April 25, 1950 H. V. DILLON 2,505,352

INDUSTRIAL TRUCK FOR CABLE REELS AND THE LIKE

Filed April 1, 1948 4 Sheets-Sheet 1

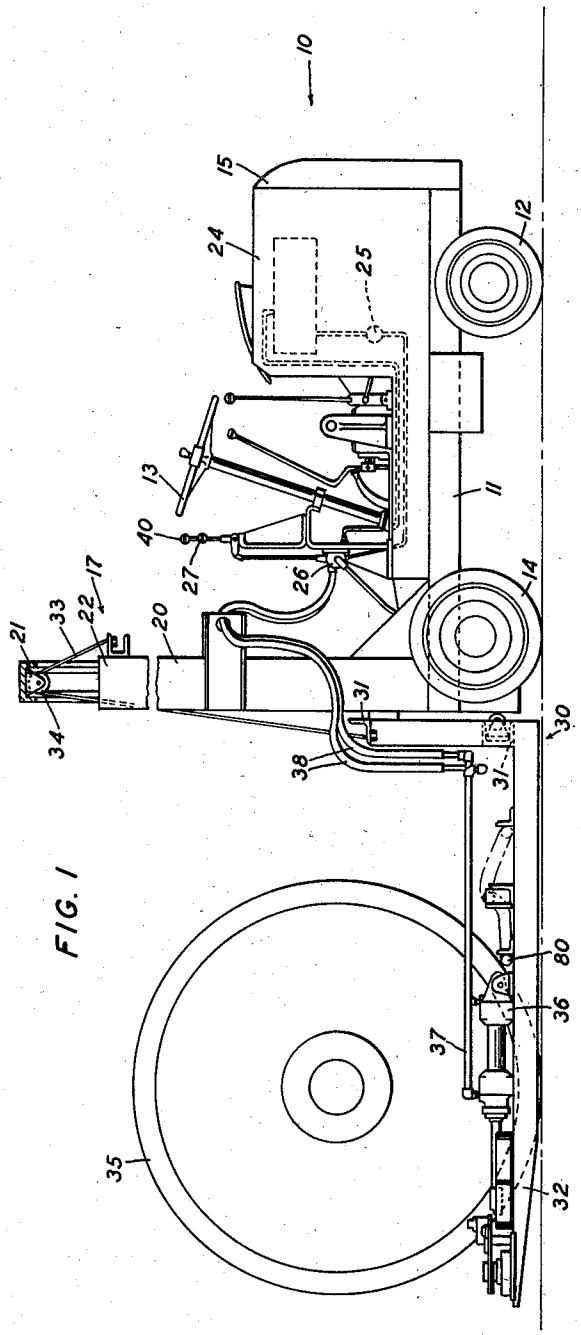


FIG. 1

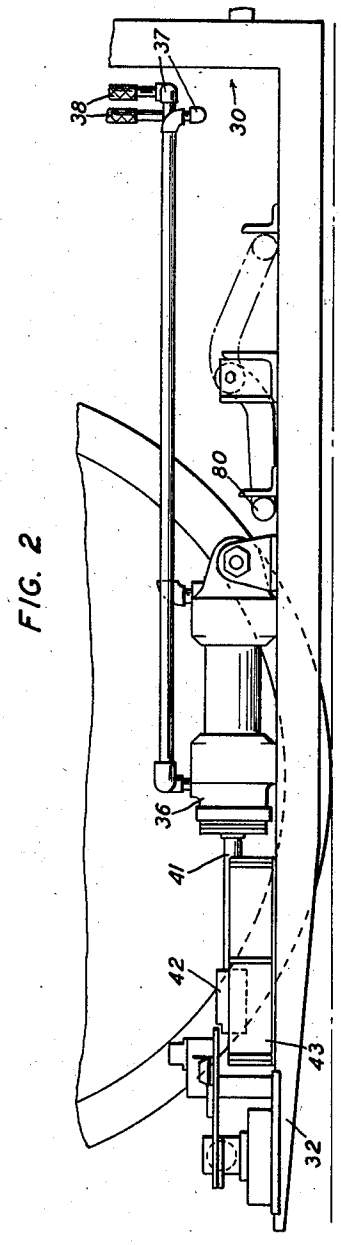


FIG. 2

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INDUSTRIAL TRUCK FOR CABLE REELS AND THE LIKE

