Jan. 11, 1944. B. ULINSKI 2,339,120

INDUSTRIAL TRUCK

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Fig. 1.

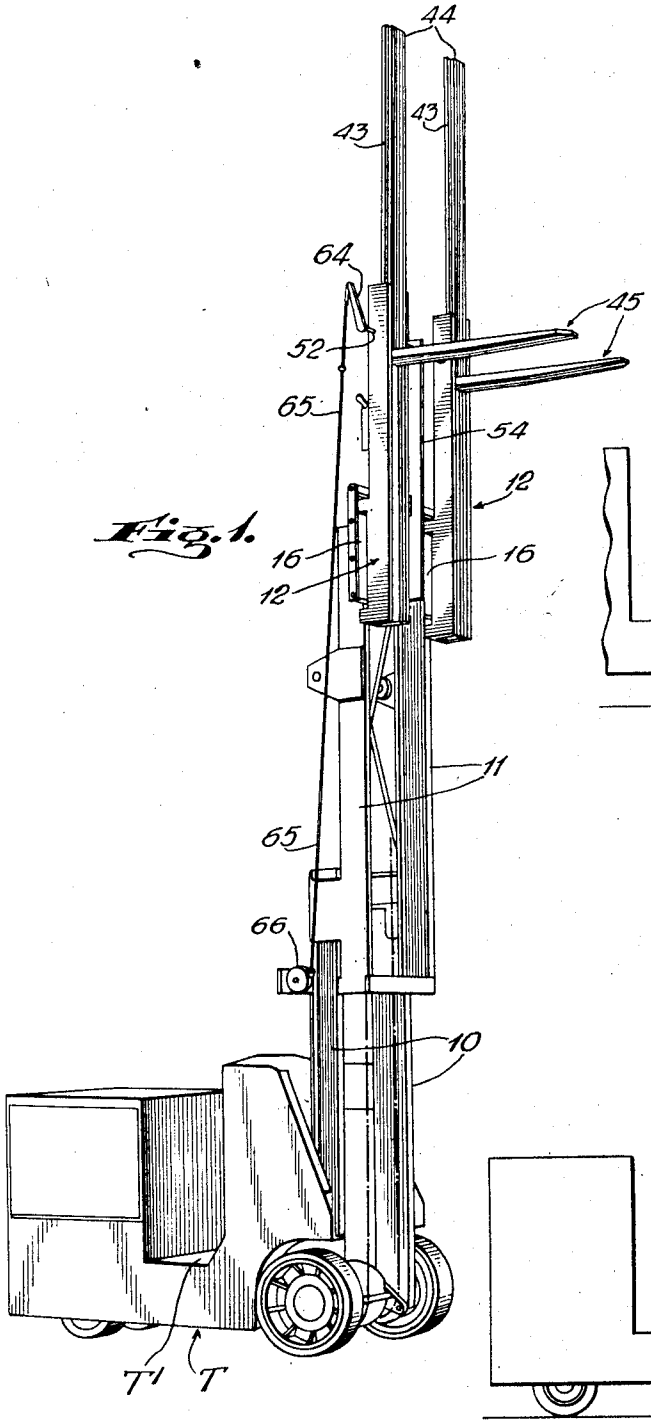


Fig. 2.

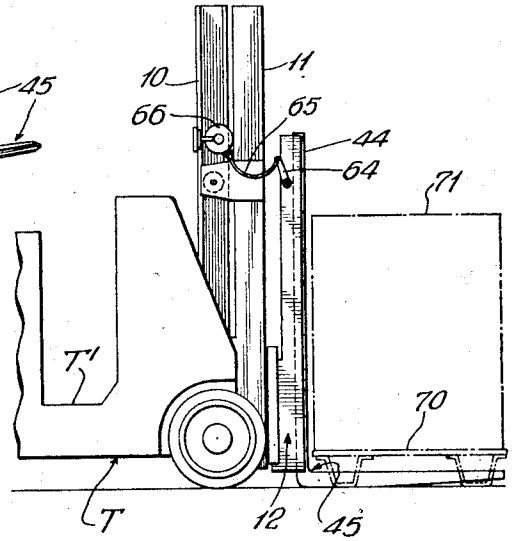
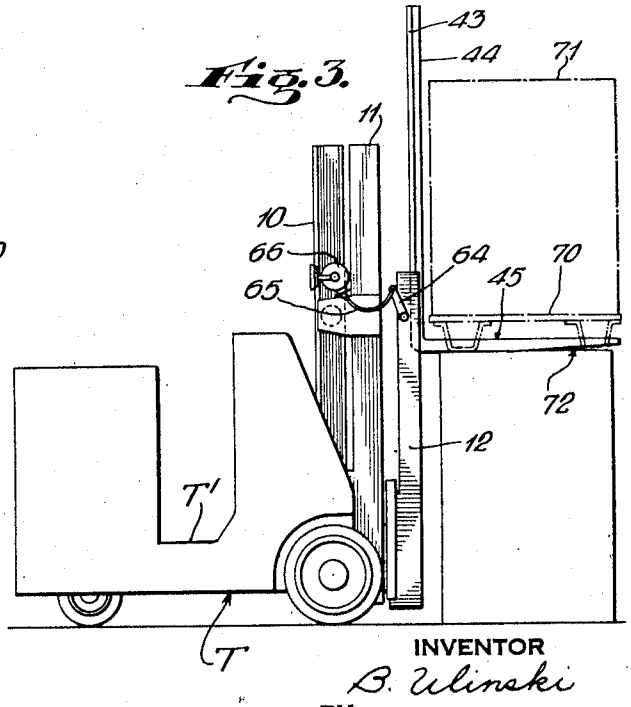


Fig. 3.



