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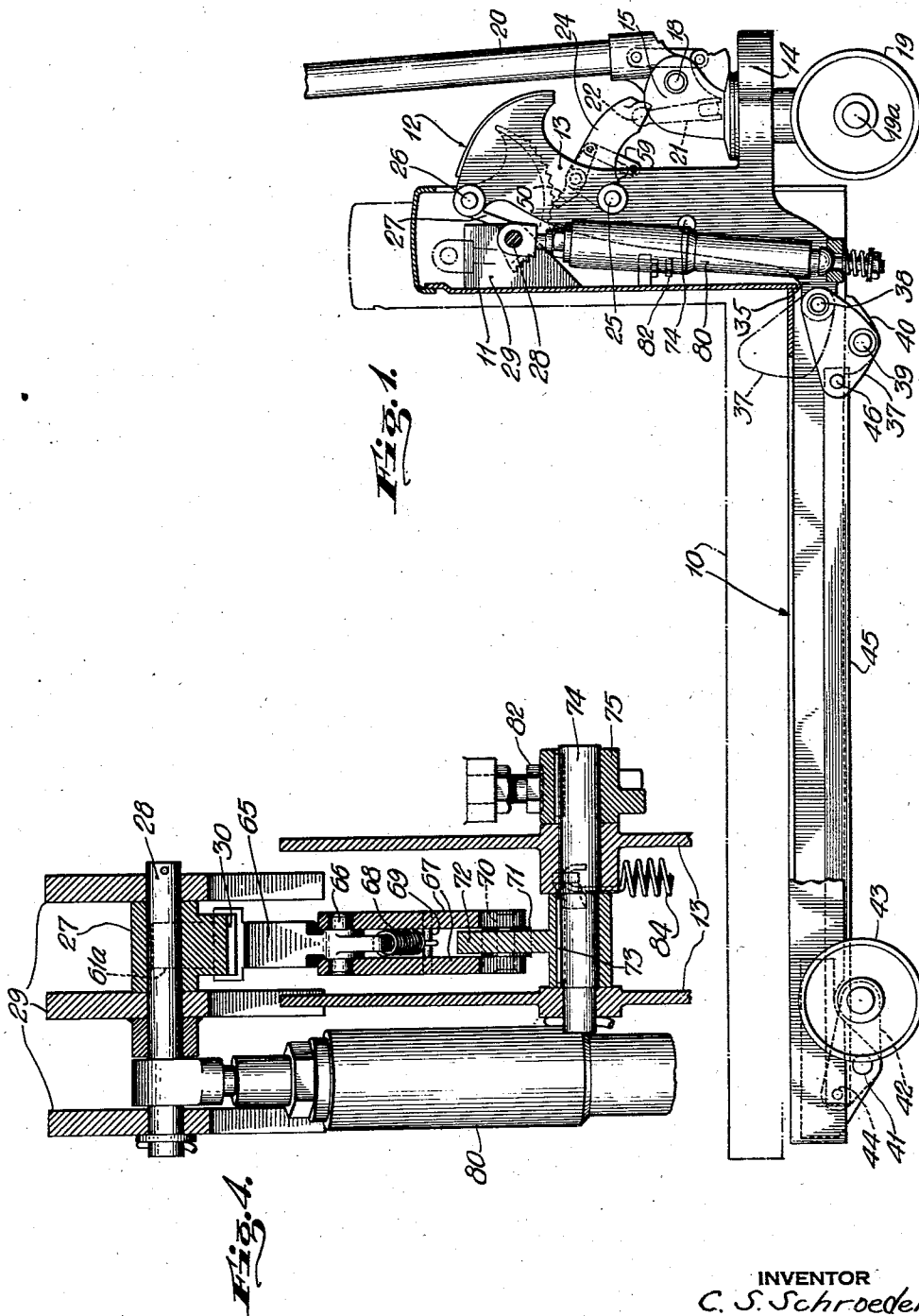
C. S. SCHROEDER

