Aug. 28, 1945. J. E. RYAN 2,383,686

LOADING MACHINE

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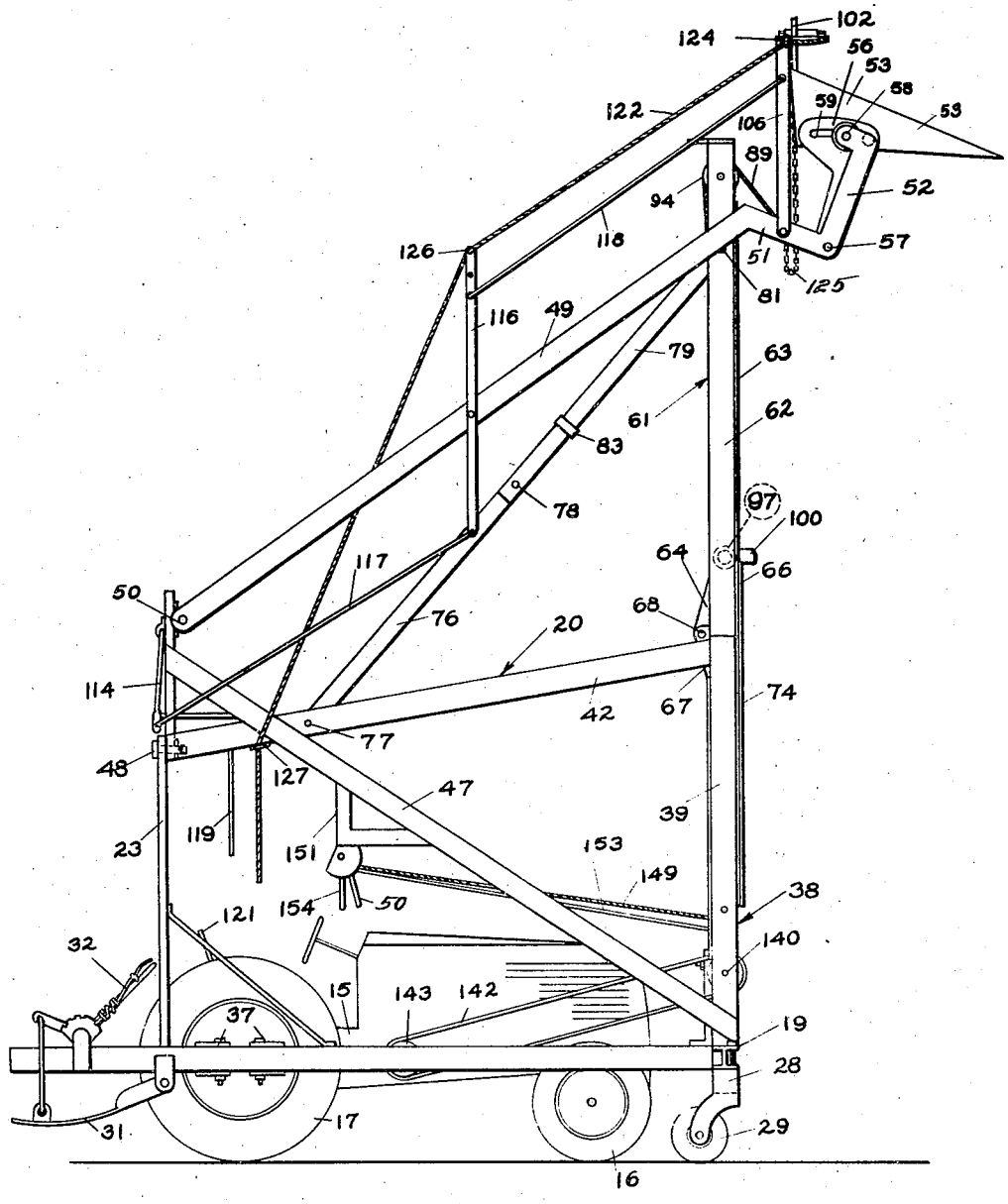


