June 19, 1962 M. J. WISE ET AL 3,039,632

SLAB LAYING CART

Filed April 20, 1961 5 Sheets-Sheet 1

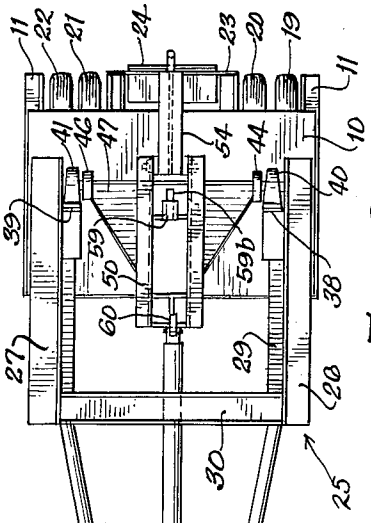


FIG. 2

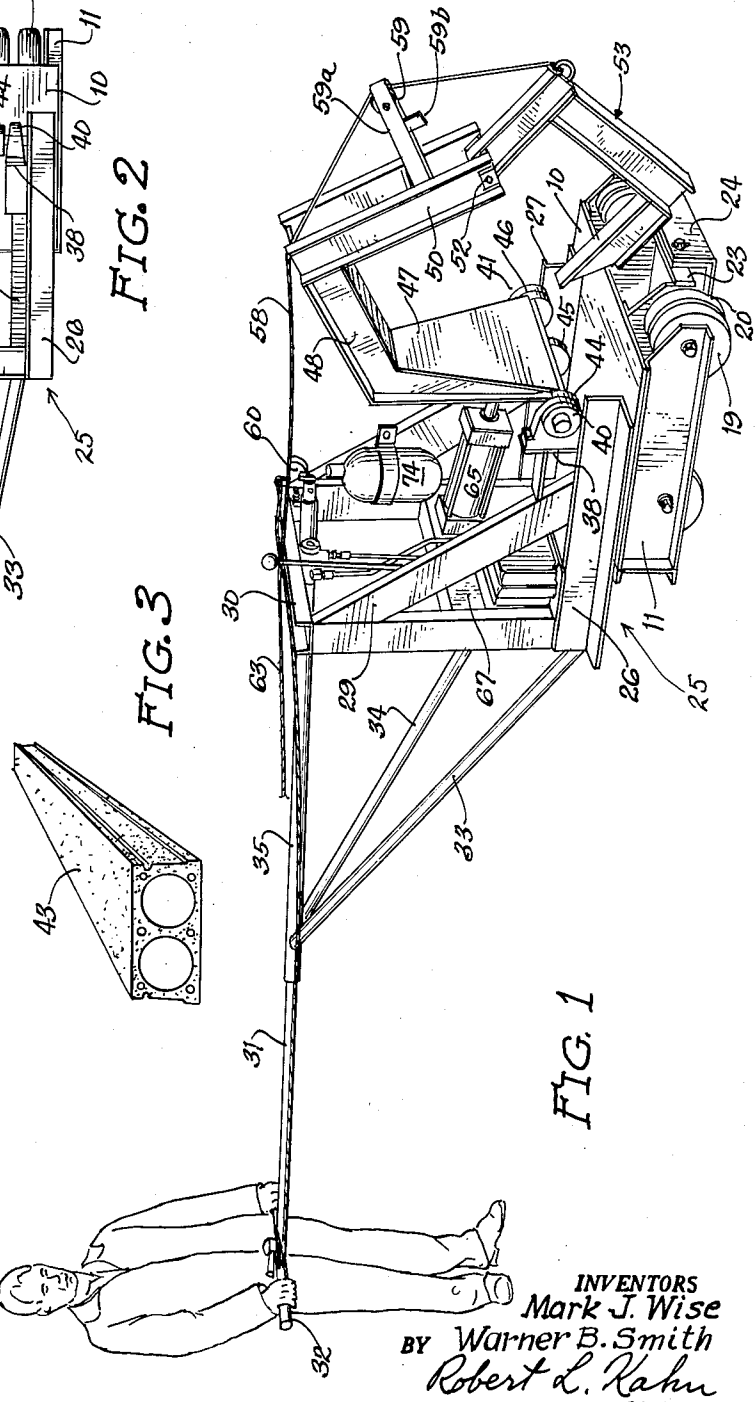


FIG. 1

FIG. 3

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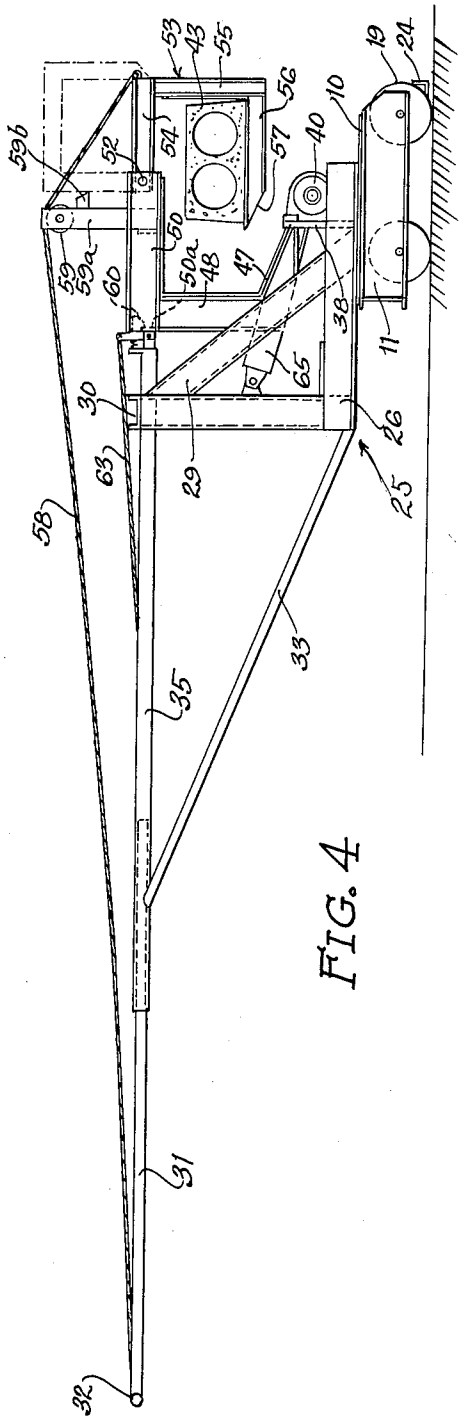


