



HU000033484T2

(19) **HU**(11) Lajstromszám: **E 033 484**(13) **T2****MAGYARORSZÁG****Szellemi Tulajdon Nemzeti Hivatala**

EURÓPAI SZABADALOM SZÖVEGÉNEK FORDÍTÁSA

(21) Magyar ügyszám: **E 12 751624**(22) A bejelentés napja: **2012. 08. 03.**

(96) Az európai bejelentés bejelentési száma:

EP 20120751624

(97) Az európai bejelentés közzétételi adatai:

EP 2741624 A2 **2013. 02. 14.**

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 2741624 B1 **2017. 05. 17.**(51) Int. Cl.: **A24D 3/02**

(2006.01)

B65G 47/84

(2006.01)

B65G 47/18

(2006.01)

B65G 47/52

(2006.01)

B65G 45/12

(2006.01)

B65G 45/14

(2006.01)

(86) A nemzetközi (PCT) bejelentési szám:

PCT/PL 12/050026

(87) A nemzetközi közzétételi szám:

WO 13022360

(30) Elsőbbségi adatok:

39590611**2011. 08. 08.****PL**

(72) Feltaláló(k):

Sikora, Leszek, 26-600 Radom (PL)**Cieslikowski, Bartosz, 26-600 Radom (PL)****Figarski, Radoslaw, 26-600 Radom (PL)****RYBA, Tomasz, 26-600 Radom (PL)**

(73) Jogosult(ak):

International Tobacco Machinery Poland Sp. z o.o., 26-600 Radom (PL)

(74) Képviselő:

SBGK Szabadalmi Ügyvivői Iroda, Budapest

(54) **Eszköz ömlesztett anyag kezelésére a dohányiparban, kaparó egy ilyen berendezés számára és eljárás ömlesztett anyag kezelésére**

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.



(11) **EP 2 741 624 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
17.05.2017 Bulletin 2017/20

(51) Int Cl.:
A24D 3/02 (2006.01) **B65G 47/52** (2006.01)
B65G 45/12 (2006.01) **B65G 45/14** (2006.01)
B65G 47/18 (2006.01) **B65G 47/84** (2006.01)

(21) Application number: **12751624.3**

(86) International application number:
PCT/PL2012/050026

(22) Date of filing: **03.08.2012**

(87) International publication number:
WO 2013/022360 (14.02.2013 Gazette 2013/07)

(54) **APPARATUS FOR HANDLING BULK MATERIAL IN THE TOBACCO PROCESSING INDUSTRY,
SCRAPER FOR SUCH APPARATUS AND METHOD OF HANDLING BULK MATERIAL**

VORRICHTUNG ZUM FÖRDERN VON SCHÜTTGUT IN DER TABAKVERARBEITENDEN
INDUSTRIE, ABSTREIFER FÜR SOLCHE VORRICHTUNG UND VERFAHREN ZUM FÖRDERN VON
SCHÜTTGUT

APPAREIL POUR SAISIR UNE SUBSTANCE LÂCHE DANS UN ÉQUIPEMENT DE L'INDUSTRIE
DU TABAC, RACLOIR POUR UN TEL APPAREIL ET PROCÉDÉ D'ALIMENTATION DE SUBSTANCE
LÂCHE

(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**

- **CIESLIKOWSKI, Bartosz**
26-600 Radom (PL)
- **FIGARSKI, Radosław**
26-600 Radom (PL)
- **RYBA, Tomasz**
26-600 Radom (PL)

(30) Priority: **08.08.2011 PL 39590611**

(43) Date of publication of application:
18.06.2014 Bulletin 2014/25

(74) Representative: **Markieta, Jarosław Franciszek**
Kancelaria Rzeczników Patentowych
J. Markieta, M. Zielinska-Lazarowicz Sp. p.
Wankowicza 5A lok. 23
02-796 Warszawa (PL)

(73) Proprietor: **International Tobacco Machinery**
Poland Sp. z o.o.
26-600 Radom (PL)

(72) Inventors:
• **SIKORA, Leszek**
26-600 Radom (PL)

(56) References cited:
US-A- 3 312 152 US-A- 3 464 324
US-A- 5 221 247

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 741 624 B1

Description

[0001] The object of the application is an apparatus for picking up a loose substance in the tobacco industry equipment, a scraper for such apparatus and a method of feeding the loose substance.

[0002] In the machines for manufacturing multi-segment filters, there is the need of feeding multiple various filter segments from multiple feeding devices as well as the need of feeding filter materials in the loose form, such as granulated carbon. The filter material in the loose form, for reasons of simplification hereinafter referred to as loose substance, is fed to receiving spaces so called chambers, formed between filter segments placed on a partly rolled up cigarette paper, i.e. while forming a continuous filter rod which will be later cut into multi-segment filter rods. The loose substance is fed into spaces between the filter segments from above between deflected edges of the cigarette wrapping paper as disclosed in US4185645. From the DE2316692 document a solution is known according to which the loose substance is poured into spaces between segments through specially prepared holes in the cigarette paper covering from above the spaces between the segments as well as the segments themselves. Some of manufacturers of cigarette filters require and there is a demand for devices which precisely measure the portions of the loose substance and feed them to corresponding chambers between the filter segments at high speeds of movement of such chambers. From the description of DE2062511, an apparatus provided with a conveyor with pockets in the form of sleeves conveying a measured amount of the loose substance poured by gravity from a loose substance hopper is known. The loose substance is also by gravity poured into receiving spaces between the filter segments disposed on the cigarette paper for wrapping the continuous filter rod. The apparatus known from the US5221247 publication is provided with a plurality of pockets disposed on the conveyor of pockets into which by means of the vacuum the particles of the loose substance sucked from an air-permeable tape are inserted. The pockets move along a path situated parallel to the tape from which the loose substance is taken. After filling, the pockets are guided along a path situated above the path of motion of the segments placed on the cigarette paper in the form of a tape for wrapping filter segments, whereas the pockets are arranged directly opposite the receiving spaces or chambers between the segments. Document US 3 312 152 A discloses the preamble of claim 1. Known solutions provided with pockets for the temporary storage of a measured amount of the loose substance are not designed for the operation at very high linear velocities which are required in view of the presently required efficiencies of machines for manufacturing multi-segment filters. The faster of the two solutions presented above is the one where the vacuum assists filling of the pockets for the temporary storage and measuring of portions of the loose substance (US5221247). The

pockets take inside them the particles of the loose substance above which they move. Carried out tests proved that at the motion speeds of the pockets in the range of 300m/min the vacuum causes the detachment of the particles from the ground, however, their further movement does not take place in a controlled manner and a part of the particles of the loose substance detached from the ground forms a cloud around the moving pockets and the particles are not capable of penetrating into the pockets.

[0003] The subject matter of the invention is an apparatus for picking up the loose substance in the tobacco industry equipment comprising a loose substance feeding unit provided with a tape feeding the loose substance, and a picking up unit, characterised in that the picking up unit is provided with vacuum pockets cooperating with scrapers. The pockets together with the scrapers are adapted to moving relative to the tape feeding the loose substance.

