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(54) FEEDER DEVICE FOR PRESENTING PRODUCTS ON A SHELF

ZUFÜHRVORRICHTUNG ZUR PRÄSENTATION VON PRODUKTEN AUF EINEM REGAL

DISPOSITIF D'ALIMENTATION POUR PRÉSENTER DES PRODUITS SUR UNE ÉTAGÈRE

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a feeder device configured for mounting on a shelf for feeding successive products to a front of the shelf. The feeder device comprises a spring arranged to act on a sled for pushing the products towards the front of the shelf. The feeder device may be used e.g. in shops such as grocery stores or the like for providing and displaying products on shelves therein.

BACKGROUND

[0002] Feeder devices for merchandising in general are used for example in grocery stores where goods are exposed on the shelves. Indexing devices are used to push forward placed goods or stored items, in a row one behind the other, to the shelf's front edge, to facilitate the picking of the goods, improve visibility of the goods and make the shelf aesthetic appearance more appealing.

[0003] The feeder device may include a base or web which is placed on the shelf so that it extends from the shelf front edge in a rearward direction. A feed sled is slidably disposed on the base along its length. The automatic feeder devices are sled biased, for example by a helical spring which is arranged on the backside of the sled and which at one end is attached to the front end of the base.

[0004] To improve the system of the shelves and to separate neighbouring goods from one another feeder devices are often used together with shelf dividers or partitions. The dividers comprise a dividing wall that extends from the shelf front edge in an essentially rearward direction. Dividers may also comprise a front stop plate or front extending perpendicularly to dividing wall on one or both sides of said wall, to prevent goods from falling off the shelf. The dividers are attached to the shelf next to each other to form compartments in which the feeder devices are placed. The distances between dividers are chosen in accordance with the relevant goods width, so that the goods are brought into line with each other in their respective compartments. This minimizes the space required to store the goods on the shelf, while the shelf aesthetic appearance becomes more appealing. To fit the different products and product packaging, dividers can be designed in a variety of ways. For example, the dividing wall height may vary widely. Furthermore, the fronts of the dividers can be designed in a variety of ways, for example as regards the width, height and contour, to suit different goods and to provide desired visual impact for every occasion.

[0005] Feeder devices and dividers should be easy to assemble and disassemble from the shelf. The feeder devices and the partitions should also preferably be possible to fix at arbitrary positions laterally along the shelf, to thereby provide the goods compartment with the de-

sired width.

[0006] DE 1 297 833 discloses a feeder comprising a product supporting wall formed integral with a housing which receives a wound portion of a spring. The free end of the spring is fixed to a front stop which extends along the front edge of a shelf.

[0007] US 2004/0065630 A1 discloses a product feed apparatus comprising a track and a pusher member which is slideably mounted thereto and forwardly biased by means of a plurality of identical biasing elements. The pusher member further comprises a spring biased pivotal hook for releasably holding the pusher member at a rear position of the track.

[0008] EP 0 591592 A1 discloses a display dispenser for rectangular packages. The dispenser comprises a support and a pusher sliding over the support, the packages being stored in a row on the support and pushed forward by the pusher entrained by an elastic pulling means. The rear end of the elastic pulling means is connected to the body of the pusher. The front part the pusher bears on said body via a compression means pushing the articles towards the front of the display counter

EP 0 337 340 discloses a shelf divider system comprising a divider wall mountable in a channel member secured to the front of a shelf. A spring-urged sled is slidably mounted on a track having a pair of rails integral with the divider shaft. In one embodiment, the operationally mounted divider wall is vertically oriented and the sled extends horizontally therefrom so that displayed merchandise resets directly on the shelf surface but is automatically urged forwardly by the retracted sled. In another embodiment, the track guiding the sled rests on the shelf such that it provides the supporting surface for displayed merchandise and a vertical divider wall is integrally formed with the track. By mounting the product urging sled slidable along a track, the guidance of the product urging member is enhanced which improves the functioning of the feeder, keeps the row of products in order and enhances the visual appearance of the installation and stored products.

[0009] For avoiding the drawer effect and achieving a satisfactory guidance of the product urging sled, it is desirable that the distances between the guiding contact surfaces of the sled and the track are longer in the longitudinal direction than in the transverse direction. At the same time it is desirable to fully utilize the available space on the shelf, in the feeder device's longitudinal direction for storage of products. For this reason it is desirable that the sled does not extend excessively behind the product urging support surface of the sled.

[0010] US 2016/0324334 A1 discloses a feeder device intended for bottles which comprises a sled that is guided by a track and urged forwardly by a wound spring, the free end of which is fixed to a front portion of the track. The sled comprises a vertical back support wall which urges the bottles forwardly by contacting a rear portion of the rearmost bottle. The sled further comprises a horizontal bottom wall which extends forwardly from the low-

er edge of the back support wall. By this means, the longitudinal distance along which the sled is guided in contact with the track may be increased by arranging at least a portion of these contact surfaces in front of the vertical wall, at the lower side of the bottom wall. At the same time the upper surface of the bottom wall may be used for supporting at least the rearmost product, such that a comparatively great portion of the length of the sled may be used for housing products.

[0011] This type of feeder provides good functionality for bottles and other types of products being comparatively rigid and having a comparatively large lower support surface. However, for other types of products and packages this type of feeder exhibits some major disadvantages.

[0012] Fig. 1 illustrates a known feeder device of generally the same type as described in US 2016/0324334 A1. In fig. 1 this feeder device 1 is used for feeding pouch packages. The feeder device 1 comprises an elongate track 2 which is attachable to a front profile 3 extending along the front edge of a shelf S. A front stop 4 is also fixed to the front profile 3 and arranged to prevent pouch packages P being fed forwardly by the feeder device to fall off from the shelf S. The feeder device further comprises a sled which slidably fixed to the track 2. For this purpose, the track exhibits transversely protruding rails 6 which extend on both sides of the track along essentially its entire length. The sled 5 comprises corresponding guide flanges 7 forming guide grooves (not visible) which receive a portion of a respective rail 6 for rectilinear guiding of the sled 5 along the track 2. The sled further comprises a back support wall 8 which is arranged to contact a rear portion of the rearmost of a number of packages arranged one after the other in a row. A support bottom 9 extends forwardly from the lower edge of the back support wall 8 and is arranged to support the bottom of a few of the rear packages in the row of packages. For achieving satisfactory guidance of the sled 5, the guide flanges 7 and guide grooves extend forwardly from the rear end of the sled almost all the way to the front end of the support bottom 9.

[0013] The feeder device 1 also comprises a wound spring (not shown), the wound portion of which is housed behind the rear support wall 8 and the free end of which is fixed to the front end of the track 2. The spring thus urges the sled 5 forwardly along the track 2. As long as there are a number of packages placed between the front stop 4 and the rear support wall 8, the normal forces created by the packages will maintain the sled 5 in position. When a front most package is picked out, the sled will move forwardly pushing the row of packages forwardly such that the emptied space left after the picked package is filled by the next package in the row.

