April 19, 1955

M. R. KRASNO

2,706,565

TAIL-GATE LIFT

Filed May 10, 1951

3 Sheets-Sheet 1

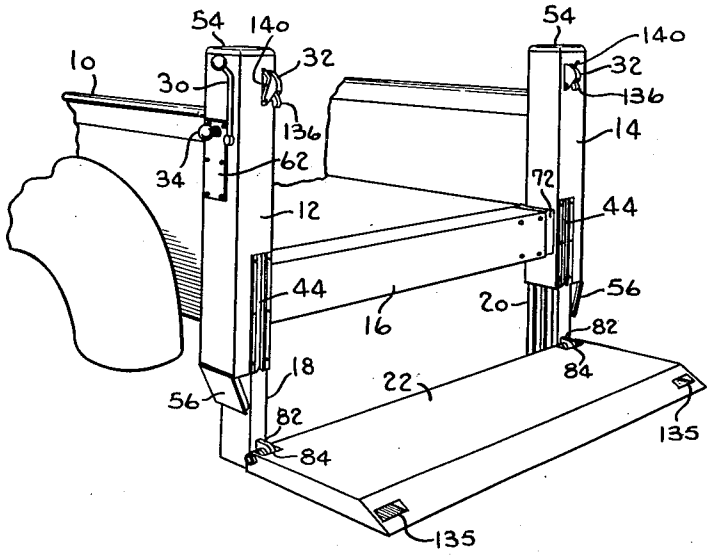



FIG. 1

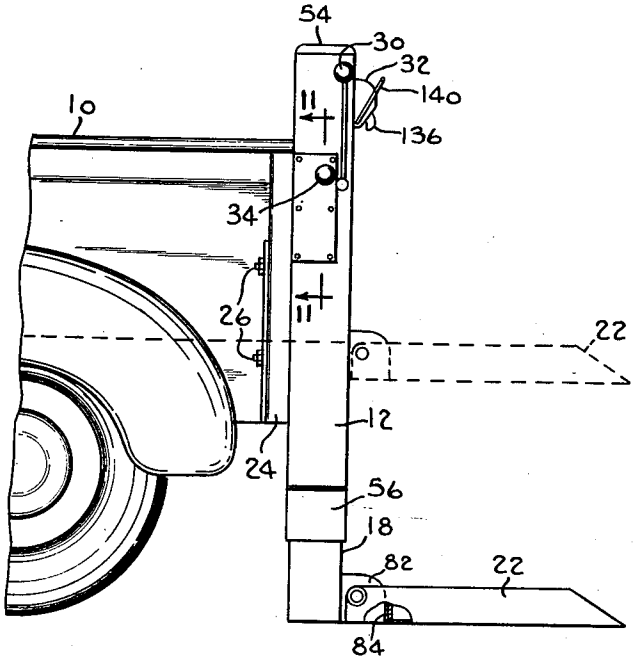



FIG. 2

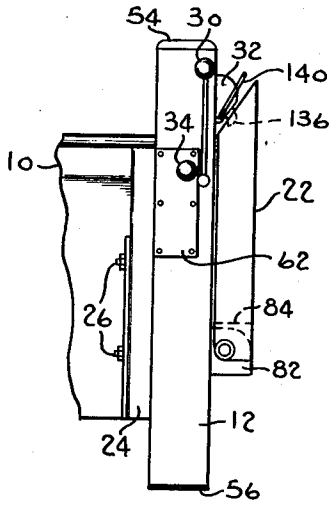



FIG. 3

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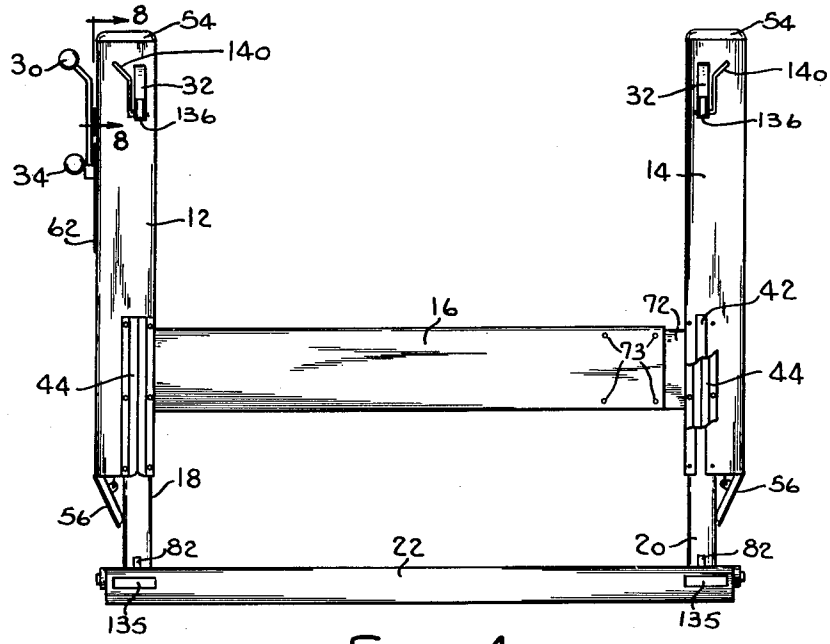