Fig. 1

INVENTOR

John E. Ryan

by Rudolph L. Rowell

ATTORNEY

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Fig. 2

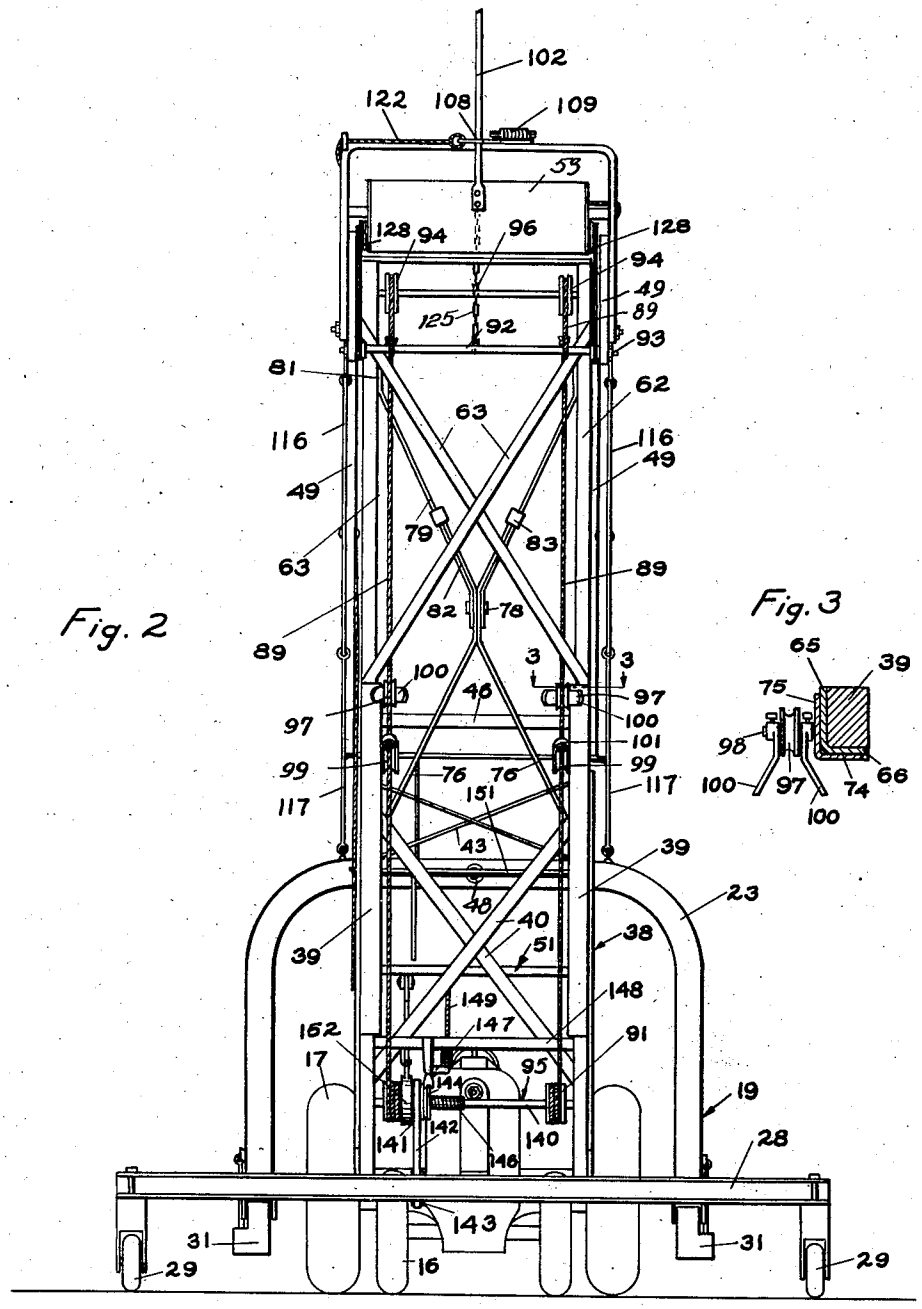


Fig. 3

INVENTOR

John E. Ryan

by Rudolph L. Lowell

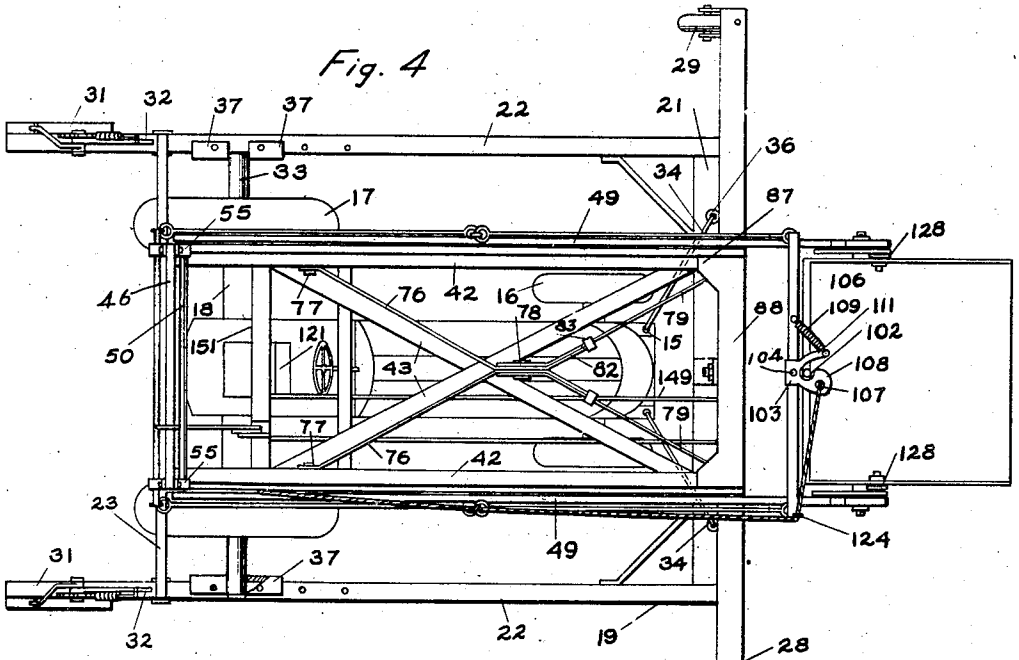
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Fig. 4



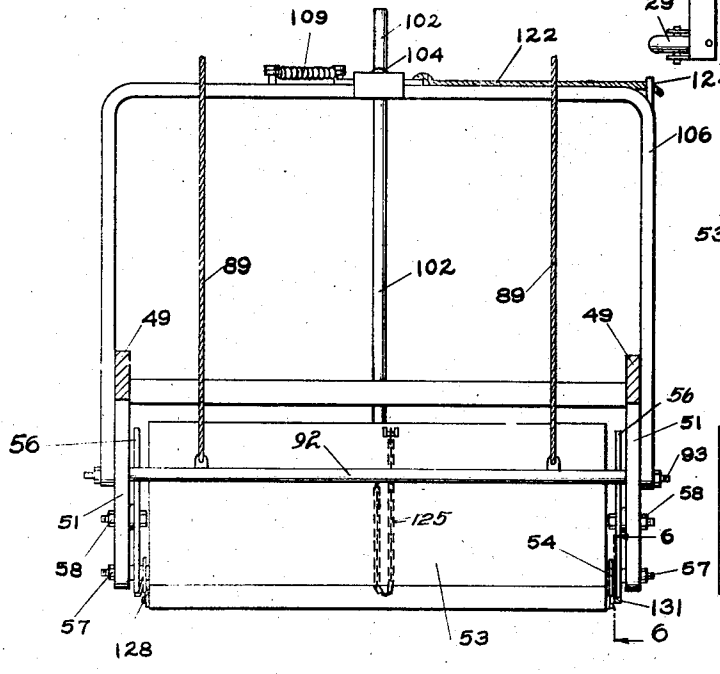


Fig. 5

Fig. 7

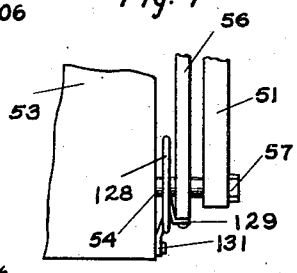
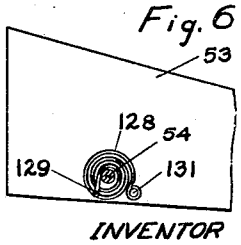


