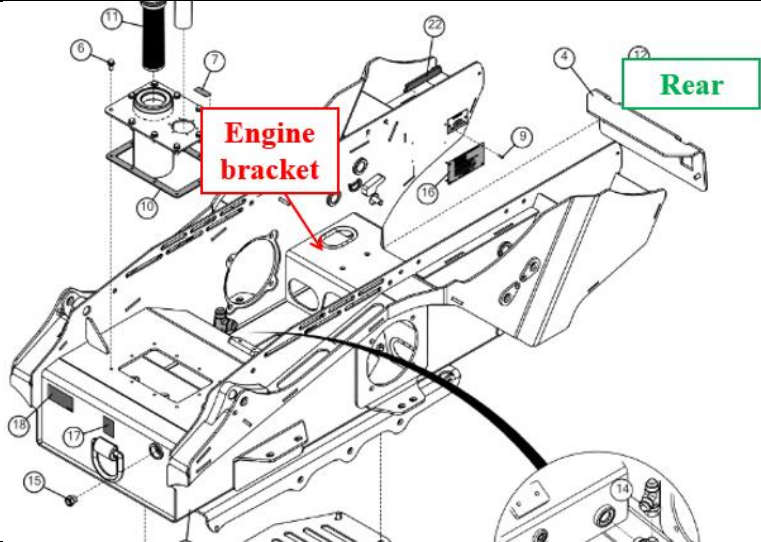


U.S. Patent 9,321,386

Comparing the Vermeer CTX50 to Independent Claims 50, 55, 80, and 83

Claim 50 of the '386 Patent	Vermeer CTX50
50. A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:	 CTX50 MINI SKID STEER GENERAL Length: 75" (190.5 cm) Width: 35.5" (90.2 cm) Height: 54.5" (138.4 cm) Weight: 2100 lb (952.5 kg) Hinge pin height: 72" (182.9 cm) Ground clearance: 6" (15.2 cm) Ground pressure: 4.5 psi (31.0 kPa)
a loader adapted to carry a tool, the loader comprising: a first loader arm; a second loader arm; and at least one cross-member that extends from the first loader arm to the second loader arm;	 Loader Tool  Cross-member

Claim 50 of the '386 Patent	Vermeer CTX50
a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis,	 The top photograph shows a yellow Vermeer CTX50 skid steer loader operating on a dirt mound. A worker in a white hard hat and high-visibility vest is seated on the machine. Labels with arrows point to specific parts: 'Front end' points to the front of the loader, 'Mainframe First Side' points to the right side of the mainframe, and 'Rear end' points to the rear of the loader. The bottom photograph shows the same loader from a different angle, with a label 'Mainframe Second Side' pointing to the left side of the mainframe.

Claim 50 of the '386 Patent	Vermeer CTX50
the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,	
the first loader arm not being directly attached to the mainframe;	