FIG. 4

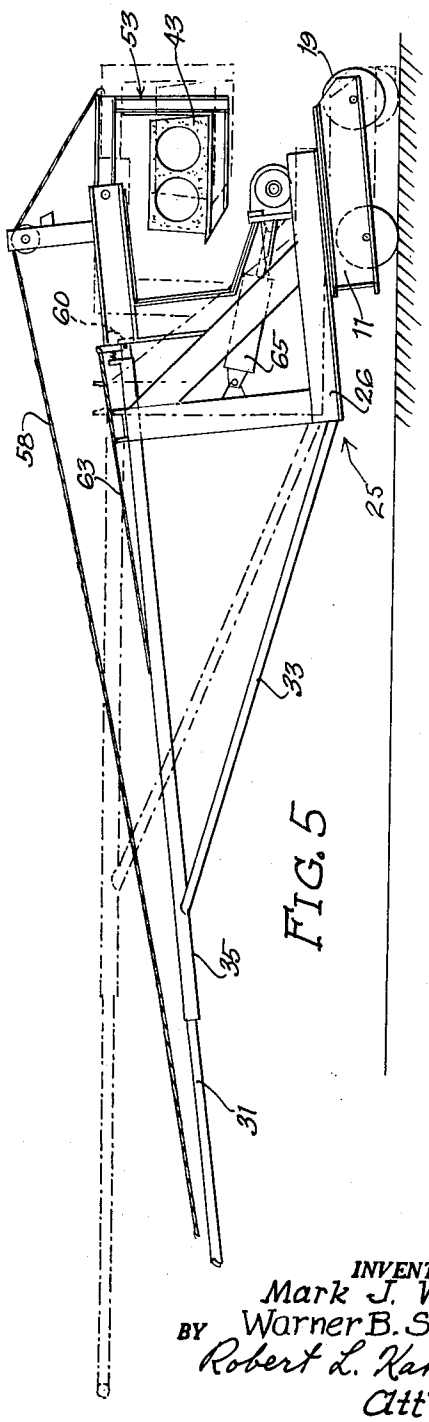


FIG. 5

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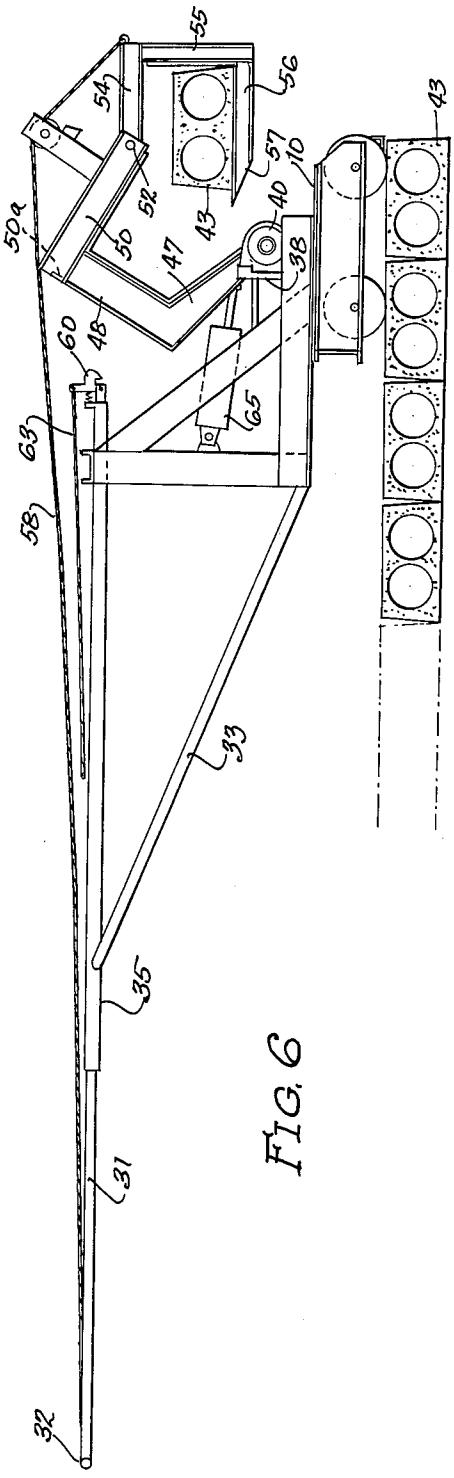