[0014] Now, as seen in fig. 1, this known arrangement causes some problems when the feeder device is used for comparatively thin pouch packages. When the sled 5 has reached its forward end position shown in fig. 1 and the remaining number of packages do not occupy the

entire distance between the front stop 4 and the back support wall 8, the remaining packages will have a tendency to lean or tilt forward such that the upper portion of at least the front most remaining package will extend out in front of the front stop 4. This may result in that persons or shopping carts passing by make contact with the tilted packages and causes the packages to unintentionally fall off from the shelf. Naturally, this is most unwanted and causes disorder in the shop as well as additional labour for putting the packages back on the shelf and it may even lead to that the packages are damaged such that they must be discarded. These problems occur not only for pouch packages but also for rigid packages where the thickness of the packages is smaller than the distance between the front stop 4 and the back support wall 8, when the sled is in its forward end position.

[0015] At pouch packages and other comparatively soft package, an additional problem resides in that such soft packages, when tilted forwardly, have a tendency to be bent along the contact line with the upper edge of the front stop 4. Such bending of the packages causes an unpleasant appearance and may even hinder customers from reading printed matter on the packages or otherwise to identify the products.

[0016] The problems described above also occur at similar feeder devices where the guide track has been omitted. At such feeder devices the back support wall may rest directly on the shelf and may be forwardly urged by similar or corresponding spring means. In order for the back support wall to be maintained in an upright position, it is important that the lower support surface being in contact with the shelf is large enough for avoiding tipping over of the back support wall. Just as for guided sleds described above, it is desirable that the lower support surface of the back support wall extends forwardly from the back support wall in order not to decrease the available space of the shelf when the back support wall is in its rear most position. For this reason, also such back support walls which are not guided by a track normally exhibits a support bottom which extends forwardly from the lower edge of the back support wall. The forwardly protruding support bottom provides a satisfactory support for the back support wall on the shelf but also results in that the last remaining thin and / or soft packages resting on the upper side of the support bottom will experience the same problems of tilting, falling and bending as described above.

SUMMARY

[0017] An object of the invention of the present disclosure to provide an enhanced feeder device for feeding products to the front of a shelf.

[0018] Another object is to provide a feeder device which at use reduces the risk of comparatively soft products or packages fall off the shelf.

[0019] A further object is to provide such a feeder device which enhances the visibility and identification of

products or packages being fed.

[0020] A still further object is to provide such a feeder device which enhances the visual appearance of the shelf as well as products and packages stored thereon.

[0021] Yet another object is to provide such a feeder device which is simple in construction and reliable in use.

[0022] These and other objects are provided by a feeder device of the type indicated in the introductory portion of claim 1, which feeder device exhibit the special technical features defined in claim 1's characterizing portion. The feeder device is configured for being mounted on a shelf for feeding successive products arranged one after the other in a row on the shelf to the front of the shelf. It comprises a sled which comprises a back support wall arranged to contact a rear portion of a rearmost product in the row and a support bottom which extends forwardly from the back support wall and is arranged to support the bottom of at least one product. A first spring is connected to the sled and arranged to urge the sled forwardly towards a front of the shelf. The sled further comprises a pusher which is arranged to urge a lower portion of a product placed on the support bottom forwardly relative to the sled by means of an elastic element which is said first spring.

[0023] The pusher thus forces products and packages placed on the bottom wall forwardly such that they will make contact with a front stop arranged at the front of the shelf. At products and packages having a dimension in the longitudinal direction of the feeder device which is smaller than the distance between the front stop and the back support wall, in the front most position of the sled, any space between the front most product and the front stop is eliminated. By this means, forward tilting of last remaining products is avoided and the problems connected thereto and described above are eliminated.

[0024] The pusher may be hinged to the back support wall.

[0025] The feeder device may further comprise an elongated guide member which is configured for extending longitudinally backwards from the front of the shelf when the device is mounted and the sled may be slidably and guidedly connected to the guide member such that the sled can slide longitudinally along the elongated guide member.

[0026] The sled and the guide member may be provided with cooperating guide means configured to guide the sled along the guide member and wherein at least one of said guide means is arranged at the support bottom.

[0027] The cooperating guide means may be separated in the longitudinal and the transverse direction of the guide member and at least one longitudinal separation distance may be then equal to or greater than at least one transverse separation distance.

[0028] The guide means may comprise at least two longitudinally extending guide flanges arranged side by side at the sled and wherein the longitudinal extension of the guide flanges is equal to or greater than the transverse distance between them.

[0029] The invention also relates to a shelf managing system comprising a front profile arranged to be fixed to the front edge of a shelf, a front stop and a feeder device as described above.

[0030] Further objectives and advantages of the invention will appear from the following description of embodiments and from the appended claims.

[0031] Generally, all terms used in the claims are to be interpreted according to their ordinary meaning in the technical field, unless explicitly defined otherwise herein. All references to "a/an/the element, apparatus, component, means, step, etc." are to be interpreted openly as referring to at least one instance of the element, apparatus, component, means, step, etc., unless explicitly stated otherwise. The steps of any method disclosed herein do not have to be performed in the exact order disclosed, unless explicitly stated. The use of "first", "second" etc. for different features/components of the present disclosure are only intended to distinguish the features/components from other similar features/components and not to impart any order or hierarchy to the features/components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] Embodiments will be described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a side view of a feeder device comprised in the prior art mounted on a shelf and provided with a package.

Fig. 2 is a perspective view of an embodiment of a feeder device according to the invention when mounted on a shelf by engagement to a front profile.

Fig. 3 is an exploded perspective view of the feeder device shown in fig 2.

Figs. 4a-c are longitudinal sections through a front portion of the feeder device shown in fig. 2 and illustrates the sled when the pusher has assumed different positions.

Fig. 5a is a side view of the feeder device shown in fig. 2 when it is filled with packages and fig. 5b is a corresponding view with only one package remaining.

DETAILED DESCRIPTION

[0033] Embodiments will now be described more fully hereinafter and with reference to the accompanying drawings, in which certain embodiments are shown. However, other embodiments in many different forms are possible within the scope of the present disclosure. Rather, the following embodiments are provided by way of

example so that this disclosure will be thorough and complete, and will fully convey the scope of the disclosure to those skilled in the art. Like numbers refer to like elements throughout the description.

[0034] The feeder device 100 shown in figs. 2-4c comprises an elongate guide member 10, a sled 30 and a spring 60. The feeder device is positioned on a shelf S and attached to an elongate front profile 200 which is fixed to the shelf by means of a double sided adhesive tape (not shown) the front profile 200 extend along the front edge of the shelf and exhibits a constant cross section with a T-shaped flange 201 protruding upwards from a base web 202.

