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54 **A DEVICE AT CRANE STAND MOUNTED AT THE REARMOST END OF A LIGHT CROSS-COUNTRY VEHICLE.**

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Description

Background of the invention

In the last years small light cross- country vehicles have come into the market, the vehicles being in principle four wheeled motor bikes adapted for cross-country driving, gear change and wheel equipment. Such light cross-country vehicles have large accessibility on forest roads and off roads and thus can be used for a number of different tasks within forestry, agriculture, gardening and the like. This type of vehicle has as standard a rear tow hook placed in level with the rear axle.

Cross-country vehicles of this kind are however not in the same way prepared to be equipped with a hoisting gear in the form of a crane as with prior art tractor mounted arrangements, eg. DE-A-3,221,065, which is however desirable among others in order to easily be able to load and unload heavier objects on a trailer coupled to the tow hook.

The object of the invention and most important features

The object of the present invention is to provide an attachment device for a crane of the type on a cross-country vehicle mentioned by way of introduction, which constitutes a simple, reliable and non- expensive complement to a cross-country vehicle of this kind and this has been achieved by the features stated in patent claim 1.

Description of drawings

In the following the invention will be described more closely with reference to the appended drawings showing embodiments of the invention.

Fig. 1 shows diagrammatic from the side a crane stand according to the invention intended for a cross-country vehicle and provided with a crane therein, and

Fig. 2 is a view straight from the rear of the crane stand with a crane and shown in a slightly larger scale.

Fig. 3 shows in a view corresponding to Fig. 2 a modified design of a device according to the invention.

Description of embodiments

Fig. 1 and Fig. 2 show from the side and from the rear respectively a device at a rear mounted crane stand for a light cross-country vehicle whereby the cross-country vehicle only is shown in Fig. 1 and in this only as fragmentary mounting details 4,5. The device comprises a frame 1, which in the

shown embodiment contains two upper 2 and two lower stays 3, which with each end is attached to the fixed details 4,5 provided on the vehicle, whereby the attaching points for the upper and the lower stays respectively are symmetrically arranged about the longitudinal axis of the vehicle, and the opposite ends of the stays are fixed in a plate 6, which supports a standing first guide tube 7 for a crane post 8. The stays 2, 3 extend from their mounting points at the vehicle inclined to the rear, so that said plate 6 will be situated behind the rear edge of the vehicle. One rear angled arm 9 extends from the mounting points of the upper stays 2, which at the centre above the first guide tube 7 support a second upper guide tube 10 for the crane post, which thus accurately will be guided by the two guide tubes. In the space in front of the guide tubes 7, 10 are arranged guides 13,14 for two in withdrawn position lockable support legs 11, 12, whereby the support leg guides 13, 14 are arranged to be inclined in opposite directions symmetrically around a connection line between the guide tubes 7,10 and to cross each others directions in a point on the connection line between the guide tubes, whereupon said inclination is such that the two guides 13,14 form a mutual angle exceeding 90°, that is every support leg forms an angle with the vertical line between the guide tubes 7, 10 which exceeds 45°, whereby the support legs when they are lowered towards the ground will take inclination angles versus the ground less than 45°, which means that they become self locking against displacement caused by the weight of the machine and by loads, which are supported by a crane post 8 with lifting arm 15 placed in said guide tube, and since the support legs thus are adjustable independently of each other they will individually adapt to the basis and give a support adapted to this. In order to further improve the ability of the crane stand to distribute the load when loaded as advantageously as possible in relation to the traction vehicle, there can be provided a further slidable support leg 22 in a guide 21 in the same way as the support legs 11 and 12, said leg being directed obliquely at the rear, and which forms an angle slightly exceeding 45° with the vertical line trough the both guide tubes 7 and 10, whereby this further support leg in a downfolded position towards the basis likewise will be selflocking, by forming an angle less than 45° against the basis.

Further there is a tow hook 16 connected to the plate 6, which hook 16 by a further forward directed stay 17 is coupled to the regular attachment for a tow hook. Since the regular attachment for the tow hook is situated relatively far ahead in the rear part of the cross-country vehicle, and at least in the front of the crane stand, the regular tow hook could not be used in the intended way, when the crane

stand with support leg was coupled to the vehicle. By moving the tow hook to the region for the plate, the tow hook will be available and a trailer coupled to this will not be obstructed in its turning by members situated at the rear.

