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(54) Utilaj agricol pentru prelucrarea solului, în special tăvălug

(57) Rezumat:

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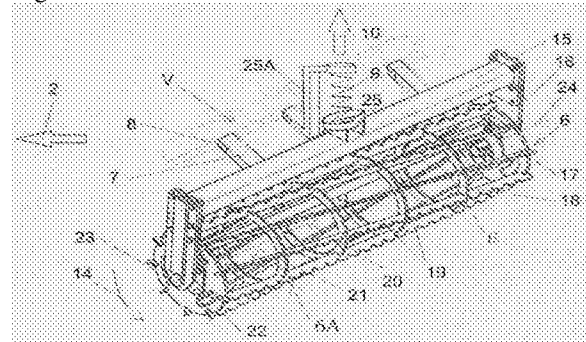
Prezenta invenție se referă la utilaj agricol pentru prelucrarea solului, în special la un tăvălug rotativ pentru prelucrarea solului după arat și/sau pregătirea patului de semințe. Tăvălugul rotativ (6) conține o structură a tăvălugului (6A), care include o multitudine de discuri coaxiale (17, 18), asociate cu lame de zdrobire longitudinale (19), care se extind de la un capăt spre capătul opus de-a lungul axei principale (24) a structurii tăvălugului (6A). Lamele de zdrobire (19) formează spațiul interior (20) al structurii tăvălugului (6A), totodată spațiul interior (20) menționat este accesibil prin găurile (21), prevăzute între lamele de zdrobire (19). Structura tăvălugului (6A) este configurată astfel încât să se rotească în jurul axei principale (24). De asemenea, structura tăvălugului (6A) conține un răzuitor interior staționar, dispus în spațiul interior (20) al structurii tăvălugului (6A) la o distanță de la lamele de zdrobire (19). Esența invenției constă în aceea că răzuitorul interior staționar, dispus în spațiul interior (20) al structurii tăvălugului (6A), interacționează cu lamele de zdrobire (19) astfel încât distanța radială dintre

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marginea radială interioară a lamei (19) și marginea radială exterioară al răzuitorului să fie redusă esențial, preferențial cel mult 2,5 cm. Din altă parte, cel puțin un capăt, preferențial ambele capete, a(le) răzuitorului interior staționar este/sunt unit(e) cu osia(ile) (23) a(le) tăvălugului rotativ (6) printr-un element elastic în spațiul interior (20) al structurii tăvălugului (6A) a tăvălugului rotativ (6).

Revendicări: 3

Figuri: 4



(54) Agricultural tillage implement, mainly rolling basket**(57) Abstract:**

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The present invention relates to an agricultural tillage implement, mainly rolling basket for tillage works after plowing and/or seedbed preparation. This rolling basket (6) comprises a basket structure (6A) including a plurality of coaxial discs (17, 18) associated with longitudinal crushing blades (19) extending from one end to an opposing end along a major axis (24) of the basket structure (6A). The crushing blades (19) define an inner space (20) of the basket structure (6A), and said inner space (20) being accessible through openings (21) provided between the crushing blades (19). The basket structure (6A) is configured in such a way to rotate around the major axis (24). Furthermore, the rolling basket (6A) comprises a stationary internal scraper (29) arranged in the inner space (20) of the basket structure (6A) at a distance (T) from the crushing blades (19). The essence of the

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invention lies in that the stationary internal scraper (29) arranged in the inner space (20) of the basket structure (6A) of the rolling basket (6A) in cooperation with one of the crushing blades (19) so that the radial distance (T) between the radially inner edge of the blades (19) and the radially outer edge of the scraper (29) has been significantly reduced, preferably at most to 2.5 cm. On the other hand, at least one end, but preferably both ends of the stationary internal scraper (29) is/are connected to stationary shaft pin(s) (23) of the rotary basket via an elastic member (26) in the inner space (20) of the basket structure (6A) of the rolling basket (6).

