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(54) **A unit for feeding filters to a filter tip attachment machine**

Einheit zum Zuführen von Filtern zu einer Filteransetzmaschine

Dispositif pour alimenter des filtres à une assembleuse de filtres

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Description

[0001] The present invention relates to a unit for feeding filters to a filter tip attachment machine.

[0002] In particular, the invention relates to a filter feed unit equipped with a holding hopper, located between the outfeed of a filter maker and the inlet of a pneumatic feed duct connected in turn to a filter tip attachment machine.

[0003] Conventionally, filters turned out by the maker are directed into the hopper, which functions as a reservoir, by way of a single infeed point in the top part of the selfsame hopper. The filters are collected en masse internally of the hopper, ordered horizontally and side by side, ready to be transferred to the pneumatic feed duct.

[0004] The hopper presents a single internal compartment accommodating filters of one type, hence all of the same diameter and the same length.

[0005] The transfer of the filters from the outlet of the hopper to the inlet of the feed duct is brought about, again conventionally, through the agency of transfer means comprising a plurality of drums rotating about respective horizontal axes parallel to the axes of the filters and located in the lower part of the hopper.

[0006] The drums are furnished around the periphery with aspirating flutes, disposed parallel to the axis of the drum, each one of which is able to accommodate a single filter.

[0007] Gravitating from the reservoir, the filters are taken up by the aforementioned flutes and rotated through 180° on the drums, passing singly and in succession into a transfer station where they are drawn into a flow of compressed air and conveyed along the pneumatic feed duct to the filter tip attachment machine.

[0008] A conventional filter feed unit is fed generally, during operation, with filters of one length and one diameter. The space enclosed by the hopper can be varied, when not in operation, by displacing the back wall to adapt the depth of the selfsame hopper to the length of the incoming filters.

[0009] Thus, as already intimated, each unit handles filters of just one type and is dedicated to a sole filter maker on the infeed side, and a sole filter tip attachment machine on the outfeed side.

[0010] Alternatively, the filter feed unit can be used in conjunction with multiple filter tip attachment machines processing the same type of filter but operating at dissimilar speeds one from another. In this instance, different numbers of drums will be dedicated to the various downstream machines, according to their operating speed.

[0011] It is known from GB 2 188 895 an apparatus for delivering two different types of filter rod sections to two groups of filter tipping machines has a magazine with a battery of outlets each of which is connected with a filter tipping machine by a discrete pneumatic conveyor pipe. The interior of the magazine is subdivided into two chambers by a partition, and each chamber receives a mass

flow of filter rod sections from a different source so that one chamber stores sections of one type and the other chamber stores sections of another type. The position of the partition in the magazine determines which outlets communicate with the one chamber and which outlets communicate with the other chamber.

[0012] It will be seen from the foregoing outline that the filter feed unit lacks versatility, since only one brand of filter can be handled, and a single unit can be used only with certain filter makers and filter tip attachment machines.

[0013] Moreover, it is not always possible to exploit all of the sets of drums by reason of the possible variations in operating speed of the downstream attachment machine, so that the output capacity of the machinery overall is limited.

[0014] The object of the present invention is to improve the versatility of a unit for feeding filters, by enabling it to handle filters of different lengths simultaneously.

[0015] A further object of the invention is to render the filter feed unit suitable for use with multiple filter makers or filter tip attachment machines utilizing different sizes of filters or operating at dissimilar speeds.

[0016] The stated objects are realized in a unit for feeding filters to a filter tip attachment machine, as recited in claim 1 appended and, preferably, in any other claim dependent directly or indirectly on claim 1.

[0017] The invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

- figure 1 is a front perspective view of a unit for feeding filters according to the present invention, illustrated in a preferred embodiment;
- figure 2 is a schematic front elevation view of the preferred embodiment as in figure 1;
- figure 3 is a rear perspective view of the preferred embodiment as in figure 1;
- figure 4 is a schematic rear elevation view of the preferred embodiment as in figure 3.

[0018] With reference to figure 1, numeral 1 denotes a feed unit, in its entirety, by which filter plugs 2 are supplied to a filter tip attachment machine of conventional type, not illustrated.

[0019] The unit 1 comprises a frame-like structure 3 with a lower base portion 4 incorporating bearers, ducts and control systems of familiar type not described further, and an upper portion carrying a hopper 5 delimited by a front wall 6 and a back wall 7, interconnected by two side walls 8 and 9.

[0020] The side walls 8 and 9 include first segments rising vertically from the base portion, and second segments converging toward the top, so that when seen in longitudinal section, the hopper 5 presents the shape substantially of an upturned funnel.

[0021] The front wall 6, made preferably of transparent material and appearing substantially rectangular in out-

line, is composed of two doors 6a and 6b that can be opened to allow inspection and servicing of the hopper 5 on the inside.

[0022] The back wall 7, on the other hand, is delimited by the side walls 8 and 9 and therefore assumes the same upturned funnel shape as that of the hopper 5.

[0023] The frame-like structure 3 further comprises a vertical bulkhead 10 carrying the hopper 5, facing the back wall 7 and connected to the side walls 8 and 9.

[0024] Filter plugs 2 turned out by a filter maker (not illustrated), located upstream of the unit 1, are directed into the hopper 5 and allowed to collect one alongside another, disposed perpendicular to the front and back walls 6 and 7.

[0025] The hopper 5 is delimited at the bottom by a plurality of drums 11, each set in rotation about a respective longitudinal axis 12 perpendicular to the front and back walls 6 and 7.