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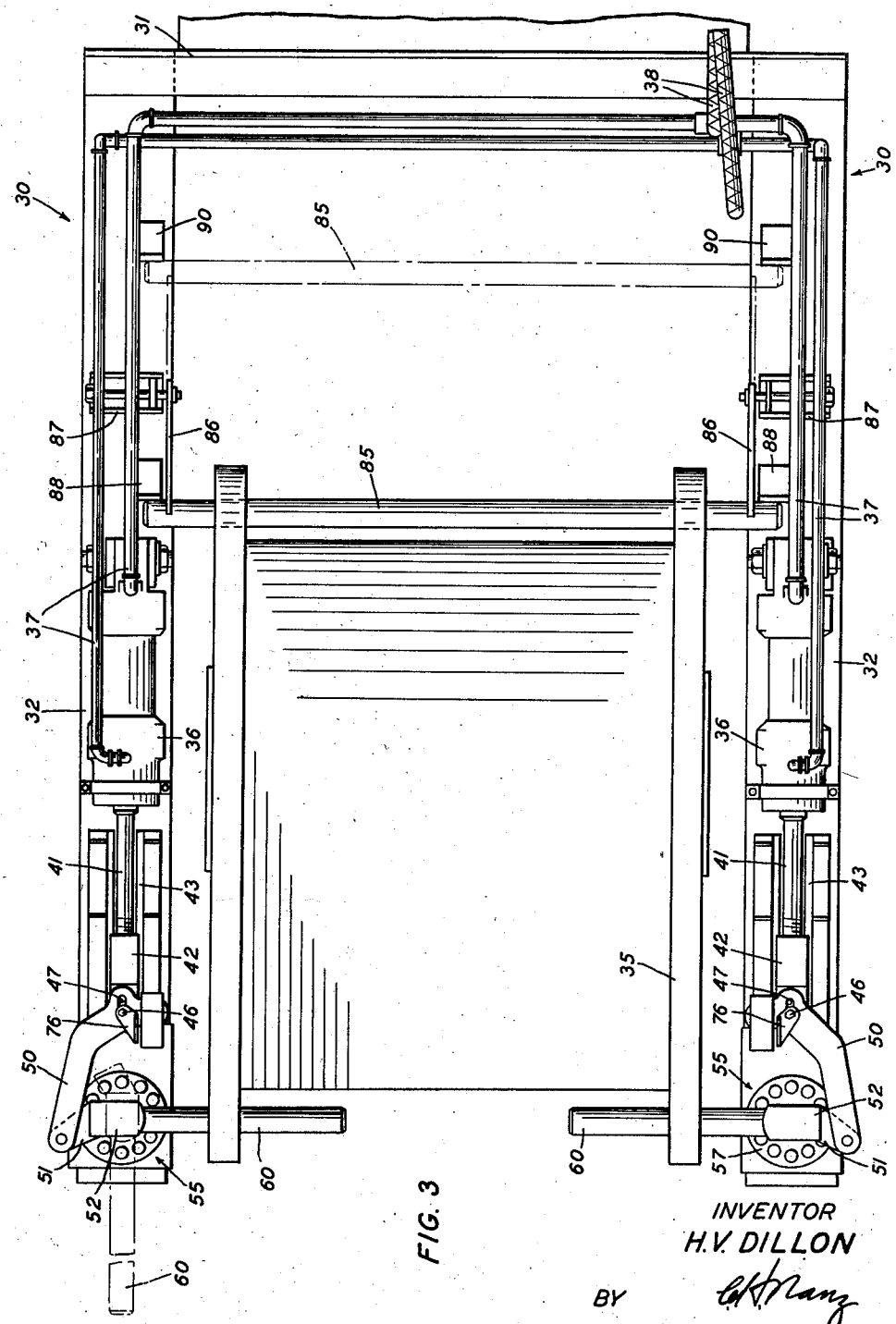


FIG. 3

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INDUSTRIAL TRUCK FOR CABLE REELS AND THE LIKE

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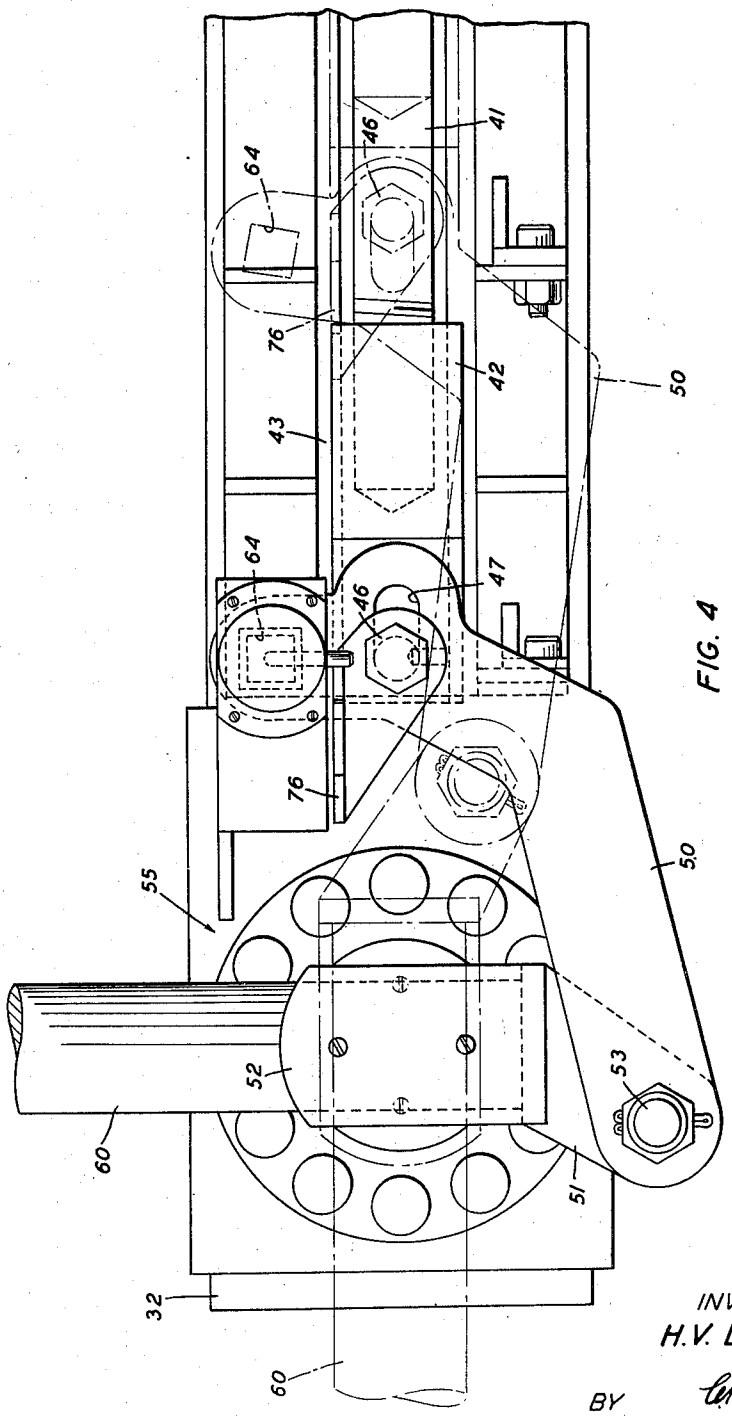