Claims: 3

Fig.: 4

(54) Сельскохозяйственное почвообрабатывающее орудие, а именно каток**(57) Реферат:**

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Настоящее изобретение относится к сельскохозяйственному почвообрабатывающему орудью, а именно к вращающемуся катку для обработки почвы после вспашки и/или подготовки семенного ложа.

Вращающийся каток (6) содержит структуру катка (6А), которая включает множество коаксиальных дисков (17, 18), связанных с продольными дробильными лезвиями (19), которые проходят от одного конца к противоположному концу вдоль главной оси (24) структуры катка (6А). Дробильные лезвия (19) образуют внутреннее пространство (20) структуры катка (6А), при этом упомянутое внутреннее пространство (20) доступно через отверстия (21), предусмотренные между дробильными лезвиями (19). Структура катка (6А) выполнена таким образом, чтобы вращалась вокруг главной оси (24). А также, структура катка (6А) содержит стационарный внутренний скребок, расположенный во внутреннем

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пространстве (20) структуры катка (6А) на расстоянии от дробильных лезвий (19). Сущность изобретения заключается в том, что стационарный внутренний скребок, расположенный во внутреннем пространстве (20) структуры катка (6А), взаимодействует с дробильными лезвиями (19) таким образом, чтобы радиальное расстояние между радиальным внутренним краем лезвия (19) и радиальным внешним краем скребка было значительно уменьшено, предпочтительно не более 2,5 см. С другой стороны, по крайней мере, один конец, предпочтительно оба конца, неподвижного внутреннего скребка соединен(ы) с осью/осями (23) вращающегося катка (6) упругим элементом во внутреннем пространстве (20) структуры катка (6А) вращающегося катка (6).

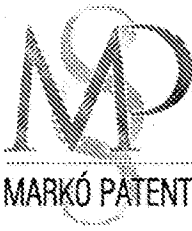
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Фиг.: 4

Examinator:



SÄU Tatiana



MARKÓ PATENT

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| PCT Appl. No: | PCT/HU-2019/050011 |
| Applicant: | HORVÁTH, Benedek , Kecskemét, Hungary |
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| Priority: | March 23, 2018 (P-1800101, Hungary) |
| Attorney's File No: | 10/2019-MJ |
| Date of Mailing: | December 19, 2019 |

Dear Sirs:

I send you attached the DEMAND under Art. 31 of the PCT.

On the other hand, this is a response to the PCT/ISA Written Opinion and Search Report of July 17, 2019. The above ISA Written Opinion has carefully been reviewed and this reply was prepared as a complete response thereto. Consideration of this reply at the International Preliminary Examination is respectfully requested.

1. Amendments under Art. 34 PCT:

Present Claims 1-3 has been replaced by amended Claims 1-2 (enclosed).

A copy of the present Claims 1-3 as amended with red marks is also enclosed.

2. Statement under Art. 34 PCT:

The scope of the present Claim 1 has been limited in view of cited document D1) and by amalgamation of the present Claim 2. .

The above amendments have sufficient support in the original disclosure, so NO new matter has been introduced.

As it was disclosed clearly in our original description, that one of the main objects of the present invention was “to provide an improved agricultural tillage implement, mainly rotating basket, with more efficient and higher operational safety for plowing and seedbed tasks. Further aim is to improve the self-cleaning ability of the rolling

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basket." (See p. 2, lines 29-31, p. 3, line 1).

This object was completely solved by the invention as defined in the new Claim 1.

In sharp contrast to the Examiner's view, it should be obvious for a person having ordinary skill in the relevant art from our original disclosure that for this special object neither of the cited documents D1-D 5) would be suitable, at all.

Document D1) discloses scraping elements (4) being inclined (30 °) relative to the path (5) of the inner wall of the bars (3) (see Claim 2). In contrast, in accordance with the present invention the "scraper" (29) is arranged radially so that its side surface is substantially parallel to the symmetry axis of the rolling basket (6) (see page 7, lines 1-2; Fig. 4).

