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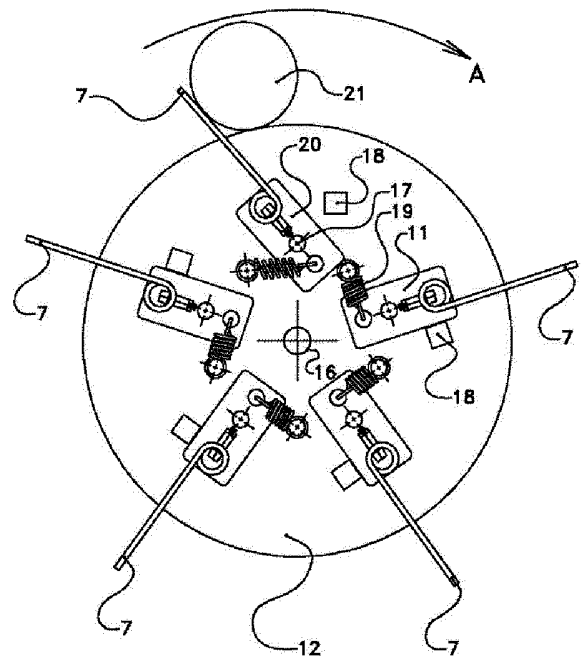
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74 Gemachtigde:
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54 **A crop pickup device having an overload protection device.**

57 The invention relates to a pickup crop delivery assembly comprising a rotatable pickup frame, a tine bar pivotable mounted to the frame and having a plurality of tines, and biasing means biasing said tine bar in a biased first position with respect to said frame. Furthermore, the invention relates to an agricultural crop pickup vehicle comprising a vehicle frame and said pickup crop delivery assembly.



NL C 2009265

Dit octrooi is verleend ongeacht het bijgevoegde resultaat van het onderzoek naar de stand van de techniek en schriftelijke opinie. Het octrooischrift komt overeen met de oorspronkelijk ingediende stukken.

A crop pickup device having an overload protection device

FIELD OF THE INVENTION

5 The invention relates generally to a pickup apparatus for crop and forage pickup and handling, and more particularly, to a pickup apparatus with an overload protection device for the pickup tines for improved feeding of balers or forage harvesters.

10 BACKGROUND TO THE INVENTION

 For many years balers have been used to consolidate and package crop material, such as silage, grass, hay, or straw, and the like, so as to facilitate the storage and handling of the crop material for later use. Usually, a mower-conditioner
15 cuts and conditions the crop material for windrow drying in the sun. When the cut crop material is properly dried, a baler, most likely a round baler, is pulled along the windrows to pick up the crop material and form it into cylindrically-shaped round bales. More specifically, the pickups of the baler gather the cut and windrowed crop material from the ground then convey the cut crop into a bale-forming chamber within
20 the baler. The pickup assembly has a drive mechanism that operates to activate both the pickups, augers, and a rotor, and the pickup drive mechanism may be operably connected to and driven by the main drive mechanism of the baler. A conventional round baling chamber may comprise of a pair of opposing sidewalls with a series of belts that rotate and compress the crop material into a cylindrical shape. When the
25 bale has achieved a desired size and density, the operator may wrap the bale to ensure that the bale maintains its shape and density. The operator ejects the bale from the baler and onto the ground by, for example, raising the tailgate of the baler. The tailgate is then closed and the cycle repeated as necessary and desired to manage the field of cut crop material. The rotor conveyer mechanism between the
30 pickup and the bale-forming chamber is, itself, known in the prior art. The rotor mechanism may comprise a stuffer or a rotor feeding mechanism that stuffs the crop material into the gap between the floor roll and the starter roll into the bale-forming

chamber. A rotor and stuffer differ in the method of pushing the material; rotors use strictly a rotational motion while stuffers convert a rotating drive into linear crop motion. In most conventional round balers with wide pickups, for example, augers are used to transfer crop from the outside portions of the pickups inward toward the bale chamber. Conventionally, all of the tines or pickup tines are mounted in the baler on a side of a tine bar.

Due to the conditions within which the baler is typically operated, it is possible for the pickup mechanism to engage the ground with excess force or to encounter an object, such as a tree branch or the like, which applies an excessive force to the pickup mechanism. An overload condition such as this can cause serious damage to the pickup tines or to the drive system of the baler or to other components of the baler.

German patent document DE-1049139 (Heinrich Lanz AG) discloses a pickup crop delivery assembly wherein the pickup tines are provided each with a mechanism having a compressed spring such that in case of an overload the subject tine is pushed backwards until the overload disappears and the tine is pushed back to its working position under influence of a compressed spring. A disadvantage of the known pickup assembly is that it is not a cost effective solution as it requires multiples components for each tine. Another disadvantage is that it is difficult to put into practice due to a multitude of components which in operation rotate together with pickup tines and requiring maintenance and repairs.