[0004] Preferably an apparatus according to the invention is characterised in that the pockets and scrapers are separable elements which outside of the area of the loose substance feeding tape are adapted to be guided on different paths.

[0005] Preferably an apparatus according to the invention is characterised in that the pockets cooperating with the scrapers are adapted to moving at a right angle to the loose substance feeding tape.

[0006] Preferably an apparatus according to the invention is characterised in that the pockets cooperating with the scrapers are adapted to moving askew to the loose substance feeding tape.

[0007] Preferably an apparatus according to the invention is characterised in that the pockets cooperating with the scrapers are adapted to moving along an arc relative to the loose substance feeding tape.

[0008] The subject matter of the invention is also a method of picking up loose substance in the tobacco industry equipment comprising the steps in which the loose substance is fed by means of a feeding tape. The method according to the invention is characterised in that a picking up unit comprising vacuum pockets cooperating with the scrapers is guided in such a way that the picking up unit moves relative to a tape feeding the loose substance.

[0009] Preferably the method according to the invention is characterised in that in addition the vacuum pocket and the scraper are separated. Outside of the area of the feeding tape the scraper and the vacuum pocket are guided on different paths.

[0010] Preferably the method according to the invention is characterised in that the picking up unit, provided with a vacuum pocket cooperating with the scraper, is guided in such a way that the picking up unit moves at a right angle to the tape feeding the loose substance.

[0011] Preferably the method according to the invention is characterised in that the picking up unit, provided with a vacuum pocket cooperating with the scraper, is guided in such a way that the picking up unit moves along

an arc relative to the tape feeding the loose substance.

[0012] The use of the scrapers limits the possibility of movement of the loose substance particles in any other direction than towards the inlet of the hopper, resulting in the increase of the repeatability of measurement of portions of the loose substance fed to one pocket. As a result, the efficiency of picking up of the particles by the hoppers increases, which permits to fill them in a shorter way. In addition, in case of a diversified gradation of the loose substance particles, the effectiveness of picking up of the loose substance particles is increased. An apparatus according to the invention provides also the possibility of arrangement of the pockets in a nonuniform way, i.e. successive pockets may be spaced at different distances.

[0013] The object of the invention has been presented in a preferred embodiment in a drawing in which:

Fig. 1 shows a view of an apparatus according to the invention,

Fig. 2 shows a view of a formed multi-segment continuous filter rod ,

Fig. 3 shows a cross-sectional view of pockets of an apparatus according to the invention,

Fig. 4 shows scrapers according to the invention,

Fig. 5 shows the first embodiment of a scraper according to the invention,

Fig. 6 shows another embodiment of a scraper according to the invention,

Fig. 7 shows another embodiment of a scraper according to the invention,

Fig. 8 shows another embodiment of a scraper according to the invention,

Fig. 9 shows another embodiment of a scraper according to the invention,

Fig. 10 shows another embodiment of a scraper according to the invention,

Fig. 11 shows schematically another embodiment of an apparatus according to the invention

[0014] Fig. 1 shows an apparatus for feeding a loose substance to a device manufacturing multi-segment filters. The apparatus is provided with a hopper 1 for a loose substance 2 which can be a granulated carbon or generally a loose filter material. Beneath the hopper 1 a tape 3 feeding the loose substance 2 emerging from the hopper 1 is situated. The tape 3 together with the hopper 1 constitute a loose substance 2 feeding unit 4. Above an upper surface 5 of the tape 3, a picking up unit 6 for conveying the loose substance 2 from the loose substance feeding unit 4 to the device manufacturing multi-segment filters is situated, whereas in the drawing the filter manufacturing device itself is not shown, but only a multi-segment continuous filter rod 10, which is formed in the device and moves in the direction indicated by an arrow shown next to the continuous filter rod, is represented. The picking up unit 6 for conveying the loose substance is provided with a plurality of pockets 7 for

receiving, storage and conveyance of measured portions of the loose substance 2 from a loose substance picking up area 9 to receiving spaces 8 (Fig. 2) of the formed multi-segment continuous filter rod 10 . The receiving spaces 8 are limited by filter segments 12, 13, whereas the loose substance can be poured between the segments 12, 13 before wrapping the cigarette paper, and in case of a perforated cigarette paper 14 after pre-wrapping the segments, through holes 16. The pockets 7 are attached to a conveyor 15, whereas for reasons of simplification the guide rollers and the drive of the conveyor have not been shown. The path of motion of the pockets 7 runs through the loose substance picking up area 9, whereas the pockets 7 move together with scrapers 30 of a unit 11 supporting the insertion of the loose substance, which will be hereinafter discussed, along a part of a vacuum supply unit 17. The vacuum supplied by the unit 17 is necessary for inserting the loose substance into the pockets and for holding the loose substance inside the pockets until the moment when the loose substance is fed into the receiving spaces 8 of the formed continuous filter rod 10 . The vacuum supply unit 17 extends from point 18 to point 19 perpendicular to the direction of movement of the feeding tape 3. The path of motion of the pockets 7 situated parallel to the rectilinear unit 17 is also situated perpendicular to the direction of movement of the feeding tape 3, although also an embodiment is possible where the pockets 7 move slantwise to the loose substance feeding tape 3. Filling of the pockets 7 is effected by means of the scrapers 30 of the unit 11 supporting the insertion of the loose substance into the pockets 7 of the picking up unit 6. In the area 9 above the upper surface 5 of the tape 3 the pockets 7 and the scrapers 30 move on a common path. Then the pockets 7 are guided to an area 20 of feeding the loose substance 2 to the receiving spaces 8, and the scrapers 30 are shifted on a separate path back to the area 9 so that before the entrance to the area 9, that is before the point 18, they move already together with the pockets 7. On the other hand, the pockets 7 moving already without the scrapers, after entering the area 20 move along a unit 21 supplying overpressure which is necessary to transfer the loose substance from the pockets 7 to the receiving spaces 8. The overpressure supply unit 21 extends from point 19 to point 22.

[0015] Fig. 3 shows the vacuum pockets 7 in a cross-sectional view during the feeding of the loose substance 2 to the receiving spaces 8 through the holes 16, whereas the feeding of the loose substance is assisted by the overpressure supplied from the overpressure supply unit 21 to chambers 23 separated from the loose substance 2 by an air-permeable element 24 which is, however, not permeable to the loose substance. In order to seal the flow of the loose substance and eliminate the risk of spilling the loose substance to the sides, above the formed continuous filter rod 10 a tape 25, provided with holes 26 which are situated directly opposite the holes 16 and directly opposite the outlets of the pockets 7, is synchron-

ically moved, with the speed of movement of the rod 10. In the area 20 of feeding the loose substance to the receiving spaces 8, beneath the formed continuous filter rod 10 moving on an air-permeable format tape 28, a vacuum supply unit in the form of a vacuum chamber 29 is disposed. The vacuum coming from the vacuum chamber 29 additionally supports the feeding of the loose substance to the receiving spaces 8.

