

(19)



(11)

EP 3 983 142 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

13.11.2024 Bulletin 2024/46

(21) Application number: **20771761.2**

(22) Date of filing: **12.06.2020**

(51) International Patent Classification (IPC):
B07B 1/15 (2006.01)

(52) Cooperative Patent Classification (CPC):
B07B 1/15

(86) International application number:
PCT/EP2020/025277

(87) International publication number:
WO 2020/249263 (17.12.2020 Gazette 2020/51)

(54) **SELECTOR ROLLER**

SORTIERWALZE

ROULEAU SÉLECTEUR

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **12.06.2019 IT 201900008697**

(43) Date of publication of application:
20.04.2022 Bulletin 2022/16

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Description

FIELD OF THE INVENTION

[0001] The present invention concerns selector rollers to select chips of wood material, or material similar to wood material or suchlike, as well as for humus, earth, inert materials in general.

[0002] More particularly, the present invention concerns perfected selector rollers, as well as selector machines that use said rollers.

[0003] The rollers of the present invention can be both keyed onto a shaft equipped with motion and, therefore, also individually replaceable, and also obtained integrally with the shaft itself.

[0004] The rollers are installed staggered on parallel shafts to constitute a non-linear path.

BACKGROUND OF THE INVENTION

[0005] By chipboard panels we mean those panels, consisting of wood shavings, bonded by suitable glues, and normally hot pressed.

[0006] Such panels can be characterized by a single-layer structure, by a multi-layer structure, or by a structure defined as "with continuous variable grain size", or other type.

[0007] To obtain the panels, by industrial methods, the shavings are generically obtained from a heterogeneous mass of chips which are selected in various fractions, each of which is treated (clean, refined, etc.) to obtain suitable quality shavings.

[0008] A fundamental element that determines the quality of the panels is the "workability" of the panel itself, and this parameter is related to the duration of the cutting tools and abrasive belts used.

[0009] The systems for removing contaminants from the chips of recycled wood are complex and normally provide, at the beginning of the cleaning cycle, roller-type screens to divide the incoherent mass into various homogeneous fractions.

[0010] Each of the fractions is then advantageously cleaned with suitable specialized systems to treat the specific grain sizes of each fraction.

[0011] In the case of thin or fine chips or of particular wood, the current technology is not able to obtain an optimal average result.

[0012] It is also true that when thin or fine chips or particular wood are present in the mass to be selected, they are not selected in an optimal manner.

[0013] Current technology is not even able to adequately select, with a single type of roller, materials such as thin wood chips, humus, earth and/or inert materials in general.

[0014] Selector rollers of a known type are disclosed in EP1007227B1, US 2004/069693A1, DE649351C, EP0951950A1 and EP0635313A1.

[0015] EP1007227B1 discloses a selector roller pro-

vided with a circumferential protrusion, wherein the circumferential protrusion is provided with an apical annular surface, wherein on opposite sides of the circumferential protrusion there are indentations protruding with respect to said opposite sides.

[0016] Non-optimal results affect the quality and qualification of the final product.

[0017] In fact, the quality of a panel is not only defined by the presence of impurities but also by the quality of the chips used.

[0018] To solve these and other problems that affect the quality and workability of the panels, Applicant has carried out studies and research on a large number of profiles of the selector rollers and their customizations.

[0019] From this long and complex and very expensive research work, Applicant has identified a selector roller as shown below.

[0020] This roller not only allows an excellent selection of the usual chips, but this result is also obtained with thin chips and/or wood material or not and/or with materials such as humus, earth or inert materials in general.

[0021] Applicant has studied a roller suitable to solve the problems caused by thin or inconsistent chips, provided that specific previously unknown dimensional ranges are adapted.

[0022] This definition also allowed the roller, improved and modified as indicated below, to solve the problem of chip selection very well, with the wide range of problems that they have.

[0023] It is therefore a purpose of the present invention to obtain selector rollers which improve and complete the selector function.

[0024] Another purpose of the present invention is to improve the powerful selection capacity of any selector machine with rollers positioned on adjacent axes and facing each other, either separated or not, of the type identified above, as well as similar and comparable rollers.

[0025] Another purpose of the present invention is to provide rollers that allow to optimize the selection process in terms of time, cost and energy.

[0026] These purposes are achieved by means of the selector roller in accordance with claim 1.

[0027] The Applicant has devised, tested and embodied the present invention to overcome the shortcomings of the state of the art and to obtain these and other purposes and advantages.

SUMMARY OF THE INVENTION

[0028] The present invention is set forth and characterized in the independent claim.

[0029] The dependent claims describe other characteristics of the present invention or variants to the main inventive idea.

[0030] In accordance with the above purposes, according to the invention a roller to select chips of wood material or suchlike, humus, soil, inert materials or comparable materials, has two annular lateral shoulders and

a circumferential protrusion contiguous to the lateral shoulders.

[0031] According to the invention, the circumferential protrusion has a trapezoidal cross-section defined by a smaller side, a larger side, parallel and opposite to the smaller side, and two opposite sides joining together the smaller side and the larger side.

[0032] In preferred embodiments, the trapezoidal cross-section can be an isosceles, or scalene, or again rectangular trapezoid with one of either the opposite sides substantially orthogonal to the larger and smaller sides.