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Fig. 4.

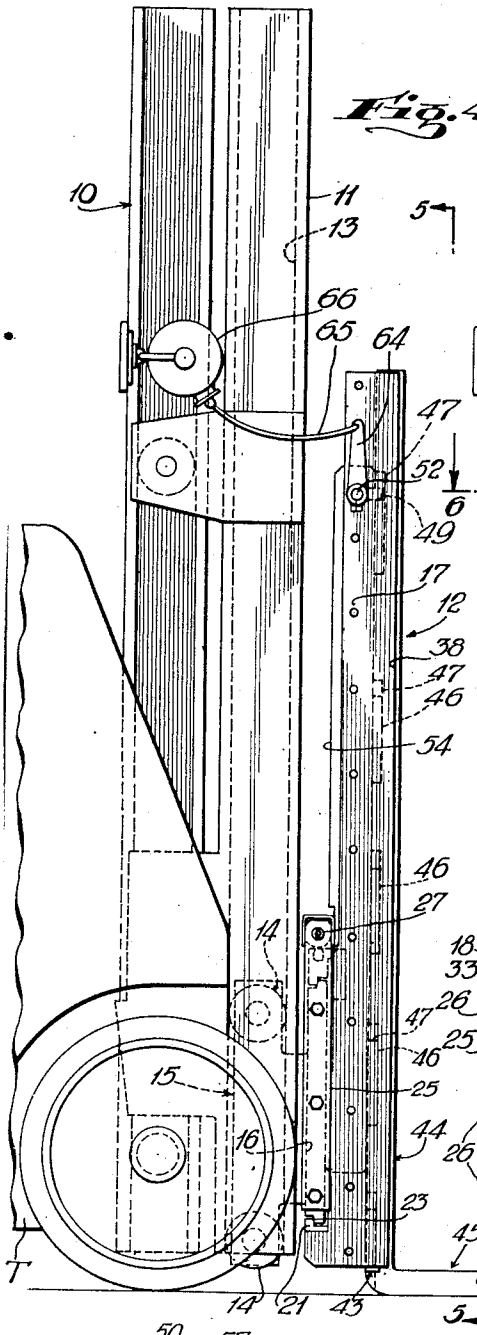
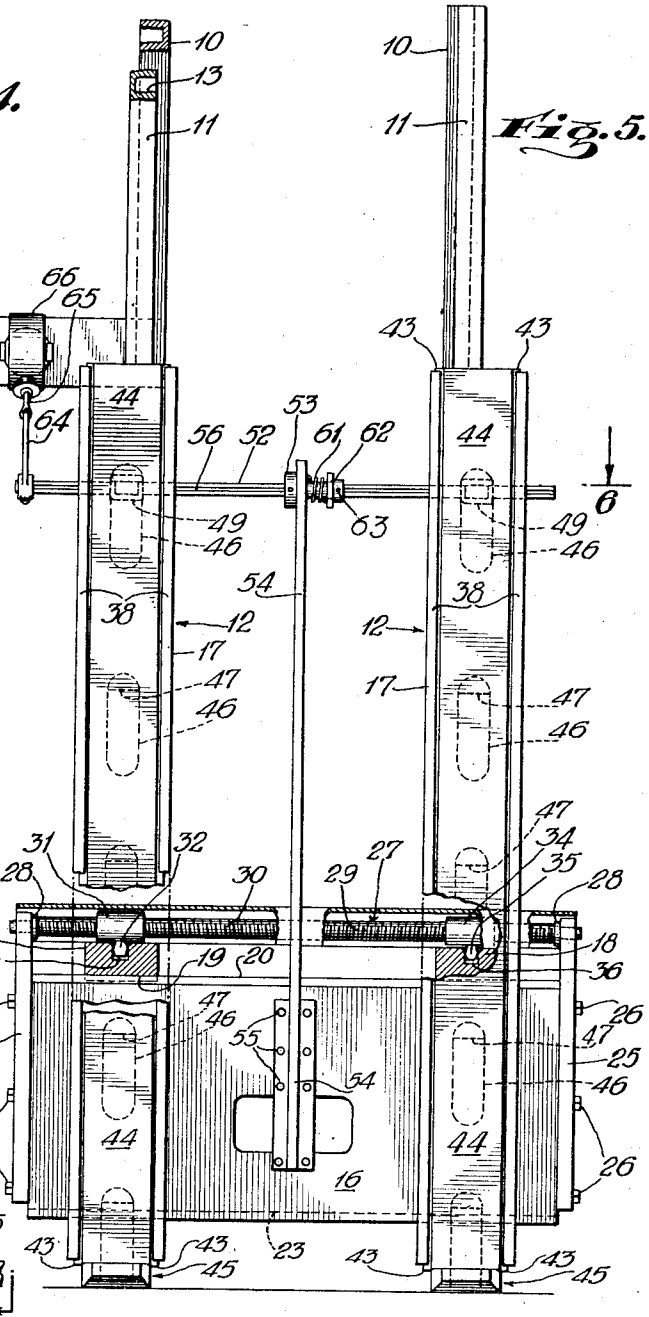


Fig. 5.