In Fig. 3 is shown a view corresponding to that of Fig. 2 of a modified design of the device according to the invention whereby the device instead of the self locking support legs which are displaceable in slides, is equipped with hinged legs 18, 19, which can be folded down individually by means of hydraulic pistons 20 into contact with the basis and be folded up respectively.

The invention is not limited to the embodiments shown in the drawings in connection with the specification but modifications are possible within the scope of the following patent claims.

Claims

1. Crane stand for rearwardly mounting on a light cross-country vehicle, in which the stand comprises a frame (1) containing at least two upper (2) and two lower stays (3), with one end of each stay being adapted to be fixedly attached to the vehicle (4,5), whereby the attachment points for the upper and lower stay pairs are adapted to be symmetrically arranged about the longitudinal axis of the vehicle, and the opposite end of each stay is fixed to a plate (6), which supports a standing first guide tube (7) for a crane post (8) and that said stays (2,3) are adapted to extend obliquely rearwardly from their attachment points on the vehicle, so that the plate is situated behind the rear edge of the vehicle, so that between the frontal attachment points of the upper stays (2) extends a rear arm (9), which above the center of said first guide tube (7) supports a second, upper guide tube (10) for said crane post, and that adjacent both of said guide tubes are provided at least two support legs (11,12,22;18,19) arranged to be individually adjustable against the ground.
2. Crane stand according to claim 1, **characterized therein**, that the support legs (11,12,22) are telescopically displaceable, and in withdrawn position lockable in at least partly in front of said guide tube (7,10) arranged guides (13, 14, 21), whereby said support leg guides (13, 14) are arranged to be inclined in opposite directions around a connection line between said guide tube and to cross each others directions in a point in connection to said connection line in front of and between said guide, whereupon said inclinations are such that every guide (13,

14, 21) forms an angle towards a vertical line between the two guide tubes (7,10) slightly exceeding 45°, whereby the support legs (11,12,22) are self locking versus displacement in down folded position towards the basis, said displacement being caused by the weight of the machine and by loads, which are supported by a crane post (8) with a lifting arm (15) placed in said guide tube (7,10).

3. Crane stand according to claim 1, **characterized therein**, that the support legs (18,19) are connected by means of hinges to the frame of the device, and by means of hydraulic pistons (20) are up and down foldable between lift position and drive position.
4. Crane stand according to one of preceding claims, **characterized therein**, that in connection to the plate (6) is provided a tow hook (16).
5. Crane stand according to one of preceding claims, **characterized therein**, that the frame (1) with support legs (11,12,22;18,19) and crane stand (7,19) and tow hook (16) respectively constitute an integrated unit, which is easily connectable to a cross-country vehicle.

Patentansprüche

1. Kranständer zur Montage an die Rückseite eines leichten Geländefahrzeuges, wobei der Ständer einen Rahmen (1) aufweist mit mindestens zwei oberen (2) und zwei unteren Streben (3), von denen jeweils ein Ende fest mit dem Fahrzeug (4,5) verbunden ist, und wobei die Haltepunkte für das obere und das untere Strebenpaar so gestaltet sind, daß sie um die Längsachse des Fahrzeuges angeordnet sind und das gegenüberliegende Ende jeder Strebe fest mit Platte (6) verbunden ist, die ein aufrecht stehendes erstes Führungsrohr (7) für eine Kransäule (8) stützt, und die besagten Streben (2,3) sind so gestaltet, daß sie von ihren Befestigungspunkten an dem Fahrzeug schräg nach hinten verlaufen, wobei sich die Platte hinter der Rückkante des Fahrzeuges befindet, so daß zwischen den vorderen Befestigungspunkten der oberen Streben (2) ein hinterer Arm (9) verläuft, der über der Mitte des besagten ersten Führungsrohres (7) ein zweites, oberes Führungsrohr (10) für die besagte Kransäule stützt, und daß bei beiden

besagten Führungsrohren mindestens zwei Stützbeine (11, 12, 22; 18, 19) angeordnet sind, die einzeln zum Boden hin einstellbar sind.