The key difference between the two solutions is that the "oblique" scrapers (4) are usually clogged and unserviceable. Weeds and other plant residues gradually stuck on the scrapers (4). Precipitation is caused by wedging due to the oblique angle of the scrapers. But, when passing a radially arranged crushing blade (19) over the radial scraper (29) according to the present invention, an improved shearing effect has been created, without any lateral force component (!), which causes a clear shearing of the weed and remnants of stem so that they cannot become wedged. This is a technical surplus effect of the present invention. The different shearing effects (D1-D2 v. Invention) should be clear for a person having ordinary skill in this art.

Document D2) discloses also an oblique scraper, with the same above discussed drawbacks.

Document D3) contains an internal pressure rod (10) for pushing out stones, etc. from the inner chamber of the rolling basket. It is far from the claimed subject matter.

Documents 4) and 5) lay even farer from the present invention. In these papers, the connection of the cleaning strip is rigid. Therefore, there is a bigger risk of clogging. The cleaning strip is far away from the roller cover, so on wet soil the roller is not cleaned, but "soil pipe" can be produced. So, in practice, it's clogged.

On the basis of the above aspects, it would be obvious for a person having ordinary skill in the art that the cited documents D1-D5) are not suitable either alone or in combination with each other to provide a more efficient and higher operational safety. It is practically not possible.

In our view, the skilled person could not have got even any suggestion from any of the cited documents D1-D5) or from their combination in the direction of the present invention.

So applicant submits that each of the claims 1-2 now pending in the application contains patently distinct subject matter, involving inventive step under Art. 33(3) PCT, too, over the cited references D1-D5) of record.





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ENCLOSURES:

- New set of amended Claims 1-2;
- Present Claims 1-3 with red marked amendments.



CLAIMS :

(As amended by the Applicant under Art. 34 PCT on November 2, 2019)

- 5 1. An agricultural tillage implement, mainly rolling basket for tillage works after plowing and/or seedbed preparation, said rolling basket comprising a basket structure including a plurality of coaxial discs associated longitudinal crushing blades extending from one end to an opposing end along a major axis of the basket structure, wherein the
- 10 crushing blades define an inner space of the basket structure, and said inner space being accessible through openings provided between the crushing blades, and the basket structure configured to rotate around a major axis, and comprising a stationary internal scraper arranged in the inner space of the basket structure at a distance from the crushing
- 15 blades, characterized in that the a stationary internal scraper (29) arranged in the inner space (20) of the basket structure (6A) of the rolling basket (6) radially and in cooperation with the radial crushing
- 20 blades (19) so that the radial distance (T) between the radially inner edge of the blade(s) (19) and the radially outer edge of the scraper (29) is reduced, at most to 2.5 cm, and that in the inner space (20) of the basket structure (6A) of the rolling basket (6), at least one end, mainly both ends of the stationary internal scraper (29) is/are
- 25 connected to stationary shaft pin(s) (23) of the rotary basket (6) via an elastic member (26), wherein the elastic member (26) is formed as a flexible, mainly C-shaped spring allowing flexible rotation and/or radial displacement of the internal scraper (29) in the inner space (20) of the rolling basket (6), when jamming a larger clump or a piece of stone or wood between the scraper (29) and the cooperating blade (19).
- 30 2. The agricultural tillage implement, mainly rolling basket according to Claim 1, characterized in that a support beam (15) for the rolling basket (6) is provided that can be hinged and upwardly displaceable

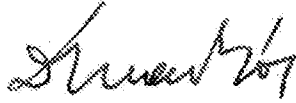
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to the frame (V) of a tillage implement (1), in particular to a hinged or
towed structure, and that comprising bearing legs (16) fixed to
the ends of the support beam (15), and each bearing leg (16) is
provided with one of the shaft pins (23) extending into the inner
5 space (20) of the basket structure (6A) of the rolling basket (6), these
coaxial shaft pins (23) form a rotational center line (24) for free
rotation of the rolling basket (6).

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