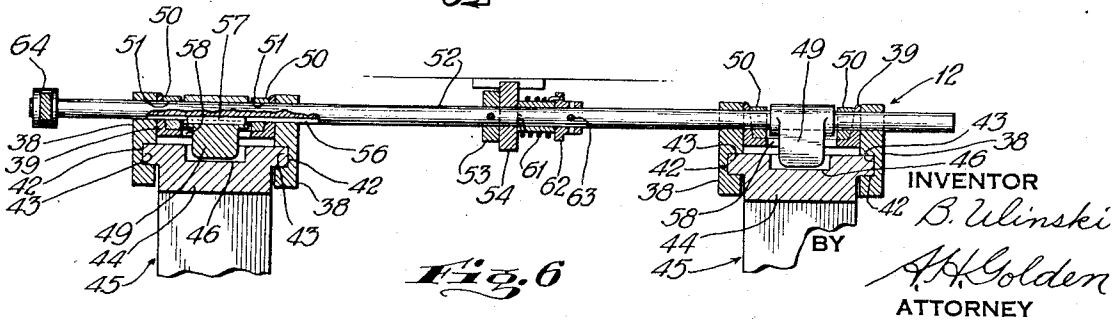


Fig. 6

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Fig. 7.

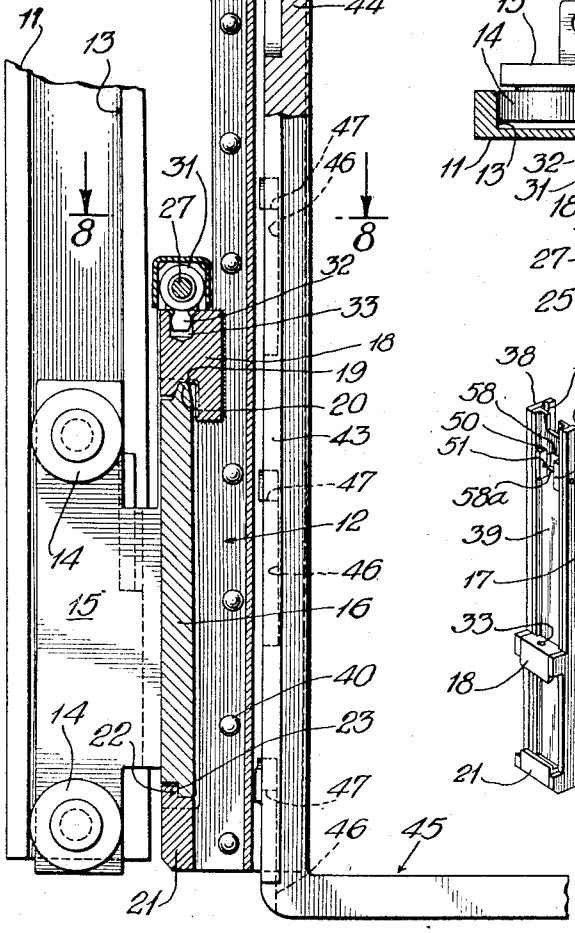


Fig. 8.

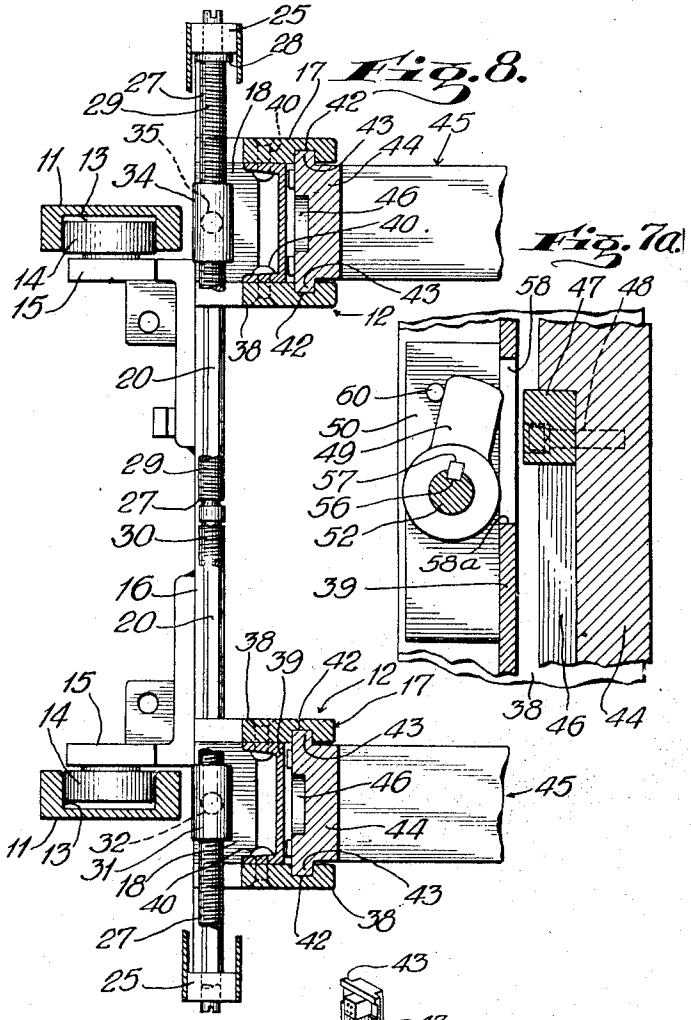


Fig. 7a.