FIG. 6

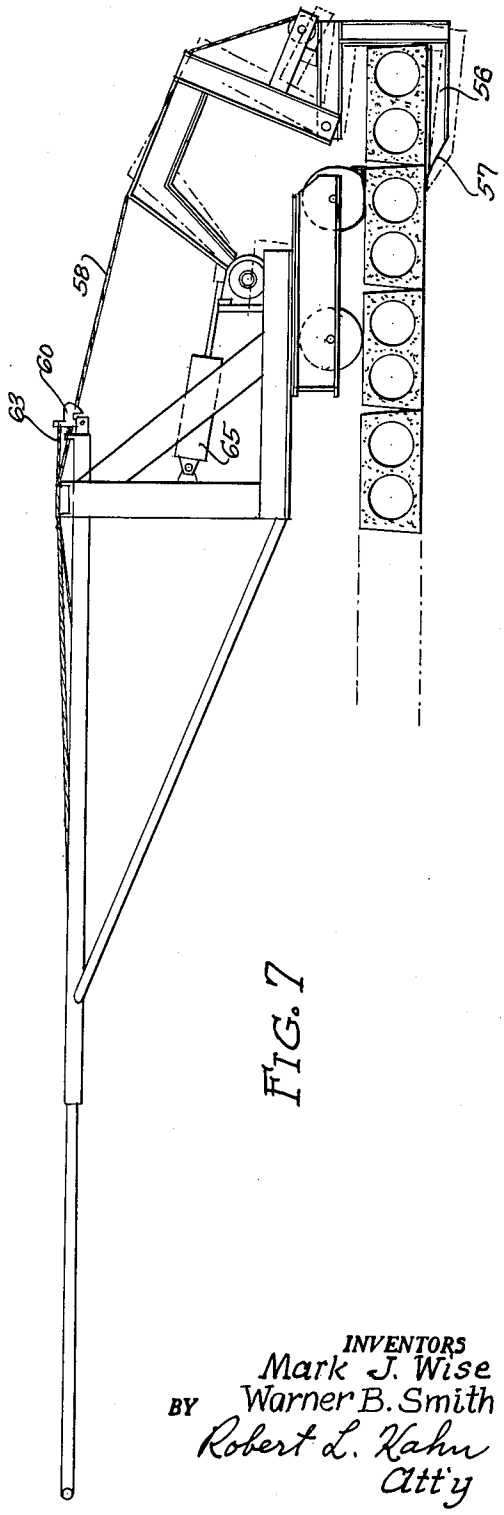


FIG. 7

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FIG. 8

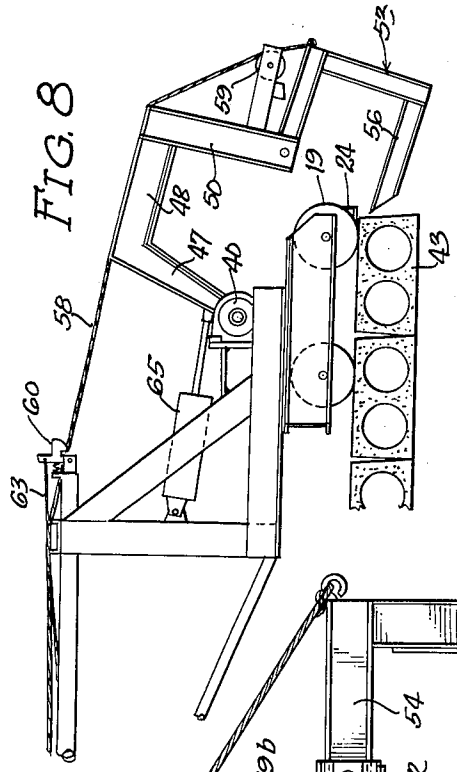


FIG. 10

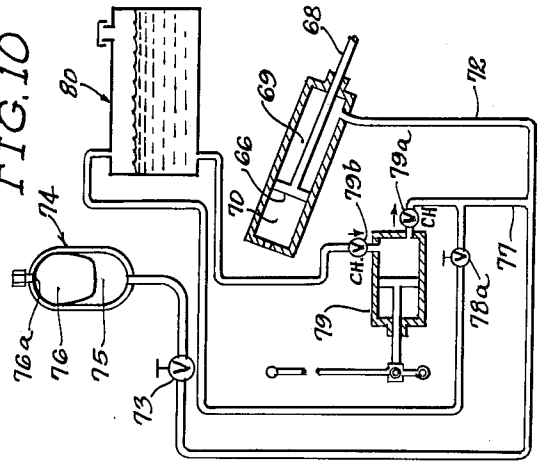
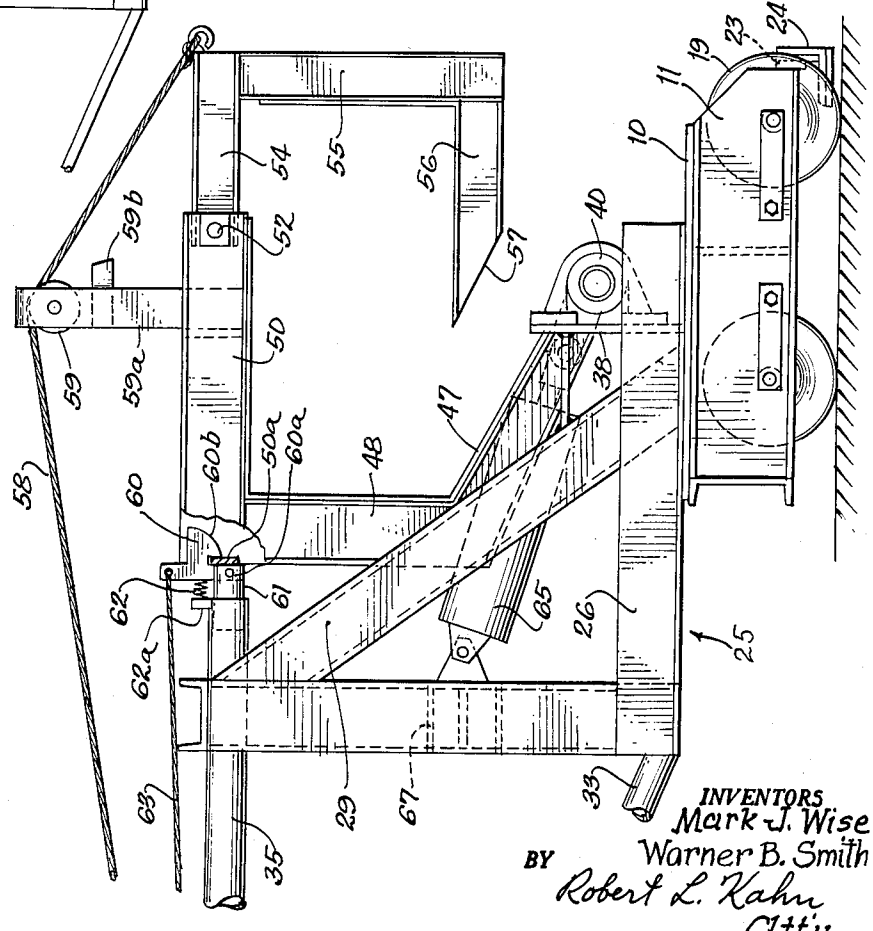


