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Edholm et al.(10) **Pub. No.: US 2014/0190141 A1**(43) **Pub. Date: Jul. 10, 2014**(54) **HANDLE CONTROL ARRANGEMENT OF A WALK-BEHIND LAWN MOWER**(75) Inventors: **Fredrik Edholm**, Jonkoping (SE);
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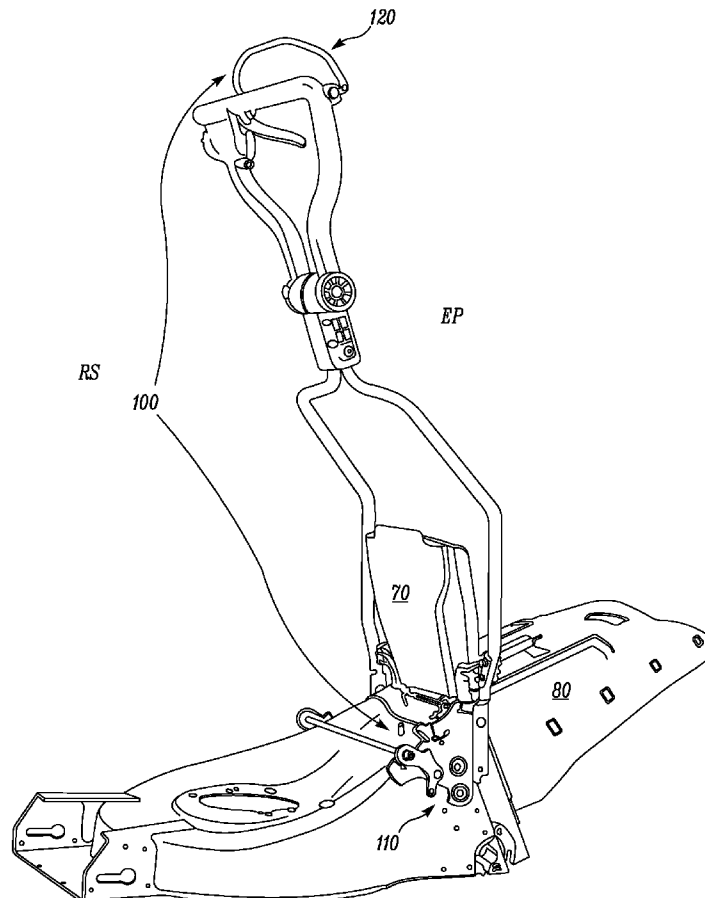
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(2013.01); **A01D 34/68** (2013.01); **A01D****43/063** (2013.01)USPC **56/10.5**; 56/16.6

(57)

ABSTRACT

A walk-behind lawn mower comprising a body with an engine driving a cutting blade, and a handle assembly which is pivotally connected to the body. The lawn mower furthermore comprises a handle control arrangement for controlling pivotal movement of the handle assembly relative to the body, between a working position and a pivoted position. The handle control arrangement comprises a locking member, selectively displaceable between an open state in which the locking member allows pivotal movement of the handle assembly from the working position to the pivoted position, and a locked state in which the locking member inhibits pivotal movement of the handle assembly from the working position to the pivoted position. The handle control arrangement also comprises an actuating member operatively connected to the locking member and controlling the state of the locking member. The actuating member is also arranged to control activation and deactivation of a device arranged to inhibit rotation of the cutting blade of the walk-behind lawn mower.