DESCRIPTION OF THE INVENTION

It is an object of the present invention to provide a pickup crop delivery assembly having an improved overload protection mechanism.

This and other objects and further advantages are met or exceeded by the present invention providing a pickup crop delivery assembly having an pickup tine overload protection mechanism, the assembly comprising a rotatable pickup frame configured for rotation in a working direction, at least one tine bar pivotable mounted to the pickup frame and having a plurality of pickup tines connected to the tine bar,

and biasing means biasing said tine bar in a biased first position with respect to said pickup frame.

In accordance with the invention the tine bar is biased in a biased first position, viz. its regular working position, with respect to the pickup frame. Since the
5 tine bar is pivotable mounted to the frame it can rotate about its own tine bar rotational axis. This achieves the effect that if one or more pickup tines connected to a tine bar become overloaded when moving in its regular working direction, for example because a stone is obstructing its path of movement, the whole tine bar can swing or rotate in a direction opposite to the working direction to a biased second
10 position until the obstacle has been passed. Once the overload has been released the tine bar moves back to its biased first position under influence of the biasing means. In this manner an effective overload protection is provided for the pickup tines requiring only a limited amount of components in motion together with the tine bar, in particular when compared to a situation in which each individual tine bar is provided
15 with a compressed spring mechanism. This approach is very cost efficient as fewer components means amongst others less wear and reduced costs for maintenance and repair.

The tines or pickup tines are connected to the tine bar and extend outward from the tine bar. The pickup tines may be equally spaced from one another,
20 preferably evenly across the length of the tine bar. The pickup tines may be connected to the tine bar using conventional techniques. For example, the tine bar may include a through hole for receiving a fastener, such as a bolt. This tines may include a corresponding hole for receiving the bolt. In addition, a mounting bracket or tine support may be provided between the tine bar and the individual tines.

25 Pickup tines may comprise spring coils, which allow the tines to twist or deflect backward to account for the tines coming up against an small obstruction. The coil section of the tine may comprise one or more coils (i.e., spiral turns of the tine). For example, the coil section may include two or more coils.

The pickup tines may include an extended section that extends from the
30 coil section and away from the pickup tine bar. The extended section may include a forward bend (i.e., in the direction of travel) to facilitate picking up or gathering of the

crop, and feeding of the crop toward the augers. Pickup tines having a forward bend in the extended section may be referred to as curved pickup tines. The pickup tines may comprise a single, solid rod that may be formed into the desired shape, including a coil section and extended section.

5 As known in the art, also pickup guards can be provided.

In an embodiment of the pickup assembly the tine bar is rotatable about a tine bar rotation axis mounted to a connecting support coupled to the pickup frame and the biasing means comprise rotatable lever means rotatable disposed in parallel relationship to the tine bar rotation axis.

10 In an embodiment of the pickup assembly the biasing means comprise force-biasing means pivotable affixed to the connecting support or pickup frame and configured to apply a pivot resistive force to the tine bar and tending the tine bar to the biased first position.

In an embodiment of the pickup assembly a first end of the biasing means is coupled to the connecting support and a second end of the biasing means is coupled to the rotatable lever and allowing, in case of an overload of one or more tine on the tine bar, a rotation of the tine bar into a direction opposite to a working direction until release of the overload.

15 Any suitable biasing means may in principle be used. In an embodiment of the pickup assembly the biasing means comprise resilient means.

In an preferred embodiment of the pickup assembly the biasing means comprise spring means or a spring system, in particular comprising a mechanical spring. Suitable mechanical springs are tension springs, compression springs, torsion springs, and leaf springs.

25 Other biasing means configured to apply a pivot resistive force to the tine bar may be applied, for example gas struts or means using hydraulic pressure.

In an embodiment of the pickup assembly the biasing means is adjustable in applied force.

30 A rotatable tine bar comprises a longitudinal length spanning a width of the pickup frame and having an axis of rotation parallel to the length, and having two end portions with respect to the length. Typically a tine bar is rotatable mounted at

each of its end portions to a connecting support. Preferably multiple tine bars are mounted to a connecting support, for example such that the pickup frame includes four, five, six or more individual tine bars.

5 In an embodiment of the invention, the biasing means are provided to each tine bar, and more preferably each tine bar is provided with the biasing means located at or near each of its end portions.

10 In an embodiment a pickup drive shaft, e.g. a hex shaft, is operatively coupled to the pickup tine bar(s). For example, the pickup tine bar(s) may be connected to the pickup drive shaft via a connecting support. The pickup drive shaft extends across the pickup frame, and the drive shaft and tine bar(s) rotate as one.

15 In an embodiment the pickup assembly is, in operation, driven using a cam track whereby cam followers at the end of each tine bar may engage a cam track mounted on the pickup assembly and cause the tine bar to rotate in bearings mounted on the connecting support. When driven by the pickup drive shaft, the bars may rotate about the pickup drive shaft and the tine may bars rotate or pivot about the tine bar axis of rotation.