[0026] Each drum 11 presents a plurality of aspirating axial flutes 13 arranged around the periphery in conventional manner and serving each to accommodate a single filter 2.

[0027] The bottom part of the hopper 5 is enclosed by a plurality of transparent flaps (not illustrated) arranged one beside another. The flaps are located one directly in front of each drum 11, so that the drums 11 can be exposed and inspected singly in the event of a jam or malfunction occurring.

[0028] As indicated in figure 1, each drum 11 presents a loading station 14 above, where the filters 2 are taken up singly and in succession by the peripheral axial flutes 13, and an unloading and transfer station 15 below, coinciding with the inlet of the pneumatic feed duct that links the unit 1 to the filter tip attachment machine (not illustrated).

[0029] The hopper 5 further comprises means 16 by which to partition the storage space into at least two sectors 17, each serving at least one drum 11. Such means 16 are illustrated as at least one movable baffle 18 disposed vertically and parallel to the side walls 8 and 9.

[0030] The baffle 18 is translatable along a direction parallel with the axes 12 of the drums 11 between a fully retracted position, outside of the hopper 5 and to the rear of the bulkhead 10, and a fully extended position inside the hopper 5, bridging the gap between the front wall 6 and the back wall 7.

[0031] Accordingly, the bulkhead 10 is furnished with vertical slots 19 through which the baffles 18 are able to pass.

[0032] In the preferred embodiment of figure 1, shown purely by way of example, the unit 1 is equipped with three baffles 18 by which the space internally of the hopper 5 can be divided into four sectors 17 appearing as two distinct identical pairs. The hopper 5 is symmetrical relative to a vertical axis coinciding with the central baffle 18, so that the two sectors 17a and 17b outermost are mutually identical and the two sectors 17c and 17d innermost are mutually identical. Each outer sector 17a

and 17b serves two drums 11; each inner sector 17c and 17d serves a single drum 11.

[0033] Each baffle 18 can be operated individually and independently of the others, allowing the hopper 5 to be partitioned as preferred and as may be most appropriate.

[0034] In the preferred solution of figure 1, different configurations can be created, depending on which and how many of the baffles 18 are brought into operation and advanced toward the front wall 6.

[0035] The single sectors 17 operate independently of one another, and their allocation to the drums 11 can be selectively predetermined.

[0036] In the example of figure 1, where the unit 1 is shown with six drums 11 and three baffles 18, the baffles can be retracted or extended to produce the following configurations:

- three sectors 17, with each sector 17 serving two drums 11,
- two sectors 17, with each sector 17 serving three drums 11,
- two sectors 17, with one sector 17 serving two drums 11 and the other serving four drums.

[0037] Accordingly, the hopper is able to handle filters of different types simultaneously.

[0038] The filter feed unit 1 is equipped further with means 20 by which to vary the size of at least one sector 17 in the partitioned hopper 5. The means 20 in question comprise at least one movable panel 21 associated with the back wall 7. In a preferred solution, each sector 17 presents one such movable panel 21 delimiting the rear of the sector 17 and coinciding with the back wall 7.

[0039] Each panel 21 is translatable, remaining parallel to the front wall 6, in such a way as to vary the depth of the relative sector 17.

[0040] In the preferred solution of figure 1, the hopper is furnished with four panels 21 which, like the sectors 17, are arranged in two distinct identical pairs arranged symmetrically on either side of the vertical axis aforementioned.

[0041] The movement of each single panel 21 is brought about independently relative to the movement of the others so that individual sectors 17 can be adapted to accommodate filters 2 of different length.

[0042] A top part of the hopper 5 affords openings 22 to admit the filters 2. With reference in particular to the example of figure 1, the hopper 5 presents three openings 22, namely a central opening 22a by way of which the two inner sectors 17c and 17d are filled, and two side openings 22b by way of which the two outer sectors 17a and 17b are filled.

[0043] More exactly, when the hopper 5 is partitioned only by the central baffle 18 into two sectors 17, each serving three drums 11, filters 2 are admitted solely through the side openings 22b. In the other two possible configurations, with three sectors 17 each serving two drums 11, and with two sectors 17 serving two and four

drums 11, filters will enter both through the side openings 22b and through the central opening 22a.

[0044] The top part of the hopper 5 is equipped further with a plurality of photocells 23, at least one to each sector 17, serving to monitor the level of the filters 2 amassed within the enclosure.

[0045] The photocells 23 are wired to a control unit (not illustrated) operating in conjunction with the filter maker upstream of the feed unit 1, in such a way that when the sectors 17 fill up to a certain level, the flow of filters 2 from the maker to the hopper 5 will be suspended temporarily.

[0046] Equipped with the baffles 17 and the panels 21, accordingly, the feed unit 1 is able to operate in a system incorporating multiple machines handling filters 2 of different sizes, given that the space encompassed by the hopper 5 is partitioned in such a way so as to create a plurality of sectors 17 operating independently of one another and in conjunction with respective drums 11.

[0047] Located above each drum 11 and to one side of the loading station 14 is an element 24 presenting a surface 24a angled downward toward the drum 11 and serving to restrict the cross sectional area of the passage afforded to the filters 2 at the selfsame station 14. This arrangement is designed to reduce the weight of the column of filters 2 bearing down on the loading station 14.

[0048] The means 16 for partitioning the inside of the hopper 5 further comprise an actuator 25, as shown in figures 3 and 4, associated with the relative baffle 18 and connected rigidly to the vertical bulkhead 10 of the feed unit 1.

