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(54) **Chop saw with top table**

Kappsäge mit Oberplatte

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Description

[0001] The present invention relates to chop saws, and in particular, to chop saws which can also perform mitre cuts and/or bevel cuts. Such a saw, according to the preamble of claim 1, is known from EP2253439. EP1813400 discloses a sliding compound mitre saw with a height adjustable table mounted on top of the motor unit. Such a saw can act either as a sliding compound mitre saw performing bevel cuts, mitre cuts, sliding cuts and chop cuts by pivotal movement of the motor unit above a base when a work piece is placed on the base or a table saw when motor unit is locked in its lowest position and the work piece is passed over the table.

[0002] EP1813400 discloses a pivotal rearward guard 232 (using the same reference numbers as EP1813400) mounted about a pivot point 234 on the fixed guard 218 which is attached to the motor unit. As such, when the motor unit pivots towards or away from the base, the pivot point 234 of the rearward guard moves with the motor unit.

[0003] JP2005-178281 describes a chop saw with a table mounted on top of the motor unit. JP2005-178281 also discloses a rearward guard pivotally attached to the motor unit. As such, when the motor unit pivots towards or away from the base, the pivot point of the rearward guard moves with the motor unit.

[0004] EP2253439, US5950514 and US3913437 disclose saws having rear guard asemblies mounted on the motor unit. JP3731416 and JP2-26703 disclose saws having non moveably rear guard assemblies mounted on bevel mounts.

[0005] According to the invention, there is provided a saw in accordance with claim 1. It will be appreciated that the fixed guard may surround the cutting edge of the middle portion of the cutting blade only if the top of the blade is used in conjunction with a table mounted on the motor.

[0006] Ideally, the rear guard assembly surrounds the cutting edge of the lower rear portion of the cutting blade located rearwardly of the fence and below the fixed guard in all pivotal positions of the motor unit on the bevel mount as it pivotally moves from its first raised position towards its second lowered position.

[0007] The pivotal guard can be located behind the fence and is capable of pivoting towards or away from the fence wherein there is provided biasing means to bias the pivotal guard towards engagement with the fence. The pivotal guard is biased to a position of close proximity to the fence, where the blade would not be accessible, or in engagement with the fence depending on the angular position of the fence in relation to the bevel mount. The axis of pivot of the pivotal guard is ideally parallel to the axis of pivot of the motor unit on the bevel mount.

[0008] The rear guard assembly can comprise a fixed guard rigidly attached to the bevel mount and which surrounds part of the cutting edge of the lower rear portion of the cutting blade, the pivotal guard being pivotally attached to the fixed guard. The fixed guard (68) ideally locates above the fence.

[0009] Movement of the bevel mount relative to the base either by pivotal movement of the table within the base or by pivotal movement of the bevel mount on the table can result in pivotal movement of the pivotal guard on the bevel mount when part of the pivotal guard engages with the fence due to the relative movement of the bevel mount and the base.

[0010] The guard assembly may further comprise a front guard assembly.

[0011] In one alternative design, a locking mechanism can be provided which is capable of preventing pivotal movement of the pivotal guard when the table is in a predetermined angular position relative to the bevel mount. The locking mechanism can comprise an arm mounted on the table and which blocks movement of the pivotal guard when the saw is not performing a bevel cut. The saw is not performing a bevel cut when the plane of the blade is perpendicular to the plane of the working surface of the rotatable table. The pivotal guard may comprise a projection, the arm aligning with the projection when the saw is not performing bevel cuts to block the pivotal movement of the pivotal guard.

[0012] In another alternative design, there can be provided a locking mechanism which is capable of preventing pivotal movement of the pivotal guard when the base is in a predetermined angular position relative to the bevel mount. The locking mechanism can comprise an arm mounted on the base and which blocks movement of the pivotal guard when the saw is not performing either a bevel cut or a mitre cut. The saw is not performing a bevel cut or a mitre cut when the plane of the blade is perpendicular to the plane of the working surface of the rotatable table and is perpendicular to the working surface of the fence traversing the table. The pivotal guard may comprise a projection, the arm aligning with the projection when the saw is not performing either a bevel cut or a mitre cut to block the pivotal movement of the pivotal guard.

[0013] Whilst two embodiments described below relate to chop saws with a table mounted on the motor unit and which can perform mitre and/or bevel cuts, it will be appreciated by the reader that the invention can be applicable to any type of chop saw.

[0014] Two embodiments of the present invention will now be described with reference to the accompanying drawings of which:

Figure 1 shows a perspective view of a chop saw with a height adjustable table mounted on the motor unit when the motor unit locked in its lowest position according to a first embodiment of the invention;
Figure 2 shows a partial side view of the chop saw;
Figure 2 shows a second partial side view of a chop saw;
Figure 4 shows a schematic diagram of the guard assembly;

Figure 5 shows a first view of the rear guard assembly when the saw is performing a bevel and mitre cut;
Figure 6 shows a second view of the rear guard assembly when the saw is performing a bevel and mitre cut;
Figure 7 shows a third view of the rear guard assembly when the saw is performing a bevel and mitre cut;
Figure 8 shows the locking mechanism for the motor unit;
Figure 9 shows a side view of a chop saw according to a second embodiment of the present invention;
Figure 10 shows a perspective view of the locking mechanism for the fifth rearward pivotal guard; and
Figure 11 shows a perspective view of the locking mechanism for the fifth rearward pivotal guard when the saw is performing a mitre and bevel cut.

[0015] A first embodiment of the saw will now be described with reference to Figures 1 to 7.

[0016] Referring to Figure 1, there is provided a chop saw with a table 12. The saw comprises a base 2 having a rotatable table 4 mounted within it. The rotatable table 4 can pivot about a vertical axis 8 within the base 2. A locking mechanism 40 can lock the rotatable table 4 in various angular positions within the base 2. An extension arm 10 is rigidly attached to the periphery of the rotatable table 4 and extends forward in well known manner within a recess 6 formed within the base 2. The recess 6 provides a space in which the arm 10 can move when the rotatable table 4 is rotated about the axis 8. The top surface of the base 2, rotatable table 6 and extension arm 10 are flush to provide an overall work surface for a work piece. A slot 26 extends across the rotatable table 104 and along the extension arm 10. The rotation of the rotatable table 4 about the axis 8, in conjunction with a fence 14 fixed to the base 2 and which extends across the rotatable table 4, enables the saw to perform mitre cuts.

[0017] Connected to the rear of the rotatable table 4 is a bevel mount 16 which is able to pivot about a horizontal axis 18 in relation to the rotatable table 4, which horizontal axis 18 is parallel to the plane of the work surface of the rotatable table 4. A locking mechanism (not shown) enables the angular position about the axis 18 of the bevel mount 16 to be releasably locked relative to the rotatable table 4. The pivotal movement of the bevel mount 16 about axis 18 in relation to the rotatable table 4 enables the saw to perform bevel cuts.

[0018] Pivotally mounted on the bevel mount 16 is a motor unit 20, which comprises a motor (not shown) for rotationally driving a circular saw blade 22 mounted on a drive spindle on the motor unit 20 about an axis 28. The motor unit 20 can pivot on the bevel mount 16 about an axis 24 from a raised first position where the motor unit is remote from the base 2 and rotatable table 4, to a lowered second position where it is in close proximity to the base 2 and rotatable table. The axis 24 is parallel to the axis 28. The slot 26 in the table 4 and arm 10 provides a space within the table 4 and arm 10 into which the cutting edge of the saw blade 22 can pass when the motor unit 20 is pivoted to its lowered position to enable it to pass through a work piece when positioned on the table 4 and arm 10. The motor unit 20 is biased to an upward position by a spring 100. A locking mechanism is mounted on the bevel mount which is capable of locking the motor unit 20 in its lowered second position as shown in Figure 1. The locking mechanism comprises a pin 160 mounted within the bevel mount 16 in an axailly slideable manner as seen in Figure 8. The pin 16 can be slid between a first position where it is disengaged from the motor unit 20, allowing it to freely pivot about axis 24, to a second position when the motor unit 20 is in its lowered second position where its end 162 engages with a groove 164 formed in the side of the motor unit 20 to lock it in its lower position. The end of the pin is tapered in a lengthwise direction to form a frusto conical shape. The groove 164 narrows along its length in order to provide a corresponding tapered shape along its length which can mate with that of the end 162 of the pin 160. By tapering the groove 164 and the end 162 of the pin 160, it ensures that a tight fit is provided between the two when the end of the pin is engaged with the groove 164. The pivotal movement of the motor unit 20 in relation to the bevel mount 16 about axis 24 enables the saw to perform chop cuts.

[0019] Mounted on the top of the saw is the table 12 which enables the saw to be also used as a table saw. The table 12 is attached to the top side of the motor unit 20. A slot 42 is formed through the table through which the top section of the circular saw blade 22 projects. When the motor unit 20 is locked in its lowered second position, the table 12 is horizontal. A work piece such as a piece of wood can then be slid across the top of the table 12 to engage with the top section of the saw blade 22 thus enabling the saw to be used as a saw table. A table fence 44 is releaseably attached to the table 12 and which can be used to guide a work piece across the table 12. A table guard 46 is releasably mounted on the table which can surround the top of the saw blade 22 which projects through the table 12 when it is not being used as a table saw.

[0020] The saw comprises a plurality of guards located below the table 12 which are capable of enclosing the cutting edge of the lower section of the saw blade 22 for safety purposes when the saw is in its raised first position when it is not being used to perform chop, mitre, or bevel cuts, or when the saw is being used as a table saw, with the motor unit 20 locked in its lowered second position.