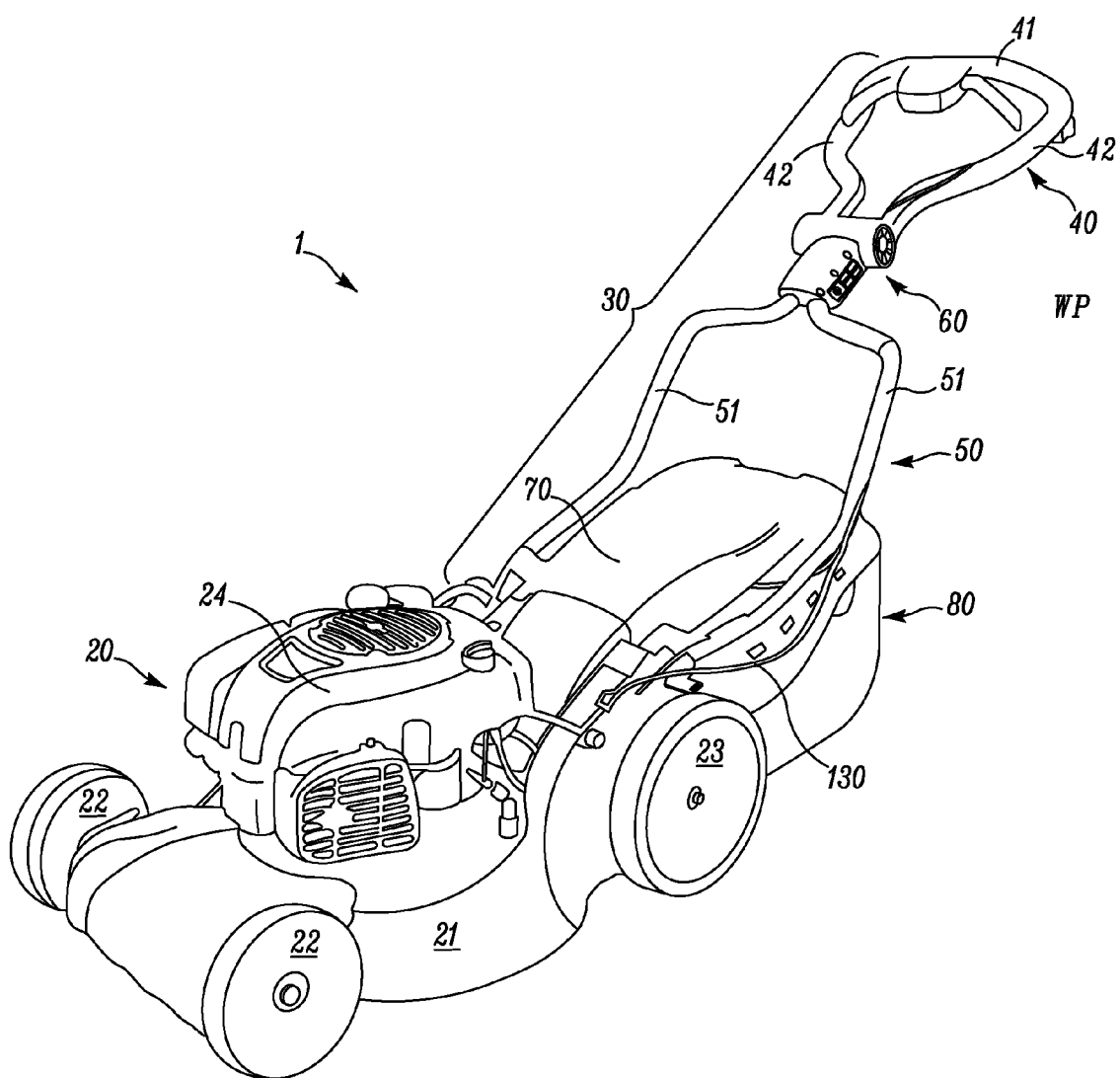


FIG. 1

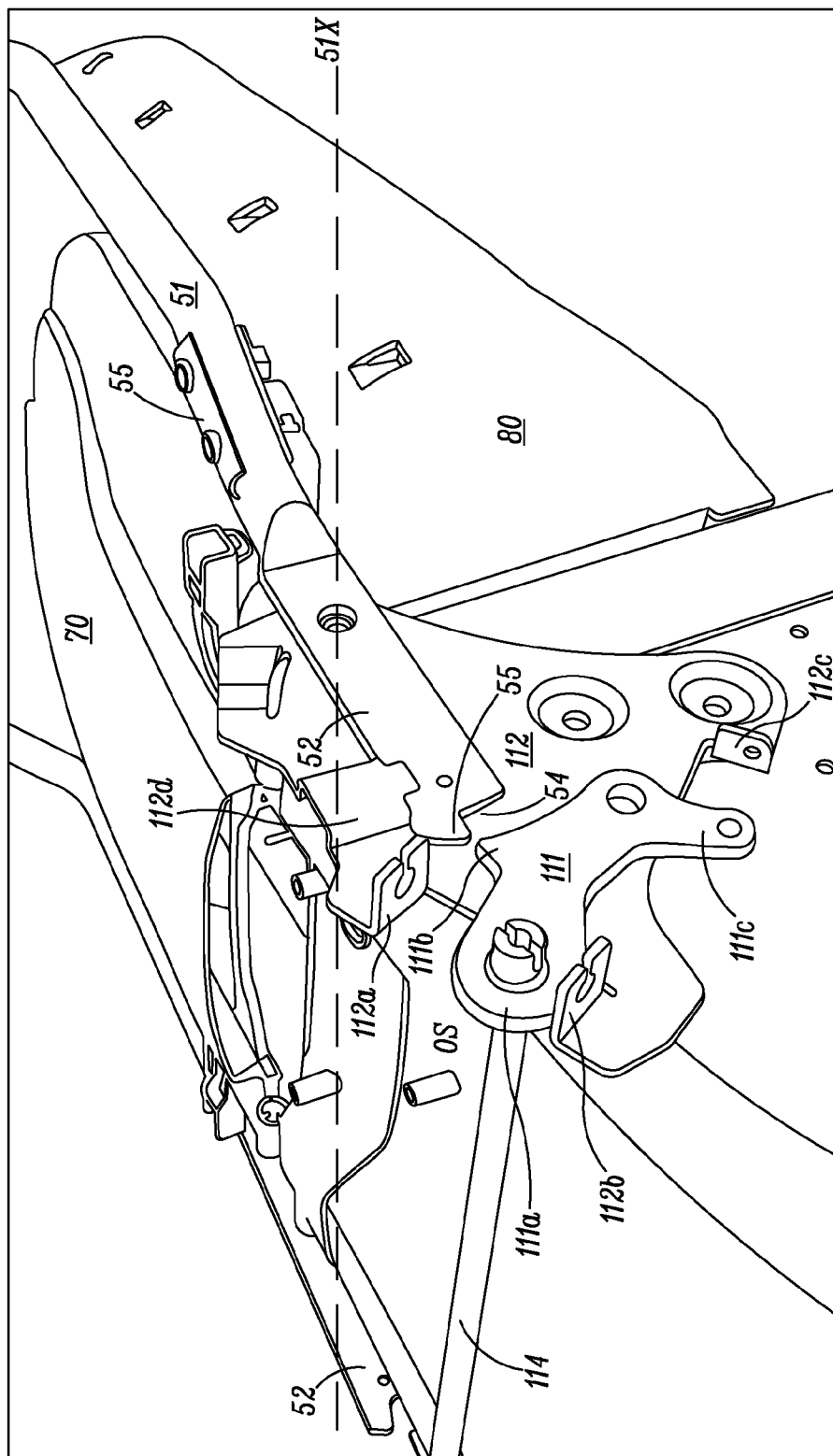


FIG. 2A

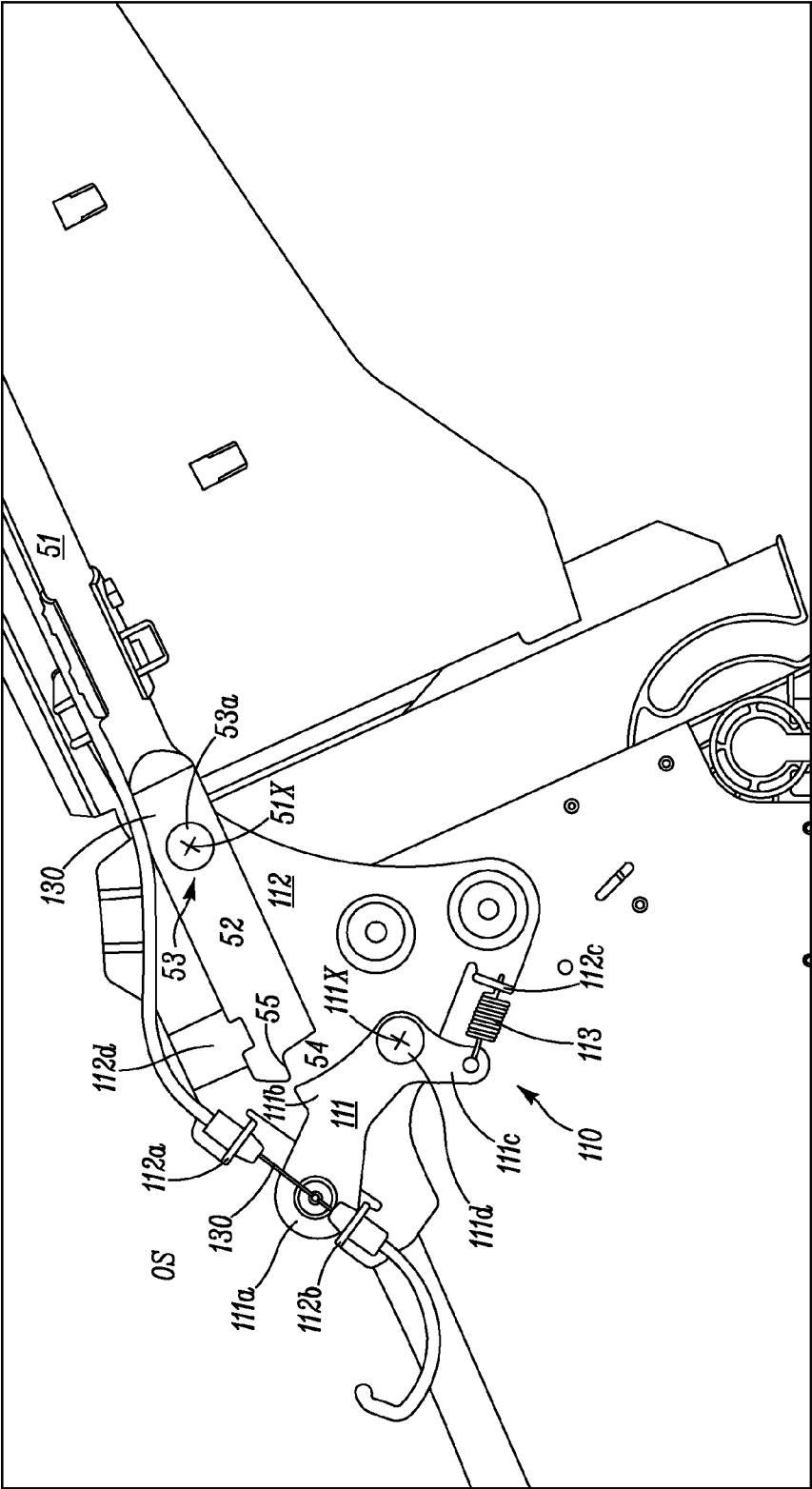


FIG. 2B

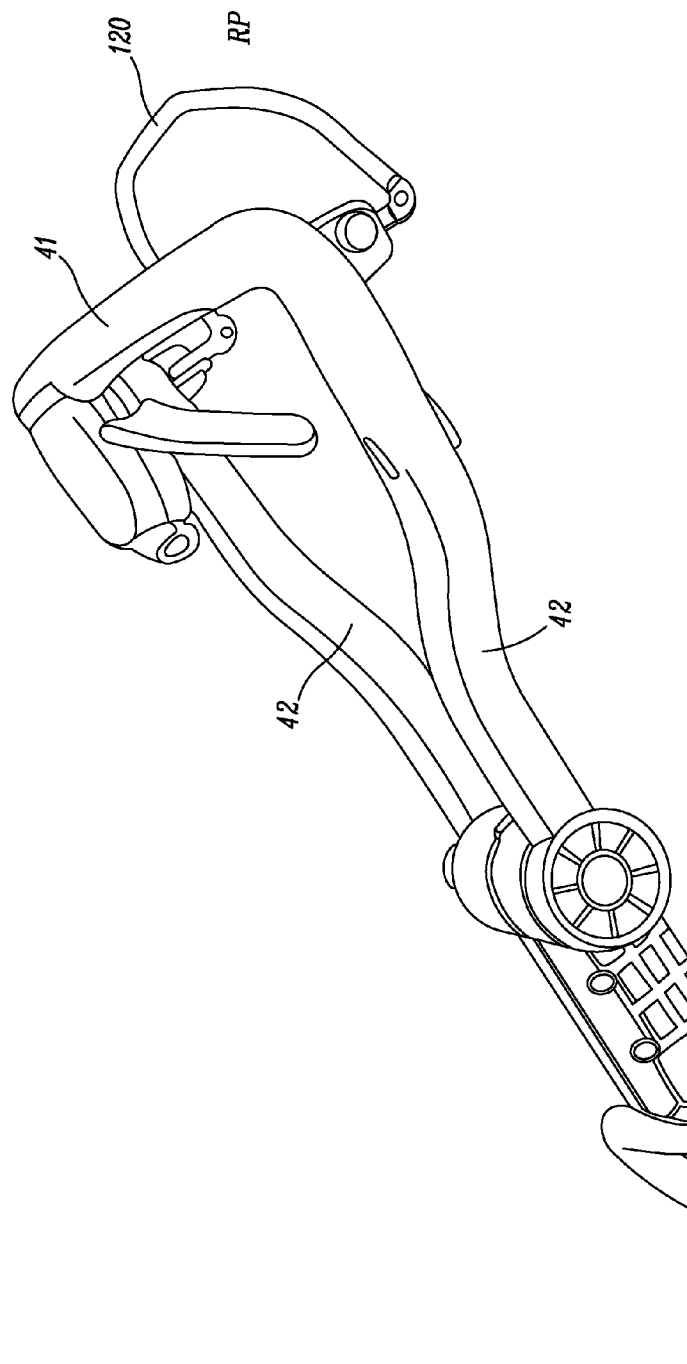


FIG. 2C

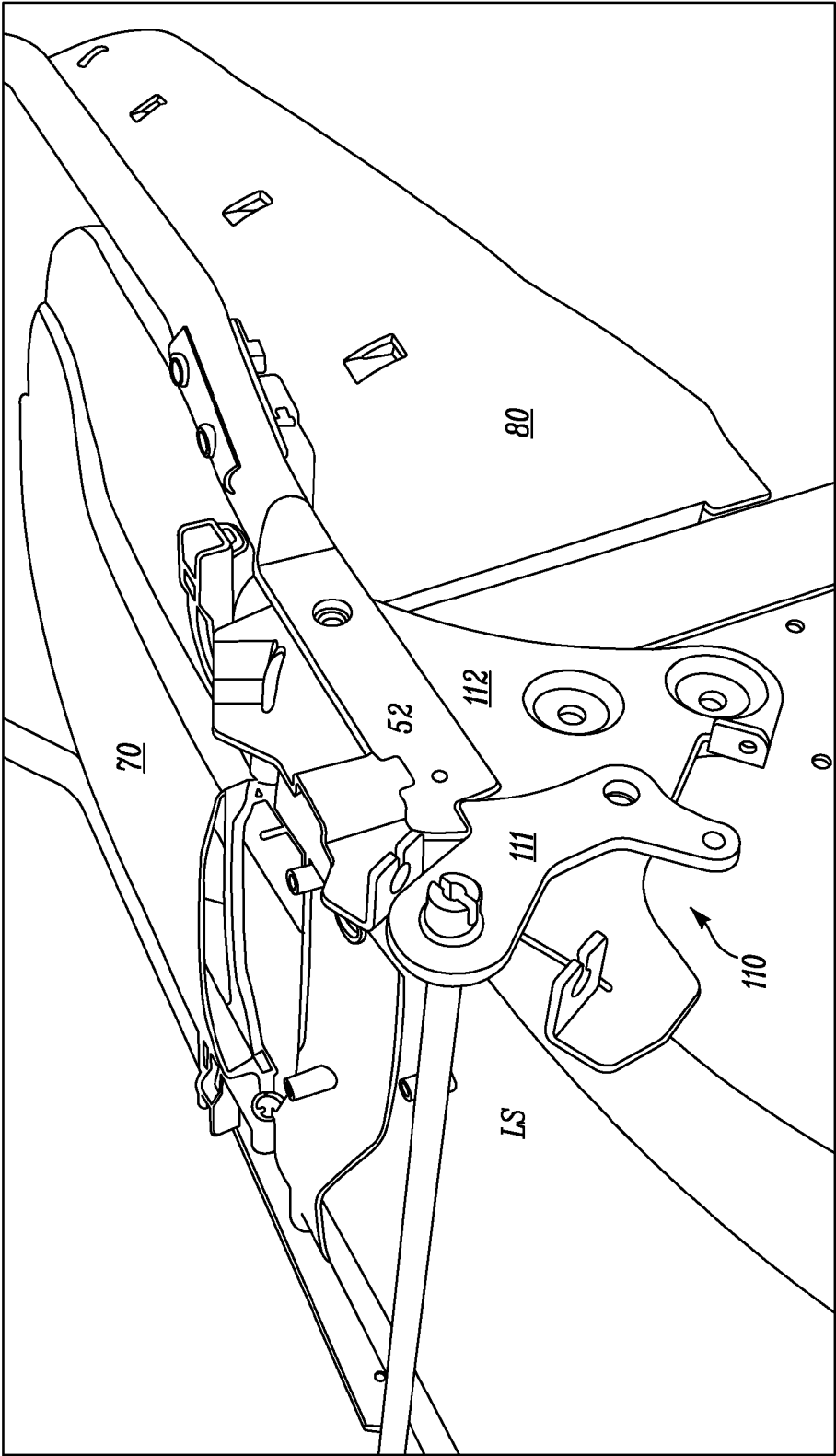


FIG. 3A

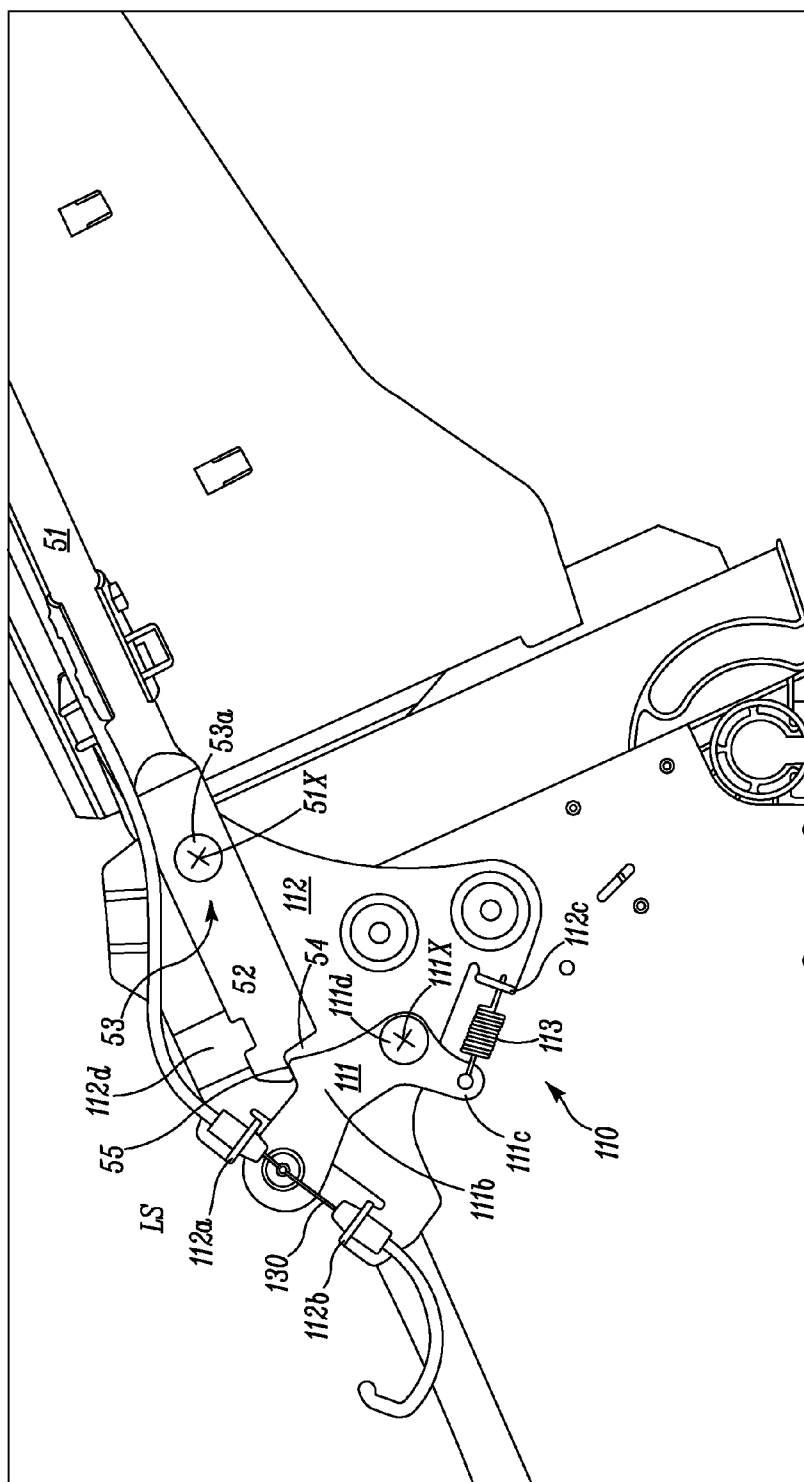


FIG. 3B

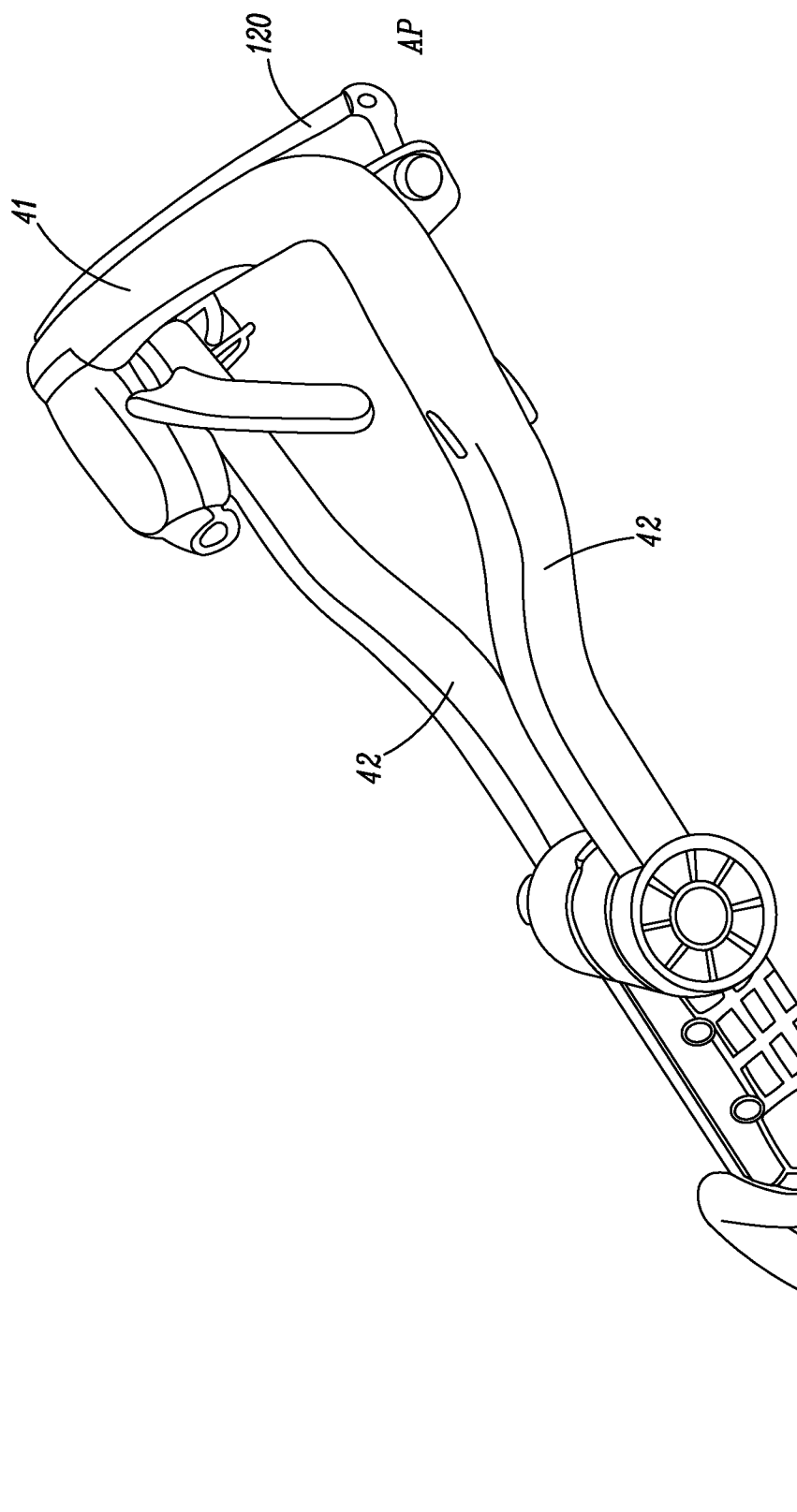


FIG. 3C

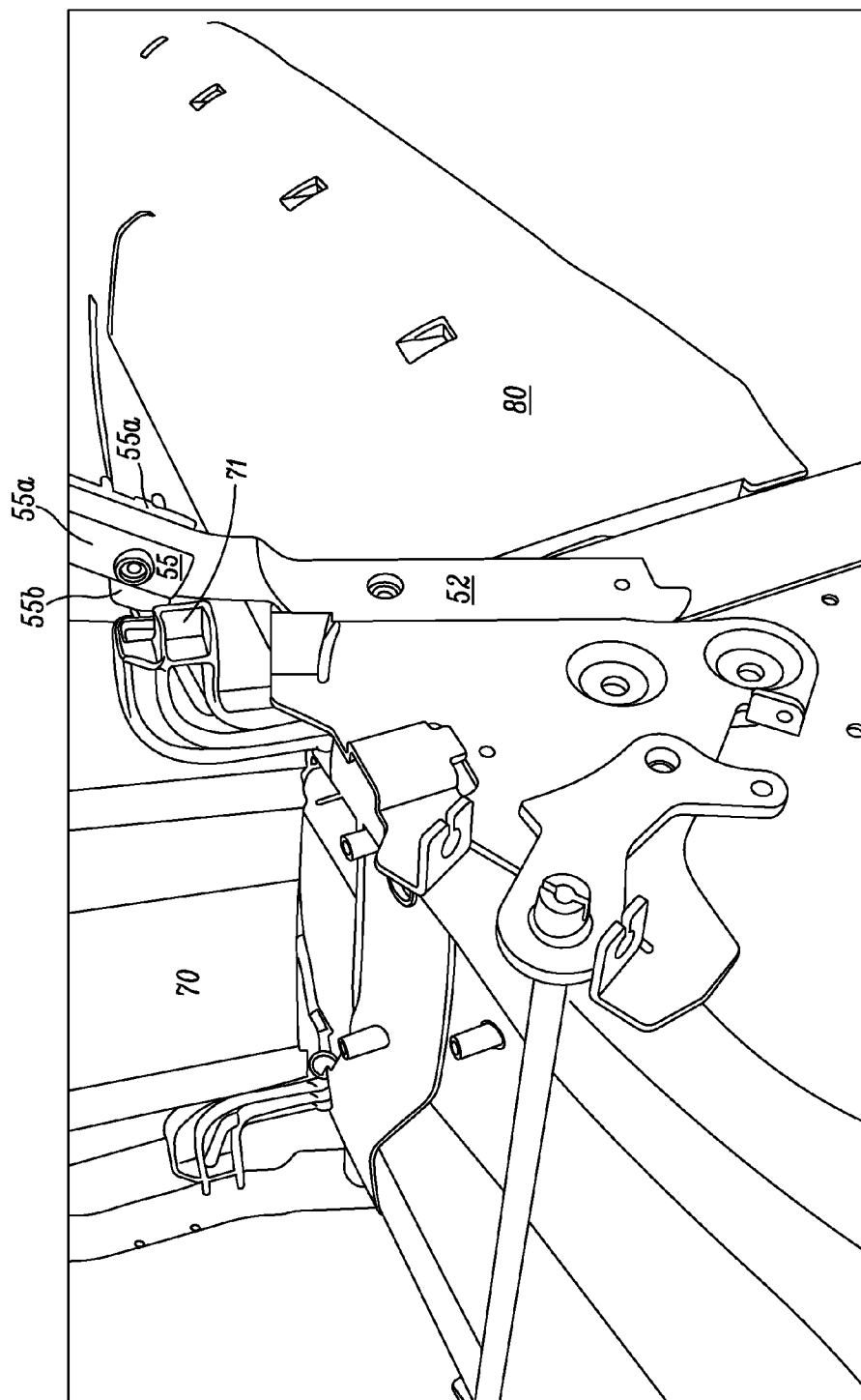


FIG. 4A

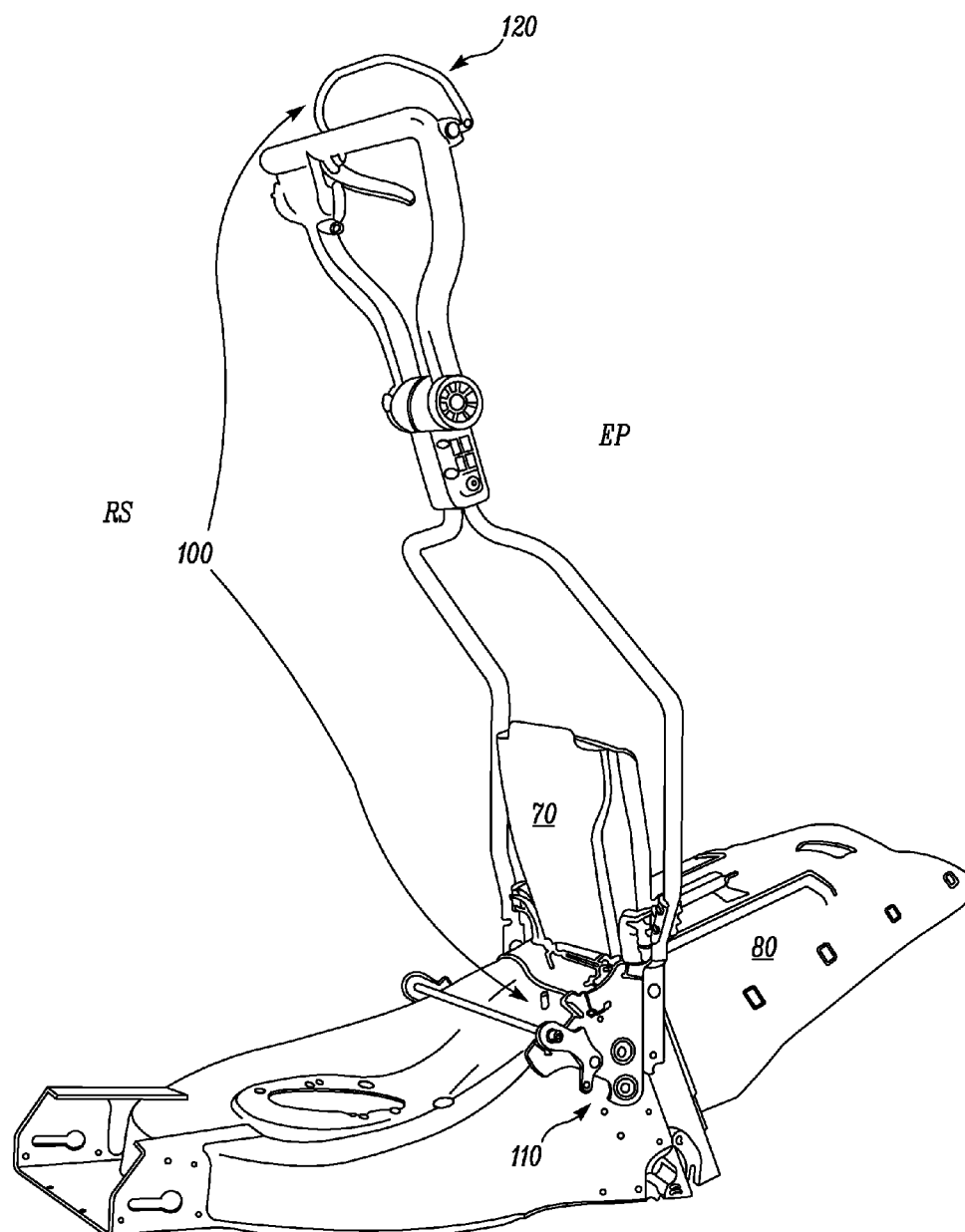


FIG. 4C

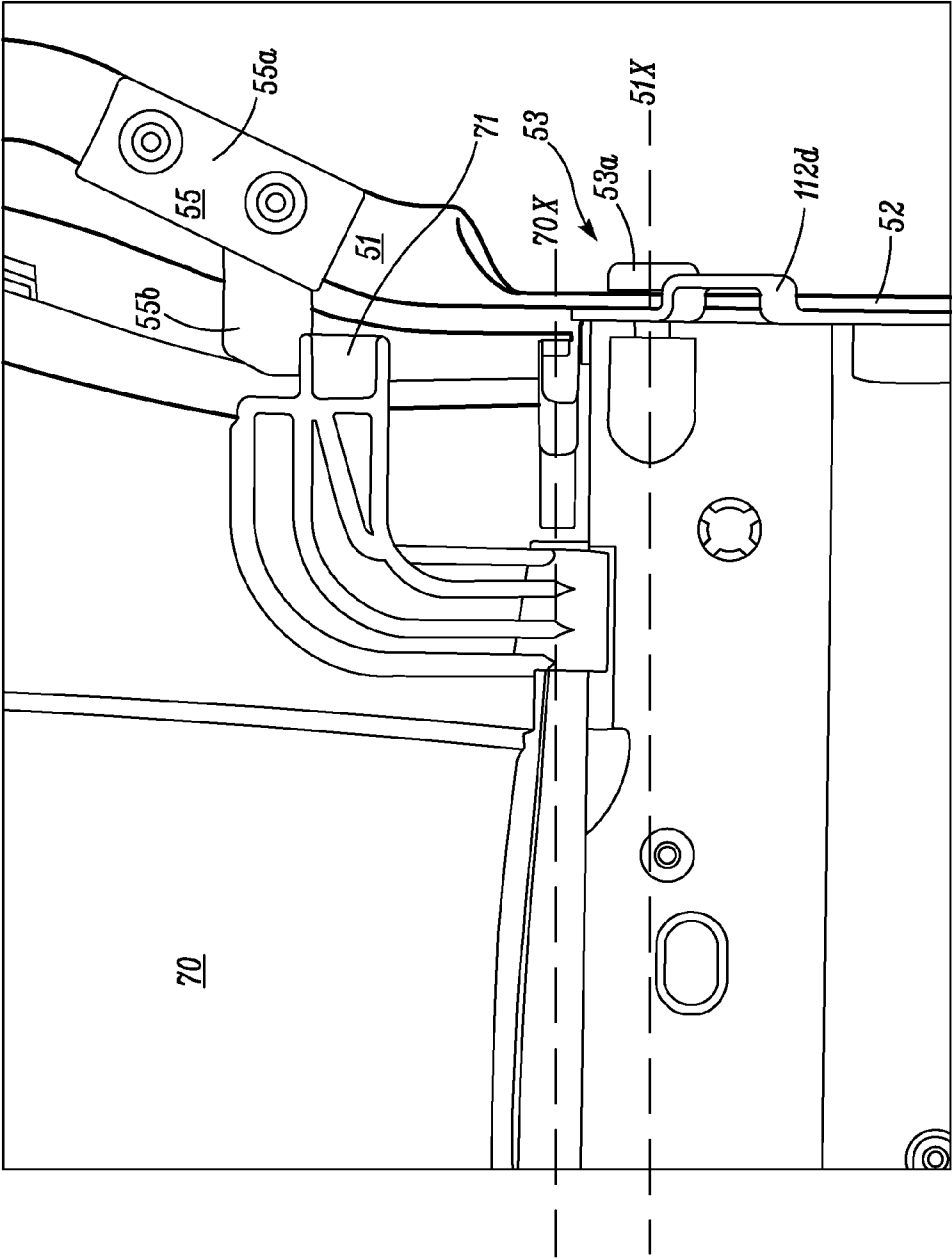


FIG. 5

