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(54) Title: A DIRECTION CONTROL VALVE WITH LOCKING MECHANISM

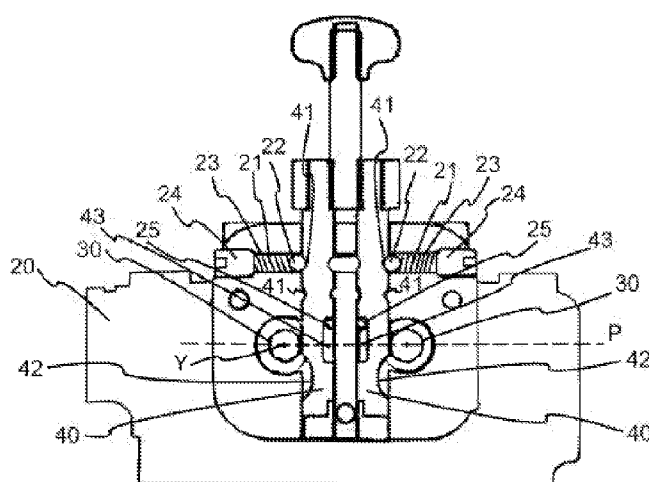


Figure 1

(57) Abstract: The present invention relates to a direction control valve with locking mechanism.



A DIRECTION CONTROL VALVE WITH LOCKING MECHANISM

5 TECHNICAL FIELD

The present invention relates to a direction control valve with locking mechanism.

PRIOR ART

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In the present art, locking mechanisms are used for providing safety in tractor, constructional equipment and industrial applications. For instance, locking mechanisms are used for providing safety of the loading digger of a construction equipment and tractor when said loading digger is in raised or lowered position and for preventing damage to the environment.

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The hydraulic spool lock disclosed in the application no US6926034 is connected to the hydraulic spool housing. First and second hydraulic spools are mounted within the hydraulic spool housing for independent selective movement with respect to the hydraulic spool housing, and thanks to this, lock plunger becomes movable in the hydraulic housing.

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As a result, because of all of the abovementioned problems, an improvement is required in the related technical field.

BRIEF DESCRIPTION OF THE INVENTION

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The present invention relates to a direction control valve, for eliminating the above mentioned disadvantages and for bringing new advantages to the related technical field.

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An object of the present invention is to provide a direction control valve where the usage ergonomics is increased.

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In order to realize all of the abovementioned objects and the objects which are to be deducted from the detailed description below, the present invention is a direction control valve having two sliders and at least one locking arm. Accordingly, the improvement of the subject matter invention is that the arm axis, defined as the extension direction of the locking arm, extends in a manner intersecting a slider plane passing through slider axes defined as the extension direction of the sliders.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 is a representative cross-sectional view of a possible embodiment of the subject matter direction control valve.

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Figure 2 is a representative cross-sectional view of another possible embodiment of the subject matter direction control valve.

DETAILED DESCRIPTION OF THE INVENTION

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In this detailed description, the subject matter direction control valve (10) is explained with references to examples without forming any restrictive effect only in order to make the subject more understandable.

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As can be seen in Figure 1 and 2, in the subject matter direction control valve (10), there are two sliders (30) which extend in a parallel manner to each other and provided such that there is a predetermined distance in between. Said sliders (30) are embodied in a movable manner in each slider axis (Y). By means of the movement of the sliders (30), the movement path of the fluid in the direction control valve (10) can be changed and depending on this, the direction control valve (10) fulfills its function. There is an imaginary slider plane (P) through which the slider axes (Y) are accepted to pass.

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There is at least one locking arm (40) provided in the vicinity of an end of the sliders (30). In a possible embodiment of the present invention, there is a locking arm (40) connected to each slider (30). In another possible embodiment of the present invention, a locking arm (40) is connected simultaneously to two sliders (30). Depending on the position of the locking arm (40), the slider (30) is rested to the locking arm (40). In more details, there is at least one slider housing (42) provided on the locking arm (40). When the slider housing (42) arrives at the extension direction of the slider (30), the slider (30) can pass through the slider housing (42). Thus, the movement of the slider (30) is released.