[0021] A handle 48 is attached to the motor unit by which a user can grip and pivot the motor unit 20 and the circular saw blade 22 downwards towards the rotatable table 4. An electric switch 50 is mounted adjacent the handle 48 for activating the motor. The switch can operate in two modes of operation. The first mode is when the saw is performing chop, mitre or bevel cuts. In this mode, the switch 50 must be constantly depressed by

the operator to keep the motor activated thus ensuring the hand of the operator remains on the handle in contact with the switch. In the second mode, when the saw is being used as a table saw, the switch 50 can be depressed once to activate the motor, the motor remaining activated until the switch is depressed again. This allows the operator to move his hands freely without having to maintain contact with the switch.

[0022] The height of the table 12, and hence the amount of saw blade 22 passing through it, can be adjusted vertically. The height adjustment mechanism for the table 12 is the same as that described in EP1813400.

[0023] The cutting edge of the lower part of the circular saw blade 22 below the table 12 is surrounded by a guard assembly. The guard assembly comprises a first fixed guard 30 which surrounds the cutting edges of the middle section of the saw blade 22, a forward guard assembly which is capable of surrounding the lower front section of the cutting edge of the cutting blade 22 and a rear guard assembly which is capable of surrounding the lower rear section of the cutting edge of the cutting blade 22.

[0024] The first fixed guard 30 is attached to the motor unit 20 and surrounds the cutting edges of the middle section of the circular saw blade 22. The fixed guard 30 remains stationary relative to the motor unit 20.

[0025] The forward guard assembly will now be described with reference to figure 4.

[0026] Pivotally attached to the first fixed guard 30 is a second forward pivotal guard 32. The second forward pivotal guard 32 pivots about the axis 28 of the circular saw blade 22. The second pivotal forward pivotal guard 32 can freely pivot into and out of in a telescopic manner the fixed guard 30. The second forward pivotal guard 32 is prevented from completely pivoting out of the fixed guard 30 by a catch 52 formed on the second forward pivotal guard 32 which engages with a ledge 54 formed on the fixed guard 30 when the second forward pivotal guard 32 has pivoted to its furthest position outside of the fixed guard 30.

[0027] Pivotally attached to the first fixed guard 30 is a third forward pivotal guard 34. The third forward pivotal guard 32 also pivots about the axis 28 of the circular saw blade 22.

[0028] The third pivotal forward pivotal guard 34 can pivot into and out of, in a telescopic manner, the second forward pivotal guard 32 and also into and out of the fixed guard 30 when the first forward pivotal guard 32 has moved telescopically inside of the fixed guard 30. The third forward pivotal guard 34 is prevented from completely pivoting out of the second forward pivotal guard 32 by a second catch 56 formed on the third forward pivotal guard 32 which engages with a second ledge 58 formed on the first forward pivotal guard 32 when the second forward guard has pivoted to its furthest position outside of the first forward pivotal guard 32. The third forward pivotal guard 34 is prevented from completely pivoting through the second forward pivotal guard 32 by the second catch 56 formed on the third forward pivotal guard 32 engaging with a third ledge 60 formed on the first forward pivotal guard 32 when the second forward guard has pivoted to its furthest position inside of the first forward pivotal guard 32.

[0029] A spring (not shown) biases the third forward pivotal guard 34 downward (clockwise) as shown in figures 1 to 4.

[0030] A bar 62 is pivotally attached at one end about axis 61 to the bevel mount 16. An elongate slot 64 is formed along a section of the length of the bar 62 at the other end. A pin 66, rigidly attached to the third forward pivotal guard 34 passes through the slot 64 and which is capable of sliding along the slot 64. The biasing spring acting on the third forward pivotal guard 34 causes the guard to pivot until the pin 66 is at the inner end position 65 of the slot 64 where it remains held by the force of the spring. The pin 66 located within the slot 64 of the bar 62 controls the pivotal movement of the third guard 34 on the motor unit as the motor unit 20 pivots upwards and downwards. When the motor unit 20 is in its upper most raised first pivotal position, the second and third forward pivotal guards 32, 34 surround the cutting edge of the lower front section of circular saw blade 22 as shown in Figure 2. As the motor unit 20 is pivoted downwardly, the bar 62 pushes the pin 66, causing the third forward pivotal guard 34 to telescopically pivot into the second forward pivotal guard 32 until the second catch 56 engages with the third ledge 60. As the motor unit 20 continues to be pivoted downwardly, the bar 62 continues to push the pin 66, causing the third forward pivotal guard 34 together with the second forward pivotal guard via the second catch 56 and third ledge 60, to telescopically pivot into the first fixed guard 30. The slot 64 allows the guard to pivot freely relative to the bar 62, against the biasing force of the spring, if it encounters a work piece located on the base 2 or table 4.

[0031] The rear guard assembly will now be described with reference to figure 4.

[0032] The rear guard assembly comprises two parts, a fourth rearward fixed guard 68 and a fifth rearward pivotal guard 70.

[0033] The fourth rearward fixed guard 68 comprises a U shaped bracket rigidly fixed to the bevel mount 16 via bolts 72 and which surrounds part of the cutting edge of the rear lower section of the blade 22. One side 74 of the U shaped bracket locates along one side of the cutting blade 22, the other side 76 of the U shaped bracket locates along the other side of the cutting blade 22. The fourth rearward fixed guard 68 surrounds the part of the cutting edge of the rear lower section of the blade 22 when the motor unit 20 is in its raised position or its lowered position and all the positions in between, when the motor unit 20 is pivoted about axis 24. A series of elongate holes 78 are formed in one side 74 of the fixed guard 68 to enable a user to view the side of the blade 22 located within the fixed guard 68. The fourth rearward fixed guard 68 is located above the fence 14.

[0034] The fifth rearward pivotal guard 68 also com-

prises a U shaped bracket pivotally mounted within the fourth rearward fixed guard 68 via a bolt 80. A portion of the fifth rearward pivotal guard 70 locates behind the fence 14. The fifth rearward pivotal guard 70 surrounds a part of the cutting edge of the rear lower section of the blade 22 when the motor unit 20 is pivoted about axis 24 to its lowered position. When the motor unit 20 is in its lowest position, one side 82 of the U shaped bracket locates along one side of the cutting blade 22, the other side 84 of the U shaped bracket locates along the other side of the cutting blade 22. The fifth rearward pivotal guard 70 can pivot about axis 90 from a first forward position where the front edges 86 of the bracket are in close proximity to the working surface 88 of the fence, adjacent to the slot formed through the fence 14 through which the blade 22 passes when the motor unit is pivoted about axis 24 to its lowered position, to a second rearward position (clockwise as shown in Figure 4) where the fifth rearward pivotal guard 70 is located further inside of the fourth rearward fixed guard and where the front edges 86 are located a short distance behind the fence 14. A spring 92 biases the fifth rearward pivotal guard 70 to its first position.

[0035] The rear guard assembly ensures that the part of the cutting edge of the blade 22 which is located below the fixed guard and behind the fence 14 remains enclosed at all times regardless of the pivotal position of the motor unit 20 relative to the bevel mount 16. When the motor unit 20 is pivoted relative to the bevel mount 16 about axis 24, the fifth rearward pivotal guard 70 remains in a fixed position relative to the fourth rearward fixed guard 68 and bevel mount 16, the pivotal movement of the motor unit 20 about axis 24 having no effect on the pivotal position of the fifth rearward pivotal guard 70. When the motor unit 20 is in its raised position as shown in Figure 2, the whole of the cutting edge of the cutting blade 22 located below the fixed guard 30 is surrounded by the front and rear guard assemblies. When the motor unit 20 is in its lowered position as shown in Figure 1, the whole of the cutting edge of the cutting blade 22 located below the fixed guard 30 is enclosed by being surrounded in part by the front guard assembly and the rear guard assembly with the remaining portion being located within the slot 26 in the table 4 and arm.

[0036] The reason for making part of the rear guard assembly pivotal is due to the movement of the bevel mount 16, upon which it is mounted, relative to the base. When the saw performs mitre and/or bevel cuts by pivotal movement of the table 4 about axis 8 and/or pivotal movement of the bevel mount about axis 18, the position of the front edges 86 of the fifth rearward pivotal guard 70 move relative to the edges 102 of the slot formed through the fence 14 through which the blade 22 can pass as the motor unit 20 moves to its lower position, as shown in Figures 5 to 7. This can result, in certain positions, in the edges engaging with the edge 102 of the fence 14 and hence block or hinder the movement of the bevel mount 16 in relation to the base 2. Therefore, by making the part of the rear guard assembly located behind the fence 14 pivotal, the pivotal part can be moved rearwardly slightly by pivotal movement of the fifth rearward pivotal guard 70 to the movement of the bevel mount 16 being hindered or blocked relative to the base 2 whilst still enclosing the blade within the rearguard assembly when the rear guard assembly is moved due to the movement of the bevel mount relative to the base 2 and fence 14. The pivotal movement of the fifth rearward pivotal guard 70 occurs when it engages with the fence 14 as the bevel mount 16 moves.

[0037] A second embodiment of guard assembly which will now be described with reference to Figures 9 to 11. Where the same features are present in the second embodiment which are present in the first embodiment, the same reference numbers have been used. The second embodiment is the same as the first except for the addition of a locking mechanism for the fifth rearward pivotal guard 70.