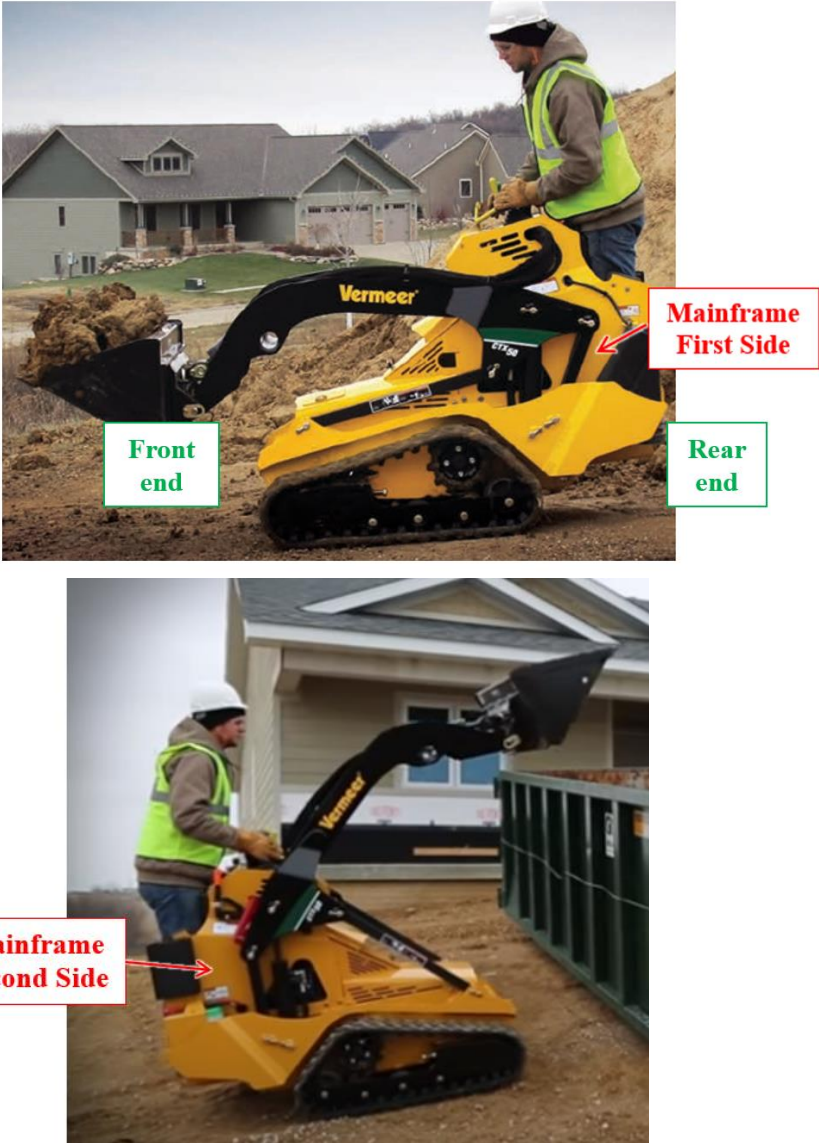
Claim 50 of the '386 Patent	Vermeer CTX50
a first linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at a first linkage pivot point;	 This diagram shows a yellow Vermeer CTX50 skid steer loader with a black loader arm. A worker in a white hard hat and yellow safety vest is operating the machine. Red arrows point to the 'Loader arm' and the 'First linkage'. Green arrows point to the 'First linkage pivot point' and the 'Pivotally attached' connection to the mainframe. The machine is shown in a construction setting with a house in the background.
a second linkage pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at a second linkage pivot point,	 This diagram shows the same Vermeer CTX50 skid steer loader from a slightly different angle. Red arrows point to the 'Loader arm' and the 'Second linkage'. Green arrows point to the 'Second linkage pivot point' and the 'Pivotally attached' connection to the mainframe. The machine is shown in a construction setting with a house in the background.

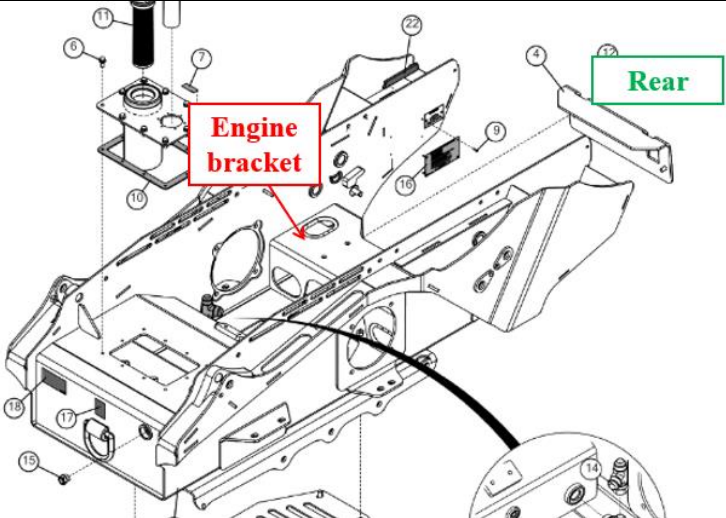
Claim 50 of the '386 Patent	Vermeer CTX50
each cross-member being disposed forward of the first linkage pivot point and the second linkage pivot point;	 The image shows a yellow Vermeer CTX50 compact track loader operating on a dirt site. A worker in a white hard hat and high-visibility vest stands behind the machine. Three callout boxes are overlaid on the image: a red box labeled 'Cross-member' with a red arrow pointing to the boom; a green box labeled 'First linkage pivot point' with a green arrow pointing to the upper joint of the boom; and another green box labeled 'Second linkage pivot point' with a green arrow pointing to the lower joint of the boom. The background shows a residential development with houses and a clear sky.