[0049] The actuator 25 in question serves to bring about the sliding movement of the baffle 18, and consists in a pneumatic cylinder 26.

[0050] Each baffle 18 presents a projection 18a that stays permanently outside the hopper 5 and carries a rectilinear hanger 27 engaging slidably with a linear track 28 of "C" profile connected to the bulkhead 10, externally of the hopper 5.

[0051] The action of the cylinder 26 is transmitted to the projection 18a, likewise of "C" profile, by way of a bracket 29 anchored to the underside of the projection 18a.

[0052] The projection 18a, the rectilinear carriage 27, the linear track 28 and the pneumatic piston 26 are positioned at the top end 19a of the slot 19.

[0053] The projection 18a also limits the travel of the baffle 18 inasmuch as the underside, to which the bracket 29 is attached, is disposed transversely to the slot 19 and thus prevented by the bulkhead 10 from advancing further once the baffle 18 is fully inside the hopper 5.

[0054] Each of the vertical slots 19 in which the baffles 18 slide back and forth is flanged by two matched guide plates 30 serving to ensure that the baffle 18 will not slip out of its correct position when fully retracted.

[0055] In a preferred embodiment, means 20 for varying the size of at least one sector 17 of the hopper 5 will further comprise at least one drive unit 31 mounted to

the vertical bulkhead 10 and associated with a respective movable panel 21, as illustrated in figure 3 and described hereinafter.

[0056] Each such drive unit 31 is carried by a mounting plate 32 attached to the bulkhead 10 externally of the hopper 5 by way of a first stud 33a and a second stud 33b, both of which occupying a fixed position.

[0057] The drive unit 31 comprises an electric motor 34 coupled to a speed reducer 35 driving a gear 36. The gear 36 is coupled in turn by way of a chain 37 or a belt with two further gears 38, also mounted to the bulkhead 10 on the outside of the hopper.

[0058] Each mounting plate 32 is pivotable about the first stud 33a and affords a slot 39, engaged by the second stud 33b, which is lockable so as to secure the plate in the most advantageous position. The resulting mechanism allows a degree of movement to the drive unit 31, which is used to adjust the tension of the chain 37.

[0059] Each of the two driven gears 38 presents a centre hole 40 coinciding with a respective hole in the bulkhead 10. Each hole 40, in turn, is engaged by an externally threaded rod 41 fastened rigidly to the surface of the panel 21 facing the bulkhead 10.

[0060] Located between the rod 41 and the centre hole 40 of each driven gear 38 is a mechanism, such as a ballscrew, allowing the rod 41 to stroke back and forth through the hole 40 and displace the relative panel 21.

[0061] The first gear 36 is set in rotation by the electric motor 34 and transmits motion by way of the chain 37 to the other two gears 38. The angular motion of the two driven gears 38 is transmitted through the ballscrew mechanisms to the rods 41 and converted into linear motion, with the result that the panel 21 to which the rods are anchored will be pushed forward or drawn back.

[0062] Each electric motor 34 is fitted with an encoder, not illustrated, that will determine the distance of the associated panel 21 from the front wall 6 of the hopper 5. Thus, it becomes possible to assign each sector 17 to a different type of filter 2 on the basis of length.

[0063] The operation of the actuator 25 and the electric motor 34 is piloted by a control unit 42 such as will allow the position of the baffle 18 and of the panel 18 to be altered either automatically or in manual mode, by an operator, so as to adapt each sector 17 to the type of filter 2 accommodated.

[0064] In the example of figure 1, preferably, up to three different types of filter can be handled, in terms of length and diameter, and accordingly, the single feed unit 1 can be linked both on the infeed and on the outfeed side to three different types of filter maker and filter tip attachment machine.

[0065] Alternatively, the feed unit 1 can be linked to similar machines operating at different speeds.

Claims

1. A unit for feeding filters to a filter tip attachment ma-

- chine, designed so as to receive at least one succession of cigarette filter plugs (2), comprising a hopper (5) from which to dispense the filters, and a plurality of drums (11) each rotatable about a substantially horizontal axis (12) and furnished peripherally with a plurality of aspirating axial flutes (13) by which the filters are taken up singly from the hopper (5) and passed on to a transfer station (15) where the flutes (13) assume a position of axial alignment with the inlet of a pneumatic feed duct along which the filters (2) are directed toward a user machine, the hopper (5) being positioned above the plurality of drums (11); the unit further comprising means (16) by which the hopper (5) is partitionable into at least two sectors (17), each serving at least one drum (11); that said means (16) by which the hopper (5) is partitionable into at least two sectors (17) comprising at least one translatable baffle (18); the unit being **characterised in that** said baffle (18) is translatable along a direction parallel with the axes (12) of said drums (11) between a fully retracted position, outside of said hopper (5) and to the rear of a bulkhead (10), and a fully extended position inside said hopper (5), bridging a gap between a front wall (6) and a back wall (7).
2. A unit as in claim 1, wherein means (16) by which to partition the hopper (5) comprise three baffles (18) creating four sectors (17).
 3. A unit as in preceding claims, further comprising means (20) by which to vary the size of at least one of the partitioned sectors (17) created in the hopper (5), so as to accommodate filters (2) of different length.
 4. A unit as in claim 3, of which the hopper (5) comprises a front wall (6) and a back wall (7), interconnected by two side walls (8, 9) and set apart at a prescribed distance, wherein means (20) by which to vary the size of a partitioned sector (17) operate by varying the prescribed distance between the front and back walls (6, 7).
 5. A unit as in claim 4, wherein means (20) by which to vary the prescribed distance comprise at least one movable panel (21) associated with the back wall (7).
 6. A unit as in claim 5, wherein means (20) by which to vary the prescribed distance comprise four movable panels (21).
 7. A unit as in claim 1, wherein the hopper (5) presents at least two openings (22) through which filter plugs (2) are admitted to at least two partitioned sectors (17) created in the hopper (5).
 8. A unit as in claim 1, wherein means (16) by which the hopper (5) is partitionable into at least two sectors (17) comprise at least one actuator (25) associated with the at least one translatable baffle (18).
 9. A unit as in claim 1, wherein the at least one actuator (25) comprises at least one pneumatic cylinder (26) by which motion is induced in the associated translatable baffle (18).
 10. A unit as in claim 5, wherein means (20) by which to vary the size of at least one of the at least two partitioned sectors (17) created in the hopper (5) further comprise a drive unit (31) associated with the at least one movable panel (21).
 11. A unit as in claim 10, wherein the drive unit (31) comprises an electric motor (34) by which the at least one movable panel (21) is operated.
 12. A unit as in claim 1, further comprising photocells (23) serving to monitor the level of the massed filters (2) occupying each of the at least two partitioned sectors (17) created in the hopper (5).
 13. A unit as in claims 8 and 10, comprising a control unit (42) connected to the at least one actuator (25) and to the at least one drive unit (31), by which the position of the at least one baffle (18) and the at least one panel (21) can be varied automatically in order to adapt the feed unit (1) to a given type of filter (2).