[0033] The Applicant has found that particular shapes of the trapezoid adapt to different types of material. Hereafter in the description, we will refer to "chips" as comprising different types of loose materials such as humus, soil, inert materials or thin chips of wood and non-wood material and other similar and comparable materials. In this way, the roller allows an excellent selection not only of the usual materials but also, and above all, of the thin chips of wood or non-wood material and of other types of materials as listed above, guaranteeing optimal results for the final product in terms of quality and optimizing the selection process in terms of time, cost and energy.

[0034] Based on the diameter of the lateral shoulder, that is, of the circumferential base of the roller from which the circumferential protrusion starts, the Applicant has identified precise reference measures to increase the capacity to select the chips and, therefore, the quality of the material selected for the final product.

[0035] According to the invention, preferably the height of the trapezoidal section, that is, the distance between the larger side and the smaller side, is between 0.025 and 0.05 times the diameter of the lateral shoulder. Advantageously but not restrictively between 0.03 and 0.04.

[0036] The invention also provides that preferably the larger side of the trapezoidal section ranges from 0.07 to 0.12 times the diameter as above, advantageously between 0.09 and 0.10.

[0037] The smaller side of the trapezoidal section ranges from 0.012 to 0.03 times the diameter as above, advantageously between 0.02 and 0.025

[0038] The values above vary proportionally as the real diameter of the lateral shoulder varies according to the relations above.

[0039] For example, if the diameter of the lateral shoulder is 100 cm, that is, 1 meter, the height of the trapezoidal section is comprised between 2.5 cm and 5 cm, preferably between 3 cm and 4 cm.

[0040] These values, however, can vary further since they depend on the type of material worked, and on the quantity and quality of the heavy contaminants present.

[0041] According to the invention, the circumferential protrusion is provided with an apical circumferential surface on which substantially symmetrical teeth are disposed.

[0042] Such teeth promote a rapid selection of the wood material by arranging the latter into the position

suitable to pass this selection step.

[0043] According to a variant suitable for particular types of flakes/wood, not forming part of the present invention, the teeth do not have a symmetrical shape.

[0044] According to one variant, the dissymmetry can be in phase analogy or in phase contrast with the rotation according to the type and sizes of the material to select.

[0045] The symmetrical teeth are disposed sequentially in a regular manner along the circumferential protrusion.

[0046] According to another variant, the symmetrical teeth are disposed sequentially, alternating with non-symmetrical teeth along the circumferential protrusion.

[0047] The variants above are actuated according to specific types of materials to be selected and/or of specific impurities to be eliminated.

[0048] According to one variant, the opposite side or sides have indentations that can occupy the whole side, or reach the base of the indentations, or affect one part of the side free of the teeth, until possibly reaching the apical circumferential surface. This being dependent on the physical and/or morphological characteristics of the chips.

[0049] Such indentations cooperate with the teeth as above during the rotation of the selector rollers to obtain a more powerful and rapid selection of the material to be selected, optimizing the selection process in terms of time and energy and, therefore, cost.

[0050] According to the invention, a machine to select chips of wood material or suchlike, humus, soil, inert materials or comparable materials comprises at least two parallel shafts. Each shaft comprises one or more rollers, as described above, disposed interspersed and cooperating with rollers present on the opposite parallel shaft.

[0051] Furthermore, the rollers as above have respective circumferential protrusions and lateral shoulders disposed in such a way that the circumferential protrusions of one shaft are facing in correspondence with the shoulders of the other adjacent shaft and vice versa.

[0052] In this way, circumferential protrusions and lateral shoulders of opposite rollers cooperate with each other to define a passage gap for material of desired sizes, increasing the selection capacity of the selector machine and consequently its efficiency. In particular, such desired sizes are coherent with the sizes of the gap.

[0053] Hereafter in the description, we will describe by way of example the case of single rollers keyed onto a drive shaft. In accordance with the disclosure it is provided to produce the individual rollers in the drive shaft and integrally therewith.

ILLUSTRATION OF THE DRAWINGS

[0054] These and other characteristics of the present invention will become apparent from the following description of some embodiments, given as a non-restrictive example with reference to the attached drawings wherein:

- fig. 1 shows, by way of example, two shafts that have two facing selector rollers according to one formulation of the invention;
- fig. 2 shows in detail one example embodiment of the invention with trapezoidal shapes, in this case normal;
- fig. 3 shows, by way of example, a diametrical section of selector rollers according to possible variants of the invention;
- figs. 4-5 show a diametrical section of a selector roller according to possible variants of fig. 3.

[0055] To facilitate comprehension, the same reference numbers have been used, where possible, to identify identical common elements in the drawings.

[0056] Not in accordance with the invention, elements and characteristics of one embodiment can conveniently be incorporated into other embodiments without further clarifications.

DESCRIPTION OF EMBODIMENTS

[0057] Embodiments of the present invention are described here with reference to figs. from 1 to 5 attached and concern selector rollers 10, hereafter also referred to as "rollers", suitable to select shavings and flakes of fibrous material, advantageously wood, but not only, but also of humus, soil and other comparable materials in order to divide them on the basis of sizes and granulometries. Hereafter in the description, as mentioned above, the term "chips" encompasses all the possible variants mentioned of materials to be selected.

[0058] Each example is supplied by way of illustration of the invention and shall not be understood as a limitation thereof. For example, the characteristics shown or described insofar as they are part of one embodiment can be adopted on, or in association with, other embodiments to produce another embodiment. It is understood that the present invention shall include all such modifications and variants insofar as these are within the scope of the invention which is delimited by the appended claims.

[0059] The rollers 10 have an annular shape, which develops around a central axis X, defining the axis of rotation.