Claim 50 of the '386 Patent	Vermeer CTX50
an actuator pivotally attached to the first side of the mainframe and pivotally attached to the first loader arm at an actuator pivot point;	 The top photograph shows a Vermeer CTX50 skid steer loader in a field. A worker in a hard hat and safety vest stands on the right side of the machine. Callouts with arrows point to the following components: 'Loader arm' (red box), 'Actuator pivot point' (green box), 'Actuator' (red box), and 'Pivotally attached' (green box). The bottom photograph shows the same machine from a side-rear perspective, with a callout 'Actuator' (red box) pointing to the hydraulic cylinder on the side of the mainframe. The machine is yellow and black, with 'Vermeer' and 'CTX50' visible on the loader arm.

Claim 50 of the '386 Patent	Vermeer CTX50
a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation; and	 A photograph of a yellow Vermeer CTX50 compact track loader. An operator wearing a white hard hat and a high-visibility vest is standing on the rear of the machine, operating the controls. A red arrow points from a red-bordered text box labeled "Control station having operator controls" to the control area on the rear of the machine. The machine is on a dirt construction site with a house in the background.
an operator platform for standing operation of the operator controls of the control station.	 A photograph of the same Vermeer CTX50 compact track loader. The operator is standing on the rear platform. A red-bordered text box labeled "Operator platform" is positioned at the bottom right of the machine. The machine is on a dirt construction site with a house in the background.

Claim 55 of the '386 Patent	Vermeer CTX50
55. A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:	 CTX50 MINI SKID STEER GENERAL - Length: 75" (190.5 cm) - Width: 35.5" (90.2 cm) - Height: 54.5" (138.4 cm) - Weight: 2100 lb (952.5 kg) - Hinge pin height: 72" (182.9 cm) - Ground clearance: 6" (15.2 cm) - Ground pressure: 4.5 psi (31.0 kPa)
a loader having an arm, the loader being adapted to carry a tool;	

Claim 55 of the '386 Patent	Vermeer CTX50
a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis,	

Claim 55 of the '386 Patent	Vermeer CTX50
the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,	 This technical drawing shows an exploded view of the mainframe components. A red label 'Engine bracket' with an arrow points to a bracket (part 10) that extends from the side of the mainframe. A green label 'Rear' with an arrow points to the rear end of the mainframe (part 4). Various other parts are numbered, including 6, 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22.
each side having a top and a bottom, the first side of the mainframe having at least two pivot points relative to the loader,	 This photograph shows a yellow Vermeer CTX50 skid steer loader in operation on a dirt surface. A worker in a hard hat and safety vest is standing on the loader. A red label 'Loader' with an arrow points to the loader's arm and bucket. A green label 'Pivot points' with two arrows points to the pivot points on the loader's frame. The background shows a residential area with houses and trees.