HANDLE CONTROL ARRANGEMENT OF A WALK-BEHIND LAWN MOWER

TECHNICAL FIELD

[0001] This invention relates to walk-behind lawn mowers. Especially, the invention relates to walk-behind lawn mowers equipped with a grass collector.

BACKGROUND OF THE INVENTION

[0002] Walk-behind lawn mowers are well known for mowing grass. Such mowers comprise a body having a cutting chamber carrying a rotary cutting blade. A handle assembly extends upwardly and rearwardly from the body. An operator grips the handle assembly and walks behind the mower to guide and control the mower.

[0003] Grass clippings resulting from rotation of the cutting blade may be conducted from the cutting chamber to a discharge opening of the body, and further into a grass collector connected to the body.

[0004] Emptying of the grass collector is often complicated since the operator has to detach the grass collector and remove it from the mower by means of lifting it upwards and backwards through the handle assembly. When the grass collector is filled with grass clippings it is usually heavy and unwieldy, making the detaching and lifting procedure awkward. The space around the grass collector is generally very limited and loose cables or other objects protruding from the handle might obstruct the detaching operation.

[0005] Accordingly, there is a need for an arrangement providing a simplified way to remove a grass collector from a walk-behind lawn mower.

SUMMARY OF THE INVENTION

[0006] It is an object of the present invention to provide an improved solution that alleviates the mentioned drawbacks with present walk-behind lawn mowers.