[0016] The unit 11 supporting inserting and directing of the loose substance 2 to the pockets 7 is provided with a plurality of scrapers 30 the scraping edges 31 (Fig. 4) of which move above the upper surface 5 of the tape 3, whereas the scraping edges 31 are positioned in such a way as to move within a layer 32 of the loose substance 2. The arrow 33 shows the direction of movement of the scraper 30 relative to the surface 5, on which the layer 32 of the loose substance 2 is situated, the direction of movement of which is shown by the arrow 34. For a determined speed of movement of the pockets 7 together with the scrapers 30, and for a determined speed of movement of the layer 32 of the loose substance 2 each of the scrapers 30 takes and delivers to the pockets 7 a measured repeatable amount of the loose substance. On the other hand, by changing the thickness of the layer 32 of the loose substance 2 or by changing the speed of movement of the tape 3 the volume of fed portion of the loose substance can be adjusted.

[0017] The scrapers 30 can take many different forms, however, three fundamental elements can be distinguished therein: a scraping surface A through which the loose substance 2 is received, a transport profile 34, 36 and an out-feed surface B. Fig. 5-10 show different possible forms of the scraper 30.

[0018] The scraping surface A is a separated area of the space through which the loose substance 2 is picked up, whereas the scraping surface A is determined by the edges 31, 31A, 31B, 31C, 31 D and has a rectangular or half-oval shape. This surface is most frequently limited by the edges of the scraper 30, however, e.g. in an open configuration (Fig. 5) the scraping surface A is the space above the working edge, in a half-closed configuration (Fig. 6-9) it is the space determined by the edges of the side walls, while in a closed configuration (Fig. 10) it is the space determined by the edges of the side walls and of the upper wall of the scraper 30.

[0019] The out-feed surface B is determined by an edge 35 which has a configuration enabling it to cooperate with the vacuum pocket 7. The out-feed surface B can be also determined by an edge 38A, 38B, 38C, 38D and 35E which has a configuration enabling it to cooperate with the vacuum pocket 7 the inlet profile of which is determined by the edge 35.

[0020] The transport profile 34, 36 is a surface which directs the loose substance 2 from the scraping surface A, through which the scraper 30 picks up the loose substance 2, to the out-feed surface B which has a shape corresponding to the inlet of the vacuum pocket 7. The transport profiles 34, 36 can have different shapes se-

lected for specific parameters of the loose substance 2.

[0021] In the embodiments it is possible to give to the transport profile 34, 36 different shapes than those shown in Fig. 5 to 10, for instance circumscribed by a broken or smooth curve with a different shape e.g. circumscribed by a hyperbolic or a straight curve with an appropriate slope, besides the transport profile 34, 36 can take the shape of a vertical wall.

[0022] Furthermore, the scraper 30 itself can have an open form, where the transport profile 34, 36 is not closed by side walls as shown in Fig. 5, but can also have a half-closed form where the transport profile 34, 36 is limited by side walls, see Fig. 6-9. What is more, in some embodiments the scraper 30 can have a closed form where the transport profile 34, 36 is limited not only by side walls, but is also closed from above by an upper wall as shown in Fig. 10.

[0023] Fig. 11 shows a simplified view of another embodiment of the apparatus where the pockets 7 of the unit 6 for picking up the loose substance 2 together with the scrapers 30 move in the picking up area 9 on a circular path. The scrapers 30 of the unit supporting picking up and directing of the loose substance are disposed on a circular conveyor 37 and are spaced on a circle with a diameter corresponding to the diameter of the circle on which the vacuum pockets 7 move. The path of motion of the pockets 7 consists of a circular fragment and rectilinear sections.

Claims

1. An apparatus for picking up loose substance in the tobacco industry equipment comprising a loose substance feeding unit provided with a loose substance feeding tape and a picking up unit provided with vacuum pockets (7) cooperating with scrapers (30), whereas the vacuum pockets (7) and the scrapers (30) are adapted to moving relative to the loose substance (2) feeding tape (3), **characterised in that** the vacuum pockets (7) move together with the scrapers (30).
2. An apparatus according to claim 1 **characterised in that** the vacuum pockets (7) and the scrapers (30) are separate elements which are adapted to be guided on different paths outside the area of the loose substance (2) feeding tape (3).
3. An apparatus according to claim 1 or 2 **characterised in that** the vacuum pockets (7) cooperating with the scrapers (30) are adapted to moving at a right angle to the loose substance (2) feeding unit (3).
4. An apparatus according to claim 1 or 2 **characterised in that** the vacuum pockets (7) cooperating with the scrapers (30) are adapted to moving askew to

the loose substance (2) feeding unit (3).

5. An apparatus according to claim 1 or 2 **characterised in that** the vacuum pockets (7) cooperating with the scrapers (30) are adapted to moving along an arc relative to the loose substance (2) feeding unit (3).
6. A method of picking up loose substance in the tobacco industry equipment comprising steps in which the loose substance is fed by means of a feeding tape and a picking up unit (6) comprising vacuum pockets (7) cooperating with scrapers (30) is guided in such a way that the picking up unit moves relative to a loose substance (2) feeding tape (3).
7. A method according to claim 6 **characterised in that** in addition the vacuum pockets (7) and the scraper (30) are separated, whereas outside of the area of the feeding tape (3) the scraper and the vacuum pocket are guided on different paths.
8. A method according to claim 6 or 7 **characterised in that** the picking up unit (6) provided with the vacuum pocket (7) cooperating with the scraper (30) is guided in such a way that the picking up unit (6) moves at a right angle to the loose substance (2) feeding tape (3).
9. A method according to claim 6 or 7 **characterised in that** the picking up unit (6) provided with the vacuum pocket (7) cooperating with the scraper (30) is guided in such a way that the picking up unit moves along an arc relative to the loose substance (2) feeding tape (3).

Patentansprüche

1. Einrichtung zum Herauspicken von Losematerial aus einer Tabakindustriesystemausrüstung, einschließlich einer Einschüttungsvorrichtung des Losematerials samt Einschüttungsband fürs Losematerial und Herauspickvorrichtung, die mit Vakuumbehältern (7) versehen ist, welche mit Mitnehmer (30) in Wechselwirkung stehen, wobei die Vakuumbehälter (7) und die Mitnehmer (30) sich beziehentlich Einschüttungsbandes (3) des Losematerials (2) bewegen können, **dadurch gekennzeichnet, dass** die Vakuumbehälter (7) sich zusammen mit den Mitnehmern (30) bewegen.
2. Einrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Vakuumfächer (7) und die Mitnehmer (30) Separatelemente sind, die durch die verschiedenen Strecken abseits des Einschüttungsbandes (3) des Losematerials (2) gerichtet werden

können.

3. Einrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die mit den Mitnehmern (30) in Wechselwirkung stehenden Vakuumfächer (7) sich senkrecht zum Einschüttungsband (3) des Losematerials (2) bewegen können.
4. Einrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die mit den Mitnehmern (30) in Wechselwirkung stehenden Vakuumfächer (7) sich schräg zum Einschüttungsband (3) des Losematerials (2) bewegen können.
5. Einrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die mit den Mitnehmern (30) in Wechselwirkung stehenden Vakuumfächer (7) sich im Bogenlaufen beziehentlich Einschüttungsbandes (3) des Losematerials (2) bewegen können.
6. Verfahren zum Herauspicken von Losematerial aus einer Tabakindustriesystemausrüstung, einschließlich Schritte wo das Losematerial mithilfe eines Einschüttungsbandes und Herauspickvorrichtung (6), einschließlich die mit den Mitnehmern (30) in Wechselwirkung stehenden Vakuumfächer (7), so gerichtet wird, dass sich die Herauspickvorrichtung beziehentlich Einschüttungsbandes (3) des Losematerials (2) bewegt.
7. Verfahren nach Anspruch 6, **dadurch gekennzeichnet, dass** die Vakuumfächer (7) und Mitnehmer (30) getrennt sind, wobei abseits des Einschüttungsbandes (3) die Mitnehmer und die Vakuumbehälter auf verschiedene Strecken gerichtet werden.
8. Verfahren nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** die Herauspickvorrichtung (6), die mit dem sich mit dem Mitnehmer (30) in Wechselwirkung befindlichen Vakuumfächer (7) versehen ist, so gerichtet wird, dass die Herauspickvorrichtung (6) sich senkrecht zum Einschüttungsband (3) des Losematerials (2) bewegt.
9. Verfahren nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** die Herauspickvorrichtung (6), die mit dem sich mit dem Mitnehmer (30) in Wechselwirkung befindlichen Vakuumfächer (7) versehen ist, so gerichtet wird, dass die Herauspickvorrichtung (6) sich im Bogenlaufen beziehentlich Einschüttungsbandes (3) des Losematerials (2) bewegt.

Revendications

1. Un dispositif de prélèvement de substance éparse dans un équipement de l'industrie du tabac comprenant une unité d'alimentation dotée d'un tapis d'ali-

- mentation de substance éparse et d'une unité de prélèvement dotée de réceptacles sous vide (7) assistés de racleurs (30), où les réceptacles sous vide (7) et les racleurs (30) sont adaptés pour se déplacer par rapport à la substance éparse (2) du tapis d'alimentation (3) et **caractérisé en ce que** les réceptacles sous vide (7) se déplacent ensemble avec les racleurs (30).
2. Un dispositif conforme à la revendication 1 **caractérisée en ce que** les réceptacles sous vide (7) et les racleurs (30) sont séparés par des éléments qui sont adaptés pour être guidés sur différents chemins en dehors de la zone de la substance éparse (2) du tapis d'alimentation (3).
3. Un dispositif conforme à la revendication 1 ou 2 **caractérisé en ce que** les réceptacles sous vide (7) assistés de racleurs (30) sont adaptés pour se déplacer à angle droit de la substance éparse (2) de l'unité d'alimentation (3).
4. Un dispositif conforme à la revendication 1 ou 2 **caractérisé en ce que** les réceptacles sous vide (7) assistés de racleurs (30) sont adaptés pour se déplacer de travers à la substance éparse (2) de l'unité d'alimentation (3).
5. Un dispositif conforme à la revendication 1 ou 2 **caractérisé en ce que** les réceptacles sous vide (7) assistés des racleurs (30) sont adaptés pour se déplacer le long d'un arc par rapport à la substance éparse (2) de l'unité d'alimentation (3).
6. Une méthode de prélèvement de la substance éparse dans un équipement de l'industrie du tabac comprenant les étapes où la substance éparse est introduite au moyen d'un tapis d'alimentation et d'une unité de prélèvement (6) comprenant des réceptacles sous vide (7) assistés de racleurs (30) et est guidée de manière à ce que l'unité de prélèvement se déplace par rapport à la substance éparse (2) du tapis d'alimentation (3).
7. Une méthode conforme à la revendication 6 **caractérisée en ce que** les réceptacles sous vide (7) et le racleur (30) sont en plus séparés, tandis qu'en dehors de la zone du tapis d'alimentation (3), le racleur et le réceptacle sous vide sont guidés sur des chemins différents.
8. Une méthode conforme à la revendication 6 ou 7 **caractérisée en ce que** l'unité de prélèvement (6) dotée du réceptacle sous vide (7) assisté du racleur (30) est guidée de manière à ce que l'unité de prélèvement (6) se déplace à angle droit par rapport à la substance éparse (2) du tapis d'alimentation (3).
9. Une méthode conforme à la revendication 6 ou 7 **caractérisé en ce que** l'unité de prélèvement (6) dotée du réceptacle sous vide (7) assisté du racleur (30) est guidée de manière à ce que l'unité de prélèvement (6) se déplace le long d'un arc par rapport à la substance éparse (2) du tapis d'alimentation (3).