FIG. 4

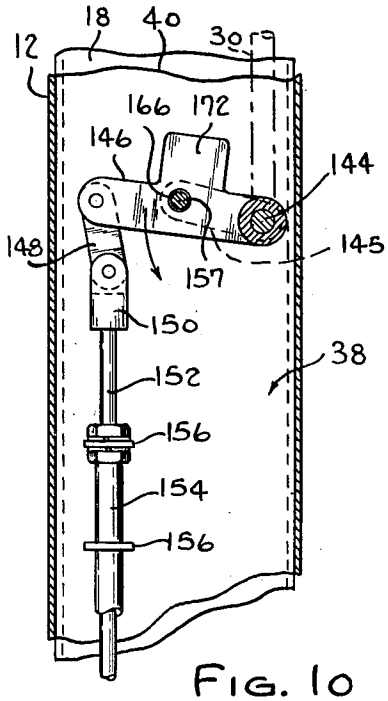



FIG. 10

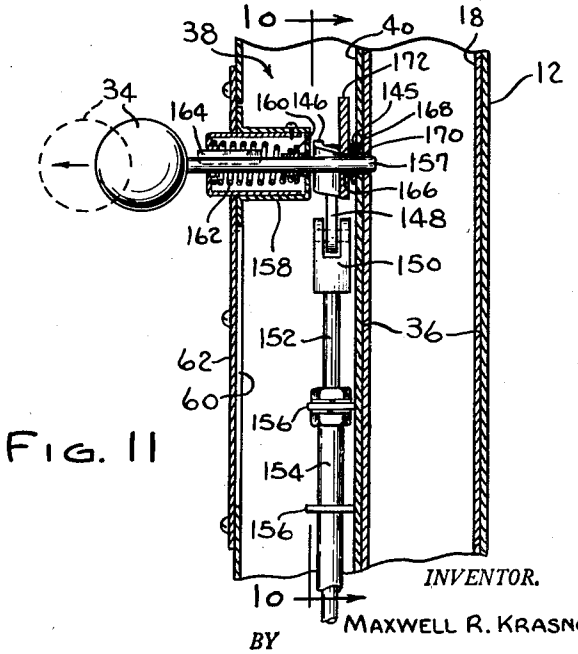



FIG. 11

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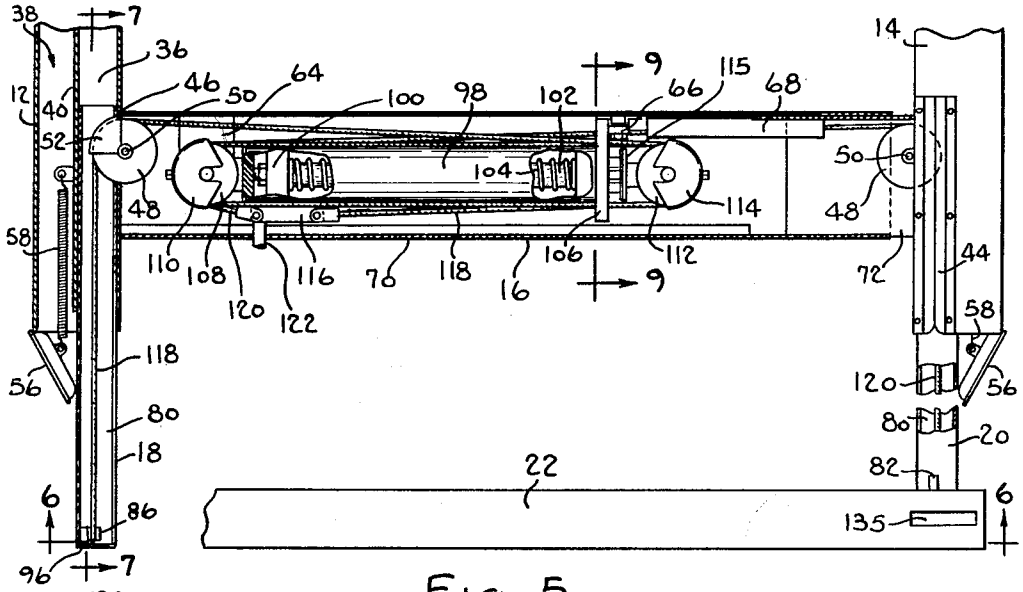