[0060] As shown by way of example in fig. 1, the rollers 10 are suitable to be keyed onto a shaft 16, for example a drive shaft.

[0061] In accordance with the disclosure, the rollers can be obtained in a single body with the shaft 16.

[0062] By way of a non-limiting example, the rollers 10 can be obtained by knurling on a shaft 16 that is axially symmetric to the central axis X.

[0063] In particular, fig. 1 shows two facing shafts 16, 16' which carry a plurality of selector rollers 10.

[0064] The selector rollers 10 are disposed aligned side by side coaxially along each shaft 16, 16' defining a selector profile.

[0065] In a selector machine, there are supplied parallel arrays of rollers 10 which are associated with respective shafts 16, 16', the series of rollers 10 present on one shaft 16 cooperating with a series of rollers 10 present on another shaft 16' parallel to the first.

[0066] As a function of the shape of the rollers 10 on one shaft 16, these may or may not be interspersed with rollers 10 present on the parallel shaft 16'.

[0067] According to one variant, the shafts 16, 16' can be provided, for example alternatively, lying on parallel planes.

[0068] Such variant is suitable to exert a greater action of selection or transport of the material located on the rollers 10.

[0069] Between the selector rollers 10, disposed interspersed on two facing shafts 16, 16', a passage gap 20 is left which is suitable to select the material to be screened, for example thin chips, with an elongated or small size.

[0070] The plurality of selector rollers 10 side by side on one shaft 16 defines a selector profile mating with the selector profile defined by another plurality of selector rollers 10 side by side on the adjacent shaft 16', said profiles being distanced by a distance equal to the passage gap 20.

[0071] The passage gap 20 is advantageously, but not necessarily, uniform in accordance with the size and type of the material to be screened.

[0072] In fact, only the particles and shavings that have a thickness smaller than the gap can pass through the passage gap 20.

[0073] According to one example embodiment, the rollers 10 according to the invention have a truncated cone annular conformation defined by a circumferential protrusion 21 that has a trapezoidal diametrical section 11 (fig.3).

[0074] By diametrical section we mean the section along a plane transverse and parallel to the oblong development of the shaft 16 and containing the axis X.

[0075] In figs. 3-5, possible variants of the trapezoidal section 11 of a roller 10 keyed onto a shaft 16 are shown by way of example.

[0076] In accordance with the disclosure, these variants of the trapezoidal section 11 are also applicable to rollers 10 made in a single body with the shaft 16.

[0077] In particular, fig. 3 shows side by side, for illustrative and descriptive clarity and by way of example only, two possible alternative variants of a roller 10 with a trapezoidal section 11 in which one variant provides the roller 10 keyed onto a shaft 16 (indicated as A in fig. 3) and the other variant provides the roller 10 made in a single body with the shaft 16 (indicated as B in fig. 3). It is not excluded that these variants can also be made with rollers 10 with trapezoidal sections 11 such as those shown in figs. 4-5.

[0078] The trapezoidal section 11 is defined by a smaller side 12, a larger side 13, parallel and opposite the smaller side 12, and two opposite sides 14 joining together.

er the smaller side 12 and the larger side 13.

[0079] The size of the smaller side 12 is smaller than the larger side 13.

[0080] The opposite sides 14 can be oblong, equal, differentiated, or at least one orthogonal to the smaller 12 and larger 13 sides.

[0081] The trapezoidal section 11 can be an isosceles (fig.3), rectangle (fig.4) or scalene (fig.5) trapezoid.

[0082] The circumferential protrusion 21 is provided with an apical annular surface 22 defined by the circumferential succession of the smaller sides 12.

[0083] The rollers 10 can have, or not have, circumferential selector throats on the sides of the circumferential protrusion 21 and/or at the base of the latter.

[0084] With reference to fig. 1, the roller 10 also has in the axial endings of two lateral shoulders 15 suitable to cooperate, during use, with respective lateral shoulders 15 of side by side rollers 10 keyed onto the same shaft 16. Such lateral shoulders 15 are disposed laterally and contiguously to the circumferential protrusion 21 and can be made in a single body with the latter so as to guarantee a longer useful life for the roller 10.

[0085] According to some embodiments, the circumferential protrusion 21 can be knurled, or obtained by means of a machine tool for knurling starting from the shaft 16.

[0086] According to one embodiment, the lateral shoulders 15 can be made in a single body with the shaft 16.

[0087] Such lateral shoulders 15 are cylindrical. The facing lateral shoulders 15, in accordance with the type of heavy contaminants to be eliminated, can be flat cylindrical, conical, or determine a throat connected to the base of the circumferential protrusion 21.

[0088] The larger side 13 of the trapezoidal section 11 is in line with the upper surface of the lateral shoulders 15.

[0089] According to one embodiment, the height of the trapezoidal section 11, that is, the distance between the smaller side 12 and the larger side 13, will be coherent with obtaining an equal or differentiated continuous passage gap 20 between the smaller side 12, the lateral shoulder 15 and the opposite sides 14 in accordance with the type of selection to be obtained.

[0090] When two rollers 10 are side by side, the lateral shoulders 15 of two rollers 10 of one shaft 16 create a circumferential ring 23 which cooperates with the apical annular surface 22 of the circumferential protrusion 21 of the opposite and offset roller 10 (figs. 1, 2) present in the adjacent shaft 16'.

[0091] This conformation allows to obtain on the plane that contains all the axes X, X' of the shafts 16, 16' a slit or passage gap 20 with a zigzag shape that has desired characteristics.