2,367,061

LIFT TRUCK

Filed Sept. 9, 1942

4 Sheets-Sheet 1



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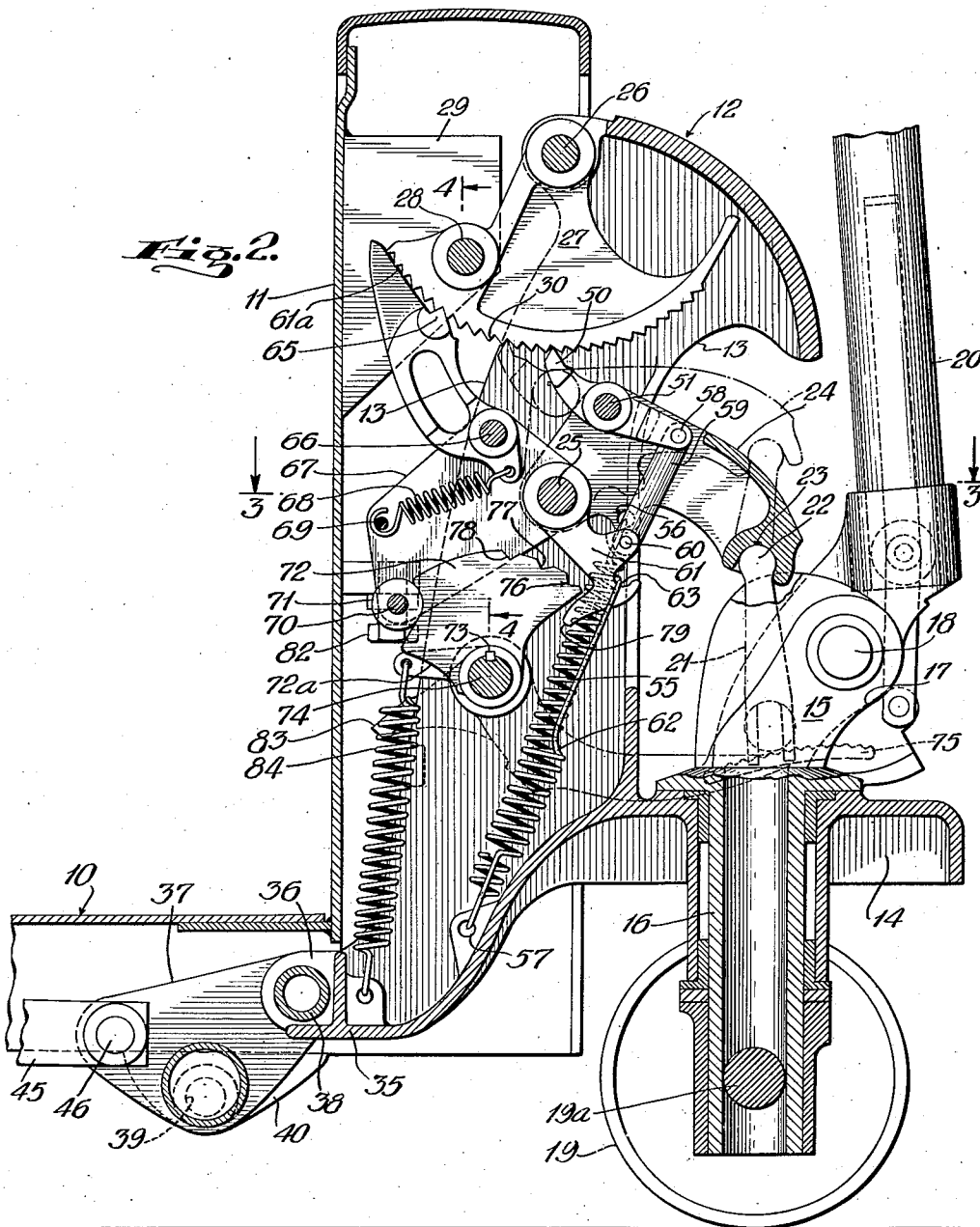
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LIFT TRUCK

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4 Sheets-Sheet 2



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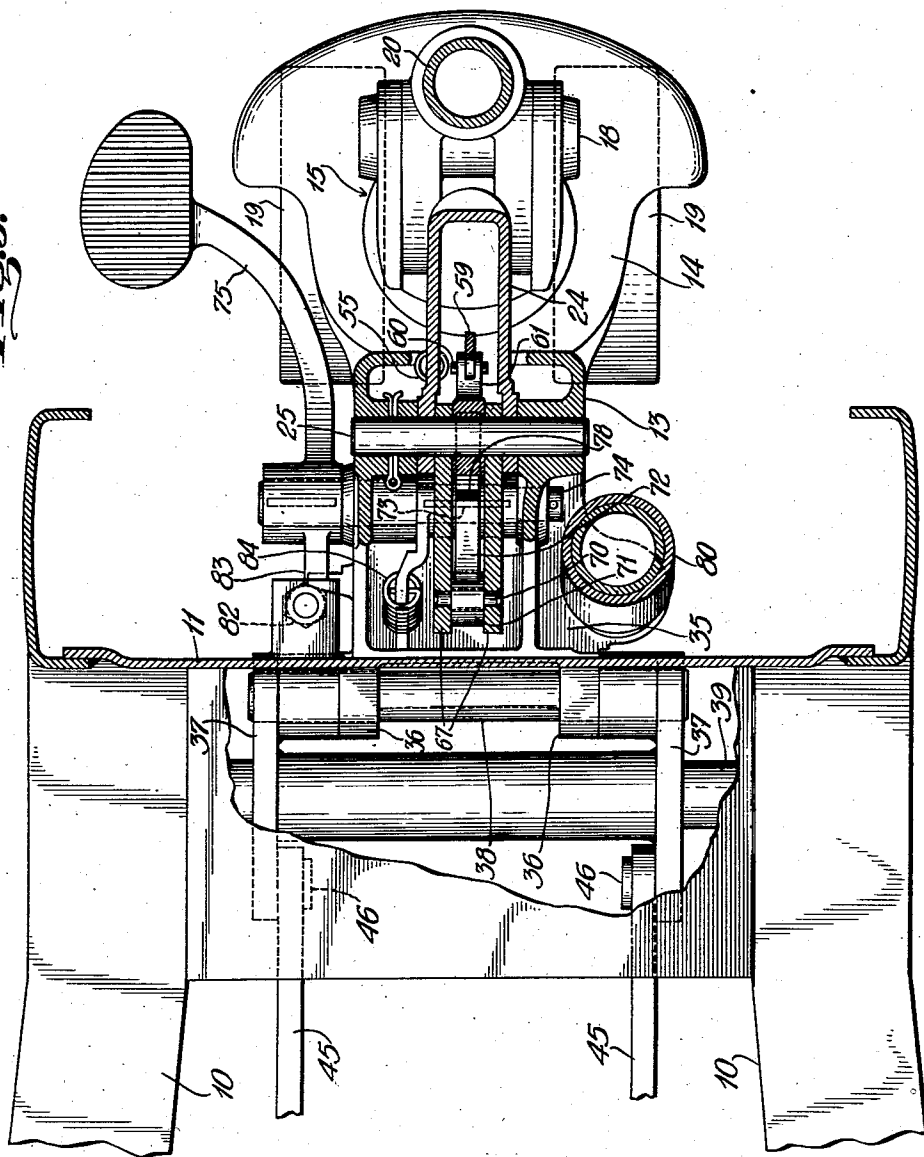
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LIFT TRUCK

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Fig. 3.