[0007] According to an aspect of the solution, this object is achieved by a walk-behind lawn mower according to claim 1. The lawn mower comprises a body with an engine driving a cutting blade, and a handle assembly which is pivotably connected to the body. The lawn mower furthermore comprises a handle control arrangement for controlling pivotal movement of the handle assembly relative to the body, between a working position and a pivoted position. The handle control arrangement comprises a locking member, selectively displaceable between an open state in which the locking member allows pivotal movement of the handle assembly from the working position to the pivoted position, and a locked state in which the locking member inhibits pivotal movement of the handle assembly from the working position to the pivoted position. The handle control arrangement also comprises an actuating member operatively connected to the locking member and controlling the state of the locking member. The actuating member is also arranged to control activation and deactivation of a device arranged to inhibit rotation of the cutting blade of the walk-behind lawn mower. By providing a walk-behind lawn mower with a pivotable handle assembly, it becomes easier for the operator to reach the rear end of the lawn mower body. Accordingly, it becomes easier to reach a grass collector which is attached to the rear end of the body. Since the pivotability of the handle is controlled by means of adding a function to an already existing member of the lawn-mower, a simple and cost-efficient solution is achieved.

[0008] According to an embodiment of the invention, the actuating member has a resting position associated with the open position of the locking member and activation of the device arranged to inhibit rotation of the cutting blade, and an activated position associated with the locked state of the locking member and activation of the cutting blade. In this way, a simple, safe and intuitive pivoting control is achieved, since the handle assembly is pivotable as long as the cutting blade is not active, and is locked in the working position as long as the cutting blade is active.

[0009] According to another embodiment of the invention, the actuating member is connected to an operator grip of the handle assembly. Thereby, the operator of the lawn mower has easy access to the handle control arrangement.

[0010] According to yet another embodiment of the invention, the actuating member is operatively connected to the locking member by means of a control wire. Thereby, a simple solution for the handle control assembly is achieved. Moreover, the same control wire as the one used for activation and deactivation of the device arranged to inhibit rotation of the cutting blade may be used. Using the same control wire for both these functions means that fewer components are needed, resulting in a lower cost arrangement.

[0011] According to an embodiment of the invention, the control wire operatively connects the actuating member and a blade brake clutch of the lawn mower.

[0012] According to another embodiment, the control wire operatively connects the actuating member and the engine.

[0013] According to another embodiment of the invention, the locking member is arranged on a first side of the body, and the locking member is arranged to selectively engage and disengage a proximal end of an arm of the handle assembly. Thereby, a simple and intuitive locking arrangement can be provided.

[0014] According to an embodiment of the invention, the handle control arrangement comprises a second locking member arranged on a second side of the body, opposite to the first side, which second locking member is arranged to cooperate with a second arm of the handle assembly. Thereby, a robust and stable handle control arrangement is achieved.

[0015] According to an embodiment of the invention, the walk-behind lawn mower comprises a grass collector, detachably connected to a rear end of the body, and arranged to collect grass clippings conducted from a cutting chamber to a discharge opening of the body, and a cover, pivotably connected to the rear end of the body, which cover is arranged to cover the discharge opening when the grass collector is detached from the body, and which cover is arranged to rest on top of the grass collector, when the grass collector is attached to the body.

[0016] According to an embodiment of the invention the handle assembly comprises a cover engaging member, arranged to cooperate with a portion of the cover, so as to facilitate pivoting of the cover from its position on top of the grass collector to a folded up position, when the handle assembly rotates from the working position to the pivoted position. Thereby, the operator does not use any of his or her hands to fold the cover, and the grass collector is easily reached.

[0017] According to a second aspect of the solution, a walk-behind lawn mower is provided, which lawn mower comprises a body, a handle assembly, pivotably connected to the body and selectively displaceable between a working position and a pivoted position, a grass collector, detachably con-

nected to a rear end of the body, and arranged to collect grass clippings conducted from a cutting chamber to a discharge opening of the body, a cover, pivotably connected to the rear end of the body, which cover is arranged to cover the discharge opening when the grass collector is detached from the body, and which cover is arranged to rest on top of the grass collector when the grass collector is attached to the body. The handle assembly comprises a cover engaging member, arranged to cooperate with a portion of the cover, so as to facilitate pivoting of the cover from its position on top of the grass collector to a folded up position, when the handle assembly rotates from the working position to the pivoted position. Thereby, the operator does not use any of his or her hands to fold the cover, and the grass collector is easily reached.

DEFINITIONS

[0018] As used herein the following terms have the following meanings:

The “upward” and “downward” directions are defined based on a horizontal surface on which the lawn mower may be supported.

The “forward” direction is the direction in which an operator normally guides the mower when mowing grass.

The terms “proximal” and “distal” are used relative to a front end of the lawn mower body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The invention will be understood and appreciated more fully from the following detailed description, taken in conjunction with the drawings, in which:

[0020] FIG. 1 is a perspective view of a walk-behind lawn mower comprising a handle control arrangement according to the invention.

[0021] FIG. 2a is a schematic perspective view of a locking member of a handle control arrangement, in its open state.

[0022] FIG. 2b is a side view of the locking member of FIG. 2a.

[0023] FIG. 2c is a perspective view of an upper frame of a handle assembly, with the control bail in its resting position.

[0024] FIG. 3a is a schematic perspective view of a locking member of a handle control arrangement, in its locked state.

[0025] FIG. 3b is a side view of the locking member of FIG. 3a.

[0026] FIG. 3c is a perspective view of an upper frame of a handle assembly, with the control bail in its activated position.

[0027] FIG. 3d is a partial perspective view of lawn mower showing the handle assembly in its working position and the locking member in its locked state.

[0028] FIG. 4a is a schematic partial perspective view illustrating the locking member when the handle assembly is in a collector emptying position.

[0029] FIG. 4b is a side view corresponding to FIG. 4a.

[0030] FIG. 4c is a partial perspective view of a lawn mower showing the handle assembly in its collector emptying position.

[0031] FIG. 5 is a top plan view partially showing a locking member, a lower arm and a cover.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0032] The present invention will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. The invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. In the drawings, like numbers refer to like elements.

[0033] Referring to FIG. 1, a walk-behind lawn mower 1 according to an embodiment of the invention comprises a body 20 with an engine 24 arranged to drive a cutting blade (not shown) in a cutting chamber (not shown) of a cutting deck 21 of the body 20. It also comprises a handle assembly 30 associated with the body 20. A pair of front wheels 22 is connected to a front end of the body 20 and a pair of rear wheels 23 is connected to a rear end of the body 20. A grass collector 80 is releasably carried on a rear portion of the body 20.

[0034] Grass clippings resulting from rotation of the cutting blade may be conducted from the cutting chamber to a discharge opening (not shown) of the body 20, and further into the grass collector 80 when the collector 80 is connected to the body 20.

[0035] The invention is applicable for both petrol driven and electrically powered lawn mowers.

[0036] It would also be possible to use a different a lawn mower in which the wheels are configured in another way than what is shown in the drawings, or even a hover type of lawn mower.

Cover

[0037] A cover 70 is arranged to cover the discharge opening when no grass collector 80 is attached to the body 20. This may be the case e.g. if the lawn mower operates in a mulching mode or during transportation of the lawn mower.

[0038] The cover 70 is pivotably connected to the body 20 about a cover pivot axis 70x. When the grass collector 80 is connected to the body 20, the cover rests on top of the grass collector 80, as shown e.g. in FIGS. 2a, 3a and 3d. In these figures, only an upper part of the grass collector 80 is shown.

Handle Assembly

[0039] In the embodiment according to the figures, the handle assembly 30 comprises an upper frame 40, a lower frame 50 and an intermediate portion 60 interconnecting the two frames 40, 50.

[0040] The lower frame 50 has a pair of lower arms 51. The lower arms 51 each have a proximal end secured to the cutting deck 21 and a distal end.

[0041] The upper frame 40 has upper arms 42, which in their distal ends are connected to an operator grip 41. As shown in the figures, the operator grip 41 may be formed integrally with the upper arms 42.

[0042] The distal ends of the lower arms 51 are connected to the proximal ends of the upper arms 42 by means of the intermediate portion 60. The upper frame 40 may be selectively pivotable relative to the lower frame 50 about a pivot axis defined by the intermediate portion 60. However, relative pivotal movement between two parts of the handle assembly 30 is not further discussed in this disclosure since it is not

relevant to the invention. Instead it is hereinafter assumed that the lower frame **50** and the upper frame **40** have the relative configuration according to FIGS. **1**, **3d** and **4c**. Pivotal movement of the handle assembly **30** relative to the body **20** of the lawn mower is therefore regarded as equal to pivotal movement of the lower frame **50** of the handle assembly **30** relative to the cutting deck **21** of the lawn mower **1**.