2. Kranständer nach Anspruch 1, dadurch gekennzeichnet, daß die Stützbeine (11,12,22) teleskopisch beweglich und in zurückgezogener Stellung zumindest teilweise in den vor besagtem Führungsrohr (7,10) gelegenen Führungen (13, 14, 21) verriegelbar sind, wobei besagte Stützbeinführungen (13, 14) so angeordnet sind, daß sie sich in Gegenrichtung in geneigter Stellung um eine Verbindungslinie mit besagtem Führungsrohr befinden und jeweils die Richtung der anderen in einem Punkt in bezug auf die besagte Verbindungslinie vor und zwischen der besagten Führung kreuzen, wobei aufgrund der besagten Neigungen jede Führung (13, 14, 21) einen Winkel zu einer vertikalen Linie zwischen beiden Führungsrohren (7, 10) bildet, der etwas über 45° liegt, wobei sich die Stützbeine (11, 12, 22) von selbst verklebmen, so daß sie gegen Verschieben gesichert sind, wenn sie zum Boden hin ausgeklappt sind, wobei die besagte Verschiebung durch das Gewicht der Maschine und die Lasten bewirkt wird, die durch Kran säule (8) mit Hebearm (15), befindlich in besagtem Führungsrohr (7, 10), gehalten werden.
3. Kranständer nach Anspruch 1, dadurch gekennzeichnet, daß die Stützbeine (18, 19) durch Scharniere mit dem Rahmen der Vorrichtung verbunden sind und mittels hydraulischer Kolben (20) zwischen Hebevorgang und Fahrvorgang und nach oben und nach unten ausklappbar sind.
4. Kranständer nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß ein Abschlepphaken in Verbindung mit Platte (6) vorgesehen ist.
5. Kranständer nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der Rahmen (1) mit Stützbeinen (11, 12, 22; 18, 19) und Kranständer (7, 19) und Abschlepphaken (16) jeweils eine integrale Einheit darstellen, die leicht an einem Geländefahrzeug anzubringen ist.

Revendications

1. Support de grue destiné à être monté à l'arrière d'un véhicule tout-terrain léger, caractérisé

5 en ce que le support comporte un cadre (1) comprenant au moins deux éléments de support supérieurs (2) et deux éléments de support inférieurs (3), l'une des extrémités de chaque élément de support étant prévue pour être fixée au véhicule (4, 5), les points de fixation des paires d'éléments de support supérieurs et inférieurs étant prévus pour être disposés symétriquement par rapport à l'axe longitudinal du véhicule, l'extrémité opposée de chaque élément de support étant fixée à une plaque (6) qui supporte un premier tube de guidage (7) porteur d'un montant de grue (8), en ce que lesdits éléments de support (2, 3) sont prévus pour s'incliner de manière oblique vers l'arrière à partir de leur point de fixation sur le véhicule, de telle sorte que la plaque soit située derrière l'extrémité arrière du véhicule et qu'entre les points de fixation frontaux des éléments de support supérieurs (2) s'étende un bras postérieur (9) qui, au-dessus du centre dudit premier tube de guidage (7), supporte un deuxième tube de guidage supérieur (10) pour ledit montant de grue, et en ce qu'à proximité des deux tubes de guidage sont prévus au moins deux béquilles (11, 12, 22 ; 18, 19) conçues pour être réglées individuellement afin de s'adapter au sol.

2. Support de grue selon la revendication 1, caractérisé en ce que les béquilles (11, 12, 22) sont des béquilles télescopiques qui, dans leur position rétractée, sont susceptibles d'être bloquées dans les guidages (13, 14, 21) disposés, tout au moins en partie, devant lesdits tubes de guidage (7, 10), les guidages (13, 14) desdites béquilles étant conçus pour s'incliner dans des directions opposées de part et d'autre d'une ligne de jonction entre lesdits tubes de guidage de telle sorte que leurs directions se croisent en un point de jonction sur ladite ligne de jonction devant et entre lesdits guidages, lesdites inclinaisons étant telles que chaque guidage (13, 14, 21) forme un angle légèrement supérieur à 45° par rapport à une ligne verticale reliant les deux tubes de guidage (7, 10), les béquilles (11, 12, 22) étant autobloquantes dans leur position descendue afin d'empêcher un déplacement vers la base qui serait dû au poids de la machine et à son chargement, qui est supporté par un montant de grue (8), un bras élévateur (15) étant placé dans ledit tube de guidage (7, 10).