[0092] According to some embodiments, the lateral shoulders 15 can also be variously shaped and possibly provide ridges or hollows to facilitate the discharge of impurities or heavy contaminants.

[0093] According to some embodiments, the perimeter conformation of the apical annular surface 22 is deter-

mined by the drawing action that has to be exerted on the chips, shavings and on the heavy contaminants.

[0094] The apical annular surface 22 advantageously has teeth 18, uniform and balanced with respect to the radius, configured to actuate the desired selection of the chips, facilitating the advancing and drawing action thereof between facing rollers 10 alternated on contiguous shafts 16, 16'. Such action is further facilitated by the trapezoidal section 11 which allows to accompany the material to be screened in the desired direction and in the correct position.

[0095] The teeth 18 are provided with two bases 24 made inside the circumferential protrusion 21, with an apical portion coinciding with a portion of the apical annular surface 22 and comprised between the two bases 24, and with two sides 25 joining the apical portion respectively with the two bases 24.

[0096] The teeth 18 are trapezoidal in accordance with the sizes and types of material to be screened.

[0097] With reference to figs. 2-5, on the opposite sides 14 of the trapezoidal section 11 of the circumferential protrusion 21 there are indentations 19 protruding with respect to the opposite sides 14 which are suitable to facilitate the drawing of the chips toward the passage gap 20.

[0098] The indentations 19 have an oblong shape substantially parallel to the opposite sides 14 suitable to dispose the chips with an elongated shape parallel to the opposite sides 14. Such indentations facilitate the advancing and drawing action between successive rollers 10 on a same shaft 16, and between interspersed facing rollers present on two contiguous shafts 16, 16'.

[0099] In this way, the chips are accompanied and disposed in the correct position for entry into the passage gap 20, reducing the time needed to screen the material to be selected.

[0100] Such indentations 19 can affect the whole opposite side 14 or only part of it.

[0101] According to some embodiments, the indentations 19a (fig. 3) can extend from the larger side 13 up to the base 24 of the teeth 18, that is, they can be of a length comprised between the larger side 13 and the base 24 of the teeth 18.

[0102] According to some embodiments, the indentations 19b (fig. 5) can extend from the larger side 13 up to the smaller side 12 of the trapezoidal section 11.

[0103] According to some embodiments, the indentations 19c (fig. 4) can extend from the larger side 13, and partly on the lateral shoulder 15, up to the smaller side 12 of the trapezoidal section 11.

[0104] According to some embodiments, the indentations 19c (fig. 4) can extend from the larger side 13 up to the smaller side 12 of the trapezoidal section 11 and affect the entire width of the teeth 18, that is, extend from side 25 to side 25 of the teeth 18.

[0105] According to some embodiments, the indentations 19 can extend from at least one side 25 of the teeth 18 up to the smaller side 12 of the trapezoidal section

11, or up to the lateral shoulder 15.

[0106] According to some embodiments, the indentations 19 can be inclined in the sense of rotation of the roller 10 or in the sense opposite this rotation.

[0107] According to some embodiments, the indentations 19 can have a rectangular, or triangular, or wavy, or serrated shape along the opposite side 14 in accordance with the type of material to be selected and eliminated.

[0108] According to some embodiments, the indentations 19 on one roller 10 are offset, or aligned with respect to the indentations 19 of an adjacent roller 10.

[0109] All the possible embodiments above advantageously offer a wide range of solutions for different operating cases of moving and selecting wood chip materials or suchlike that have different conformations and different intended use, and are able to increase the selection capacity of each roller 10 and, in general, of the selector machine.

[0110] The teeth 18 are also made so as to dispose and accompany the chips with their larger elongated size parallel to the passage gap 20.

[0111] At the same time, the indentations 19 and the teeth 18 are suitable to channel impurities, in accordance with their greater weight, respectively toward the lateral shoulders 15 and the bases 24 of the teeth 18 so that they can be eliminated.

[0112] It is clear that modifications and/or additions of parts may be made to the selector roller 10 as described heretofore, without departing from the scope of the present invention which is delimited by the appended claims.

[0113] It is also clear that, although the present invention has been described with reference to some specific examples, a person of skill in the art shall certainly be able to achieve many other equivalent forms of selector roller 10, having the characteristics as set forth in the claims and hence all coming within the field of protection defined thereby.