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The locking arm (40) moves in an arm axis (X). In the subject matter direction control valve (10), the locking arms (40) extend such that the arm axis (X) intersects the slider plane (P). In a possible embodiment of the present invention, two locking arms (40) are provided and each locking arm (40) is connected to a slider (30) and extends in an orthogonal manner to the slider plane (P). Thus, the sliders (30) can be controlled in an independent manner from each other. Moreover, the two locking arms (40) can be connected mechanically with each

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other outside the body (20) of the direction control valve (10) and the two locking arms (40) can be moved together in a single step. Thus, the two sliders (30) can be locked simultaneously in this manner or can be released. In another possible embodiment of the present invention, one locking arm (40) is provided and said locking arm (40) extends
5 between two sliders (30) such that an acute angle is provided between the slider plane (P) and the locking arm (40). Thus, the two sliders (30) can be controlled by means of the movement of a single locking arm (40).

Thanks to said embodiment, the locking arms (40) extend outwardly from an upper face (26)
10 of the body (20) in a different manner from the prior art. By means of this, depending on the region where the direction control valve (10) is positioned, a more ergonomic control is provided.

Moreover, there is a stroke delimiting channel (43) on the locking arm (40). A pin (25) fixed to
15 the body (20) at least partially enters into said stroke delimiting channel (43). The stroke delimiting channel (43) extends in the movement direction of the locking arm (40). Thus, while the locking arm (40) moves, the pin (25) is rested to the two ends of the stroke delimiting channel (43) and the pin (25) delimits the movement of the locking arm (40).

Moreover, there is a ball housing (41) on the locking arm (40). A ball (22) positioned in a
20 channel (21) provided inside the body (20) is pushed towards the ball housing (41) by a spring (23). An adjustment bolt (24) provided at the other end of the spring (23) is tightened, and the tightening amount of the spring (23) can be adjusted. Depending on the movement of the locking arm (40), the ball (22) is pushed and the spring (23) is tightened and the ball
25 (22) dislocates from the ball housing (41). When the ball (22) enters into the ball housing (41), the slider (30) enters into the slider housing (42). In this case, the ball (22) fixes the locking arm (40) and the slider (30) easily displaces.

The protection scope of the present invention is set forth in the annexed claims and cannot
30 be restricted to the illustrative disclosures given above, under the detailed description. It is because a person skilled in the relevant art can obviously produce similar embodiments under the light of the foregoing disclosures, without departing from the main principles of the present invention.

REFERENCE NUMBERS

	10	Direction control valve
	20	Body
5	21	Channel
	22	Ball
	23	Spring
	24	Adjustment bolt
	25	Pin
10	26	Upper face
	30	Slider
	40	Locking arm
15	41	Ball housing
	42	Slider housing
	43	Stroke delimiting channel
	X	Arm axis
20	Y	Slider axis
	P	Slider plane

CLAIMS

1. A direction control valve (10) having two sliders (30) which extend in a parallel manner to each other in a body (20) and provided such that there is a predetermined distance in between, **wherein** at least one locking arm (40) is provided which has at least one slider housing (42) and which extends in a manner intersecting an imaginary slider plane (P) accepted to pass through one each slider axes (Y) defined in the movement direction of the sliders (30).
2. The direction control valve (10) according to claim 1, **wherein** at least one stroke delimiting channel (43) is provided on the locking arm (40) and at least one pin (25) is fixed to the body (20).
3. The direction control valve (10) according to claim 1, **wherein** at least one channel (21) is provided on the body (20), and at least one spring (23) is provided which is positioned in said channel (21) and rested to the ball (22) from one end and rested to the adjustment bolt (24) from the other end and which pushes the ball (22) towards the locking arm (40).
4. The direction control valve (10) according to claim 3, **wherein** the locking arm (40) comprises at least two ball housings (41) wherein the ball (22) can be at least partially placed.
5. The direction control valve (10) according to claim 1, **wherein** one locking arm (41) is provided between the sliders (30).

