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(54) APPARATUS FOR CREATING A VACUUM IN CONTAINERS

VORRICHTUNG ZUR VAKUUMERZEUGUNG IN BEHÄLTERN

APPAREIL SERVANT A CREER UN VIDE DANS DES CONTENANTS

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Description

Field of the Invention

[0001] This invention concerns improvements to an apparatus for creating a vacuum in containers, both flexible like bags, and rigid like jars or canisters, designed to preserve vacuum-packed products.

State of the Technique

[0002] To create a vacuum in containers in general and for the abovementioned use, an apparatus, among others, is already available that basically comprises a base plate defining at least a part of a suction chamber, and a casing or overhanging cover, that defines a remaining part of said suction chamber and that is provided with a vacuum pump, a sealing bar, and also control and management devices of the various functions of the apparatus.

[0003] The upper casing or cover is associated with the base plate and is moveable by rotating it above the latter between an opening and closing positions of the suction chamber whereas the lower plate, if required, can be completely removed so as to be washed separately from the casing or cover, consequently without involving the vacuum pump or even more important the electric or electronic components that always remain closed and protected in the casing or cover.

[0004] Such an apparatus, agreed that its overall configuration with the vacuum pump, sealing bar and control and management apparatus of the various functions present in the upper casing or cover, was however found to be susceptible to improvements to increase its performance plus its functionality and practicality.

[0005] On the other hand the documents US2005/050856; DE 34 03534; EP 1990 280; EP 1564 148 appear to be indicative of the present state of the technique.

Objective and Summary of the Invention

[0006] It is therefore an objective of this invention to provide a apparatus that meets the abovementioned type for the formation of a vacuum, at least in flexible containers such as bags, incorporating a decomposable flat base, an original closing and releasing blocking device between the base plate and upper casing or cover, a roll carrier space on the base plate and a cutter associated with the casing or cover and which can move towards the flat base.

[0007] This objective is achieved, according to the invention with an apparatus for the formation of the vacuum in bags or canister according to at least claim 1.

[0008] In this way, the base plate instead of being completely separable from the casing or cover, can comprise only a removable and washable part, in particular a part

defining a basin to collect the fluids or substances that may flow out of the container during the suction phase to create a vacuum.

[0009] Furthermore, for its operation, the blocking and releasing apparatus can be provided with one or more maneuvering levers or knobs which can be used individually or both at the same time, so that the closing of the apparatus to be used and then opening it after being used can both be carried out either using only one hand or using two. In addition, the block and release devices can be associated with means for the control of other functions, such as the control of a micro switch provided to enable the functioning of the device only after it has been trimmed and blocked on closing and, where required, the command of an air valve so as to close it when the equipment is in use and to immediately open it before the equipment is opened following use.

Brief description of the Drawings

[0010] The invention will however be described in greater detail in the following making reference to the attached explicative drawings, in which:

Figs. 1 and 2 show the apparatus closed respectively in a vertical rest position and in a laying down position;

Fig. 3 shows the apparatus in a release phase to be opened;

Fig. 4 shows the apparatus open for use and complete with a roll of a tubular element for the formation of bags;

Fig. 5 shows an internal view of an initial equipment of an apparatus complete with a block/release device, solenoid valves and a micro switch;

Fig. 6 shows an internal view of a second preparation of an apparatus complete with a block/release, air valve and micro switch;

Figs. 7, 8 and 9 show a detail of the block/release device between base plate and upper casing in the inactive, intermediate and active positions visible respectively according to the cross section line A-A in Figs. 5 and 6;

Figs. 10, 11 and 12 show a detail of the control system of the air valve in the open, intermediate and closed positions respectively, according to the section line B-B in Figs. 5 and 6;

Fig. 13 shows a view of the apparatus open in an extraction and cutting phase of a length of tubular element;

Fig. 14 shows a view of the apparatus in which the base plate is completely separated from the upper casing or cover;

Fig. 15 shows a version of the apparatus in which the base plate has only one removable portion;

Figs. 16 and 17 show in sequence the separable part in the extraction phase and totally removed from the flat base: and

Fig. 18 shows an enlarged detail of the sealing bar and the respective packing.

Detailed Description of the Invention

[0011] The apparatus represented comprises a base plate 11 to which is coupled an upper casing 12, or cover, rotating between a raised opening position above the base plate and a lowered closed position, that is to say operative, in which the upper casing or cover, becomes blocked on the base plate by means of a clamping device 13 which will be described further on.

[0012] According to an embodiment, the base plate 11 and the casing or cover 12 are connected to each other, but separable one from the other, as shown in Fig. 14, to enable the manipulation and the washing of the first independently from the second.