[0038] The locking mechanism comprises an arm 110 rigidly attached to the rotatable table 4 and a projection 112 rigidly attached to the fifth rearward pivotal guard 70. The arm 110 is an elongate strip of metal, attached to the rotatable table 4 using bolts 114 and which projects forward, in front of the bevel mount 16, from the table 4 towards the fifth rearward pivotal guard 70. The projection 112 is a narrow strip of metal integrally formed with the fifth rearward pivotal guard 70 and which projects rearwardly from the fifth rearward pivotal guard 70 towards the bevel mount 16. When the saw is not performing a bevel cut, but a chop cut with or without mitre ie when the saw blade 22 is vertical, the plane of the blade being perpendicular to the surface of the rotatable table 4, the free end of the arm 110 is located immediately above the free end of the projection 112 as best seen in figures 9 and 10. When the arm 110 and projection 112 are located in these relative positions, the fifth rearward pivotal guard 70 is prevented from pivoting backwards from its first position due to the arm 110 blocking the pivotal movement of the projection 112, thus locking the fifth rearward pivotal guard 70 in its first position. When the saw is performing either a bevel cut, with or without mitre, the position of the projection 112 will move relative to the arm 110 due to the movement of the bevel mount relative to the table 4, causing the free end of the arm 110 to be located away from the free end of the projection 112 as best seen in figure 11. In this position the fifth rearward pivotal guard 70 can freely pivot.

[0039] It will be appreciated by the reader that the arm 110 can be mounted onto the base 2 instead of the table 4. In such a construction, when the saw is performing a bevel cut only without bevel or mitre, the free end of the arm 110 is located immediately above the free end of the projection 112. As such, the fifth rearward pivotal guard 70 is prevented from pivoting backwards from its first position due to the arm 110 blocking the pivotal movement of the projection 112, thus locking the fifth rearward pivotal guard 70 in its first position. When the saw is per-

forming a bevel cut an/or a mitre cut, the position of the projection 112 will move relative to the arm 110 due to the movement of the bevel mount relative to the base 2, causing the free end of the arm 110 to be located away from the free end of the projection 112. In this position the fifth rearward pivotal guard 70 can freely pivot.

Claims

1. A saw comprising:

a base (2);
a table (4) rotatably mounted about a vertical axis (8) within the base (4);
a bevel mount (16) pivotally mounted about a horizontal axis (18) on the edge of the table (4);
a motor unit (20) pivotally mounted on the bevel mount to allow the motor unit to pivot from a first raised position towards the table to a second lowered position;
a saw blade (22) rotatably mounted on and capable of being rotationally driven by the motor unit (20); and
a guard assembly capable of surrounding at least part of the cutting edge of the cutting blade (22);
wherein the guard assembly comprises a fixed guard and a rear guard assembly (68, 70) mounted below the fixed guard and which surrounds part of the cutting edge of the lower rear portion of the cutting blade;
wherein the rear guard assembly (68, 70) is mounted on the bevel mount (16);
wherein there is further provided a fence (14) which is mounted on the base (2) and which traverses the table (4), **characterised in that** the rear guard assembly surrounds the whole of the cutting edge of the lower rear portion of the cutting blade (22) located rearwardly of the fence (14) and below the fixed guard (30);
wherein the rear guard assembly comprises a pivotal guard (70) pivotable relative to the bevel mount (16) and which surrounds part of the cutting edge of the lower rear portion of the cutting blade (22).

2. A saw according to claim 1 wherein the rear guard assembly surrounds the cutting edge of the lower rear portion of the cutting blade (22) located rearwardly of the fence (14) and below the fixed guard (30) in all pivotal positions of the motor unit 20 on the bevel mount (16) as it pivotally moves from its first raised position towards its second lowered position.

3. A saw as claimed in either of claims 1 or 2 wherein the pivotal guard is located behind the fence and is capable of pivoting towards or away from the fence (14) wherein there is provided biasing means to bias the pivotal guard towards engagement with the fence.

4. A saw according to any of claims 1 to 3 wherein the rear guard assembly comprises a fixed guard (68) rigidly attached to the bevel mount (16) and which surrounds part of the cutting edge of the lower rear portion of the cutting blade (22), the pivotal guard (70) being pivotally attached to the fixed guard (68).

5. A saw according to claim 4 wherein the fixed guard (68) is located above the fence (14).

6. A saw according to claims 1 to 5 wherein movement of the bevel mount (16) relative to the base (2) either by pivotal movement of the table (4) within the base (2) or by pivotal movement of the bevel mount (16) on the table (4) results in pivotal movement of the pivotal guard (70) on the bevel mount (16) when part of the pivotal guard (70) engages with the fence (14) due to the relative movement of the bevel mount (16) and the base (2).

7. A saw according to any one of the previous claims wherein the guard assembly further comprises a front guard assembly.

8. A saw according to any one of claims 1 to 7 wherein there is provided a locking mechanism which is capable of preventing pivotal movement of the pivotal guard (70) when the table (4) is in a predetermined angular position relative to the bevel mount.

9. A saw according to claim 8 wherein the locking mechanism comprises an arm (110) mounted on the table (4) and which blocks movement of the pivotal guard when the saw is not performing a bevel cut.

10. A saw according to claim 9 wherein the pivotal guard (70) comprises a projection (112), the arm (110) aligning with the projection (112) when the saw is not performing bevel cuts to block the pivotal movement of the pivotal guard.

11. A saw according to any one of claims 1 to 7 wherein there is provided a locking mechanism which is capable of preventing pivotal movement of the pivotal guard (70) when the base (2) is in a predetermined angular position relative to the bevel mount (16).

12. A saw according to claim 11 wherein the locking mechanism comprises an arm (110) mounted on the base (2) and which blocks movement of the pivotal guard when the saw is not performing either a bevel cut or a mitre cut.

13. A saw according to claim 12 wherein the pivotal guard (70) comprises a projection (112), the arm (110) aligning with the projection (112) when the saw is not performing either a bevel cut or a mitre cut to block the pivotal movement of the pivotal guard.

Patentansprüche

1. Säge, die Folgendes umfasst:

eine Basis (2);
einen Tisch (4), die drehbar um eine vertikale Achse (8) in der Basis (4) montiert ist;
eine Montageschräge (16), die schwenkbar um eine horizontale Achse (18) an der Kante des Tisches (4) montiert ist;
eine Motoreinheit (20), die schwenkbar an der Montageschräge montiert ist, um es zu erlauben, dass die Motoreinheit aus einer ersten angehobenen Position zum Tisch hin in eine zweite abgesenkte Position schwenkt;
ein Sägeblatt (22), das drehbar an der Motoreinheit (20) montiert ist und von dieser drehend angetrieben werden kann; und
eine Schutzanordnung, die in der Lage ist, mindestens einen Teil der Schneidkante der Schneidklinge (22) zu umgeben;
wobei die Schutzanordnung einen festen Schutz umfasst und eine hintere Schutzanordnung (68, 70), die unter dem festen Schutz montiert ist und einen Teil der Schneidkante des unteren hinteren Abschnitts der Schneidklinge umgibt;
wobei die hintere Schutzanordnung (68, 70) an der Montageschräge (16) montiert ist;
wobei ferner ein Zaun (14) bereitgestellt ist, der auf der Basis (2) montiert ist und der den Tisch (4) überquert, **dadurch gekennzeichnet, dass** die hintere Schutzanordnung die Schneidkante des unteren hinteren Abschnitts der Schneidklinge (22) rückwärtig vom Zaun (14) und unter dem festen Schutz (30) ganz umgibt;
wobei die hintere Schutzanordnung einen Schwenkschutz (70) umfasst, der relativ zur Montageschräge (16) schwenkbar ist und einen Teil der Schneidkante des unteren hinteren Abschnitts der Schneidklinge (22) umgibt.

2. Säge nach Anspruch 1, wobei die hintere Schutzanordnung die Schneidkante des unteren hinteren Abschnitts der Schneidklinge (22) rückwärtig vom Zaun (14) und unter dem festen Schutz (30) in allen Schwenkpositionen der Motoreinheit (20) an der Montageschräge (16) umgibt, wenn sie sich aus ihrer ersten angehobenen Position zu ihrer zweiten abgesenkten Position hin schwenkend bewegt.

3. Säge nach Anspruch 1 oder 2, wobei sich der Schwenkschutz hinter dem Zaun befindet und in der Lage ist, zum Zaun (14) hin oder von diesem weg zu schwenken, wobei ein Vorspannmittel bereitgestellt ist, um den Schwenkschutz zum Eingriff in den Zaun hin vorzuspannen.

4. Säge nach einem der Ansprüche 1 bis 3, wobei die hintere Schutzanordnung einen festen Schutz (68) umfasst, der starr an der Montageschräge (16) befestigt ist und der einen Teil der Schneidkante des unteren hinteren Abschnitts der Schneidklinge (22) umgibt, wobei der Schwenkschutz (70) schwenkend am festen Schutz (68) befestigt ist.

5. Säge nach Anspruch 4, wobei der feste Schutz (68) sich über dem Zaun (14) befindet.

6. Säge nach einem der Ansprüche 1 bis 5, wobei die Bewegung der Montageschräge (16) relativ zur Basis (2) entweder durch eine Schwenkbewegung des Tisches (4) in der Basis (2) oder durch eine Schwenkbewegung der Montageschräge (16) auf dem Tisch (4) in einer Schwenkbewegung des Schwenkschutzes (70) auf der Montageschräge (16) resultiert, wenn ein Teil des Schwenkschutzes (70) infolge der relativen Bewegung der Montageschräge (16) und der Basis (2) in den Zaun (14) eingreift.

7. Säge nach einem der vorhergehenden Ansprüche, wobei die Schutzanordnung ferner eine vordere Schutzanordnung umfasst.

8. Säge nach einem der Ansprüche 1 bis 7, wobei ein Verriegelungsmechanismus bereitgestellt ist, der in der Lage ist, eine Schwenkbewegung des Schwenkschutzes (70) zu verhindern, wenn der Tisch (4) sich in einer vorbestimmten Winkelposition relativ zur Montageschräge befindet.

9. Säge nach Anspruch 8, wobei der Verriegelungsmechanismus einen Arm (110) umfasst, der auf dem Tisch (4) montiert ist und die Bewegung des Schwenkschutzes blockiert, wenn die Säge keinen Schrägschnitt durchführt.