Fig. 6



INVENTOR

John E. Ryan

by Rudolph L. Lowell

ATTORNEY

Aug. 28, 1945. J. E. RYAN 2,383,686

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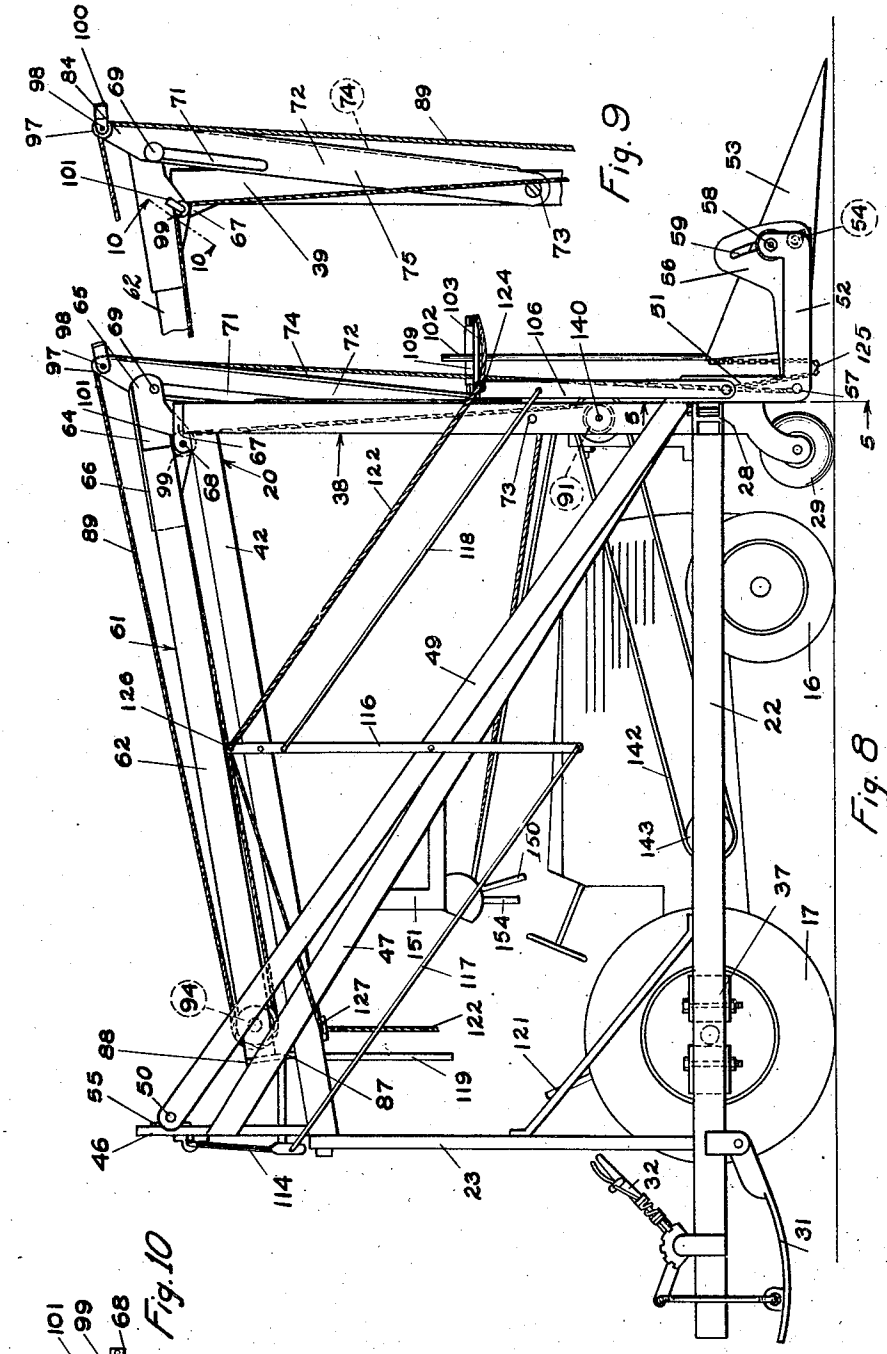


Fig. 9

Fig. 8

Fig. 10

INVENTOR

John E. Ryan

by Rudolph L. Lowell

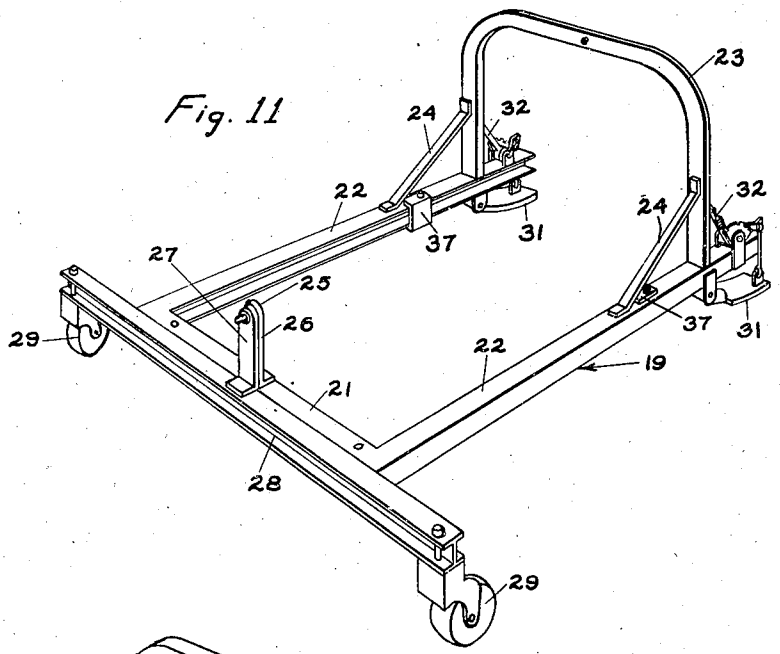
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Fig. 11



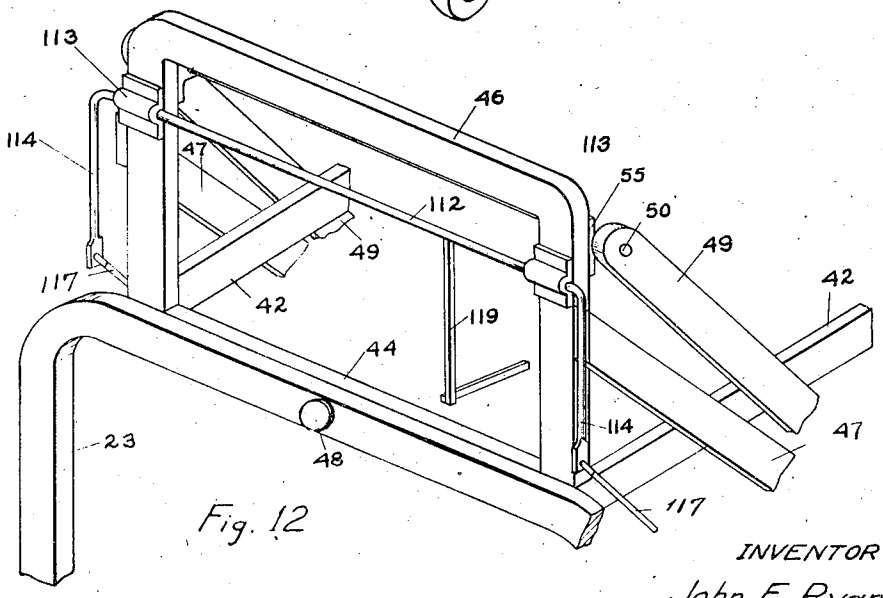


Fig. 12

INVENTOR

John E. Ryan

by Rudolph L. Lowell

ATTORNEY

Patented Aug. 28, 1945

2,383,686

UNITED STATES PATENT OFFICE

2,383,686

LOADING MACHINE

John E. Ryan, Stuart, Iowa, assignor to Ryan Floating Stacker Company, Stuart, Iowa, a co-partnership