The pickup assembly may further comprise a pickup drive system for supplying power to the rotatable pickup frame, in particular to the pickup drive shaft.

20 In another aspect of the invention it relates to a pickup crop delivery assembly according to this invention and wherein the pickup is attached to a baler. Preferably the baler further comprising a bale former chamber and a feed mechanism configured to move crop from the pickup assembly into a bale forming chamber.

25 The invention further relates to an agricultural crop pickup vehicle comprising a vehicle frame and said pickup crop delivery assembly according to this invention rotatable mounted in said vehicle frame.

Embodiments of the present invention are particularly well suited, but in no way limited to, use with balers. The present invention may also find utility in use with round, square, or rectangular baler pickups and forage harvester pickups, for example.

30 The invention will now be illustrated with reference to non-limiting figures and embodiments according to the invention, and in which:

Fig. 1 shows schematically a bale press as known in the art;

Fig. 2 shows a perspective view of a part of an pickup assembly as known in the art;

Fig. 3 shows schematically an pickup assembly according to the
5 invention.

Fig. 1 illustrates a piston bale press or baler (1) having a frame (2), a pickup assembly (3), a bale-forming chamber (4) and a pair of supporting wheels (5) enabling the baler to be towed along the ground (6) by a tractor (not shown) or other
10 similar prime mover. As the baler (1) is towed across a field, pickup tines (7) lift crop material, usually in a windrow, from the ground and move the crop material onto a crop feeding transition area at the rearward portion of pickup assembly (3). This feeding is done either directly, such as in a case from crop material aligned with the center of the pickup assembly (3), or indirectly, through the operation of crop
15 transition elements such as auger screws and crop deflecting plates. Auger screws may converge the material from the full width of the pickup assembly and urge it towards the central portion of the pickup assembly, establishing a mat width of crop material matching the desired bale width. Immediately rearward from the crop feeding transition area is a stuffer apparatus (8). The stuffer apparatus engages the crop
20 material moving rearward from the pickup assembly (3) and feeds it rearward into the bale-forming chamber (4). The crop material fed into the chamber (4) and piston press (9) is configured to press crop material in rectangular bales in a bale chamber. This formation of a square package takes place in a well-known manner, after which the package is discharged through a tailgate (10) in the rear portion of the bale-
25 forming chamber (4). Once a bale is discharged, the baler (1) is again ready to form another bale.

In the agricultural industry round balers are also well known to the skilled person, such balers include a stuffer apparatus that feeds the crop material into the bale-forming chamber in which the crop material is continuously rolled to form
30 a cylindrical package of the crop material (not shown). The pickup arrangement for a round baler is analogue to the described square baler.

As is conventionally known, a bale is formed within the bale forming chamber when cut crop is fed into the chamber by the pickup assembly that is powered by a pickup drive assembly, which is powered by the main drive assembly of the baler, which receives power from the tractor via a tractor power transmission assembly.

Fig. 2 illustrates schematically a pickup assembly (3) as known in the art. The assembly comprises a tine bar (11) of a longitudinal length spanning a width of the pickup. A plurality of pickup tines (7) comprising a plurality of elongate spaced-apart tines are connected to the tine bar. Multiple tines bars at their respective end portions are connected to a connecting support (12) coupled to the pickup frame (15). The connecting support is rotating about a pickup drive shaft (13). As also known in the art, also pickup guards (14) can be provided to the assembly.

Fig. 3 illustrates an embodiment of the pickup assembly according to the invention. Tine bars, in this example five tine bars, are coupled at their respective end portions to a connecting support (12). In use, the connecting plate rotate about axis (16) of a pickup drive shaft (not shown) such that the pickup drive shaft and the tine bars rotate as one into the working direction "A". In accordance with this invention the tine bars can rotate also about an axis of rotation (17) formed by the tine bar rotation axis. The tine bars carry multiple pickup tines (7). Biasing means, in this example a mechanical spring mechanism, is provided to bias the tine bar in a biased first position with respect to the frame against an end-stop position (18). The spring (19) has a first end connected to the connecting support (12) and a second end connected to a rotatable lever (20) that can rotate around the axis (17), and wherein the spring allows, in case of an overload, e.g. due to a rock (21), of one or more tines connected to the tine bar, a rotation of the whole subject tine bar into a direction opposite to the working direction from a biased first position to a biased second position. Once the overload is released the tine bar under influence of the spring force swings or rotates back from its biased second position to the biased first position at the end-stop (18). This provides a very simple and cost effective way of pickup overload protection limiting the breaking off of tine when overloaded or preventing damage to the drive mechanism, as only a limited amount of components are used, that in operation are in

motion together with the tine bar. Fewer moving components means amongst others less wear and reduced costs for maintenance and repair.

While various embodiments of the present invention have been described in detail, it is apparent that modifications and adaptations of those
5 embodiments will occur to those skilled in the art. However, it is expressly understood that such modifications and adaptations are within the spirit and scope of the present invention.