10. Säge nach Anspruch 9, wobei der Schwenkschutz (70) einen Vorsprung (112) umfasst, wobei sich der Arm (110) auf den Vorsprung (112) ausrichtet, wenn die Säge keine Schrägschnitte durchführt, um die Schwenkbewegung des Schwenkschutzes zu blockieren.

11. Säge nach einem der Ansprüche 1 bis 7, wobei ein Verriegelungsmechanismus bereitgestellt ist, der in der Lage ist, eine Schwenkbewegung des Schwenkschutzes (70) zu verhindern, wenn die Basis (2) sich in einer vorbestimmten Winkelposition relativ zur

Montageschräge (16) befindet.

12. Säge nach Anspruch 11, wobei der Verriegelungsmechanismus einen Arm (110) umfasst, der auf der Basis (2) montiert ist und die Bewegung des Schwenkschutzes blockiert, wenn die Säge keinen Schrägschnitt oder Gehrungsschnitt durchführt.

13. Säge nach Anspruch 12, wobei der Schwenkschutz (70) einen Vorsprung (112) umfasst, wobei sich der Arm (110) auf den Vorsprung (112) ausrichtet, wenn die Säge keinen Schrägschnitt oder Gehrungsschnitt durchführt, um die Schwenkbewegung des Schwenkschutzes zu blockieren.

Revendications

1. Scie comprenant :

une base (2) ;
une table (4) montée en rotation autour d'un axe vertical (8) à l'intérieur de la base (4) ;
un support de coupe en oblique (16) monté de manière pivotante autour d'un axe horizontal (18) sur le bord de la table (4) ;
une unité motrice (20) montée de manière pivotante sur le support de coupe en oblique pour permettre à l'unité motrice de pivoter d'une première position élevée vers la table à une seconde position abaissée ;
une lame de scie (22) montée en rotation sur l'unité motrice (20) et susceptible d'être entraînée en rotation par celle-ci ; et
un ensemble de garde susceptible d'entourer au moins une partie du tranchant de la lame de coupe (22) ;
dans laquelle l'ensemble de garde comprend une garde fixe et un ensemble de garde arrière (68, 70) monté au-dessous de la garde fixe et qui entoure une partie du tranchant de la portion arrière inférieure de la lame de coupe ;
dans laquelle l'ensemble de garde arrière (68, 70) est monté sur le support de coupe en oblique (16) ;
dans laquelle il y a en outre un guide (14) de prévu qui est monté sur la base (2) et qui traverse la table (4), **caractérisée en ce que** l'ensemble de garde arrière entoure la totalité du tranchant de la portion arrière inférieure de la lame de coupe (22) située vers l'arrière du guide (14) et au-dessous de la garde fixe (30) ;
dans laquelle l'ensemble de garde arrière comprend une garde pivotante (70) pouvant pivoter par rapport au support de coupe en oblique (16) et qui entoure une partie du tranchant de la portion arrière inférieure de la lame de coupe (22).

2. Scie selon la revendication 1, dans laquelle l'ensemble de garde arrière entoure le tranchant de la portion arrière inférieure de la lame de coupe (22) située vers l'arrière du guide (14) et au-dessous de la garde fixe (30) dans toutes les positions pivotantes de l'unité motrice (20) sur le support de coupe en oblique (16) lorsqu'il se déplace de manière pivotante de sa première position élevée vers sa seconde position abaissée.

3. Scie selon les revendications 1 ou 2, dans laquelle la garde pivotante est située derrière le guide et est susceptible de pivoter vers ou loin du guide (14), dans laquelle on prévoit un moyen de sollicitation pour solliciter la garde pivotante vers une mise en prise avec le guide.

4. Scie selon l'une quelconque des revendications 1 à 3, dans laquelle l'ensemble de garde arrière comprend une garde fixe (68) attachée de manière rigide au support de coupe en oblique (16) et qui entoure une partie du tranchant de la portion arrière inférieure de la lame de coupe (22), la garde pivotante (70) étant attachée de manière pivotante à la garde fixe (68).

5. Scie selon la revendication 4, dans laquelle la garde fixe (68) est située au-dessus du guide (14).

6. Scie selon les revendications 1 à 5, dans laquelle un mouvement du support de coupe en oblique (16) par rapport à la base (2), soit par un mouvement pivotant de la table (4) à l'intérieur de la base (2) soit par un mouvement pivotant du support de coupe en oblique (16) sur la table (4), résulte en un mouvement pivotant de la garde pivotante (70) sur le support de coupe en oblique (16) quand une partie de la garde pivotante (70) met en prise le guide (14) en raison du mouvement relatif du support de coupe en oblique (16) et de la base (2).

7. Scie selon l'une quelconque des revendications précédentes, dans laquelle l'ensemble de garde comprend en outre un ensemble de garde avant.

8. Scie selon l'une quelconque des revendications 1 à 7, dans laquelle on prévoit un mécanisme de verrouillage qui est susceptible d'empêcher un mouvement pivotant de la garde pivotante (70) quand la table (4) est dans une position angulaire prédéterminée par rapport au support de coupe en oblique.

9. Scie selon la revendication 8, dans laquelle le mécanisme de verrouillage comprend un bras (110) monté sur la table (4) et qui bloque un mouvement de la garde pivotante quand la scie n'effectue pas de coupe en oblique.

10. Scie selon la revendication 9, dans laquelle la garde pivotante (70) comprend une partie en saillie (112), le bras (110) s'alignant sur la partie en saillie (112) quand la scie n'effectue pas de coupes en oblique pour bloquer le mouvement pivotant de la garde pivotante.

11. Scie selon l'une quelconque des revendications 1 à 7, dans laquelle on prévoit un mécanisme de verrouillage qui est susceptible d'empêcher un mouvement pivotant de la garde pivotante (70) quand la base (2) est dans une position angulaire prédéterminée par rapport au support de coupe en oblique (16).

12. Scie selon la revendication 11, dans laquelle le mécanisme de verrouillage comprend un bras (110) monté sur la base (2) et qui bloque le mouvement de la garde pivotante lorsque la scie n'effectue pas de coupe en oblique ou de coupe à onglet.

13. Scie selon la revendication 12, dans laquelle la garde pivotante (70) comprend une partie en saillie (112), le bras (110) s'alignant sur la partie en saillie (112) quand la scie n'effectue pas de coupe en oblique ou une coupe à onglet pour bloquer le mouvement pivotant de la garde pivotante.