FIG. 4

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INDUSTRIAL TRUCK FOR CABLE REELS AND THE LIKE

Filed April 1, 1948 4 Sheets-Sheet 4

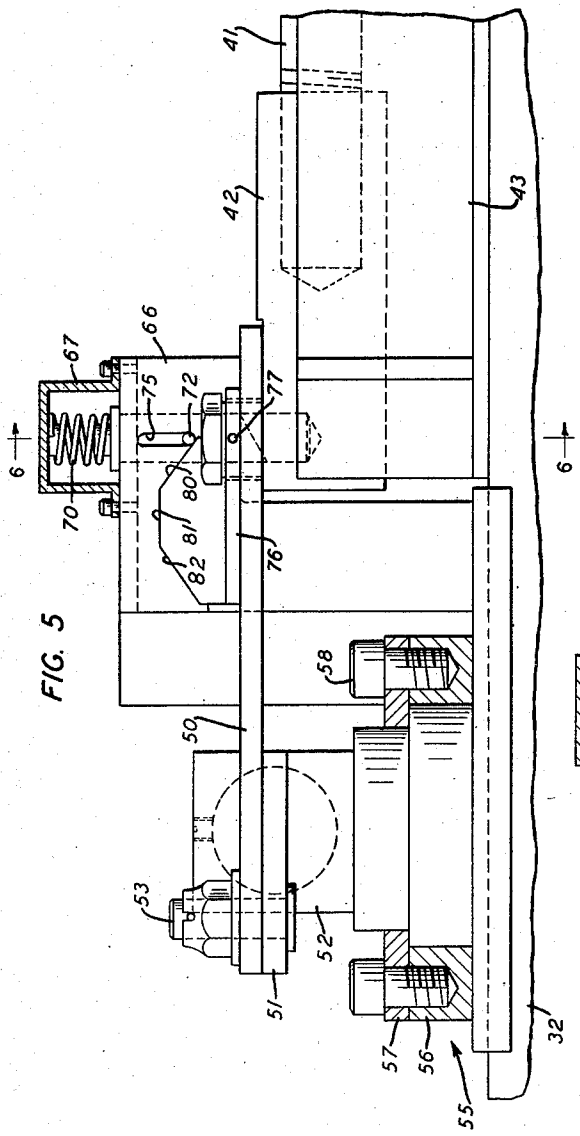


FIG. 5

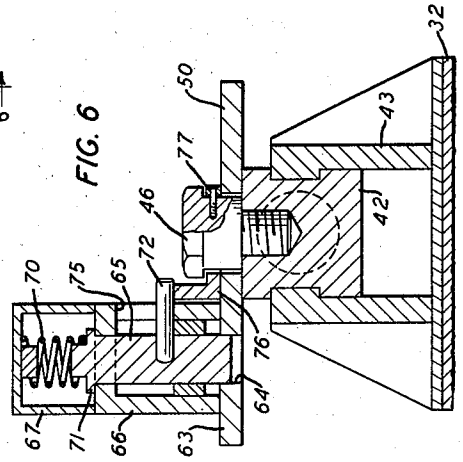


FIG. 6

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Patented Apr. 25, 1950 2,505,352

UNITED STATES PATENT OFFICE

2,505,352

INDUSTRIAL TRUCK FOR CABLE REELS AND THE LIKE

Henry V. Dillon, Baltimore, Md., assignor to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York

Application April 1, 1948, Serial No. 18,429

13 Claims. (Cl. 214—65)

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This invention relates to industrial trucks, and more particularly to industrial trucks capable of lifting and transporting cylindrical articles, such as cable reels, or the like.