3. Support de grue selon la revendication 1, caractérisé en ce que les béquilles (18, 19) sont raccordées au cadre du dispositif au moyen de charnières et peuvent être déplacées au

moyen de pistons hydrauliques (20) vers le bas ou vers le haut, entre une position de levage et une position de conduite.

4. Support de grue selon l'une quelconque des revendications précédentes, caractérisé en ce qu'il est prévu un crochet d'attelage (16) raccordé à la plaque (6). 5
5. Support de grue selon l'une quelconque des revendications précédentes, caractérisé en ce que le cadre (1) avec les béquilles (11, 12, 22 ; 18, 19), le support de grue (7, 19) et le crochet d'attelage (16) constituent ensemble une unité complète, qui peut être facilement raccordée à un véhicule tout-terrain. 10 15

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FIG.1

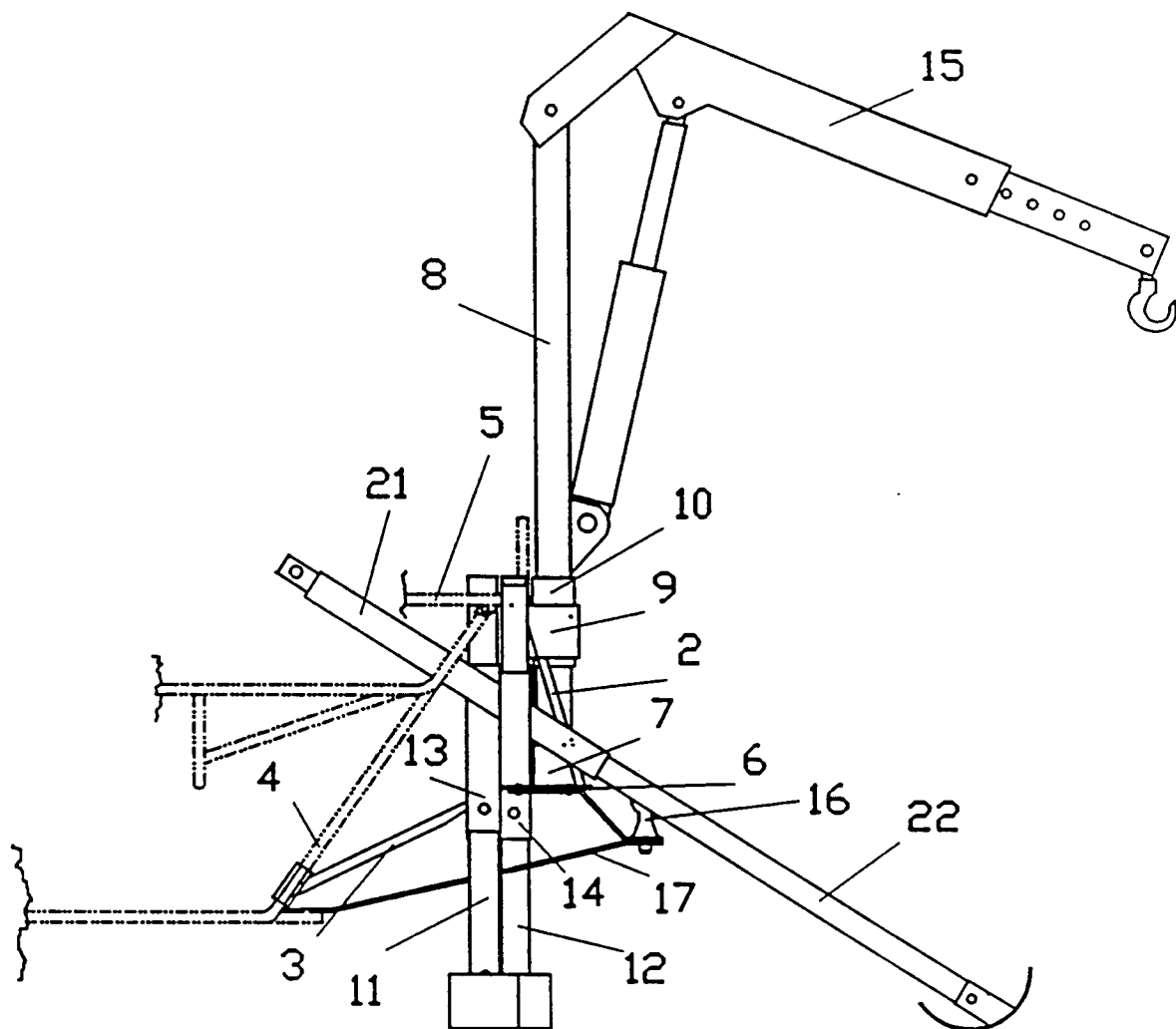


FIG.2

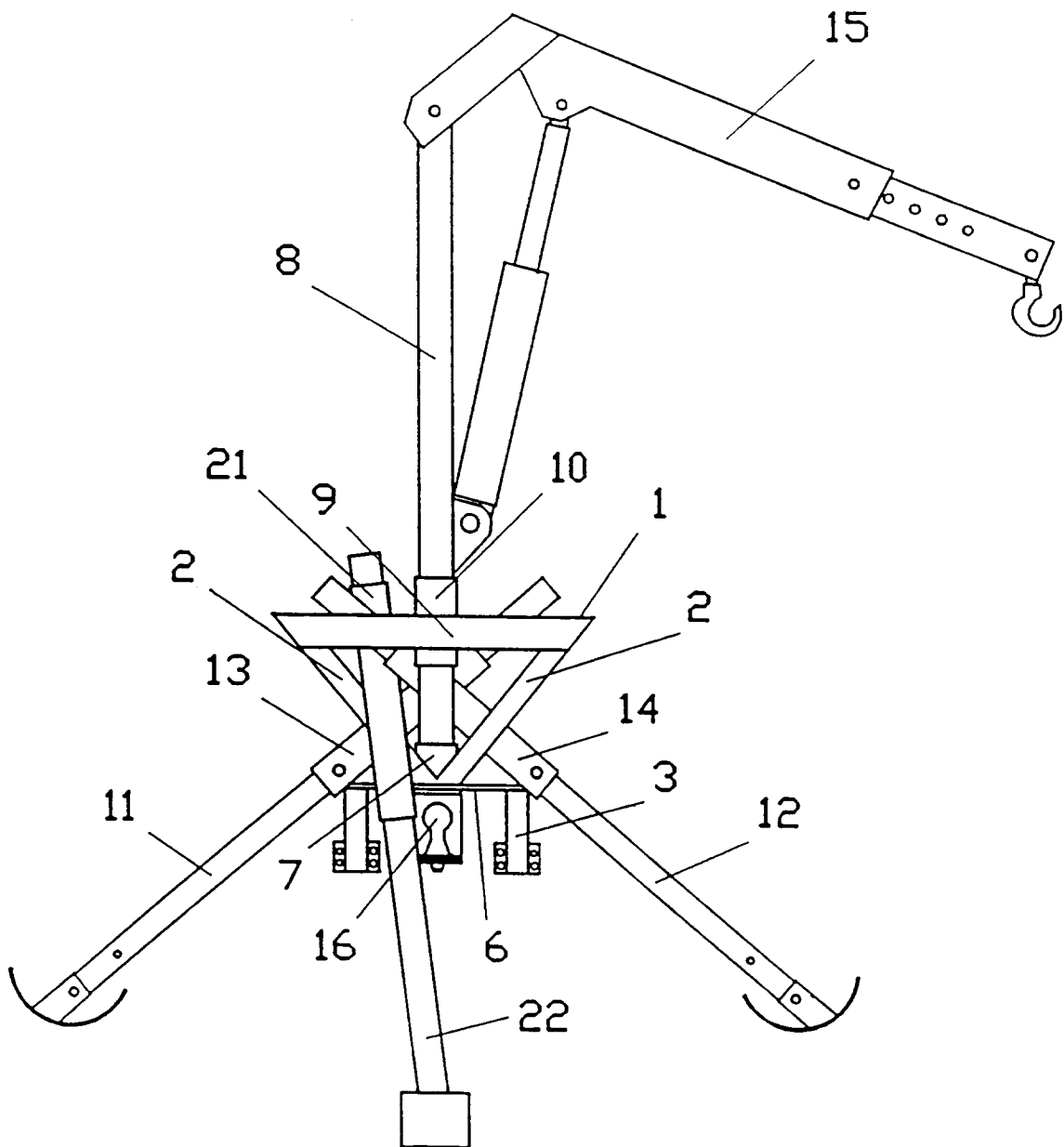


FIG.3