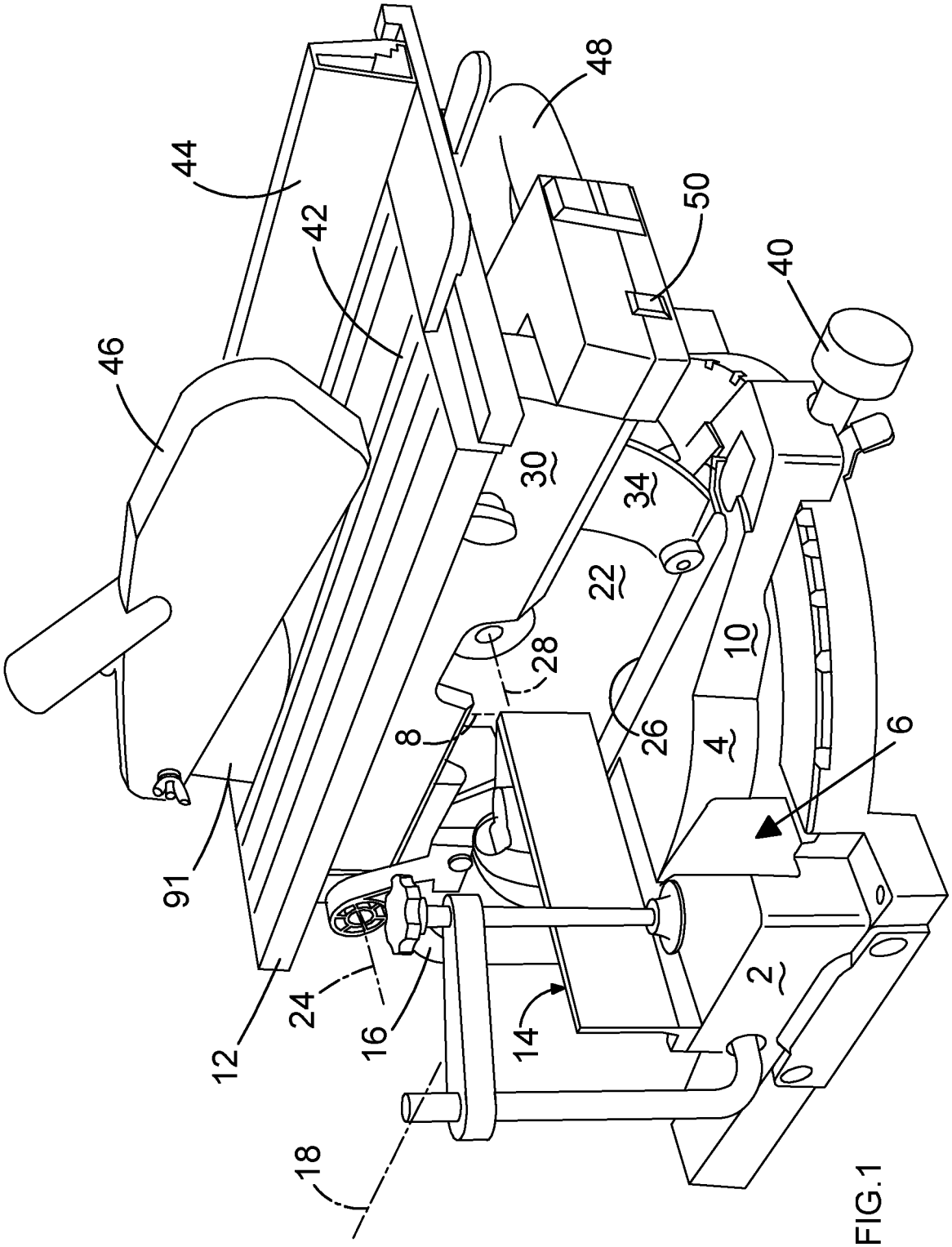
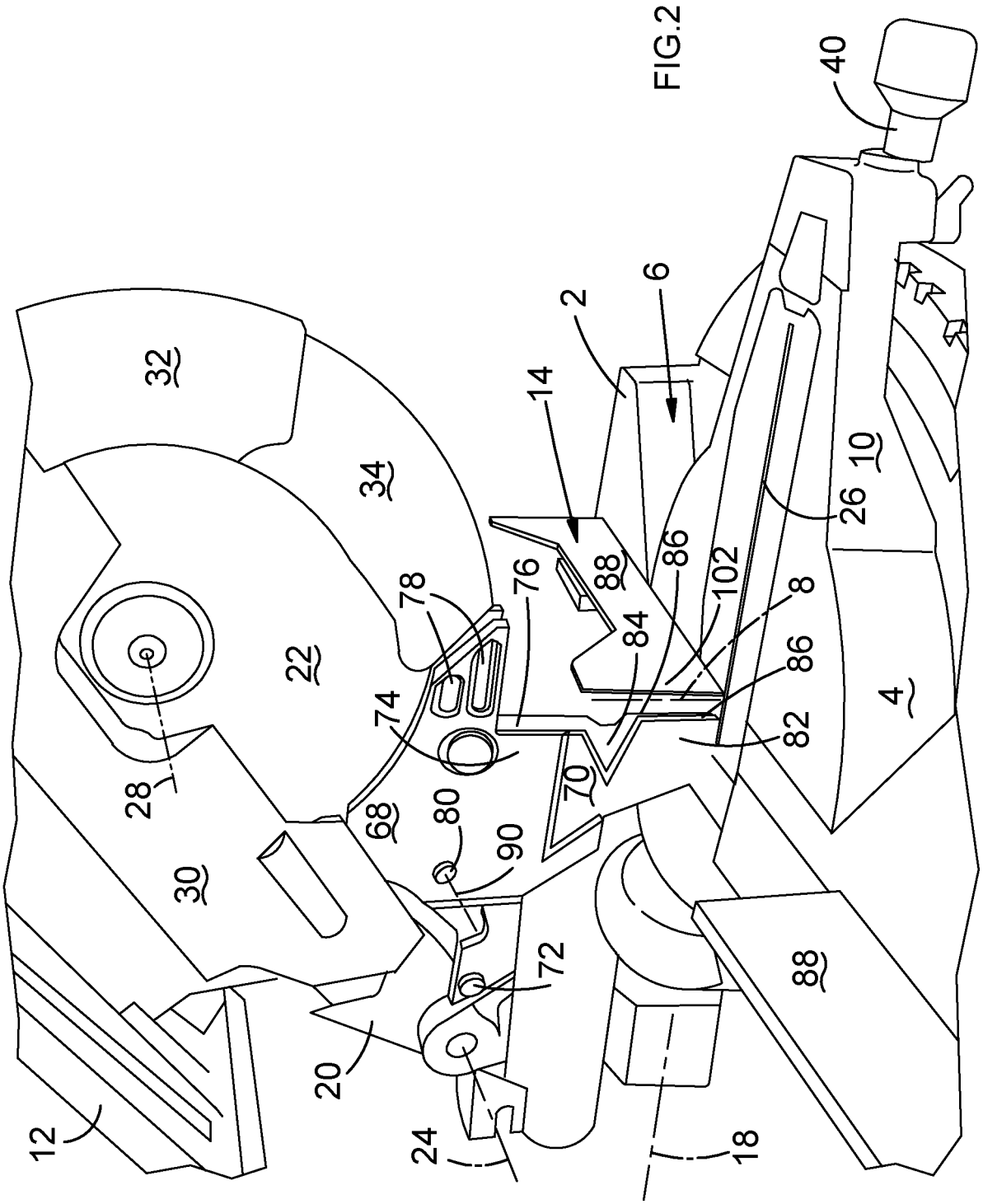


FIG.1

FIG.2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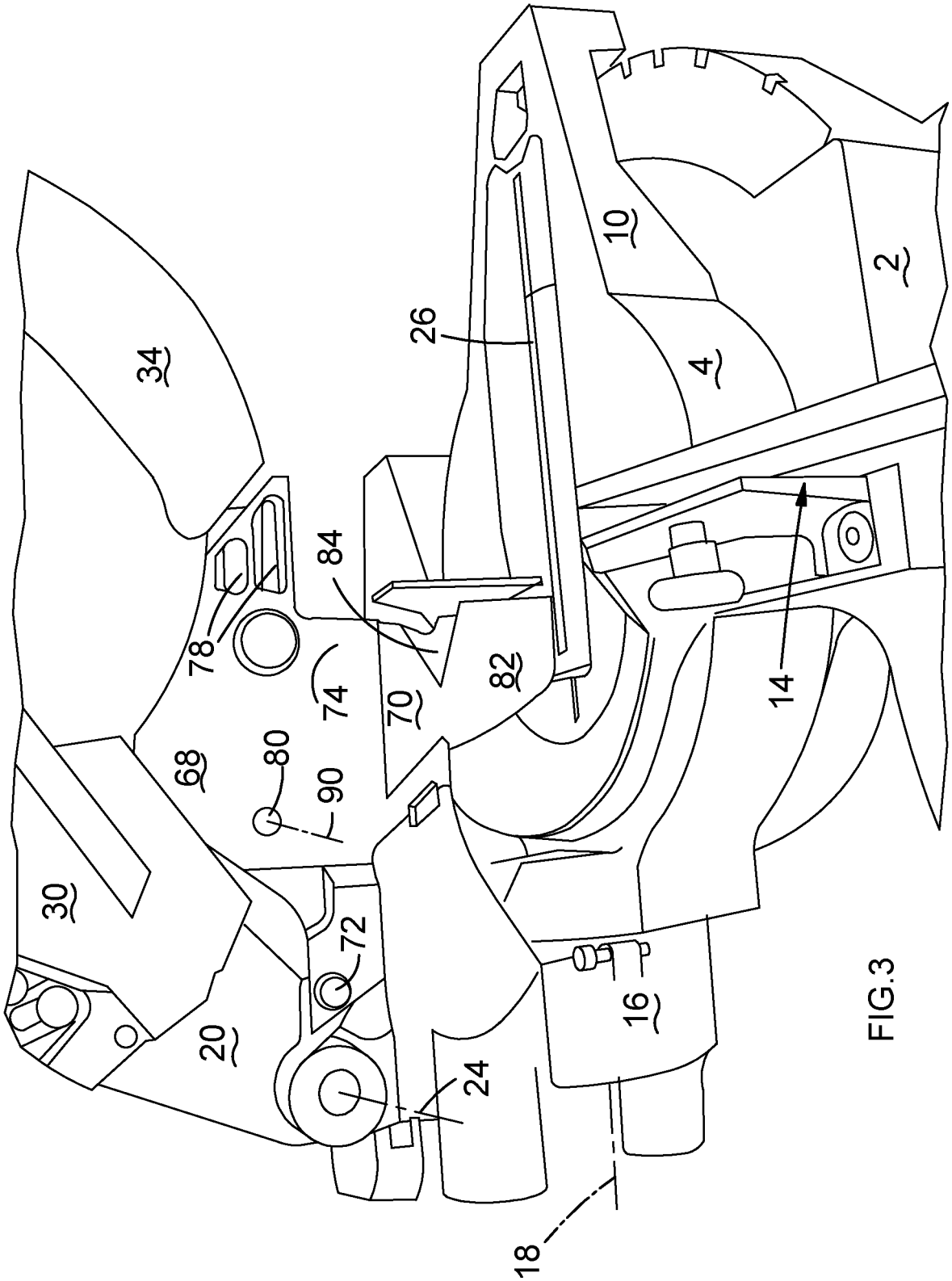