Claims

1. Selector roller suitable to select chips of wood material or suchlike, humus, soil, inert materials or comparable materials, provided with a circumferential protrusion (21) having a trapezoidal cross-section (11) defined by a smaller side (12), a larger side (13), parallel and opposite to the smaller side (12), and two opposite sides (14) joining together the smaller side (12) and the larger side (13) and with two cylindrical annular lateral shoulders (15) disposed laterally and contiguously to the circumferential protrusion (21), wherein the circumferential protrusion (21) is provided with an apical annular surface (22), defined by the circumferential succession of the smaller sides (12), on which symmetrical trapezoidal teeth (18) are present, uniform and balanced with respect to the radius wherein on the opposite sides (14) of the trapezoidal section (11) of the circumferential protrusion (21) there are indentations (19) protruding with respect to said opposite sides (14) and having an oblong shape substantially parallel to said opposite sides (14).
2. Selector roller as in claim 1, **characterized in that** the height of the trapezoidal section (11), that is, the distance between the larger side (13) and the smaller side (12), is between 0.025 and 0.05 times the diameter of the lateral shoulder (15), advantageously but not restrictively between 0.03 and 0.04.
3. Selector roller as in any claim hereinbefore, **characterized in that** the larger side (13) of the trapezoidal section (11) ranges from 0.07 to 0.12 times the diameter of the lateral shoulder (15), advantageously between 0.09 and 0.10.
4. Selector roller as in any claim hereinbefore, **characterized in that** the smaller side (12) of the trapezoidal section (11) ranges from 0.012 to 0.03 times the diameter of the lateral shoulder (15), advantageously between 0.02 and 0.025.
5. Selector roller as in any claim hereinbefore, **characterized in that** the trapezoidal cross-section (11) is an isosceles trapezoid.
6. Selector roller as in any claim from 1 to 4, **characterized in that** the trapezoidal cross-section (11) is a rectangular trapezoid.
7. Selector roller as in any claim from 1 to 4, **characterized in that** the trapezoidal cross-section (11) is a scalene trapezoid.
8. Selector roller as in any claim hereinbefore, **characterized in that** said indentations (19) affect the whole opposite side (14) of the trapezoidal section (11) or only part thereof.
9. Selector roller as in any claim hereinbefore, **characterized in that** the indentations (19) are inclined in the direction of rotation of the selector roller (10) or in the opposite direction to such rotation.
10. Machine suitable to select chips of wood material or suchlike, humus, soil, inert materials or comparable materials comprising at least two parallel shafts (16, 16'), **characterized in that** each shaft (16, 16') comprises one or more rollers (10) as defined in any one of the claims hereinbefore, said rollers (10) having respective circumferential protrusions (21) and lateral shoulders (15) disposed in such a way that the circumferential protrusions (21) of one shaft (16) are facing in correspondence with the lateral shoulders

(15) of the other adjacent shaft (16') and vice versa, cooperating with each other to define a passage gap (20) for material of desired sizes.

11. Machine as in claim 10, **characterized in that** said lateral shoulders (15) of two rollers (10) of one shaft (16) are configured to create a circumferential ring (23) which cooperates with the apical annular surface (22) of the circumferential protrusion (21) of the opposite and offset roller (10) present in the adjacent shaft (16').

Patentansprüche

1. Selektorrolle, die geeignet ist, Späne aus Holzmaterial oder dergleichen, Humus, Erde, Inertmaterialien oder vergleichbare Materialien auszuwählen, die mit einem Umfangsvorsprung (21) mit einem trapezartigen Querschnitt (11) versehen ist, der durch eine kleinere Seite (12), eine größere Seite (13), die parallel und entgegengesetzt zu der kleineren Seite (12) ist, und zwei entgegengesetzte Seiten (14) definiert ist, die miteinander die kleinere Seite (12) und die größere Seite (13) verbinden, und wobei zwei zylindrische ringartige laterale Absätze (15) lateral und fortlaufend zu dem Umfangsvorsprung (21) angeordnet sind, wobei der Umfangsvorsprung (21) mit einer apikalen ringartigen Fläche (22) versehen ist, die durch die Umfangsabfolge der kleineren Seiten (12) definiert ist, an der symmetrische trapezartige Zähne (18) vorhanden sind, die gleichförmig und ausgeglichen in Bezug auf den Radius sind, wobei an den entgegengesetzten Seiten (14) des trapezartigen Abschnittes (11) des Umfangsvorsprungs (21) Kerben (19) vorhanden sind, die in Bezug auf die entgegengesetzten Seiten (14) vorragen und eine längliche Form haben, die im Wesentlichen parallel zu den entgegengesetzten Seiten (14) sind.
2. Selektorrolle gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Höhe des trapezartigen Abschnittes (11), d.h. der Abstand zwischen der größeren Seite (13) und der kleineren Seite (12) zwischen dem 0,025- und 0,05-fachen des Durchmessers des lateralen Absatzes (15) beträgt, vorteilhafterweise aber nicht einschränkend zwischen 0,03 und 0,04.
3. Selektorrolle gemäß einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** die größere Seite (13) des trapezartigen Abschnittes (11) von dem 0,07- bis 0,12-fachen des Durchmessers des lateralen Absatzes (15) reicht, vorteilhafterweise zwischen 0,09 und 0,10.
4. Selektorrolle gemäß einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** die kleinere

Seite (12) des trapezartigen Abschnittes (11) von dem 0,012- bis 0,03-fachen des Durchmessers des lateralen Absatzes (15) reicht, vorteilhafterweise zwischen 0,02 und 0,025.