Application May 29, 1944, Serial No. 537,867

8 Claims. (Cl. 214—140)

My invention relates generally to loading machines and in particular to a portable and collapsible loading machine adapted to be connected with a tractor so as to be movable with the tractor. This application is a continuation in part of my co-pending application Serial No. 458,043 filed on September 11, 1942, now Patent No. 2,352,915 granted July 4, 1944.

An object of my invention is to provide an improved loading attachment for a tractor.

A further object of my invention is to provide a stacker, attachable with a tractor for movement with the tractor, capable of building a stack in the neighborhood of twenty-two feet high and readily collapsible so as to permit the stacker being moved along a highway in a clearance relation with usual overhanging electric and telephone wires.

Yet another object of my invention is to provide a loading machine having a collapsible upright frame for movably supporting a flexible lifting means when the frame is either in a collapsed or an upright position, so that the loading machine is readily applicable for low lifting work in handling dirt and manure, or high lifting work such as required in stacking hay or the like.

A still further object of my invention is to provide a loading machine in which a pair of pivoted lifting arms are arranged at opposite sides of the stacker and constructed and assembled relative to a supporting frame for the machine such that when the arms are in their lowermost position any force exerted in a rearward direction on the arms is applied against the supporting frame and not on the pivotal support for the arms.

Yet another object of my invention is to provide a loading machine having a pair of oppositely arranged lifting arms pivoted at their rear ends on a supporting frame and having a load-carrying unit pivoted between their front ends, in which the load-carrying unit is pivotally movable, at any moved position of the arms and while in a load carrying position, for movement to a substantially horizontal position.

A feature of my invention is found in the provision of a loading machine having an upright frame and a collapsible frame pivoted at one end on the upright frame for movement to a collapsed position extended rearwardly of the upright frame, and to an upright position on the upright frame. Pulleys adjacent the top of the upright frame, and adjacent the free end of the collapsible frame are operatively associated with a flexible lifting means which is supported from the pulleys on the upright frame when the collapsible frame is in a collapsed position, and from the pulleys on the collapsible frame when such frame is in an extended position on the upright frame.

Further objects, features and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawings in which:

Fig. 1 is a side elevational view of the loader attachment of my invention in assembly relation with a tractor and showing the collapsible frame in an extended position and a load-carrying unit at its maximum elevated position;

Fig. 2 is a front elevational view of the assembly shown in Fig. 1;

Fig. 3 is a sectional view on the line 3—3 in Fig. 2;

Fig. 4 is a plan view of the assembly shown in Fig. 1;

Fig. 5 is a sectional view taken on the line 5—5 in Fig. 8 showing the support of the load-carrying unit with the pivoted lifting arms;

Fig. 6 is a sectional view taken on the line 6—6 in Fig. 5 showing means for automatically returning the scoop to a load-carrying position from a dumping position;

Fig. 7 is an enlarged fragmentary detail view of the automatic return means shown in Fig. 5;

Fig. 8 is illustrated similarly to Fig. 1 and shows the collapsible frame in a collapsed position, and the load-carrying unit at its lowermost position;

Fig. 9 is a fragmentary detail view showing the position of the connecting means between the upright frame and the collapsible frame when the collapsible frame is in a contracted or collapsed position;

Fig. 10 is a sectional view taken on the line 10—10 in Fig. 9;

Fig. 11 is a perspective view of the portable frame for my loading attachment; and

Fig. 12 is a rear perspective view of the supporting means for the pivoted lifting arms.

With reference to the drawings the loader attachment of my invention is shown in Figs. 1, 2 and 4 in assembly relation with a usual farm tractor having a frame 15, front wheels 16 and rear wheels 17 mounted on a rear axle 18. The loader attachment is a preassembled portable unit and includes what I shall refer to as a portable frame 19 and a load carrying frame 20. The portable frame 19 has a front member 21 and side members 22 of a channel iron construction, the members 22 being spaced a distance apart and of a length to receive the tractor therebetween (Fig. 11). The rear ends of the members 22 are connected by an arch 23 of a height to permit

the tractor being driven therebeneath, while providing suitable head clearance for the operator of the tractor. The arch 23 is supported in an upright position by brace members 24 connected between the arch and the frame members 22. The front member 21 carries an upright bracket 26 which is pivotally connected at 25 with an upright bracket 27 supported on an axle unit 28 provided with caster wheels 29.

The rear ends of the frame members 22 are provided with adjustable skids 31 manually adjustable by levers 32 to raise and lower the rear ends of the members 22. By virtue of this adjustment the rear ends of the members 22 are capable of being lifted to a height such that auxiliary axle members 33 detachably connected to the rear wheels 17 of the tractor are receivable between the legs of the channel frame members 22 as the tractor is driven into the space between the members 22. With the auxiliary axles 33 thus received within the frame members 22, the rear end of the frame member 19 is supported on the tractor, after which the levers 32 may be operated to lift the skids 31 out of contact engagement with the ground.

The auxiliary axles 33 are retained against movement relative to the frame members 22 by adjustable clamping plates 37 mounted on the frame members 22 to opposite sides of the axles 33 and in contacting engagement with the axles (Figs. 4 and 11). The forward end of the tractor is connected to the forward end of the portable frame by means of adjustable links 34 each of which is connected at one end 36 to the front member 21 and at an opposite end to the front end of the tractor frame 15.

The portable frame 19 and its assembly with the tractor for movement with the tractor is described in detail in my co-pending application Ser. No. 458,043.

