

May 12, 1942.

B. F. FITCH

2,282,352

FREIGHT HANDLING APPARATUS

Filed April 12, 1940

3 Sheets-Sheet 1

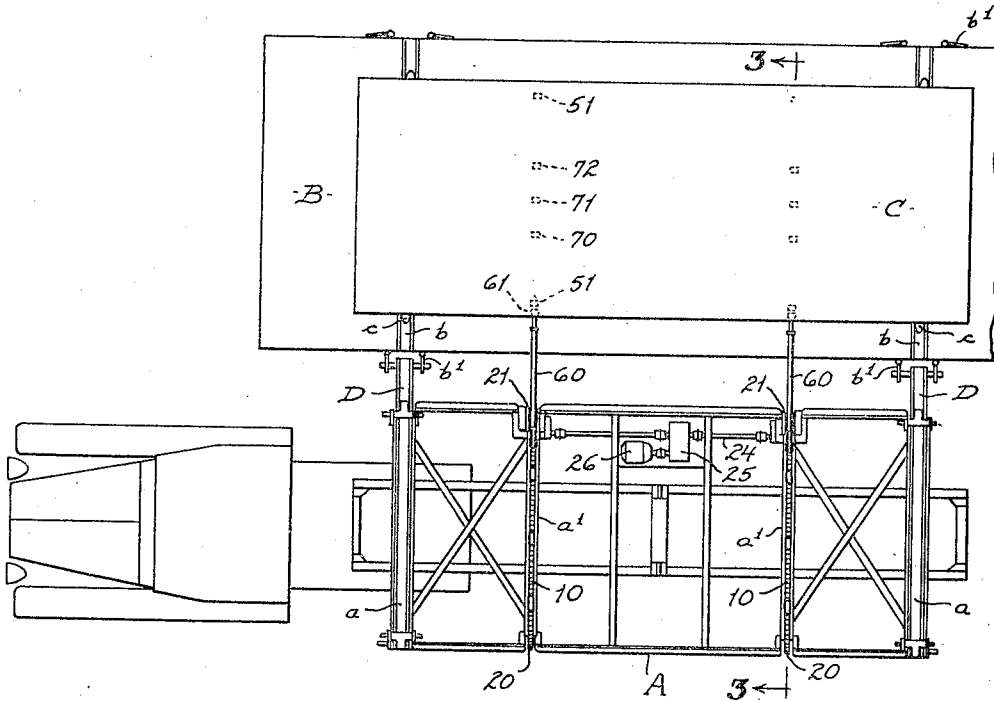


Fig. 1

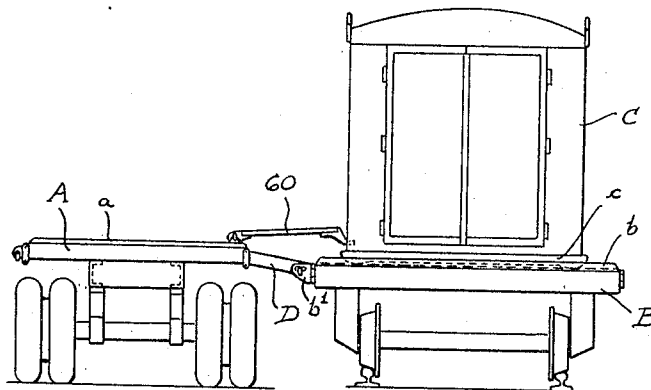


Fig. 2

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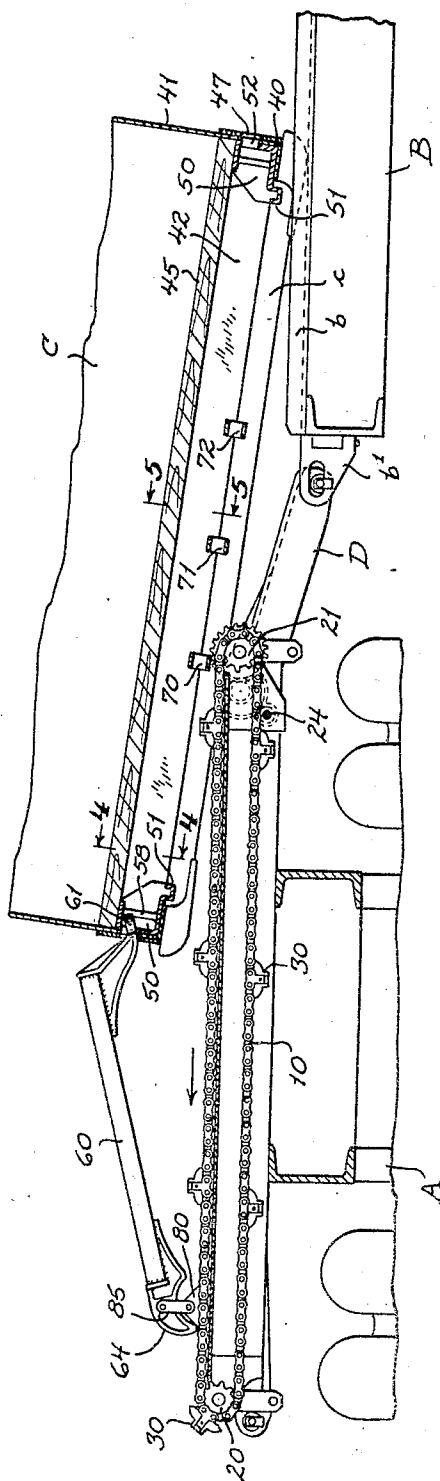