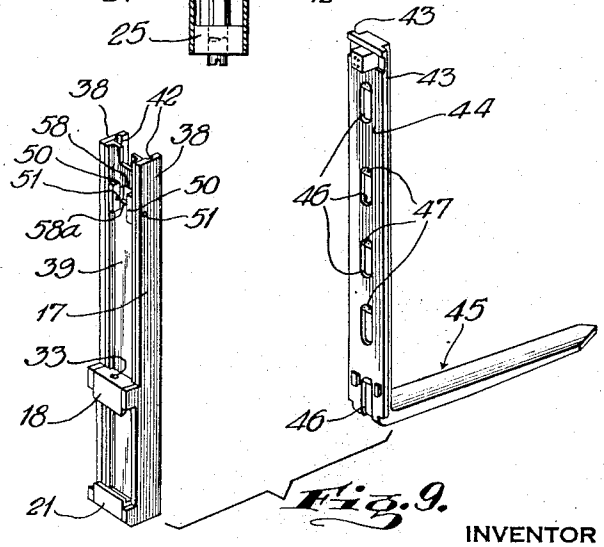


Fig. 9.

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Patented Jan. 11, 1944

2,339,120

UNITED STATES PATENT OFFICE

2,339,120

INDUSTRIAL TRUCK

Bronislaus Ulinski, Chicago, Ill., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn., a corporation of Connecticut

Application June 20, 1942, Serial No. 447,849

28 Claims. (Cl. 214—113)

This invention relates to an industrial truck of the type in which an elevating platform is adapted to be lifted relatively to one or more uprights upon the operation of suitable elevating mechanism. More particularly, my invention relates to an industrial truck of the type in which the elevating platform is in the form of a pair of spaced forks, and my invention will so be described. Those skilled in the art will appreciate however, that certain features of my invention are applicable to a truck in which the platform is formed of means other than spaced load forks.

A feature of my invention is the mounting of the forks comprising the platform, so that they are readily adjusted vertically relatively to the elevating carriage of the truck on which they are mounted for lifting movement, whereby the lifting movement of the forks may be increased when desired, to a considerable extent. Thus, this feature of my invention allows the forks to be secured normally to a lower portion of the elevating carriage so that the forks may be dropped to the floor on which the truck is placed. By particular manipulation of means forming part of my invention, the forks may thereafter be adjusted so as to lie in an upper relation relatively to the elevating carriage whereby to contribute greater overall lifting height.

As a further feature of my invention, I utilize a novel form of mechanism whereby the adjustment of the forks relatively to the elevating carriage in several vertically spaced positions is readily obtained, preferably by mere manipulation of the parts by the elevating mechanism, and with practically no manual operation. As a still further feature of my invention, the means whereby the forks are secured relatively to the elevating cariage in several vertically spaced positions, are operable in all of the positions of the elevating carriage, the elevating carriage having a considerable range of movement so as to make such means of considerable importance.

A still further feature of my invention, and one which is particularly applicable to that form of my invention utilizing spaced load lifting forks, resides in the means whereby the forks may be adjusted into different laterally spaced positions, and may in each of the said laterally spaced positions be adjusted vertically into different vertically spaced positions as already outlined.

As a further feature of this part of my invention, the elevating forks are supported by the elevating carriage through what I choose to term fork supports, and these fork supports are laterally slidable on the elevating carriage to contribute lateral adjustment of the forks, all as will appear clearly in the specification that follows.

I have thus outlined the more important features of my invention in order that the mechanism to be hereinafter described may be more clearly understood. Those skilled in the art will understand however that the basic contribution of my invention may be embodied in structure other than that which I shall hereinafter describe, and will appreciate that the claims to be allowed me should be sufficiently broad to prevent the appropriation of my invention by its embodiment in such other structures.

Referring now to the drawings, Fig. 1 is a perspective view of an electric industrial truck having two pairs of uprights, and an elevating carriage on which is supported a pair of lifting forks. In Fig. 1 the lifting forks are shown secured relatively to the elevating carriage in their highest vertical position. Fig. 2 illustrates the truck of Fig. 1 with the elevating carriage in its lowermost position, and the forks against the ground and under a skid platform. Fig. 3 shows the manner in which the parts of the truck of Figs. 1 and 2 are operated to place the forks in the highest position possible relatively to the elevating carriage, that being the position of the forks in Fig. 1. Fig. 4 is an enlarged view of certain parts of Fig. 2. Fig. 5 is a view looking to the left toward Fig. 4 in the direction of the arrows 5—5. Fig. 6 is a view taken along lines 6—6 of Fig. 5. Fig. 7 is an enlarged view of certain of the parts of Fig. 4, with several of the parts shown in section. Fig. 7a is a view of certain of the parts of Fig. 7 in a somewhat different position. Fig. 8 is a section taken along lines 8—8 of Fig. 7. Fig. 9 is a perspective view of one of the forks and a fork support.