The load-carrying frame 20 includes a front upright frame 38 comprised of a pair of oppositely arranged upright frame members 39 of a channel shape connected together by crossed brace members 40 (Fig. 1). Extended rearwardly from the upper end of the upright frame 38 are a pair of frame members 42 also of a channel shape connected together by crossed brace members 43. The rear ends of the frame members 42 (Fig. 12) are connected together by a frame member 44 and an upright member 46 of inverted U-shape. The front upright frame 38, the frame members 42 and the U-shape member 46 are connected together by oppositely arranged inclined brace members 47 each of which has one end terminating at the member 46 and an opposite end adjacent the lower ends of the upright members 39 in the frame 38.

In the assembly of the load-carrying frame 20 on the portable frame 19 the upright frame 38 is supported on the axle 28 of the portable frame, and the member 44 at the rear ends of frame members 42 is pivotally supported on the arch 23 by a pivot bolt 48 (Figs. 1 and 12). It is thus seen that as the portable frame is advanced along the ground the front axle 28 is pivotally movable relative to the frame members 21 and 22, to in turn provide for a pivotal movement of the load-carrying frame 20 about the pivots 25 and 48 relative to the portable frame 19. It is seen, therefore, that the pivotal support of the load-carrying frame 20 on the axle 28 and on the arch 23 provides for its pivotal movement in a plane transversely of the portable frame 19 whereby it is maintained in an upright position regardless of the differences in elevation of the ground surface over which the tractor and portable frame are traveling. This pivotal support of the load-carrying frame on the portable frame is covered in detail in my co-pending application Serial No. 458,043.

Arranged at opposite sides of the load-carrying frame 20 is a pair of pivoted lifting arms 49 rigidly connected together at their rear ends by a shaft 50, which is pivotally supported in bearing members 55 oppositely arranged adjacent to the top and on the forward side of the U member 46 (Figs. 4 and 12). As best appears from Figs. 1 and 8 each arm 49 is formed with a straight body portion, and a front portion comprised of a section 51 inclined laterally outwardly from the main body portion, and a second section 52 which is at right angles to and extended forwardly from the section 51. Thus as shown in Fig. 8 when the arms 49 are in their lowermost position the straight body portions thereof terminate at the bottom and forwardly of the upright frame 38, with the section 51 in an upright plane and located forwardly of and in contacting engagement with the front surface of the axle 28, for a purpose which will be later explained. At this lowermost position of the arms 49 the section 52 is located adjacent the ground and extended forwardly from the upright frame 38 in a substantially horizontal plane.

Movably supported between the sections 52 is a load-carrying unit 53 which although I have illustrated in the drawings as a scoop may be either a scoop or a hay buck (Figs. 5, 6 and 8). The scoop 53 is pivotally supported on pins 54 at the forward ends of oppositely arranged plate members 56, the rear ends of which plates are pivoted at 57 at the junction of a section 51 with a section 52. The front ends of the plates 56 are adjustably supported at the front ends of the sections 52 by means including a bolt 58 extended transversely through a section 52 and an arcuate slot 59 formed in the front end of a plate member 56. On loosening of the bolts 58 the plates 56 are pivotally movable about their pivots 57 to provide for an adjustment of the scoop 53 to the ground surface. On tightening of the bolts 58 the plate members 56 are held against relative movement relative to a corresponding section 52. The pivot supports 54, for the scoop 53, are located in the arc of the slots 59 so that the position of the scoop longitudinally of the sections 52 remains substantially unchanged during its vertical adjustment as accomplished by the pivotal adjustment of the plates 56.

As I have previously explained the sections 51 on the lifting arms 49 are in a position adjacent to and in contacting engagement with the front side of the axle 28 when the arms 49 are in their lowermost positions of travel. It is thus seen that on a forward advance of the tractor, when the scoop 53 and arms 49 are in their relative positions shown in Fig. 7, any force applied rearwardly on the scoop 53, such as occurs during a usual bucking operation, is exerted against the sections 51 and applied directly to the axle 28 so that the pivot supports 55 for the rear ends of the arms 49 are entirely free of such applied force. By virtue of this construction of the front portions of the arms 49 and their coacting engagement with the axle 28 the arms 49 are capable of being pivotally supported at an appreciable distance above the ground without requiring a pivotal support for the arms adapted to

carry the complete bucking force applied on the scoop 53 during a bucking operation.

Pivotally supported adjacent the top of the front upright frame 38 is an extendible or collapsible frame 61 comprised of a pair of oppositely arranged frame members 62 of a channel shape provided at the supported end of the frame 61 with extensions 64 of a right angle shape having one leg 65 positioned against the inner side of a corresponding frame member 62, and a second leg 66 positioned against the top side of a member 62, as viewed in Fig. 8. The lower side of a member 64, as also viewed in Fig. 8, is extended below the level of a frame member 62 and is pivotally connected at such extended portion, by a pivot pin 68, with a rear extension 67 adjacent the top of a member 39 in the upright frame 38. It is thus seen that the pivot 68 between a frame member 62 and a corresponding frame member 39 is immediately adjacent to the top and at the rear of a frame member 39 whereby to provide for a frame member 62 being pivotally moved in an upright position in longitudinal alignment with a corresponding member 39, as shown in Fig. 1.

The free end of a plate member 64 carries a pin 69, in its leg 65, which is slidably received in a slot 71 extended longitudinally of a pivoted member 72 pivotally supported at 73 adjacent its lower end on a member 39 in the upright frame 38, and having its upper end projected above the top level of the upright frame 38 (Figs. 8 and 9). The member 72 is of a right-angle shape with the slot 71 being formed in a leg 75 thereof which is slidably movable on the inside of a frame member 39. The other leg 74 of the pivoted member 72 is movable toward and away from a position against the front side of a member 39.

When the collapsible frame 61 is in an upright or extended position on the front frame 38, as shown in Figs. 1 and 2, the leg 66 of the connecting member 64 is extended across the junction of corresponding members 39 and 62. The leg 74 of a member 72 is also extended across the junction of corresponding members 39 and 62 and over the leg 66 of the member 64 as shown in Fig. 1. This nesting engagement of the members 64 and 72 (Fig. 3) which is accomplished by the pin and slot connection 69—71 between corresponding members 64 and 72 defines the upright position of the frame 61 on the frame 38, and maintains the frame 61 against pivotal movement forwardly of the frame 38.