FIG. 9



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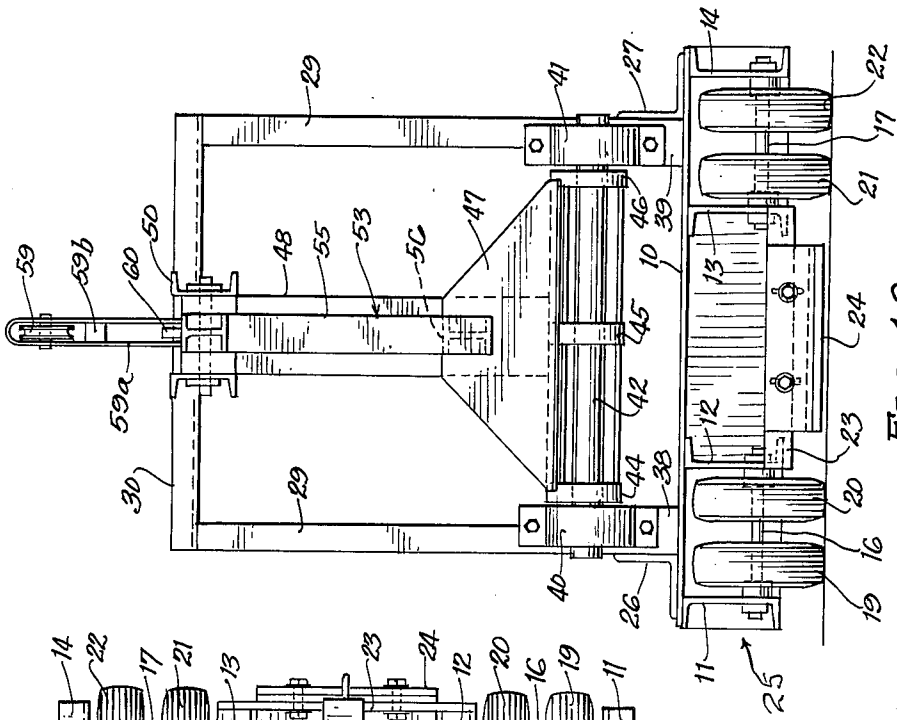


FIG. 12

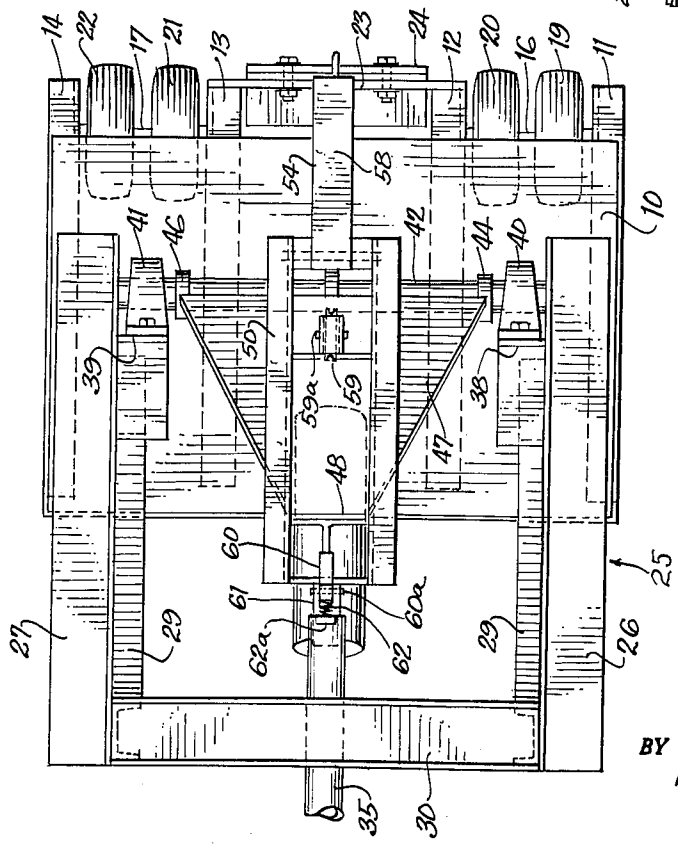


FIG. 11

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United States Patent Office 3,039,632 Patented June 19, 1962

3,039,632

SLAB LAYING CART

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Filed Apr. 20, 1961, Ser. No. 104,369
11 Claims. (Cl. 214—370)

This invention relates to a slab laying cart for use in laying long concrete slabs. Concrete slabs in various widths and heights and in various lengths are widely known and used in connection with the erection of buildings. In particular, such slabs are used to provide floors or ceilings or roofs as desired. An example of a slab of this character is illustrated in United States Patent No. 2,299,070, issued on October 20, 1942.

Slabs of the type referred to are available and widely used in sectional size of 8" deep x 16" wide as one example and lengths of as much as 32 feet. Such slabs are carefully manufactured and must be carefully handled to prevent damage.

When slabs are used in building construction, they are brought to the location by truck or other means. A crane moves the slabs from the vehicle or some storage location to the particular working level where slabs are being laid. As a rule, such working levels are above ground and may be on various floors of a multi-story structure. The crane can not be depended upon for laying a slab at a desired spot, since in most cases the crane can not even reach the desired spot. As a matter of convenience therefore, the crane simply sets a slab near a convenient edge of the working level. Thereafter auxiliary means as carts are relied upon for moving a slab from near the edge of the working level to the precise region for laying the slab.

It has been customary to move slabs around on two wheel carts. Such carts have been provided with long, rearwardly extending handles which provide long leverage about the wheels as fulcrums. As the slabs became longer and heavier, such an arrangement proved to be both expensive and dangerous. One workman alone was unable to exercise the control necessary for balancing the slab weight in spite of the long handle. The very length of the handle results in such wide swings vertically as to make it difficult if not impossible to keep control over the cart.

In particular, there has been danger to the use of such carts near some edges of a working level. In order to lay a slab with such a cart it is necessary to lift the cart handle to lower the slab into position, the handle and slab being on opposite sides of the fulcrum axis. As the handle is raised, the workman has less control over it and relies upon the slab drop being limited by the slab supports. If the workman happens to miss the slab supports, the slab can drop beyond the edge of the working level and catapult the workman overboard with the cart following.

This invention provides a cart which avoids all the above disadvantages. The new cart permits all operations to be controlled by one workman and does not impose any unusual requirements on a workman as regards height, strength or weight. The only requirement of a workman, as far as strength is concerned, is the ability to push or pull the loaded cart and to use moderate force in raising or dropping the handle through a small angle.

