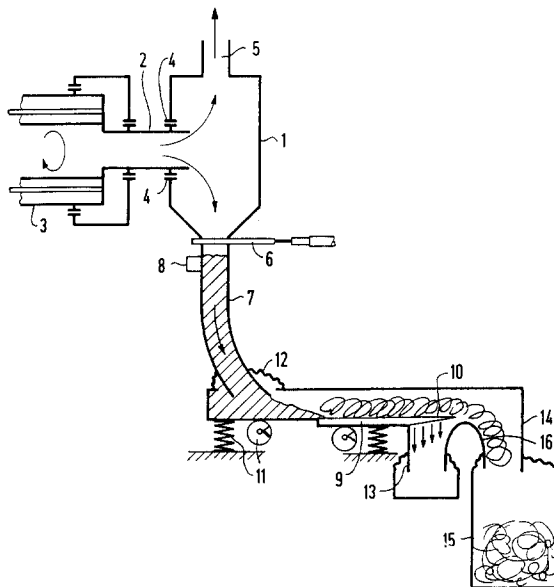




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(54) **DISPOSITIF DE DECHARGEMENT**
(54) **DELIVERY DEVICE**



(57) L'invention concerne un dispositif de déchargement comportant un boîtier (1) dans lequel débouche le tuyau d'évacuation (2) d'un tambour de carbonisation à basse température (3). Un puits de d'évacuation de résidus (7) partant du boîtier (1) débouche dans un convoyeur qui se termine au niveau d'une sortie (14). Un système de mesure du niveau (8) est monté sur le puits d'évacuation de résidus (7). Il est prévu que le convoyeur présente un fond de séparation (9) profilé sur lequel est formé un crible à barreaux (10) à l'extrémité opposée à l'endroit où débouche le puits d'évacuation de résidus (7). Le crible à barreaux (10) recouvre une ouverture de déchargement (13) pour les résidus fins et se termine au niveau d'une sortie (14) réservée à l'évacuation de gros résidus. Un générateur de vibrations (11) est associé au convoyeur.

(57) The invention concerns a delivery device comprising a housing (1) into which opens the delivery pipe (2) of a low temperature carbonization drum (3). A residue-delivery shaft (7) emerges from the housing (1) and opens into a conveyor device which terminates in an outlet (14). A level-measuring device (8) is disposed on the residue-delivery shaft (7). According to the invention, the conveyor device comprises a profiled partition floor (9) on which a bar screen (10) is integrally formed at the end remote from the opening of the residue-delivery shaft (7). The bar screen (10) covers a discharge opening (13) for fine residues and terminates at an outlet (14) for coarse residues. A vibrator (11) is associated with the conveyor device.



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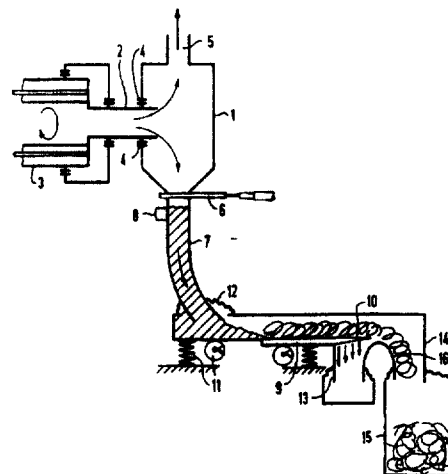
(54) Bezeichnung: AUSTRAGSVORRICHTUNG

(57) Abstract

The invention concerns a delivery device comprising a housing (1) into which opens the delivery pipe (2) of a low temperature carbonization drum (3). A residue-delivery shaft (7) emerges from the housing (1) and opens into a conveyor device which terminates in an outlet (14). A level-measuring device (8) is disposed on the residue-delivery shaft (7). According to the invention, the conveyor device comprises a profiled partition floor (9) on which a bar screen (10) is integrally formed at the end remote from the opening of the residue-delivery shaft (7). The bar screen (10) covers a discharge opening (13) for fine residues and terminates at an outlet (14) for coarse residues. A vibrator (11) is associated with the conveyor device.