CONCLUSIES

1. Gewas-opraap-en-afgifte samenstel (3) omvattende een verdraaibaar opnameframe (15), een tandarm (11) scharnierbaar gemonteerd aan het frame en voorzien van meerdere verende tanden, en draaibare middelen (19) voor het om een steunpunt draaien van de tandarm (11) tot een eerste gedraaide positie ten opzichte van het frame.
2. Samenstel volgens conclusie 1, waarin de tandarm (11) roteerbaar is om een tandarm rotatie-as (17) die gemonteerd is aan een aan het frame gekoppeld verbindingselement (12) en de draaibare middelen verdraaibare hefboommiddelen (20) omvatten verdraaibaar geplaatst evenwijdig aan de tandarm rotatie-as (17).
3. Samenstel volgens conclusie 2, waarin de draaibare middelen onder een voorspanning geplaatste middelen (19) omvatten die draaibaar zijn verbonden met het verbindingselement (12) en zijn ingericht voor het toepassen van een draaibeweging-beperkende kracht op de tandarm en de tandarm (11) naar de eerste gedraaide positie bewegen.
4. Samenstel volgens één der conclusies 2 tot 4, waarin een eerste uiteinde van de draaibare middelen gekoppeld is aan het verbindingselement (12) en een tweede uiteinde van de draaibare middelen gekoppeld is aan de verdraaibare hefboom.
5. Samenstel volgens één der conclusies 1 tot 4, waarin de draaibare middelen terugverende middelen omvatten.
6. Samenstel volgens één der conclusies 1 tot 5, waarin de draaibare middelen veermiddelen omvatten.
7. Samenstel volgens één der conclusies 1 tot 6, waarin de draaibare middelen instelbaar zijn.
8. Samenstel volgens één der conclusies 1 tot 7, waarin het samenstel meerdere scharnierbaar aan het opnameframe (15) gemonteerde tandarmen (11) omvat.
9. Samenstel volgens één der conclusies 1 tot 8, waarin het verdraaibare opnameframe (15) draaibaar is om een opnameframe aandrijf-as (13).

10. Samenstel volgens één der conclusies 1 tot 9, waarin het opnameframe (15) nokenloos wordt aangedreven.
11. Samenstel volgens één der conclusies 1 tot 9, waarin het opnameframe
5 (15) nokkenbaan wordt aangedreven.
12. Samenstel volgens één der conclusies 1 tot 11, tevens omvattende een gewas-opraap aandrijfsysteem (13) voor het verschaffen van drijfkracht aan het verdraaibare opnameframe (15).
13. Samenstel volgens één der conclusies 1 tot 12, waarin het samenstel
10 verbonden is met een balenpers (1).
14. Samenstel volgens één der conclusies 1 tot 12, waarin het opraap samenstel verbonden is met een oogstmachine.
15. Een gewas-opraap agrarisch voertuig omvattende een voertuigframe en het gewas-opraap-en-afgifte samenstel volgens één der conclusies 1 tot 12
15 verdraaibare gemonteerd aan het voertuigframe.