FIG. 5

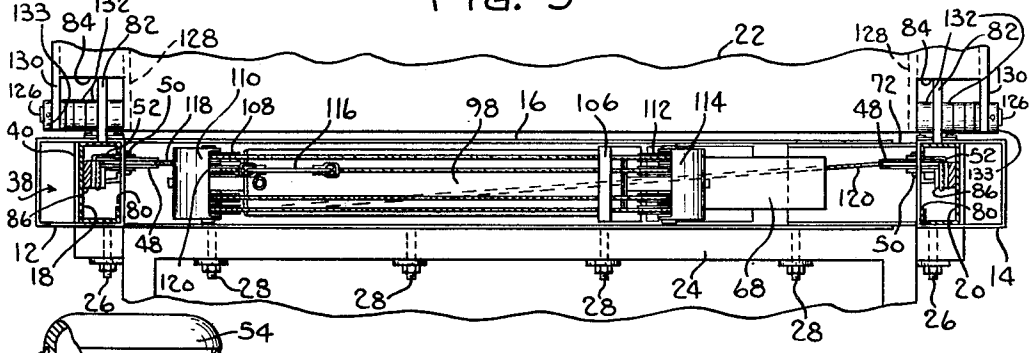


FIG. 6

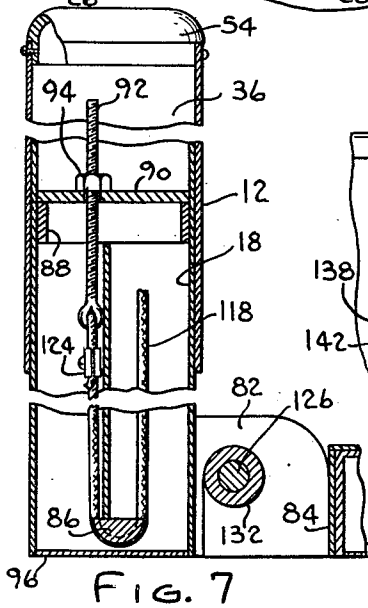


FIG. 7

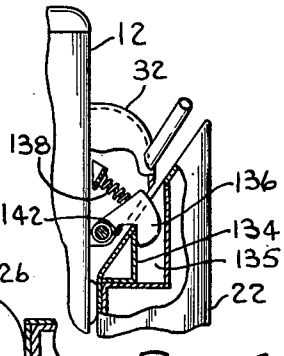


FIG. 8

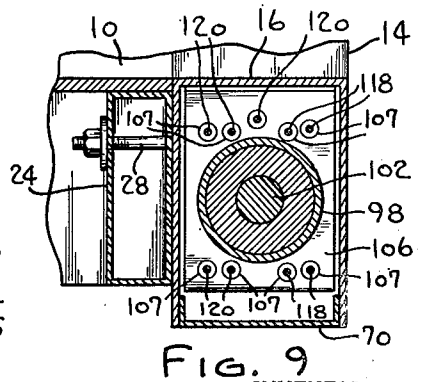


FIG. 9

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United States Patent Office 2,706,565 Patented Apr. 19, 1955



2,706,565

# TAIL-GATE LIFT

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Application May 10, 1951, Serial No. 225,480

14 Claims. (Cl. 214—75)

This invention relates to improvements in tail-gate lifts for pick-up trucks with express-type bodies or platforms.

Heretofore apparatus of this type was especially designed to fit a particular size body and was not universally adapted to fit most sizes of pick-up truck bodies. Usually the lift was assembled piece-meal to the truck body and hence was costly to install.

It is an object of this invention, therefore, to provide a tail-gate lift which may be secured as a unit to an express type body or platform by merely bolting the unit to the frame thereof.

Another object of this invention is to provide such a unitary tail-gate lift which is also adjustable in width for adaptation to varying size express-type bodies or platforms.

A still further object is to provide a tail-gate lift which incorporates in the unit the lifting mechanism, its controls, and safety devices.

A further object is to provide a tail-gate lift which will not distort and jam as the gate is lowered and comes to rest upon an uneven surface.

To obtain these objects two hollow pillars are used as guides for sliders having gate pivot hangers extending out of the pillars to which the tail-gate is pivotally mounted. One of these pillars is rigidly secured to a main housing which extends laterally of such pillar. The other pillar has a lateral extension which telescopically interfits with such main housing. Both the pillars and the main housing have studs which pass through the vertical and horizontal frame members at the rear of the express body and are secured therein by nuts to mount the lift as a unit to such body. Holes are drilled in such frame member from a standard template which does not vary in spacing with different size frames because the studs are rigidly spaced vertically and horizontally with respect to one corner of the unit. As the unit is mounted the telescopic interfit is loosened and adjusted to suit the width of the express body and thereafter securely fastened. The tail-gate is as wide as is necessary for the widest of standard express bodies but the pivot carried by it is exposed for sufficient distance to receive the hangers on the sliders after the unit has been adjusted to narrower bodies.