Industrial trucks generally used in factories for picking up and transporting articles require the use of a skid, pallet or the like device, to enable the lifting forks of the truck to run under the articles to be moved. In picking up and transporting cable reels of substantial size, it often is necessary to position the reel on the lifting fork so that its central axis is at right angles to the forks. Under such conditions, it has been the practice in the past to mount a platform on the lifting forks of the truck—platforms of at least the same height at various pick-up and delivery locations from which the reels could be rolled onto the truck platform or from the truck to the platform. When it was necessary to unload a reel from the truck at a point where a platform had not been provided, the reel had to be dropped from the truck platform to the factory floor with possible damage to the reel or the cable wound thereon. These additional facilities greatly increased the cost of handling cable reels and restricted the use of industrial trucks to points only where loading and delivery platforms were provided.

An object of the invention is to provide new and improved industrial trucks.

Another object of the invention is to provide new and improved industrial trucks capable of lifting and transporting cylindrical articles, such as cable reels, or the like.

An apparatus illustrating certain features of the invention is adapted to be arranged on the load arm of a lifting fork of an industrial truck, and comprises an article-engaging member rotatably mounted on the load arm of the fork, and means for selectively moving the article-engaging member with respect to the load arm, whereby the article-engaging member is aligned with the load arm of the fork by the moving means the fork may be positioned adjacent to an article to be lifted and when it is positioned at right angles to the load arm by the moving means it engages the article when the fork is elevated.

A complete understanding of the invention will be had from the following detailed description of a specific embodiment thereof, when read in conjunction with the appended drawings, in which;

Fig. 1 represents a side elevation of an industrial truck illustrating certain features of the invention;

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Fig. 2 is an enlarged, fragmentary view of a portion of the apparatus shown in Fig. 1;

Fig. 3 is an enlarged plan view of the load lifting member shown in Fig. 1;

Fig. 4 is an enlarged, fragmentary plan view of a portion of the load lifting member shown in Fig. 2;

Fig. 5 is a fragmentary, vertical particularly sectional view of the portion of the load arms shown in Fig. 4, and

Fig. 6 is a vertical, sectional view taken along line 6—6 of Fig. 5.

Referring now to the drawings and more particularly to Fig. 1, the numeral 10 indicates generally, an industrial truck consisting of a structural frame 11 having secured on one end thereof a pair of wheels, of which one numbered 12 is shown arranged to be manipulated by the steering wheel 13 for guiding the path of travel of the truck 10. Two traction wheels, of which one is numbered 14, is shown, are secured on the other end of the frame 11 and arranged to be driven through suitable connections by a motor provided in the housing 15 secured on the end of the frame 11.

An extensible hoisting frame indicated generally at 17 consists of a stationary mast 20 mounted in an upright position on the end of the frame 11 adjacent to the traction wheels 14, and a carriage 21 slidably positioned within the mast 20. The carriage 21 is arranged to be extended above the mast by means of a main hydraulic cylinder 22 actuated by a hydraulic system including a tank 24 for containing the hydraulic fluid of the system, a pump 25 for creating sufficient fluid pressure in the system and a valve 26 arranged to be actuated by a control lever 27 for connecting the hydraulic system to the hydraulic cylinder 22.

The truck 10 (Fig. 1) is provided with a pair of L-shaped lifting forks 30—30 spacedly positioned on suitable cross members 31—31 and having horizontally extending load arms 32—32 (Fig. 3). The lifting forks 30—30 are arranged to be elevated by the carriage 21 by means of a pair of chains, of which one numbered 33 is shown, connected at one end to the upper cross member 31 of the forks 30—30, and extending over pulleys, of which one numbered 34 is shown, mounted on the top of the carriage and connected at their other ends to the upper end of the mast 20.

The chain and pulley arrangement between the carriage 21 and the forks 30—30 serves to cause the forks to be lifted at a greater rate of speed than that of the carriage 21, when the lever 27

is actuated to admit the hydraulic fluid under pressure to the main hydraulic cylinder 22. Due to this arrangement between the carriage and the forks the forks may be raised substantially above the top of the mast 20.

The above-description of a hydraulic truck is directed only to the fundamental features of such trucks generally employed in industrial plants for lifting and transporting articles. A more detailed description of such trucks is unnecessary because their construction and operation are well known. To render such trucks capable of picking up cable reels such as the reel 35 when the central axis of the reel must be at right angles to the lifting forks 30—30, they may be modified in the following manner.