[0013] The base plate 11 carries on its upper face, adjacently to its front side, a profiled contrary gasket 14 and parallel, behind the latter, it has an oblong slot 15, possibly enclosed by a seal 16 facing upwards. Basically, the slot 15 can act as a receptacle for collecting possible fluid substances that can be sucked and exit from a container during the formation of the vacuum. However, in the slot 15 there could be provided, even though not shown, a tank for collecting fluid substances. This tank will preferably be removable so as to be cleaned and provided, or not, with a rod to hold the mouth of a flexible container in position.

[0014] In the casing or cover 12 are positioned-Figs. 5 and 6- a vacuum pump P, a pressure switch T, at least one solenoid valve EV and all the functional components, pneumatic and electric commands and controls of the various work phases of the apparatus. Furthermore, these components could be integrated that is to say pre-assembled on a support panel to facilitate the realization of the machine. On an upper wall of said casing or cover 12 an instrument board 17 is provided with instruments and pushbuttons which enable the user to manage the machine and its functions according to requirements.

[0015] The casing or cover 12 delimits, in a part of its lower face, an aspiration chamber 18 that, for example, is connected by means of a multi-way block 118 -Figs. 10- 12- to the vacuum pump P according to the F arrow, to a pressure switch T according to arrow G and to a breather pipe S according to the H arrow. The suction chamber 18 is in turn, surrounded by a seal 19 which faces towards and coincides with the seal 16 placed either around the slot 15 or, where envisaged, the tank on the base plate 11. Furthermore, on the front of the suction chamber 18, the casing or cover 12 holds a sealing bar 20 which, when the machine is closed, coincides with a profiled contrary gasket 14 on the base plate 11. Preferably, the sealing bar 20 rests on flexible means, for example leaf springs 120 -Fig. 18- operating to push said sealing bar towards the contrary gasket 14 supported by the base plate 11. This layout enables the sealing operation to be carried out more easily even in the lack of

suction on the part of the pump that is to say that the vacuum pump not operating. In fact the thrust of the flexible means 120 on the sealing bar permits, in all cases, to maintain the two opposite faces near each other so that they can be sealed.

[0016] Between the base plate 11 and the upper casing, a space designed to house a roll 22 of a tubular element is provided in addition and is gradually extractable from the front of the apparatus which from time to time cuts a length 22' -Fig. 13- for the preparation of a bag at the required length at the time of packaging the products that need to be preserved. As shown -Fig. 4- this space is delimited by a notch 21 on the back of its slot 15, or tank, together with a roll cover element 21', which is reclining, and is mounted inside the upper casing 12. On the other hand, a cutter 23 is associated with the upper casing or cover 12, which in the example illustrated has a frame associated with the abovementioned roll cover 21' and in the illustrated example has a frame associated with the abovementioned roll cover element 21' and is a turn-up with the latter. Practically, with the apparatus open the cutter moves into a vertical idle position, accosted to the casing 12, whereas when turning the roll-cover element 21' moves towards the base plate 11, the cutter moves into a horizontal rest position on the tubular element which from time to time is taken from the roll 22 for the transversal cutting of the latter.

[0017] In a variation in construction as shown in Figs. 15-17, the base plate 11 is not completely separable from the casing or cover above, but only partially. It, in fact has an autonomous front portion, 111, which is for example coupled like a drawer with the remaining part of the base plate 11 and which is extractable to be washed separately from other parts of the apparatus. In this case, the placing of the roll carrier space being understood, it is the front portion 111 that is configured to carry the profiled packing 14 that acts as a locator for the sealing bar 20 and to delimit the slot 15 surrounded by the seal 16 facing the suction chamber 18 defined by the upper casing.

[0018] The connecting device 13 mentioned above for blocking the casing or cover 12 when closing on the base plate 11 -Fig. 7-9- consists in two fixed hooks 25 and in two corresponding swivel hooks 26. The fixed hooks 25 extend upwards from opposite parts of the base plate 11 close to its front side or, when present, from the removable portion 111. For their rotation, the swivel hooks 26 are mounted on respective pins 29 and are connected to a turning control shaft 27 by means of an articulation made up of relay rods 30, 31, and 32.

[0019] The control shaft extends crossways and is supported in rotation in the casing or cover 12, by means of bushings or bearings.

[0020] The swivel hooks 26 are movable between an inactive unblocked position, in which they are at a distance from the fixed hooks -Fig. 7-, and an active blocked position, in which they are drawn near and are closely connected with the fixed hooks -Fig. 9-, by means of a

possible intermediate position-Fig. 8- in which hooks and swivel hooks ensure, not so much a clamping, but simply a nearing of the casing or cover on the base plate.

[0021] As represented, the control 27 shaft of the swivel hooks 26 can be a sole item and provided for its manual rotation with levers or end grips 28 positioned externally on the casing or cover 12.

[0022] The rotation of the shaft can be carried out manually on one or the other lever or grips or on both at the same time.

