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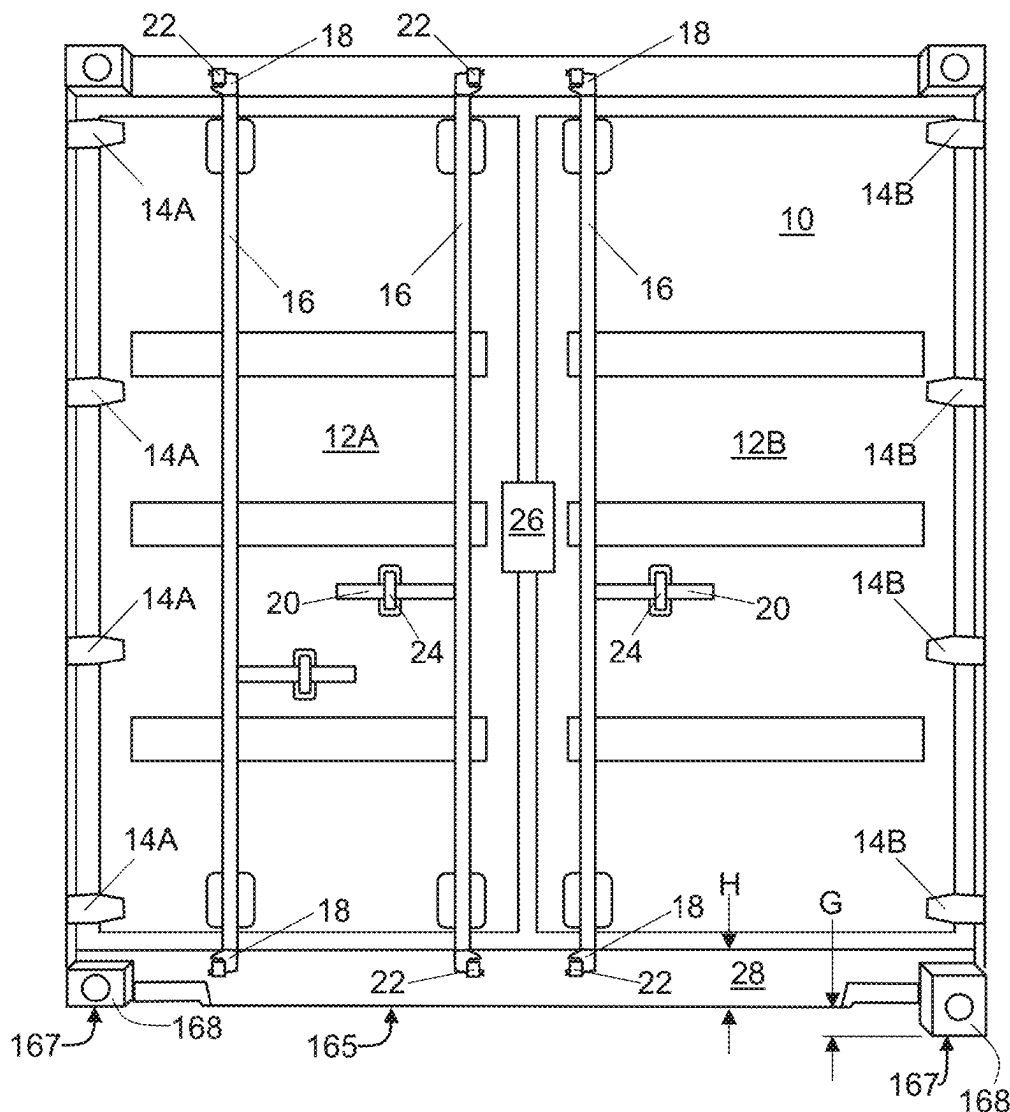
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MELEKA(10) **Pub. No.: US 2025/0256917 A1**(43) **Pub. Date: Aug. 14, 2025**(54) **SHIPPING CONTAINER THEFT
PREVENTION DEVICE**(52) **U.S. Cl.**CPC **B65D 90/54** (2013.01); **B65D 2590/666**
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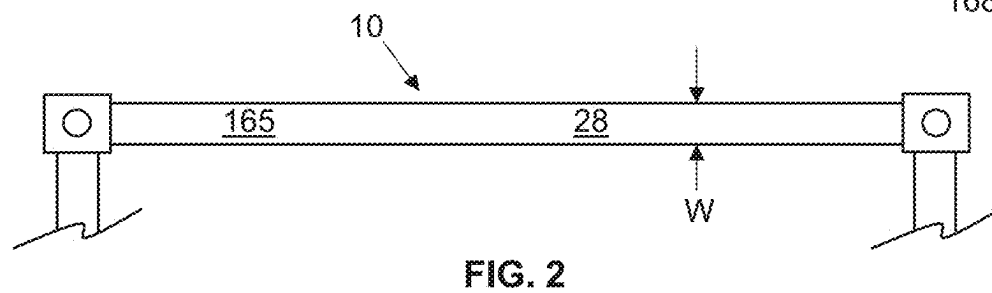