(57) Zusammenfassung

Die Erfindung betrifft eine Austragsvorrichtung mit einem Gehäuse (1), in das ein Austragsrohr (2) einer Schweltrommel (3) einmündet. Von dem Gehäuse (1) geht ein Reststoffaustragsschacht (7) aus, der in eine Fördereinrichtung mündet, die an einem Auslaß (14) endet. Am Reststoffaustragsschacht (7) ist ein Füllstandsmesser (8) angeordnet. Es ist vorgesehen, daß die Fördereinrichtung einen profilierten Trennboden (9) aufweist, an den am von der Mündung des Reststoffaustragsschachtes (7) abgewandten Ende ein Stangensieb (10) angeformt ist. Das Stangensieb (10) überdeckt eine Abgabeöffnung (13) für feinen Reststoff und endet an einem Auslaß (14) für groben Reststoff. Der Fördereinrichtung ist ein Schwingungserreger (11) zugeordnet.



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Description

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TEXT TRANSLATION

Discharge apparatus

The invention relates to a discharge apparatus having a housing in which a discharge pipe of a carbonization drum opens and from which a residue discharge chute starts, which opens into a conveying device ending at an outlet, a filling-level meter being arranged on the residue discharge chute.

A discharge apparatus of this type is known from DE 30 05 205 A1. The discharge apparatus shown there for a pyrolysis plant is distinguished by the fact that during operation a discharge container is constantly filled with carbonization residue in order to form a gastight closure. A filling-level meter monitors the filling level in the container. At the exit of the container, the carbonization residue is transported away by a conveying device and taken to an outlet. With the conveying device, only so much residue is constantly transported away that the filling level in the housing does not drop below the position of the filling-level meter.

Separation of the residue into fine and coarse constituents is not provided in the prior art.

Such a separating apparatus is known from EP 0 086 488 A3. In this case, a bar screen is provided for this purpose, to which a vibrator is assigned. The carbonization residue to be segregated drops onto this bar screen. An outlet for fine residue is located below the bar screen and there is an outlet for coarse residue at the end of the bar screen.

Since residue constantly drops onto the bar screen, the coarse residue is contaminated with fine residue when it reaches the outlet for the coarse residue. The residence time on the bar screen is not sufficient for the fine residue to be shaken off the coarse residue by the vibrations of the bar screen because new fine residue is constantly dropping onto the

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coarse residue.

The invention was based on the object of complementing a discharge apparatus, which has a gastight closure, with a separating apparatus which separates
5 coarse residue from fine residue and, in the process, cleans the coarse residue to remove adhering particles of the fine residue.

According to the invention, the object is achieved in that the conveying device has a profiled
10 separating shelf on which, at the end remote from the mouth of the residue discharge chute, a bar screen is formed, in that a vibrator is assigned to the conveying device, and in that the bar screen covers a delivery opening for fine residue and ends at an outlet for coarse
15 residue.

This discharge apparatus achieves the advantage that the fine residue is shaken off the coarse residue on the separating shelf which is caused to vibrate by the vibrator without any further fine residue being able to
20 drop onto the coarse residue. While the coarse residue rests on the raised points of the profile, the fine residue collects in the hollows of the profile. When the residue reaches the formed-on bar screen, the coarse residue has been cleaned. The fine residue then drops
25 through the bar screen into the delivery opening for fine residue, and the cleaned coarse residue is transported further over the bar screen due to the vibration of the conveying device and drops into the outlet for coarse residue.

30 Further apparatuses or containers may be connected to the delivery opening and to the outlet. Such a container does not need to be attached in a gastight manner since there is always a seal by the carbonization residue in the residue discharge chute.

35 For example, before it opens into the conveying device, the residue discharge chute is curved towards the conveying direction. It is thus guaranteed that the residue always slides from the residue discharge chute to the conveying device.