The mechanism for raising and lowering the sliders and tail-gate includes a fluid pressure motor mounted within the main housing. The piston rod of such motor carries a first group of sheaves which move with respect to a second group of sheaves carried within the housing, the axes of which are fixed relatively to such housing. A flexible wire rope is reeved over these sheaves with one end portion extending horizontally into one pillar and the other end portion extending horizontally into the other pillar, the portions being guided by directional pulleys so as to extend vertically downward within each slider. When fluid power is supplied to the motor the first group of sheaves are moved away from the second group of sheaves and the sliders are raised. It is desirable to use enough sheaves in each group to get a 1 to 4 ratio so that a relatively short travel of the rod will produce four times as much movement of the sliders. This enables the motor to be installed within the main housing and still have ability to raise and lower the sliders the necessary distance. The sliders and pillars are long enough so that an adequate part of the sliders remains in the pillars when the sliders are lowered to the permitted maximum. This insures against cocking and jamming of the sliders in the pillars. At least one of the pillars has a compartment adjacent the slider guiding chamber for housing the motor controls and safety lock. The safety lock secures the motor control in neutral position and also locks the slider in the raised position, thus taking the strain off the lifting mechanism.



As the siders are lowered and one end of the tail-gate should strike an object higher than the general level of the ground, such as a curb, the movement of the slider at that end is stopped without injury to the raising and lowering mechanism because the flexible wire rope would take the slack occasioned by such stopping. The other slider would continue to lower independently of the stopped slider. Since both are separately guided, neither will tend to cock and jam as this occurs. The openings in the tail-gate hanger are larger than the diameter of the tail-gate pivot so that such gate may freely cock with respect to such hangers without putting any stress on the sliders tending to cock them.

The novel features, which are considered characteristic of the invention, are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a tail-gate lift embodying the invention secured to an express-type body with the tail-gate opened and lowered;

Fig. 2 is a view in side elevation of such tail-gate lift; the tail-gate as raised is shown in broken line;

Fig. 3 is a fragmentary view in side elevation of such tail-gate lift with the tail-gate closed and locked;

Fig. 4 is a view in front elevation (from the rear of the vehicle) of such tail-gate lift;

Fig. 5 is a fragmentary enlarged rear end view of such tail-gate lift, part being shown in section for the sake of clarity;

Fig. 6 is a sectional view taken from the meandering section line **6—6** of Fig. 5 with the bottom plate of the main housing removed;

Fig. 7 is an enlarged fragmentary sectional view taken on line **7—7** of Fig. 5;

Fig. 8 is a fragmentary view taken on line **8—8** of Fig. 4 with part being broken away and shown in section for the sake of clarity;

Fig. 9 is an enlarged sectional view taken on line **9—9** of Fig. 5;

Fig. 10 is a fragmentary sectional view taken on line **10—10** of Fig. 11; and

Fig. 11 is an enlarged fragmentary sectional view taken on line **11—11** of Fig. 2.

Referring to the drawings, the tail-gate lift is shown mounted to the rear end of an express type body **10** of standard design. Such type of bodies are generally used on pick-up type trucks. Throughout this description views designated as front views are taken from the rear of the vehicle and the left-hand side is sometimes referred to as "roadside" and the right-hand side referred to as "curbside." The unitary tail-gate lift consists generally of a pair of vertical pillars **12** and **14** which are secured to a horizontal extensible main housing **16**. Within these pillars are guided sliders **18** and **20** on the lower end of which is pivotally mounted a tail-gate **22**. The tail-gate lift as a unit is secured to the frame **24** of an express type body **10** by studs **26** secured to the pillars **12** and **14** inserted through the vertical members of such frame and held by nuts, and by studs **28** secured to the main housing **16** and inserted through the horizontal member of such frame **24** and held by nuts. Openings in the frame **24** for the studs **26** and **28** are drilled using standard spacing for all size bodies as no change takes place in the spacing between such studs as the unit is adjusted widthwise. A lifting mechanism for the sliders **18** (see Figs. 5 and 6) is mounted within the main housing **16** and is operated from a fluid pressure pump (not shown) driven from the motor of the pick-up truck. A manual control **30** mounted on the pillar **12** is shown in neutral position and is moved to the left to lower the tail-gate and to the right to raise the tail-gate. When

in the raised position the tail-gate **22** may be swung to closed position shown in Fig. 3 where it will be held by the locking mechanism **32**. A safety device **34** shown in detail in Fig. 11 is carried by a cover plate on the pillar **12** and locks the control **30** in neutral position and also mechanically locks the roadside slider **18** in fully raised position. As the widths of express type bodies vary somewhat deepnding upon the truck model and manufacturer, the main housing **16** is made extensible so that the pillars **12** and **14** may be properly alined with the vertical members of the frame of a particular express type body. Such extension of the main housing is made feasible by using flexible cables for supplying the lifting power of the sliders **18** and **20** as such cables are easy to adjust in conformity with the widthwise adjustment. A detailed description of the foregoing general elements of the unit follows.