[0035] In the shown example, the guide member 10 comprises a front portion having a forwardly protruding fixation member 12 which defines a downwardly open fixation groove which receives the T-shaped flange 201 when the fixation member 12 has been snap mounted onto the front profile 200. However, the guide member may be fixed to the shelf in many different ways, such as by adhesives, magnets, screws or the like. Normally, it is desirable that the feeding device is easy to remove, re-mount and displace along the shelf for adjusting the shelf lay-out or planogram for different products. For this purpose, the feeder device advantageously forms part of a shelf management system which also comprises fixation means such as a front profile, divider walls, front stops and other shelf accessories such as label holders, flag holders and illumination means. Typically, the shelf management system is designed such that the accessories may easily be fixed and adjusted to any desired position along the shelf and the system often comprises a front profile having engagement means for such adjustable fixation of the accessories. The engagement means may vary in many different ways which are known in the art and it is readily understood that the feeder device according to the invention may be provided with any type of corresponding fixation means which are not described further in detail here.

[0036] In the shown example the guide member 10 comprises three sections comprising a front section 14, a mid section 16 and a rear section 18 which are provided with cooperating engagement means (not shown) for attaching the sections one after the other in the longitudinal direction. The front 14 and rear 18 sections are identical and comprise the fixation member 12 for fixation to the front profile 200 and, when applicable, an identical or similar rear profile. In the shown example the rear profile has been dispensed with and the guide member is fixed to the shelf S merely by means of the front profile and the engagement member 12 of the front section 14. The mid section 16 may be manufactured and delivered in different lengths, such that the guide member 10 and the feeder device 100 may easily be adapted to different shelf depths.

[0037] The assembled guide member 10 is generally plate shaped and exhibits a lower side which rests on the shelf S when mounted and an upper side which sup-

ports the products and the sled 30. On the upper side, two longitudinally extending first guide flanges 20, 22 are arranged along a respective side edge of the guide member 10. The cross section of each first guide flange 20, 22 projects upwardly and transversely outwards passed the respective side edge of the guide member 10. Two support ribs 24, 26 extend in parallel, side by side longitudinally along the guide member, between the guide flanges 20, 22.

[0038] The sled 30 comprises a vertical back support wall 32 with a forwardly facing rectangular support surface and two generally triangular side walls 34, 36 extending perpendicularly backwards from respective side edges of the back support wall 32. Two spring housing walls 36 (only one shown) extend backwards from the rear side of the back support wall, in parallel with and between the side walls 34, 36, such as to define a spring receiving space between them. A hinge flange 40 extends backwards, between the side walls 24, 26 from the upper edge of the back support wall 32. The back support wall further exhibits two through penetrating slits 33 arranged vertically, in parallel and debouching in the spring receiving space.

[0039] The sled further comprises a pusher 42 which is hinged to the upper edge of the back support wall 32. The pusher 42 comprises a rectangular pusher plate 44 with two generally J-shaped hinge hooks 46 extending backwards from its upper edge. Each hinge hook 46 hingedly receives a portion of the hinge flange 40. Two curved spring legs 48 extend backwards from the pusher plate 44 through a respective slit 33 into the spring receiving space.

[0040] The sled 30 also comprises a support bottom 50 which extends horizontally forwards from the lower edge of the back support wall 32, The support bottom exhibits a number of longitudinally extending and upwardly projecting support ribs.

[0041] The guide member 10 and the sled 30 comprise cooperating guide means. In the shown example these guide means comprise the first guide flanges 20, 22 of the guide member and two corresponding L-shaped longitudinally extending second guide flanges 54, 56 projecting downwards and toward each other from the lower side of the support bottom 50. The second guide flanges 54, 56, thus define a respective guide groove which faces each other and which receive a respective first guide flange 20, 22. The second guide flanges 54, 56 are separated by a first distance in the transverse direction. In order to enhance guiding of the sled 30 along the guide member 10 and to avoid the drawer effect the second the longitudinal separation of the front most and rearmost guide surface portions should be equal or greater than the first, transverse separation distance. In the shown example, this is accomplished by that the second guide flanges 54, 56 extend over essentially the entire longitudinal length of the sled, which length is greater than the first transvers separation distance.

[0042] In a not shown alternative embodiment the sec-

ond guide flanges 54, 56 may be exchanged by two or more pairs of transversely separated guide means, such as guide tabs or the like which cooperate with longitudinally arranged guide means on the guide member. In such case the longitudinal distance between the front most and rearmost pair of guide means on the sled should preferably be separated by a distance which is greater than the transverse distance between the guide means in each pair.

[0043] An advantage of the feeder device according to the invention is that the support bottom 50, which extends forwardly from the back support wall 32 may be utilized for carrying the sled's 30 guide means. By this means the longitudinal distance between front and rear most guide means may be increased without the need of excessively extending the sled rearwards behind the back support wall 32. In this way a maximum portion of the shelf's depth may be used for storage of products.

[0044] The feeder device also comprises a spring 60 for urging the sled 30 forwardly along the guide member 10. In the shown example the spring 60 is a flat spiral spring of the clock spring type. The spring 60 comprises a wound portion 62 and an elastically extendable and retractable extended portion with a free end 64. The wound portion 62 is housed and maintained in the spring receiving space, between the spring housing walls 36. The extended portion extends under the support bottom 50 and between the support ribs 24, 26 of the guide member 10. The transverse distance between the support ribs 24, 26 is essentially equal to the width of the spring, thus maintaining the extended portion of the spring 60 aligned with central axis of the guide member 10. The free end 64 is thread through a spring slit 28 arranged in proximity to the fixation member 12 and fixed to the guide member 10.

[0045] With reference to figs. 4a-c, and 5a-b, the functioning of the feeder device 100 will now be explained. In fig. 5a the feeder device 100 is shown in a fully retracted extended position on the shelf S and loaded with a number of pouch packages P arranged one after the other in a longitudinal row. In the shown example, the thickness of the packages allows the two rearmost packages to be supported on the support bottom of the sled 30.

[0046] The feeder device 100 is fixed to a front profile 200 as described above and a front stop 210 is also fixed to the front profile by a similar snap fixation. The front stop comprises a transparent stop plate which extends vertically upwards and in parallel with the front profile. The front stop 210 is positioned in front of the sled 30 and the pouch packages P.

[0047] In this retracted extended position the spring 60 urges the sled 30 forwardly whereby the back support wall 32 and the pusher plate 44 exerts a forwardly directed force to the pouch packages P. The front most package P rests against the front stop 210, whereby the packages P are compressed and exert a normal force to the pusher plate 44. The spring legs 58 rests against the wound portion of the spring which radially urges the push-

er plate 44 to rotate clockwise (as seen in the figures) about a hinge axis defined by the hinge flange 40. However, the normal force of the row of packages P is greater than the spring force applied to the spring legs 48 and the pusher plate 44, such that the pusher plate 44 is maintained in a vertical position in parallel with and resting against the back support wall 32.