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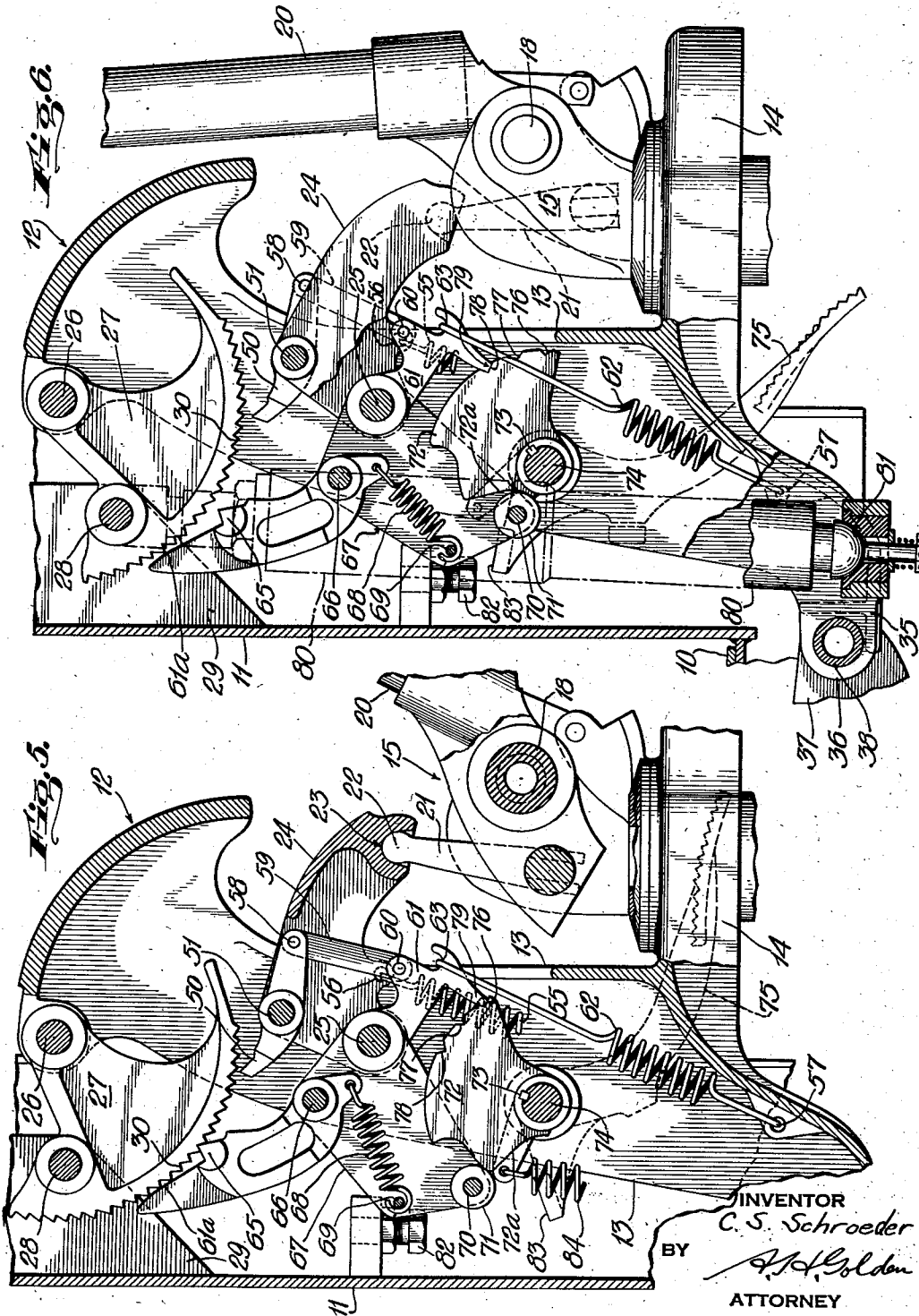
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LIFT TRUCK

Filed Sept. 9, 1942

4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,367,061

LIFT TRUCK

Charles S. Schroeder, Philadelphia, Pa., assignor
to The Yale & Towne Manufacturing Company,
Stamford, Conn., a corporation of Connecticut

Application September 9, 1942, Serial No. 457,729

26 Claims. (Cl. 254—2)

This invention relates to an industrial truck of the hand lift type, in which an elevating platform is elevated relatively to a lifting head through the operation of manually actuated lifting means.

My invention relates more particularly to a truck of the class in which mechanical rather than hydraulic lifting means are used to lift the elevating platform relatively to the lifting head. Even more particularly, my invention relates to a single frame truck in which the lifting head is not part of a wheel supported main frame, but is rather, a unit adapted for assembly to the elevating platform through linkage mechanism. In this type of truck, the elevating platform is supported at its rear end by wheels pivoted to that rear end through links, means being provided so that the said links and the wheels thereon may be moved relatively to the elevating platform as that elevating platform is lifted at its front end and relatively to the lifting head. While my invention is particularly adapted for application to a truck of this type, generally known in the trade as the single frame type, those skilled in the art will fully appreciate that my invention may be applied to other types of trucks of the general class described.