*Pillars*

Each of the pillars **12** and **14** is of substantially identical construction except that roadside pillar **12** is left-hand and curbside pillar **14** is right-hand. The pillars are substantially square in cross section and are divided into a guide channel **36** and a control channel **38** by an internal wall **40** (see Figs. 5, 6, and 11). The guide channels **36** at their lower rears are provided with slots **42** to accommodate the travel of tail-gate hangers. Such slots may be kept covered by rubber curtains **44** to prevent dust, mud, and the like from entering into such guide channel. The inwardly facing walls of the guide channels **36** are slotted at **46** to receive directional pulleys **48** mounted in trunnions **50** carried by such pillars with such pulleys partially within the guide channels **36** and partially within the main housing **16** (see Figs. 5 and 6). It is desirable to have covers **52** (see Fig. 5) for such pulleys to prevent the flexible cable when slack from jumping off such pulleys. Each of the pillars **12** and **14** is provided with a cap **54** which is removable in order to gain access to the top of the sliders to properly adjust the flexible cable. It is also desirable to provide dust covers **56** for the open bottoms of the pillars. These covers are movably held by springs **58** so that they are continually urged toward the bottom of the pillars to close them when the sliders are fully raised. As the sliders are lowered, however, the caps will automatically swing partially open to permit the sliders to extend below the bottoms of the pillars. In pillar **14** the control channel **38** performs no function. However, in pillar **12** such channel provides operating space for part of the control mechanism and hence the outwardly facing wall of such pillar has an opening **60** which provides access to the interior of the control channel **38**. Such opening is enclosed by cover **62** which also carries the safety device **34**.

*Main housing*

As previously stated, the main housing **16** is extensible so that pillars **12** and **14** may be properly alined with the vertical frame members **24** of express type bodies of varying widths. This is accomplished by rigidly mounting the main housing **16** to the roadside pillar **12** and having such housing long enough to extend substantially across the space between the pillars when adjusted for the narrowest width body to which the unit is secured. Thus such main housing will be sufficiently long to fully contain and mount the fluid pressure motor. Suspended from the interior of the main housing **16** are mounting brackets **64** and **66** for respectively mounting the roadside and curbside end of the cylinder of the fluid pressure motor. A cable guide **88** may also be provided to prevent the flexible cable from becoming entangled with the movable sheaves. This guide also slidably engages the sheave cover **114** to prevent rotation of the movable sheaves about the axis of the piston rod **102**. A bottom plate **70** incloses the lower end of the main housing **16** and permits access to the lifting mechanism. A short extension **72** is secured to the curbside pillar **14** and slidably fits within the main housing **16**. A plurality of bolts and nuts **73** clamp the main housing **16** and the extension **72** after proper adjustment for width.

*Sliders*

Sliders **18** and **20** are of substantially rectangular shape in section and have a close sliding fit within the guide chamber **36**. They are long enough so that in the fully



lowered position an adequate length of the sliders remains in guiding relationship with the pillars to provide a long bearing which prevents cocking and binding. Each of the sliders has a longitudinally extending opening on the inwardly facing wall to permit the sliders to move up and down within the pillars without interference from the directional pulleys **48**. At the bottom of each of the sliders are hangers **82** for pivotally mounting the tail-gate **22**. Each hanger has a bearing opening (not numbered) which receives the tail-gate pivot. Such bearing is positioned inwardly and upwardly a substantial distance from a vertical flat surface **84**. This flat surface cooperates with a similar surface on the tail-gate **22** to maintain such gate in horizontal position without the use of chains, etc. Within each of the sliders and at the bottom thereof is a chuck **86** over which the flexible cable is led. Each chuck **86** has a groove for the cable and a bottom **96** loosely holds the cable in such groove should slack occur. The chucks **86** being positioned at the bottoms of the sliders permit such sliders to be raised until such bottoms are substantially at the level of the directional pulleys **48**. Below the upper end of the sliders and on the inside thereof there are positioned supports **88** on which rest plates **90**. Eye-bolts **92** extend upwardly through openings in such plates and a nut **94** adjusts the distance of the eyes below such plates. The ends of the flexible cable are secured to such eyes and by adjustment of such bolts each cable may be placed under proper tension.