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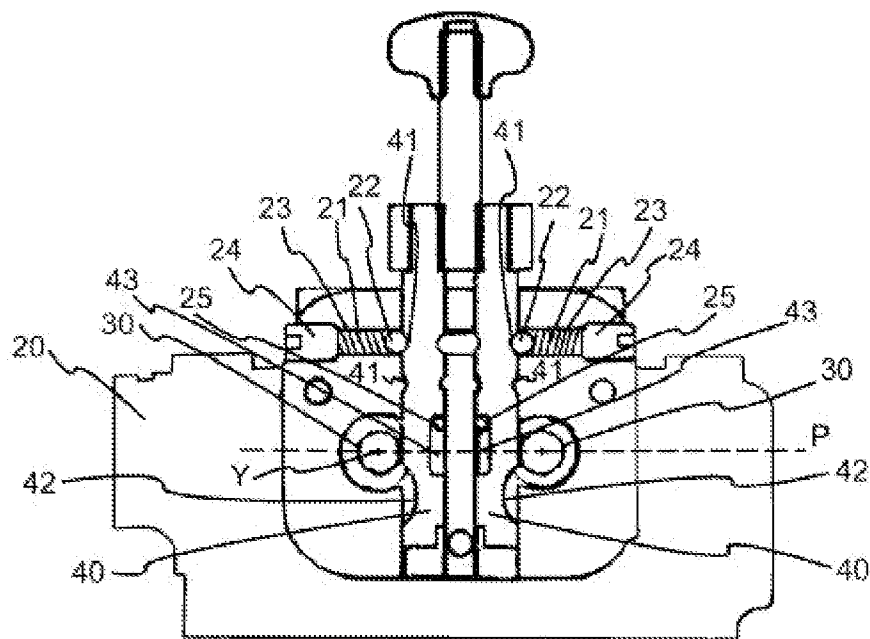


Figure 1

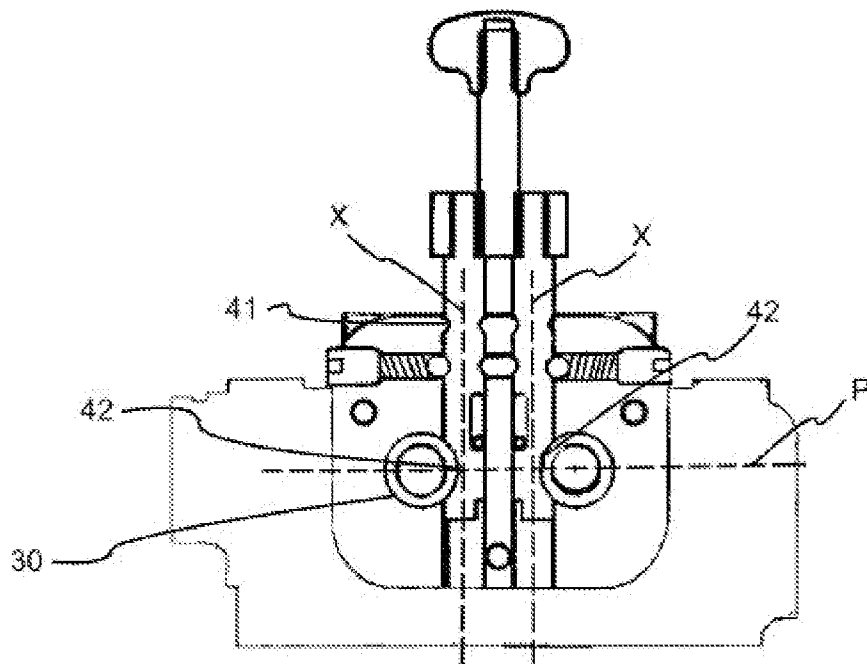


Figure 2