Patentansprüche

1. Einheit zum Zuführen von Filtern zu einer Filteransetzmaschine, dafür ausgelegt, zumindest eine Aufeinanderfolge von Filterstopfen (2) für Zigaretten zu empfangen und bestehend aus einem Zufuhrtrichter (5), aus dem die Filter ausgegeben werden, und mehreren Trommeln (11), die jeweils um eine im Wesentlichen horizontale Achse (12) drehbar sind und an ihrem Außenumfang mit mehreren axialen Saugmulden (13) ausgestattet sind, von denen die Filter einzeln von dem Zufuhrtrichter (5) übernommen und auf eine Transferstation (15) übergeben werden, wo die Mulden (13) eine Position der axialen Ausrichtung mit dem Einlass eines pneumatischen Zufuhrkanals einnehmen, entlang dessen die Filter (2) zu einer Verwendungsmaschine geleitet werden, wobei der Zufuhrtrichter (5) über den mehreren Trommeln (11) angeordnet ist; wobei die Einheit ferner Mittel (16) beinhaltet, die das Abteilen des Zufuhrtrichters (5) in mindestens zwei Abschnitte (17) ermöglichen, von denen jeder für zumindest eine Trommel (11) dient; wobei die genannten Mittel (16), mit denen der Zufuhrtrichter (5) in mindestens zwei Abschnitte (17) abgeteilt werden kann, zumindest eine verschiebbare Trennwand (18) beinhalten; wobei die Einheit **dadurch gekennzeichnet ist, dass**

- die Trennwand (18) entlang einer Richtung parallel zu der Achse (12) der Trommeln (11) verschiebbar ist zwischen einer vollständig zurückgezogenen Stellung, in der sie sich außerhalb des Zufuhrtrichters (5) jenseits einer Stützwand (10) befindet, und einer vollständig ausgefahrenen Stellung, in der sie sich innerhalb des Zufuhrtrichters (5) befindet und eine Verbindung zwischen einer Vorderwand (6) und einer Rückwand (7) herstellt.
2. Einheit nach Anspruch 1, worin die Mittel (16) zur Abteilung des Zufuhrtrichters (5) drei Trennwände (18) beinhalten, um vier Abschnitte (17) zu bilden.
3. Einheit nach den vorhergehenden Ansprüchen, die ferner Mittel (20) beinhaltet, die dazu dienen, die Größe zumindest eines der abgeteilten Abschnitte (17), die in dem Zufuhrtrichter (5) gebildet werden, zu verändern, so dass Filter (2) unterschiedlicher Länge aufgenommen werden können.
4. Einheit nach Anspruch 3, deren Zufuhrtrichter (5) eine Vorderwand (6) und eine Rückwand (7) beinhaltet, die durch zwei Seitenwände (8, 9) miteinander verbunden sind und in einem vorgegebenen Abstand voneinander angeordnet sind, worin die Mittel (20) zur Veränderung der Größe eines abgeteilten Abschnittes (17) wirken, indem sie den vorgegebenen Abstand zwischen der Vorderwand und der Rückwand (6, 7) verändern.
5. Einheit nach Anspruch 4, worin die Mittel (20) zur Veränderung des vorgegebenen Abstandes zumindest eine bewegliche Platte (21) beinhalten, die mit der Rückwand (7) verbunden ist.
6. Einheit nach Anspruch 5, worin die Mittel (20) zur Veränderung des vorgegebenen Abstandes vier bewegliche Platten (21) beinhalten.
7. Einheit nach Anspruch 1, worin der Zufuhrtrichter (5) mindestens zwei Öffnungen (22) aufweist, durch die Filterstopfen (2) in zumindest zwei im Zufuhrtrichter (5) gebildete abgeteilte Abschnitte (17) eingelassen werden können.
8. Einheit nach Anspruch 1, worin die Mittel (16) die das Abteilen des Zufuhrtrichters (5) in mindestens zwei Abschnitte (17) ermöglichen, mindestens einen Stellantrieb (25) beinhalten, der mit der zumindest einen verschiebbaren Trennwand (18) verbunden ist.
9. Einheit nach Anspruch 1, worin der zumindest eine Stellantrieb (25) zumindest einen Pneumatikzylinder (26) beinhaltet, durch den die damit verbundene verschiebbare Trennwand (18) in Bewegung versetzt wird.