Referring now more particularly to the drawings, reference letter T indicates an industrial truck of the type having an operator's platform T^1, a pair of primary uprights 10, secondary uprights 11 adapted to be elevated on the primary uprights 10, and a lifting carriage designated generally by the reference numeral 12 adapted to be elevated on the secondary uprights 11. The general combination thus described is one which is old in the art and no details of the truck construction nor the means for elevating the secondary uprights 11 and the carriage 12 are shown for that reason. Reference may be made to the Schroeder Patent 2,059,150 granted October 27, 1936, for a showing of a truck in which uprights

and a load carriage are elevated, and in which the lowering sequence of the parts is controlled.

Referring now to Figs. 4 and 7, one of the secondary uprights 11 is shown formed with the usual track 13 in which is adapted to roll a pair of vertically spaced rollers 14 extending from a structural steel member 15 of the elevating carriage 12. There are of course two of these members 15, one for each of the secondary uprights 11, and extending between the two members 15 and connecting those members, is what I may term a support plate 16.

A pair of duplicate fork supports 17, one of which is best shown in Fig. 9, is adapted to be mounted on the support plate 16. For the particular purpose, each of the fork supports 17 has secured thereto an upper bearing member 18 having a groove 19 whereby to slide on the upper bearing surface 20 of the support plate 16. A somewhat similar lower bearing member 21 is secured to each of the fork supports 17 and is formed with a surface 22 for cooperation with an under bearing surface 23 of the support plate 16. It is obvious that through the particular arrangement thus outlined the fork supports 17 may slide laterally on the bearing plate 16 into different spaced relation to one another. I shall now proceed to describe the manner in which the fork supports are thus laterally moved relatively to the support plate 16 and to one another.

Referring now to Fig. 5, there are secured to the left and right ends of the support plate 16, end bars 25 through a series of bolts 26, and mounted for rotation on and between the said end bars 25 is a threaded shaft 27, the said shaft being held by flanges 28 against lateral movement relatively to the end bars 25. The threaded shaft 27 has two series of threads denoted respectively by reference numerals 29 and 30, one series being formed in one direction while the other series is formed in the other direction, all as is readily apparent by a glance at Figs. 5 and 8. Cooperating with the series of threads 30, there is a rather novel shaped nut 31 formed with a lug 32 that fits within a slot 33 or other opening in the bearing member 18 of one of the fork supports 17. Similarly, the series of threads 29 has fitted thereon a nut 34 similar to the nut 31 but oppositely threaded, and whose lug 35 fits within a slot 36 of the bearing member 18 of the other fork support 17.

It will now be quite apparent that if the shaft 27 is rotated, as by a tool cooperating with its ends, the nuts 31 and 34 will be actuated laterally to move the fork supports 17 toward one another or away from one another. Now that the construction of my invention whereby the forks are laterally adjusted through the movement of the fork supports has been fully set forth, I shall describe the novel relationship between the forks and the fork supports whereby the forks are secured in various vertically spaced positions on the fork supports, and in all laterally spaced positions of the fork supports, and through means made readily available in every vertical position of the elevating carriage on which the fork supports and forks are mounted.

For a proper understanding of my invention it may be well to indicate at this time that the fork supports 17 are formed by the union of a pair of vertical plates 38 with a channel member 39, this union being formed either by riveting, bolting or welding as the case may be. In the particular form of the invention herein decribed the union is formed by using a series of rivets 40. The plates 38 are grooved as at 42, and sliding within the grooves 42 are the flanges 43 of the vertical beam 44 of each of the forks 45 best shown in Fig. 9. A series of slots 46 is formed in the back face of each beam 44, the upper end of each slot being closed by a somewhat semi-circular wearing lug 47 bolted into position by bolts 48 as is best apparent from Fig. 7a. For cooperating with the lugs 47 and slots 46, I utilize what I choose to term latches 49, it being understood that the latches 49 and the lugs 47 of the slots 46 comprise what may be termed broadly, latch mechanism. Shown in the drawings, but not of such nature as to require a description, are limit stops to limit the movement of the forks relatively to their supports.

There is of course a latch 49 for each fork support and fork combination, and I shall confine my description to but one latch. Referring to Figs. 6, 7, 7a and 9 it will be noted that there is welded to the channel member 39 of the fork support 17, a pair of bearing lugs 50, bores 51 being formed in the bearing lugs 50, the channel member 39, and the plates 38 of the fork support 17. A circular rod 52 is mounted for rotation in the several bores 51 and is supported at its center in a bearing member 53 carried at the end of a vertical strut 54 that is bolted at its lower end at 55 to the support plate 16. The rod 52 is formed with a keyway 56, and each of the latches 49 is keyed to the rod 52 through the medium of a key 57 all as is best seen in Fig. 6. Also as best shown in Fig. 6, the latch 49 extends through a slot 58 in the channel member 39 and into one of the slots 46 of the vertical beam portion 44 of the fork 45.

It will be noted that in this position of the parts, best seen from a study of Fig. 7, the latch 49 supports the weight of the fork 45, the latch in turn resting against the surface 58a defining the lower end of the slot 58 in the channel member 39. Moreover, it will be appreciated that with the parts so positioned, should the fork supports 17 and the forks 45 be moved laterally, the latches 49 will merely slide relatively to the shaft 52 while remaining keyed to that shaft for a purpose to be described presently.