[0048] When the front most package P is picked out from the shelf such that an empty space is created behind the front stop 210, the spring 60 is elastically wound, such that the extended portion is retracted and the sled 30 is urged forwardly pushing the row of packages P forward relative to the guide member 10 and the shelf S. The lower edges of the packages P rest on the guide member's 10 comparatively narrow guide flanges 20, 22 and support ribs 24, 26 such that the friction between the packages P and guide member 10 is reduced, thereby enhancing feeding action of the feeder device 100.

[0049] In fig. 5a all packages except the previously rear most package P have been picked out and the sled 30 has thereby been displaced forwardly to its front most position. In this position the front edge of the support bottom 50 rests against the front stop 210, thereby preventing further forward displacement of the sled 30. At picking out of the second last package P the pusher plate is rotated clockwise as illustrated in figs. 4a to 4c. When the second last package is picked out, further forward movement of the sled 30 is prevented by the front edge of the support bottom 50 making contact with the front stop 210. Since the thickness of the remaining last package is smaller than the longitudinal length of the support bottom and thereby the distance between the back support wall 32 and the front stop 210, the remaining package will not exert any normal force on the pusher plate 44. By this means the radial spring force exerted by the springs wound portion on the spring legs 48 will cause the pusher plate to rotate clockwise about the hinge axis defined by the hinge flange 40. The lower portion of the pusher plate 44 thereby makes contact with a lower portion of the remaining package P and displaces the lower portion of the package forwardly relative to the now stationary support bottom 50 and the front stop 210. During this displacement the narrow support ribs 52 on the support bottom reduces the friction and facilitates the forward displacement. During the forward displacement of the lower portion of the remaining package P, a mid portion of the package rests against an upper portion of the front stop 210. The displacement of the lower portion will thereby result in that the package is rotated clockwise (as seen in the figures) such that the entire remaining package P straighten up to an essentially vertical orientation as illustrated in fig 5b.

[0050] By this means any forward tilting of the package is eliminated and the risk of any upper portion of the package extending out in front of the front support is greatly reduced. Thereby the problems occurring at the prior art as described above is eliminated or at least greatly reduced.

[0051] The present disclosure has mainly been described above with reference to a few embodiments. However, as is readily appreciated by a person skilled in the art, other embodiments than the ones disclosed above are equally possible within the scope of the present disclosure, as defined by the appended patent claims. For example, in a non shown embodiment the pusher plate is urged forwardly relative to the support bottom by means of a second spring or other elastic means such as an elastic pad which is arranged between the back support wall and the pusher plate. The pusher need not be hinged to the back support wall but may instead comprise any type of pusher plate or the like which is arranged in front of the lower portion of the back support wall and which is urged to be linearly displace forwardly. As indicated above the cooperating guide means of the sled and the guide member may take many other forms as long as they provide a satisfactory guidance of the sled along the guide member. The movement of the sled may be accomplished by other means than a flat wound spring, e.g. by an extension spring or an elastically loaded rack and pinion drive. At further not shown embodiments, the guide member is omitted. At such embodiments, the sled comprising the back support wall and the support bottom rests directly on the shelf and is urged forwardly by a suitable spring means such as a wound spring or similar. The sled may be guided merely by the forwardly urging action of the spring means. It is however also possible that the sled, at such embodiments, is guided by divider walls or other shelf accessories that extend rearward from the front edge of the shelf in parallel with the movement path of the sled at either or both sides of the sled.

Claims

1. A feeder device (100) configured for mounting on a shelf (S) for feeding successive products (P) arranged one after the other in a row on the shelf to a front of the shelf, the feeder device comprising:

a sled (30) which comprises a back support wall (32) arranged to contact a rear portion of a rear-most product in the row; and
 a first spring (60) connected to the sled (30), and arranged to urge the sled forwardly towards the front of the shelf; wherein
 the sled further comprises a pusher (42) which is arranged to urge a lower portion of a product placed on the support bottom (50) forwardly relative to the sled (30) by means of an elastic member;
 wherein the sled comprises a support bottom (50) which extends forwardly from the back support wall (32) and is arranged to support the bottom of at least one product **and characterized in that** said elastic member is said first spring

(60).

2. A feeder device according to claim 1, wherein the pusher (42) is hinged to the back support wall.
3. A feeder device according to claim 1 or 2, further comprising an elongated guide member (10) which is configured for extending longitudinally backwards from the front of the shelf when the device (100) is mounted, wherein the sled (30) is slidably and guidedly connected to the guide member (10) such that the sled can slide longitudinally along the elongated guide member.
4. A feeder device according to claim 3, wherein the sled (30) and the guide member (10) are provided with cooperating guide means (20, 22, 54, 56) configured to guide the sled along the guide member and wherein at least one (54, 56) of said guide means is arranged at the support bottom (50).
5. A feeder device according to claim 4, wherein said guide means of the sled are separated in the longitudinal and the transverse direction of the guide member and wherein at least one longitudinal separation distance is equal to or greater than at least one transverse separation distance.
6. A feeder device according to claim 4 or 5, wherein said guide means of the sled (30) comprises at least two longitudinally extending guide flanges (54, 56) arranged side by side at the sled and wherein the longitudinal extension of the guide flanges is equal to or greater than the transverse distance between them.
7. A shelf managing system comprising a front profile (200) arranged to be fixed to the front edge of a shelf (S), a front stop (210) and a feeder device (100) according to any of claims 1-6.

Patentansprüche

1. Zuführvorrichtung (100), die zur Montage an einem Regal (S) zum Zuführen von aufeinanderfolgenden Produkten (P) konfiguriert ist, die hintereinander in einer Reihe auf dem Regal an eine Vorderseite des Regals angeordnet sind, die Zuführvorrichtung umfassend:

einen Schlitten (30), der eine Rückenstützwand (32) umfasst, um einen hinteren Teil eines hintersten Produkts in der Reihe zu kontaktieren; und
 eine erste Feder (60), die mit dem Schlitten (30) verbunden ist, und angeordnet ist, um den Schlitten vorwärts in Richtung der Vorderseite