An important feature of my invention resides particularly in the means whereby the elevating platform is lifted relatively to the lifting head. More particularly, this feature of my invention resides in the formation of one of the links connecting the lifting head and the elevating platform so that it will have a series of spaced means that are engaged, preferably successively, by a lifting member on the lifting head. Even more particularly, this feature of my invention resides in the forming of one of the links connecting the elevating platform and the lifting head so that it has a series of ratchet teeth, or the equivalent thereof, that are adapted to be engaged by a reciprocating pawl, or an equivalent thereof, mounted on the lifting head.

A further feature of my invention resides in the holding mechanism for holding the elevating platform in any or all of its elevated positions relatively to the lifting head. More particularly, this feature of my invention resides in a holding member that is mounted on the lifting head and is adapted to coact with spaced means on the same link that carries the spaced lifting means. More particularly, this feature of my invention comprises the utilization of the ratchet teeth, or the equivalent thereof, formed on the said lifting link, as elements for cooperation with a holding

pawl, or the equivalent thereof, for maintaining the elevating platform in any and preferably all of its elevated positions.

A further feature of my invention resides in the mounting of the holding member, which is a holding pawl in its preferred form, on the lifting head. Even more particularly, this feature of my invention resides in the support means whereby the holding pawl is mounted so that it is readily moved by the lifting link itself out of holding position when the support means are allowed to move away from supporting position.

As a further feature of my invention, the holding pawl and its supporting means are controlled by a foot treadle, it being a further feature of this portion of my invention that the depression of the foot treadle allows the pawl and its supporting means to be moved by the weight of the elevating platform out of holding position, and preferably with the lifting link itself moving the holding pawl out of holding relation to the ratchet teeth formed on the lifting head.

A further feature of my invention resides in the controlling of the lifting pawl so that it is moved out of operative contact with the lifting link prior to the release of the holding pawl for its movement out of holding relation to the lifting link.

I have thus outlined rather broadly the more important features of my invention, in order that the detailed description thereof that follows may be better understood, and in order that my contribution to the art may be better appreciated. There are of course additional features of my invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception on which my disclosure is based, may readily be utilized by those skilled in the art as a basis for the designing of other structures for carrying out the several purposes of my invention. It is important therefore that the claims to be granted me shall be of sufficient breadth to prevent the appropriation of my invention by those skilled in the art.

For a description of my invention, I shall refer now to the drawings wherein Fig. 1 is an elevation and partial section of a single frame lifting truck in which my invention is installed. Fig. 2 is a vertical section through the front end of the truck of Fig. 1 illustrating the operating parts thereof. Fig. 3 is a view taken along lines 3—3 of Fig. 2. Fig. 4 is a view taken along lines 4—4 of Fig. 2. Figs. 5 and 6 are views of portions of certain of

the parts of Fig. 2 in operating positions other than that shown in Fig. 2.

Referring now more particularly to the drawings, and more especially to Figs. 1, 2 and 3, the elevating platform of my truck, designated generally by reference numeral 10, is shown as formed with a forward standard 11 adapted to be assembled relatively to a lifting head which is designated generally by reference numeral 12. This lifting head is preferably in the form of a single casting that has a vertically extending standard 13 and a generally horizontal steering head support 14. Mounted for rotation on the steering head support 14 is what is termed generally in the art a steering head 15. This steering head 15 comprises a vertical steering sleeve 16 and a bearing member 17 on which the lifting handle assembly is pivoted at 18 for vertical swinging movement relatively to the steering head. At the lower end of the steering sleeve 16 there is supported through the shaft 19a the steering wheel 19. The steering wheel 19 is of course rotatable on the axis of sleeve 19 by the lifting handle assembly 20.

This structure of the steering head and its mounting relatively to the lifting head is not part of the invention of this application and is old and well known in the art. It is merely necessary to know, for the purpose of understanding this invention, that the vertical swinging movement of the lifting handle assembly 20 about the shaft 18 on the bearing member 17 is adapted to reciprocate a strut 21 for operating the lifting mechanism. For this purpose, the strut 21 is formed with a ball 22 at its upper end, bearing in a socket 23 in a lifting lever 24 pivoted about the shaft 25 on the standard 13 of the lifting head 12.

On a shaft 26 mounted on the lifting head standard 13, there is pivoted a lifting link 27. This lifting link 27 is also pivoted about the shaft 28 to the vertical standard 11 of the elevating platform. Shaft 28 is carried on standard 11, through the intermediary of the three spaced plates 29 that are welded to the standard 11. The lifting link 27 has a series of spaced lifting means thereon that take the form of ratchet teeth 30. It will be quite clear to those skilled in the art that if the lifting link 27 is rotated about its shaft 26 on the lifting head standard 13, it will effect a lifting movement of the elevating platform standard 11 through the shaft 28. This rotary lifting movement is imparted to the lifting link 27 by means including the lifting lever 24 actuated by the strut 21, all as will be described hereinafter.

The vertical lifting head standard 13 extends downwardly and somewhat laterally to form a lower extension 35 relatively to which are formed ears 36. Lifting links 37, one at each side of the truck, are pivoted through a shaft 38 relatively to the ears 36 and therefore relatively to the extension 35 of the lifting head 12. These links are further pivoted through the shaft 39 relatively to downwardly extending lugs 40 of the elevating platform 10. It will be noted best from Fig. 2, that a line drawn between the centers of shafts 38 and 39 will be parallel to a line drawn through the centers of shafts 26 and 28, and it is now obvious that as the elevating platform is lifted through the link 27 at the upper end of the lifting head standard 11 relatively to the lifting head 12, the lower portion of the elevating platform will be similarly lifted on the links 37 relatively to the lifting head.