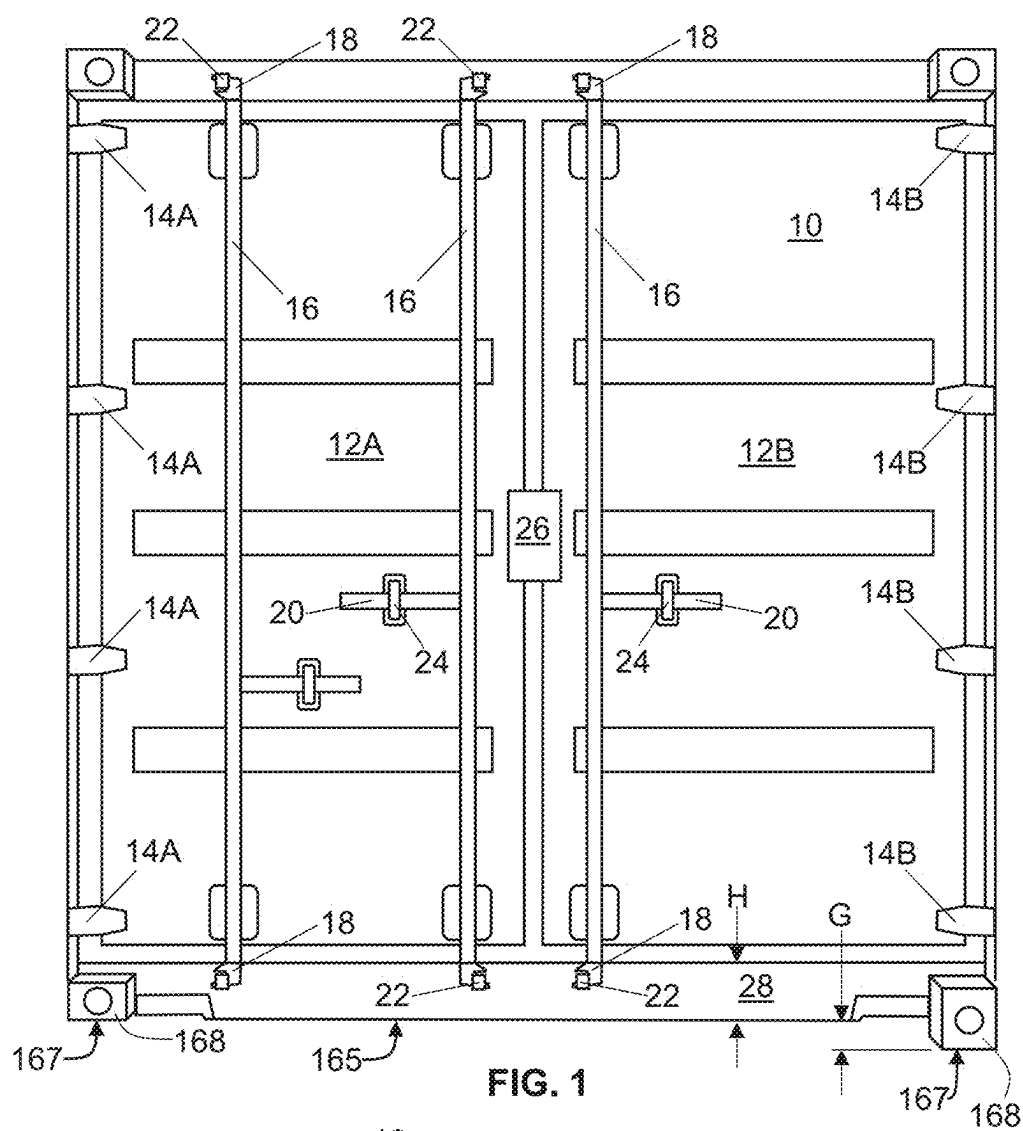
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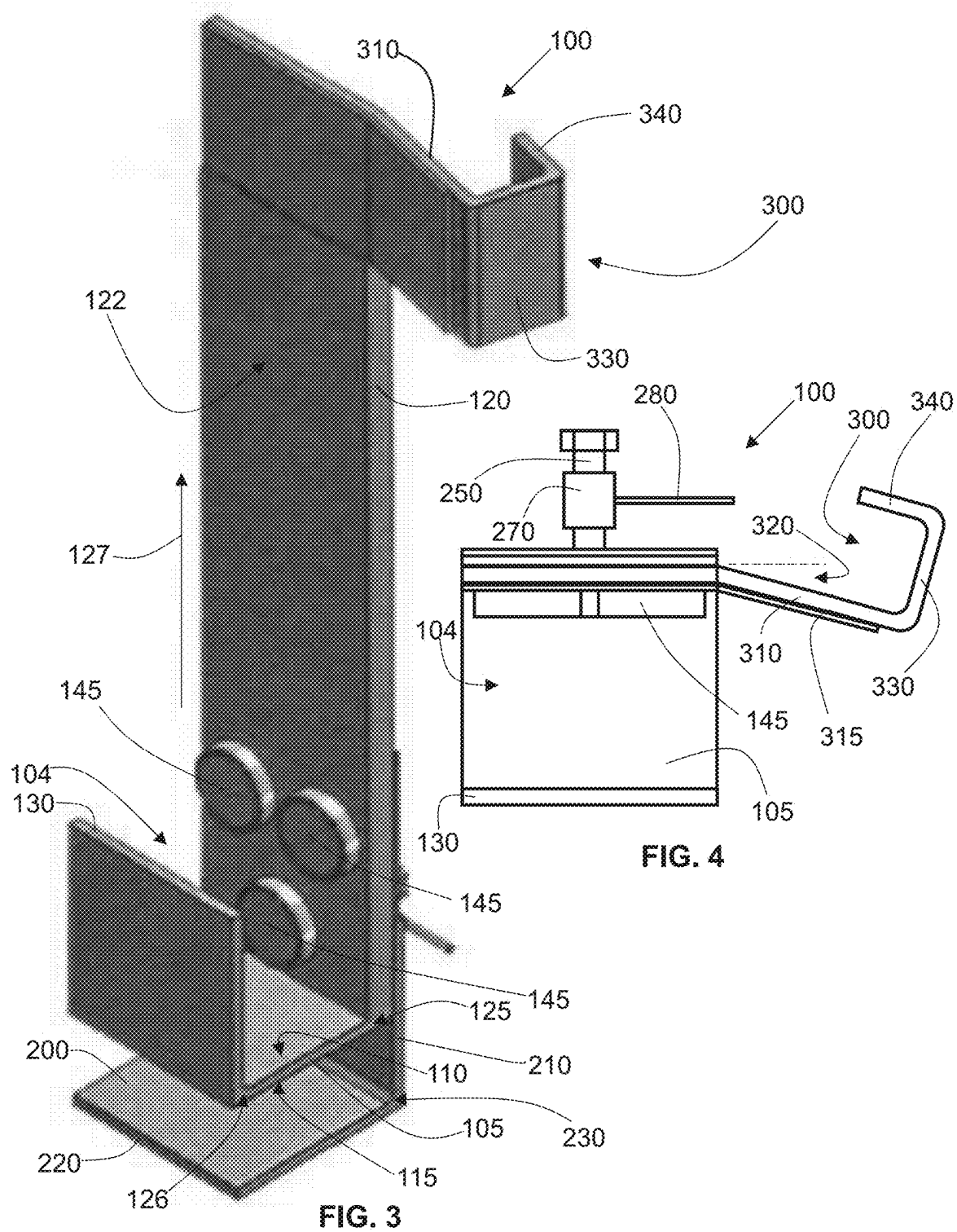
ABSTRACT(73) Assignee: **PACD, INC.**, Anaheim, CA (US)(21) Appl. No.: **19/049,745**(22) Filed: **Feb. 10, 2025****Related U.S. Application Data**(60) Provisional application No. 63/551,442, filed on Feb.
8, 2024.**Publication Classification**(51) **Int. Cl.****B65D 90/54**