5. Selektorrolle gemäß einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** der trapezartige Querschnitt (11) ein gleichschenkliges Trapez ist.
6. Selektorrolle gemäß einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** der trapezartige Querschnitt (11) ein rechtwinkliges Trapez ist.
7. Selektorrolle gemäß einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** der trapezartige Querschnitt (11) ein ungleichseitiges Trapez ist.
8. Selektorrolle gemäß einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** die Kerben (19) die gesamte entgegengesetzte Seite (14) des trapezartigen Abschnittes (11) oder lediglich einen Teil von diesem betreffen.
9. Selektorrolle gemäß einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** die Kerben (19) in der Drehrichtung der Selektorrolle (10) oder in der zu dieser Drehrichtung entgegengesetzten Richtung geneigt sind.
10. Maschine, die geeignet ist, Späne aus Holzmaterial oder dergleichen, Humus, Erde, Inertmaterialien oder vergleichbaren Materialien auszuwählen, mit zumindest zwei parallelen Wellen (16, 16'), **dadurch gekennzeichnet, dass** jede Welle (16, 16') eine oder mehrere Rollen (10) gemäß einem der vorherigen Ansprüche aufweist, wobei die Rollen (10) jeweilige Umfangsvorsprünge (21) und laterale Absätze (15) haben, die in einer derartigen Weise angeordnet sind, dass die Umfangsvorsprünge (21) einer Welle (16) in Entsprechung lateralen Absätzen (15) der anderen benachbarten Welle (16') zugewandt sind und umgekehrt, wobei sie miteinander zusammenwirken, um einen Passierzwischenraum (20) für Materialien erwünschter Größen definieren.
11. Maschine gemäß Anspruch 10, **dadurch gekennzeichnet, dass** laterale Absätze (15) von zwei Rollen (10) einer Welle (16) so aufgebaut sind, dass ein Umfangsring (23) erzeugt wird, der mit der apikalen ringartigen Fläche (22) des Umfangsvorsprungs (21) der gegenüberliegenden und versetzten Rolle (10) zusammenwirkt, die in der benachbarten Welle (16') vorhanden ist.

Revendications

1. Rouleau sélecteur approprié pour sélectionner des copeaux de matière en bois ou similaires, de l'humus, de la terre, des matières inertes ou des matières comparables, muni d'une saillie circonférentielle (21) ayant une section transversale trapézoïdale (11) définie par un côté plus petit (12), un côté plus grand (13), parallèle et opposé au côté plus petit (12), et deux côtés opposés (14) reliant ensemble le côté plus petit (12) et le côté plus grand (13) et de deux épaulements latéraux annulaires cylindriques (15) disposés latéralement et de manière contiguë à la saillie circonférentielle (21), dans lequel la saillie circonférentielle (21) est munie d'une surface annulaire apicale (22), définie par la succession circonférentielle des côtés plus petits (12), sur laquelle des dents trapézoïdales symétriques (18) sont présentes, uniformes et symétriques par rapport au rayon, dans lequel, sur les côtés opposés (14) de la section trapézoïdale (11) de la saillie circonférentielle (21), se trouvent des indentations (19) faisant saillie par rapport auxdits côtés opposés (14) et ayant une forme oblongue sensiblement parallèle auxdits côtés opposés (14). 5
2. Rouleau sélecteur selon la revendication 1, **caractérisé en ce que** la hauteur de la section trapézoïdale (11), c'est-à-dire la distance entre le côté plus grand (13) et le côté plus petit (12), est comprise entre 0,025 et 0,05 fois le diamètre de l'épaulement latéral (15), avantageusement, mais non limitativement, entre 0,03 et 0,04. 10
3. Rouleau sélecteur selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le côté plus grand (13) de la section trapézoïdale (11) est dans une plage de 0,07 à 0,12 fois le diamètre de l'épaulement latéral (15), avantageusement entre 0,09 et 0,10. 15
4. Rouleau sélecteur selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le côté plus petit (12) de la section trapézoïdale (11) est dans une plage de 0,012 à 0,03 fois le diamètre de l'épaulement latéral (15), avantageusement entre 0,02 et 0,025. 20
5. Rouleau sélecteur selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la section transversale trapézoïdale (11) est un trapézoïde isocèle. 25
6. Rouleau sélecteur selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** la section transversale trapézoïdale (11) est un trapèze rectangulaire. 30
7. Rouleau sélecteur selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** la section transversale trapézoïdale (11) est un trapèze scalène. 35
8. Rouleau sélecteur selon l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdites indentations (19) influent sur tout le côté opposé (14) de la section trapézoïdale (11) ou seulement sur une partie de celui-ci. 40
9. Rouleau sélecteur selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les indentations (19) sont inclinées dans la direction de rotation du rouleau sélecteur (10) ou dans la direction opposée à cette rotation. 45
10. Machine appropriée pour sélectionner des copeaux de matière en bois ou similaires, de l'humus, de la terre, des matières inertes ou des matières comparables comprenant au moins deux arbres parallèles (16, 16'), **caractérisée en ce que** chaque arbre (16, 16') comprend un ou plusieurs rouleaux (10) tels que définis dans l'une quelconque des revendications précédentes, lesdits rouleaux (10) présentant des saillies circonférentielles respectives (21) et des épaulements latéraux (15) disposés d'une manière telle que les saillies circonférentielles (21) d'un arbre (16) font face en correspondance avec les épaulements latéraux (15) de l'autre arbre adjacent (16') et vice versa, coopérant mutuellement pour définir un espace de passage (20) pour une matière de tailles souhaitées. 50
11. Machine selon la revendication 10, **caractérisée en ce que** lesdits épaulements latéraux (15) de deux rouleaux (10) d'un arbre (16) sont configurés pour créer un anneau circonférentiel (23) qui coopère avec la surface annulaire apicale (22) de la saillie circonférentielle (21) du rouleau opposé et décalé (10) présent dans l'arbre adjacent (16'). 55