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For example, the residue discharge chute is sealed off from the conveying device by a flexible compensator. This provides a seal between these two components which withstands the movements of the conveying device relative to the residue discharge chute.

The profiled separating shelf consists, for example, of a profiled metal sheet or of a profiled casting. For example, the separating shelf has a sawtooth-shaped cross-section.

At the transition to the bar screen, the separating shelf has, for example, curved cutouts. As a result, this advantageously prevents coarse residue which may comprise wire wool becoming stuck at the end of the separating shelf.

According to another example, separating walls without edges are arranged between the delivery opening for fine residue and the outlet for coarse residue. This also achieves the advantage that no wire wool can become stuck.

Two separately controllable vibrators are, for example, assigned to the conveying device. For example, the rotational speed of the two vibrators may differ.

With the discharge apparatus according to the invention, the advantage is also achieved that, by using a conveying device fitted with a vibrator, the plug of carbonization residue is sealed in the residue discharge chute so as to provide a better possibility of preventing atmospheric oxygen from entering the carbonization apparatus than was previously the case. In particular, the advantage is achieved that the separation of coarse residue from fine residue is significantly better than was previously possible.

The combination of a profiled separating shelf and a bar screen as described can also be used for the separation or cleaning of other materials.

The discharge apparatus according to the invention is explained in greater detail with reference to the drawing.

FIG 1 shows a discharge apparatus according to the

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invention.

FIG 2 shows a cross-section through a profiled separating shelf.

FIG 3 shows a plan view of a profiled separating shelf
5 on which a bar screen is formed.

Figure 1 shows a housing 1 of a discharge apparatus in which a discharge pipe 2 of a carbonization drum 3 opens, in which waste material is carbonized. In the process, carbonization gas and carbonization residue
10 are produced, which pass via the discharge pipe 2 into the housing 1. For this purpose, the rotatable discharge pipe 2 is sealed off from the housing 1 by means of seals 4. The carbonization gas leaves the housing 1 via a delivery opening 5 which is arranged in the top part and
15 is connected in a gastight manner to an apparatus (not shown) for the further treatment of the carbonization gas, e.g. using a high-temperature combustion chamber. The solid carbonization residue drops to the bottom in the housing 1. A residue discharge chute 7 starts from
20 the bottom exit of the housing 1 which may be closed by an emergency slide 6. The said residue discharge chute opens into a conveying device and, just before it joins, has a curve towards the transporting direction of the conveying device. A filling-level meter 8 is arranged on
25 the top section of the residue discharge chute 7. The conveying device is controlled in such a way that a dense pile of carbonization residue is always present in the residue discharge chute 7, which pile prevents gases, in particular atmospheric oxygen, from flowing back into the
30 carbonization drum 3.

The conveying device consists of a profiled separating shelf 9 which is located near to the mouth of the residue discharge chute 7 and a bar screen 10 which
35 is formed on the separating shelf 9 in the transporting direction, and a vibrator 11. The latter may comprise springs for bearing the conveying device and eccentric rollers which are driven by a motor (not shown). The residue discharge chute 7 is sealed off from the conveying device by a flexible compensator 12. The vibrator 11

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may be controllable. It can thus be ensured that the residue discharge chute 7 is always closed by the residue in a gastight manner. By means of the vibration of the conveying device, coarse and fine residues are separated from one another on the separating shelf 9 and are moved forwards at the same time. The fine residues then drop through the bar screen 10 and pass into a delivery opening 13 for fine residue arranged there. This delivery opening 13 may open into a container, or even into an apparatus for further treatment, e.g. a high-temperature combustion chamber. The coarse residue is transported over the bar screen 10 up to its end, from where it drops into an outlet 14 for coarse residue arranged there. A container 15 may be connected to this outlet 14. Arranged between the delivery opening 13 and the outlet 14 are separating walls 16 without edges to which no residue adheres.