- des Regals zu drücken; wobei der Schlitten ferner einen Schieber (42) umfasst, der angeordnet ist, um einen unteren Teil eines Produkts, das auf dem Stützboden (50) angeordnet ist, relativ zum Schlitten (30) mittels eines elastischen Elements vorwärts zu drücken;
- wobei der Schlitten einen Stützboden (50) umfasst, der sich von der Rückenstützwand (32) nach vorne erstreckt und angeordnet ist, um den Boden von mindestens einem Produkt zu stützen, und **dadurch gekennzeichnet ist, dass** das elastische Element die erste Feder (60) ist.
2. Zuführvorrichtung nach Anspruch 1, wobei der Schieber (42) an die Rückenstützwand angelenkt ist.
 3. Zuführvorrichtung nach Anspruch 1 oder 2, ferner umfassend ein längliches Führungselement (10), das so konfiguriert ist, dass es sich von der Vorderseite des Regals in Längsrichtung nach hinten erstreckt, wenn die Vorrichtung (100) montiert ist, wobei der Schlitten (30) verschiebbar und geführt mit dem Führungselement (10) verbunden ist, sodass der Schlitten in Längsrichtung entlang des länglichen Führungselements gleiten kann.
 4. Zuführvorrichtung nach Anspruch 3, wobei der Schlitten (30) und das Führungselement (10) mit zusammenwirkenden Führungsmitteln (20, 22, 54, 56) versehen sind, die konfiguriert sind, um den Schlitten entlang des Führungselements zu führen, und wobei mindestens eines (54, 56) der Führungsmittel am Stützboden (50) angeordnet ist.
 5. Zuführvorrichtung nach Anspruch 4, wobei die Führungsmittel des Schlittens in Längs- und Querrichtung des Führungselements getrennt sind, und wobei mindestens ein Längstrennungsabstand gleich oder größer als mindestens ein Quertrennungsabstand ist.
 6. Zuführvorrichtung nach Anspruch 4 oder 5, wobei das Führungsmittel des Schlittens (30) mindestens zwei sich längs erstreckende Führungsflanschen (54, 56) umfasst, die nebeneinander am Schlitten angeordnet sind und wobei die Längserstreckung der Führungsflansche gleich oder größer als der Querabstand zwischen ihnen ist.
 7. Regal-Managementsystem umfassend ein Frontprofil (200), das angeordnet ist, um an der Vorderkante eines Regals (S) befestigt zu werden, einen vorderen Anschlag (210) und eine Zuführvorrichtung (100) nach einem der Ansprüche 1-6.

Revendications

1. Dispositif d'alimentation (100) configuré pour le montage sur une étagère (S) pour l'alimentation successive de produits (P) disposés l'un à la suite de l'autre dans une rangée sur l'étagère vers un avant de l'étagère, le dispositif d'alimentation comprenant :
 - un traîneau (30) qui comprend une paroi de support arrière (32) étudiée pour contacter une partie arrière d'un produit le plus à l'arrière dans la rangée ; et
 - un premier ressort (60) relié au traîneau (30) et étudié pour pousser le traîneau en avant vers l'avant de l'étagère ; dans lequel le traîneau comprend en outre un poussoir (42) qui est étudié pour pousser une partie inférieure d'un produit placé sur la partie inférieure de support (50) en avant par rapport au traîneau (30) au moyen d'un élément élastique ;
 - dans lequel le traîneau comprend une partie inférieure de support (50) qui s'étend en avant à partir de la paroi de support arrière (32) et est étudiée pour supporter la partie inférieure d'au moins un produit et
 - caractérisé en ce que** ledit élément élastique est ledit premier ressort (60).
2. Dispositif d'alimentation selon la revendication 1, dans lequel le poussoir (42) est articulé sur la paroi de support arrière.
3. Dispositif d'alimentation selon la revendication 1 ou 2, comprenant en outre un élément de guidage allongé (10) qui est configuré pour s'étendre longitudinalement en arrière à partir de l'avant de l'étagère lorsque le dispositif (100) est monté, dans lequel le traîneau (30) est relié de manière coulissante et guidée à l'élément de guidage (10) de sorte que le traîneau peut coulisser longitudinalement le long de l'élément de guidage allongé.
4. Dispositif d'alimentation selon la revendication 3, dans lequel le traîneau (30) et l'élément de guidage (10) sont dotés de moyens de guidage coopérant (20, 22, 54, 56) configurés pour guider le traîneau le long de l'élément de guidage et dans lequel au moins l'un (54, 56) desdits moyens de guidage est disposé au niveau de la partie inférieure de support (50).
5. Dispositif d'alimentation selon la revendication 4, dans lequel lesdits moyens de guidage du traîneau sont séparés dans la direction longitudinale et transversale de l'élément de guidage et dans lequel au moins une distance de séparation longitudinale est supérieure ou égale à au moins une distance de séparation transversale.

6. Dispositif d'alimentation selon la revendication 4 ou 5, dans lequel ledit moyen de guidage du traîneau (30) comprend au moins deux brides de guidage s'étendant longitudinalement (54, 56) disposées côte à côte au niveau du traîneau et dans lequel l'extension longitudinale des brides de guidage est supérieure ou égale à la distance transversale entre elles. 5
7. Système de gestion d'étagère comprenant un profilé avant (200) étudié pour être fixé sur le bord avant d'une étagère (S), un butoir avant (210), et un dispositif d'alimentation (100) selon l'une quelconque des revendications 1-6. 10

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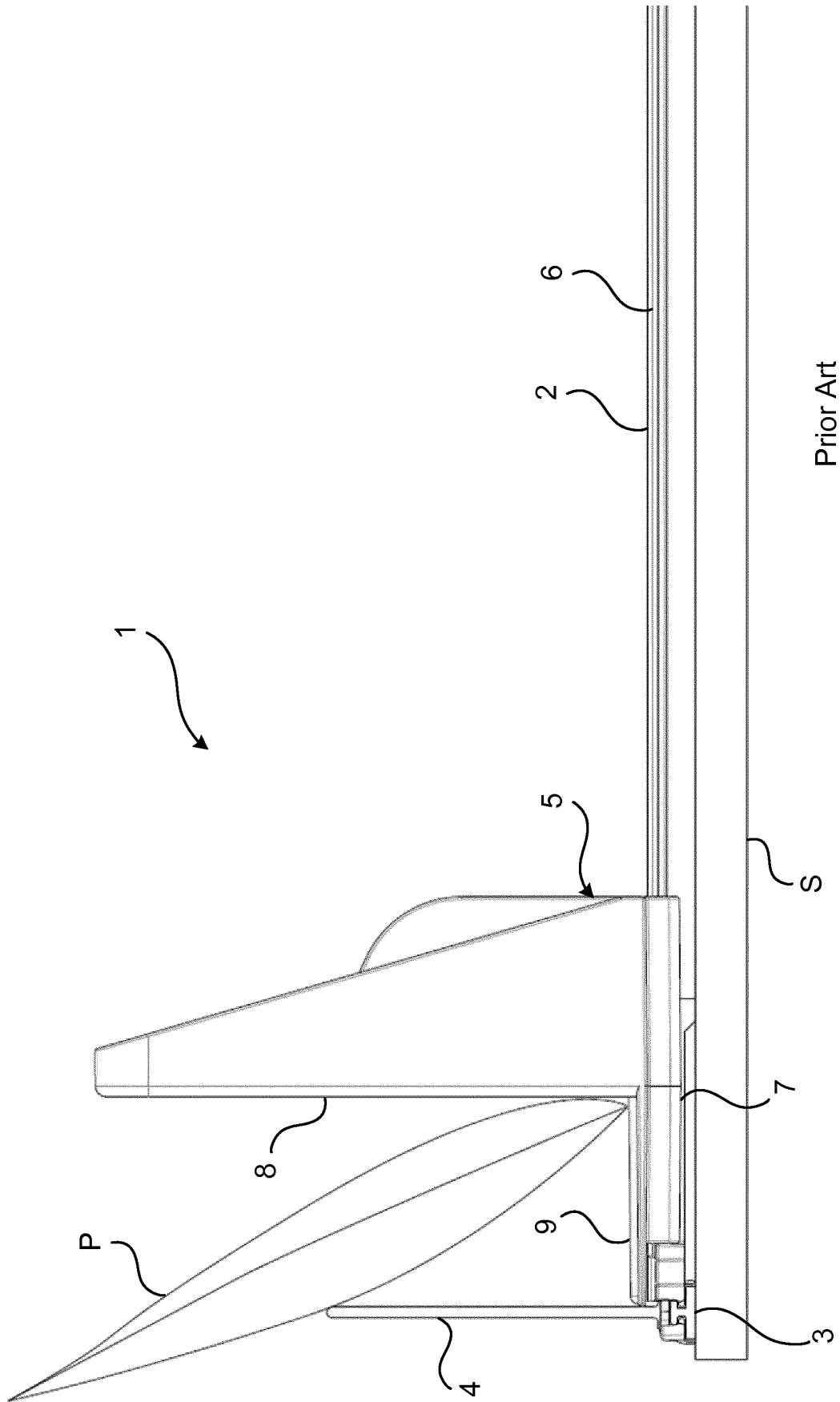