*Lifting mechanism*

The lifting mechanism by which the sliders are raised and lowered consists of a fluid pressure motor which has its cylinder **98** mounted on the bracket **64** and **66** so that it is rigidly suspended within the main housing **16**. A piston **100** to which is secured a piston rod **102** is reciprocal in such cylinder and is urged to collapsed position by a spring **104**. At the piston rod end of the cylinder there is provided a cable guide **106** which has a plurality of openings **107** for guiding the flexible cable (see Fig. 9). A set of four sheaves **108** is fixedly located at the roadside end of the piston **98** and a cover **110** partially surrounds such sheaves to keep the cable thereon. A movable set of four sheaves **112** is carried on the end of the piston rod **102** and travels as a set therewith. Such sheaves are also provided with a cover **114** for keeping the cable thereon. An adjustable collar **115** is mounted on the piston rod **102** outside the cylinder to provide an adjustable limit stop for the inward movement of such rod. Such adjustment is convenient to properly adjust the lowermost limit of the travel of the sliders. On the bottom of the cylinder **98** is located a cable anchor **116** to which is secured the inner ends of the flexible cables. The inner end of the roadside cable **118** is connected to the right-hand end of the anchor **116** and such cable is reeved: first to a sheave on the movable set **112**; second to a sheave on the fixed set **108**; third to a sheave on the movable set **112**; and fourth to the directional roadside pulley **48** from which it depends within the slider **18**, passing under the chuck **86** and up to the eye-bolt **92**. The inner end of the curbside cable **120** is connected to the left-hand end of the anchor **116** and such cable is reeved: first to a sheave on the fixed set **108**; second to a sheave on the movable set **112**; third to a sheave on the fixed set **108**; fourth to a sheave on the movable set **112**; fifth to a sheave on the fixed set **108**; and sixth to the curbside directional pulley **48** from which it depends within the slider **20**, passing under the chuck **86** and up to the eye-bolt **92**. The outer ends of the cables are secured to the eye-bolts by cable clamps **124**. The cables **118** are preferably made of flexible wire rope and are sufficiently strong to carry considerable load. The tension in each cable may be adjustable by removing the caps **54** when the sliders are raised and adjusting the nuts **94** by means of an elongated socket wrench until the respective sliders are adjusted to substantially level position with the tail-gate **22** level with the floor board of the express type body. In making such adjustment with respect to slider **18** care must be taken to aline the hole **170** of the safety mechanism as hereinafter explained. The roadside end of the cylinder **98** is connected by suitable inlet pipe **122** to a fluid pressure pump and when fluid pressure is supplied the piston rod **102** moves to the right and increases the distance between the fixed set of sheaves **108** and the movable set of sheaves **112**. This causes

the outer ends of each of the flexible cables to be drawn upwardly a distance of four times the distance traveled by the piston rod. Hence the required motion is supplied to the sliders with relatively small motion of the fluid pressure motor.

*Tail-gate*

A pivot **126** for mounting the tail-gate **22** to the hangers **82** is suspended in bearings on the tail-gate which are spaced to provide for axial adjustment of the hanger **82** in conformity with the widthwise adjustment of the pillars **12** and **14**. As is shown in Fig. 5, the inner bearings **128** are spaced from the outer bearings **130** and when the tail-gate is assembled to the hangers **82**, spacers **132** of varying widths are inserted between the hangers **82** and such inner and outer bearings. The spacers being of assorted lengths may be shifted around to adequately fill in the space between the bearings **128** and **130** and the hangers **82**. The pivot **126** is held in place by collars **133** pinned to its outer ends. Inside the sloping outer end of the tail-gate **22** there are latch engagement plates **134**, access to which is obtained by elongated openings **135**. Such openings are substantially the same length as the distance between the bearings **128** and **130** and permit the latch to engage with the plates **134** at the various widthwise settings of the pillars **12** and **14**.

The locking mechanism (see Fig. 6) for holding the tail-gate closed consists of a latch **136** pivoted in a housing of the locking mechanism **32** secured to the pillars **12** and **14** near the upper ends thereof. The latch **136** has a flat surface which engages with the latch engagement plates **134**. Such surface is long enough to permit slight variations in the vertical adjustment of the tail-gate while still making an effective locking engagement. The latch **136** is continually urged into latching position by a spring **138**. A handle **140**, which acts as the pivot for the latch **136**, also has a bar **142** which engages with the latch **136** upon counter-clockwise movement of such handle to move the latch to disengaging position. Whenever the tail-gate **22** is slammed closed, the latch **136** can pivot with respect to the handle **140** and automatically lock itself.

*Controls*

The source of power for the fluid pressure motor consists of a clutch type pump (not shown) which is driven from the engine of the vehicle to which the tail-gate is attached. Such pump has a control with: a neutral position in which fluid pressure is locked and the pump inoperative; a power position in which the pump is operating and supplying fluid under pressure; and a release position in which the pump is inoperative and the pressure released. In order to operate such control, the tail-gate lift is provided with a control handle **30** pivotally mounted on the outward facing wall of the roadside pillar **12**. A shaft **144** mounted in such wall and in a bearing **145** on the inner wall **40** supports the control handle **30** and carries within the channel **38** a lever **146**. This lever is connected by a link **148** to a yoke **150** on the end of a rod **152**. This rod is slidable in a housing **154** which is held against movement by being mounted in brackets **156** and secured thereto in the usual manner. This rod and housing are connected by a Bowden type wire to the control of the pump. The control **30** is shown in the neutral position. As such control is moved to the right it causes the pump to operate and force fluid under pressure through the pipe **122** into the cylinder **98** to lift the sliders and tail-gate. When the control **30** is moved back to the neutral position, the pump is disengaged but the fluid pressure is locked to hold the lifting mechanism in the position it was in at the time the control **30** was moved to neutral position. As the control **30** is moved to the left of neutral, the pump remains disengaged but the fluid pressure is released to permit the lifting mechanism to collapse under the force of gravity and the spring **104** and lower the sliders and tail-gate.