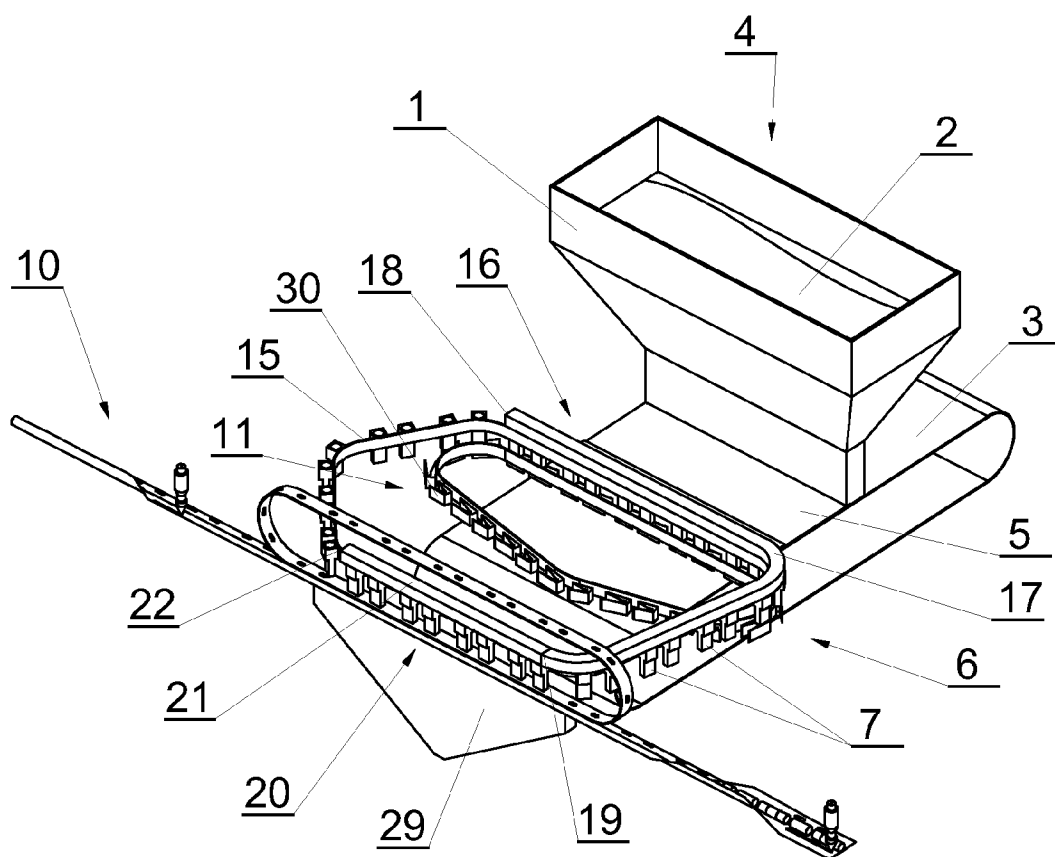


Fig. 1

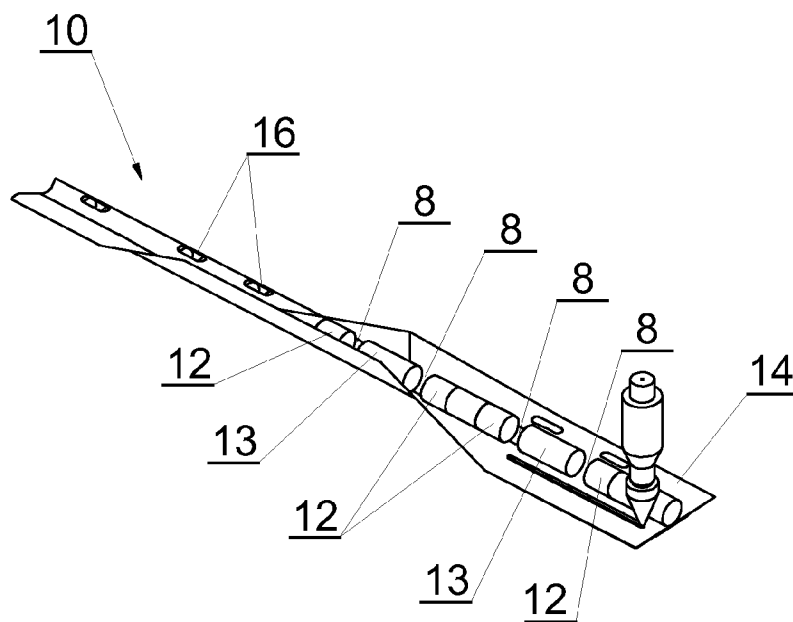


Fig. 2

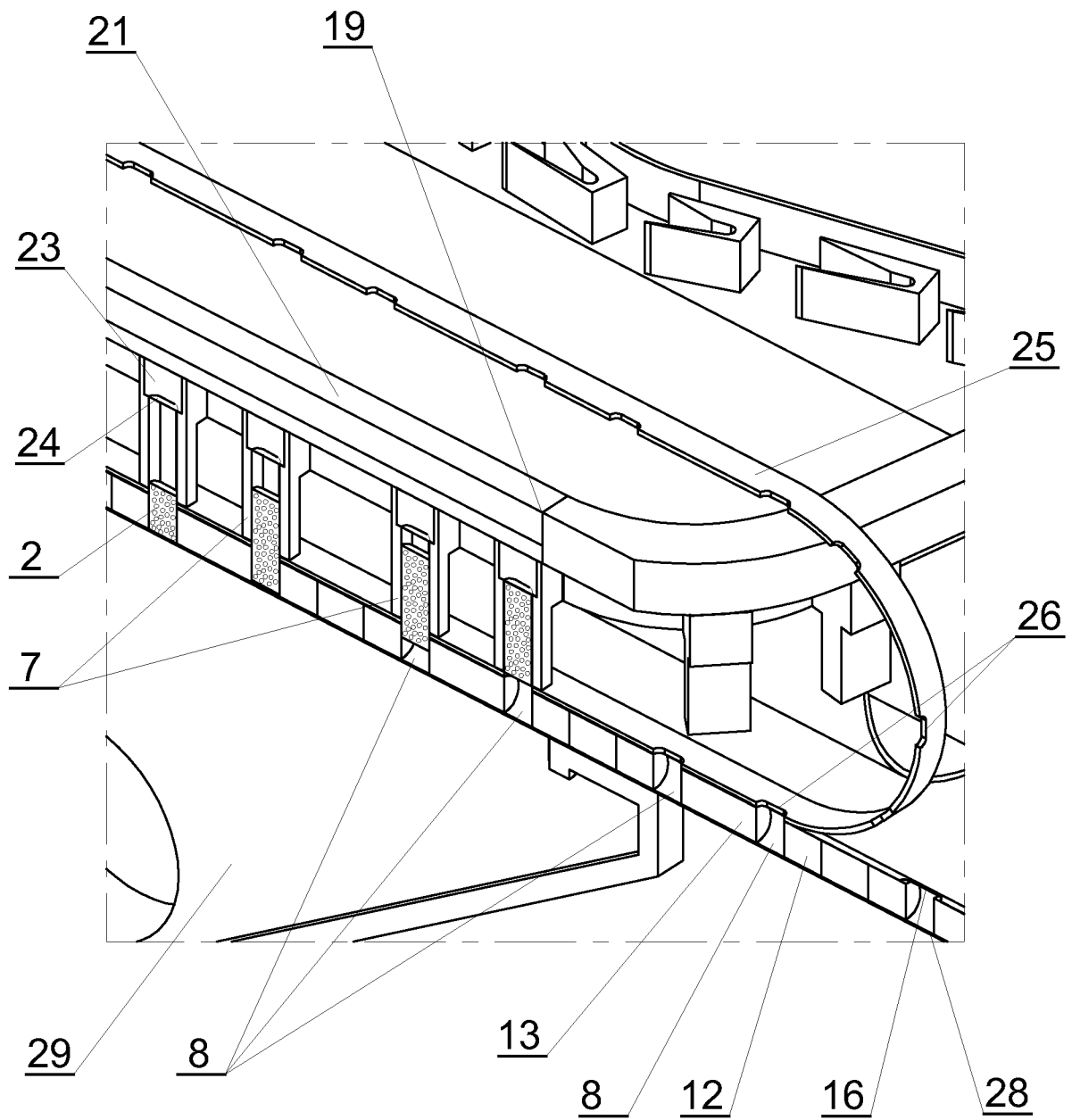


Fig. 3

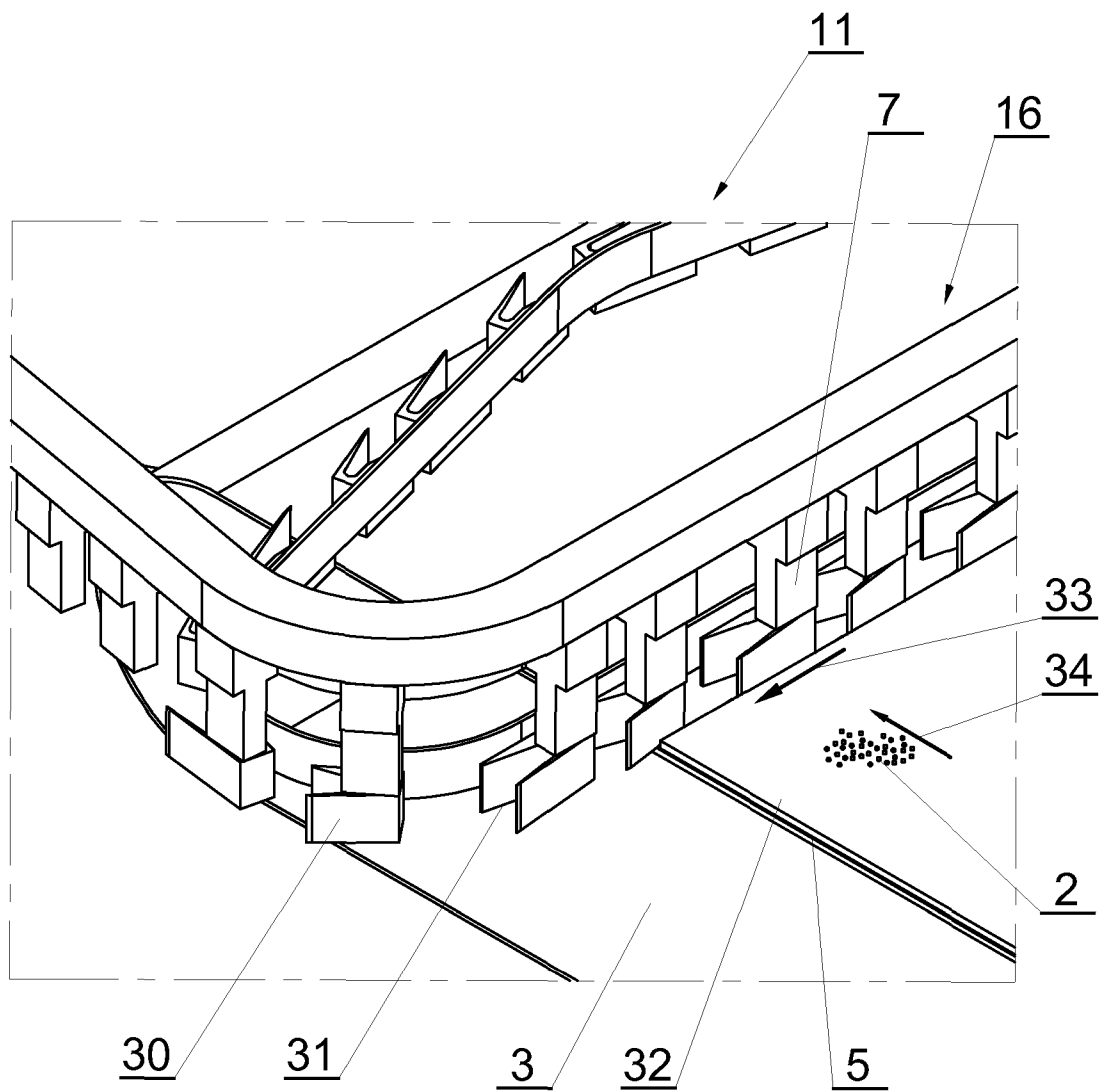


Fig. 4

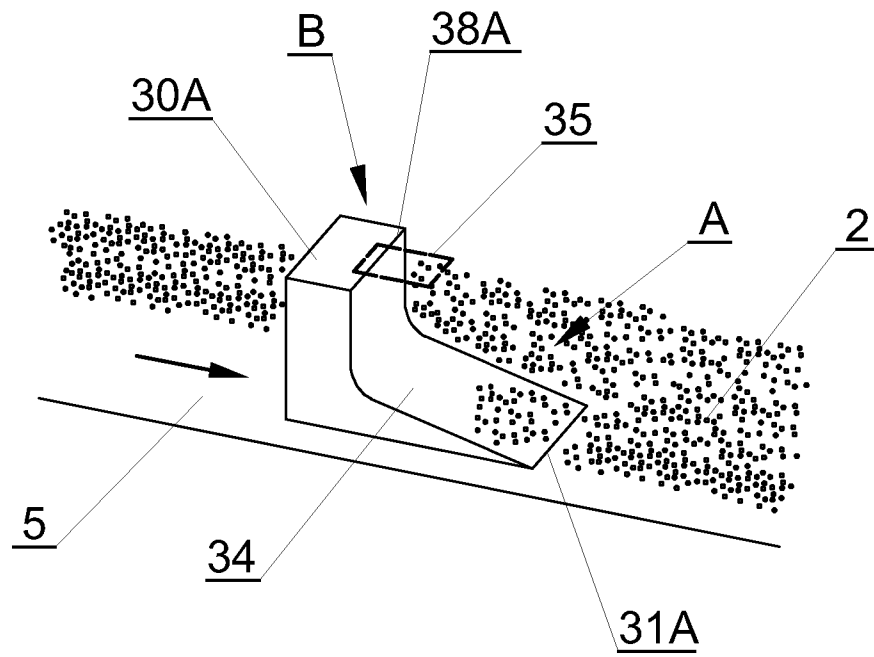


Fig. 5

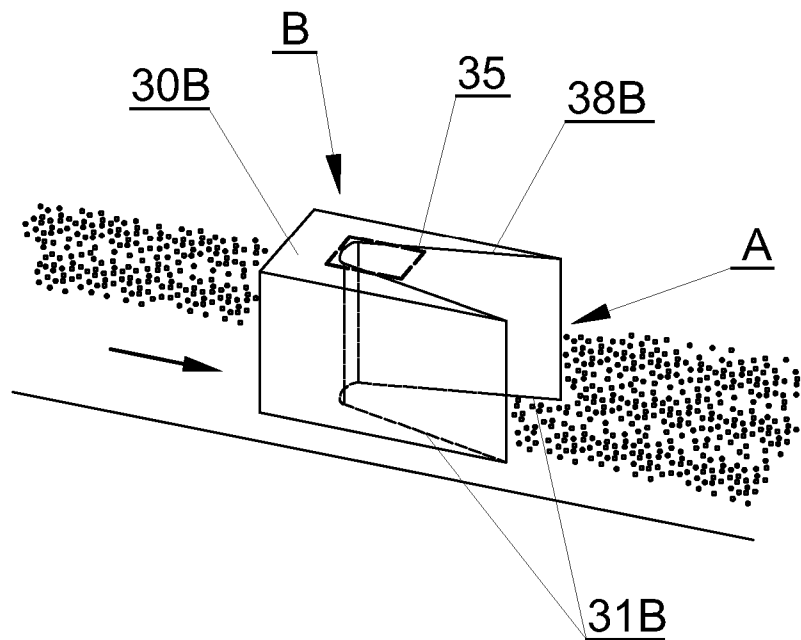


Fig. 6

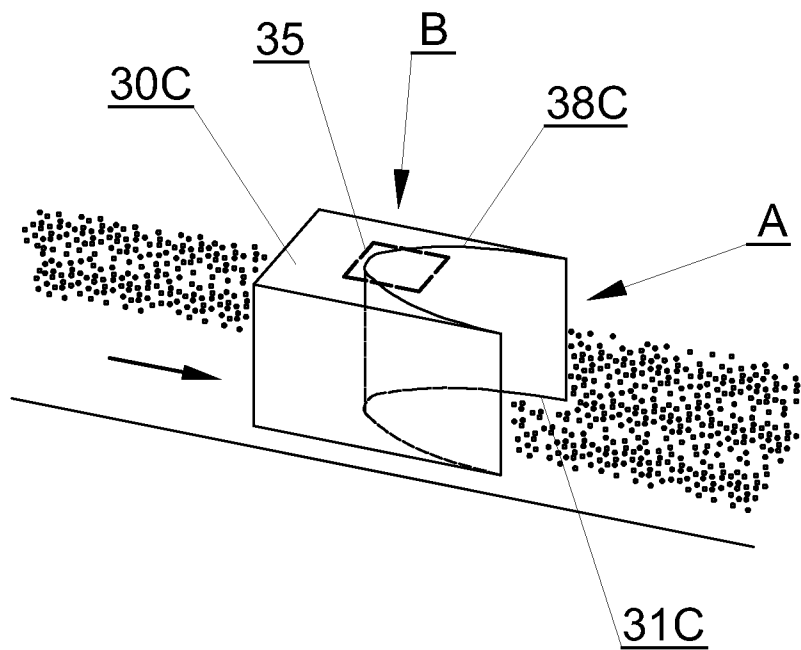


Fig. 7

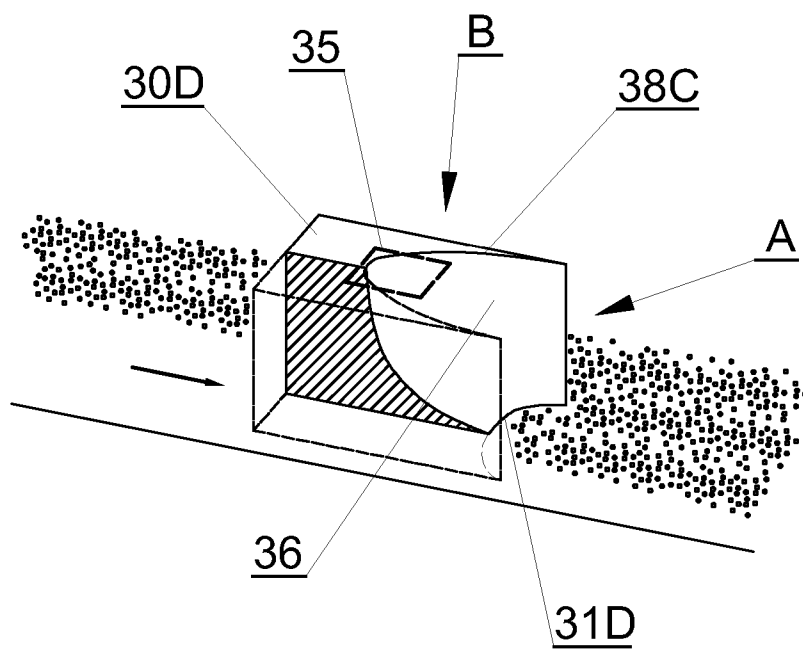


Fig. 8

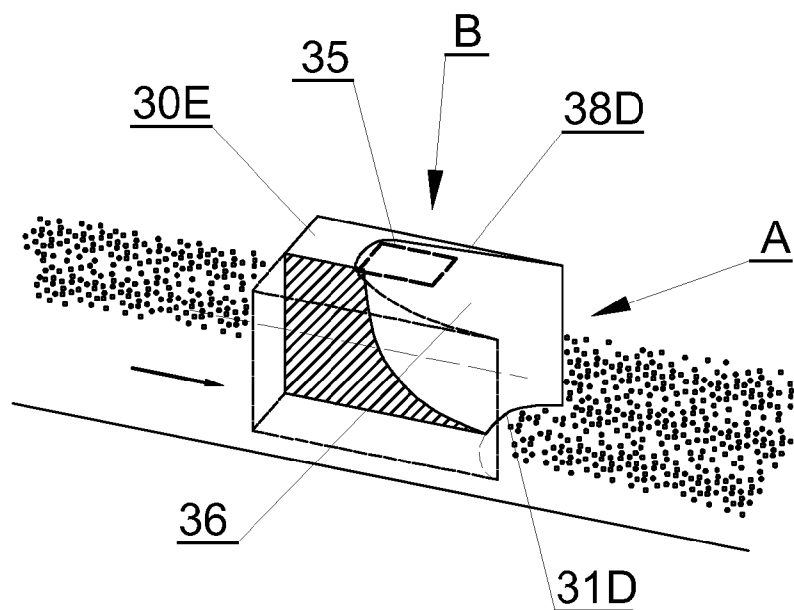


Fig. 9

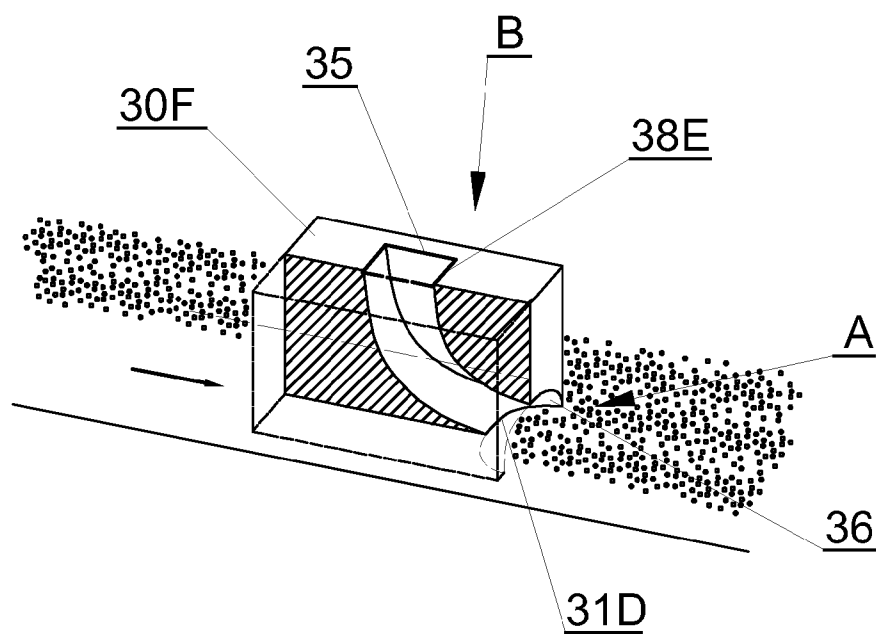


Fig. 10

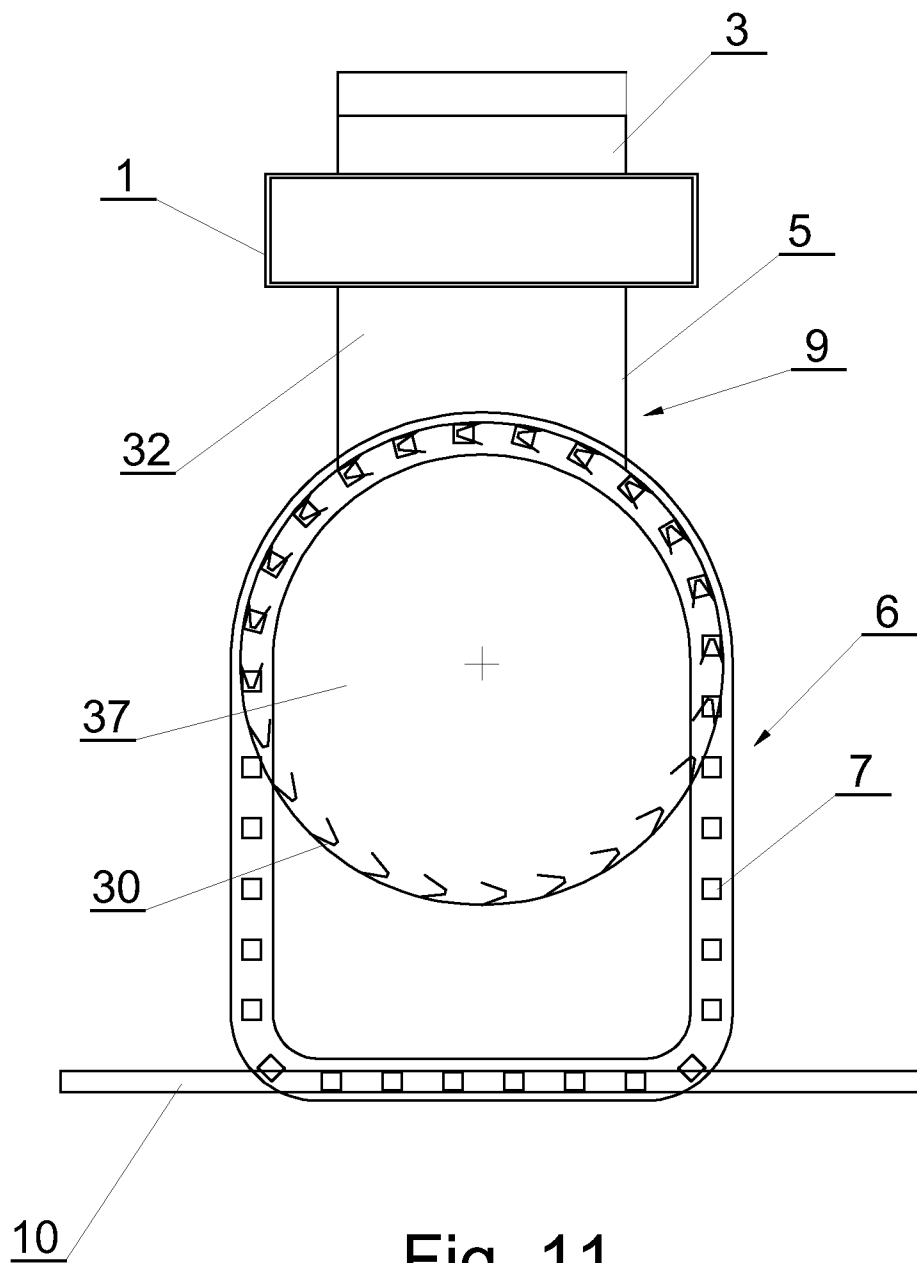


Fig. 11

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4185645 A [0002]
- DE 2316692 [0002]
- DE 2062511 [0002]
- US 5221247 A [0002]
- US 3312152 A [0002]



ESZKÖZ ÖMLESZTETT ANYAG KEZELÉSÉRE A DOHÁNYIPARBAN, KAPARÓ EGY ILYEN BERENDEZÉS SZÁMÁRA ÉS ELJÁRÁS ÖMLESZTETT ANYAG KEZELÉSÉRE