Fig. 1

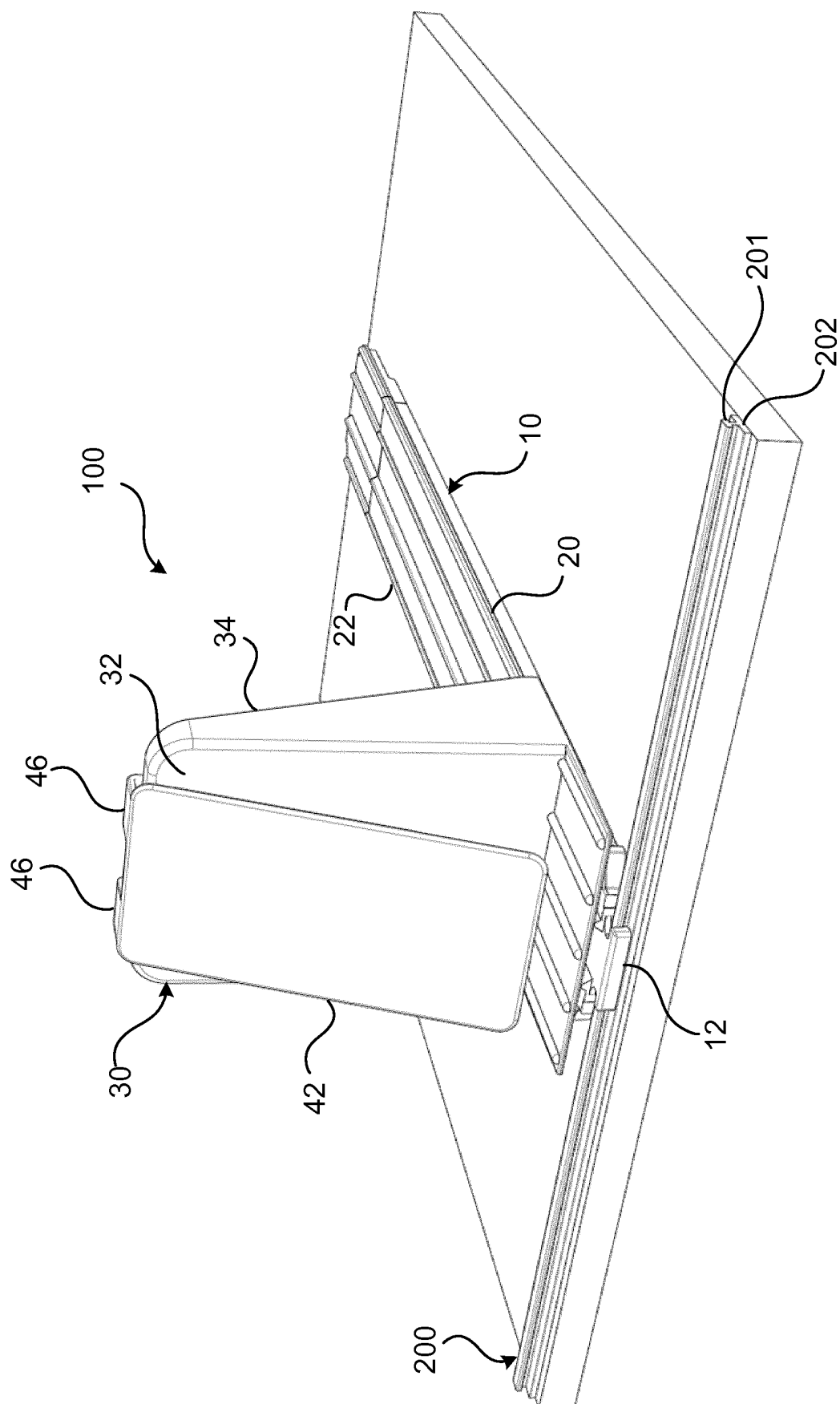


Fig. 2

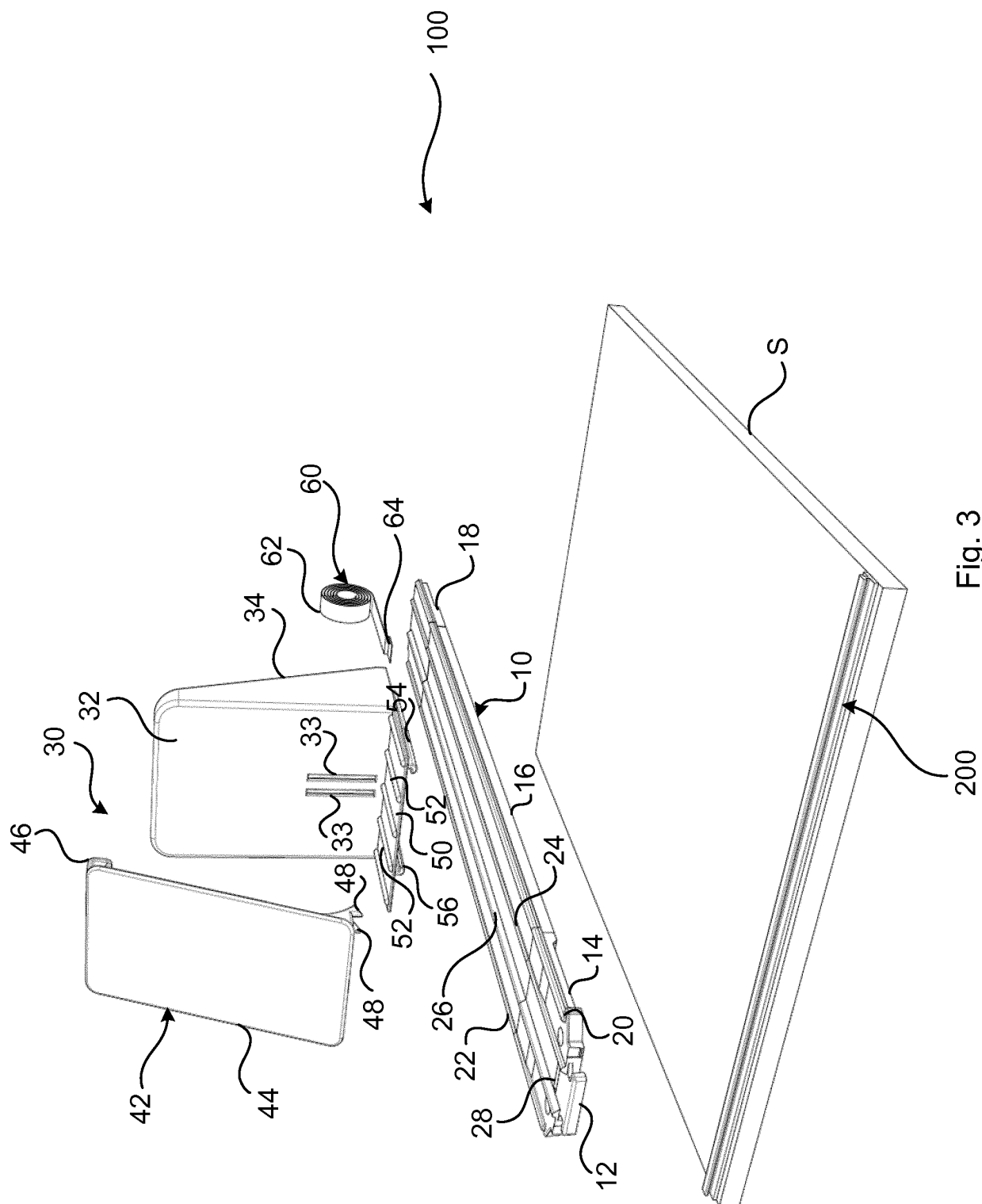


Fig. 3