10. Einheit nach Anspruch 5, worin die Mittel (20) zur Veränderung der Größe zumindest eines der mindestens zwei abgeteilten Abschnitte (17), die in dem Zufuhrtrichter (5) gebildet werden, ferner eine Antriebseinheit (31) beinhalten, die mit der zumindest einen beweglichen Platte (21) verbunden ist.
11. Einheit nach Anspruch 10, worin die Antriebseinheit (31) einen elektrischen Motor (34) beinhaltet, durch den die zumindest eine bewegliche Platte (21) betätigt wird.
12. Einheit nach Anspruch 1, die ferner Fotozellen (23) beinhaltet, die zur Überwachung des Füllstandes der Filter (2) dient, die als lose Masse in jedem der zumindest zwei in dem Zufuhrtrichter (5) gebildeten abgeteilten Abschnitte (17) enthalten sind.
13. Einheit nach Anspruchs 8 und 10, die eine Steuerungseinheit (42) beinhaltet, die mit dem zumindest einen Stellantrieb (25) und der zumindest einen Antriebseinheit (31) verbunden ist und die dazu dient, die Stellung der zumindest einen Trennwand (18) und der zumindest einen Platte (21) automatisch zu ändern, um die Zufuhreinheit (1) einem bestimmten Typ von Filtern (2) anzupassen.

Revendications

1. Un dispositif pour alimenter des filtres à une assemblée de filtres, destinée à recevoir au moins une succession de bouts filtres (2) pour cigarettes, comprenant une trémie (5) de distribution des filtres, et une pluralité de tambours (11) pouvant chacun tourner autour d'un axe (12) essentiellement horizontal et dotés, sur leur périphérie, d'une pluralité de cannelures axiales (13) d'aspiration par l'intermédiaire desquelles lesdits filtres sont prélevés un à un de la trémie (5) et transférés à une station de transfert (15) où lesdites cannelures (13) prennent une position d'alignement axial avec l'entrée d'un conduit d'alimentation pneumatique le long duquel les filtres (2) sont acheminés vers une machine utilisatrice, la trémie (5) étant positionnée au-dessus de ladite pluralité de tambours (11) ; le dispositif comprenant en outre des moyens (16) servant à diviser la trémie (5) en au moins deux secteurs (17) desservant chacun au moins un tambour (11) ; lesdits moyens (16) de division de la trémie (5) en au moins deux secteurs (17) comprenant au moins un déflecteur (18) mobile en translation ; le dispositif étant **caractérisé en ce que** ledit déflecteur (18) est mobile en translation le long d'une direction parallèle aux axes (12) desdits tambours (11) entre une position complètement rentrée, à l'extérieur de ladite trémie (5) et à l'arrière d'une cloison (10), et une position complètement sortie à l'intérieur de ladite trémie (5), pour relier une

- paroi avant (6) et une paroi arrière (7).
2. Le dispositif selon la revendication 1, **caractérisé en ce que** les moyens (16) de division de la trémie (5) comprennent trois déflecteurs (18) qui définissent quatre secteurs (17). 5
 3. Le dispositif selon les revendications précédentes, **caractérisé en ce qu'il** comprend en outre des moyens (20) destinés à faire varier la taille d'au moins un des secteurs (17) de division définis dans la trémie (5), de manière à loger des filtres (2) de longueur différente. 10
 4. Le dispositif selon la revendication 3, dont la trémie (5) comprend une paroi avant (6) et une paroi arrière (7), raccordées entre elles par deux parois latérales (8, 9) et espacées d'une distance prédéfinie, **caractérisé en ce que** les moyens (20) de variation de la taille d'un secteur (17) de division opèrent en faisant varier ladite distance prédéfinie entre les parois avant et arrière (6, 7). 15 20
 5. Le dispositif selon la revendication 4, **caractérisé en ce que** les moyens (20) de variation de ladite distance prédéfinie comprennent au moins un panneau mobile (21) associé à la paroi arrière (7). 25
 6. Le dispositif selon la revendication 5, **caractérisé en ce que** les moyens (20) de variation de ladite distance prédéfinie comprennent quatre panneaux mobiles (21). 30
 7. Le dispositif selon la revendication 1, **caractérisé en ce que** la trémie (5) présente au moins deux ouvertures (22) à travers lesquelles des bouts filtres (2) sont admis dans au moins deux secteurs (17) de division définis dans la trémie (5). 35
 8. Le dispositif selon la revendication 1, **caractérisé en ce que** les moyens (16) de division de la trémie (5) en au moins deux secteurs (17) comprennent au moins un actionneur (25) associé avec ledit au moins un déflecteur (18) mobile en translation. 40 45
 9. Le dispositif selon la revendication 1, **caractérisé en ce que** ledit au moins un actionneur (25) comprend au moins un cylindre pneumatique (26) destiné à imprimer un mouvement au déflecteur (18) mobile en translation qui lui est associé. 50
 10. Le dispositif selon la revendication 5, **caractérisé en ce que** les moyens (20) de variation de la taille d'au moins un desdits au moins deux secteurs (17) de division définis dans la trémie (5) comprennent en outre une unité d'entraînement (31) associée audit au moins un panneau mobile (21). 55
 11. Le dispositif selon la revendication 10, **caractérisé en ce que** l'unité d'entraînement (31) comprend un moteur électrique (34) destiné à actionner ledit au moins un panneau mobile (21).
 12. Le dispositif selon la revendication 1, **caractérisé en ce qu'il** comprend en outre des cellules photoélectriques (23) servant à surveiller le niveau des filtres (2) massés occupant chacun desdits au moins deux secteurs (17) de division définis dans la trémie (5).
 13. Le dispositif selon les revendications 8 et 10, **caractérisé en ce qu'il** comprend une unité de contrôle (42) reliée audit au moins un actionneur (25) et à ladite au moins une unité d'entraînement (31), et destinée à modifier automatiquement la position dudit au moins un déflecteur (18) et dudit au moins un panneau (21) afin d'adapter le dispositif d'alimentation (1) à un type donné de filtre (2) .