Figure 2 shows a cross-section through a separating shelf 9 which has a sawtooth-shaped profile 9a. The fine residue collects in the hollows of this profile 9a, while the coarse residue lies on the peaks of the profile 9a. By means of the vibration movement of the separating shelf 9, fine residue adhering to the coarse residue is shaken off so that a coarse residue remains which is as clean as possible.

Figure 3 shows the transition of the separating shelf 9 to the bar screen 10. In this transition region, the separating shelf 9 has curved cutouts 9b. This prevents coarse residue, e.g. wire wool, adhering to the end of the separating shelf 9.

By means of the discharge apparatus according to the invention, on the one hand atmospheric oxygen is prevented from flowing back into the carbonization drum 3 and, on the other hand, the coarse residue is almost completely separated from the fine residue. While the fine residue is usually subjected to further treatment, the coarse residue consists of metal and pieces of glass which may serve directly as raw materials.

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Patent claims

1. Discharge apparatus having a housing (1) in which a discharge pipe (2) of a carbonization drum (3) opens and from which a residue discharge chute (7) starts, which opens into a conveying device ending at an outlet (14), a filling-level meter (8) being arranged on the residue discharge chute (7), characterized in that the conveying device has a profiled separating shelf (9) on which, at the end remote from the mouth of the residue discharge chute (7), a bar screen (10) is formed, in that a vibrator (11) is assigned to the conveying device, and in that the bar screen (10) covers a delivery opening (13) for fine residue and ends at an outlet (14) for coarse residue.
2. Discharge apparatus according to Claim 1, characterized in that, before it opens into the conveying device, the residue discharge chute (7) is curved towards the conveying direction.
3. Discharge apparatus according to either of Claims 1 or 2, characterized in that the residue discharge chute (7) is sealed off from the conveying device by a flexible compensator (12).
4. Discharge apparatus according to one of Claims 1 to 3, characterized in that the profiled separating shelf (9) consists of profiled sheet metal or of a profiled casting.
5. Discharge apparatus according to one of Claims 1 to 4, characterized in that the separating shelf (9) has curved cutouts (9b) at the transition to the bar screen (10).
6. Discharge apparatus according to one of Claims 1 to 5, characterized in that separating walls (16) without edges are arranged between the delivery opening (13) for fine residue and the outlet (14) for coarse residue.
7. Discharge apparatus to one of Claims 1 to 6,

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characterized in that two separately controllable
vibrators (11) are assigned to the conveying device.