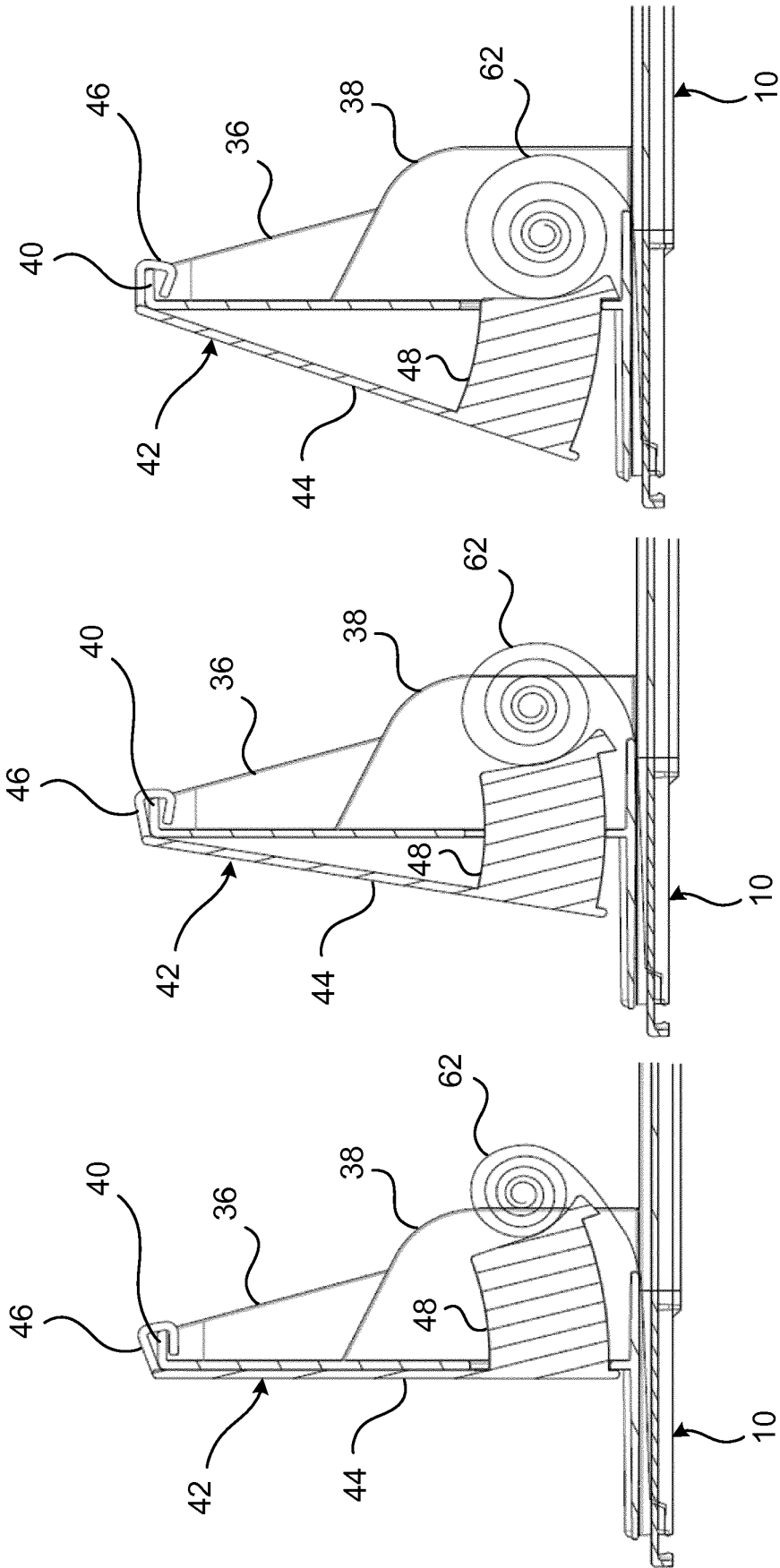


Fig. 4a

Fig. 4b

Fig. 4c

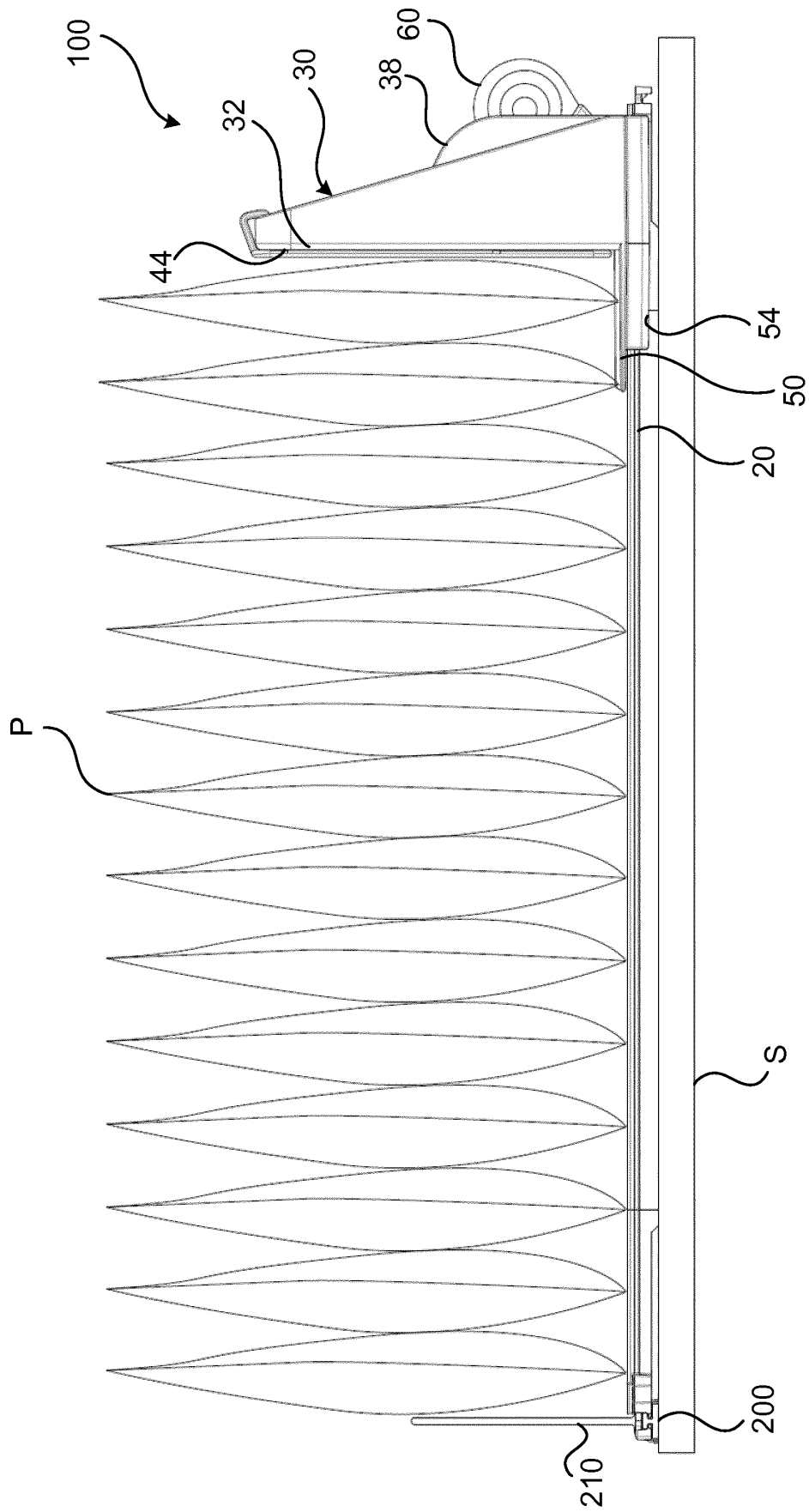


Fig. 5a