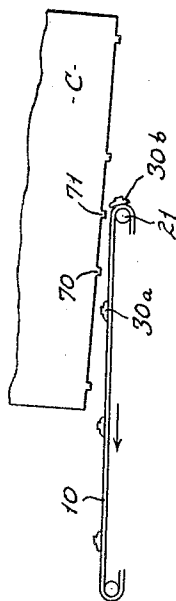
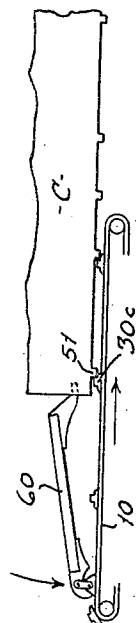
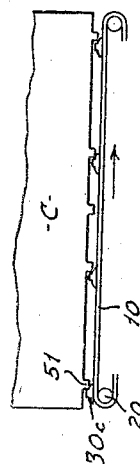
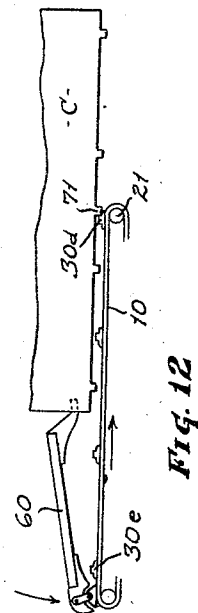
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FREIGHT HANDLING APPARATUS

Filed April 12, 1940

3 Sheets-Sheet 2



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FREIGHT HANDLING APPARATUS

Filed April 12, 1940

3 Sheets-Sheet 3

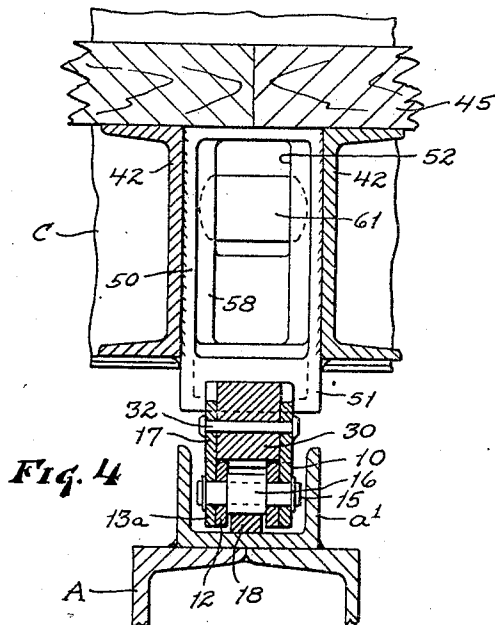
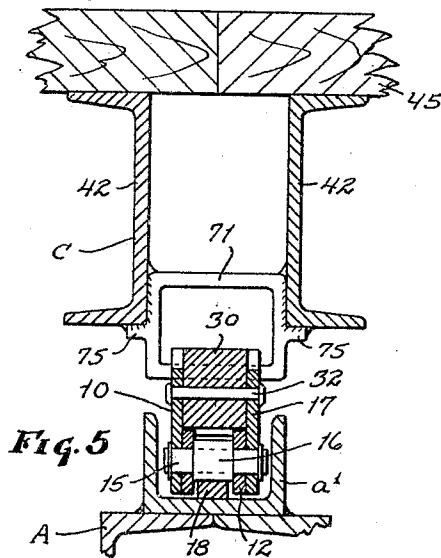
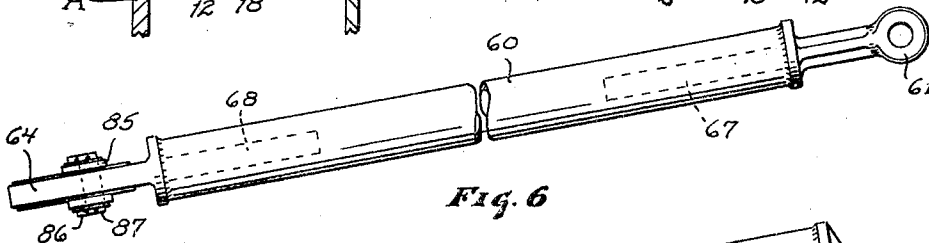
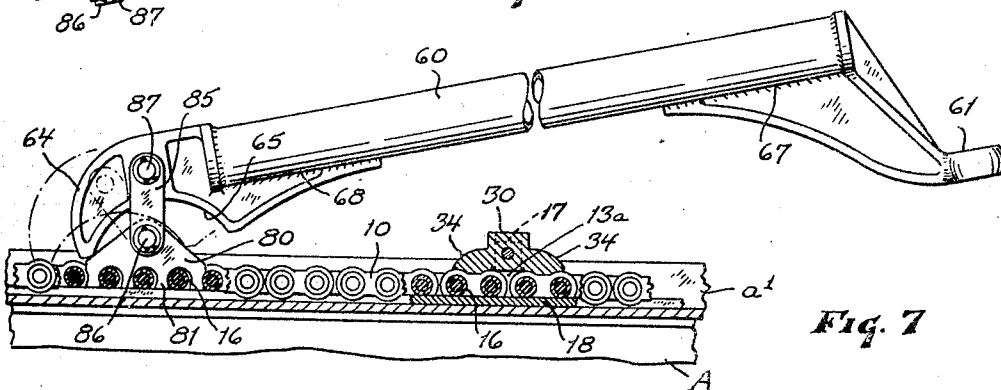
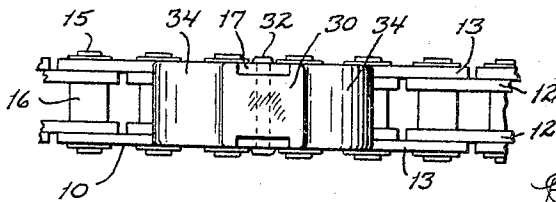


Fig. 8

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UNITED STATES PATENT OFFICE

2,282,352

FREIGHT HANDLING APPARATUS

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Application April 12, 1940, Serial No. 329,377

15 Claims. (Cl. 214—83)

This invention relates to a system of transferring freight by means of demountable bodies adapted to be carried by vehicles and shifted with their loads to or from the vehicle for mounting thereon or for transference to an adjacent support. The invention is concerned with propelling mechanism on the vehicle adapted to coact directly with one of a number of downward projections on the base of the demountable body to shift the body with reference to the vehicle when the body is within the range of the propelling mechanism, associated with a push-and-pull bar adapted to be attached to the same propelling mechanism, and to the demountable body whereby the propelling mechanism may shift the body when it is beyond direct engagement therewith.

One embodiment of my invention comprises a highway truck equipped with an endless propelling chain operating in a vertical plane and having periodic projections any one of which may engage a projection, of which there are several, on the base of the demountable body, and a push-and-pull bar adapted to be attached to the body and arranged to engage the chain between projections. By this means the chain, operated for instance by the power of the truck, may directly engage the body and shift it part way off of the truck, and part way onto an adjacent support, for instance, a railway flat car to which the truck may be attached; then the push-and-pull bar may be attached to the body and secured to the chain between projections, whereby the operation of the chain may complete the shifting of the body. The reverse operation draws the body away from the flat car onto the highway truck.

It is an object of the present invention to provide for the efficient engagement of the chain directly with the body not only when the latter is strictly horizontal, but when it is somewhat inclined due to difference in elevation between the truck and adjacent support.

It is another object of the invention to so correlate the projections on the chain and the projections on the body and the characteristics of the push-and-pull bar and its attachment to the body and chain, that whenever the chain has moved the body from the truck sufficiently to enable the placing of the push-and-pull bar, the latter may be attached to the body and instantly attached to the cross-members of the chain without requiring other manipulation of the chain or body.

Likewise, it is a feature of the relationship of

the chain projections, body projections and push-and-pull bar that whenever the body has come from its support part way onto the truck there will be no danger of any of its projections riding up on top of the projections of the chain, but on the contrary, a body projection will stand in front of a chain projection ready to be engaged thereby by the movement of the chain after the push-and-pull bar has been detached.

Another object of the invention is to so construct the projections carried by the chain that they will be effective in retaining their engagement with the body and will not tip out of place, notwithstanding a heavy stress on them when moving the body. This is accomplished by a peculiar mounting of the projections on the chain so that they will have a bearing on successive links lengthwise of the chain when they are in actual use, but may swing independently of the adjacent links in passing around the sprocket wheels on which the chain is mounted.

Another object of the invention is to provide means whereby the push-and-pull bar may not only be readily engaged to the chain, without requiring definite positioning of the body, but will hold its engagement effectively throughout this operation, though a heavy force is transmitted through the connection.

My invention comprises the means with which I accomplish the above objects, or any of them, and other features contributing to the efficiency of the operation which will be apparent from the following detailed description of a preferred embodiment, the essential novel features of the invention being summarized in the claims.

In the drawings, Fig. 1 is a plan of a highway vehicle equipped with two of my propelling chains, arranged transversely, a railway vehicle, a container thereon, a pair of push-and-pull bars connected with the chains respectively, all in accordance with this invention; Fig. 2 is an end elevation of the parts shown in Fig. 1; Fig. 3 is an enlarged transverse vertical section as indicated by the line 3—3 on Fig. 1, through the highway vehicle adjacent one of the propelling chains and through the base of the container being shifted from the railway car to the highway vehicle; Figs. 4 and 5 are cross-sections through the base of the container and through the propelling chain beneath it, Fig. 4 showing a chain projection engaging the endmost projections of the body, and Fig. 5 showing it engaging one of the intermediate projections, the position of these sections on the body being indicated by the lines 4—4 and 5—5 respectively, on Fig. 3, looking

toward the left; Fig. 6 is a plan, and Fig. 7 a side elevation of the push-and-pull bar in the position it occupies in engagement with the body and chain, the latter figure showing a portion of the chain; Fig. 8 is a plan of a portion of the chain illustrating one of the body engaging projections thereon. The remaining figures are diagrams illustrating the action of the push-and-pull bar on the body. Fig. 9 indicates a possible position of the body after it has been pulled onto the truck by the push-and-pull bar, and the bar removed and the chain ready to engage an intermediate projection on the body to complete the transfer onto the truck; Fig. 10 illustrates the position after the body is completely on the truck, and the direction of movement of the chain has been reversed ready to discharge the body from the truck; Fig. 11 illustrates the position of the body after the chain has pushed it sufficiently off of the truck to allow the attachment of the push-and-pull bar, the push in this instance being by a lug on the chain engaging the endmost lug of the body; Fig. 12 is a view similar to Fig. 11, illustrating the relative position of one of the lugs of the chain as engaged and acting on the center lug of the body.

In Figs. 1 and 2 of the drawings, A represents a highway truck (which may comprise a tractor and a trailer), B a railway car, and C a demountable body adapted to stand either on the car or on the truck. I have illustrated the body as of comparatively large size and adapted for mounting on a car or truck lengthwise thereof, and shiftable laterally across the side of one of such vehicles onto the other. During this operation the two vehicles are connected by bridges D attached to both vehicles.

As shown, the container C has skid rails *c* on its base which are adapted to occupy upwardly facing channels *a* on the truck, or *b* on the car. The bridges D are preferably pivotally and extensibly carried by the truck and their free ends are adapted to be secured to attaching devices *b*¹ on the car, these bridges being in line with the channels *a* and *b*.

In the embodiment shown, the channels *a* on the truck and the propelling chains extend transversely of the truck, and the bridges are at the side of the truck—preferably at each side, so that the truck may face in either direction. In other embodiments, the supporting channels and chains may extend lengthwise of the truck, and the bridges be at the rear thereof, in which case the truck will stand at right hand angles to the railway car, as illustrated, for instance in my Patent No. 2,108,813.

As illustrated herein, in Figs. 1 and 3, I have mounted two propelling chains 10 parallel with each other, and each located in a vertical plane extending transversely of the highway truck. These chains loop around the two sprocket wheels 20 and 21, one of which is connected with driving mechanism. I have shown in Fig. 1 the two sprocket wheels 21 coupled to a shaft 24 which is connected through the reduction gearing in a housing 25 with a driving motor 26. This motor may receive current from any source, for instance a generator mounted on the tractor and operated by the power thereof, as illustrated in my Patent No. 2,127,482. In such driving arrangement, I prefer to control the current to the motor by the push-button switches on a flexible cable so that the operator may stand in a con-

venient location for shifting the body to or from the truck.

Each sprocket chain 10 is composed of pairs of inner links 12 (Fig. 8) and pairs of outer links 13 connected by transverse pins 15 which carry rollers 16. These rollers rest on horizontal bars 18 which are mounted on the base of the channels *a*, so that the chain has a continuous flat support on its upper reach. The inner links on the upper reach of each chain extend downwardly onto opposite sides of the bar 18 as shown in Figs. 4 and 5 so that the bar guides the chain.

Some of the outer links designated 13a have projections extending away from the chain proper as indicated at 17. Between such projections are blocks 29 secured in place by a transverse rivet 32 extending through the chain projections and block. The blocks 30 preferably have grooves in their opposite sides into which the link extensions 17 extend, as shown in Fig. 8. The block 30 has two longitudinal wings 34 which have curved under faces near their ends so that they may rest on two adjacent inner links as shown in Fig. 7. This prevents the block being tipped in use, while it leaves the block free from attachment except to the extensions 17 so that there is no interference with the chain passing around the sprocket wheel, as indicated in the left hand end of Fig. 3.

The demountable body C has a floor frame with side beams, end sills and transverse beams. As shown in Fig. 3, the side sills are angle bars 40 secured to the container sides 41, and there are transverse beams 42 the ends of which overlap and rest on the lower flanges of the side sills. These transverse beams comprise channels arranged in pairs placed back to back but spaced apart as shown in Figs. 4 and 5. The floor planking 45 rests on the top flanges of these cross-beams.

Between channel beams 42 I mount box-like castings 50 at each side of the container which are welded to the side sills and to the cross-beams. Each of these castings is formed with a downward boss 51 which is adapted to be engaged by any of the blocks 30 of the propelling chain. The interior of the casting is hollow and there is an upright opening 52 in its vertical face registering with a corresponding opening 47 in the container side, as shown in Fig. 3. These openings, which are greater in the vertical dimension than the horizontal, allow for the insertion of the flattened head 61 of the push-and-pull bar 60 so that the push-and-pull bar becomes attached when after insertion it has been turned 90° to cause its head to bridge across the entrance opening.

The two identical castings 50 are secured in place between the cross-beams 42 at opposite sides of the container so that a push-and-pull bar may be attached to either side, and there is a downward lug adjacent either lower corner of the container for chain engagement. However, as the container may tip up materially in passing from a railway car to a higher elevation on the truck (as indicated in Fig. 3) I provide on the container intermediately located downward projections which the chain blocks may engage. I have shown three of these projections, 70, 71 and 72. Projections 70 and 72 are preferably so spaced that their distance apart is the same as the distance of either of them from the adjacent edge projection 51; that is to say, they divide the bottom of the container into three substantially equal spaces. The blocks on the chain

are so located that their distance from center to center is preferably slightly less than that between the projections described on the container.

The projection 71 is preferably located half way between the projections 70 and 72. These projections 70, 71 and 72 are preferably castings of the form shown in Fig. 5, set between the two channel beams 42, and have flanges 75 engaging the bottom of the base flanges of these channels beams and are welded to the channel beams.

As indicated in Fig. 3, and as hereinafter more fully explained, it is possible if the truck is quite high above the railway car, for the edge projection 51 on the body to be higher than the top of a chain lug at the time the pulling action of the push-and-pull bar ceases, when it is desired to continue the operation by direct engagement. Under these circumstances, the chain block will engage the projections 70 on the demountable body, or if the truck platform is quite high, the engagement may be with the projection 71.

The arrangement of blocks on the chain and projections on the container has been developed so that under any circumstances occurring in practice the chain may effectively engage the container directly as soon as the push-and-pull bar has brought the container into a position where it is ready for detachment. I will revert to this later in connection with the diagrams.

As shown in Figs. 3, 6 and 7, the push-and-pull bar 60 has at one end a flattened head 61 which when extended vertically may be passed through the openings 47 and 52 into the interior of the socket member 50 in the container, then when the push-and-pull bar is turned 90° and the head within the socket is thus in a horizontal position, this head stands behind the vertical edges the front of the socket casting and in front of the upright rib 58 in the casting, as indicated in Figs. 3 and 4. Accordingly, in this position the push-and-pull bar is effectively attached to the demountable body and may pull it or shove it according to the direction of force supplied to the bar.

The opposite end of the push-and-pull bar from that described is formed into a crescent shaped head 64, positioned at right angles to the head 61, and concave on its under-side as shown at 65. A suitable block 80 having teeth 81 on its under-side is connected with the push-and-pull bar head 64 by a pair of links 85 and two pivoted pins 86 and 87. The teeth 81 on the block are spaced in correspondence with the spaces between the rollers of the chain. These teeth are curved on their opposite faces so that there are several nearly U-shaped openings in the bottom of the block adapted to embrace several of the rollers. As shown, the block embraces three rollers and is adapted to bear against an adjacent roller at either end of the block, so that the block may have a reaction on four rollers, whatever the direction of movement of the chain.