It is desirable to provide a safety mechanism which will determine the neutral position and lock the motor control in such neutral position. Such safety control consists of a pin **157** slidably mounted in a hollow housing **158** carried by the cover **62**. Within the housing **158**, the pin is provided with a collar **160** against which a spring **162** presses to continually urge the pin inwardly into locking position. A key **164** operable in a slot in the outer wall of the housing **158** is secured to the pin **157** so that when the knob **34** is manually moved to the position shown in broken line, the pin may be rotated and the key **164** will engage the face of such wall and hold the pin **157** in inoperative position. The inner end of pin **157** will pass through a hole **166** in the lever **146** and in the neutral position of the control **30**. When the slider **18** is fully raised such end will pass through a hole **168** in the inner wall **40** through a hole **170** in such slider **18** to mechanically lock such slider and take some strain off the lifting mechanism. It is not necessary to lock the pin **157** in its inoperative position. The lever **146** is provided with an extension **172** on the upper edge thereof and the end of the pin may ride on the surface of the lever **146** and extension **172** as the control **30** is moved on either side of neutral position. Whenever the handle **30** is moved into neutral position, the pin **157** will automatically slip into the hole **166** and lock the control in such neutral position. As the motion of lever **146** clockwise from neutral position is very limited (by the pump control) it is unnecessary to have an extension similar to extension **172** on the bottom thereof.

*Operation*

With the tail-gate lift installed, the operator can control raising and lowering of the tail-gate thereof from one position adjacent the roadside end of the express body. Starting with the tail-gate **22** raised and closed and the control **30** in neutral position, the operator first unlatches the tail-gate locking mechanism **32** by moving the handles **140** upwardly and lowers the tail-gate to horizontal position. The next step is to momentarily withdraw the safety mechanism knob **34** and move the control **30** to the left. This releases the locked fluid pressure and the sliders **18** and **20** and tail-gate **22** start to lower as fluid leaves the cylinder **98**. If the operator failed to first unlatch the locking mechanism **32**, the tail-gate would nevertheless become unlocked as the sliders **18** and **20** are lowered and the tail-gate **22** would drop to horizontal position. As the tail-gate reaches the ground the operator moves the control **30** to the right back to neutral position in which it will automatically lock unless he has withdrawn and locked the safety mechanism **34** out of operative position. If the operator should fail to move the control **30** to neutral position as the tail-gate reaches the ground, no damage would occur as the sliders and tail-gate drop only by the force of their own weight. The flexible cables **118** and **120** merely become slack as the lowering mechanism continues to collapse. When the collar **115** bears against the curbside end of the cylinder **98** further movement of the fluid pressure motor is stopped. If in the lowering operation one end of the tail-gate **22** should hit a curb or other obstruction so that its downward motion is thereby arrested, the opposite end and its slider would still continue down. Within a reasonable degree, the tail-gate **22** can be tilted with respect to each of the hangers **82** without causing any misalining of the sliders with respect to the pillars so that binding might occur. The differential in the travel of the sliders is accommodated by slackness in the cable which is secured to the slider that has been stopped. After material has been stowed on the upper surface of the tail-gate **22**, the control **30**, after release of safety device **34**, is then moved to the right from neutral position to supply power to the lifting mechanism and raise the sliders and tail-gate. If the tail-gate is at an unlevel position at the commencement of such raising, the lower slider will first be raised and then when slack is taken up the other slider will start to rise simultaneously and the tail-gate will be moved to level position and continue its raising motion. When the tail-gate has been lifted so that its surface is level with the surface of the floor of the body, the control **30** is moved to the left back to neutral position wherein it is locked. At the same time the safety lock **34** engages the slider **18** to mechanically hold it in the raised position. In the event the operator failed to move the control **30** to neutral position by the time such uppermost limit has been reached no harm will be done as the pressure release valve (not shown) of the pump will open to bypass fluid and prevent the increase of pressure beyond that for which the lifting mechanism is designed.

Although only one embodiment of the invention is shown and described herein, it will be understood that this application is intended to cover such changes or modi-

fications as come within the spirit of the invention or scope of the following claims.

I claim:

1. A unitary tail-gate lift comprising a pair of vertical pillars having guide portions, a main housing extending between and secured to said pillars intermediate the ends thereof, said housing and pillars forming an integral unit attachable as such to a truck body, sliders guided within said pillars on said guide portions, hangers on said sliders projecting beyond said pillars, a tail-gate pivotally secured to said hangers and movable between a platform position and a gate position, and actuating means within said main housing and said pillars for raising and lowering said sliders, said actuating means forming part of said integral unit and being within the confines of said main housing and said pillars, the main housing being laterally displaced from said tail-gate so as to be in non-interfering relation with the raising and lowering movement thereof.

2. A unitary tail-gate lift as defined in claim 1, further provided with a plurality of stud bolts secured to said pillars and said main housing, whereby said lift may be fastened as a unit to the frame of an express type truck body.

3. A unitary tail-gate lift comprising a pair of vertical pillars providing guides for sliders, a main housing extending between and secured to said pillars intermediate the ends of said pillars, said housing and pillars forming an integral unit attachable as such to a truck body, sliders guided within said pillars and having hangers projecting beyond said pillars, a tail-gate pivotally secured to said hangers and movable between a platform position and a gate position, and means within said main housing for raising and lowering said sliders, said means forming part of said integral unit, said main housing consisting of two parts telescopically interfitting to adjust the width of said lift.

4. A unitary tail-gate lift as defined in claim 3, one of said parts being larger than the other to hold and mount said means.

5. A unitary tail-gate lift as defined in claim 3, in which there are stud bolts secured to said pillars and said main housing to fasten said lift as a unit to the frame of an express type truck body.

6. A unitary tail-gate lift as defined in claim 3, one of said parts being larger than the other to hold and mount said means, and in which there are stud bolts secured to said pillars and said larger part to fasten said lift as a unit to the frame of an express type truck body.

7. A tail-gate lift comprising a pair of vertically disposed hollow members, a horizontally disposed main housing extending between and secured to said members, said housing and members together forming an integral unit attachable as such as to a truck body, a fluid pressure motor including a piston rod mounted within said main housing, a first group of sheaves located within said main housing having their axes fixedly located with respect thereto, a second group of sheaves carried by said piston rod, sliders guided within said vertical members having projections for pivotally carrying a tail gate, a directional pulley carried by each of said vertical members partially within said member and said main housing, a flexible cable reeved over said sheaves and directional pulleys and having its outer ends secured to said sliders whereby operation of said fluid pressure motor causes said sliders to be raised and lowered, and a tail gate carried by said sliders.

8. A tail-gate lift as defined in claim 7 in which the outer ends of said flexible cable are adjustably secured to said sliders.

9. A tail-gate lift as defined in claim 7 in which said flexible cable is divided into two parts with the inner ends of each part rigidly secured to said motor and the outer ends adjustably secured to said sliders.



10. A tail-gate lift as defined in claim 9 in which said parts are directed around cable-holding members positioned at the bottom of said sliders whereby said sliders may be raised so that their bottoms are close to said directional pulleys.

11. In a tail-gate lift, a vertically disposed pillar having a first and a second longitudinally extending compartment separated by an inner wall, a slider guidably mounted within said first compartment and having a tail-gate bracket extending laterally therefrom at the lower end thereof, a slot in said first compartment extending upwardly from the bottom thereof to permit said slider to move upwardly within said first compartment with said bracket above the bottom of said pillar, means for raising and lowering said slider including a cable which extends into said second compartment near the top of said slot, a control for said means including a lever mounted within said second compartment, a handle positioned outside of said pillar and operatively connected with said lever, a safety lock comprising a first hole in said inner wall, a second hole in said slider, said holes being in juxtaposition when said slider is raised to its upper limit in said second compartment, a hole in said lever in alignment with said first hole when said handle is in neutral position, and a spring-biased pin carried by said pillar and projecting into said second compartment in alignment with said first mentioned hole whereby said pin automatically locks said lever in the neutral position of said handle and also locks said slider in the uppermost position thereof.

12. In a tail-gate lift as defined in claim 11, the provision of locking means for automatically holding said spring-biased pin in inoperative position.

13. In a tail-gate lift, spaced vertically disposed pillars, an adjustably extensible main housing extending between and connected to said pillars, sliders guidably mounted in said pillars, tail-gate pivot hangers secured to and extending laterally from said sliders, said hangers having pivot bearings therein, a tail-gate having pivot bearings within the peripheral confines thereof, a pivot rod passing through all said pivot bearings to pivotally interconnect said tail-gate and said sliders, and recesses in said tail-gate for receiving said hangers, said recesses being long enough to permit said hangers to be moved axially of said pivot within the limits of the extensible adjustment of said main housing.

14. In a tail-gate lift as defined in claim 13, the provision of tail-gate latches mounted on the upper part of said pillars, openings in the upper edge of said tail-gate, and latch engagers adjacent said openings, said openings being sufficiently long to permit said latches to move widthwise relatively of said tail-gate within the limits of the extensible adjustment of said main housing to engage with said latch engagers.


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