FIG 1

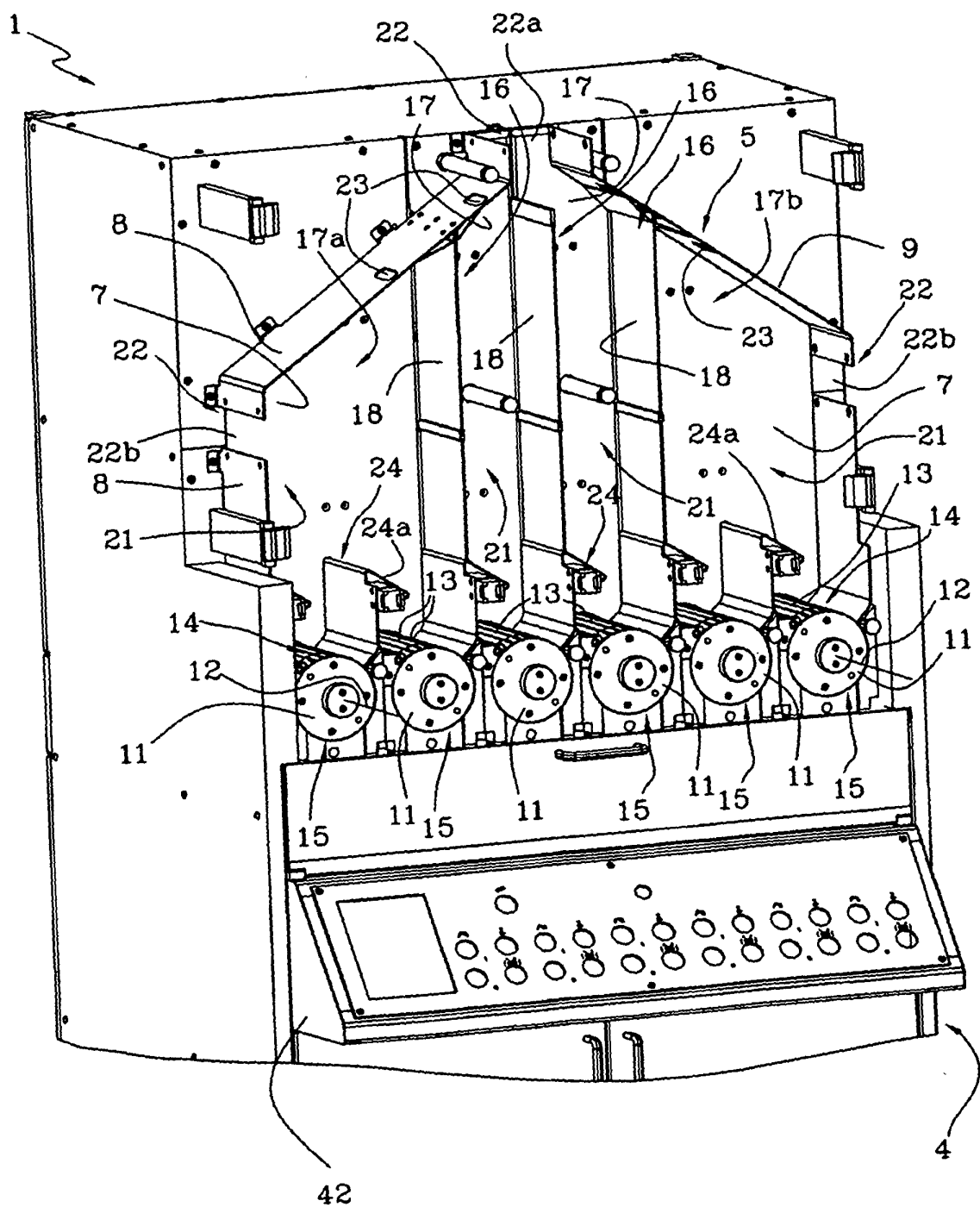


FIG 2

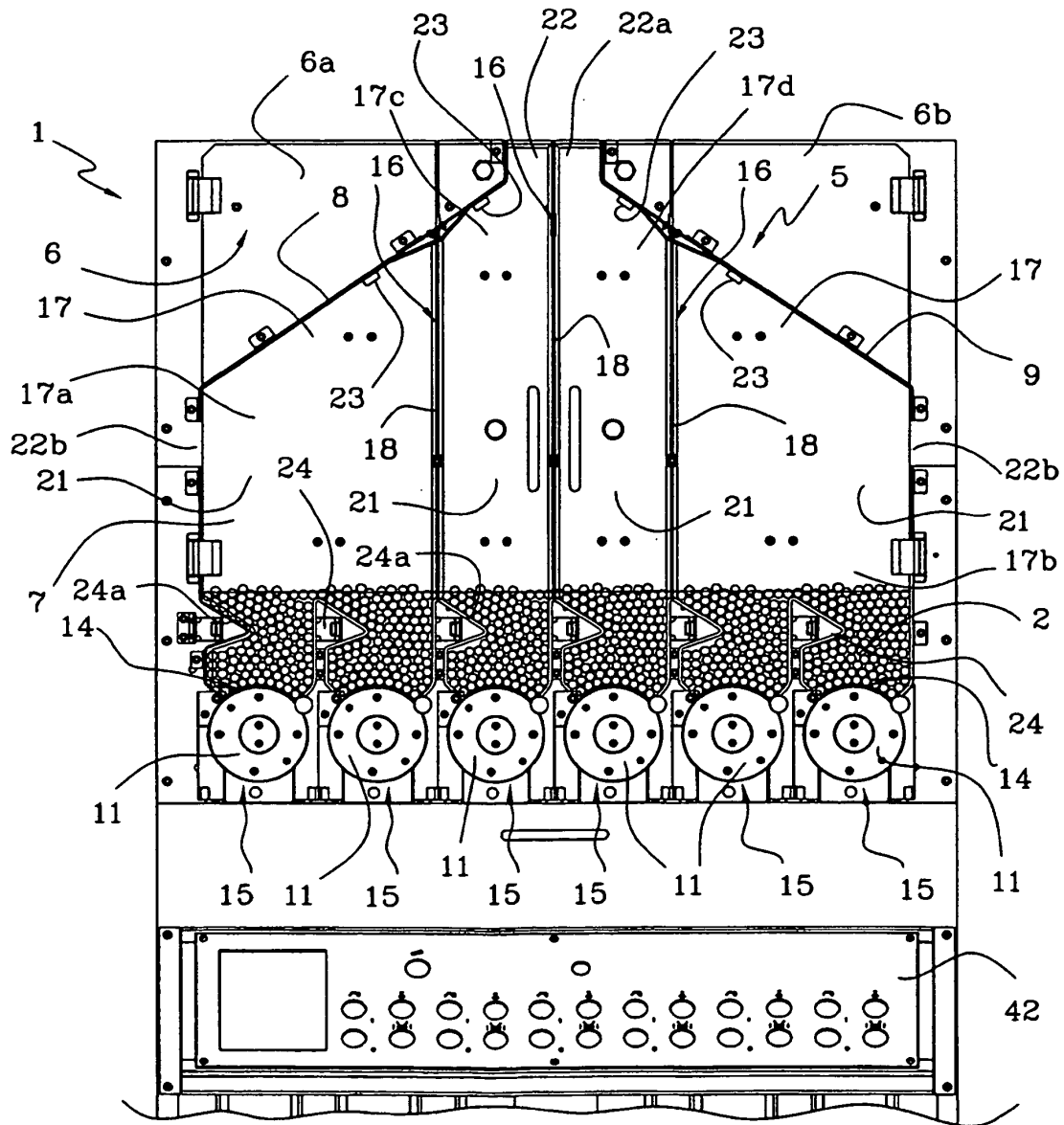