The rear end of the truck carries about a shaft 41, a pair of wheel supporting links 42 on which are mounted the rear wheels 43 of the elevating platform. The links 42 are pivoted at 44 to tension rods 45 that are pivoted at 46 to the links 37. It is quite obvious that during the lifting of the elevating platform from its full line position of Fig. 1 to its dash and dot line position, the tension rods 45 will pull the links 42 so as to rotate those links in a clockwise direction about the shaft 41, thereby lowering the wheels 43 and lifting the rear end of the platform as the forward end thereof is lifted on the upper link 27 and the lower links 37.

While I have described in rather considerable detail the mounting of the elevating platform relatively to the lifting head, it will be well to indicate that the particular structure is that of a single frame truck and is per se, not new. My invention relates more particularly to the utilization of the usual elevating platform mounting means of a truck of the class described for effecting the lifting of the said elevating platform. For the particular purpose, this broad feature of my invention resides, in its preferred form, in the formation of the lifting link 27.

As heretofore set forth, this link 27 in its preferred form, has spaced lifting means in the form of ratchet teeth 30. These ratchet teeth 30 are adapted for cooperation with a pawl 50 that is pivoted at 51 on the lifting lever 24. A spring 55 is connected at 56 to the lifting lever 24 and at 57 to the lifting head whereby to maintain the lifting lever so that its socket portion 23 rests against the ball 22 of the strut 21. It is now obvious that downward swinging movement of the lifting handle assembly 20 is adapted to reciprocate the lifting lever 24 and thereby effect the movement of the pawl 50 to rotate the lifting link 27 through coaction with the ratchet teeth 30.

For controlling the operation of the lifting pawl 50 as will be hereinafter described, there is pivoted to that pawl at 58 a connecting rod 59 that is in turn pivoted at 60 to a lever 61, this lever 61 being mounted on the shaft 25 on which the lifting lever 24 is itself pivoted. A spring 62 is connected to the lever 61 at 63 and to the lifting head at 57 and is adapted through the connecting rod 59 to maintain the lifting pawl 50 pressed against the ratchet teeth 30 as is clearly shown in Fig. 2.

For holding the elevating platform in any and preferably all of its elevated positions, I use what may be termed a holding pawl 65 pivoted on the shaft 66 relatively to a pair of support plates 67 that are mounted on the shaft 25 on which the lifting lever 24 is pivoted. A spring 68 is connected at one end to the lifting pawl 65 and at its other end to pin 69 on the said support plates 67. The support plates 67 have secured thereto on a short connecting shaft 70, a roller 71 that bears against the peripheral surface of a treadle cam 72. This treadle cam 72 is keyed at 73 to the shaft 74 to which is fixed the treadle 75 so that the movement of the treadle 75 effects the rotation of the shaft 74 and the treadle cam 72.

The treadle cam 72 is equipped with control notches 76, 77 and 78. These control notches are adapted for coaction with the portion 79 of the lever 61, it being recalled that this lever 61 is through the connecting rod 59 secured to the lifting pawl 50 to form in effect, part of that lifting pawl 50.

In the position of the several parts described

in Fig. 2, it will be noted that the lifting pawl 50 is maintained spring pressed against the teeth 30 of the lifting link 27. The holding pawl 65, is through the support plates 67 and the roller 71 maintained by the treadle cam 72 in holding relation to the teeth 30 of the lifting link 27. It will be noted that the weight of the elevating platform will be transmitted from the teeth 30 to the holding pawl 65 along the lines extending between the shaft 66 and the shaft 25. It will, therefore, be the shaft 25 that will support practically all of the weight of the elevating platform while but a small part of the weight will be transmitted through the support plates 67 and the roller 71 to the treadle cam 72, all as will be fully appreciated.

With the parts in the position of Fig. 2, should the handle assembly 20 be swung downwardly, the lifting lever 24 will be moved from its full line position of Fig. 2 to its dash and dot line position, effecting a movement of the pawl 50 and a rotation of the link 27 about the shaft 26 on lifting head standard 13. It is obvious that this will effect a lifting of the elevating platform on the link 27 and lower links 37. Repeated swinging movement of the lifting handle 20 will finally bring the parts into the position of Fig. 5, wherein the elevating platform is fully elevated and is maintained elevated by the holding pawl 65. In Fig. 5, the foot treadle 75 has been depressed to move lever 61 and to bring the notch 76 of the treadle cam 72 opposite the portion 79 of the lever 61. The lever 61 and the treadle 75 will cooperate to hold one another in this position against the pressure of the springs tending to return them to the position of Fig. 2. The said movement of the treadle cam 72 has, through the lever 61 and connecting rod 59, effected the withdrawal of the lifting pawl 50 from the teeth 30 of the lifting link 27. This yields what is known in the art as a free handle. Thus, the handle assembly 20 may now move freely of the elevating platform and will not elevate that platform. Those skilled in the art appreciate the great importance of this feature since it facilitates the manipulation of the truck, and also prevents the occurrence of a "flying handle," if the platform is released accidentally.

It will be noted that the rotation of the treadle cam 72 has not brought about the movement of the support plates 67 or holding pawl 65, since the roller 71 has merely rolled on the periphery of the treadle cam 72 from the position of Fig. 2 to the position of Fig. 5. If, with the parts in the position of Fig. 5, it is desired to lower the load, the treadle 75 is depressed to its position of Fig. 6, bringing the portion 72a of the periphery of the treadle cam 72 opposite the roller 71. Since all support has now been withdrawn from the support plates 67, the lifting link 27 will, through its ratchet teeth 30, force the pawl 65 downwardly to the position of Fig. 6, and during this movement, the lifting link will cooperate with the surface 61a of the holding pawl 65 for camming the holding pawl out of holding relation to the teeth 30. In other words, as the position of the holding pawl and support plates changes, the surface 61a contacts the lifting link 27 so as to be forced by that lifting link out of holding relation to the ratchet teeth 30, all as is quite apparent from Fig. 6.