Now when the push-and-pull bars are attached to the demountable body and to the chains in the manner shown in Fig. 3, and the chains operated in a direction to carry their upper reaches away from the body, each block 80 moves until its upper surface (which is downwardly inclined from the pivoted region) comes into engagement with the head 64 in front thereof adjacent the point of the crescent as shown in Fig. 7; then the continued movement of the chain through the push-and-pull bars will pull the body toward the truck. In this movement, the point of the crescent 64

bearing on the top of the block 80 retains that block down in engagement with the chain.

Reversely, when the body is to be shifted from the truck to the car and the movement of the chain is toward the car, the other inclined top surface of the block 80 engages the other point of the crescent head 64 and the pressure of the crescent on the block holds it in engagement with the chain.

The engagement of the push-and-pull bar head with its block is important as these parts are subjected to a heavy stress during the operation, which sometimes lifts the chain from its supporting bar 18 but must not disconnect the push-and-pull bar from the chain. The arrangement shown has been developed to meet this exacting condition and experience demonstrates that it accomplishes the result very satisfactorily.

The push-and-pull bar may for lightness have most of its body made in the form of a tube, and two heads 61 and 64 may be castings or forgings, welded to the opposite ends of the tubes and along a portion of the body thereof, as illustrated at 67 and 68 in Fig. 7.

It will be understood that when the push-and-pull bar is drawing the body onto the truck after the body has arrived at about the position illustrated in Fig. 3, the push-and-pull bar is disconnected by lifting its end which was attached to the chain and then giving it a quarter turn and removing it from the body socket, and thereafter the movement of the chain in the same direction as before, by engaging one or more downward projections on the container, completes the shifting of the container until it is entirely on the truck in proper position for transportation.

Finally, when the body is to be shifted from the truck to the car the chain is operated in a reverse direction from that described and the blocks 30 on the two chains come into engagement with two downward lugs on the container so that it is shoved directly by the chains toward the car. Then after the container is moved a distance greater than the length of the push-and-pull bar from the far edge of the truck, the push-and-pull bars are attached by having their heads placed in the sockets and being then given a quarter turn and with their blocks 80 then engaged to the chains, and then the chains acting through these push-and-pull bars continue to shove the container until it is in place on the railway car, as indicated in Figs. 1 and 2.

The chain attaching portion of the push-and-pull bar is formed so that it is not necessary to stop the direct shifting of the container at any particular point, providing the body has been shifted far enough for attaching the bar. This results from the relationship between the projections on the chain and those on the body, and the length of the push-and-pull bar, which is such that whenever the body is stopped for attachment of the push-and-pull bar, the free end of the bar after attachment to the container will be in some region between the blocks 30.

By connecting the block 80 movably with the head 64 (by the links 85) one is able to shift the block relative to the bar a greater distance than the distance from center to center of successive rollers on the chain. Accordingly, irrespective of the point at which the body stops the free end of the push-and-pull bar may be attached to the chain by simply moving the block 80 forward or backward a slight distance. After the bar has been attached to the container and its other end is swung downward toward the chain if the ends

of the teeth 81 rest on top of chain rollers, a slight movement of the block in one direction or another will cause the teeth to pass between the rollers.

When a body has arrived on a railway car, the truck to receive it drives alongside of the car to a spacing therefrom which may vary, but is within the range of the bridges D. Such range is such that when the push-and-pull bar is attached to the container on the car, the end of the bar will extend over the chain on the truck. Ordinarily, the chain will be in position where it was left by shoving a body from the truck, and, accordingly, the chain engaging end of the push-and-pull bar from the newly arrived body will usually come opposite a space between lugs on the chain but if not, it is only necessary to move the chain a slight distance one way or the other by its motor for attachment of the push-and-pull bar. After such attainment the bar moves the body as heretofore explained until it is well over the truck whereupon the chain takes hold of the body directly and completes the movement.

Referring to the diagrams, Figs. 9 to 12, inclusive, Fig. 9 illustrates the movement of the body onto the truck after the bar has been removed. In this view, the body is supposed to have been moved to the position shown, by the pull-bar, then the chain is again operated, but the incline of the body is too great for the chain block, indicated at 30a, to engage the lug 70, and traveling beyond it, the next chain lug 30b swinging around the sprocket 21 engages the central shoulder 71 on the container. Thereafter, the movement of the chain will bring the body over the truck.

In removing the body from the truck, as indicated in Fig. 10, the lug 30c, for instance, may engage the edge projection 51 and advance the body while the other lugs on the chain are comparatively free from the body. This carries the body in the position shown in Fig. 11. When in that position, the push-and-pull bar may be readily attached, as shown; or, if the chain block (as at 30d, Fig. 12) is engaging the body projection 71, the push-and-pull bar may still be attached to the chain beyond the chain block 30e.

The diagrams illustrate various conditions which may occur in practice, and it will be seen that in any case where the body is not over the chain sufficiently for direct attachment, then the push-and-pull bar may be attached to the body and its free end will come between projections on the chain, so that the movement through the push-and-pull bar may readily move the body to or from its transportation position on the railway car, or to or from such position on the truck so that the direct engagement of the chain may immediately take place as soon as the push-and-pull bar is removed.

Reference is made to my application No. 349,700, filed August 2, 1940 (which is a continuation in part of this application, for claims on the conveyor per se illustrated herein.

I claim:

1. The combination of a vehicle, a propelling chain thereon, a container adapted to be mounted on the vehicle, and a push-and-pull bar for connecting the container to the chain, said push-and-pull bar having at one end means for attachment to the container, having at the other end a block with teeth on its under-face and a link pivotally connected to said block and to said push-and-pull bar, said block having its top inclined downwardly in front of and behind the

pivot of the link, and the push-and-pull bar having downwardly facing shoulders adapted to engage said inclines respectively when the chain is moved relative to the push-and-pull bar.

2. In a freight handling apparatus, the combination of a vehicle, an endless chain thereon, means for moving the chain, a push-and-pull bar to connect a container with the chain, said push-and-pull bar having at one end means for attachment to such container, at the other end a head having a downwardly facing recess on its under side, a block having teeth to engage the chain, said block having its top inclined downwardly in opposite directions from an intermediate region, said block extending into the recess on the under-side of the push-and-pull bar head, a pair of links lying on opposite sides of the block and of said head, and pivot pins for pivoting the pair of links at their upper end to the said head and at their lower end to said block.

3. In a freight handling system, the combination of a vehicle, a container adapted to be carried thereon, an endless propelling chain mounted on the vehicle, floor beams on the container adjacent each other but spaced apart, a row of members mounted between and secured to the floor beams, and projecting below them to provide a row of downward projections on the container, said endless chain being provided with spaced projections which extend upwardly from the upper reach of the chain, whereby any of the chain projections may engage any of the body projections.

4. The combinations of a highway vehicle having a pair of transversely arranged guideways thereon, a container having a pair of skid rails on its base spaced in correspondence with the spacing of the guideways, whereby each skid rail may coast with its respective guideway, an endless propelling chain on a vehicle extending transversely thereof and mounted on sprockets adjacent the opposite edges of the vehicle, a horizontal bar supporting the upper reach of the chain between the sprockets, said chain being provided with equi-distant blocks secured thereto, said container having on its base a pair of floor beams parallel with the skid rails and spaced apart, fittings between the floor beams adjacent the sides of the container having downward projections, intermediately located blocks between the floor beams forming downward projections aligned with the downward projections of the corner fittings, said projections on the container being in a row in registration with the path of the blocks on the chain, whereby any of the container projections may be engaged by a chain block, and a push-and-pull bar adapted to be attached, one end to the container adjacent the corner fitting and at the other end having a movable jaw to engage the chain between blocks thereon.

5. A push-and-pull bar for connecting a propelling chain with a container, said push-and-pull bar being formed at one end for attachment to the container, and at the other end having a downwardly facing recessed head, a block having teeth on its under-side and positioned so that its upper position enters the recess of the head, and a link pivoted to the block and to the head, whereby the block may have a short movement independently of the head and may engage the head at either extreme of such movement.

6. In a freight transferring apparatus, the combination of a vehicle, a container adapted to be mounted thereon and transported thereby,

said container having on its underside a downward projection adjacent each edge and one or more projections intermediately located in alignment with the two edge projections, propelling mechanism on the vehicle, means for directly connecting the propelling mechanism with any of the downward projections on the underside of the container, and a push-and-pull bar locked at one end to the container against separation in any direction and having the other end in engagement with the propelling mechanism.

7. In a freight transferring apparatus, the combination of a vehicle, an endless propelling chain thereon permanently confined substantially within the overall width of the vehicle and having an upper reach, projections spacially arranged on the chain projecting upwardly from the upper reach above the region of the links of the chain and a container having a row of three or more downward projections extending across its under-side any one of which is adapted to be engaged by any one of the projections on the chain, and a push-and-pull bar to connect the chain to the container independently of the downward projections on the container.