FIG.3

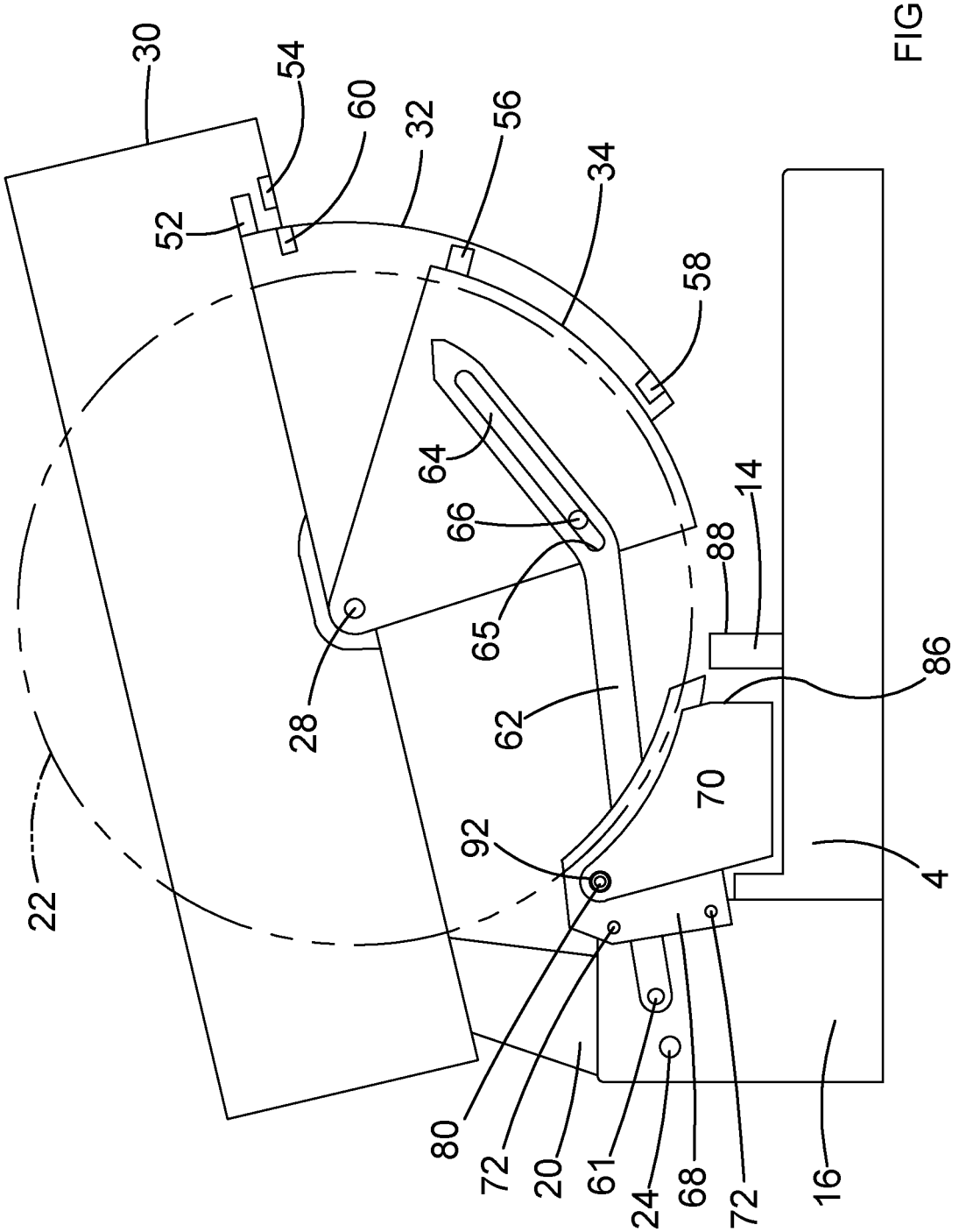
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FIG.4