Pivoting of Handle

[0043] The lower frame **50** is selectively pivotable relative to the cutting deck **21** of the lawn mower body **20**. Each lower arm **51** is connected to the cutting deck **21** by means of a pivot joint **53** comprising a fastening means **53a**, such as a threaded fastener **53a** or pin member **53a**, as shown e.g. in FIG. **2b** and FIG. **5**. The pivot axis **51x** is defined by a line intersecting the pivot joint **53** of one lower arm **51** and the pivot joint **53** of the other lower arms **51**. In FIG. **2a** the fastening means **53a** is omitted.

[0044] Each lower arm **51** is selectively pivotable between a working position WP and a collector emptying position EP. Thereby, the entire handle assembly **30** is selectively pivotable between a working position WP and a collector emptying position EP. In FIG. **1** and FIG. **3d**, the handle assembly is shown in its working position WP. In FIG. **4c** the handle assembly is shown in its collector emptying position EP.

Handle Control Arrangement

[0045] A handle control arrangement **100** is arranged to selectively enable or disable movement of the handle assembly **30** from the working position WP to the collector emptying position EP. The handle control arrangement has a resting state RS, in which the handle control arrangement allows pivoting of the handle assembly **30** from the working position WP to the collector emptying position EP. It also has an activated state AS, in which it does not allow the handle assembly to leave the working position WP. When the handle assembly is in the working position WP and the handle control arrangement is in the activated state AS, pivoting of the handle assembly **30** is consequently inhibited. Due to safety reasons, the handle control arrangement **100** is construed such that it can only be put in its activated state as long as the handle assembly is in the working position WP.

[0046] As shown in FIG. **4c**, the handle control arrangement **100** comprises a locking member **110** and an actuating member **120**. The handle control arrangement **100** is in its resting state RS when the actuating member **120** is in a resting position RP and the locking member is in an open state OS. The handle control arrangement **100** shown in FIG. **4c** is accordingly in the resting state RS.

[0047] The handle control arrangement **100** is in its activated state AS when the actuating member **120** is in an activated position AP and the locking member **110** is in a locked state LS. The handle control arrangement **100** in FIG. **3d** is in its activated state AS.

Locking Member

[0048] Hereinafter, the interaction between a lower arm **51** of a handle assembly **30** and a locking member **110** of a handle control arrangement **100** will be described. It is to be understood that although only the interaction between one of the lower arms **51** and its corresponding locking member **110**, there can also be a locking member **110** on the other side of

the lawn mower body **20**, interacting in the same manner with the other lower arm **51** of the lower frame **50**.

[0049] FIGS. **2a** and **2b** are different views of a locking member **110** according to an embodiment of the invention, in the open state OS. Some parts of the locking member **110** are omitted in FIG. **2a**. The locking member **110** comprises a locking lever **111** and a handle support **112**.

[0050] FIGS. **2a** and **2b** also illustrates a proximal end of a lower arm **51** of a handle assembly **30**. As previously mentioned, the lower arm **51** is connected to the cutting deck **21** by means of a pivot joint **53** comprising a fastening means **53a**, such as a threaded fastener **53a** or a pin **53a** as shown e.g. in FIG. **2b** and FIG. **5**. In FIG. **2a** the fastening means **53a** is omitted.

[0051] A pivot axis **51x** of the handle assembly is defined by a line intersecting the pivot joint **53** of one of the lower arms **51** and the pivot joint **53** of the other of the lower arms **51**.

[0052] As can be seen in e.g. FIG. **2a**, the proximal end of a lower arm **51** can have a flat portion **52**. In the free end **52a** of this flat portion **52**, an indentation **54** is formed so as to define a locking edge **55**. The locking edge is arranged to cooperate with a locking lever **111** of the locking member **110**.

Handle Support

[0053] The handle support **112** of the locking member **110** is fixedly connected to the cutting deck **21**, and can be arranged between the flat portion **52** of the lower arm **51** and the cutting deck **21**.

[0054] The handle support **112** has a support portion **112d** arranged to prevent the flat portion of the lower arm from rotating upwards when the handle assembly **30** is in the working position WP. Thereby, the operator grip **41** is inhibited from rotating downwards. In FIG. **5** the support portion **112d** and the flat portion **52** of the lower arm **51** are shown from above. When the handle assembly **30** is in the working position WP a portion of an upper edge of the flat portion may rest against this support portion **112d**.

[0055] The handle support **112** also has two wire guiding tongues **112a**, **112b** which may extend orthogonally to a main extension plane of the handle support **112**. A control wire **130**, operatively connecting the actuating member **120** and the locking member **110** of the handle control arrangement **100** is lead through holes or cut-outs in the wire guiding tongues **112a**, **112b**, as shown in FIG. **2b**.

[0056] A spring holding tongue **112c** can be formed in a lower portion of the handle support **112**.

Locking Lever

[0057] The locking lever **111** of the locking member **110** is arranged to prevent the proximal end of the lower arm **51** from rotating downwardly when the handle assembly is in the working position. Thereby, it also prevents the handle assembly from leaving the working position WP.

[0058] According to an embodiment of the invention, the locking lever has a configuration according to FIGS. **2a** and **2b** etc. It may extend in a plane that is parallel to the main extension plane of the handle support, and which is coincides with a main extension plane of the flat portion of the lower arm.

[0059] The locking lever according to this embodiment has a head portion **111a**, a shoulder portion **111b** and a leg portion **111c**.

[0060] The locking lever is pivotably connected to the handle support **112** by means of a connection joint **111d**, and is rotatable about a pivot axis **111x** which can be orthogonal to the main extension planes of the locking lever and the handle support.

[0061] The head portion **111a** of the locking lever **111** is fixedly connected to a portion of the control wire which extends between the two wire guiding tongues **112a**, **112b** of the handle support **112**.

[0062] A rod **114** interconnects the head portion of the locking lever on one side of the lawn mower body and a head portion **111a** of a locking lever **111** of a locking member **110** on the other side of the body **20**.

[0063] A spring **113** joins the leg portion **111c** of the locking lever and the spring holding tongue **112c** of the handle support, such that the leg portion **111c** of the locking lever is biased towards the spring holding tongue **112c** of the handle support. Thereby, the head **111a** of the locking lever **111** is biased in a forward direction towards the foremost wire guiding tongue **112b** of the handle support **112**. Consequently the locking member **110** is normally disposed in its open state OS with a distance between the locking edge **55** and the shoulder portion **111b**.

[0064] When the locking member is in the open state OS, it allows the handle assembly **30** to rotate from its working position WP to a collector emptying position EP.

[0065] FIGS. **4a** and **4b** illustrate a configuration in which the handle assembly **30** has been pivoted to the collector emptying position EP. When the handle assembly is in the collector emptying position EP, a safety member, such as a spring (not shown) ensures that the handle control arrangement **100** is in its resting state RS, and consequently that the locking member is in its open state OS.

[0066] The shoulder portion **111b** of the locking lever **111** can be complementary in shape to the indentation **54** formed in the lower arm **51**, such that it can cooperate with the locking edge **55**, when the locking member is in the locked state LS, and the lower arm is in the working position. Thereby it prevents the flat portion of the lower arm from rotating downwardly when the locking member is in this locked state LS. Consequently, the handle assembly **30** is locked in the working position WP when the locking member **110** is in the locked state LS.

[0067] The operator may force the locking member to switch from the open state OS to the locked state LS by activating the actuating member **120**, which is operatively connected to the locking member **110** by means of the control wire **130**.

[0068] When the actuating member is forced to its activated position AP the control wire **130** is drawn backwardly towards the operator grip **41**, and the head portion **111a** of the locking lever **111**, which is fixedly connected to the control wire **130**, is thereby forced towards the rearmost wire guiding tongue **112a** of the handle support, against the spring forces.

[0069] Then the shoulder portion of the locking lever will abut on the edge portion of the lower arm, such that the lower arm **51** is locked in the working position WP.

[0070] As soon as the operator releases the actuating member **120**, the locking member **110** will return to the open state OS, due to the spring forces. The shoulder portion **111b** will

detach from the edge **55**, thus enabling the lower arm **51**—and thereby the whole handle assembly—to leave the working position WP.

Control Bail

[0071] According to the embodiments shown in the figures herein, the actuating member **120** is a control bail **120**.

[0072] The control bail **120** selectively displaceable between a resting position RP, as shown in FIG. **2c**, and an activated position AP as shown in FIG. **3c**. The control bail **120** is normally biased in a direction towards the resting position RP. In order to switch from the resting position to the activated position, an operator of the lawn mower presses the control bail **120** towards the operator grip **41**.