When the frame 61 is in its upright position it is retained against pivotal movement rearwardly by a collapsible supporting frame, comprised of a pair of brace rod 76 (Figs. 2 and 4) pivoted at their rear ends at 77 on the frame members 42 and pivoted together at their forward ends by a pivot pin 78, and brace rods 79 pivoted at their forward ends at 81 adjacent the free ends of the members 62, of the collapsible frame 61, and pivoted together at their inner ends by the pivot pin 78. The front ends of the brace members 76 are formed with extensions 82 adapted for mating engagement with the rear ends of the brace members 79. Thus on movement of the collapsible frame 61 to an upright position the brace members 76 and 79 are relatively movable into a common plane, and then held against relative movement by loop members 83 slidable on the brace members 79 and about the extensions 82 of the brace members 76. The brace members 76 and 79 when thus connected together against relative movement constitute a rigid bracing frame between the members 42 and the collapsible frame 61 whereby to hold the collapsible frame 61 against any rearward pivotal movement. In order to collapse the frame 61 the loop members 83 are moved out of an engaging position with the extensions 82 whereby the brace members 76 and 79 are freely movable about their common pivot 78 and the pivots 77 and 81, respectively.

The collapsed position of the frame 61 is defined by the engagement of spaced rear stops 87, carried on a transverse frame member 88 extended across the free end of the frame 61, with the top sides of the frame members 42 (Figs. 4 and 8). At this position the frame 61 is inclined rearwardly and downwardly from the upright frame 38 so that it is inclined downwardly and rearwardly from a horizontal plane extended through the pivot 68 connecting the members 64 and 72. During the rearward pivotal movement of the collapsible frame 61 the pins 69, on the members 64 extended from the lower end of the frame member 62, engage and pivotally move the members 72 in a direction forwardly of the upright frame 38, so that the upper ends 84 of the members 72 are projected forwardly of the upright frame 38.

The pivoted lifting arms 49, and in turn the scoop 53, are capable of being lowered and raised when the collapsible frame 61 is in its collapsed position shown in Fig. 8, or in its extended position shown in Fig. 1, by means including a pair of like flexible lifting means 89 each of which is operatively connected at one end with a corresponding winding drum 91 of a winding mechanism indicated generally at 95 and connected at an opposite end to a sleeve 92 loosely supported on a rod 93 extended between the arm sections 51 rearwardly of the scoop 53 (Figs. 2 and 5). A pair of pulleys 94 is oppositely arranged adjacent the free end of the collapsible frame 61 and rotatably supported on a shaft 96 extended between the members 62 of the frame 61. A second pair of pulleys 97 is oppositely arranged on the upright frame 38 and pivotally supported adjacent the free ends of the connecting members 72 on pins 98 carried in the leg members 75. A third pair of pulleys 99 is oppositely arranged on the upright frame 38, and rotatably supported on the pivot pins 68 for connecting the members 64 and 72. A cable 89 is operatively associated with corresponding ones of the pulleys 94, 97 and 99, and with a corresponding winding drum 91.

When the collapsible frame 61 is in its extended position on the upright frame 38, as shown in Figs. 1 and 2, the cables 89 are supported from the pulleys 94, with each cable from the sleeve member 92 travelling upwardly about a pulley 94 and then downwardly to a winding drum 91. It is thus seen that the arms 49 are capable of being lifted to a maximum position which is defined when the sleeve 92 is substantially at the level of the pulleys 94 as shown in Fig. 1.

With the frame 61 in its collapsed position shown in Fig. 8 the pulleys 97 are at an uppermost position on the upright frame 38, and projected forwardly of the upright frame, as shown in Figs. 8 and 9 by virtue of the forward pivotal movement of the connecting members 72 in the manner explained above. A cable 89 from the sleeve 92 thus extends upwardly about a pulley 97, then rearwardly longitudinally of the frame 61 about a pulley 94, then longitudinally forwardly of the frame 61, about a pulley 99 and

downwardly to a winding drum 91 (Fig. 8). In the collapsed position of the frame 61, therefore, the arms 49, and in turn the scoop 53, are supported from the pulleys 97, with the frame 61 being retained against pivotal movement forwardly to an upright position, by virtue of the rearwardly and downwardly inclined position of the frame 61 from its pivotal supports 68.

Since the cables 89 are not in direct engagement with the pulleys 97 and 99, when the frame 61 is in an upright position, the pulleys 99 are provided with cable guides 101 illustrated in Fig. 10. A guide member 101 is of a U-shape arranged in a straddling relation with a pulley 99 and rotatably supported on the pin 68. I provide each pulley 97 with a pair of guide members 100 mounted on a pin 98 at opposite sides of the pulley 97 with their free ends inclined outwardly and forwardly from the pulley 97 (Fig. 3). A cable 89 is thus retained in an engaging position with the pulleys 97 and 99 for all moved positions of the frame 61 relative to the frame 38.

For raising and lowering the arms 49 I provide the hoisting mechanism 95 which includes the winding or cable drums 91. These drums are mounted in an axially spaced relation on a shaft 140 rotatably supported between the frame members 39 adjacent the lower end of the upright frame 38 (Figs. 1 and 2). A pulley 141 rotatable on the shaft 140 is connected by a belt 142 with a power take-off pulley 143 on the tractor, and provided with a clutch member 144 splined to the shaft 140 and frictionally retained in driven engagement with the pulley 141 by a spring 146. A bell crank lever 147 is pivotally supported from a cross member 148 connected between the frame members 39. A cable 149 has one end attached to the lever 147 and the other end to a manually operated handle 150 pivoted from a frame structure 151 carried between the brace members 47. On actuation of the handle 150 the shaft 140 is connected and disconnected from the pulley 141.

The shaft 140 also carries a brake mechanism, indicated generally at 152, operatively connected through a rod 153 with a manually actuated handle 154 pivoted on the frame structure 151. This brake mechanism is described in detail in my copending application Ser. 458,043 and forms no part of my present invention.

It is contemplated that the upright frame 38 have a height of about twelve feet, and when extended with the frame 61 that the over-all height of these two frames be about twenty-two feet. This height of twelve feet gives all necessary clearance of my loader with the usual overhung electric and telephone wires. From a consideration of Fig. 8 it is seen that the arms 49 are pivoted on the member 46 at a position substantially opposite the top level of the upright frame 38 so that their pivotal support 50 is also about twelve feet above the level of the ground. With the arms 49 pivoted at this elevation they assume an angle of about 45° from their pivotal support 50 when they are in their lowermost positions, and on being raised provide for the scoop 53 following a path upwardly and forwardly of the frames 38 and 61. This path of movement is accomplished by the pivotal arc of movement of the scoop 53 being in a substantially vertical plane as provided by the relatively long length of the arms 49 and their pivotal support at a distance above the ground which is substantially equal to one-half of the over-all height of the upright 38 and the collapsible frame 61.