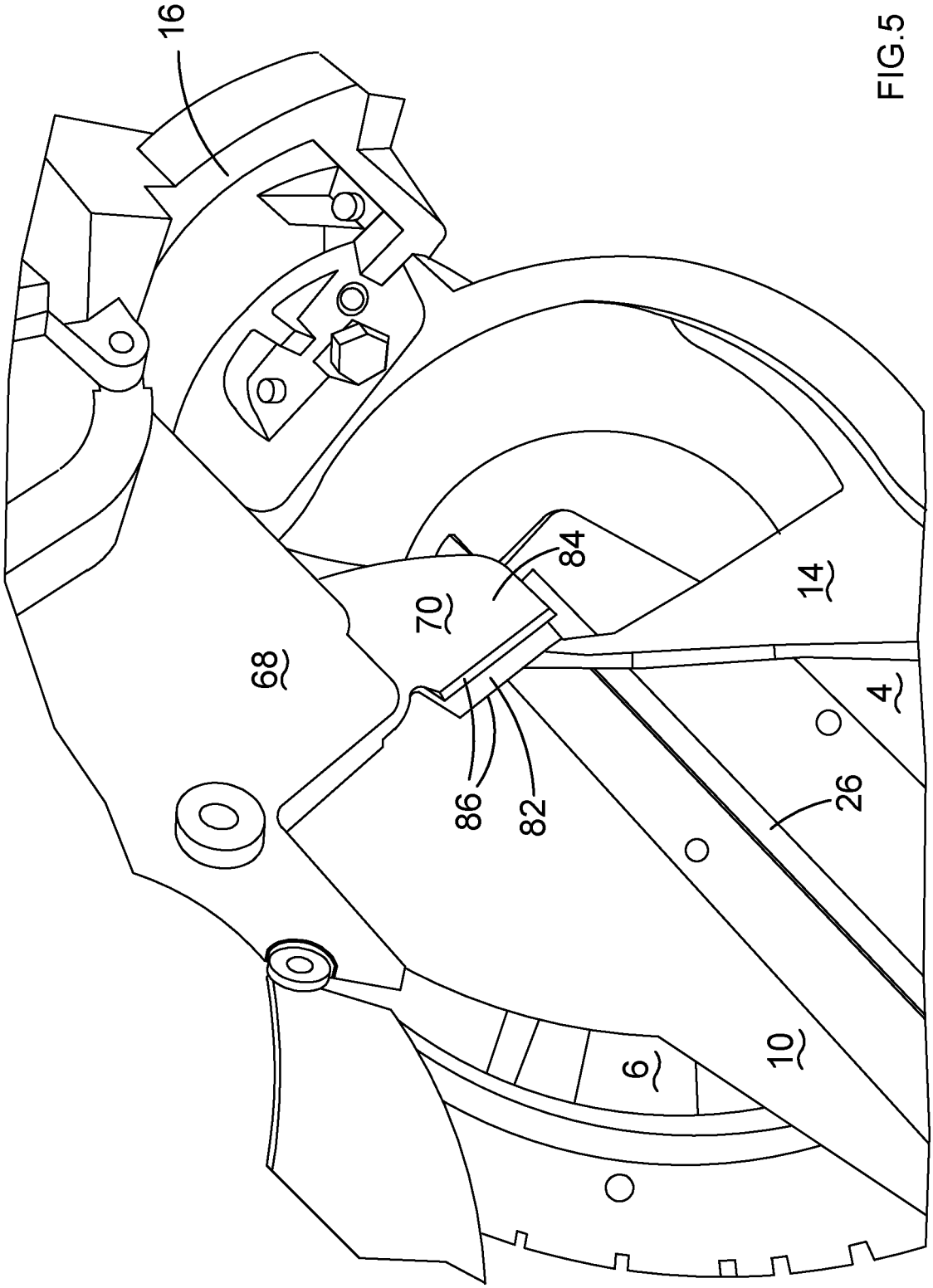

FIG.5

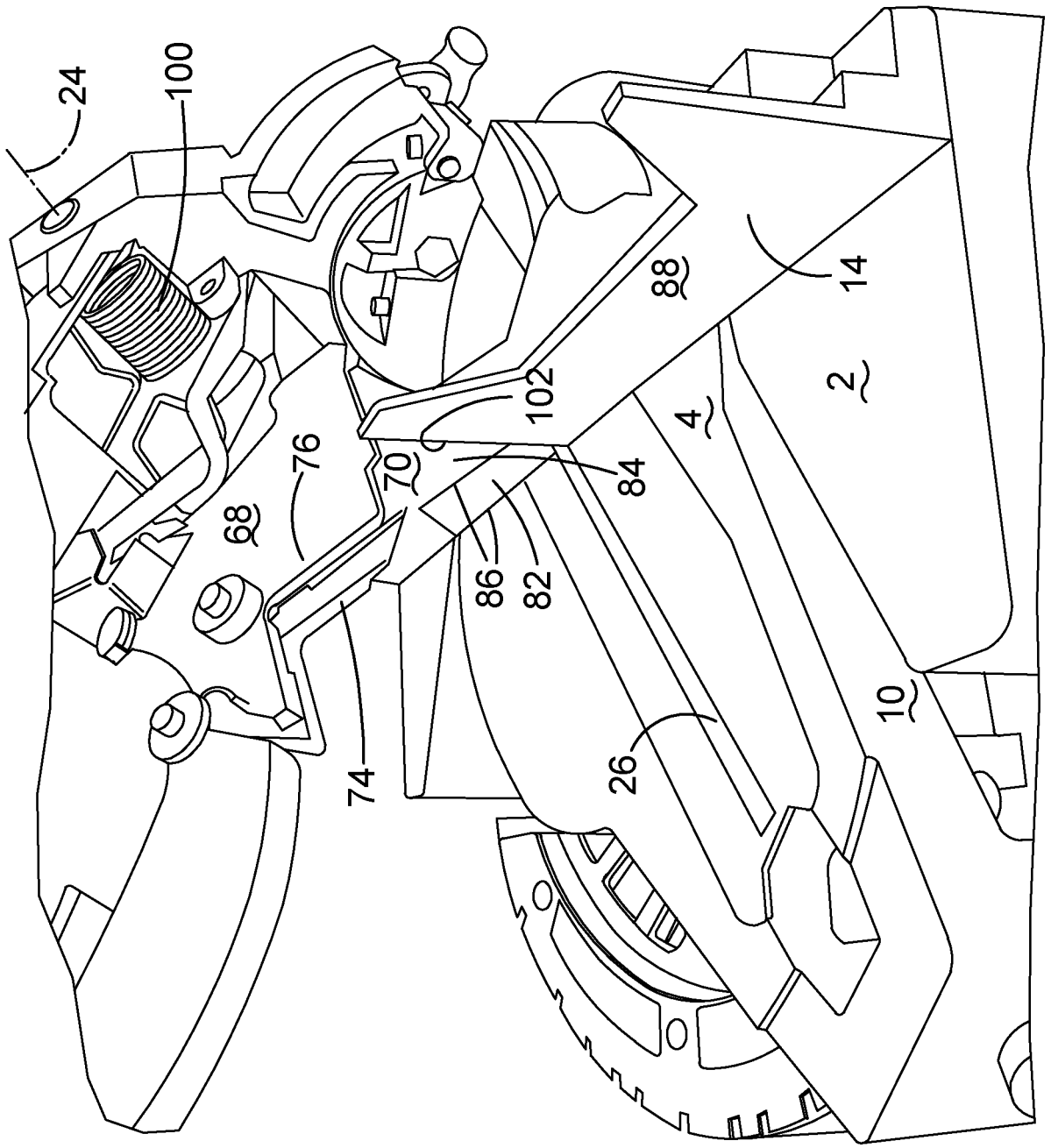

FIG.6

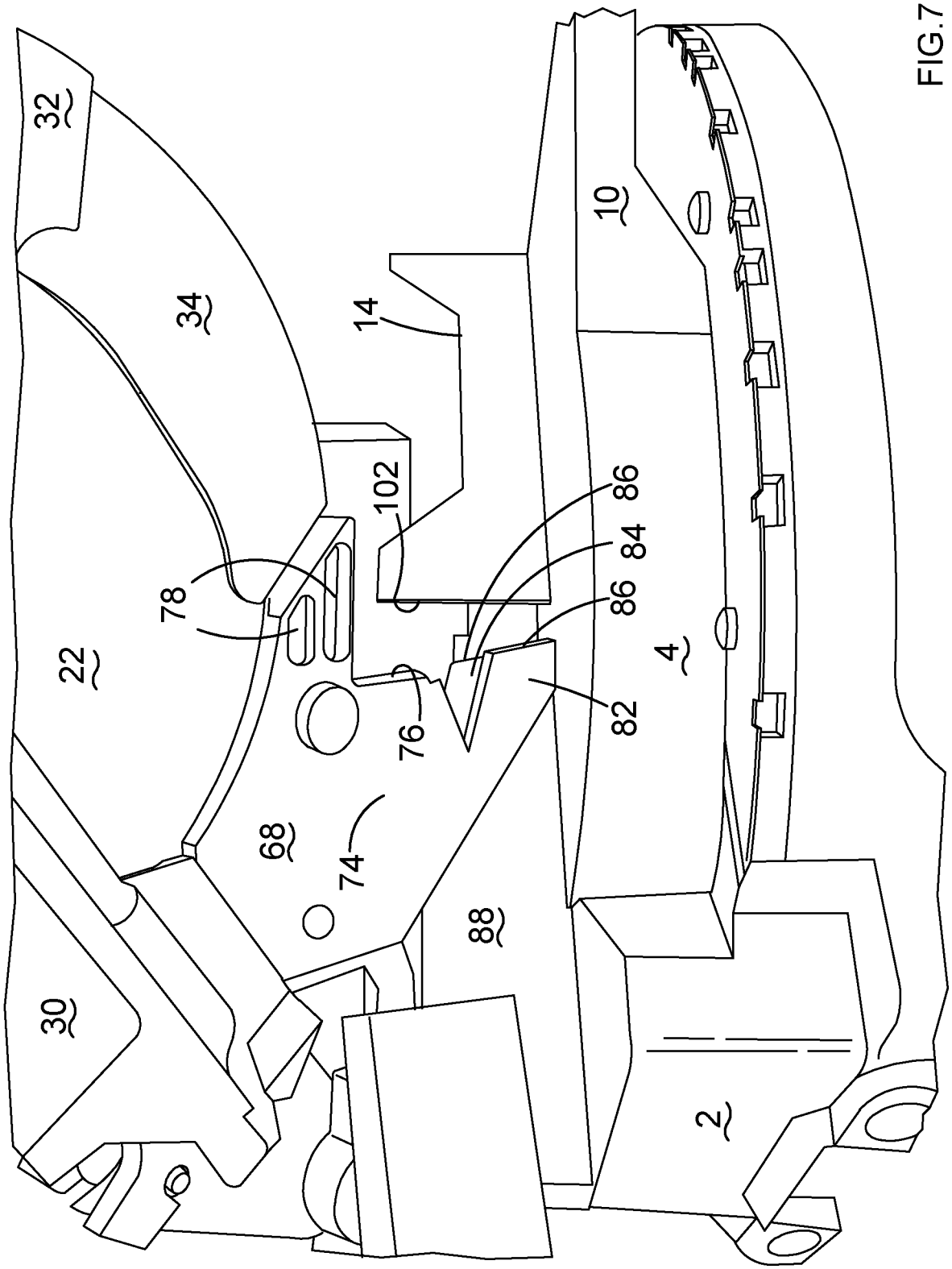

FIG.7

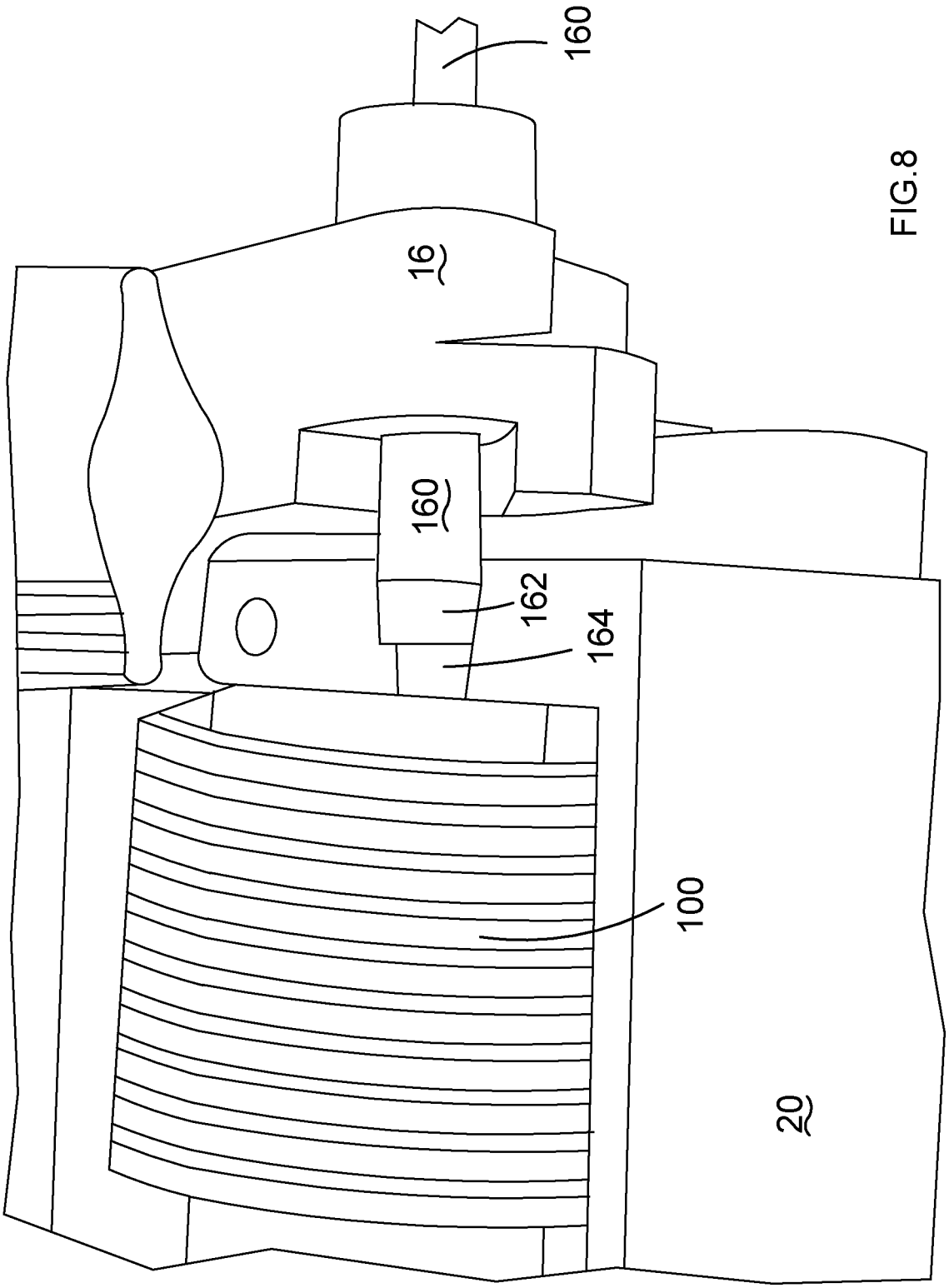

FIG.8

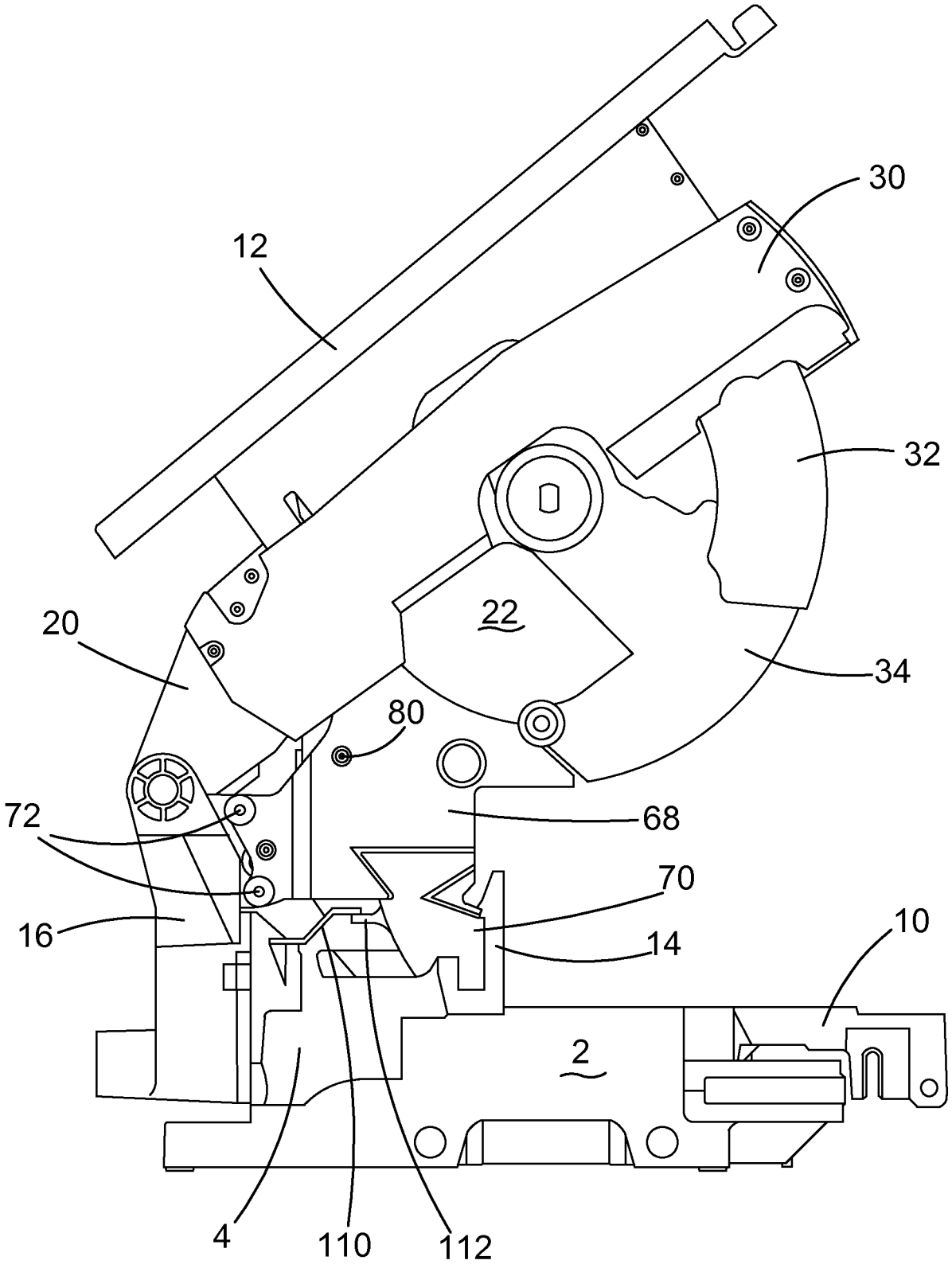