A double acting hydraulic cylinder 36 is positioned on each load arm 32—32, the inlet and exhaust ports of each of the cylinders 36—36 being connected together by suitable pipe lines 37—37. The pipe lines 37—37 are connected to the valve 26 by flexible houses 38—38 and a lever 40 is arranged to actuate the valve 26 so as to direct hydraulic fluid under pressure from the pump 25 to the desired end of the cylinders 36—36. The cylinders 36—36 are so connected to the valve 26, by the pipe lines 37—37 and the flexible houses 38—38, that movement of the lever 40 to the right, as viewed in Fig. 1, actuates the valve 26 to admit oil under pressure from the hydraulic pump 25 to the right end of the cylinders 36—36 (Fig. 2) and movement of the lever 40 to the left, actuates the valve 26 to admit oil under pressure to the left end of the cylinders 36—36, whereby simultaneous movement of the pistons (not shown) of the cylinders 36—36 in the same direction is obtained.

Each of the cylinders 36—36 (Fig. 3) is provided with a piston rod 41 having the free end thereof secured to a cross head 42 slidably mounted in a cross head guide 43 secured to its respective horizontal leg of the load arms 32—32. A stud 46 is mounted on the end of each of the cross heads 42—42 for slidably engaging a slot 47 provided in one end of the lever 50. The other end of each lever 50 is pivotally secured to a lug 51 extending from a hub 52, rotatably mounted in a bearing indicated generally at 55 which is secured on the end of its respective load arm. The bearing 55 consists of a ring 56 secured to the load arm and a retainer ring 57 secured thereto by means of a plurality of screws 58—58 (Figs. 4 and 5). An article engaging member 60 is secured in each rotatable hub 52 and may be aligned with or positioned at right angles to the load arms 32—32 by proper actuation of the hydraulic cylinders 36—36.

The end of each arm 50 adjacent to the slot 47 is provided with a lug 63 (Figs. 4 and 6) which has a square hole 64 provided thereon for receiving the end of a square plunger 65 slidably mounted in a support 66 secured to each cross head guide 43. A cap 67 is secured on the top of each support 66 (Figs. 5 and 6) to position a spring 70 against a shoulder 71 provided on the upper end of each of the plungers 65—65. The spring 70 serves to maintain each plunger 65 in its depressed position so that the shoulder 71 thereof normally rests against the top of its respective support 66. A pin 72 is secured in and extends outwardy from the side of each plunger 65 in order to slide freely in a vertical slot 75 provided in each support 66 (Figs. 5 and 6). The end of each pin 72 extends beyond its respective slot so as to slidably engage an irregular surface of a cam 76 rigidly secured to each of the pins 46—46 by means of a set screw 77. The irregular surface of each of the cams 76—76, which engages the pins 72, comprises an oblique surface 80, a horizontal surface 81 of predetermined length and an oblique surface 82.

The purpose of the cams 76—76 is to raise and lower their respective plunger 65 when desired, so as to permit movement of the lever 50 to its broken line position shown in Fig. 4. When each of the levers 50—50 and their respective article engaging members 60—60 are in the full line position shown in Fig. 4, the end of each plunger 65 extends into the square bore 64 provided in the lug 63 of each arm 50 and prevents the article engaging member 60 from being rotated when an outward or turning force is applied against the members 60—60. A bar 85 has an arm 86 secured adjacent to each end thereof, whose ends are pivotally mounted in bearings 87—87 secured on the arms 32—32, whereby the bar 85 may be positioned transversely across the load arms 32—32 of the forks 30—30 against forward stops 88—88 or rear stops 90—90 secured to the load arms.

Operation

The industrial truck 10 is driven by the operator thereof to a point at which a reel, such as a reel 35, is to be picked up by the truck and transported to a remote point. When the truck 10 has reached a position in front of the reel 35 with the central axis of the reel at right angles to the load arms 32—32, the lever 40 (Fig. 1) is actuated to set the valve 26 in such a position that hydraulic fluid under pressure is admitted to the left end of each of the double acting cylinders 36—36 (Fig. 3), whereby their respective pistons are urged simultaneously to the right. This movement of the pistons moves their respective cross heads 42—42 to the right end of the cross head guides 43—43, which in turn draws the levers 50—50 to the right and rotates the hubs 52—52 mounted in the bearings 55—55. When the pistons (not shown) reach the right end of their stroke, the rotation of each hub 52 positions its respective article-engaging member 60 secured thereto in alignment with its respective load arm 32, which is the broken line position shown in Figs. 3 and 4 of the drawings.

The initial portion of the stroke of each of the cross heads 42—42 toward the right causes the pins 46—46 to move to the right within their respective slots 47—47 provided in the end of the levers 50—50 without actuating the levers. During this portion of the stroke of the cross heads, the cams 76—76 secured to the pins 46—46 move to the right, whereby the surface 80 thereof is drawn under its respective pin 72 causing the pin to move upwardly in the slot 75 provided in the support 66. The pin 72 in moving upwardly lifts the plunger 65 attached thereto out of engagement with the square bore 64 provided in the lug 63 of the lever 50 against the action of the compression spring 70 retained in the cap 67. In other words, the initial movement of each cross head 42 and its associated cam 76 serves to unlatch its respective lever 50 so that upon continued movement of each cross head 52 to the right, each lever 50 will be free to pivot about the pin 46 and the pin 53 (Fig. 4) and assume its broken line position.