1. Eszköz ömlesztett anyag felszedésére egy dohányipari berendezésben, amely tartalmaz egy ömlesztett anyag adagoló egységet, egy ömlesztett anyag adagoló szalaggal és egy kaparókkal (30) együttműködő vákuumzsebeket (7) tartalmazó felvevőegységgel, ahol a vákuumzsebek (7) és a kaparók (30) az ömlesztett anyag (2) adagoló szalaghoz (3) képest történő mozgásra vannak kialakítva, azzal jellemezve, hogy a vákuumzsebek (7) együtt mozognak a kaparókkal (30).

2. Az 1. igénypont szerinti eszköz, azzal jellemezve, hogy a vákuumzsebek (7) és a vakarók (30) különálló elemek, amelyek úgy vannak kialakítva, hogy az ömlesztett anyag (2) adagoló szalag (3) területén kívül különböző út mentén vannak vezetve.

3. Az 1. vagy a 2. igénypont szerinti eszköz, azzal jellemezve, hogy a vákuumzsebek (7) a kaparókkal (30) együttműködve úgy vannak kialakítva, hogy az ömlesztett anyag (2) adagoló egységre (3) derékszögben mozogjanak.

4. Az 1. vagy a 2. igénypont szerinti eszköz, azzal jellemezve, hogy a vákuumzsebek (7) a kaparókkal (30) együttműködve úgy vannak kialakítva, hogy az ömlesztett anyag (2) adagoló egységhez (3) képest ferdén mozogjanak.

5. Az 1. vagy a 2. igénypont szerinti eszköz, azzal jellemezve, hogy a vákuumzsebek (7) a kaparókkal (30) együttműködve úgy vannak kialakítva, hogy egy, az ömlesztett anyag (2) adagoló egységhez (3) viszonyított fven mozogjanak.

6. Eljárás ömlesztett anyag felszedésére egy dohányipari eszközben, amely tartalmaz egy lépést, amelynek során az ömlesztett anyagot az adagoló szalag eszközeivel adagoljuk és egy felvevő egység (6) kaparókkal (30) együttműködő vákuumzsebeket (7) tartalmaz, amelyeket úgy vezetünk, hogy a felvevő egység az ömlesztett áru (2) adagoló szalaghoz (3) képest mozog.

7. A 6. igénypont szerinti eljárás, azzal jellemezve, hogy a vákuumzsebek (7) és a kaparó (30) el van választva, miután az adagoló szalag (3) területén kívül a kaparót és a vákuumzsebet különböző útvonalon vezetjük.

8. A 6. vagy a 7. igénypont szerinti eljárás azzal jellemezve, hogy a hogy a kaparóval (30) együttműködő a vákuumzsebbel (7) ellátott felvevőegységet (6) úgy vezetjük, hogy a felvevőegység (6) az ömlesztett áru (2) adagoló szalaghoz (3) képest derékszögben halad.

9. A 6. vagy a 7. igénypont szerinti eljárás azzal jellemezve, hogy a hogy a kaparóval (30) együttműködő a vákuumzsebbel (7) ellátott felvevőegységet (6) úgy vezetjük, hogy a felvevőegység az ömlesztett áru (2) adagoló szalaghoz (3) képest egy ív mentén halad.

A meghatalmazott: