Feb. 21, 1967 W. S. APPLEMAN 3,305,263

TAIL GATE LATCH ASSEMBLY

Filed June 19, 1964 4 Sheets-Sheet 1

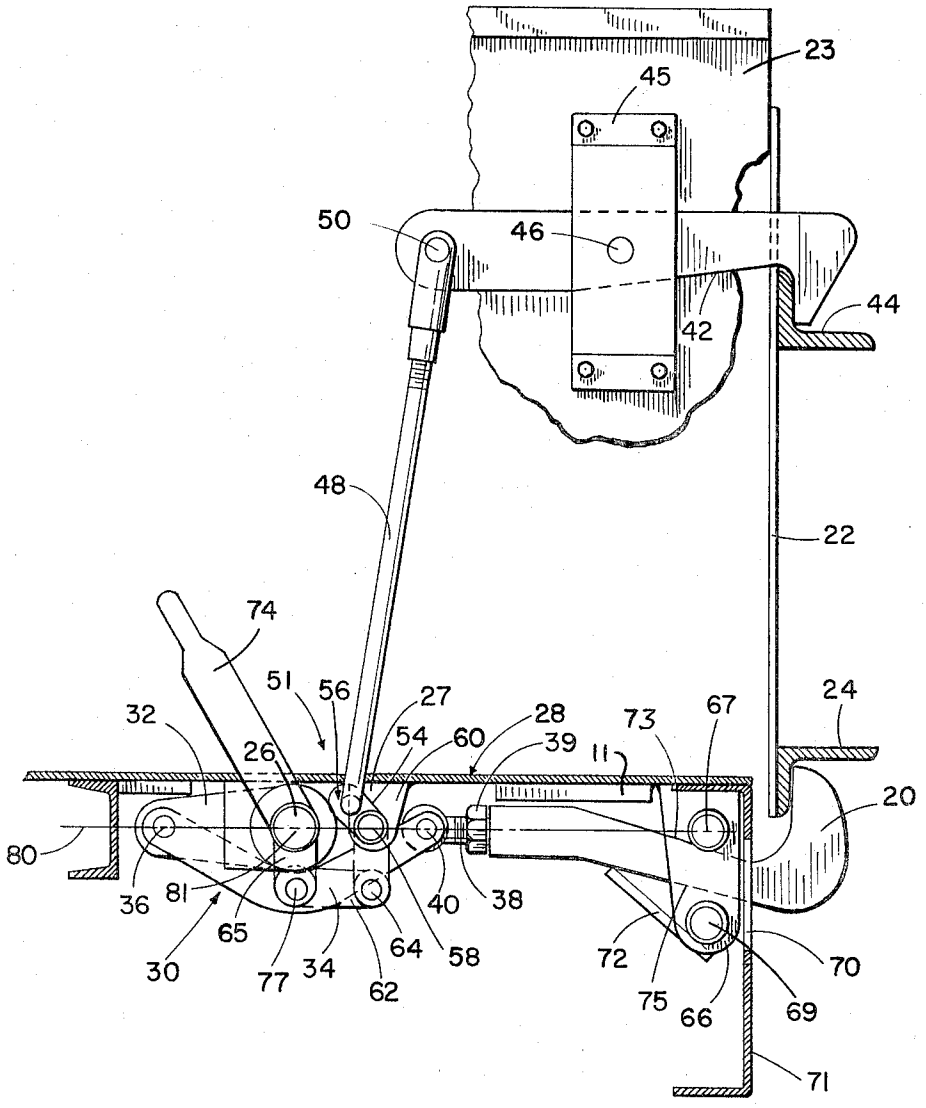


FIG. 1

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TAIL GATE LATCH ASSEMBLY

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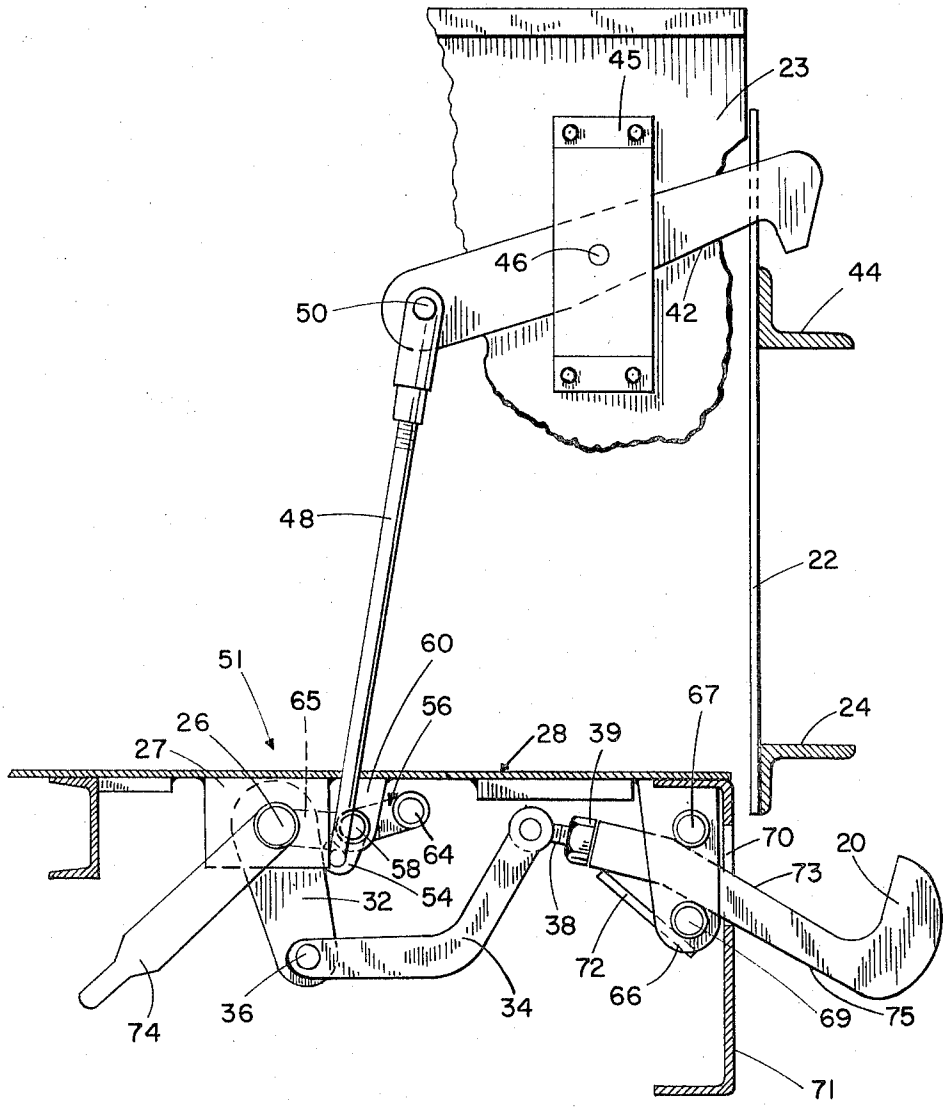


FIG. 2

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TAIL GATE LATCH ASSEMBLY

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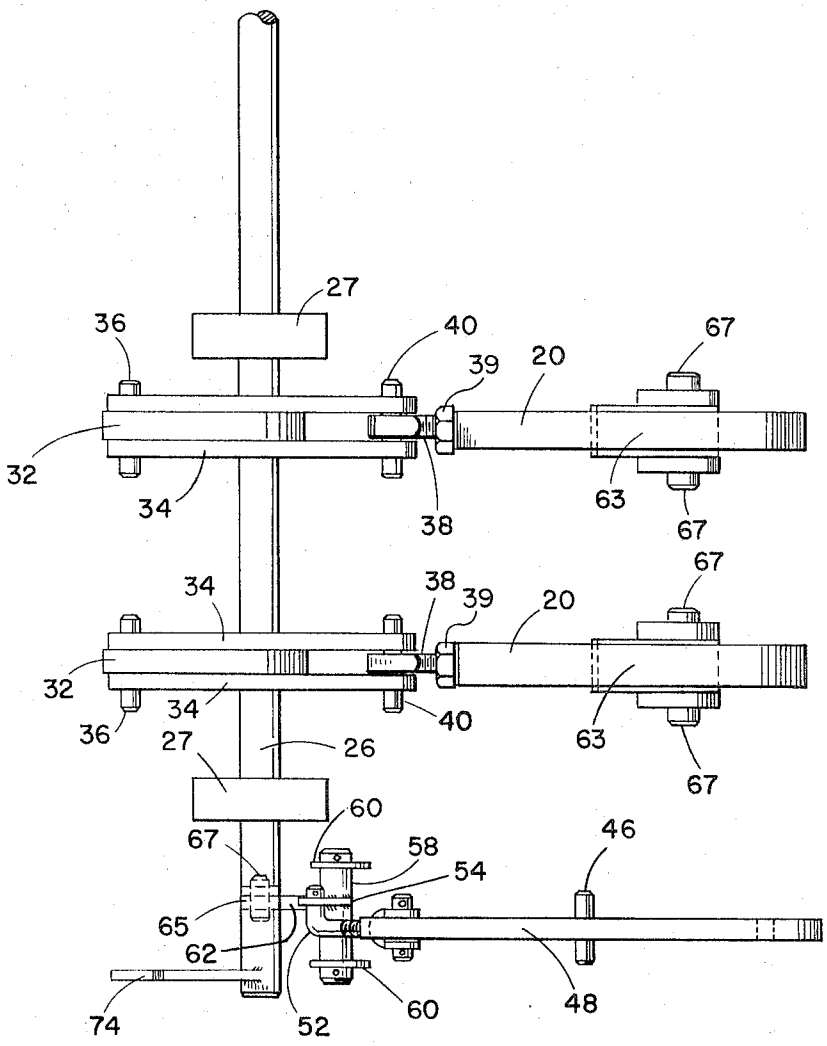


FIG. 3

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TAIL GATE LATCH ASSEMBLY

Filed June 19, 1964 4 Sheets-Sheet 4

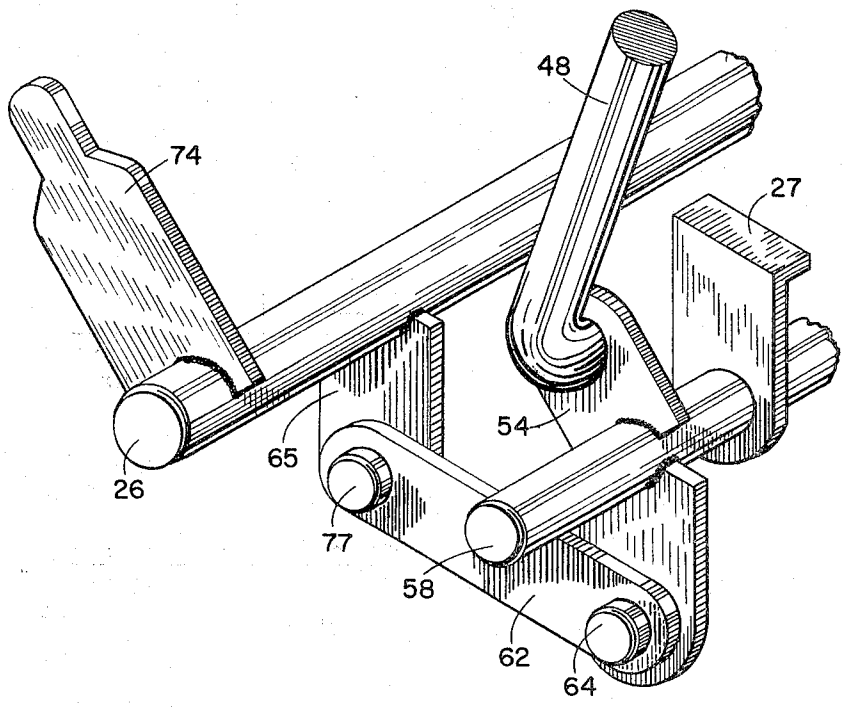


FIG. 4

FIG. 5

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United States Patent Office 3,305,263 Patented Feb. 21, 1967

3,305,263

TAIL GATE LATCH ASSEMBLY

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2 Claims. (Cl. 296—56)

The present invention relates generally to truck bodies or the like and specifically to an improved tailgate latch mechanism for use with top-hinged tailgates.

In general, the tailgate latch mechanism of the present invention comprises, in combination, a plurality of slideable bottom hooks each connected by a first linkage means to a common rock shaft actuating the bottom hooks to engage the lower margin of a tailgate, a latch means disposed to engage the outer upper margin of the tailgate, second linkage means connecting said latch means to said rock shaft, guide means for said bottom hooks and actuator means for rotating said rock shaft.

In accordance with the present invention, the novel construction of the release mechanism permits a plurality of bottom hooks to be actuated simultaenously at various points across the lower margin of a top-hinged tailgate of a truck body for opening or securely closing the tailgate.

As another aspect of the present invention, the novel construction of the release mechanism permits safe and convenient actuation of all the bottom hooks by a single manually operated handle placed at a remote location.

As another aspect of the present invention, the novel slideably mounted bottom hooks are adapted to make closing engagement with the tailgate when the tailgate is partially open and hence at a greater distance from the dump body than was possible with prior release mechanisms.

As another aspect of the present invention, the simple and durable construction of the release mechanism permits long service with a minimum of maintenance.

As a further aspect of the present invention, the novel construction of the release mechanism permits manufacture and fabrication of the component parts at relatively low cost.

It is therefore an object of the present invention to provide a novel tailgate latch mechanism having a plurality of bottom hooks actuated simultaneously to engage or disengage the tailgate.

It is another object of the present invention to provide a tailgate latch mechanism that actuates all the bottom hooks by means of a single handle manually operated from a safe and convenient location.

It is another object of the present invention to provide a tailgate latch mechanism capable of engaging the lower margin of the tailgate at a more open position as compared to prior mecahnisms thereby eliminating the need of manual assistance in pushing the tailgate closed.

It is another object of the present invention to provide a tailgate latch mechanism adapted to simultaneously actuate both bottom engaging and side engaging latch elements.

It is another object of the present invention to provide a tailgate latch mechanism that provides long service with a minimum of maintenance.

It is a further object of the present invention to provide a tailgate latch mechanism which may be manufactured and fabricated at relatively low cost.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of embodiment of the invention is clearly shown.

In the drawings:

FIG. 1 is a side view of the tailgate latch mechanism of the present invention with said mechanism disposed in a closed position being mounted on the rear portion of a truck body having a top-hinged tailgate;

FIG. 2 is a side view of the tailgate latch mechanism shown in FIG. 1 with said mechanism disposed in an open position;

FIG. 3 is a top view of the tailgate latch mechanism shown in FIG. 1 as seen when removed from the dump body; and

FIG. 4 is an isolated enlarged perspective view of a linkage comprising a portion of the mechanism of the preceding figures.

Referring in detail to the drawings, a side view of the tailgate latch mechanism of the present invention is illustrated in FIG. 1.

A plurality of slideably mounted bottom hooks **20** are positioned to clamp the lower edge portion of tailgate **22** along angle **24** at transversely spaced intervals. Bottom hooks **20** are provided with inclined cam surfaces **73** and **75**.

A common rock shaft **26**, extending transversely relative to the truck body, indicated generally at **28**, is rotatably mounted by bearing blocks **27** affixed to the truck body. Rock shaft **26** is connected to each bottom hook **20** by a respective first linkage means, indicated generally at **30**. Each first linkage means **30** includes an arm **32** mounted on rock shaft **26** and a respective pair of link members **34** pivoted at one end to arm **32** and at the other end to the eye of an adjustable eye bolt **38** at a pin **40**. Bolt **38** is screwed into a threaded bore in a respective bottom hook **20** and each bolt is provided with a lock nut **39**. To individually adjust the hook pressure exerted on the tailgate by each hook **20**, pin **40** is removed to free eye bolt **38** for rotation to adjust its axial extension.

A latch means **42** disposed at each outer end of the upper portion of tailgate **22** to engage angle **44** is pivoted intermediate its ends to pivot pin **46** mounted to a bracket **45** attached to each side wall of truck body **28**.

Referring to FIGS. 1, 2 and 4, a respective second linkage means, indicated generally at **51**, connects each latch means **42** to rock shaft **26** and includes a respective connecting rod **48** pivoted to each latch means **42** by a respective pivot pin **50**. Each rod **48** is provided with an inturned lower end portion **52** connected to a respective first link member **54**.

As is best seen in the perspective view of FIG. 4, each linkage means **51** further includes a bell crank **56** and a second link member **62**. Each first link member **54** is pivotally connected to one end of a respective bell crank **56** at a cross shaft **58** which is supported by a respective pair of brackets **60** affixed to truck body **28**. Each bell crank **56** is pivoted at the other end to said respective second link member **62** at pivot pin **64** and each second link member **62** is in turn pivoted to an arm **65** at a pivot pin **77**, said arm **65** being fastened to rock shaft **26**. Thusly, all latch means **42** operate simultaneously and with bottom hooks **20** with rotation of rock shaft **26**.

A plurality of hook guides **66** fastened to the underside of truck body **28** include follower portions **67** and **69** and a guide flange **72** which guides bottom hooks **20** through hook guide **66** and slot **70** provided in body frame member **71**.

With continued reference to FIG. 1, a stop means **11** is rigidly atached to truck body **28** in overlying relationship with the shank portion of hook **20**, such stop means cooperates with follower portion **69** in absorbing rotational loads applied to said hooks by said tailgate.

In operation, as bottom hooks **20** slide rearwardly through hook guides **66**, upper cam surfaces **73** engage

the respective upper follower portions **67** and thereby shift the path of bottom hooks **20** vertically downwardly with respect to the lower edge portion of tailgate **22**.

In operation, handle **74** is manually pivoted counter-clockwise, as viewed in FIG. 1, thereby turning shaft **26** to shift bottom hooks **20** via first linkage means **30** to slide them through slots **70** and hook guides **66** to open position illustrated in FIG. 2. With bottom hooks **20** in an open position, the lower margin of tailgate **22** is released.

Simultaneously the same counter-clockwise rotation imparted to shaft **26** actuates latch means **42** to pivot it to an open position about pivot pin **46** as connecting rod **48** is moved downwardly through the operation of second linkage means **51**, as illustrated in FIG. 2. With both latch means **42** and bottom hooks **20** in an open position, tailgate **22** is free to swing about its top hinges.

To securely lock the tailgate **22** in a closed position, the handle **74** is rotated clockwise actuating bottom hooks **20** and latch means **42** to return them to the closed position of FIG. 1. As hooks **20** are shifted to the left, lower cam surfaces **75** on the hooks engage lower follower **67** whereby the paths of the hooks are shifted upwardly.

In the closed position the axis defined by the center of pivot pins **36** and **40** has moved above the center of **81** of rock shaft **26** thereby locking the linkage in the closed position of FIG. 1.

While the form of embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. A release mechanism for a truck body having a top-hinged tailgate comprising, in combination, a plurality of slideable bottom hooks positioned to clamp the lower edge portion of said tailgate at transversely spaced intervals, said bottom hooks including inclined upper and lower edges; first follower means on said truck body and engaging said inclined lower edges for shifting said hooks upwardly; second follower means on said truck body and engaging said inclined upper edges for shifting said hooks downwardly; stop means on said truck body and overlying the shanks of said hooks for absorbing rotational loads applied to said hooks by said tailgate; a transversely extending common rock shaft for actuating said bottom hooks; at least one latch means disposed to engage an outer end portion of the upper margin of said tailgate; guide means for said bottom hooks disposed adjacent the rear edge portion of said truck body; an arm including an inner end mounted on said rock shaft and an outer end; a first link including a first end pivotally connected to one of said bottom hooks and a second end pivotally connected to said outer end of said first arm, the central portion of said link being offset with respect to a line through the pivot centers of said link ends whereby said arm and link can be moved beyond center to lock said bottom hooks against said tailgate; a linkage including a pivoted lever connecting said latch means to said rock shaft; and an actuator for rotating said rock shaft to simultaneously actuate said hooks and said latch means.

2. A release mechanism for a truck body having a hinged tailgate comprising, in combination, a plurality of slideable bottom hooks positioned to clamp the lower edge portion of said tailgate at transversely spaced intervals, said bottom hooks including inclined upper and lower edges; first follower means on said truck body and engaging said inclined lower edges for shifting said hooks upwardly; second follower means on said truck body and engaging said inclined upper edges for shifting said hooks downwardly; stop means on said truck body and overlying the shanks of said hooks for absorbing rotational loads applied to said hooks by said tailgate; a transversely extending common rock shaft for actuating said bottom hooks; at least one latch means disposed to engage an outer end portion of the upper margin of said tailgate; guide means for said bottom hooks disposed adjacent the rear edge portion of said truck body; an arm including an inner end mounted on said rock shaft and an outer end; a first link including a first end pivotally connected to one of said bottom hooks and a second end pivotally connected to said outer end of said first arm, the central portion of said link being offset with respect to a line through the pivot centers of said link ends whereby said arm and link can be moved beyond center to lock said bottom hooks against said tailgate; a second arm including an inner end mounted on said rock shaft and an outer end; a pivotally mounted lever member; a second link connecting one end of said lever member with said outer end of said second arm; a third link connecting the other end of said lever member with said latch means; and an actuator for rotating said rock shaft to simultaneously actuate said hooks and said latch means.

References Cited by the Examiner

UNITED STATES PATENTS

2,530,346	11/1950	Wolf	292—113
2,949,327	8/1960	Totaro et al.	292—26
3,078,121	2/1963	Dempster et al.	296—56

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