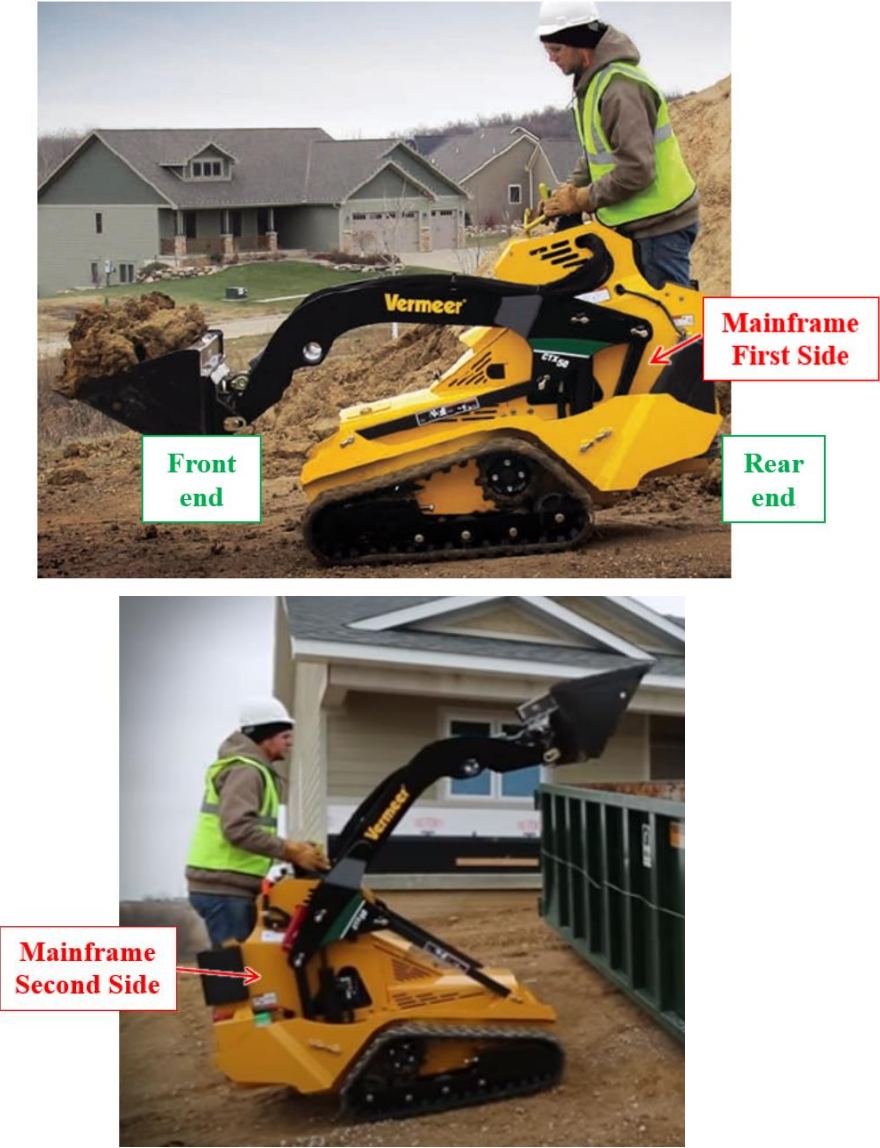
Claim 55 of the '386 Patent	Vermeer CTX50
the loader arm not being directly attached to the mainframe;	 A photograph of a yellow Vermeer CTX50 skid steer loader. A worker in a white hard hat and safety vest is operating the machine. The loader arm is raised. Red arrows point to the 'Mainframe' and 'Loader arm' with labels. A green arrow points to the connection point with the label 'Not directly attached'.
a linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	 A photograph of a yellow Vermeer CTX50 skid steer loader. A worker in a white hard hat and safety vest is operating the machine. The loader arm is lowered. Red arrows point to the 'Loader arm' and 'Linkage' with labels. Green arrows point to the pivot points with the label 'Pivotally attached'.

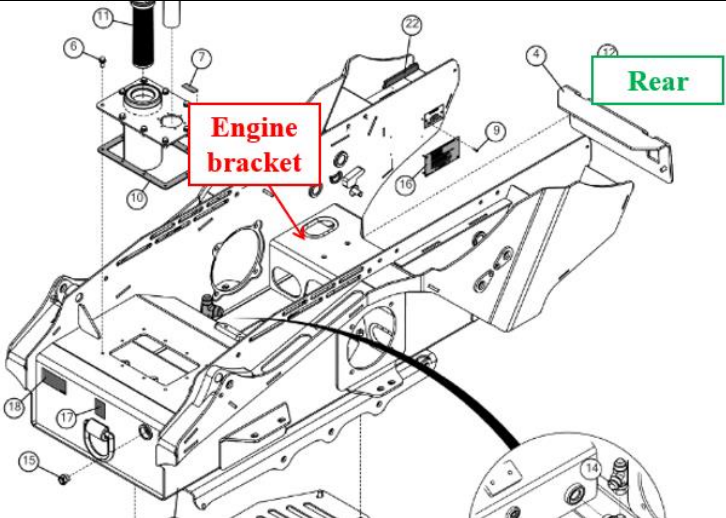
Claim 55 of the '386 Patent	Vermeer CTX50
an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	

Claim 55 of the '386 Patent	Vermeer CTX50
a drive mechanism comprising tracks for propelling the compact tool carrier over a supporting surface, the drive mechanism having a rotational axis, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface,	
the rotational axis and bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis and the bottom of the first side of the mainframe being separated by a vertical distance D5, the rotational axis and the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2, the rotational axis and the pivot point at which the actuator is attached to the mainframe being separated by a vertical distance D4, both D2 and D4 being less than D1 and being less than 1.5 D5; and	 D2 and D4 are less than D1 and less than 1.5 times D5.

Claim 55 of the '386 Patent	Vermeer CTX50
a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation.	