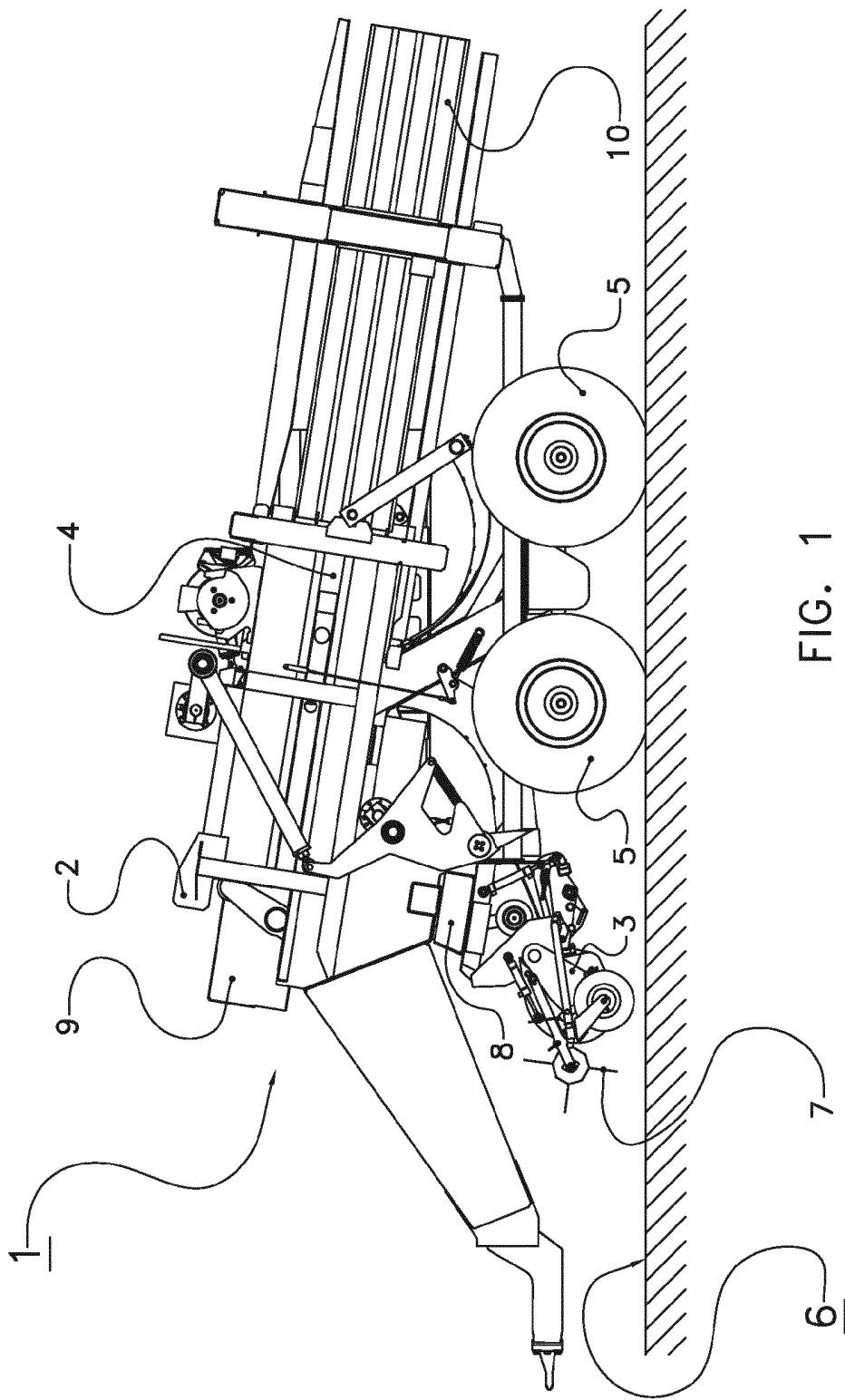
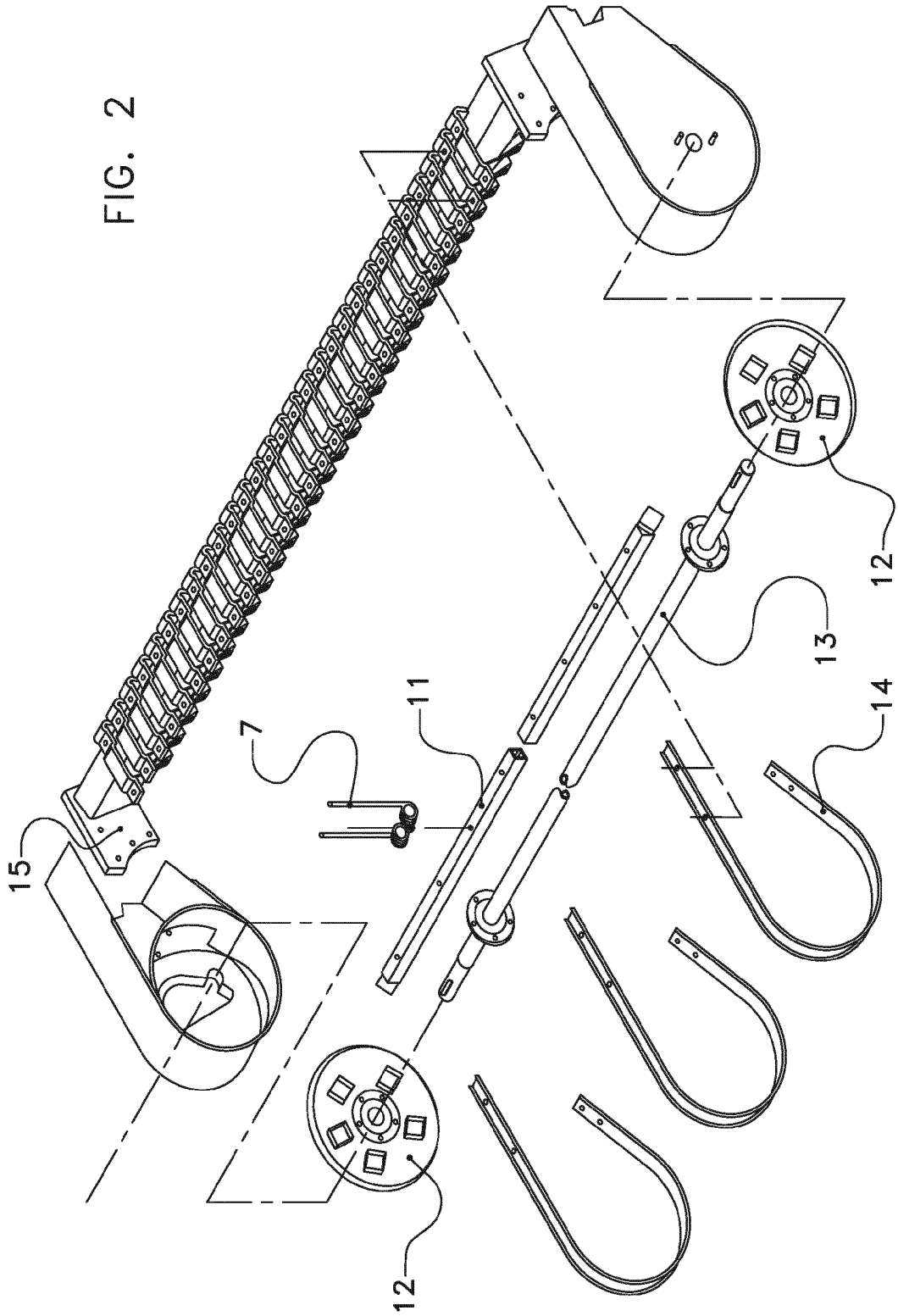