The release of the holding pawl 65 from the ratchet teeth 30 of link 27, will allow a complete lowering of the elevating platform back from the position of Fig. 5 to the position of Fig. 2.

This lowering movement will be resisted by a dashpot 80 that is supported at its lower end through a ball and socket joint on the lifting head, and is secured at its upper end on the shaft 28 relatively to the elevating platform. The construction, mounting and operation of the dashpot 80 are of a type well known in the art and do not per se form part of this invention.

As the elevating platform is lowered, it is very desirable that the parts be restored to their position of Fig. 2, so that the operator of the lifting truck will be able to effect a second lifting operation without performing any additional manual acts. For the particular purpose, the elevating platform is equipped with an adjustable nut 82 that contacts a surface 83 forming an integral part of the treadle 75, so that as the elevating platform moves from the position of Fig. 6 to the position of Fig. 2, the nut 82 will impinge against the surface 83 to rotate the treadle 75 about the axis of the shaft 74. Once the treadle is rotated to a predetermined point by the nut 82, the spring 84 will complete the rotation of the treadle to its normal position of Fig. 2, and the holding pawl 65 and lifting pawl 50 will be restored to their operative position effective for the carrying out of a new lifting and holding cycle.

I believe that the operation and construction of my new and novel truck mechanism will now be quite apparent to those skilled in the art.

I now claim:

1. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a lifting device pivoted directly to both the platform and the lifting head for coupling said lifting head and elevating platform, and spaced means on said lifting device whereby step by step movement is imparted thereto for moving the platform relatively to said lifting head.

2. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a lifting device pivoted directly to both the platform and the lifting head for coupling said lifting head and elevating platform, spaced means on said lifting device whereby step by step movement is imparted thereto for moving the platform relatively to said lifting head, and lifting means on said lifting head cooperable with said spaced means for imparting said step by step movement to said lifting device.

3. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a lifting device pivoted directly to both the platform and the lifting head for coupling said lifting head and elevating platform, ratchet teeth on said lifting device whereby step by step movement is imparted thereto for moving the platform relatively to said lifting head, and a lifting pawl on said lifting head cooperable with said ratchet teeth for imparting said step by step movement to said lifting device.

4. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point to the front end of said platform and at another point to said lifting head for coupling said lifting head and elevating platform and whereby pivotal movement of said link effects the lifting of the front end of said platform relatively to said lifting head, a series of lifting elements formed on said link, and lifting means on said lifting head adapted to engage said lifting elements

successively whereby to lift said elevating platform.

5. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point to the front end of said platform and at another point to said lifting head for coupling said lifting head and elevating platform, the pivotal movement of said link effecting the lifting of said platform relatively to said lifting head, a series of ratchet teeth formed on said link, and a lifting pawl mounted for movement relatively to said lifting head and cooperable with ratchet teeth on said link to move said link whereby to lift said elevating platform.

6. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point to the forward end of said platform and at another point to said lifting head for coupling said lifting head and elevating platform, the pivotal movement of said link effecting the lifting of said platform relatively to said lifting head, a series of ratchet teeth formed on said link, a lifting pawl mounted for movement relatively to said lifting head and cooperable with ratchet teeth on said link to move said link whereby to lift said elevating platform, and a holding pawl mounted on said lifting head and cooperable with ratchet teeth on said link to hold said platform in lifted positions.

7. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point to the front end of said platform and at another point to said lifting head for coupling said lifting head and elevating platform, the pivotal movement of said link effecting the lifting of said platform relatively to said lifting head, a series of ratchet teeth formed on said link, a lifting pawl mounted for movement relatively to said lifting head and cooperable with ratchet teeth on said link to move said link whereby to lift said elevating platform, a holding pawl mounted on said lifting head and cooperable with ratchet teeth on said link to hold said platform in lifted positions, a depressable treadle mounted on said lifting head, and means whereby the depression of said treadle releases said pawls successively from the ratchet teeth of said link.

8. In a truck of the class described, a lifting head, an elevating platform, a link pivoted at one point to said platform and at another point to said lifting head whereby pivotal movement of said link effects the lifting of said platform relatively to said lifting head, a series of ratchet teeth formed on said link, a lifting pawl mounted for movement relatively to said lifting head and cooperable with ratchet teeth on said link to move said link whereby to lift said elevating platform, a holding pawl mounted on said lifting head and cooperable with ratchet teeth on said link to hold said platform in lifted positions, a depressable treadle mounted on said lifting head, means whereby the depression of said treadle from a first position to a second position moves the lifting pawl away from said ratchet teeth, means whereby the depression of said treadle to a third position effects the withdrawal of said holding pawl from said ratchet teeth, and means on the elevating platform adapted to strike a portion of said treadle and to move said treadle to its first position upon the lowering of said platform after the withdrawal of said holding pawl.

9. In a truck of the class described, a lifting

head, an elevating platform, a pivoted ratchet member for holding said elevating platform in any one of several elevated positions relatively to said lifting head, a holding pawl cooperable with the teeth of said ratchet member for holding said ratchet member and therefore said elevating platform in said several elevated positions, a support member for said pawl and on which said pawl is pivoted, a spring pressing said pawl towards the teeth of said ratchet, means pivotally mounting said support member on said lifting head, means holding said support member against pivotal movement on said mounting means away from a first position in which said pawl is pressed against the teeth of said ratchet member, said holding means being movable to release said support member for pivotal movement toward a second position with said holding pawl, and means whereby the said movement of said pawl and its support member withdraws the holding pawl from the teeth of said ratchet to allow lowering of said elevating platform from any elevated position.

