from one another;
 - a hinge plate including at least a portion having a longitudinal extent between extremities less than the longitudinal spacing of the laterally extending means of the hinge butt;

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a pintle associated with said portion of the hinge plate and having ends projecting longitudinally from the extremities of said portion;

a barrel member juxtaposed with each extremity of said portion of the hinge plate and receiving said projecting ends of the pintle; and

means locating and securing each barrel member upon the hinge butt with the barrel members and the pintle lying between said laterally extending means to captivate the pintle between the confronting laterally extending means such that the pintle may be removed by release of the barrel members from the hinge butt.

2. The cargo container hinge of claim 1 wherein: said laterally extending means establish confronting longitudinally spaced surfaces; said portion of the hinge plate has an extent between said extremities less than the longitudinal spacing of the confronting surfaces; and said confronting surfaces overlap the projecting ends of the pintle to thus captivate the pintle between the confronting surfaces.

3. The cargo container hinge of claim 2 wherein said means locating and securing each barrel member upon the hinge butt include:

a tongue integral with the hinge butt adjacent each of said confronting surfaces; and

a groove in each barrel member, each said groove being complementary to one of said tongues and each tongue being received within a corresponding groove.

4. The cargo container hinge of claim 3 wherein said means for locating and securing each barrel member upon the hinge butt includes at least one weld affixing each barrel member to the hinge butt.

5. The cargo container hinge of claim 3 wherein: the hinge butt is in the form of a unitary body having a mounting base and said laterally extending means include integral opposite end walls integral with the mounting base and projecting perpendicular therefrom to render said confronting surfaces parallel to one another;

the hinge plate portion includes a barrel adjacent one end of the hinge plate and having a longitudinally extending bore therethrough;

said pintle is received within said bore and projects beyond the bore adjacent each end of the pintle;

each said barrel member has an opening receiving one end of the pintle such that a pair of barrel members are located between the opposite end walls;

said locating and securing means include a pair of tongues integral with the hinge butt, each extending perpendicular to the mounting base and perpendicular to one of said confronting surfaces, said tongues being spaced apart longitudinally a distance corresponding to the location of the barrel members, a groove in each barrel member, each said groove being complementary to one of said tongues and each tongue being received within a corresponding groove with said end walls juxtaposed with the barrel members and said confronting surfaces overlapping the ends of the pintle, and means securing the barrel members in place upon the hinge butt with the pintle thus captivated between the end walls.

6. The cargo container hinge of claim 5 wherein said means securing the barrel members in place include at least one weld affixing each barrel member to the hinge butt.

No references cited.

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U.S. Cl. X.R.

16—135, 171

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