(2006.01)

A theft prevention device for a shipping container includes a channel and a plurality of magnets. The channel is defined by a base plate, a first plate, and a second plate. The base plate has a first side and a second side. The first plate extends from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate. The second plate extends from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate. The first plate extends away from the base plate farther than the second plate. The plurality of magnets is coupled to the first plate on a channel side of the first plate.







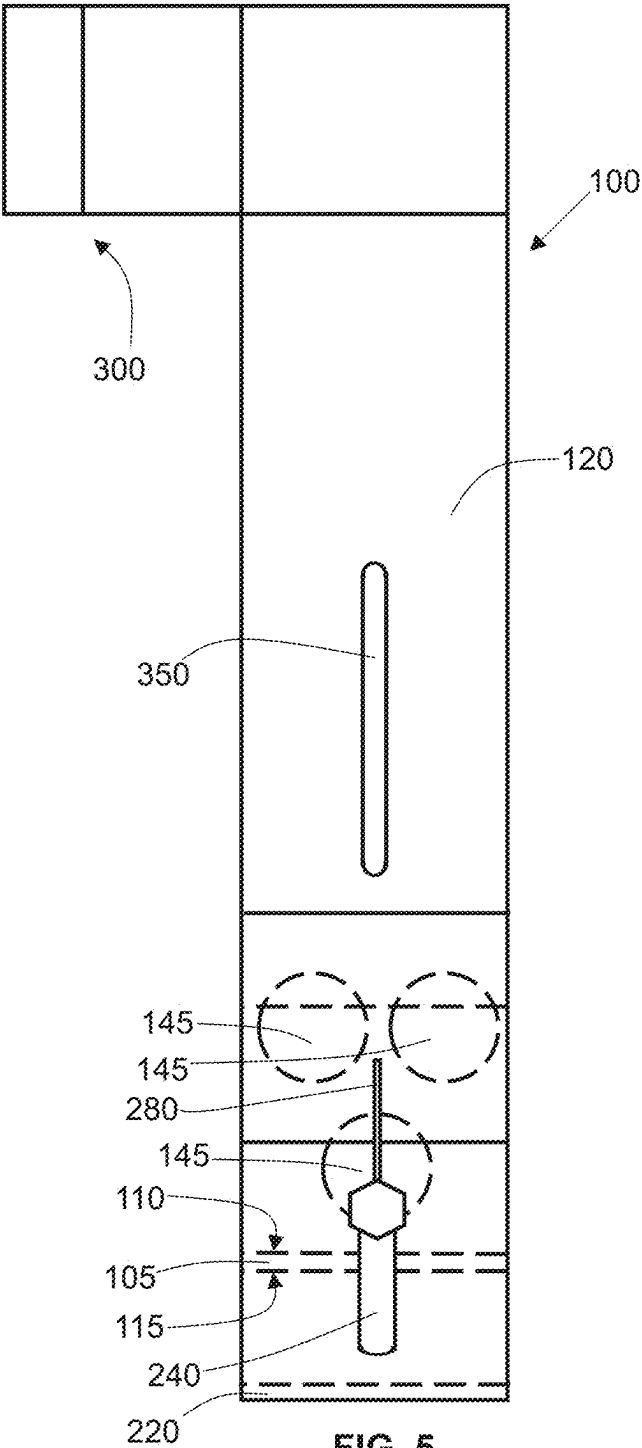
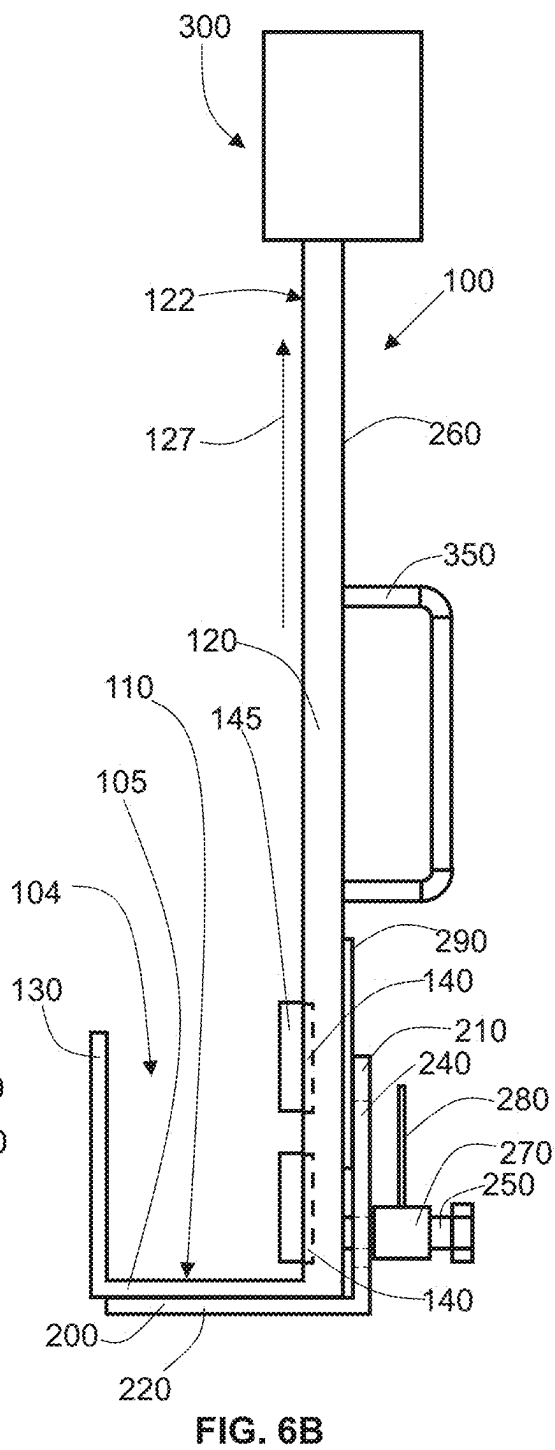
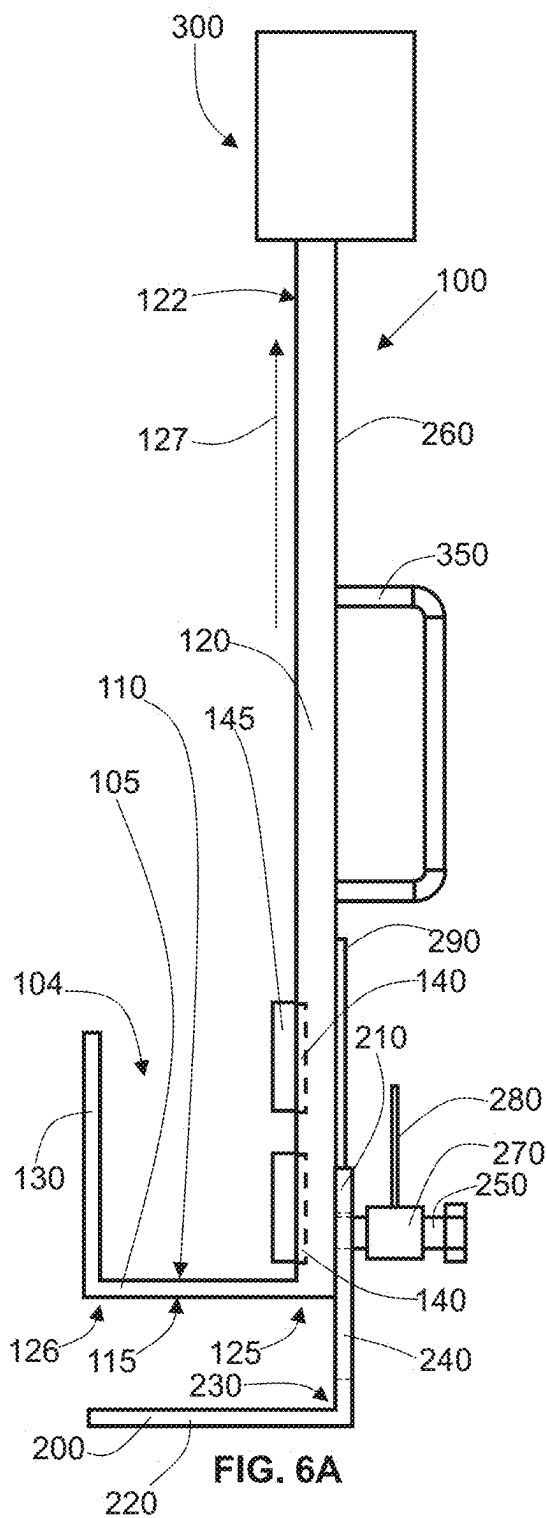