Claim 80 of the '386 Patent	Vermeer CTX50
80. A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:	 CTX50 MINI SKID STEER GENERAL - Length: 75" (190.5 cm) - Width: 35.5" (90.2 cm) - Height: 54.5" (138.4 cm) - Weight: 2100 lb (952.5 kg) - Hinge pin height: 72" (182.9 cm) - Ground clearance: 6" (15.2 cm) - Ground pressure: 4.5 psi (31.0 kPa)
a loader having an arm, the loader being adapted to carry a tool;	

Claim 80 of the '386 Patent	Vermeer CTX50
a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis,	 The top photograph shows a yellow Vermeer CTX50 skid steer loader operating on a dirt mound. A worker in a hard hat and safety vest is seated on the machine. Labels include 'Front end' pointing to the front of the loader, 'Mainframe First Side' pointing to the right side of the mainframe, and 'Rear end' pointing to the rear of the loader. The bottom photograph shows the same loader from a different angle, positioned near a green dumpster. A label 'Mainframe Second Side' points to the left side of the mainframe.

Claim 80 of the '386 Patent	Vermeer CTX50
the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,	 This technical drawing shows an exploded view of the mainframe components. A red label 'Engine bracket' with an arrow points to a bracket (part 10) that extends from the side of the mainframe. A green label 'Rear' with an arrow points to the rear end of the mainframe (part 4). Various other parts are numbered, including 6, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22.
each side having a top and a bottom, the first side of the mainframe having at least two pivot points relative to the loader,	 This photograph shows a yellow Vermeer CTX50 skid steer loader in operation on a dirt surface. A worker in a hard hat and safety vest is standing on the loader. A red label 'Loader' with an arrow points to the loader's arm and bucket. A green label 'Pivot points' with two arrows points to the pivot points on the loader's frame. The background shows a residential house and a lawn.

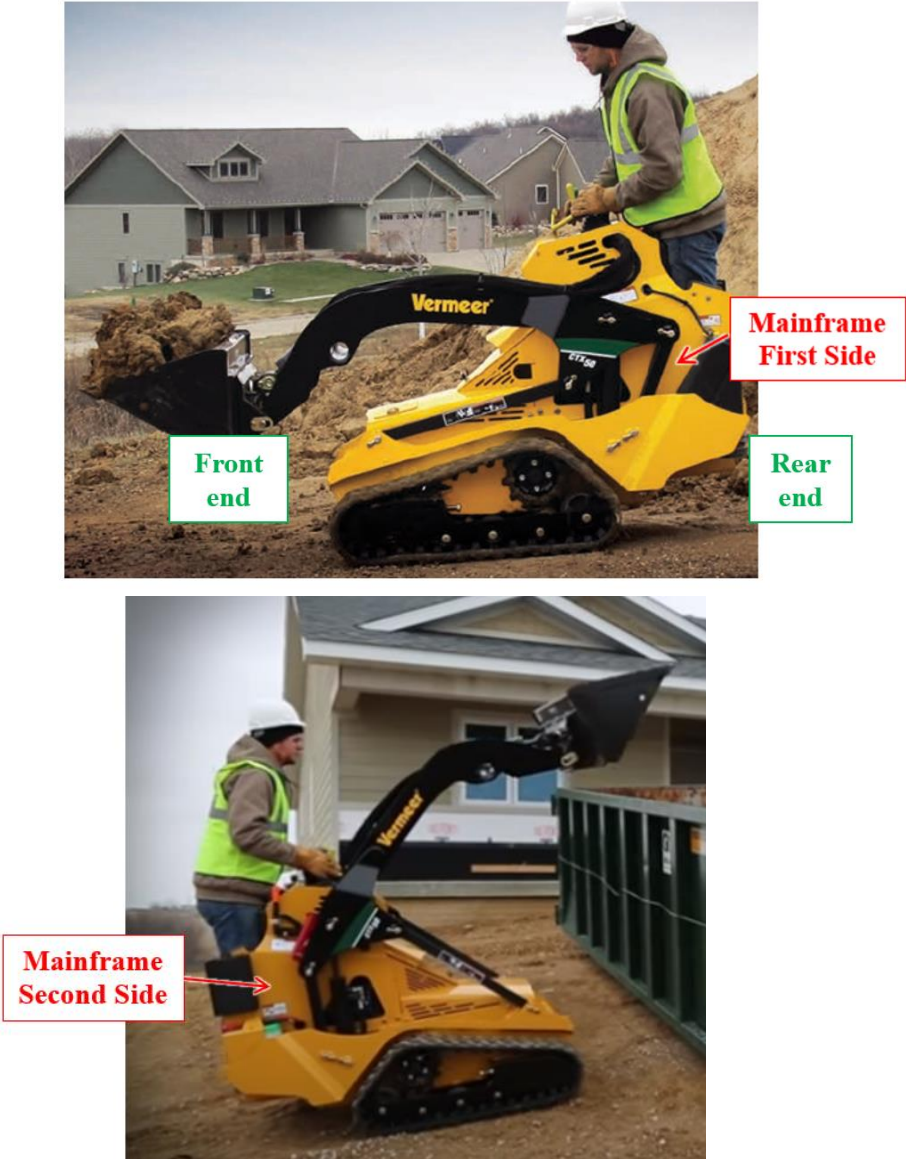
Claim 80 of the '386 Patent	Vermeer CTX50
the loader arm not being directly attached to the mainframe;	 A photograph of a yellow Vermeer CTX50 skid steer loader. A worker in a hard hat and safety vest is operating it. Red arrows point from labels to specific parts: 'Mainframe' points to the base, 'Loader arm' points to the boom, and 'Not directly attached' points to the hydraulic cylinder connecting them.
a linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	 A photograph of the same Vermeer CTX50 skid steer loader from a different angle. Red arrows point from labels: 'Loader arm' points to the boom, 'Linkage' points to the hydraulic cylinder, and 'Pivottally attached' points to the cylinder's connection to the mainframe and the boom. A second 'Pivottally attached' label points to the boom's connection to the cylinder.