FIG 3

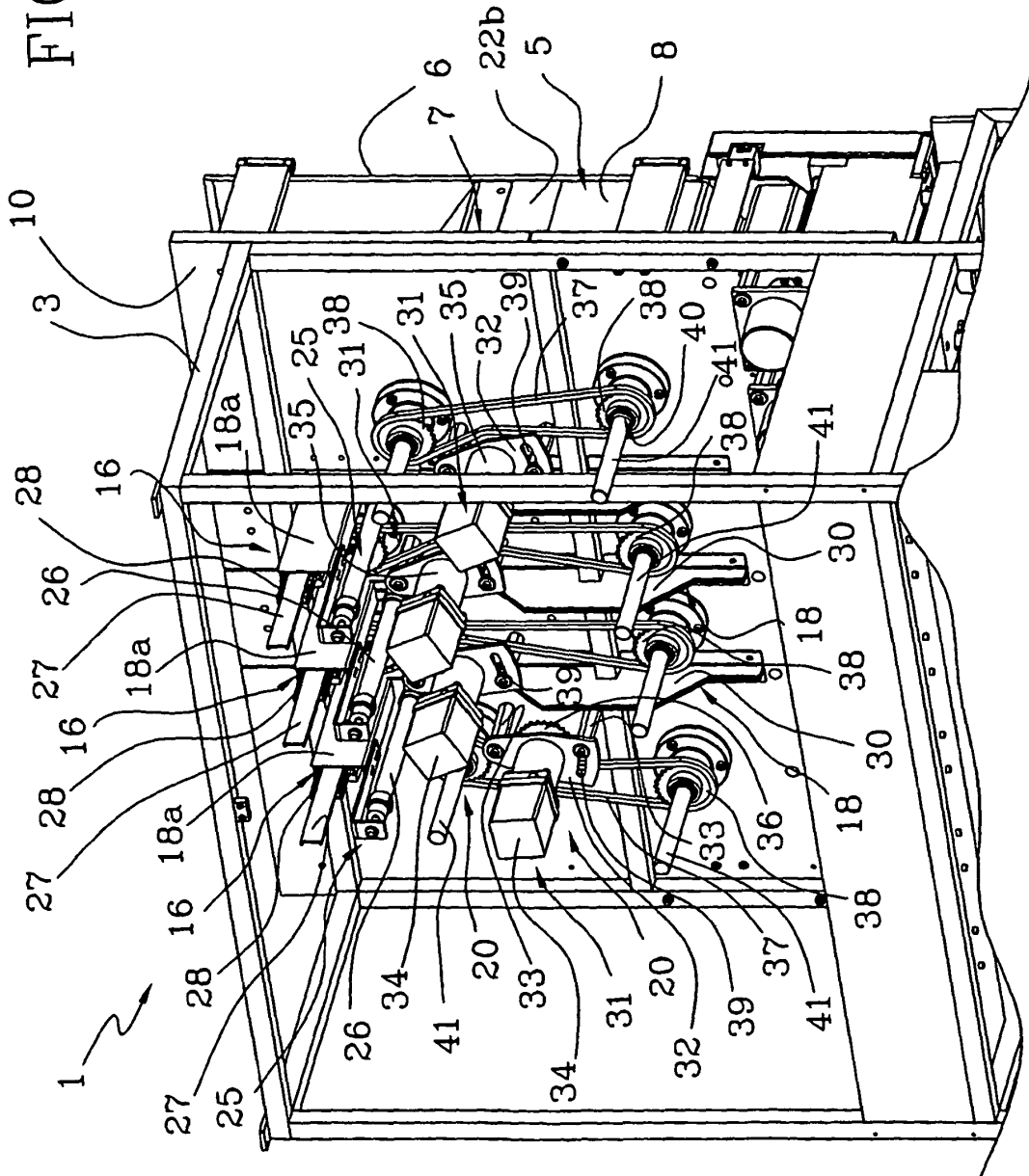
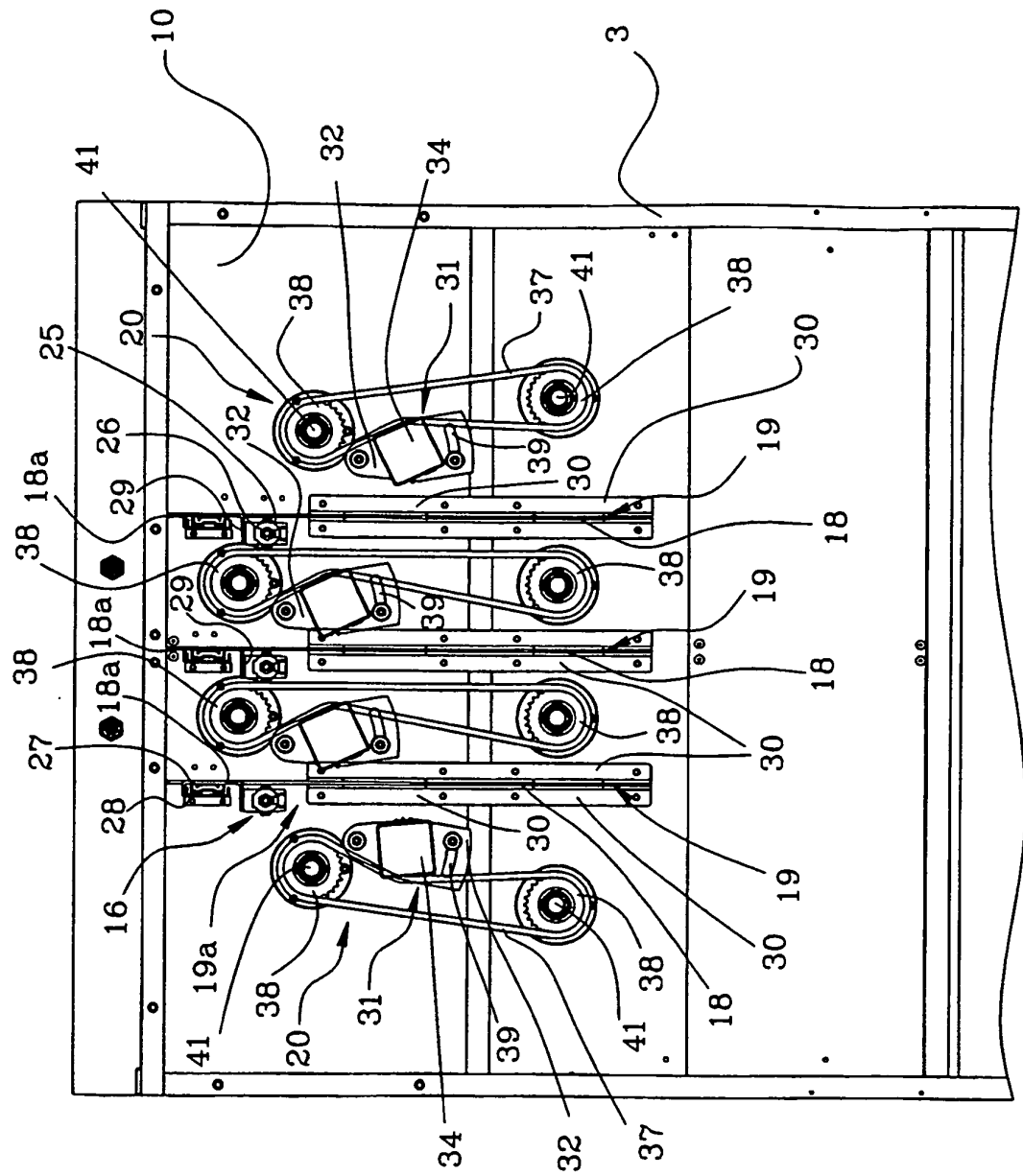


FIG 4



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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