FIG. 5



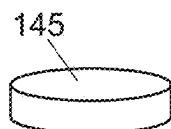


FIG. 7

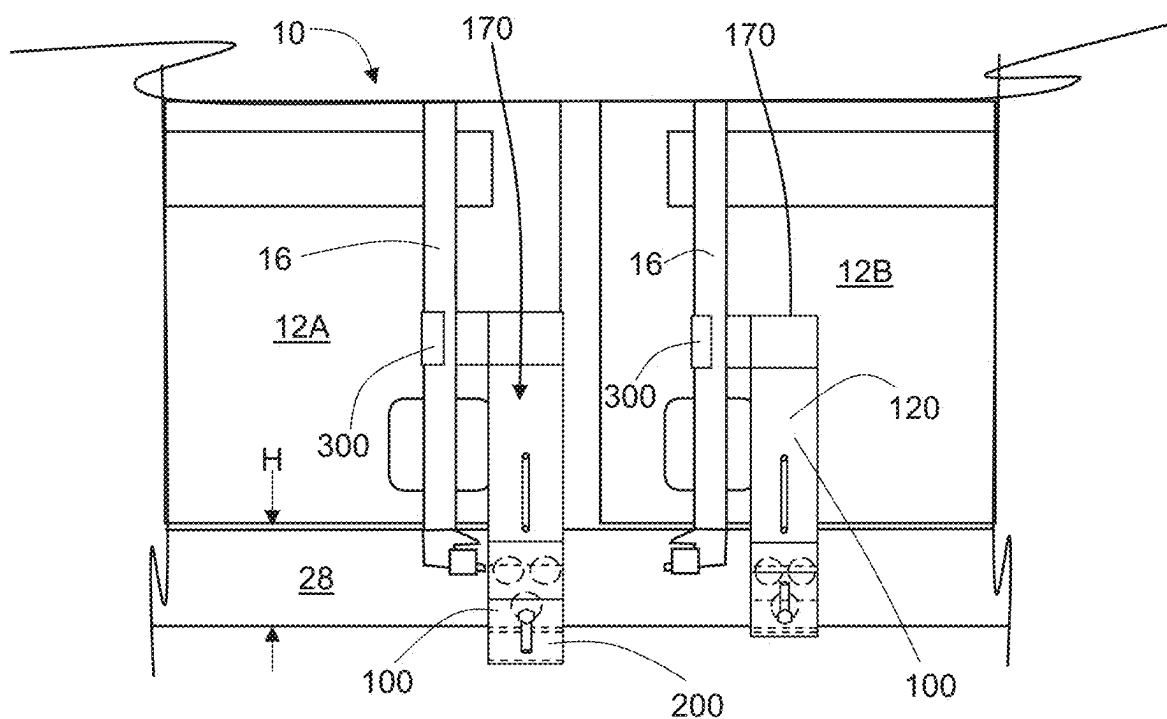


FIG. 8

SHIPPING CONTAINER THEFT PREVENTION DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and benefit of U.S. Provisional Application No. 63/551,442, filed on Feb. 8, 2024, which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present invention relates to a device for preventing theft from shipping containers. More specifically the present invention relates to a device that utilizes magnetic force and the weight of a shipping container to prevent the doors of the shipping container from opening.

BACKGROUND

[0003] The global transportation of goods via cargo containers represents a critical component of modern commerce. However, the prevalence of cargo theft poses significant challenges to supply chain security and economic stability. Theft from shipping containers has long been a serious issue, but this theft has increased over the last few years. Bands of thieves have been known to board moving trains to pry open the doors of shipping containers. Once a door has been pried open, a thief can unload the contents quickly, especially if the contents are of a size and weight that an individual can easily move. High value portable items, such as electronic gaming consoles and high-end shoes, are especially vulnerable to such theft. The yearly loss from shipping container theft has been estimated to be about \$500 million.

[0004] Conventional locks require a key or a combination which can be problematic for an international shipping container because the key or the combination has to travel with the shipping container. Moreover, conventional locks can be easily cut, disabled, or broken so that they do not actually deter theft and are essentially useless for a shipping container. The doors of a shipping container often have a seal across them so that a broken seal is indicative of the door having been opened. However, the broken seal does not provide any theft prevention.

SUMMARY

[0005] According to certain aspects of the present disclosure, a theft prevention device for a shipping container includes a channel and a plurality of magnets. The channel is defined by a base plate, a first plate, and a second plate. The base plate has a first side and a second side. The first plate extends from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate. The second plate extends from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate. The first plate extends away from the base plate farther than the second plate. The plurality of magnets is coupled to the first plate on a channel side of the first plate.

[0006] According to certain aspects of the present disclosure, a theft prevention device for a shipping container includes a channel, a plurality of magnets, an angle bracket, a threaded member, and an internally threaded sleeve. The

channel is defined by a base plate, a first plate, and a second plate. The base plate has a first side and a second side. The first plate extends from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate. The second plate extends from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate. The first plate extends away from the base plate farther than the second plate. The plurality of magnets is coupled to the first plate on a channel side of the first plate. The angle bracket has two perpendicular bracket plates connected along a seam. One of the bracket plates has an elongate slot disposed therethrough, the elongate slot having a long dimension oriented transverse to the seam. The threaded member extends from a side of the first plate opposite the channel. The threaded member is disposed through the elongate slot of the angle bracket. The internally threaded sleeve is disposed around the threaded member. The internally threaded sleeve is configured to be tightened against the angle bracket to secure the angle bracket against the first plate so that the other of the bracket plates extends parallel to the base plate.

[0007] According to certain aspects of the present disclosure, a theft prevention device for a shipping container includes a channel, a plurality of magnets, a hook extension, an angle bracket, a threaded member, and an internally threaded sleeve. The channel is defined by a base plate, a first plate, and a second plate. The base plate has a first side and a second side. The first plate extends from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate. The second plate extends from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate. The first plate extends away from the base plate farther than the second plate. The plurality of magnets is coupled to the first plate on a channel side of the first plate. The hook extension is disposed at an end of the first plate opposite from the base plate. The hook extension includes a third plate extending transversely beyond the first plate and oriented at an angle toward the second plate, a fourth plate extending perpendicular to an end of the third plate and away from the second plate, and a fifth plate extending perpendicular to an end of the fourth plate. The angle bracket has two perpendicular bracket plates connected along a seam. One of the bracket plates has an elongate slot disposed therethrough, the elongate slot having a long dimension oriented transverse to the seam. The threaded member extends from a side of the first plate opposite the channel. The threaded member is disposed through the elongate slot of the angle bracket. The internally threaded sleeve is disposed around the threaded member. The internally threaded sleeve is configured to be tightened against the angle bracket to secure the angle bracket against the first plate so that the other of the bracket plates extends parallel to the base plate.

[0008] Embodiments of the invention advantageously mitigate risks associated with cargo theft, safeguard valuable assets, and enhance the security of global supply chains.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] For a more complete understanding, reference is now made to the following description taken in conjunction with the accompanying drawings in which:

[0010] FIG. 1 shows a schematic drawing of a door end of an exemplary shipping container;

[0011] FIG. 2 shows a schematic drawing of a bottom side of the door end of the exemplary shipping container shown in FIG. 1;

[0012] FIG. 3 shows a schematic three dimensional view of an exemplary theft prevention device according to an embodiment;

[0013] FIG. 4 shows a schematic top plan view of the theft prevention device shown in FIG. 3, according to an embodiment;

[0014] FIG. 5 shows a schematic front elevation view of the theft prevention device shown in FIG. 3, according to an embodiment;

[0015] FIG. 6A shows a schematic right side view of the theft prevention device of FIG. 3, shown in a first configuration, according to an embodiment;

[0016] FIG. 6B shows a schematic right side view of the theft prevention device of FIG. 3, shown in a second configuration, according to an embodiment;

[0017] FIG. 7 shows an exemplary magnet according to an embodiment; and

[0018] FIG. 8 shows two exemplary theft prevention devices installed on a shipping container according to an embodiment.

DETAILED DESCRIPTION

[0019] Shipping containers, which are also commonly called intermodal containers for carrying goods by rail or on ships have a rectangular box configuration that typically includes a width of about 8 feet and a height of about 8.5 feet, and may have one of a variety of lengths. Most common shipping container lengths include about 20 feet, 40 feet, and 53 feet; however, shipping containers can come in lengths of 8 feet, 45 feet, 48 feet or other lengths. Some shipping containers, for example those commonly known as high cube (or hi-cube) have a height of about 9.5 feet. A typical 20 foot long empty container weighs about 5,000 pounds and a typical 40 foot long empty container weighs over about 8,000 pounds. When fully loaded, a 40 foot long shipping container can weigh as much as 50,000 pounds or more. The embodiments of a theft prevention device as disclosed herein are designed to work with any and all sizes and configurations of shipping containers, and may have slight variations in one dimension or other to accommodate variations in the various shipping containers.

[0020] Regardless of size, an exemplary shipping container 10 having two doors on an end generally has a door configuration as schematically shown in FIG. 1. For example, a first door 12A opens toward the reader to the left on hinges 14A, and a second door 12B opens toward the reader to the right on hinges 14B. The doors 12A and 12B are typically held shut by clamping bars 16 having knuckles 18 on the ends that engage with hooks 22. A clamping handle 20 is attached to each clamping bar 16 allowing the clamping bar 16 to be rotated so that each knuckle 18 will engage or disengage with a corresponding hook 22. A latch 24 is commonly disposed over each clamping handle 20 to help prevent the clamping handle 20 from inadvertently rotating away from the door 12A, 12B.

[0021] In some shipping containers 10 there are three clamping bars 16, but others can have one or two on each door 12A, 12B. The doors 12A and 12B on some shipping containers may additionally have an order of opening, for

example the door 12B may be configured to open before the door 12A, where such ordering is the result of an extension or stop member 26 disposed on a free end of door 12B that extends to cover the free end of door 12A to prevent it from opening unless door 12B has already been opened.

[0022] Referring now to FIGS. 1 and 2, the exemplary shipping container 10 shown in FIG. 1 is shown from a bottom side so that the end having the doors 12A, 12B is seen from below. A cross support rail or door sill 28 is a structural member that is disposed just below the doors 12A, 12B. The cross support rail 28 has a height, H, and a width, W, which are typically standardly sized for the size of shipping container 10. As is more fully explained hereinbelow, the theft prevention device disclosed herein is designed to fit over and accommodate the cross support rail 28 of any size shipping container 10.

[0023] Referring back to FIG. 1, some shipping containers 10 are constructed such that a bottom side 165 of the cross support rail 28 is flush with bottom side 167 of each of the corner support blocks 168 as shown at the bottom left side of FIG. 1. In this geometry, the bottom side 165 of the cross support rail 28 is in contact with a surface on which the shipping container rests. In other shipping containers the bottom side 165 of the cross support rail 28 is somewhat elevated relative to the bottom side 167 of each of the corner support blocks 168, for example as shown by the gap G at the bottom right side of FIG. 1. In this geometry, the bottom side 165 of the cross support rail 28 is not in contact with the surface on which the shipping container rests, and in fact is a distance G above the surface. The distance G can therefore be about zero (in contact with the ground) or a finite distance from the surface. For example without limitation, depending on the size and type of shipping container, the distance G can be any distance from about a half an inch to about four inches.

[0024] Embodiments of the invention are directed to a locking mechanism or theft prevention device that can be applied to any size of shipping container having any geometry. Once installed, the locking mechanism or theft prevention device prevents at least one door of the shipping container from being opened. Embodiments of the theft prevention device are physically robust and resistant to cutting, drilling, or other destructive application of force, yet relatively lightweight and easy to install. Embodiments of the invention have a simple design, can be held in position once installed and are easy to manufacture.

[0025] Referring generally to FIGS. 3-6B, in an embodiment a theft prevention device 100 comprises a channel 104. The channel 104 is defined by a base plate 105, a first plate 120, and a second plate 130. The base plate 105 has a first side 110 and a second side 115. In an embodiment the first plate 120 extends from a first edge 125 of the base plate 105 in a longitudinal direction 127 away from and perpendicular to the first side 110 of the base plate 105. In another embodiment the first plate 110 has the same orientation but extends from the first side 110 of the base plate 105 near the first edge 125. In an embodiment the second plate 130 extends from a second edge 126 of the base plate 105 opposite the first edge 125 of the base plate 105 in the longitudinal direction 127 away from and perpendicular to the first side 110 of the base plate 105. In another embodiment the second plate 130 has the same orientation but extends from the first side 110 of the base plate 105 near the

second edge 126. The first plate 120 extends away from the base plate 105 farther than the second plate 130.

[0026] In an embodiment, a plurality of magnets 145 are coupled to the first plate 120 on a channel side 122 of the first plate 120. In an embodiment, each magnet 145, for example as shown in FIG. 6, is disposed within a recess 140 in a channel side 122 of the first plate 120. Once disposed within the recesses 140 in the front plate 120, each magnet 145 is effectively permanently held in place by the magnetic force of attraction between each magnet 145 and the steel material of the front plate 120. In another embodiment, each magnet 145 is disposed on a surface of the channel side 122 of the front plate 120. In another embodiment the plurality of magnets 145 are additionally adhered to, bonded to, welded to, or otherwise affixed into the plurality of recesses 140 as is known in the art.