Having aligned the members 60—60 with their respective load arms, the truck 10 may then be moved toward the reel 35 so that the arms 32—32

straddle the reel 35 and the bar 85 positioned across the load arms 32—32 is substantially adjacent to the periphery of the reel 35. The bar 85 is previously positioned against the stops 88—88 or the stops 90—90 (Fig. 3) depending upon the diameter of the reel 35, which is to be lifted and transported by the truck 10. When the load arms 32—32 straddle the reel 35 and the bar 85 is adjacent to the periphery of the reel, the lever 40 now is actuated to position the valve 26 to admit hydraulic fluid under pressure from the pump 25 to the right end of each of the hydraulic cylinders 36—36. This causes the pistons (not shown) of the cylinders to be urged simultaneously to the left, which movement thereof positions the cross heads 42—42 at the left end of their respective cross head guides 43—43, and thereby returns levers 50—50 and the members 60—60 to their full line position. This movement of the levers 50—50 to the left, rotates the members 60—60 inwardly in opposite directions to position them at right angles to their respective load arms 32—32, which is their load supporting position.

As each cam 76 moves to the left with its respective cross head, it reaches a point near the end of its stroke at which the surface 82 of the cam engages and lifts its associated pin 72 upwardly in the slot 75. The plunger 65 is lifted by the pin 72 against the action of the spring 70, so that the end of the plunger will clear the lug 63 on the end of the lever 50 as the cross head 42 moves the lever 50 to the left.

As each lug 63 starts under its related support 66, the pins 72—72 ride on the horizontal surfaces 81—81 of the cam 76—76. When the end of each lug 63 is partially under the plunger, the surface 80 of the cam lowers the plunger on the lug 63. The end of each plunger 65 rides on the end of its associated lug 63 until the lever 50 reaches the end of its stroke. At this point the square bore 64 is aligned directly under the end of the plunger, whereupon the spring 70 urges the end of the plunger into the bore 64. In this position, the plungers 65—65 serve to latch their respective levers 50—50 and the members 60—60 when the members 60—60 are positioned at right angles to their respective load arms 32—32.

Having positioned the members 60—60 at right angles to their respective load arms 32—32 the lever 27 is actuated to position the valve 26 so that hydraulic fluid under pressure is admitted to the main hydraulic cylinder 22 employed to elevate the carriage 21, whereupon, the carriage 21 and the forks 30—30 secured thereto are elevated. As the forks 30—30 are elevated, the heads of the cable reel 35 engage the bar 85 and the members 60—60 and are lifted thereby from the floor as the forks 30—30 continue to move upwardly. When the reel clears the floor a suitable distance, the lever 27 is restored to its neutral position to stop the upward movement of the forks, and the operator then proceeds to drive the truck and transport the reel 35 to a desired delivery point.

When the truck reaches a desired destination, the lever 27 is actuated to release the hydraulic fluid from the main cylinder 22 whereupon, the fork 30 gradually descends, lowering the reel 35, supported by the bar 85 and the members 60—60 to the floor. When the forks 30—30 reach their lowermost position, the lever 27 is restored to its neutral position and the lever 40 is actuated to position the valve 26 so that the hydraulic fluid from the pump 25 will enter the left end of the

cylinders 36—36 and move their respective supports 60—60 from their right angle positions to one in alignment with their respective load arms in the manner described hereinabove when the reel was picked up by the truck. Having so positioned the members 60—60, the truck may then be backed away from the reel and driven to a point where other reels like the reel 35 are to be picked up and transported. During the travel of the truck to the pick-up point, it may be desirable to actuate the lever 40 so as to return the members 60—60 to their right angle positions with respect to the load arms, in order to facilitate movement of the truck in restricted areas.

It is believed to be apparent from the above description of the invention, that it renders industrial trucks capable of lifting and transporting cylindrical articles, such as cable reels with their central axis at right angles to the load arms of the truck without the use of pallets, skids, or the like, and without the use of loading and delivery platforms.

What is claimed is:

1. In an industrial truck having a power operated hoisting frame for raising and lowering a load carrying member having a horizontally extending load arm, the improvement which comprises an article-engaging member pivotally mounted on the load arm, hydraulic means positioned on the load arm for selectively moving the article-engaging member in alignment with or transversely to the load arm, whereby when the article-engaging member is aligned with the load arm the arm may be positioned adjacent to the article to be lifted and when it is positioned transversely to the load arm it engages the article when the load arm is raised.

2. In an industrial truck having a power operated hoisting frame for raising and lowering load carrying forks having parallel, horizontally extending load arms, the improvement which comprises a plurality of article-engaging members one for each load arm and mounted rotatably thereon, and means for selectively positioning the article-engaging members in alignment with respect or transversely to the load arms, whereby when the rotatable members are aligned with the load arms the truck may be maneuvered so that the load arms straddle an article to be lifted and when they are positioned at right angles to the load arms they engage the article to be lifted when the forks are raised.