The invention further provides a cart having a long control handle which does not have to be restrained while moving the cart and requires a moderate effort to manipulate the cart, either loaded or unloaded. The invention provides a cart having a completely self-contained energy storage system with means for working with the slab and final lowering of the slab, without necessity on the part of the workman for doing any heavy work.

The invention generally contemplates any suitable cart having stability, as for example a cart having front and rear axles, and carrying a self-contained fluid pressure energy storage means connected to a cylinder having a piston for converting fluid pressure to mechanical work or reverse, with the piston mechanically coupled to a slab support means. The invention utilizes the slab raising and lowering steps as parts of a complete energy transformation cycle. The design of the slab support means makes for an efficient energy conversion cycle which, through suitable valve means, can be easily controlled by one workman.

More specifically, the invention contemplates a fluid pressure accumulator and hydraulic cylinder arrangement for operation with a slab support means all mounted upon a cart. The energy represented by a slab which has been raised to a position for transport on the cart is utilized in lowering the slab to its final position. The energy cycle generally does not depend upon any work or effort on the part of a workman, except for controlling.

A great advantage of the invention resides in the simplicity and reliability of the new cart coupled with absolute control over the cart and slab by one workman. As will be evident later in connection with the description of the invention, an advantage of the new cart is that the cart can not be positioned incorrectly for laying a slab except by deliberate intent. The mechanical and operational simplicity of the entire energy conversion system is such that one workman can handle a cart at all times and under all conditions. This is in sharp contrast to a portable winch requiring some operator to work the same or requiring an electric motor or gas engine to operate the same. These would involve substantial expense.

In order that the invention may be fully understood, it will now be explained in connection with the drawings wherein:

FIGURE 1 is a perspective view of a cart embodying the present invention showing an operator at the handle of the cart and the cart being in a position for easy movement to a slab storage location.

FIGURE 2 is a plan view of the cart illustrated in FIGURE 1.

FIGURE 3 is a perspective view of a slab upon which the cart may operate.

FIGURE 4 is a side elevation of the new cart in position for engaging a slab prepositioned to a suitable height, the dotted lines showing the lifting hook raised to clear the slab when moving the cart into slab loading position.

FIGURE 5 is a side elevation showing the cart in full lines tilted to engage and raise the slab clear of the temporary slab support, the dotted lines showing the cart and slab having been advanced forwardly to clear the slab from its supports and the cart resting in normal position on all its wheels.

FIGURE 6 is a side elevation of the new cart carrying a slab, with the cart properly positioned on the floor in preparation for laying the slab in its final resting place.

FIGURE 7 shows the new cart having unloaded the slab in final position.

FIGURE 8 is a side elevation of the new cart in an advanced position resting upon the newly laid slab so that the lifting hook may be cleared from the newly laid slab.

FIGURE 9 is a side elevation of the new cart in an unloaded position with the gooseneck in a position similar to FIGURE 4.

FIGURE 10 is a diagrammatic representation of the hydraulic power system for operating the gooseneck.

FIGURE 11 is a top plan view of the new cart in a rest position without a load.

FIGURE 12 is a front view of the new cart.

The cart proper without the power system may assume

any one of a number of forms of which the one illustrated and to be described is illustrative.

The cart illustrated here comprises heavy steel base plate 10 below which extend longitudinally channels 11 to 14 inclusive. These channels are rigidly attached to base plate 10, as by welding, and the channels are disposed so that the webs are vertical below base 10 in the normal position of the cart to form two pairs of spaced bearing supports. Thus channels 11 and 12 form one pair of supports while channels 13 and 14 form a second pair of supports.

Carried by channels 11 to 14 inclusive are axles 16 and 17, upon which are secured a number of wheels. These wheels are preferably of the rubber tire type. Each axle carries at least one, and in this instance, carries two wheels abreast. Thus as illustrated in FIGURE 12 for example, wheels 19 and 20 are abreast on one axle and wheels 21 and 22 are abreast on another axle. The two axles 16 and 17 are in line across the cart. Wheels 19 to 22 are at the front end of the cart and, generally speaking, provide regions of support across the front of the cart. As shown in the various figures, additional rear wheels are provided, these additional wheels being generally similar to the front wheels.

Rigidly supported at the front of the cart between channels 12 and 13 is cross bar 23 carrying angle iron 24. Angle iron 24 is adjustably supported (FIG. 12) on bar 23 so that its height above ground may be adjusted. The purpose of this will be apparent later.

Rigidly supported on base 10 and overhanging the rear of base 10 is a framework generally indicated by 25. Framework 25 includes a pair of heavy angle irons 26 and 27 on opposite sides extending longitudinally of the base. Each angle iron supports a vertically disposed frame 29. Frames 29 on opposite sides of the cart have cross member 30 extending transversely of the cart above base 10. Rigidly supported by cross member 30 is pipe 35 extending backwardly from the cart. Within pipe 35 is disposed pipe 31 carrying handle 32 at the rear end thereof. Braces 33 and 34 extend from pipe 35 to angle irons 26 and 27 respectively and frame 29. Pipe 31 is sufficiently long so that at handle 32 considerable leverage is provided to permit a workman to lower handle 32 as suggested, for example, in FIGURE 5 so that the entire cart can be rocked slightly on its rear wheels.

Rigidly attached to angle irons 26 and 27 at the forward ends thereof are short vertical posts 38 and 39 carrying journals 40 and 41 respectively. Disposed in these journals is shaft 42 extending transversely of the cart. Shaft 42 has welded to it a number of lugs 44, 45 and 46 rigidly attached to arm 47 forming part of a gooseneck. The axis of shaft 42 is a rocking axis for the gooseneck to be described. This rocking axis is parallel to the wheel axes and is laterally offset therefrom and lies between the vertical projections of these wheel axes. This arrangement is desirable for controlling the location of the center of gravity of the entire cart.

The top of arm 47 has rigidly attached thereto post 48, this post extending generally at an angle to arm 47. The angle between arm 47 and post 48 may vary and is here shown as being about 120°. The exact angle is not too important and will depend upon such factors as the length of the various parts and the desired location of the center of gravity of the entire cart for various positions of the gooseneck.