[0073] The control bail **120** has two functions, as will be described hereinafter.

[0074] Firstly, the control bail **120** is operatively connected to the locking member **110**, e.g. by means of the control wire **130** as shown in FIG. **1** and FIG. **2B**. Pivotal movement of the control bail relative to the operator grip thereby controls the state of the locking member. When an operator of the lawn mower grips the operator grip and the control bail, and presses the control bail towards the grip, such that it reaches the activated position, the control bail forces the control wire to move in an upward backward direction towards the grip. This movement forces the locking member to switch from the open state OS to the locked state LS, as described above. Activation of the control bail thus inhibits the handle assembly from pivoting from the working position to the collector emptying position.

[0075] As soon as the operator releases the control bail, it returns to the resting position and allows the locking member **110** to return to its open state OS. Then, the operator might pivot the handle assembly to the collector emptying position.

[0076] In the lawn mower according to the invention, the control bail **120** is operatively connected not only to the locking member of the handle control arrangement but also to either the engine **24** or to a blade brake clutch, since the control bail is used in an Operator Presence Control (OPC) system of the lawn mower.

OPC

[0077] The OPC system is used to prevent unintentional rotation of the cutting blade. OPC systems are well known in the art, and will only be described in brief herein. They are arranged such that an operator of the lawn mower has to activate the OPC system in order to enable rotation of the cutting blade. An OPC system may e.g. be activated by means of a control bail connected to the operator grip. A commonality between different OPC systems is that they comprise a device which inhibits rotation of the cutting blade of the lawn mower, such as a blade brake. In the resting state of the OPC system, this rotation inhibiting device inhibits rotation of the cutting blade. In the activated state of the OPC system, the rotation inhibiting device allows rotation of the cutting blade.

[0078] One kind of OPC system is arranged such that the rotation inhibiting device is implemented as a blade break arranged on the engine shaft and a switch which stops the engine if the OPC system is deactivated. If the control bail is operatively connected to the engine by means of the control wire, the engine can only operate as long as the control bail is in the activated position AP. When the operator releases the control bail (deactivates the OPC system), the blade brake is

activated in order to stop rotation of the cutting blade, and the switch is activated such that engine is short-circuited and stops running.

[0079] According to another solution, the control bail can be operatively connected to a blade brake clutch by means of the control wire. Upon activation of the blade brake clutch, such that the blade brake is activated, rotation of the cutting blade is inhibited but the engine might still operate. This means that the engine might operate even if the control bail in its resting position RP, although the cutting blade is not rotatable when the control bail is in the resting position RP.

[0080] The operative connection between the control bail and the engine or the blade brake clutch, may be achieved by arranging the control wire 130 such that it continues from the locking member of the handle assembly control arrangement, to the engine or to a blade brake clutch. As described above, both configurations results in that rotary movement of the cutting blade is inhibited as long as the control bail is not in the activated position AP.

Cover Pivoting Assembly

[0081] Before detaching the grass collector from the lawn mower body, the operator needs to fold away the cover 70 from the top of the grass collector 80, in order to reach a grip of the grass collector.

[0082] In order to facilitate this cover folding operation, one or both of the lower arms 51 of the handle assembly can comprise cover engaging members 55. The cover engaging members 55 may have a main portion 55a, clamping the lower arm 51, and a protrusion 55b, extending towards the cover 70.

[0083] The protrusions 55b can be arranged to cooperate with protrusions 71 formed on the side edges of the cover 70. An exemplary configuration is illustrated in FIG. 5.

[0084] In this way an arrangement is achieved in which the cover 70 is automatically pivoted about its pivot axis 70x as soon when the handle assembly 30 is pivoted from the working position WP to the collector emptying position EP. This is best shown in FIG. 4c. The cover pivot axis 70x is preferably different from the pivot axis 51x of the handle assembly.

[0085] Thereby the operator does not need to use any of his or her hands to fold back the cover in order to remove it from the top of the grass collector 80 when he or she wants to remove and empty the grass collector.

[0086] The protrusions 71 of the cover 70 and the cover engaging means 55 of the lower arm 51 may be configured such that the cover engaging member 55 releases the cover protrusions 71 when the handle assembly has come to a certain degree of rotation. Such a configuration may be useful if the handle assembly is pivotable further from the collector emptying position to a transport position. In that case, the cover will pivot with the handle assembly from the working position to the collector emptying position and possibly a bit further. If the handle assembly is pivoted even more, the cover will be released and will rotate back to its position on top of the grass collector, or covering the discharge opening of the body if no grass collector is present.

[0087] In the drawings and specification, there have been disclosed preferred embodiments and examples of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for the purpose of limitation, the scope of the invention being set forth in the following claims.

1. A walk-behind lawn mower, comprising
a body with an engine driving a cutting blade,
a handle assembly, pivotably connected to the body, and
a handle control arrangement for controlling pivotal movement of the handle assembly relative to the body, between a working position and a pivoted position, the handle control arrangement, comprising
a locking member selectively displaceable between an open state in which the locking member allows pivotal movement of the handle assembly from the working position to the pivoted position, and a locked state in which the locking member inhibits pivotal movement of the handle assembly from the working position to the pivoted position,
an actuating member operatively connected to the locking member and controlling the state of the locking member, wherein the actuating member is also arranged to control activation and deactivation of a device arranged to inhibit rotation of the cutting blade of the walk-behind lawn mower.
2. The walk-behind lawn mower according to claim 1, wherein actuating member has a resting position associated with the open position of the locking member and activation of the device arranged to inhibit rotation of the cutting blade, and an activated position associated with the locked state of the locking member and deactivation of the device arranged to inhibit rotation of the cutting blade.
3. The walk-behind lawn mower according to claim 1, wherein the actuating member is connected to an operator grip of the handle assembly.
4. The walk-behind lawn mower according to claim 1, wherein the actuating member is operatively connected to the locking member by means of a control wire.
5. The walk-behind lawn mower according to claim 4, wherein the control wire operatively connects the actuating member and a blade brake clutch of the lawn mower.
6. The walk-behind lawn mower according to claim 4, wherein the control wire operatively connects the actuating member and the engine.
7. The walk behind lawn mower according to claim 1, wherein the locking member is arranged on a first side of the body, and wherein the locking member is arranged to selectively engage and disengage a proximal end of an arm of the handle assembly.
8. The walk-behind lawn mower according to claim 7, wherein the handle control arrangement comprises a second locking member, arranged on a second side of the body, opposite to the first side, which second locking member is arranged to cooperate with a second arm of the handle assembly.
9. The walk-behind lawn mower according to claim 1, wherein the lawn mower comprises
a grass collector, detachably connected to a rear end of the body, and arranged to collect grass clippings conducted from a cutting chamber to a discharge opening of the body
a cover, pivotably connected to the rear end of the body, which cover is arranged to cover the discharge opening when the grass collector is detached from the body, and which cover is arranged to rest on top of the grass collector when the grass collector is attached to the body.
10. The walk-behind lawn mower according to claim 9, wherein the handle assembly comprises a cover engaging member, arranged to cooperate with a portion of the cover, so

as to facilitate pivoting of the cover from its position on top of the grass collector to a folded up position, when the handle assembly rotates from the working position to the pivoted position.

11. A walk-behind lawn mower comprising
a body,
a handle assembly, pivotably connected to the body and selectively displaceable between a working position to a pivoted position,
a grass collector, detachably connected to a rear end of the body, and arranged to collect grass clippings conducted from a cutting chamber to a discharge opening of the body
a cover, pivotably connected to the rear end of the body, which cover is arranged to cover the discharge opening when the grass collector is detached from the body, and which cover is arranged to rest on top of the grass collector when the grass collector is attached to the body,
wherein the handle assembly comprises a cover engaging member, arranged to cooperate the cover, so as to facilitate pivoting of the cover from its position on top of the

grass collector to a folded up position, when the handle assembly rotates from the working position to the pivoted position.

12. A walk-behind lawn mower according to claim **11**, wherein the handle assembly is pivotable relative to the body about a first pivot axis which differs from a second pivot axis about which the cover is pivotable relative to the body.

13. A walk-behind lawn mower according to claim **12**, wherein the first pivot axis and the second pivot axis are essentially parallel.

14. A walk-behind lawn mower according to claim **11**, wherein the cover comprises a protrusion, arranged to cooperate with the cover engaging member of the handle assembly.

15. A walk-behind lawn mower according to claim **11**, wherein the cover engaging member has main portion arranged to clamp an arm of the handle assembly, and a protrusion extending in a direction which is essentially parallel to the pivot axis of the handle assembly.

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