3. In an industrial truck having a power operated hoisting frame for raising and lowering load engaging forks having a pair of parallel, horizontally extending load arms, the improvement which comprises a plurality of article-engaging members one for each arm and rotatably mounted thereon, means connected to each article-engaging member for selectively moving it in alignment with its respective load arm or inwardly at right angles thereto, and means provided on each load arm for latching its respective article-engaging member against movement when it is positioned at right angles thereto, whereby when the article-engaging members are aligned with the load arms the truck may be maneuvered so that the load arms straddle an article to be lifted and when they are positioned at right angles thereto they engage the cylindrical article when the forks are raised.

4. In an industrial truck having a power operated hoisting frame for raising and lowering load engaging forks having a pair of parallel horizontally extending load arms, the improvement

which comprises a plurality of article-engaging members one for each arm and rotatably mounted thereon, means connected to each article-engaging member for selectively moving it in alignment with its respective load arm or inwardly at right angles thereto, and means provided on each load arm for latching its respective article-engaging members against movement when it is positioned at right angles thereto, and means actuated by the said moving means for releasing the latching means when the article-engaging members are moved from their right angle positions into alignment with the load arms, whereby when the article-engaging members are aligned with the load arms the truck may be maneuvered so that the load arms straddle an article to be lifted and when they are positioned at right angles thereto they engage the cylindrical article when the forks are raised.

5. In an industrial truck having a power operated hoisting frame for raising and lowering load engaging forks having parallel horizontally extending load arms, the improvement which comprises a bar transversely positioned across the load arms for engaging the periphery of a cylindrical article to be lifted by the forks, said bar being adjustably mounted on the load arms to accommodate cylindrical articles of different sizes, an article-engaging member rotatably mounted on the end of each load arm, means connected to each of said rotatable article-engaging members for rotating them into alignment with the load arms or inwardly at right angles to their respective load arm, means provided on each load arm for latching its respective article-engaging member against movement when it is positioned at right angles thereto, and means actuated by said rotating means for releasing the latching means of its associated article-engaging member when said article-engaging members are moved thereby into alignment with their respective load arm, whereby when the article-engaging members are aligned with the load arms the truck may be maneuvered so that the load arms straddle a cylindrical article to be lifted and when they are positioned at right angles thereto they coact with the transverse bar to support the cylindrical article when the forks are raised.

6. In an industrial truck having a hydraulic actuated hoisting carriage for raising and lowering load engaging forks provided with a pair of spaced horizontally load arms, an apparatus arranged to be mounted on each load arm of the lifting fork to render the forks capable of lifting and carrying cylindrical articles, which comprises a bar transversely positioned across the load arms for engaging a cylindrical article positioned between the load arms of the forks, said transverse load bar being adjustably positioned on the load arms to suit the size of the cylindrical article to be lifted by the forks, a plurality of article-engaging members one for each load arm and rotatably mounted on the free end thereof, a double acting hydraulic cylinder positioned on each load arm for moving the article-engaging member with respect thereto, said cylinders being connected to the hydraulic system of the truck employed for elevating the lifting forks, and means for selectively controlling the operation of the hydraulic cylinders to effect simultaneous movement of the article-engaging members, whereby when the control means is actuated to cause the hydraulic cylinders to simultaneously position the article-engaging members in alignment with the load arms the forks may be positioned astride a cylindrical article to be lifted and when the cylinders are actuated to position the article-engaging members inwardly at a right angle to the respective load arms they coact with the transverse bar to lift the cylindrical article when the forks are elevated by means of the hydraulic system of the truck.

7. In an industrial truck, the combination of a frame, a vertical hoisting frame supported by said frame, a carriage slidably mounted in the hoisting frame, power means for raising and lowering the movable carriage and lifting forks attached to said carriage and having spaced horizontally extending load arms, and means provided on the load arms for supporting a cable reel when the forks are elevated, the said means comprising a bar positioned transversely across the load arms to engage the periphery of a cable reel to be lifted at a point substantially below the diameter of the reel, a plurality of reel-engaging members one for each load arm and rotatably mounted on the end thereof for engaging the opposite surface of the reel at a point substantially aligned with that at which the bar engages the reel, and means including a hydraulic cylinder for simultaneously moving the reel-engaging members with respect to their respective load arms, whereby when the reel-engaging members are moved by the hydraulic cylinder in line with their load arms the load arms may be positioned astride a reel to be lifted and when the members are moved inwardly at right angles to the load arms they coact with the bar to engage the periphery of the reel when the forks are elevated.

8. In an industrial truck, the combination of a frame, a vertical hoisting frame supported by said frame, a carriage slidably mounted in the hoisting frame, power means for raising and lowering the movable carriage and lifting forks attached to said carriage and having spaced horizontally extending load arms, and means provided on the load arms for supporting a cable reel when the forks are elevated, the said means comprising a bar positioned transversely across the load arms to engage the periphery of a cable reel at a point substantially below the diameter of the article, said bar adjustably positioned across the load arms with respect to the free ends thereof so as to engage cable reels of different diameters, a plurality of reel engaging members one for each arm and rotatably mounted thereon for engaging the opposite surface of the reel at a point substantially aligned with that at which the bar engages the reel, and means including a hydraulic cylinder mounted on each load arm for simultaneously moving the reel engaging members, whereby when the reel-engaging members are moved by their respective hydraulic cylinder in alignment with the load arms the load arms may be positioned astride a cable reel to be lifted and when they are moved inwardly at right angles to the load arms they coact with the bar to lift the reel when the forks are elevated.