Post 48 carries end post 50 positioned to extend from the free end of post 48 to complete the gooseneck. Posts 48 and 50 may be constructed of spaced steel channels. Posts 48 and 50 may conveniently be at right angles, although this is not critical. The dimensions of the various parts may be varied to suit requirements and will be determined in part by the lifting hook construction now to be described.

Post 50 has at the free end thereof pin 52, upon which is pivotally supported lifting hook 53. Lifting hook 53 from the side resembles the gooseneck construction so far described and comprises arms 54, 55 and 56 joined to form a U-shaped hook. The entire lifting hook may conveniently be formed of steel members having an H cross section with the ends suitably bolted or welded to form a rigid construction. End arm 56 of the lifting hook has end portion 57 tapered for convenience.

End arm 56 is the arm which actually will carry the work to be handled. Thus referring to FIGURE 3 for example, concrete slab 43 is illustrated. This slab is exemplary of the work which can be handled by the new cart. Inasmuch as the details of the slab are not important to an understanding of the present invention, no further description need be given.

It is desirable that lifting hook arm 56 have proper dimensions and balance for slabs to be held level and to be handled. As a rule, long heavy slabs will be handled by two carts at or near the slab ends.

Lifting hook 53 is freely rockable about pin 52. A manual control for the lifting hook is provided. Firmly attached to the end of arm 54, where it joins arm 55, is rope 58. This rope is guided by pulley 59 carried by arm 59*a* extending from post 50. Rope 58 extends backwardly to handle 32 where the end of the rope is tied. The rope is provided to permit the operator to raise the lifting hook when positioning a cart for first engaging a slab.

Arm 59*a* carries stop 59*b* extending toward lifting hook 53. When rope 58 is pulled rearwardly, lifting hook 53 can be pulled back to its limiting position illustrated in dotted lines in FIGURE 4.

The gooseneck is preferably provided with spring locking means to lock the gooseneck in the position illustrated in FIGURES 4, 5 and 9. This locking means includes detent portion 50*a* carried at the rear end of portion 50 of the gooseneck. Cooperating with detent portion 50*a* is catch 60 pivoted at 60*a* on bracket 61 attached to pipe 35. Catch 60 has compression spring 62 extending between it and finger 62*a* carried by bracket 61. Compression spring 62 biases catch 60 forwardly to lock against detent 50*a* when the gooseneck is in its normal upright position as illustrated in FIGURE 9. Catch 60 has sloping cam surface 60*b* to permit the gooseneck to be automatically locked when the gooseneck is turned up to its highest position. This locking arrangement also functions to limit the elevation of the gooseneck. Rope 63 attached to the top of catch 60 extends back to the handle so that an operator can release the catch.

An energy storage and conversion means is provided for rocking the gooseneck. Such means include hydraulic cylinder 65 having the dead end of the cylinder rigidly secured to cross member 67 extending between posts 29. Hydraulic cylinder 65 has piston 66 therein connected to piston rod 68 having an end pivotally coupled, as by a clevis, to gooseneck member 47. It will be clear that the travel of piston 66 in cylinder 65 can be utilized to rock the gooseneck.

Cylinder 65 has interior chamber 69 on one side of piston 66 as the high pressure side of the piston. Chamber 70 of the cylinder on the other side of piston 66 may be considered as the low pressure side of the cylinder. Low pressure chamber 70 of the cylinder may exhaust directly to air or, if desired, may work against a cushion of air obtained by sealing the end wall of cylinder 65 or providing an air flow control valve. High pressure chamber 69 of the cylinder is connected by pipe 72 and manually controlled valve 73 to accumulator 74.

Accumulator 74 consists of a container usually of steel in which there is disposed a free moving piston or flexible membrane or bag for dividing the region within the accumulator into two separate chambers 75 and 76. Chamber 76 contains an inert gas such as nitrogen, for example. Accumulator 74 has the gas content thereof usually charged to some predetermined pressure for the standby condition of the accumulator. This charging may be accomplished through any suitable means such as, for example, check valve 76*a* and some kind of a cap or plug

to seal the valve passage. Chamber 75 will have oil or some suitable liquid. It is understood that the relative volumes of the gas and liquid chambers will vary depending upon whether the accumulator is storing energy or is giving out energy.

Branching off from pipe 72 is pipe 77 going to check valve 79*a* to the cylinder of pump 79. Pump 79 has an intake 79*b* for receiving liquid from oil reservoir 80. This reservoir may be provided with a filler cap to replenish the supply of oil or liquid for the hydraulic system. Pump 79 may be any kind of pump which may be actuated by hand for pumping liquid into the hydraulic pressure system beyond check valve 79*a*. If desired, pump 79 may be motor driven. Relief valve 78*a* between pipe 77 and tank 80 may be provided. This valve is a manually controlled valve for use under circumstances later described.

The pump may be used when the hydraulic system is first assembled and the accumulator provided with a predetermined charge. The pressure within the hydraulic system may have to be increased by pump operation in order to bring the various parts of the entire system, including the gooseneck and lifting hook, to the topmost position, illustrated for example in FIGURES 4 and 9. It may also be desirable to use this manual pump in case emergency conditions require the raising of a slab after the slab has been laid.

The operation of the hydraulic system during a lifting cycle is as follows. Assuming that the hydraulic system has a suitable quantity of oil or liquid therein and assuming that the pressure in the accumulator acting on the hydraulic system is at a desired minimum value, and assuming that manually controlled valve 73 is open, the pressure within the system will cause piston 66 in cylinder 65 to elevate the gooseneck to the position illustrated in FIGURES 4 and 9.

In the elevated position as illustrated in FIGURES 4 and 9, the gooseneck is preferably locked by the latch mechanism. In this condition the cart can be loaded. The latch mechanism is desirable because the piping in the hydraulic system usually includes flexible high pressure hose which expands somewhat under pressure. Hence the latch takes up the added strain in the system created when the lifting hook is loaded with a slab.