Because of the relatively large pivotal arc of travel of the scoop 53 it is apparent that the scoop will incline rearwardly at progressively greater angles as it is raised to its maximum position of elevation. The retention of the scoop in a substantially horizontal load-carrying position at all moved positions of the arms 49 is accomplished by means including an upright catch member 102 mounted on the rear wall of the scoop 53 and operatively engageable with a latch member 103 to releasably hold the scoop 53 in a load-carrying position (Figs. 4 and 5).

The latch member 103 is pivotally supported at its rear end at 104 on the top of an inverted U-shape member 106 having its legs arranged in a straddling relation with the arms 49 and pivoted at their free ends on the shaft 93. The forward end of the latch member 103 is formed with a hook portion 107 having a cam surface 108. The catch member 102 is normally positioned within the hook 107 and releasably held therein by the action of a spring 109 connected at one end to the top of the U member 106 and at its opposite end to a lever portion 111 integral with the latch 103 and inclined outwardly from the hook 107. On pivotal movement of the U frame 106 in a direction rearwardly and forwardly of the tractor it is seen that the latch 103 is slidable longitudinally of the upright catch member 102, and acts on the catch to pivot the scoop about its pivots 54. This movement of the U frame 106, to in turn pivotally move the scoop 53, is accomplished by manually operated means comprising a rock shaft 112 rotatably supported transversely of the U member 46 in bearings 113 at a position substantially opposite the pivot 50 for the lifting arms 49 (Fig. 12). The rock shaft 112 is integrally formed at each end with a downwardly extended rock arm 114.

Oppositely arranged and pivoted on the arms 49 are upright levers 116, with the lower end of each lever 116 being connected with a corresponding free end of a rock arm 114 by a link 117. The upper end of each pivoted lever 116 is pivotally connected with the U frame 106 by a link 118. A manually operated lever 119 is mounted on the rock shaft 112 intermediate its ends, and is extended downwardly therefrom to a position adjacent the tractor operator's seat 121. It is thus seen that on actuation of the manual lever 119 the scoop 53 is pivotally moved so as to be maintained in a substantially horizontal position at any moved position of the arms 49, or at any elevated position of the scoop 53. The lever 119 may be operatively associated with a suitable ratchet member (not shown) for holding it in a moved position. In some cases it might be desirable to connect the shaft 112 with a hand wheel (not shown) geared in a driving relation with the shaft 112.

The catch member 102 and the latch member 103 are released by the manual pulling rearwardly on a flexible cable or rope 122 connected at one end to the hook portion 107 and extended through an eye member 124 on the U frame 106 to a position to one side of the upright frame 38, and then rearwardly through a hole 126 in the upper end of a pivoted lever 116 and through a loop member 127 on the frame member 42 from which it is suspended at a position above the tractor operator's seat 121 (Fig. 8). The dumping movement of the scoop 53, on release of the latching mechanism, is limited by a chain 125 connected at one end to the sleeve 92 and at its opposite end adjacent the top of the back wall of the scoop 53 (Figs. 5 and 8).

After being dumped the scoop 53 is automatically returned to its loading position by oppositely arranged flat spiral springs 128 each of which is mounted about a pivot 54 for the scoop 53 and between the scoop and a plate member 56 (Figs. 5, 6 and 7). One end 129 of a spring 128 is fixed to a plate 56, while its opposite end 131 is fixed to the scoop 53, with the pressure of the spring acting normally to move the scoop 53 in a counter-clockwise position as viewed in Fig. 6. The scoop on being dumped is pivotally moved in a clockwise direction, as also viewed in Fig. 6, whereby to store or build up a pressure within the springs 128. On being dumped this spring pressure is sufficient to overcome the normal weight of the scoop 53 to pivotally move the scoop 53 to a normal loading position. During this counter-clockwise movement of the scoop 53 the catch member 102 engages the cam surface 108 on the latch member 103 whereby to move the latch member in a clockwise direction, as viewed in Fig. 4, against the pressure of the spring 109. On passage of the catch member 102 between the hook 107 and lever 111 to its position shown in Fig. 4, the hook is moved to a releasably locked position with the catch member by the spring 109.

From a consideration of the above description it is seen that I provide a loading attachment for a tractor which is preassembled as a portable unit attachable with a tractor for movement therewith. The loader is capable, by virtue of the collapsible frame 61, of readily building either small or high stacks, and with the frame 61 in a collapsed position between the front upright frame 38 and the rear upright frame comprised of the arch 23 and member 46, providing for its over-all height being reduced such that it has sufficient clearance with all overhanging wires for highway travel. High stacks are capable of being built by the use of relatively long pivoted lifting arms 49 which are pivoted at their rear ends an appreciable distance above the ground level and relatively constructed and assembled with their supporting frame such that the pivotal supports are substantially free of any bucking force applied to the scoop 53 carried at the forward ends of the arms. Further means are provided whereby the scoop 53 is manually adjusted so as to be retained in a substantially horizontal position at any moved position of the lifting arms.

Although I have described my invention with respect to a preferred embodiment thereof it is to be understood that it is not to be so limited since changes and modifications can be made therein which are within the intended scope of my invention as defined by the appended claims.

I claim:

1. A loading attachment for a tractor including a portable frame attachable with the tractor for movement therewith, a front upright portion and a rear upright portion on said frame, frame members connecting together said two upright portions, a pair of pivoted lifting arms arranged at opposite sides of said frame, means pivotally supporting said arms on said rear upright portion at a position substantially opposite the top level of said front upright portion, a load-carrying means carried between the front ends of said arms forwardly of said upright portion, a collapsible extension for said front upright portion, means pivotally supporting said extension adjacent the top of said front upright portion for pivotal movement to an upright position and to a collapsed position between said two upright portions, flexible lifting means for said arms, a first means adjacent the top of said front upright portion and other means adjacent the top of said extension for movably supporting said lifting means, with the load on said lifting means being suspended from said first means when said extension is collapsed, and from said other means when the extension is in an upright position, and means operated by the tractor for raising and lowering said lifting means.