9. In an industrial truck, the combination of a frame, a vertical hoisting frame supported by said frame, a carriage slidably mounted in the hoisting frame, power means for raising and lowering the movable carriage and lifting forks attached to said carriage and having a pair of spaced horizontally extending load carrying arms, means provided on the load arms for supporting a cable reel when the forks are elevated, the said means comprising a bar positioned

transversely across the load arms to engage the periphery of a cable reel to be lifted at a point substantially below the diameter of the reel, a plurality of reel-engaging members one for each arm and rotatably mounted thereon which engage the opposite surface of the reel at a point substantially aligned with that at which the bar engages the reel, and a plurality of hydraulic cylinders one for each reel-engaging member for moving the reel-engaging member with respect to its load arm, and means provided on each load arm for latching its respective reel-engaging member at right angles therewith against movement by any external forces applied to the member, whereby when the reel-engaging members are moved by the hydraulic cylinders in alignment with their load arms the load arms may be positioned astride a cable reel to be lifted and when they are moved at right angles to the load arms they coact with the transverse bar to lift the cable reel when the forks are elevated.

10. In an industrial truck, the combination of a frame, a vertical hoisting frame supported by said frame, a carriage slidably mounted in the hoisting frame, a power means for raising and lowering the movable carriage and lifting forks attached to said carriage and having spaced horizontally extending load carrying arms, and means provided on the load arms of the forks for supporting a cable reel when the forks are elevated, the said means comprising a bar positioned transversely across the load arms to engage the periphery of a cable reel at a point substantially below the diameter of the reel, said bar arranged to be adjustably positioned across the load arms so as to engage reels of different diameters, a plurality of reel-engaging members one for each arm and rotatably mounted on the end thereof for engaging the opposite surface of the reel at a point substantially aligned with the point at which the bar engages the reel, and a plurality of hydraulic cylinders one for each reel-engaging member for simultaneously moving them with respect to their respective load arms, and means provided on each load arm for latching its reel-engaging member at right angles thereto, whereby when the reel-engaging members are moved by the hydraulic cylinder in alignment with the load arms the load arms may be positioned astride a cable reel to be lifted and when they are moved at right angles to the load arms they coact with the bar to lift the reel when the forks are elevated.

11. In an industrial truck having a power-operated hoisting frame for raising and lowering a load carrying member having a horizontally extending load arm, the improvement which comprises a bar positioned transversely across the load arm adjacent to the hoisting frame, an article-engaging member pivotally mounted on the free end of the load arm, hydraulic means positioned on the load arm for selectively moving the article-engaging member in alignment with or transversely of the load arm, means provided on the load arm for latching the article-engaging member in a transverse position with respect to the load arm, and means

actuated by the moving means for releasing the latching means when the article-engaging member is moved from its transverse position into alignment with the load arm, whereby when the article-engaging member is aligned with the load arm the arm may be positioned adjacent to the article to be lifted and when it is positioned transversely of the load arm it coacts with the transverse bar to lift the article when the member is raised.

12. In an industrial truck having a power-operated hoisting frame for raising and lowering a load engaging fork having a pair of parallel, horizontally extending load arms, the improvement which comprises a bar adjustably positioned transversely across the load arms adjacent to the closed end of such a fork, a member for engaging a cylindrical article rotatably mounted on the free end of one of the arms, and means for selectively positioning the article-engaging member in alignment with or transversely of its respective load arm, whereby when the rotatable article-engaging member is aligned with its respective load arm the arms may be positioned so as to straddle the end of a cylindrical article to be lifted and when it is positioned at right angles to its load arm it and the transverse bar engage the periphery of the article and lift the article when the fork is raised.

13. In an industrial truck having a power-operated hoisting frame for raising and lowering a load engaging fork having a pair of parallel, horizontally extending load arms, the improvement which comprises a bar adjustably positioned transversely across the load arms adjacent to the closed end of such a fork, a member for engaging a cylindrical article rotatably mounted on the free end of one of the arms, and means for selectively positioning the article-engaging member in alignment with or transversely of its respective load arm, means for latching the rotatable member in its transverse position, and means for releasing the latching means when the member is moved from its transverse position into alignment with its respective load arms, whereby when the rotatable article-engaging member is aligned with its respective load arm the arms may be positioned so as to straddle the ends of a cylindrical article to be lifted and when it is positioned at right angles to its load arm it and the transverse bar engage the periphery of the article and lift the article when the fork is raised.

HENRY V. DILLON.

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Certificate of Correction

Patent No. 2,505,352 April 25, 1950

HENRY V. DILLON

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 6, line 46, strike out the word "respect";

and that the said Letters Patent should be read as corrected above, so that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of November, A. D. 1950.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.