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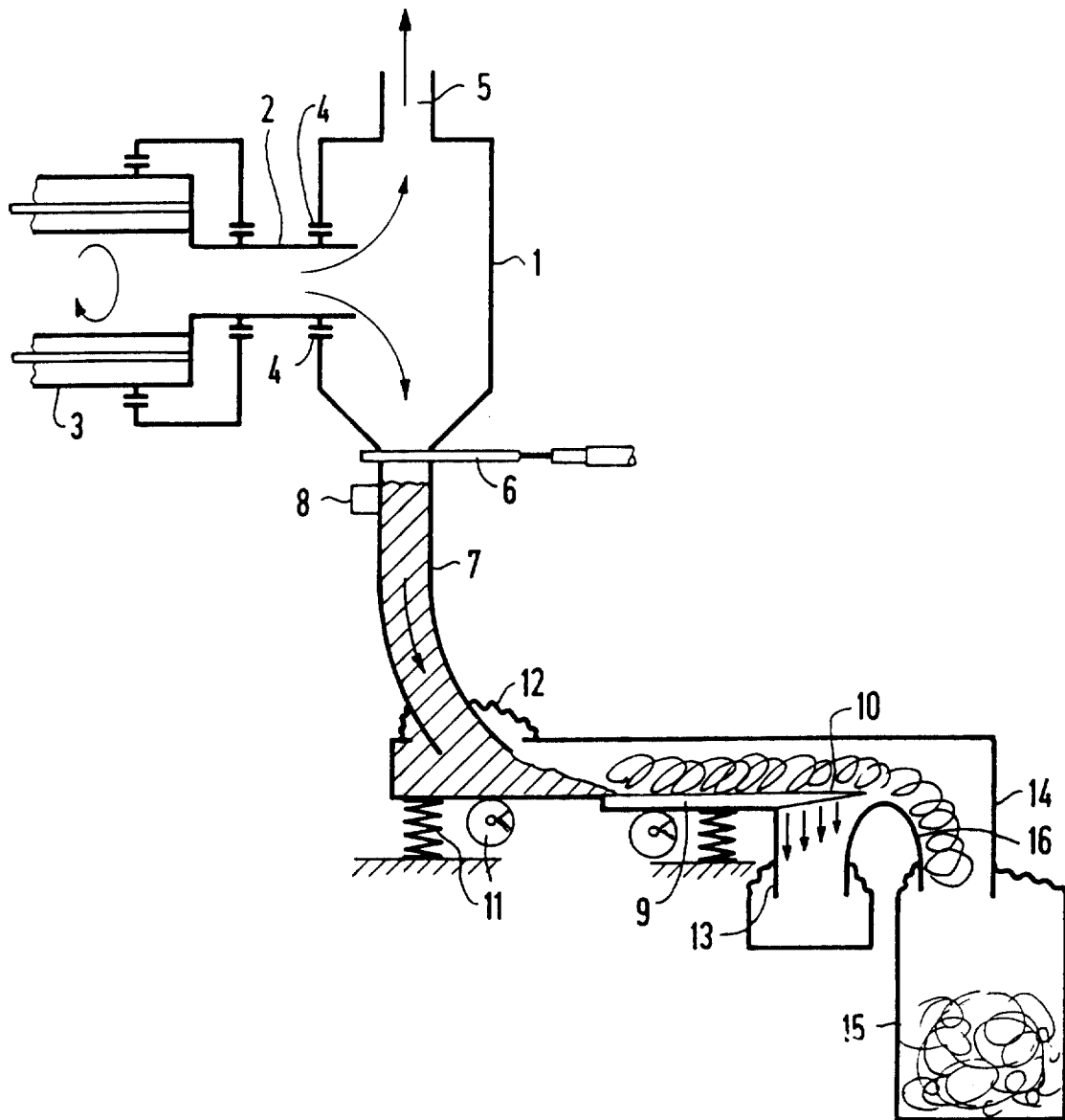


FIG 1

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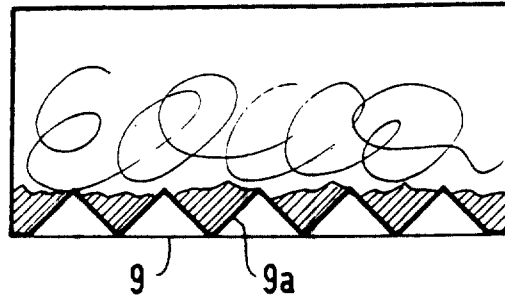


FIG 2

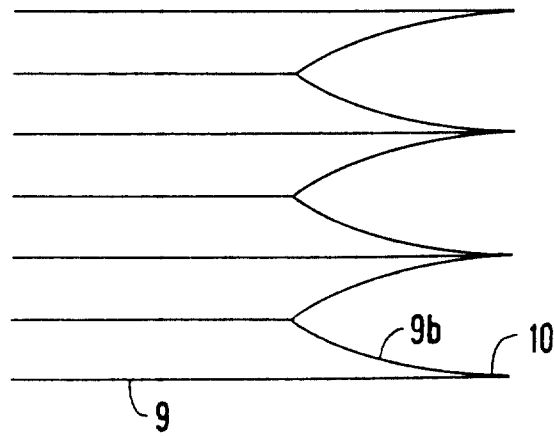


FIG 3