10. In a truck of the class described, a lifting head, an elevating platform, a pivoted ratchet member for holding said elevating platform in any one of several elevated positions relatively to said lifting head, a holding pawl cooperable with the teeth of said ratchet member for holding said ratchet member and therefore said elevating platform in said several elevated positions, a support member for said pawl and on which said pawl is pivoted, a spring pressing said pawl towards the teeth of said ratchet, means pivotally mounting said support member on said lifting head, means holding said support member against pivotal movement on said mounting means away from a first position in which said pawl is pressed against the teeth of said ratchet member, said holding means being movable to release said support member for pivotal movement towards a second position with said holding pawl, and a surface of said pawl engaged by said ratchet for moving the pawl away from said ratchet as said pawl and its support member moves toward said second position.

11. In a truck of the class described, a lifting head, an elevating platform, a pivoted ratchet member for holding said elevating platform in any one of several elevated positions relatively to said lifting head, a holding pawl cooperable with the teeth of said ratchet member for holding said ratchet member and therefore said elevating platform in said several elevated positions, a support member for said pawl and on which said pawl is pivoted, a spring pressing said pawl towards the teeth of said ratchet, means pivotally mounting said support member on said lifting head, a foot treadle for holding said support member against pivotal movement on said mounting means away from a first position in which said pawl is pressed against the teeth of said ratchet member, said foot treadle being movable to release said support member for pivotal movement towards a second position with said holding pawl, and a surface of said pawl engaged by said ratchet for moving the pawl away from said ratchet as said pawl and its support member moves toward said second position.

12. In a truck of the class described, a lifting head, an elevating platform, a pivoted ratchet member for holding said elevating platform in any one of several elevated positions relatively to said lifting head, a holding pawl cooperable with the teeth of said ratchet member for holding said

ratchet member and therefore said elevating platform in said several elevated positions, a support member for said pawl and on which said pawl is pivoted, a spring pressing said pawl towards the teeth of said ratchet, means pivotally mounting said support member on said lifting head, a foot treadle for holding said support member against pivotal movement on said mounting means away from a first position in which said pawl is pressed against the teeth of said ratchet member, said foot treadle being movable to release said support member for pivotal movement towards a second position with said holding pawl, a surface of said pawl engaged by said ratchet for moving the pawl away from said ratchet as said pawl and its support member moves toward said second position.

13. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, upper and lower links pivoted directly to integral portions of the front end of said elevating platform and said lifting head to form a complete truck and to mount said elevating platform for lifting movement relatively to said lifting head, a movable lifting member mounted on said lifting head, and means formed on one of said links engaged by said lifting member for moving said link whereby to lift the front end of said platform relatively to said lifting head.

14. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, upper and lower connecting links pivoted at their opposite ends directly to integral portions of the front end of said elevating platform and said lifting head to form a complete truck and to mount said elevating platform for lifting movement relatively to said lifting head, wheel supporting links pivoted to the rear end of said platform, means whereby the lifting movement of the front end of said platform relatively to said lifting head moves said wheel supporting links to lift the rear end of said platform, a movable lifting member mounted on said lifting head, and means formed on one of said connecting links engaged by said lifting member for moving said link whereby to lift the front end of said platform relatively to said lifting head.

15. In a truck of the class described, a lifting head, an elevating platform, means including a connecting link pivoted at one end to an integral part of said platform and at its other end to an integral part of said lifting head for connecting the forward end of said platform to said lifting head to form a completed truck and to mount the forward end of said elevating platform for lifting movement relatively to said lifting head, wheel supporting links pivoted to the rear end of said platform, means whereby the lifting movement of the front end of said platform relatively to said lifting head moves said wheel supporting links to lift the rear end of said platform, a movable lifting member mounted on said lifting head, and means formed on said connecting link engaged by said movable lifting member for moving said connecting link whereby to lift the front end of said platform relatively to said lifting head.

16. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, means connecting the forward end of said platform to said lifting head to form a complete truck and to mount the forward end of said elevating platform for lifting movement relatively to said lift-

ing head, said means including a link pivoted at one end to an integral part of said platform and at its other end to an integral part of said lifting head, a movable lifting member mounted on said lifting head, and means formed on said link engaged by said movable lifting member for moving said link whereby to lift the front end of said platform relatively to said lifting head.

17. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, means connecting the forward end of said platform to said lifting head to form a complete truck and to mount the forward end of said elevating platform for lifting movement relatively to said lifting head, said means including a connecting link pivoted at one end to an integral part of said platform and at its other end to an integral part of said lifting head, wheel supporting links pivoted to the rear end of said platform, means whereby the lifting movement of the front end of said platform relatively to said lifting head moves said wheel supporting links to lift the rear end of said platform, a movable lifting member mounted on said lifting head for repeated lifting movement, and a series of spaced means formed on said connecting link and engaged by said movable lifting member for repeatedly moving said link whereby to lift the front end of said platform step by step relatively to said lifting head.

18. In a truck of the class described, a lifting head, an elevating platform, a link pivoted at one point to said platform and at another point to said lifting head, ratchet teeth formed on said link, a lifting pawl movably mounted on said main frame and cooperable with said ratchet teeth to rotate said link and lift said platform relatively to said lifting head, a support element pivotally mounted on said lifting head, a treadle adapted to retain said support element in a predetermined position so long as said treadle is in a first position, and a holding pawl pivoted on said support element and cooperable with said ratchet teeth to hold said platform in its elevated positions so long as said support element is in its predetermined position.