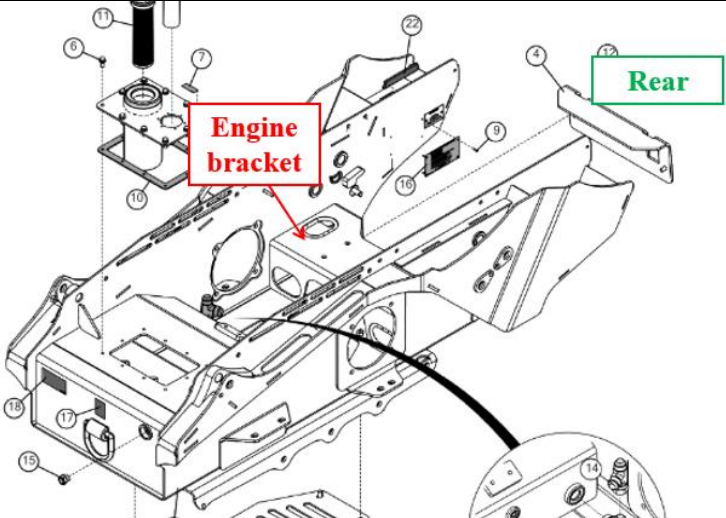
Claim 80 of the '386 Patent	Vermeer CTX50
an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	

Claim 80 of the '386 Patent	Vermeer CTX50
a drive mechanism comprising tracks for propelling the compact tool carrier over a supporting surface, the drive mechanism having a rotational axis, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface,	

Claim 80 of the '386 Patent	Vermeer CTX50
the rotational axis and bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis and the bottom of the first side of the mainframe being separated by a vertical distance D5, the rotational axis and the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2, the rotational axis and the pivot point at which the actuator is attached to the mainframe being separated by a vertical distance D4, both D2 and D4 being less than 2.0 D5, the pivot point at which the linkage is attached to the mainframe being disposed above the tracks; and	D2 and D4 are less than twice D5. 
a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation.	

Claim 83 of the '386 Patent	Vermeer CTX50
83. A compact tool carrier configured for standing or walk-behind operator control and having a longitudinal axis and a mass of less than about 1500 kg, the compact tool carrier comprising:	 CTX50 MINI SKID STEER GENERAL - Length: 75" (190.5 cm) - Width: 35.5" (90.2 cm) - Height: 54.5" (138.4 cm) - Weight: 2100 lb (952.5 kg) - Hinge pin height: 72" (182.9 cm) - Ground clearance: 6" (15.2 cm) - Ground pressure: 4.5 psi (31.0 kPa)
a loader having an arm, the loader being adapted to carry a tool;	

Claim 83 of the '386 Patent	Vermeer CTX50
a mainframe for supporting the loader, the mainframe having a first side and a second side, and having a front end and a rear end relative to the longitudinal axis,	 The image consists of two photographs of a yellow Vermeer CTX50 skid steer loader. The top photograph shows the loader from a side-front perspective, with a worker in a hard hat and safety vest operating it. Labels include 'Front end' in a green box, 'Mainframe First Side' in a red box with an arrow pointing to the side of the mainframe, and 'Rear end' in a green box. The bottom photograph shows the loader from a side-rear perspective, with a label 'Mainframe Second Side' in a red box with an arrow pointing to the opposite side of the mainframe.