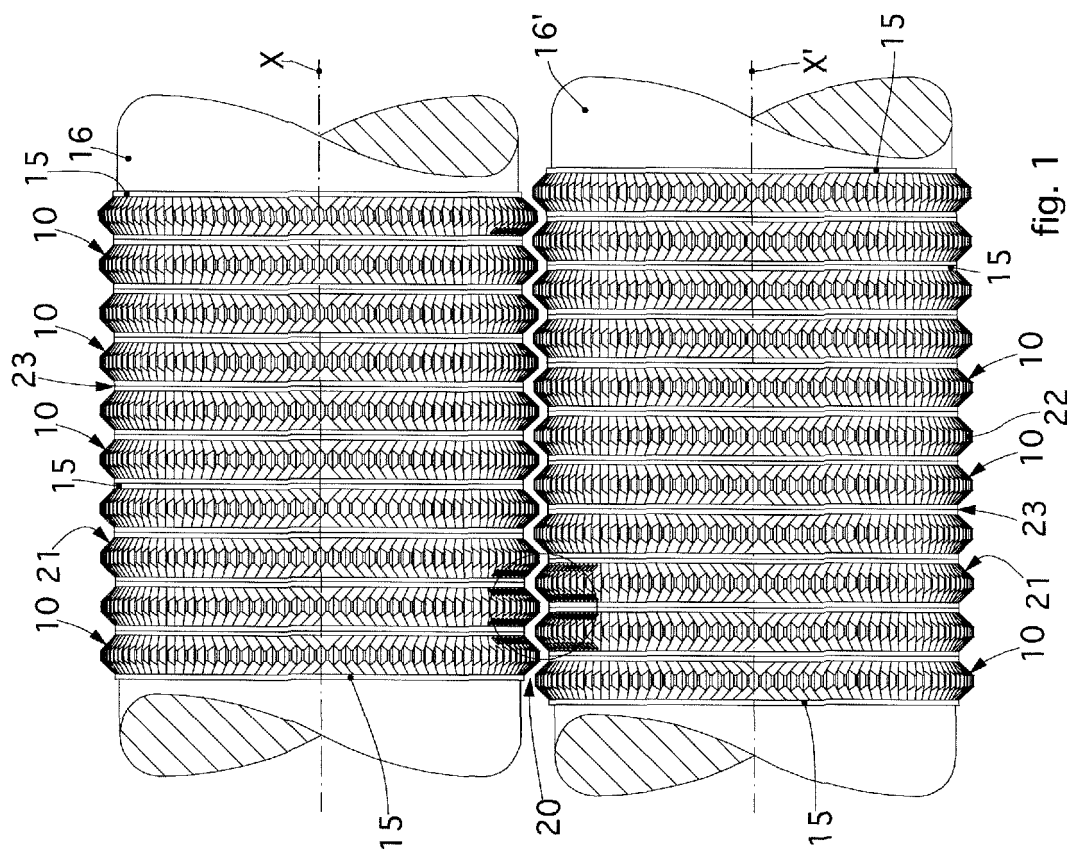


fig. 1

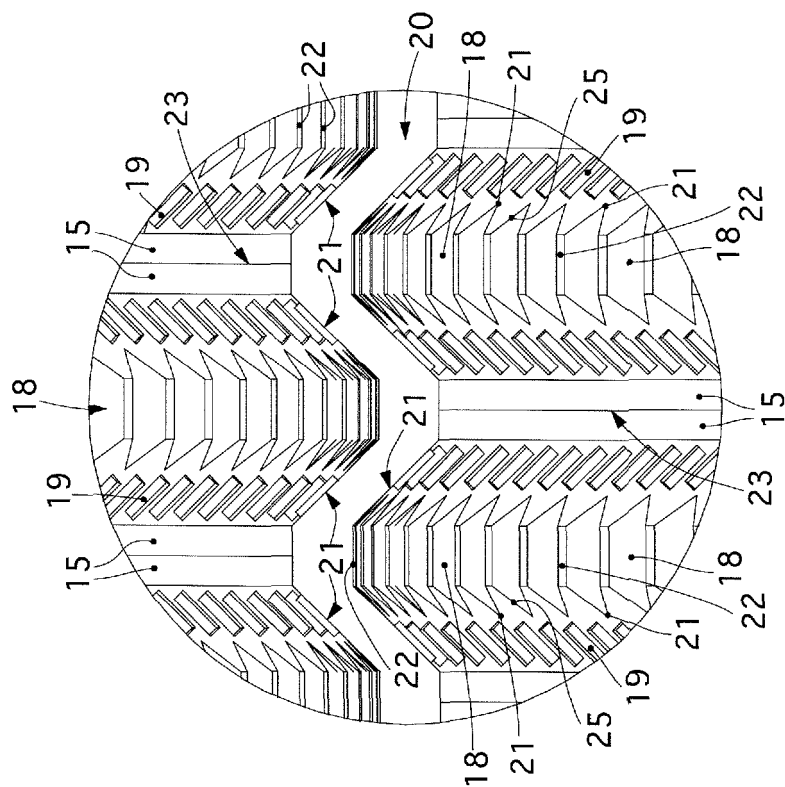
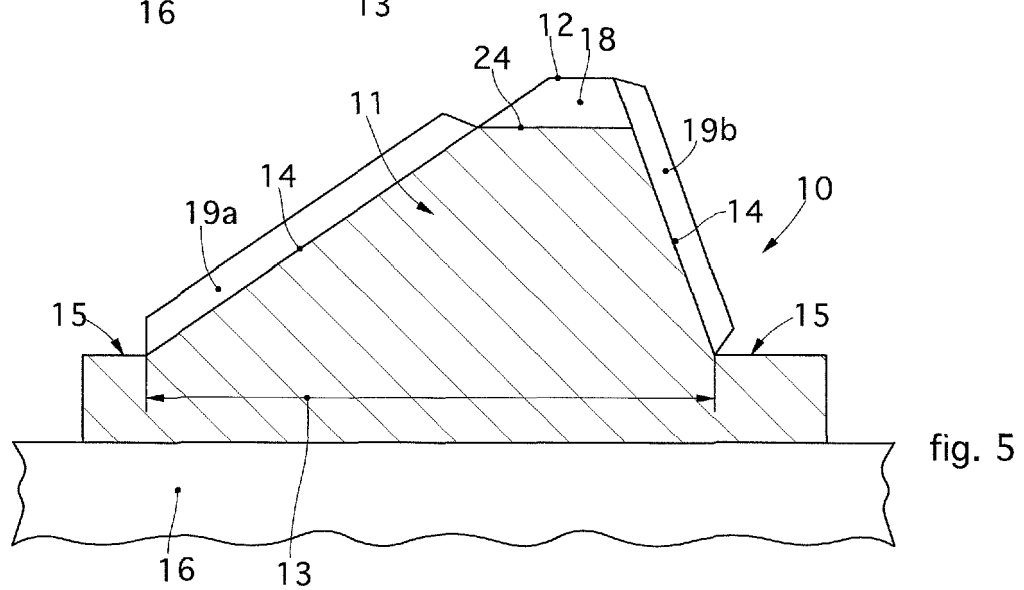
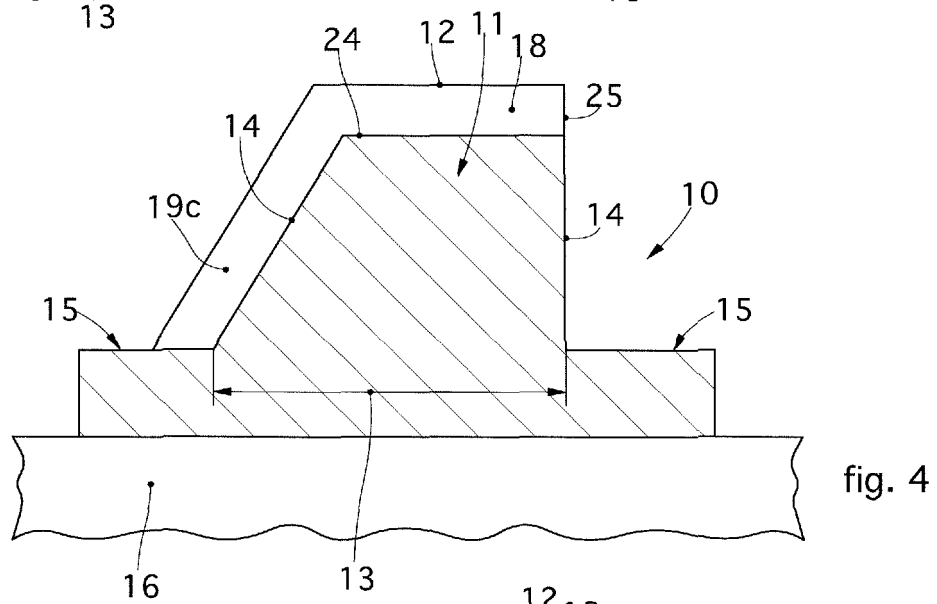