19. In a truck of the class described, a lifting head, an elevating platform, a link pivoted at one point to said platform and at another point to said lifting head, ratchet teeth formed on said link, a lifting pawl movably mounted on said main frame and cooperable with said ratchet teeth to rotate said link and lift said platform relatively to said lifting head, a support element pivotally mounted on said lifting head, a treadle adapted to retain said support element in a predetermined position so long as said treadle is in a first position, and a holding pawl pivoted on said support element and cooperable with said ratchet teeth to hold said platform in its elevated positions so long as said support element is in its predetermined position, said treadle being rotatable to a second position toward which it is followed by said holding pawl and its support element, a surface of said pawl then cooperating with said link to hold the pawl away from the ratchet teeth.

20. In a truck of the class described, a lifting head, an elevating platform, a link pivoted at one point to said platform and at another point to said lifting head, ratchet teeth formed on said link, a lifting pawl movably mounted on said main frame and cooperable with said ratchet teeth to rotate said link and lift said platform

relatively to said lifting head, a support element pivotally mounted on said lifting head, a treadle adapted to retain said support element in a predetermined position so long as said treadle is in a first position, a holding pawl pivoted on said support element and cooperable with said ratchet teeth to hold said platform in its elevated positions so long as said support element is in its predetermined position, said treadle being rotatable to a second position toward which it is followed by said holding pawl and its support element, a surface of said pawl then cooperating with said link to hold the pawl away from the ratchet teeth, and means whereby said treadle moves said lifting pawl away from said ratchet teeth prior to moving to said second position.

21. In a truck of the class described, a lifting head, an elevating platform, a ratcheted link for lifting said platform relatively to said lifting head, a lifting pawl movably mounted on said lifting head and cooperable with said ratchet teeth to rotate said link and lift said platform relatively to said lifting head, a support element pivotally mounted on said lifting head, a treadle adapted to retain said support element in a predetermined position so long as said treadle is in a first position, a holding pawl pivoted on said support element and cooperable with said ratchet teeth to hold said platform in its elevated positions so long as said support element is in its predetermined position, said treadle being rotatable to a second position toward which it is followed by said holding pawl and its support element, a surface of said pawl then cooperating with said link to hold the pawl away from the ratchet teeth.

22. In a truck of the class described, a lifting head, an elevating platform, a ratcheted link through which said elevating platform is held in elevated position, a holding pawl, mounting means pivotally mounting said holding pawl relatively to said lifting head for engagement with the ratchet teeth of said link to hold said platform in its elevated positions, a treadle formed as a support for the mounting means of said holding pawl and movable from a support position for said mounting means to a release position relatively to said holding pawl and its mounting means, and a surface of said holding pawl cooperable with said link when said holding pawl moves on its mounting means to follow said treadle whereby to cam said holding pawl away from said ratchet teeth.

23. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point directly to the front end of said platform and at another point directly to said lifting head for coupling said lifting head and elevating platform and whereby pivotal movement of said link effects the lifting of the front end of said platform relatively to said lifting head, a series of lifting elements formed on said link, lifting means movable on said lifting head adapted to engage said lifting elements successively whereby to lift said elevating platform, a steering head rotatable on said lifting head, a steering handle pivoted on said steering head for vertical swinging

movement and for rotating said steering head, and means whereby said steering handle actuates said lifting means in all steering positions of said steering head.

24. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, a link pivoted at one point to the front end of said platform and at another point to said lifting head for coupling said lifting head and elevating platform and whereby pivotal movement of said link effects the lifting of the front end of said platform relatively to said lifting head, a series of lifting elements formed on said link, lifting means on said lifting head adapted to engage said lifting elements successively whereby to lift said elevating platform, a treadle movable from a first position to a second position for moving said lifting means from engaging relation to said lifting elements when said elevating platform is lifted, and means whereby the lowering of said elevating platform restores said treadle to said first position to release said lifting means for engagement with said lifting elements.

25. In a truck of the class described, a lifting head, an elevating platform, a link pivoted at one point to said platform and at another point to said lifting head whereby pivotal movement of said link effects the lifting of said platform relatively to said lifting head, a series of ratchet teeth formed on said link, a lifting pawl mounted for movement relatively to said lifting head and cooperable with ratchet teeth on said link to move said link whereby to lift said elevating platform, means for holding said elevating platform in its lifted position, a depressable treadle mounted on said lifting head, means whereby the depression of said treadle from a first position to a second position moves the lifting pawl away from said ratchet teeth, means whereby the depression of said treadle to a third position effects the movement of said holding means to release said elevating platform for lowering movement, and means on the elevating platform adapted to effect the movement of said treadle to its first position upon the lowering of said platform after the release movement of said holding means.

26. In a truck of the class described, a wheel supported lifting head, an elevating platform wheel supported at its rear end, upper and lower links pivoted directly to integral portions of the front end of said elevating platform and said lifting head to form a complete truck and to mount said elevating platform for lifting movement relatively to said lifting head, a movable lifting member mounted on said lifting head, means formed on one of said links engaged by said lifting member for moving said link whereby to lift the front end of said platform relatively to said lifting head, a steering head mounted on said lifting head, a steering handle pivoted for vertical swinging movement on said steering head and adapted to rotate said steering head, and means whereby said steering handle actuates said lifting member in all steering positions of said steering head.

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