[0027] In another embodiment, there may be only a single magnet 145 affixed into the recess 140. Although three magnets 145 are illustrated in the FIGS., in other embodiments, the number of magnets 145 can be one, two, four, five, six, seven, eight, or more magnets 145. Further, although the plurality of magnets 145 are illustrated to be circular in plan view, any shape of magnet 145 can be used, including square, rectangular, oval, pentagonal, hexagonal, octagonal, or the like. In one embodiment, each magnet has a pull force of about 130 to 150 pounds. It will be appreciated that the pull force of each magnet 145 may be less than or greater than 130 pounds or greater than 150 pounds. Further, it has been observed that a number of magnets 145 applied together results in a total pull force that can be slightly less than the pull force of a single magnet 145 times the number of magnets. In an embodiment, the one or more magnets 145 is a neodymium magnet but other materials may be used for the one or more magnets 145.

[0028] In the illustrated embodiments, the theft prevention device 100 has a distance between the first plate 120 and the second plate 130 that accommodates the width, W, of the cross support rail 28 shown in FIG. 2. Further the first plate 120 has a height in the longitudinal direction 127 extending away from the base plate 105, to accommodate the height, H, of the cross support rail 28 and further extend to cover a portion 170 of at least one of the two doors 12A, 12B (see FIGS. 1 and 8). As noted above, based at least in part on the type of shipping container being used, the bottom side 165 of the cross support rail 28 can be somewhat elevated relative to the bottom side 167 of each of the corner support blocks 168, for example as shown by the gap G at the bottom right side of FIG. 1. In this geometry, the bottom side 165 of the cross support rail 28 is not in contact with the surface on which the shipping container rests, and in fact is a distance G above the surface.

[0029] To account for a non-zero gap dimension G, the theft prevention device 100 includes an angle bracket 200 as can best be seen in FIGS. 3, 6A, and 6B. The angle bracket 200 is secured at an adjustable position relative to the base member 105 to add a distance to accommodate the gap dimension G. The angle bracket 200 includes a first bracket plate 210 and a second bracket plate 220. The first and second bracket plates 210, 220 are perpendicularly connected along a seam 230. The first bracket plate 210 includes an elongate slot 240 disposed therethrough (see FIGS. 5-6B). The elongate slot 240 has a long dimension oriented transverse to the seam 230. In an embodiment, the long dimension of the elongate slot 240 is about 2 inches. In other

embodiments the long dimension of the elongate slot is any length between about a half an inch to about four inches. As will be noted again below, in an embodiment, the longitudinal height of the second plate 130 in the longitudinal direction 127 is greater than the dimension G.

[0030] As can best be seen in FIGS. 4, 6A, and 6B, a threaded member 250 extends from a side 260 of the first plate 120 opposite the channel 104. The threaded member 250 is disposed through the elongate slot 240 of the angle bracket 200. An internally threaded sleeve 270 is disposed around the threaded member 250. In an embodiment, the internally threaded sleeve 270 includes an arm 280 extending from an exterior of the sleeve 270 to provide a moment arm for rotating the sleeve 270. Rotating the internally threaded sleeve 270 moves it along the threaded member 250 to the left or right as viewed in FIG. 6A or 6B.

[0031] When the sleeve 270 is rotated so that it is moved to the left in FIG. 6A or 6B, the sleeve 270 can be tightened against the angle bracket 200 to secure the angle bracket 200 against the first plate 120 so that the second bracket plate 220 extends parallel to the base plate 105. In an embodiment, a stainless steel plate 290 is coupled to the side 260 of the first plate 120. The stainless steel plate 290 is coupled to the first plate 260, for example without limitation, by welding, bonding, or an adhesive. The stainless steel plate 290 has a width, for example, of about $\frac{1}{8}^{\text{th}}$ (0.13) inch. The stainless steel plate 290 adds an additional barrier on top of the first plate 120 to protect the first plate 120 from malicious damage caused, for example, by a cutting torch. When the angle bracket 200 is positioned against the first plate 120 as shown in FIG. 6A, the width of the stainless steel plate 290 also provides a stop against upward motion of the angle bracket 200 (in the longitudinal direction 127).

[0032] Referring generally to FIGS. 6A and 6B, prior to attaching the theft prevention device 100 to a shipping container 10, the angle bracket 200 can be positionally adjusted relative to the bottom side 115 of the base plate 105 to accommodate the dimension G for the shipping container 10. For example, referring in particular to FIG. 6A, for a shipping container 10 having a non-zero dimension G, the angle bracket 200 is adjusted to be extended from a bottom side 115 of the base plate 105. This exemplary extended position accommodates the gap G between the bottom side 165 of the cross support rail 28 and the surface on which the shipping container 10 rests. Referring in particular to FIG. 6B, to mount the theft prevention device 100 on a shipping container 10 for which the gap G is zero, the angle bracket can be pre-positioned so that the second plate 220 is in contact with a bottom of the second side 115 of the base plate 105.

[0033] Once placed under the cross support rail 28, the height of the second plate 130 and the weight of the shipping container 10 in combination with the attractive force of the plurality of magnets 145 prevents the theft prevention device 100 from being removed. Even if a bad actor were to loosen the sleeve 270 to try to access the angle bracket 200, the weight of the shipping container 10 pressing down on the angle bracket 200 along with the attractive force of the magnets 145 prevents the theft prevention device 100 from being removed. To accommodate a gap G smaller than the configuration shown in FIG. 6A, the angle bracket 200 can be secured in a position between those shown in FIGS. 6A and 6B, so that part of the first bracket plate 210 is positioned over the stainless steel plate 290 with the second

bracket plate 220 spaced from the bottom side 115 of the base plate 105. In this configuration, even if a bad actor were to loosen the sleeve 270 to try to access the angle bracket 200, the height of the second plate 130 in the longitudinal direction 127 along with the attractive force of the magnets 145 prevents the theft prevention device 100 from being removed. Thus, the theft prevention device 100 so installed cannot be removed without lifting the shipping container off the surface on which it rests.

[0034] Referring again generally to FIGS. 3-6B, in an embodiment, the theft prevention device 100 includes a hook extension 300 disposed at an end of the first plate 120 opposite from the base plate 105. In an embodiment the hook extension 300 is generally rectangular in a top plan view. The hook extension 300 includes a third plate 310 extending transversely beyond the first plate 120 and oriented at an angle 320 toward the second plate 130. In an embodiment, the third plate 310 extends transversely beyond the first plate 120 and is oriented toward the second plate 130 at the angle 320 of about 14 degrees relative to a plane of the first plate 120. In other embodiments the angle 320 is other than 14 degrees, for example, in a range between about 10 and 20 degrees, or 5 and 25 degrees.

[0035] A fourth plate 330 extends perpendicular to an end of the third plate 310 and away from the second plate 130. A fifth plate 340 extends perpendicular to an end of the fourth plate 330 to complete the hook extension 300. In an embodiment, the hook extension 300 is sized to accommodate a clamping bar 16 of the shipping container 10. Referring to FIGS. 5-6B, in an embodiment, the first plate 120 further includes a handle 350 disposed on the side of the first plate opposite the channel. In an embodiment a stainless steel plate 315 is coupled to the third plate 310. The stainless steel plate 315 is coupled to the third plate 310, for example without limitation, by welding, bonding, or an adhesive. The stainless steel plate 315 has a width, for example, of about $\frac{1}{8}^{th}$ (0.13) inch. The stainless steel plate 315 adds an additional barrier on top of the third plate 310 to protect the third plate 310 from malicious damage caused, for example, by a cutting torch.