FIG. 1

FIG. 2



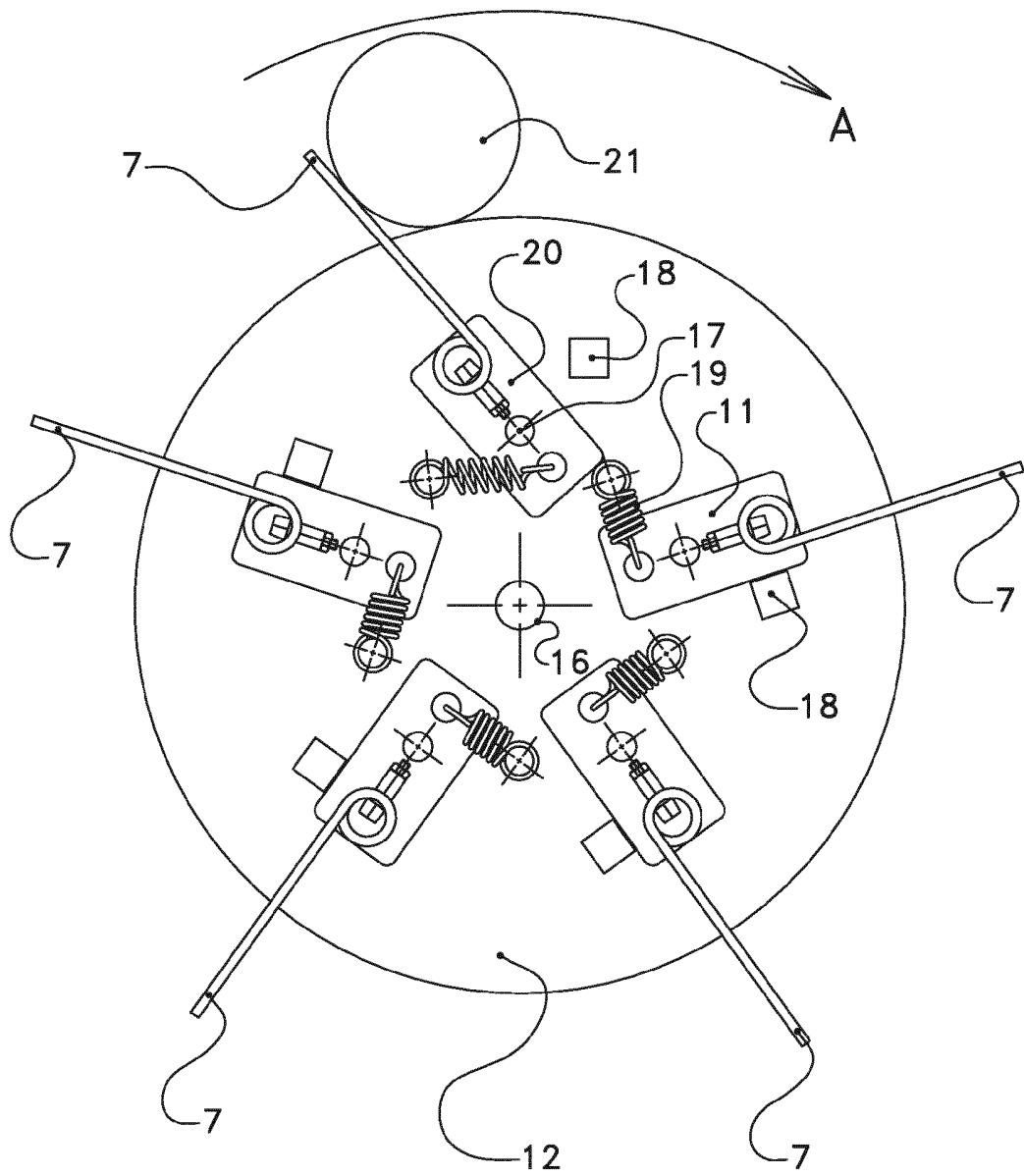


FIG. 3

SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

| | |
|---|---|
| IDENTIFICATIE VAN DE NATIONALE AANVRAGE | KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE D4657/NLP |
| Nederlands aanvraag nr. 2009265 | Indieningsdatum 02-08-2012 |
| | Ingeroepen voorrangsdatum |
| Aanvrager (Naam) Forage Innovations B.V. | |
| Datum van het verzoek voor een onderzoek van internationaal type 10-11-2012 | Door de Instantie voor Internationaal Onderzoek aan het verzoek voor een onderzoek van internationaal type toegekend nr. SN 59078 |
| I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven) | |
| Volgens de internationale classificatie (IPC) A01D75/18 A01D89/00 | |
| II. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK | |
| Onderzochte minimumdocumentatie | |
| Classificatiesysteem | Classificatiesymbolen |
| IPC | A01D A01B |
| Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen | |
| | |
| III. <input type="checkbox"/> | GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad) |
| IV. <input type="checkbox"/> | GEBREK AAN EENHEID VAN UITVINDING (opmerkingen op aanvullingsblad) |

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2009265

A. CLASSIFICATIE VAN HET ONDERWERP
INV. A01D75/18 A01D89/00
ADD.

Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.

B. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK

Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen)
A01D A01B

Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden)
EPO-Internal, WPI Data

C. VAN BELANG GEACHTE DOCUMENTEN

| Categorie ° | Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages | Van belang voor conclusie nr. |
|-------------|--|----------------------------------|
| X | US 1 850 458 A (HYMAN BENJAMIN M) 22 maart 1932 (1932-03-22) * figuren 1-5 * * bladzijde 1, regels 1-17 * * bladzijde 1, regel 90 - bladzijde 2, regel 38 * | 1-9, 11-15 |
| X | DE 197 40 589 A1 (HERMANN LOHMANN MASCHINENFABRI [DE]) 25 maart 1999 (1999-03-25) * kolom 7, regel 49 - kolom 8, regel 4; figuren 2-4 * | 1,2,4, 7-15 |
| X | EP 2 147 590 A1 (KEMPER GMBH MASCHF [DE]) 27 januari 2010 (2010-01-27) * alineas [0023] - [0024]; figuren 1,3-8 * | 1,2, 8-10,12, 14,15 |

Verdere documenten worden vermeld in het vervolg van vak C.

Leden van dezelfde octroofamilie zijn vermeld in een bijlage

° Speciale categorieën van aangehaalde documenten

A niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft

D in de octrooiaanvraag vermeld

E eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven

L om andere redenen vermelde literatuur

O niet-schriftelijke stand van de techniek

P tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur

T na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding

X de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur

Y de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht

Z lid van dezelfde octroofamilie of overeenkomstige octrooipublicatie

Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid

18 april 2013

Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type

Naam en adres van de instantie

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Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

De bevoegde ambtenaar

Reininghaus, F

**ONDERZOEKSRAPPORT BETREFFENDE HET
 RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
 VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Informatie over leden van dezelfde octrooifamilie

Nummer van het verzoek om een onderzoek naar
 de stand van de techniek

NL 2009265

| In het rapport genoemd octrooigescrift | Datum van publicatie | Overeenkomend(e) geschrift(en) | Datum van publicatie |
|---|-------------------------|-----------------------------------|---------------------------|
| US 1850458 | A | 22-03-1932 | GEEN |
| ----- | | | |
| DE 19740589 | A1 | 25-03-1999 | AT 214538 T 15-04-2002 |
| | | | DE 19740589 A1 25-03-1999 |
| | | | DK 903077 T3 15-07-2002 |
| | | | EP 0903077 A1 24-03-1999 |
| | | | ES 2174365 T3 01-11-2002 |
| ----- | | | |
| EP 2147590 | A1 | 27-01-2010 | AT 538640 T 15-01-2012 |
| | | | EP 2147590 A1 27-01-2010 |
| ----- | | | |

WRITTEN OPINION

| | | | |
|---|---|---|------------------------------|
| File No. SN59078 | Filing date (<i>day/month/year</i>) 02.08.2012 | Priority date (<i>day/month/year</i>) | Application No. NL2009265 |
| International Patent Classification (IPC) INV. A01D75/18 A01D89/00 | | | |
| Applicant Forage Innovations B.V. | | | |

This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the application
- Box No. VIII Certain observations on the application

| | |
|--|----------------------------|
| | Examiner Reininghaus, F |
|--|----------------------------|

WRITTEN OPINION

Application number
NL2009265

Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - on paper
 - in electronic form
 - c. time of filing/furnishing:
 - contained in the application as filed.
 - filed together with the application in electronic form.
 - furnished subsequently for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|--------------------------|-------------|------|
| Novelty | Yes: Claims | |
| | No: Claims | 1-15 |
| Inventive step | Yes: Claims | |
| | No: Claims | 1-15 |
| Industrial applicability | Yes: Claims | 1-15 |
| | No: Claims | |

2. Citations and explanations
see separate sheet

WRITTEN OPINION

Application number

NL2009265

Box No. VII Certain defects in the application

see separate sheet

Box No. VIII Certain observations on the application

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Clarity

Claims 1-7 and 10-11 are not clear.