2. A loading machine for a tractor comprising a portable frame unit attachable with the tractor for movement therewith, including a front member and a front axle pivoted forwardly on said front member for pivotal movement transversely of said portable frame unit, means providing for the support of the rear end of said portable frame on the tractor, a rear upright frame on said portable unit, a load-carrying frame unit having a front upright frame carried on said front axle, and a frame extended rearwardly from said front upright frame at a position adjacent the top thereof, means pivoting the rear end of said rearwardly extended frame on said rear upright frame, with said pivoted axle and said pivot means providing for the pivotal movement of said load-carrying unit about an axis extended longitudinally thereof, an upright portion at the rear end of said rearwardly extended frame, a pair of pivoted lifting arms arranged at opposite sides of said load-carrying unit, means pivoting said arms at their rear ends adjacent the upper end of said upright portion, a frame extension pivotally supported on said front upright frame, means for holding said extension in an upright position on said front upright frame and providing for the pivotal movement of said extension to a collapsed position between said front upright frame and said rear upright frame, a first pulley means adjacent the top of said front upright frame, a second pulley means adjacent the free end of said extension, flexible lifting means movably supported on said two pulley means and operatively connected with the front portion of said arms, with the load on said lifting means being supported from said first pulley means when the extension is in said collapsed position, and from said second pulley means when said extension is in an upright position, and means for operating said lifting means to pivotally raise and lower said arms.

3. A loading attachment for a tractor including a portable frame attachable with the tractor for movement therewith, an upright frame adjacent the front end of said portable frame, a collapsible extension for said upright frame, means pivotally supporting said extension on said upright frame for movement to a position extended rearwardly from said upright frame, and to an upright position on said upright frame, a pair of upright members oppositely arranged on said upright frame and pivoted at their lower ends on said upright frame, with their upper ends extended above the top level of said upright frame, a first pair of pulleys oppositely arranged on said upper ends, a pair of connecting members oppositely arranged on said extension and projected downwardly from the lower end of said extension, with each said connecting members being in a pin and slot connection with a corresponding upright member, said upright members, on movement of said extension to a collapsed position, being movable by said connecting members so that said upper ends are po-

sitioned forwardly of said upright frame, a second pair of pulleys oppositely arranged on said extension adjacent said lower end thereof, a third pair of pulleys oppositely arranged on said extension adjacent the upper end thereof, a load-carrying unit movably supported on said portable frame for up and down movement forwardly of said upright frame, and a flexible lifting means connected with said load-carrying unit and operatively associated with said pulleys, said lifting means, when said extension is in an upright position, being supported from said third pair of pulleys and free of said first and second pairs of pulleys, and with the lifting means, when said extension is in a collapsed position, being supported from said first pair of pulleys and in operative engagement with said second and third pairs of pulleys.

4. A loading attachment for a tractor comprising a portable frame attachable with the tractor for movement therewith, a front upright frame and a rear upright frame on said portable frame, a pair of load-lifting arms arranged at opposite sides of said two upright frames and pivoted at their rear ends on said rear upright frame at a position substantially opposite the top level of said front upright frame, a collapsible frame pivoted at one end on said front upright frame for pivotal movement to an upright position on said front upright frame, and to a collapsed position between said two upright frames, a pair of oppositely arranged members projected outwardly from the one end of said collapsible frame, a pair of oppositely arranged upright members pivoted at their lower ends on said front upright frame, means pivotally and slidably connecting together the free end of an outwardly projecting member with the free end of a corresponding upright member whereby the free ends of said upright members are moved forwardly of said front upright frame on movement of said collapsible frame to a collapsed position, flexible lifting means operatively connected with the front ends of said pivoted arms, means movably supporting said lifting means including a first pair of pulleys oppositely arranged at the free ends of said upright members, and a second pair of pulleys oppositely arranged adjacent the other end of said collapsible frame, with said lifting means being suspended from said first pair of pulleys when said collapsible frame is in a collapsed position, and from said second pair of pulleys when said collapsible frame is in an upright position, and means for operating said lifting means to pivotally raise and lower said arms.

5. A loading attachment for a tractor comprising a portable unit attachable with the tractor for movement therewith, an upright front frame and an upright rear frame on said portable unit, a pair of pivoted arms arranged at opposite sides of said two upright frames and pivoted at their rear ends adjacent the top of said rear upright frame, with the front ends of said arms projected forwardly of said front upright frame, flexible lifting means movably supported from said front upright frame, means for operating said flexible lifting means to pivotally raise and lower said arms, a load-carrying unit pivoted between the front ends of said arms, means for holding said load-carrying unit in a loading position including an upright catch member on said load-carrying unit, a latch operatively engageable with said catch member and slidable longitudinally of said catch member in a latched position, supporting means for said latch pivoted on said arms for pivotal movement longitudinally of said arms, a rock shaft rotatably supported in said rear upright frame, a rock arm adjacent each end of said shaft, a manually operated member connected with said shaft intermediate the ends of said shaft, a pair of upright pivoted levers oppositely arranged on said arms, link means connecting one free end of each said pivoted levers with a corresponding rock arm, and the other free end of each said pivoted levers with said pivoted supporting means, with actuation of said manually operated member providing for the pivotal movement of said load-carrying unit at any moved position of said arms and with said load-carrying unit held in a load-carrying position by said catch member and said latch member.

6. A loading machine comprising a portable frame, an upright frame adjacent one end of said portable frame, a pair of pivoted lifting arms arranged at opposite sides of said upright frame, a load-carrying means supported between said arms forwardly of said upright frame, means including flexible lifting means for lowering and raising said lifting arms, a collapsible extension movably carried on said upright frame for movement to a first position extended upwardly from said upright frame, and to a second position extended rearwardly and downwardly from said upright frame, means for holding said extension in each of said first and second positions, a first means adjacent the free end of said extension for movably supporting said lifting means when the extension is in said first position, and other means adjacent the top of said upright frame for movably supporting said lifting means when the extension is in said second position.

7. In a loading machine, having a pair of pivoted, oppositely arranged load-carrying arms, an upright frame between said arms, a collapsible extension movably supported on said frame for movement to a first position extended upwardly from said frame and to a second position below the top level of said frame, means for lowering and raising said arms including flexible lifting means, means for movably supporting said lifting means adjacent the top of said frame when the extension is in said second position, and means for movably supporting said lifting means adjacent the top of said extension when the extension is in said first position.

8. In a loading machine, an upright frame having a pivoted top portion movable to an upright position and to a collapsed position extended rearwardly and downwardly from said upright frame, load-carrying means movably supported for up and down movement forwardly of said upright frame, means for raising and lowering said load-carrying means including flexible lifting means, means adjacent the top of said frame for movably supporting said lifting means when said top portion is in a collapsed position, and means for movably supporting said lifting means adjacent the free end of said top portion when the top portion is in said upright position, with said lifting means being movable on said last mentioned means with the top portion in said collapsed position.

JOHN E. RYAN.