Assume that the cart is at the pick-up station where a slab is resting a predetermined height above roof level on temporary supports, such as saw horses or the like. By pulling on rope 58, the operator can swing lifting hook 53 upwardly to the dotted line position illustrated in FIGURE 4. This clears the lifting hook and permits the cart to be advanced somewhat to the right of the position shown in FIGURE 4 where the gooseneck can overhang slab 43 resting on temporary supports. When the cart is in proper position, rope 58 is released and lifting hook 53 is permitted to drop to the full line position. The cart is backed up just enough to dispose lifting hook arm 56 in desired position below the slab as shown in FIGURE 4. The operator now pushes down on handle 32 so that the cart is rocked to rest on the rear wheels only. This is shown in solid lines in FIGURE 5. The rocking is slight and due to the balance in the cart, does not require much effort. Furthermore, the handle gripped by the operator need be lowered a small distance so that the operator can maintain a strong grip. By rocking the cart, the lifting hook is caused to engage the slab and raise the same from its support.

After the slab has been raised clear of its supports by rocking the cart on the rear wheels, the cart and its load are moved forward enough to permit the cart to assume its normal position as illustrated in dotted lines of FIGURE 5 but with the slab clear of its previous support and resting on the lifting hook. The cart and slab may now be rolled or moved to the location where the slab is to be laid, FIGURE 6 showing the cart and slab at the location.

It will be noted that the gooseneck and lifting hook in the position illustrated in FIGURES 4 and 9 are so disposed with reference to the rocking axis of the gooseneck (the axis of rod 42) that the center of gravity of the empty cart falls somewhat back of the rear wheel axles. The weight of the various parts of the cart and gooseneck are such that when the lifting hook is supporting a slab or one end of a slab (if two carts are used) the center of gravity of both cart and load will fall between the front and rear axles. Thus the cart is stable.

As has been previously pointed out, the hydraulic system is normally balanced so that the pressure in the accumulator will maintain the gooseneck and lifting hook in an elevated position, providing the lifting hook is not loaded. The loaded cart is at the slab unloading location as illustrated in FIGURE 6. The unloading may now be initiated. Valve 73 is manipulated open and rope 63 is pulled to release the latch. The load on the gooseneck causes it to descend and transform the work incident to the dropping of the slab to potential energy in the form of a pressure increase in the accumulator.

By properly positioning the cart so that angle iron 24 is in line with the edge of the floor, as shown in FIGURE 6, the new slab can be made to come down in correct position. Furthermore, angle iron 24 is disposed at a predetermined distance above the support plane of the cart. The drop of the gooseneck moves the center of gravity forwardly of the cart, throwing more weight upon the front wheels of the cart. The resilient tires on the front wheels yield somewhat (see FIG. 7) and cause the cart to tip forward slightly. As a result the bottom of angle iron 24 is dropped slightly. The operator now bears down on the cart handle and since valve 73 is open, takes up a bit of "slack" or lost motion in the entire system. Valve 73 is then closed. The lifting hook is free of the laid slab and permits the operator to push the cart over the newly laid slab to move the lifting hook beyond the slab. This is shown in FIGURE 8.

If the slab is not laid properly, the cart can be left in the position of FIGURE 7 where the slab is positioned for laying. Valve 73 is closed before or after the slab has reached bottom position. Pump 79 can be operated to build up pressure in the hydraulic system to the point where the gooseneck, lifting hook and slab are elevated. Thereafter the relief valve for the oil may be opened to drop the pressure and permit the slab to be relaid.

Assuming the slab has been properly laid and the cart is in the position illustrated in FIGURE 8, valve 73 is opened again. The unloaded gooseneck can now be elevated. Preferably, the gooseneck is elevated enough to have the lifting hook just clear the cart support plane after which valve 73 can again be closed. This is a transport position and is illustrated in FIGURE 1. In this position with the gooseneck and lifting hook disposed forwardly, the operator can push the cart back for a new slab. This transport position has the cart weight forwardly and makes it easier for an operator to push a cart. At the slab pick-up station valve 73 is opened to elevate the gooseneck to the top position as shown in FIGURE 4.

What is claimed is:

1. A cart for picking up a load at one predetermined level and moving the same to a different location and for laying said load to a lower level, said cart comprising a base supported for movement on a working level by a plurality of wheels, said wheels having their centers defining at least two laterally offset axes transverse to the line of movement of said cart to define front and rear axes, said cart having a long handle extending rearwardly with the free end being adapted to be gripped by an operator, a self-contained hydraulic-pneumatic system including an accumulator and hydraulic cylinder means on said base, said means being adapted to convert work into gas pressure to be stored in said accumulator or to convert gas pressure stored in said accumulator into work, said means including a coupling member, a gooseneck of rigid material having one end pivotally supported on said base

for movement about a horizontal axis, means for connecting said gooseneck to said coupling member for cooperative work, a lifting hook pivotally secured to the free end of said gooseneck and normally hanging downwardly in all positions of said gooseneck, means for elevating said lifting hook from its normal depending position, said hydraulic-gas system being normally adjusted so that said gooseneck normally is in an elevated position when said lifting hook is unloaded but tends to drop when said lifting hook is loaded, a manually controlled valve in the hydraulic part of the system for isolating the accumulator from the remainder of the system so that said hydraulic cylinder means is substantially rigid due to the incompressibility of liquid, said system utilizing the potential energy of the load at the storage site to control the load laying part of the cycle and to thereafter return the gooseneck and lifting hook to its elevated position after the load has been laid.

2. A cart for picking up a load at one predetermined level and moving the same to a different location for laying said load to a lower level, said cart comprising a base supported for movement on a working level by a plurality of wheels, said wheels having their centers defining at least two laterally offset axes transverse to the line of movement of said cart to define front and rear axes, said cart having a long handle extending rearwardly with the free end being adapted to be gripped by an operator, a self-contained hydraulic-gas system including an accumulator and hydraulic cylinder means on said base, said means being adapted to convert work into gas pressure to be stored in said accumulator or to convert gas pressure stored in said accumulator into work, said means including a coupling member, a gooseneck of rigid material having one end pivotally supported on said base for movement about a horizontal axis parallel to the cart axes and the vertical projection thereof being between the cart axes, means for connecting said gooseneck to said coupling member for cooperative work, a lifting hook pivotally secured to the free end of said gooseneck and normally hanging downwardly in all positions of said gooseneck, means for elevating said lifting hook from its normal depending position, said hydraulic-gas system being normally adjusted so that said gooseneck normally is in an elevated position when said lifting hook is unloaded but tends to drop when said lifting hook is fully loaded, a manually controlled valve in the hydraulic part of the system for isolating the accumulator from the remainder of the system so that said hydraulic cylinder means is substantially rigid due to the incompressibility of liquid, said system utilizing the potential energy of the load at the storage site to control the load laying part of the cycle and to thereafter return the gooseneck and lifting hook to its elevated position after the load has been laid, and means for mechanically locking said gooseneck in its elevated position.

3. The construction according to claim 2 wherein said hydraulic system includes a manually operated pump, said pump and valve permitting the cart to raise a slab after it has been laid in the event of error, after which said system may be restored to its normal operating condition.

4. A cart for picking up a load at one predetermined level and moving the same to a different location and for laying said load to a lower level, said cart comprising a base supported for movement on a working level by a plurality of resilient wheels, said wheels having their centers defining at least two laterally offset axes transverse to the line of movement of said cart to define front and rear axes, said cart having a long handle extending rearwardly with the free end being adapted to be gripped by an operator, a self-contained hydraulic-gas system including an accumulator and hydraulic cylinder means on said base, said means being adapted to convert work into gas pressure to be stored in said accumulator or to convert gas pressure stored in said accumulator into work, said means including a coupling member, a gooseneck of rigid material having one end pivotally supported on said base for movement about a horizontal axis parallel to the cart axes and the vertical projection thereof being between the cart axes, means for connecting said gooseneck to said coupling member for cooperative work, a lifting hook pivotally secured to the free end of said gooseneck and normally hanging downwardly in all positions of said gooseneck, means for elevating said lifting hook from its normal depending position, said hydraulic-gas system being normally adjusted so that said gooseneck normally is in an elevated position when said lifting hook is unloaded but tends to drop when said lifting hook is fully loaded, a manually controlled valve in the hydraulic part of the system for isolating the accumulator from the remainder of the system so that said hydraulic cylinder means is substantially rigid due to the incompressibility of liquid, said system utilizing the potential energy of the load at the storage site to control the load laying part of the cycle and to thereafter return the gooseneck and lifting hook to its elevated position after the load has been laid, a bar extending parallel to the cart axes and disposed in front of the front axis, said bar having a predetermined clearance above the working level so that when said gooseneck is dropping as the result of a load, said bar will aid the operator to limit any substantial tendency for the cart to turn over.

5. A cart for conveying and laying long slabs comprising: a base having a plurality of wheels providing supports at laterally spaced regions along forward and rear transverse axes, said cart having front and rear ends respectively, a handle rigidly attached to said base and extending rearwardly, a gooseneck having one end mounted on said base for rocking about a horizontal axis transverse to said cart, a lifting hook having one end rockably secured to the other end of said gooseneck, said hook having its other end shaped to provide a slab supporting surface, said hook normally hanging down from its rocking axis, means accessible at said handle for elevating said hook only, said handle being long enough to rock said cart to rest on said rear wheels when said gooseneck is in an elevated position and to control said cart when said gooseneck is in its lowest position, said hook being able to engage a slab in the elevated position of said gooseneck and said cart may be rocked to move an engaged slab clear of some stationary support for moving, said gooseneck being movable to lower a slab to a level below the cart support level, said cart being adapted to be rocked to clear the laid slab, said hook elevating means being useful at the beginning of the operating cycle for maneuvering the cart into proper position for slab engagement and means on the cart in advance of the front wheels for limiting the rocking of said cart on said front wheels to prevent excessive cart movement and for defining the correct cart position for proper laying of the slab.

6. The construction according to claim 5 wherein said last named means in advance of the cart includes an angle iron extending transversely of the cart having a straight elongated portion for engaging the floor upon which the cart rests when the cart is rocked on its forward wheels and means for adjustably securing said angle iron so that the height above the support level of the cart may be predetermined for accurate control of the angle through which said cart may be rocked forwardly.

7. The construction according to claim 5 wherein hydraulic-gas energy storage and converting means are provided for positioning said gooseneck.

8. A cart for moving and laying long slabs comprising: a base having a plurality of wheels providing supports at laterally spaced regions along forward and rear transverse axes, said cart being movable on its wheels and having front and rear ends respectively, a handle rigidly attached to said base and extending rearwardly, a gooseneck having one end mounted on said base for rocking

about a horizontal axis transverse to said cart, a lifting hook having one end rockably secured to the other end of said gooseneck, said hook having its other end shaped to provide a slab supporting surface, said hook normally hanging down from its rocking axis, a hydraulic cylinder and piston arrangement coupling said gooseneck and the base of the cart, the relative movement of said piston and cylinder being adapted to move said gooseneck over its operating range, an accumulator connected to said cylinder through a control valve, a pump connected in the hydraulic system, means for operating said pump to build up a hydraulic pressure in said cylinder and in said accumulator, said hydraulic cylinder moving said gooseneck to an elevated position when said lifting hook is unloaded and hydraulic pressure is present in the cylinder, said valve being closed thereafter to isolate said accumulator from the remainder of said hydraulic system, said cart in this condition being adapted to be loaded with a slab on the lifting hook after which said cart may be wheeled with said slab to the slab laying position, said valve being thereafter adapted to be opened to connect said accumulator with the hydraulic system, the added weight of said slab permitting said gooseneck to drop to a desired low position, said valve being adapted to be closed to fix the gooseneck in its low position, said cart

being movable to clear the hook from said laid slab, said valve being thereafter adapted to be opened so that the gas pressure within the accumulator can operate upon the gooseneck and elevate it, and a transverse bar in front of the front cart axis and having sufficient clearance above the cart support plane to snub the rocking of the cart after a slab has been laid and the lifting hook is to be cleared.

9. The construction according to claim 8 wherein manual means are provided for elevating the lifting hook only from its normal depending position.

10. The construction according to claim 8 wherein said front wheels have resilience to yield somewhat when the gooseneck is in its lowest position when laying a slab.

11. The construction according to claim 8 wherein latch means are provided for locking the gooseneck in its elevated position so that when said gooseneck is supporting a load the presence of some flexible hose in the hydraulic system and its yielding to pressure will not cause the gooseneck to sag.

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