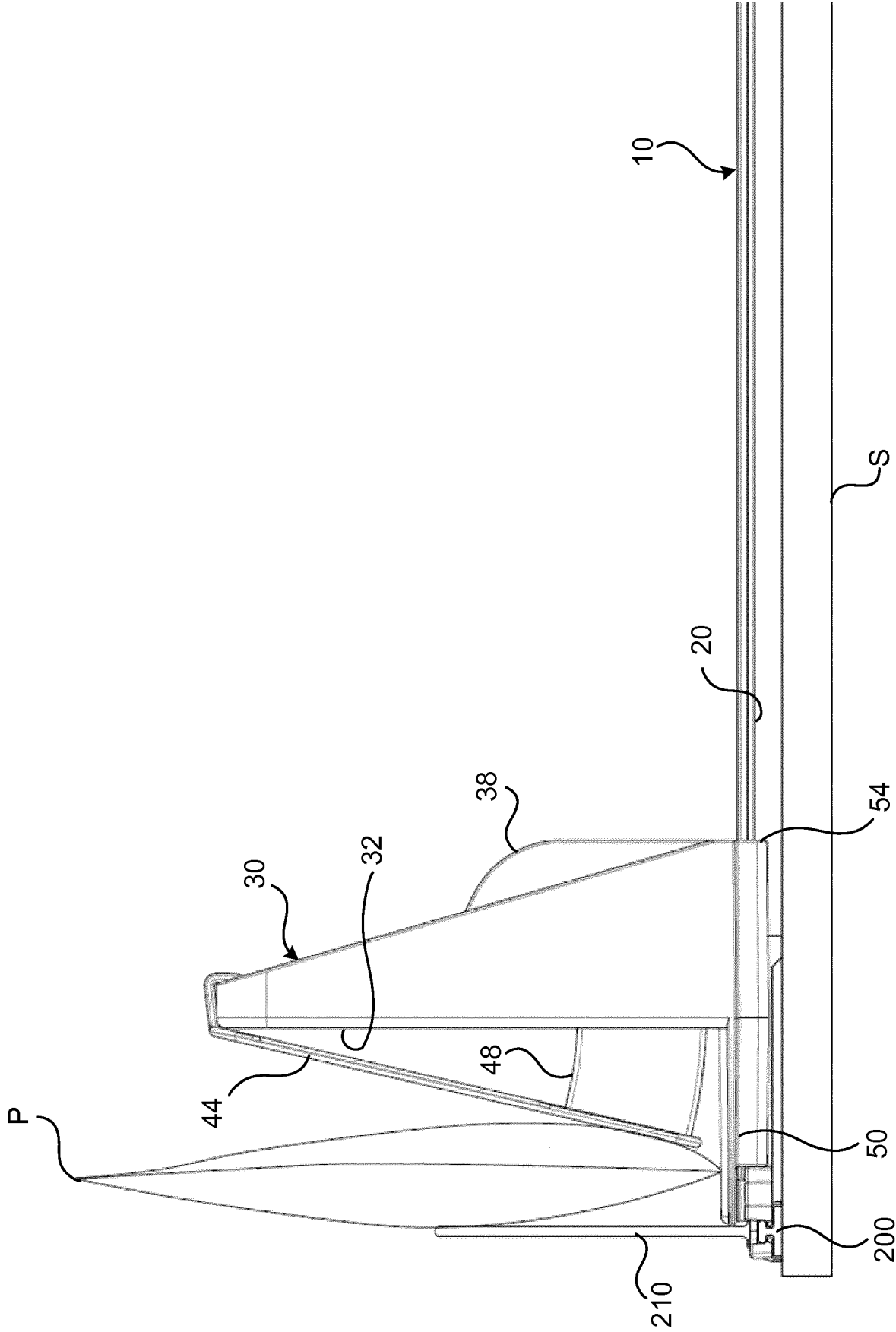


Fig. 5b

REFERENCES CITED IN THE DESCRIPTION

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