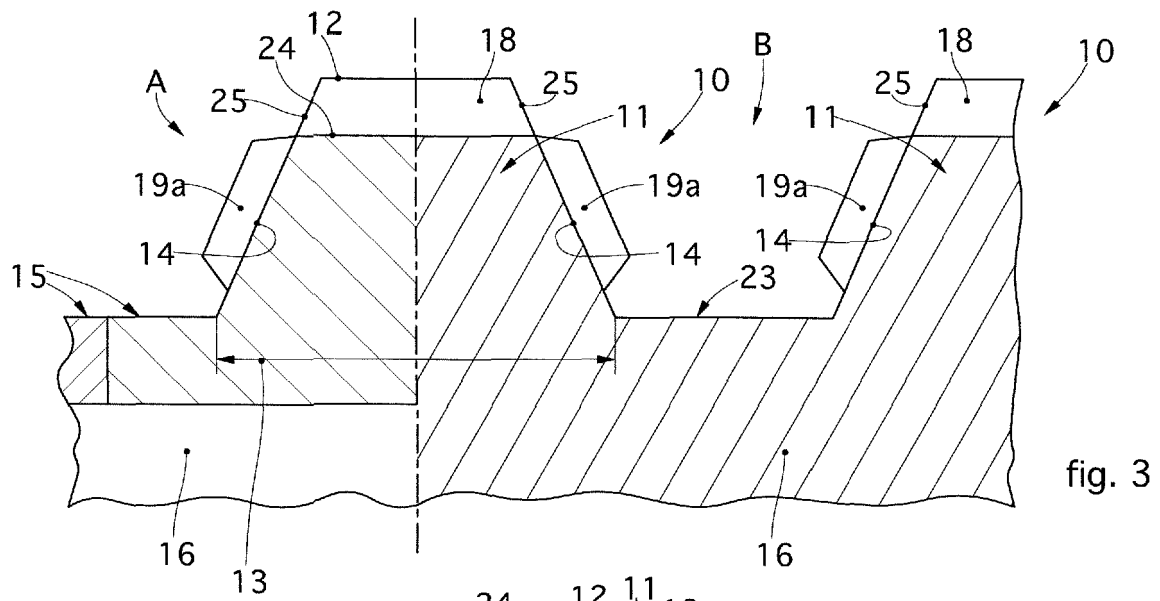


fig. 2



REFERENCES CITED IN THE DESCRIPTION

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