The shaft 52 is utilized for moving the latches 49 so as to permit upward movement of the fork supports 17 relatively to the forks 45. Such release is obtained by rotating each latch 49 to the position of Fig. 7a from the position of Fig. 7, this rotation being limited by a limit pin 60. This rotation takes place also against the force of a spring 61 that is secured at one end relatively to the strut 54 and bearing block 53, and at its other end to the shaft 52 through the medium of the block 62 pinned at 63 to the said shaft. At the left hand end of the shaft 52, as best seen in Fig. 5, there is secured a lever 64 that in turn is secured to a cable 65. The cable passes into a reel casing 66 and is adapted to be reeled into that casing by a spring in a manner which is well known in the particular reel art and which per se forms no part of this invention. For my purposes I can use any form of reel now being manufactured that I may find is adapted for the purpose. It will best be noted from Fig. 1 that even in the extreme elevated position of the carriage 12 therein illustrated, the cable 65 is readily operable to move the lever 64 and to rotate the shaft 52 and the latches 49 thereon against the force of the spring 61 from the position of Fig. 7 into the position of Fig. 7a and against the limit pins 60.

It will be interesting to note however, that this movement of the latches 49 is not possible until the forks 45 are raised so as to bring the lugs 47 somewhat above the latches 49 from the position illustrated in Fig. 7. This movement of course is obtained by holding the forks 45 against lowering movement as hereinafter indicated, at the same time that the carriage 12 and the fork supports 17 are lowered. It is obvious, of course, that the forks 45 may always be raised relatively to the carriage 12 and the fork supports 17 by the mere downward movement of the carriage 12 and the fork supports 17 relatively to the forks 45, such movement allowing a mere latching of the latches 49 against the pressure of the spring 61 as will be fully appreciated.

Referring now to Figs. 2 and 3 I shall discuss briefly the functional operation of the parts of my invention in order that the construction which has been described in detail may be even better appreciated. With the parts in the position of Fig. 2, it will be noted that the carriage 12 is in its extreme lowered position and that the forks 45 are also lowered as far as possible and are in contact with the floor. The truck is now adapted to lift a skid platform 70 and the load 71 supported thereon. If the lifting means now be operated so that the carriage 12 is elevated relatively to the secondary uprights 11, it is obvious that the forks 45 will be elevated until they reach the position illustrated in Fig. 3. In that position, the forks may be brought to rest against the upper surface 72 of a stack of material and with the skid 70 also supported on that stack of material, either directly as illustrated, or indirectly on the forks 45.

If in this particular position of the parts, the carriage 12 and fork supports 17 be now lowered, the latches 49 will not impede such lowering movement and will allow the elevating carriage 12 to move into the position of Fig. 2 and therefore into the position of Fig. 3 relatively to stationary forks 45. The latches 49 will now be positioned in the lowermost slots 46 of the vertical beams 44 of the forks 45 and against the lower surfaces of the lugs 47. At this point, by merely operating the elevating mechanism of the truck the forks 45 may be moved with the carriage 12 to the extreme position of Fig. 1, contributing the greatest possible elevating movement to the said forks, all as will be fully appreciated.

If now it is desired to move the forks back into their relation of Fig. 2 relatively to the fork supports 17 and the carriage 12, it is only necessary to bring the parts into the position of Fig. 3 with the forks resting at 72. By now operating the elevating mechanism while moving the cable 65 to withdraw the latches 49 into the position of 7a, it is possible to lift the carriage 12 and the fork supports 17 relatively to the stationary forks 45, and into their normal relation to one another illustrated in Fig. 2. Naturally, this lifting movement of the carriage 12 and fork supports 17 relatively to the forks 45 can only be accomplished after the release of the latches 49, which release requires first the proper spacing of the lugs 47 relatively to the latches 49 as already described. It will be of course appreciated that in all the vertical positions of the forks it is possible to adjust the forks laterally through movement of the fork supports 17 all as has already been described.

I believe that the operation of my invention will now be quite apparent.

I now claim:

1. In a truck of the class described, an elevating carriage mounted for linear lifting and lowering movement on said truck, means for lifting and lowering said carriage, a load platform adapted to be lifted and lowered with said elevating carriage, and means whereby said platform is readily secured to said elevating carriage in a plurality of vertically spaced positions for linear lifting and lowering movement with said carriage.

2. In a truck of the class described, an elevating carriage mounted for linear lifting and lowering movement on said truck, means for lifting and lowering said carriage, a load platform mounted for vertical sliding movement on said elevating carriage, and means whereby said platform is readily secured to said elevating carriage in any one of a plurality of vertically spaced positions for linear lifting and lowering movement with said elevating carriage.

3. In a truck of the class described, an elevating carriage mounted for sliding lifting and lowering movement on said truck, a load platform adapted to be lifted and lowered with said elevating carriage, and latch mechanism for securing said platform to said elevating carriage in a plurality of vertically spaced positions for sliding lifting and lowering movement with said carriage.

4. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, latch mechanism for securing said platform against downward movement relatively to said elevating carriage in any one of a plurality of vertically spaced positions for lifting movement with said elevating carriage, said latch mechanism permitting downward vertical movement of said elevating carriage relatively to said platform when said platform is held against downward vertical movement.

5. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, latch mechanism for securing said platform against downward movement relatively to said elevating carriage in any one of a plurality of vertically spaced positions for lifting movement with said elevating carriage, said latch mechanism permitting downward vertical movement of said elevating carriage relatively to said platform when said platform is held against downward vertical movement, and means for moving said latch mechanism to allow upward vertical movement of said elevating carriage relatively to said platform.

6. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, latch mechanism for securing said platform relatively to said elevating carriage in any one of a plurality of vertically spaced positions on said carriage for lifting movement thereafter with said elevating carriage, and means for moving said latch mechanism whereby to release said platform for sliding movement relatively to said elevating carriage into another one of said vertically spaced positions in which said latch mechanism again secures said platform against downward movement relatively to said carriage.

7. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, latch mechanism for securing said platform against downward movement relatively to said elevating

carriage in any one of a plurality of vertically spaced positions on said elevating carriage for lifting movement thereafter with said carriage, said latch mechanism allowing downward movement of said elevating carriage relatively to said platform when said platform is held against downward movement with said elevating carriage, and means for moving said latch mechanism to release said elevating carriage for upward movement relatively to said platform to another one of said vertically spaced positions in which said latch mechanism again secures said platform against downward movement relatively to said platform.

8. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, a latch for securing said platform for upward movement with said elevating carriage in a plurality of vertically spaced positions on said elevating carriage, said latch being retractible upon determined movement of said elevating carriage downwardly while said platform is held against downward movement, whereby to release said platform from said carriage.

9. In a truck of the class described, an operator's station, a pair of uprights, an elevating carriage mounted for vertical lifting movement on said uprights, a load platform adapted to be lifted with said elevating carriage, latch mechanism whereby said load platform is readily secured to said elevating carriage in a plurality of vertically spaced positions, and means extending to said latch mechanism from a position at said operator's station for effecting the movement of said latch mechanism to release said load platform relatively to said elevating carriage for adjustment from one of said spaced positions to another of said spaced positions, said means then allowing movement of said latch mechanism into position to secure said load platform relatively to said elevating carriage in said other spaced position.

10. In a truck of the class described, an operator's station, a pair of uprights, an elevating carriage mounted for vertical lifting movement on said uprights, a load platform adapted to be lifted with said elevating carriage, latch mechanism between said load platform and elevating carriage comprising a latch movable on one of said parts cooperable with any one of a series of surfaces on the other part whereby said load platform is readily secured to said elevating carriage in a plurality of vertically spaced positions, and means extending to said latch mechanism from a position at said operator's station for actuating said latch mechanism in all positions of said elevating carriage.

11. In a truck of the class described, an operator's station, a pair of uprights, an elevating carriage mounted for vertical lifting movement on said uprights, a load platform adapted to be lifted with said elevating carriage, latch mechanism for securing said platform to said elevating carriage in a plurality of vertically spaced positions, a reel mounted adjacent said operator's station, and flexible means extending from said latch mechanism to said reel and operable to move said latch mechanism.

12. In a truck of the class described, an operator's station, a pair of uprights, an elevating carriage mounted for vertical lifting movement on said uprights, a load platform mounted for vertical sliding movement on said elevating carriage, a spring pressed latch on said elevating carriage for securing said platform for upward movement with said elevating carriage in a plurality of vertically spaced positions on said elevating carriage, said latch being retractible by movement of said elevating carriage downwardly while said platform is held against downward movement whereby to adjust said platform upwardly relatively to said elevating carriage, and means extending from said latch mechanism to said operator's station and operable to move said latch mechanism.

13. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement relatively to said elevating carriage, a latch extending from said elevating carriage into underlying relation to any one of a series of vertically spaced abutments on said platform so as to lift said platform with said carriage when said platform is in any one of a series of vertically spaced positions relatively to said elevating carriage as determined by the spacing of said abutments.

14. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, a latch extending from said elevating carriage into underlying relation to any one of a series of vertically spaced abutments on said platform so as to lift said platform with said carriage when said platform is in any one of a series of vertically spaced positions relatively to said elevating carriage as determined by the spacing of said abutments, said elevating carriage being movable vertically downwardly relatively to said load platform when said platform is held against following the lowering movement of said elevating carriage.

15. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, a latch extending from said elevating carriage into underlying relation to any one of a series of vertically spaced abutments on said platform so as to lift said platform with said elevating carriage when said platform is in any one of a series of vertically spaced positions relatively to said elevating carriage as determined by the spacing of said abutments, said elevating carriage being movable vertically downwardly relatively to said load platform when said platform is held against following the elevating carriage, and means for effecting movement of said latch out of the path of said abutment to permit upward vertical adjustment of said elevating carriage relatively to said platform.

16. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, a latch extending from said elevating carriage into underlying relation to any one of a series of vertically spaced abutments on said platform so as to lift said platform with said elevating carriage when said platform is in any one of a series of vertically spaced positions relatively to said elevating carriage as determined by the spacing of said abutments, said elevating carriage being movable vertically downwardly relatively to said load platform when said platform is held against following the elevating carriage, and manual means for moving said latch out of

the path of said abutments to permit upward vertical adjustment of said elevating carriage relatively to said platform, said manual means requiring the preliminary lowering of said elevating carriage relatively to said platform.

17. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, spaced forks adapted to be lifted with said elevating carriage, means whereby said forks are readily secured relatively to said elevating carriage in a plurality of vertically spaced positions, and means for adjusting said forks into a plurality of laterally spaced positions on said elevating carriage.

18. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, fork supports mounted for lateral sliding movement on said elevating carriage, a fork mounted on each of said fork supports, and means whereby said forks are readily secured to said fork supports in a plurality of vertically spaced positions.

19. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, fork supports mounted for lateral sliding movement on said elevating carriage, means for adjusting and securing said fork supports in laterally adjusted positions on said elevating carriage, a fork mounted on each of said fork supports, and means whereby said forks are readily secured to said fork supports in a plurality of vertically spaced positions.

20. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, fork supports mounted for lateral sliding movement on said elevating carriage, a fork mounted for vertical sliding movement on each of said fork supports, a latch support, latch means supported on said latch support for lateral sliding movement and adapted to lock said forks to said fork supports, and means whereby said latches are moved relatively to said latch support as said fork supports slide laterally on said elevating carriage.

21. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, fork supports mounted for lateral sliding movement on said elevating carriage, a fork mounted for vertical sliding movement on each of said fork supports, a lateral shaft mounted transversely to said fork supports, latch means adapted for rotation with said shaft while adapted for sliding movement on said shaft, means whereby said latches lock said forks to said fork supports in a plurality of vertically spaced positions, and means whereby said latches are moved by said fork supports relatively to said shaft as said fork supports slide on said elevating carriage.

22. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, fork supports mounted for lateral sliding movement on said elevating carriage, a fork mounted for vertical sliding movement on each of said fork supports, a lateral shaft mounted for rotation relatively to said fork supports, latch means keyed to said shaft while adapted for sliding movement on said shaft, means whereby said latches lock said forks to said fork supports in a plurality of vertically spaced positions, means whereby said latches are moved with said fork supports relatively to said shaft as said fork supports slide laterally on said elevating carriage, and means for rotating said shaft relatively to said fork supports whereby to move said latches to release said forks from said fork supports.

23. In a truck of the class described, an elevating carriage mounted for lifting and lowering movement on said truck, means for lifting and lowering said carriage, a pair of fork supports, means mounting said fork supports on said carriage for lateral sliding motion on said carriage and for vertical movement with said carriage, a load fork mounted for sliding movement on each of said fork supports and adapted to be lifted and lowered with said fork supports when secured thereto, and means movable laterally with said fork supports for securing said forks to said fork supports in a plurality of vertically spaced positions.

24. In a truck of the class described, an elevating carriage mounted for lifting and lowering movement on said truck, means for lifting and lowering said carriage, a pair of fork supports, means mounting said fork supports on said carriage for lateral sliding motion on said carriage and for vertical movement with said carriage, a load fork mounted for sliding movement on each of said fork supports and adapted to be lifted and lowered with said fork supports when secured thereto, means movable laterally with said fork supports for securing said forks to said fork supports in a plurality of vertically spaced positions, and means for moving said laterally movable means in all lateral positions thereof to release said forks from said fork supports.

25. In a truck of the class described, an elevating carriage mounted for lifting and lowering movement on said truck, means for lifting and lowering said carriage, a pair of fork supports, means mounting said fork supports on said carriage for lateral sliding motion on said carriage and for vertical movement with said carriage, a load fork mounted for sliding movement on each of said fork supports and adapted to be lifted and lowered with said fork supports when secured thereto, means movable laterally with said fork supports for securing said forks to said fork supports in a plurality of vertically spaced positions, and means extending to said laterally movable means in all vertical positions of said fork supports for moving said laterally movable means.

26. In a truck of the class described, an elevating carriage mounted for lifting and lowering movement on said truck, means for lifting and lowering said carriage, a pair of fork supports, means mounting said fork supports on said carriage for lateral sliding motion on said carriage and for vertical movement with said carriage, a load fork mounted for sliding movement on each of said fork supports and adapted to be lifted and lowered with said fork supports when secured thereto, a latch extending from each of said fork supports into underlying relation to any one of a series of vertically spaced abutments on said forks, latch support means for said latches, and means whereby said latches move laterally with said fork supports and relatively to said latch support means.

27. In a truck of the class described, an elevating carriage mounted for lifting and lowering movement on said truck, means for lifting and lowering said carriage, a pair of fork supports, means mounting said fork supports on said carriage for lateral sliding motion on said carriage and for vertical movement with said carriage, a load fork mounted for sliding movement on each of said fork supports and adapted to be lifted and lowered with said fork supports when secured thereto, a latch supporting member mounted for rotation on said fork supports, a latch for each

of said forks keyed to said latch support member, a series of abutments on each of said forks cooperable with said latches, means whereby said latches move laterally on said supporting member as said fork supports move laterally, and means moving said latches through rotation of said latch supporting member.

28. In a truck of the class described, an elevating carriage mounted for lifting movement on said truck, a load platform mounted for vertical sliding movement on said elevating carriage, a latch extending from said elevating carriage into underlying relation to any one of a series of vertically spaced abutments on said platform so as to lift said platform with said elevating carriage when said platform is in any one of a series of vertically spaced positions relatively to said elevating carriage as determined by the spacing of said abutments, said elevating carriage being movable vertically downwardly relatively to said load platform when said platform is held against following the elevating carriage, and a cable secured to said latch for moving said latch out of the path of said abutments to permit upward vertical adjustment of said elevating carriage relatively to said platform.

BRONISLAUS ULINSKI.