Claim 83 of the '386 Patent	Vermeer CTX50
the mainframe comprising an engine bracket that extends from the first side toward the second side for mounting an engine to the mainframe, the engine bracket being spaced from the rear end of the mainframe,	 This technical drawing shows an exploded view of the mainframe components. A red label 'Engine bracket' with an arrow points to a bracket (part 10) that extends from the side of the mainframe. A green label 'Rear' with an arrow points to the rear end of the mainframe (part 4). Various other parts are numbered, including 6, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22.
each side having a top and a bottom, the first side of the mainframe having at least two pivot points relative to the loader,	 This photograph shows the Vermeer CTX50 loader in operation. A red label 'Loader' with an arrow points to the bucket. A green label 'Pivot points' with two arrows points to the pivot points on the loader arm. The operator is wearing a hard hat and a high-visibility vest. The background shows a residential area with houses and a lawn.

Claim 83 of the '386 Patent	Vermeer CTX50
the loader arm not being directly attached to the mainframe;	 This diagram shows a side view of the Vermeer CTX50 skid steer loader. A worker in a hard hat and safety vest is operating the machine. Red arrows point to the 'Mainframe' and the 'Loader arm'. A green box with the text 'Not directly attached' has a green arrow pointing to the pivot point between the mainframe and the loader arm, indicating that the loader arm is not directly attached to the mainframe.
a linkage pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	 This diagram shows a side view of the Vermeer CTX50 skid steer loader from a different angle. A worker in a hard hat and safety vest is operating the machine. Red arrows point to the 'Loader arm' and the 'Linkage'. Green boxes with the text 'Pivotally attached' have green arrows pointing to the pivot points where the linkage is attached to the mainframe and the loader arm, indicating that the linkage is pivotally attached to both components.

Claim 83 of the '386 Patent	Vermeer CTX50
an actuator pivotally attached to the first side of the mainframe and pivotally attached to the loader arm;	

Claim 83 of the '386 Patent	Vermeer CTX50
a drive mechanism comprising tracks for propelling the compact tool carrier over a supporting surface, the drive mechanism having a rotational axis, the compact tool carrier having a bottom at which the drive mechanism contacts the supporting surface,	

Claim 83 of the '386 Patent	Vermeer CTX50
the rotational axis and bottom of the compact tool carrier being separated by a vertical distance D1, the rotational axis and the bottom of the first side of the mainframe being separated by a vertical distance D5, the rotational axis and the pivot point at which the linkage is attached to the mainframe being separated by a vertical distance D2, the rotational axis and the pivot point at which the actuator is attached to the mainframe being separated by a vertical distance D4, both D2 and D4 being less than 2.0 D5, the pivot point at which the actuator is attached to the mainframe being above the rotational axis; and	D2 and D4 are less than twice D5.  The diagram shows a side profile of a yellow Vermeer CTX50 compact track loader. Four horizontal purple lines are drawn across the machine, with vertical double-headed arrows indicating the following dimensions: D1 is the distance from the bottom of the track to the top of the mainframe; D5 is the distance from the bottom of the track to the rotational axis of the loader arm; D2 is the distance from the rotational axis to the pivot point where the loader arm is attached to the mainframe; and D4 is the distance from the rotational axis to the pivot point where the actuator is attached to the mainframe. The text states that D2 and D4 are less than twice D5.
a control station having operator controls for propelling the compact tool carrier forward and for raising and lowering the loader, the control station being mounted toward the rear of the compact tool carrier and adapted to allow for standing or walk-behind operation.	 The photograph shows a yellow Vermeer CTX50 compact track loader in operation on a dirt site. An operator wearing a hard hat and safety vest is standing at the rear of the machine, operating the controls. A red box with the text "Control station having operator controls" is overlaid on the image, with a red arrow pointing to the operator's position.