[0036] In an embodiment the base plate 105, the first plate 120, the second plate 130, the angle bracket 200, and the hook extension 300 are made from carbon steel. In an embodiment, at least the first plate 120 is made from a type of steel commonly known as AR500 that is highly resistant to impact, cutting, and abrasion. In an embodiment at least the first plate, the base plate 105, and the second plate 130 are made of AR500. In another embodiment, the base plate 105, the first plate 120, the second plate 130, the angle bracket 200, and the hook extension 300 are made of AR500. In an embodiment, at least the first plate 120 is made from a type of steel commonly known as A37 that is also resistant to impact, cutting, and abrasion. In an embodiment at least the first plate, the base plate 105, and the second plate 130 are made of A37. In another embodiment, the base plate 105, the first plate 120, the second plate 130, the angle bracket 200, and the hook extension 300 are made of A37. It will be appreciated that the base plate 105, the first plate 120, the second plate 130, the angle bracket 200, and the hook extension 300 can be made of other materials that provide robustness while also being lightweight.

[0037] In an embodiment, the base plate 105, the second plate 130, first bracket plate 210, the second bracket plate 220, the third plate 320, the fourth plate 330, and the fifth

plate 350 are each about a quarter (0.25) inch thick, and the first plate 120 is about $\frac{5}{8}$ (0.63) inch thick. The front plate 120 is about 19.25 inches high and about 4 inches wide, where high means the dimension in the longitudinal direction 127 that the front plate 120 extends away from the base plate 105. However, in other embodiments as may be required or desired to accommodate other shipping containers or in embodiments using different or varied materials the thicknesses of all the plates notes above can be other than the thicknesses noted here, and the height of the first plate 120 can be other than about 19.25 inches.

[0038] In an embodiment the base plate 105, the first plate 120, and the second plate 130 are attached by welding or by another attachment mechanism as known in the art. In another embodiment the base plate 105 and either the first plate 120 or the second plate 130 are integrally cast or molded from the same material. In another embodiment the base plate 105, the first plate 120, and the second plate 130 are all integrally cast or molded from the same material. Regardless of whether the base plate 105, the first plate 120, and the second plate 130 are attached components or a monolithic structure cast or molded from the same material, in an embodiment the first plate 120 extends away from the base plate 105 farther than the second plate 130.

[0039] In an embodiment the hook extension 300 is attached to the first plate 120 by welding or by another attachment mechanism as known in the art. In another embodiment, the hook extension 300 and the first plate 120 are integrally cast or molded from the same material. In an embodiment, the third plate 310, the fourth plate 330, and the fifth plate are attached by welding or by another attachment mechanism as known in the art. In another embodiment the third plate 310, the fourth plate 330, and the fifth plate are integrally cast or molded from the same material.

[0040] In an embodiment, the first and second bracket plates 210, 220 are separate plates that are welded or otherwise joined together along the seam 230. In an embodiment, the angle bracket 200 is a monolithic structure that is bent along the seam 230 into a bracket shape.

[0041] In an embodiment, the theft prevention device 100 weighs about 20 pounds. In other embodiment, the theft prevention device 100 can weigh more or less than about 20 pounds. In some cases, a shipping container may have rust on the cross support rail 28, which may require an operator/technician to grind the rust off a portion of the cross support rail 28 before applying the theft prevention device 100.

[0042] In use, whether the gap G is zero or non-zero, installation of the theft prevention device 100 involves lifting the shipping container 10 so that a bottom side 165 of the cross support rail 28 at the door end of the container 10 is exposed. For example, a shipping container 10 having a gap $G=0$ means that the bottom side 165 of the cross support rail 28 is in contact with the surface on which the shipping container 10 rests. When such a shipping container 10 is thus disposed on the ground or on a surface or stacked on top of other shipping containers 10, the bottom side 165 is not accessible. To get access to the bottom side 165 the shipping container needs to be lifted. Lifting the shipping container 165 can be achieved by any method as is known in the art, including via a forklift, a crane, or the like.

[0043] Referring to FIG. 8, with the shipping container 10 lifted to expose the bottom side of the cross support rail 28, the theft prevention device 100 is positioned so that the hook extension 300 hooks around a clamping bar 16 by going

under the clamping bar 16 on a first side and hooking back over the clamping bar 16 on a second side. With the hook extension 300 positioned around the clamping bar 16, the theft prevention device 100 is positioned so that the channel 104 is below the cross support rail 28. Still guided by the hook extension 300 on the clamping bar 16, the theft prevention device 100 is moved upwardly so that the second plate 130 is behind the cross support rail 28 and the cross support rail 28 is seated in the channel 104. The plurality of magnets 145 secure the theft prevention device 100 to the cross support rail 28 while the shipping container 10 is lifted.

[0044] The theft prevention device 100 on the right in FIG. 8 in particular shows attachment to a shipping container 10 having a zero gap ($G=0$). In this circumstance the angle bracket 200 has been adjusted to be in contact with the base plate 105 before installing the theft prevention device 100. Upon placement of the shipping container 10 on a surface or another shipping container, the theft prevention device 100 (on the right in FIG. 8) is trapped under the cross support rail 28 by the weight of the shipping container 10. The door 12B is thus blocked from opening. For doors 12A, 12B that are sequentially opened with door 12B opening before 12A, this positioning of the theft prevention device 100 is sufficient to block both doors 12A and 12B. However, if it is desired to block door 12A in addition to or instead of 12B, or if the door opening sequence opens 12A first, the theft prevention device 100 can be also or alternatively installed on the door 12A as shown on the left in FIG. 8.

[0045] Regardless of which side or which door 12A or 12B is directly blocked by the theft prevention device 100, the plurality of magnets 145 contacts a front side of the cross support rail 28 with the first plate 120 disposed over the portion 170 of the corresponding door 12A or 12B. Contact of the plurality of magnets 145 to the cross support rail 28 magnetically attaches the theft prevention device 100 to the shipping container 10. Once the theft prevention device 100 is so attached, the shipping container is lowered onto the ground, a support surface, or another shipping container, so that the weight of the shipping container 10 rests on the base plate 105 and prevents the theft prevention device 100 from being removed.

[0046] The theft prevention device 100 on the left in FIG. 8 in particular shows attachment to a shipping container 10 having a finite gap G . In this circumstance the angle bracket 200 has been adjusted to accommodate the space between the bottom side 165 of the cross support rail 28 and the surface on which the shipping container 10 rests before installing the theft prevention device 100. Upon placement of the shipping container 10 on a surface or another shipping container, the theft prevention device 100 (on the left in FIG. 8), adjusted for the gap G , is trapped under the cross support rail 28 by the weight of the shipping container 10. The door 12A is thus blocked from opening. For doors 12A, 12B that are sequentially opened with door 12A opening before 12B, this positioning of the theft prevention device 100 is sufficient to block both doors 12A and 12B. However, if it is desired to block door 12B in addition to or instead of 12A, or if the door opening sequence opens 12B first, the theft prevention device 100 can be also or alternatively installed on the door 12B as shown on the right in FIG. 8.