FIG.9

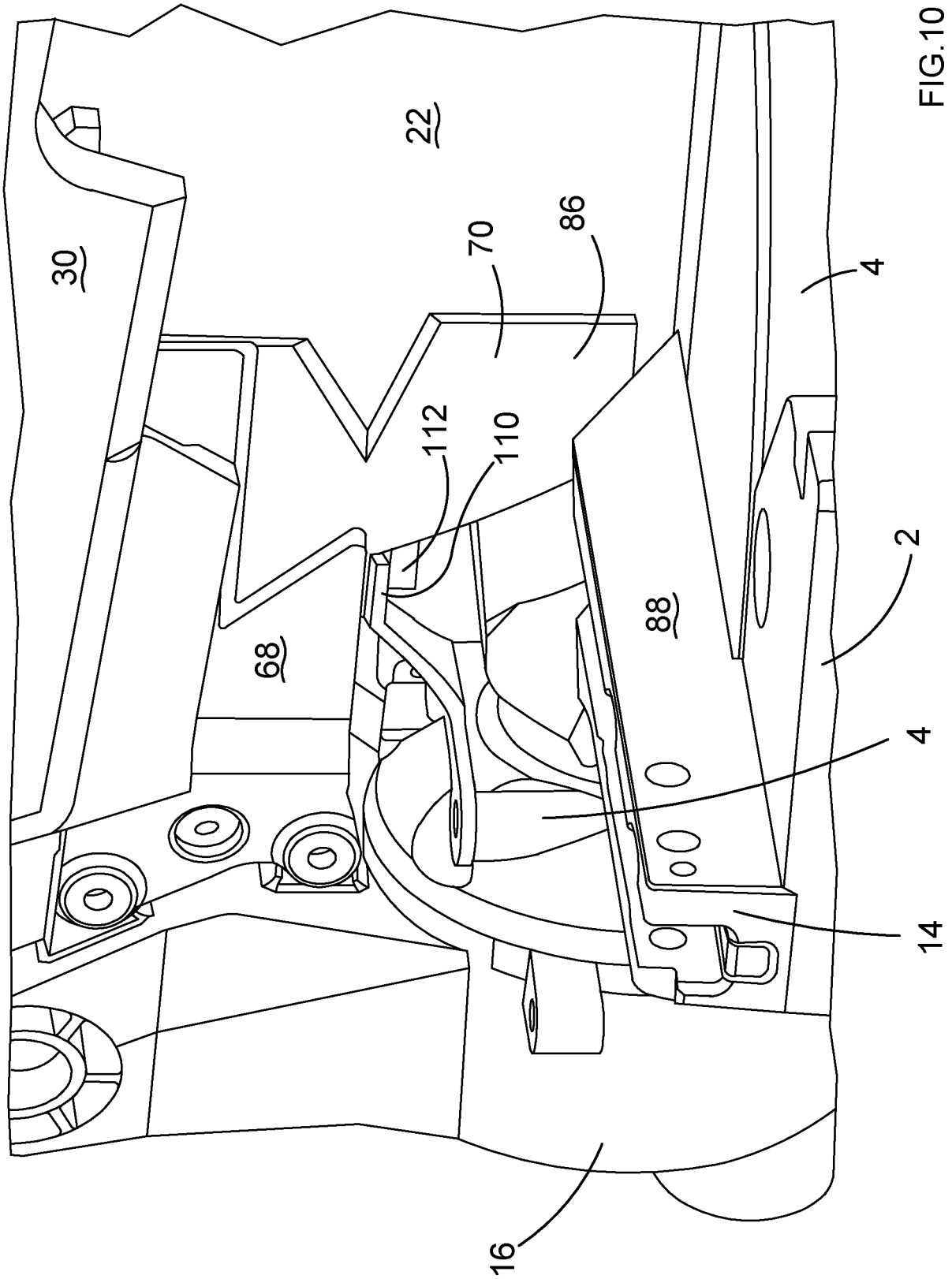

FIG.10

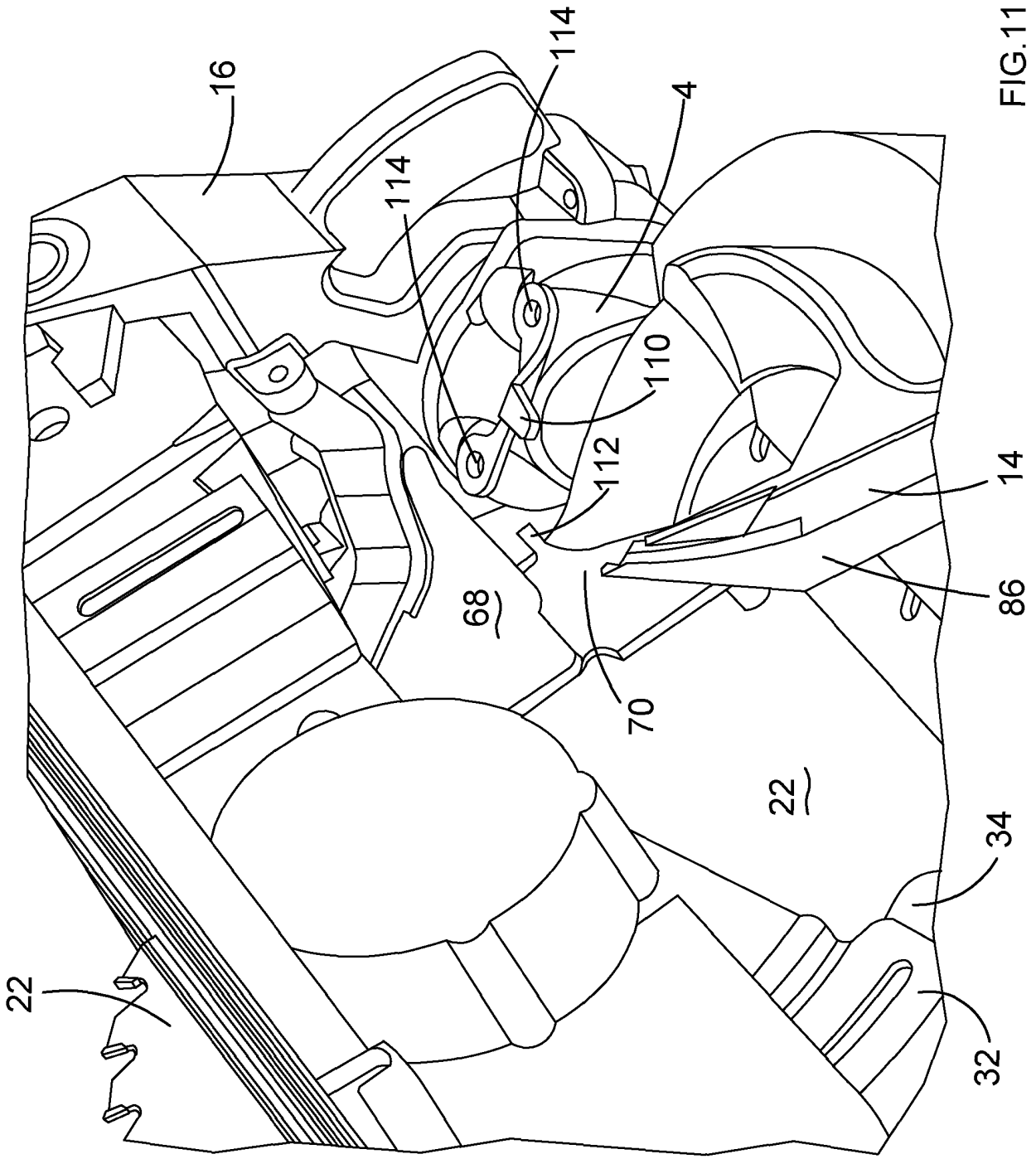

FIG.11

REFERENCES CITED IN THE DESCRIPTION

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