8. The combination of a highway vehicle, an endless chain thereon operating in a vertical plane and having a substantially horizontal upper reach suitably supported, a series of blocks secured to the chain in such spaced relationship and projecting in such direction that they extend upwardly from the upper reach of the chain above the links thereof, and a container having a row of projections extending across its underside any of which may be engaged by any of the blocks in the chain while the under-sides of the projections are spaced above the upper surface of the links, and a push-and-pull bar adapted to connect the chain to the container.

9. In a freight transferring system, the combination of a vehicle, an endless chain thereon operating in a vertical plane with a horizontal upper reach and having spaced projecting blocks rising above the links of the chain on the upper reach, a container having downward projections on its underside arranged in a row including edge projections and one or more intermediate projections, any of the projections being adapted to be engaged by any of the blocks on said upper reach while said projections clear the chain links, and a push-and-pull bar adapted to be attached at one end to the container and at the other end to the chain between blocks thereon.

10. The combination of a vehicle, a chain thereon, carrying a series of blocks in spaced relationship, a container having a row of projections any of which may be engaged by any of the blocks in the chain, and a push-and-pull bar adapted to be connected at one end to the container and at the other end to the chain, the length of the push-and-pull bar bearing such relation to the spacing of the blocks on the chain and spacing of the projections on the container that when a projection on the container is engaged by a block on the chain and the free end of the attached push-and-pull bar is over the chain, it will be between the blocks on the chain, such free end having means for engaging the chain independently of the blocks.

11. The combination of a vehicle, an endless chain thereon comprising two sets of overlapping inner and outer links, and transverse pins, each pin connecting two inner links and two outer links, there being a transverse space between the inner links, a container adapted to be mounted

on the vehicle, and a push-and-pull bar for connecting the container to the chain, said push-and-pull bar having at one end means for attachment to the container, having at the other end a single block with teeth on its under-face and a link pivoted to the intermediate region of said block and pivoted to the push-and-pull bar, said teeth being adapted to enter the spaces between the adjacent pins on the chain and the link allowing the block to shift with reference to the push-and-pull bar a distance at least as great as the distance from the center of one pin to the center of the next pin, whereby the block may readily engage the chain irrespective of the position of that end of the push-and-pull bar over the chain.

12. The combination of a vehicle, an endless propelling chain thereon, a container adapted to ride on the vehicle, a push-and-pull bar for connecting the container to the chain, said push-and-pull bar having means for attaching one end to the container, the other end having a head with a pair of spaced downward projections, a block having teeth to engage the chain, and a link pivoted at one end to the block and at the other end to the head of the push-and-pull bar, said link allowing such independent movement of the block and push-and-pull bar head that one of the downward projections on the push-and-pull bar head will engage the block at one side of the point of attachment of the link to the block when the chain is moved in one direction relative to the bar, and the other downward projection will engage the block on the other side thereof when the chain is moved in the other direction.

13. In a freight handling apparatus, the combination of a vehicle, an endless propelling chain thereon, a container adapted to ride on the vehicle, a push-and-pull bar adapted to connect the vehicle to the chain, said push-and-pull bar having a tubular body with a head at one end adapted to be engaged to the container, a head at the other end having a pair of downward projections, a block having teeth to engage the chain, a link pivoted to an intermediate region of the block and to an intermediate region of the head of the push-and-pull bar which has the downward projections, whereby one downward projection engages the block on one side of its pivot when the chain moves in one direction and the other downward projection engages the block on the other side of its pivot when the chain moves in the other direction.

14. In a freight handling apparatus, the combination of a railway car, a highway truck, and a container adapted to be transferred from the railway car to the highway truck and vice versa, said container having on its underside a row of three or more spaced downward projections, propelling mechanism on the highway truck having means to engage any of said projections, a push-and-pull bar to connect the propelling mechanism with the container independently of the projections and means behind the wall of the container for attaching the push-and-pull bar to the container.

15. The combination of a vehicle, an endless propelling chain thereon having a substantially horizontal upper reach, said chain comprising two series of links, the series being spaced from each other and interconnected by pins which pivot together successive links in each series, certain of the links of each series being inter-

connected by block members which extend upwardly from the upper reach of the chain, a container adapted to rest on the vehicle and having on its underside downwardly extending projections, the vehicle having guideways and the container having skid rails adapted to occupy the guideways, the said projections being so located that when the skid rails are on the guideways the projections will be directly over the space between the two series of links, said projections 10

depending far enough to be engaged by vertical surfaces of the blocks while the container projections terminate higher than the tops of the links, and a push-and-pull bar adapted to be connected at one end to the container having at the other end a gripping member for engaging rollers on the pins inter-connecting the two series of chain links.

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