1.1 Claims 1-7 are not supported by the description, as their scope is broader than justified by the description and drawings.

Further it is clear from the description on page 2 line 7 to page 3 line 17 and p. 4 l. 6-28 that the feature "biasing" is essential to the definition of the invention.

Since independent claim 1 does not contain this feature it does not meet the requirement of clarity that any independent claim must contain all the technical features essential to the definition of the invention.

In particular the English drafted description supports the features "biasing means", "biasing" and "biased first position" as parts of the invention (p. 2 l. 26 to p. 3 l. 2). In the Dutch drafted claim 1 these features have been replaced by "draaibare middelen" (pivotable/rotatable means), "draaien" (pivoting/rotating) and "eerste gedraaide positie" (pivoted/rotated first position).

In fact the tine bar is supported and claimed as being rotatable ("scharnierbaar") but the sole rotation is not sufficient to solve the objective technical problem posed. Starting at prior art as cited and explained on p. 2 l. 13-21 it is deemed to be essential that the rotatable tine bar is biased to arrive at an improved overload protection system.

For the same reason claims 2-7, using respective expressions of "draaien" are not supported (cp. descr. p. 4 l. 6-28 with "biasing").

For the assessment of novelty and inventive step claims 1-7 have been read as filed, in original wording and broad scope. However reference is also made to the teaching of D1 with respect to the invention as described, see 2.1.

1.2 In claims 10 and 11 the expressions "nokenloos" and "nokkenbaan" lack proper introduction and clear setting into context/sentence. These claims have been interpreted as offering both the alternatives of the tine arms rotation being further controlled or not controlled by a cam track arrangement as known in prior art, referring to description p. 5 l. 9-16.

2 Novelty and inventive step

The present application does not meet the criteria of patentability, because the subject-matter of claims 1-15 is not new for the following reasons:

2.1 Independent claim 1

D1 discloses (references in parentheses applying to this document, see also cited passages and figures in the Search Report):

Gewas-opraap-en-afgifte samenstel ("harvester pick-up", fig. 1) omvattende een verdraaibaar opnameframe ("shaft" 15 with "wheels" 16), een tandarm ("rake bar/shaft" 18) scharnierbaar gemonteerd aan het frame (in "bearing sleeves" 17) en voorzien van meerdere verende tanden ("teeth" 19, implicitly pick-up tines are made of spring steel), en draaibare [biasing] middelen ("spring" 32) voor het om een steunpunt (axis of bar/shaft 18) draaien [biasing] van de tandarm (18) tot een eerste gedraaide [biased] positie (working position without obstruction; fig. 4,5 in full lines) ten opzichte van het frame.

The subject-matter of claim 1 is therefore not new. This conclusion even applies when considering the "biasing" function instead of the sole rotation.

Attention is drawn to the fact that also D2 and D3 disclose claim 1 as filed in Dutch with pickups having rotatable tine bars for reasons of tine orientation adjustment (D2) or reversing procedures (D3).

2.2 Dependent claims 2-15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of novelty, the reasons being as follows:

2.2.1 D1 discloses all features and their function according to claims 2-9, 11, 12 and 14-15 under consideration of the "biasing" feature and with the following particular correspondents:

*tandarm rotatie-as (implicitly the centre line of rake bar/shaft 18)
verbindingselement (crank arms 20)
hefboommiddelen (pin 31 fixed to bar/shaft 18)
onder een voorspanning geplaatste middelen; terugverende middelen;
veermiddelen (spring 32)
instelbaar (via holes 34 for receiving end 33 of spring 32)
aandrijf-as (15)
nokkenbaan (cam 13)
oogstmachine ("harvester")*

See also cited passages and figures of D1. The additional features of claims 12 and 15 are implicit for agricultural pickups.

2.2.2 Claim 10 is disclosed by D2 and D3 both using pickups without cam track control of tine bars.

2.2.3 Claim 13 is disclosed by D2 employing the example of a baler, also commonly known to usually carry a pickup.

Re Item VII

Certain defects in the application

Claim 15 comprises all the features of at least claim 1 and is therefore not appropriately formulated as a claim dependent on the latter.

Independent claim 1 is not in the two-part form, which in the present case would be appropriate, with those features known in combination from the prior art being placed in the preamble and the remaining features being included in the characterising part.

Re Item VIII

Certain observations on the application

see Re Item V, chapter 1