[0047] Regardless of which side or which door 12A or 12B is directly blocked by the theft prevention device 100, the plurality of magnets 145 again contacts a front side of the

cross support rail 28 with the first plate 120 disposed over the portion 170 of the corresponding door 12A or 12B. Contact of the plurality of magnets 145 to the cross support rail 28 magnetically attaches the theft prevention device 100 to the shipping container 10. Once the theft prevention device 100 is so attached, the shipping container is lowered onto the ground, a support surface, or another shipping container, so that the weight of the shipping container 10 rests on the angle bracket 200 and prevents the theft prevention device 100 from being removed.

[0048] Embodiments of the invention are advantageous because it is simple to install, requiring a minimal application time (e.g., about 15 seconds). The theft prevention device blocks access to one or both of the doors. Selection of the materials used for the theft prevention device (e.g., selecting materials having relatively high hardness and/or other mechanically beneficial properties) can further deter theft by increasing the time necessary to destroy the device. The simple design also avoids the risks and other downsides associated with key or combination-based locks that are logistically challenging and/or easily destroyed.

[0049] It should be understood that the drawings and detailed description herein are to be regarded in an illustrative rather than a restrictive manner, and are not intended to be limiting to the particular forms and examples disclosed. On the contrary, included are any further modifications, changes, rearrangements, substitutions, alternatives, design choices, and embodiments apparent to those of ordinary skill in the art, without departing from the spirit and scope hereof.

What is claimed is:

1. A theft prevention device for a shipping container, the device comprising:

a channel defined by

- a base plate having a first side and a second side;
- a first plate extending from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate; and
- a second plate extending from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate, the first plate extending away from the base plate farther than the second plate; and

a plurality of magnets coupled to the first plate on a channel side of the first plate.

2. The theft prevention device of claim 1, further comprising:

- an angle bracket having two perpendicular bracket plates connected along a seam, one of the bracket plates having an elongate slot disposed therethrough, the elongate slot having a long dimension oriented transverse to the seam;
- a threaded member extending from a side of the first plate opposite the channel, the threaded member disposed through the elongate slot of the angle bracket, and
- an internally threaded sleeve disposed around the threaded member, the internally threaded sleeve configured to be tightened against the angle bracket to secure the angle bracket against the first plate so that the other of the bracket plates extends parallel to the base plate.

3. The theft prevention device of claim 2, wherein the internally threaded sleeve includes an arm extending from an exterior of the sleeve to provide a moment arm for rotating the sleeve.

4. The theft prevention device of claim 2, wherein the long dimension of the elongate slot is about 2 inches.

5. The theft prevention device of claim 1, further comprising:

a hook extension disposed at an end of the first plate opposite from the base plate, the hook extension including a third plate extending transversely beyond the first plate and oriented at an angle toward the second plate, a fourth plate extending perpendicular to an end of the third plate and away from the second plate, and a fifth plate extending perpendicular to an end of the fourth plate.

6. The theft prevention device of claim 5, wherein the hook extension is sized to accommodate a clamping bar of the shipping container.

7. The theft prevention device of claim 5, wherein the third plate extends transversely beyond the first plate and is oriented toward the second plate at an angle of about 14 degrees relative to a plane of the first plate.

8. The theft prevention device of claim 1, wherein the first plate further comprises a handle disposed on the side of the first plate opposite the channel.

9. The theft prevention device of claim 1, wherein at least the first plate is made from AR500 steel.

10. The theft prevention device of claim 1, wherein at least one of the plurality of magnets is a neodymium magnet.

11. A theft prevention device for a shipping container, the device comprising:

a channel defined by

a base plate having a first side and a second side;

a first plate extending from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate; and

a second plate extending from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate, the first plate extending away from the base plate farther than the second plate; and

a plurality of magnets coupled to the first plate on a channel side of the first plate;

an angle bracket having two perpendicular bracket plates connected along a seam, one of the bracket plates having an elongate slot disposed therethrough, the elongate slot having a long dimension oriented transverse to the seam;

a threaded member extending from a side of the first plate opposite the channel, the threaded member disposed through the elongate slot of the angle bracket, and

an internally threaded sleeve disposed around the threaded member, the internally threaded sleeve configured to be tightened against the angle bracket to secure the angle bracket against the first plate so that the other of the bracket plates extends parallel to the base plate.

12. The theft prevention device of claim 11, wherein the internally threaded sleeve includes an arm extending from an exterior of the sleeve to provide a moment arm for rotating the sleeve.

13. The theft prevention device of claim 11, wherein the long dimension of the elongate slot is about 2 inches.

14. The theft prevention device of claim 11, further comprising:

a hook extension disposed at an end of the first plate opposite from the base plate, the hook extension including a third plate extending transversely beyond the first plate and oriented at an angle toward the second plate, a fourth plate extending perpendicular to an end of the third plate and away from the second plate, and a fifth plate extending perpendicular to an end of the fourth plate.

15. The theft prevention device of claim 14, wherein the hook extension is sized to accommodate a clamping bar of the shipping container.

16. The theft prevention device of claim 14, wherein the third plate extends transversely beyond the first plate and is oriented toward the second plate at an angle of about 14 degrees relative to a plane of the first plate.

17. A theft prevention device for a shipping container, the device comprising:

a channel defined by

a base plate having a first side and a second side;

a first plate extending from a first edge of the base plate in a longitudinal direction away from and perpendicular to the first side of the base plate; and

a second plate extending from a second edge of the base plate opposite the first edge of the base plate in the longitudinal direction away from and perpendicular to the first side of the base plate, the first plate extending away from the base plate farther than the second plate; and

a plurality of magnets coupled to the first plate on a channel side of the first plate;

a hook extension disposed at an end of the first plate opposite from the base plate, the hook extension including a third plate extending transversely beyond the first plate and oriented at an angle toward the second plate, a fourth plate extending perpendicular to an end of the third plate and away from the second plate, and a fifth plate extending perpendicular to an end of the fourth plate;

an angle bracket having two perpendicular bracket plates connected along a seam, one of the bracket plates having an elongate slot disposed therethrough, the elongate slot having a long dimension oriented transverse to the seam;

a threaded member extending from a side of the first plate opposite the channel, the threaded member disposed through the elongate slot of the angle bracket, and

an internally threaded sleeve disposed around the threaded member, the internally threaded sleeve configured to be tightened against the angle bracket to secure the angle bracket against the first plate so that the other of the bracket plates extends parallel to the base plate.

18. The theft prevention device of claim 17, wherein the internally threaded sleeve includes an arm extending from an exterior of the sleeve to provide a moment arm for rotating the sleeve, and the long dimension of the elongate slot is about 2 inches.

19. The theft prevention device of claim 17, wherein the hook extension is sized to accommodate a clamping bar of the shipping container, and wherein the third plate extends

transversely beyond the first plate and is oriented toward the second plate at an angle of about 14 degrees relative to a plane of the first plate.

20. The theft prevention device of claim **17**, wherein at least the first plate is made from AR500 steel, and at least one of the plurality of magnets is a neodymium magnet.

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