[0023] As an alternative, in the place of a single control shaft there can be provided two independent semi-shafts each designed to control a counter hook 26 and each provided with a relative lever or grip 28; the two semi-shafts with the relative swivel hooks will in this case be independent, but the block and release of the apparatus when closed may be carried out only by operating on both the levers or grips.

[0024] According to another aspect of the invention and regarding a first set up - Fig. 5 - to the apparatus to create a vacuum is also keyed a cam 127 to the shaft 27 or to one of the two semi-shafts, provided to control the block/release 26 swivel hooks.

[0025] This cam is set up to engage with a cursor 128 -Figs 10-12- which is placed in the casing or cover 12 of the apparatus and helped by means of a relative guide support 129 and configured to control at the same time a bleed valve 130 associated with the bleed hole on a level with the multiway block and a micro switch 131. In a different set up, the apparatus can be without a bleed valve; in this case the cam fixed to the shaft 27 or to one of the two control semi-shafts of the block/release swivel hooks is always controlled by a cursor, but this is provided only to interact with a micro-switch.

[0026] In both cases the micro-switch is inserted in the electric circuit of the apparatus with the aim of enabling the start of the functions of the apparatus itself only when it is blocked and closed, releasing them on the other hand when the apparatus is open.

[0027] The apparatus described above can be programmed to carry out, by means of appropriate selection controls available on the instrument board 17, for example: all the automatic vacuum formation cycle and sealing starting from a bag with a closed bottom; a shortened soldering and sealing cycle in advance before reaching the maximum vacuum allowed in a flexible container; a soldering cycle without precautionary starting of the vacuum pump when initial sealing of a tubular element to dissect for the preparation of bags is required; a shortened cycle only for the formation of a vacuum in containers that are rigid, positioned outside of the apparatus and connected to it by means of a suction tube.

[0028] When the apparatus is not needed, it can be closed, positioning the connecting device in an intermediate blocked condition -Fig. 8, and laid down horizontally as in Fig. 1 or placed vertically against the rear side, as in Fig. 2.

[0029] When required for use, the apparatus is opened

by using at least one of the levers or grips 28 -according to the arrows in Fig. 3- in the direction to release the connecting device 13 and turn the casing or cover 12 above the base plate 11 -Fig. 4. At that point, if present, it is possible to extract a length of tubular element from the roll 22 until the end is almost in line with the rear side of the base plate; then close and block the casing or cover 12 on the base plate 11 using the connecting device 13. With the closing of the apparatus, the cam 127 sets, by means of the slider 128, the closing of the micro switch 131 to enable the use of the apparatus. Therefore it is possible to select and proceed with a soldering cycle only, without starting the vacuum pump, to seal the initial part of the tubular element; then re-open the apparatus so as to extract a portion 22' of tubular element at the required length -Fig. 13- and be able to then lower the trimmer 23 to trim crossways the length of the portion 22' from the tubular element so as to be able to have a bag with a closed bottom available. This bag can then be used to arrange the product to be wrapped, after which its open entrance can be placed between the base plate and the casing or cover so as to be in line with the suction chamber. Now, the casing or cover is lowered onto the base plate and blocked on closing by means of a connecting device. So, on the one hand the bleed valve 130 is moved into the closed position of the bleed hole; on the other hand, the micro-switch is closed to enable the operation of the apparatus; consequently the vacuum pump can be started to remove the air from the bag through the suction chamber and, once the empty level required in the bag has been reached, the soldering phase for the final sealing of the mouth of the bag is started before releasing the connecting device again to be able to re-open the apparatus and remove the sealed packet.

Claims

1. Apparatus to create the vacuum in containers, both flexible such as bags, and rigid such as vases or canisters, for the preservation of vacuum-packed products, comprising a base plate (11) and a casing or cover (12) joined together, wherein the cover (12) is movable by rotation compared with the other raised inactive open position, and a lowered closed operating position, wherein the base plate (11) and the cover (12) are associated to delimit, in the closed position, a suction chamber (18) intended to receive the mouth of a flexible container to be put in a vacuum by a vacuum pump and be sealed by means of a sealing bar (20) with the help of mechanical, pneumatic, electric and electronic control means, wherein the base plate (11) is connected to the casing or cover (12) and has a separable front portion (111) placed and guided like a drawer in a front part of the base plate and provided with at least a receptacle (15) for liquid substances so that it can be manipulated and washed separately from a remaining part

of the base plate (11), in which said receptacle (15) is designed to coincide with the suction chamber (18), and wherein said separable front portion (111) is provided with a profiled contrary gasket (14) for the sealing bar (20) when the apparatus is closed, said sealing bar (20) being on board said casing or cover (12) and facing towards said base plate (11), said receptacle being a slot entirely surrounded by a gasket (16) provided on board said base plate (11).

2. Apparatus according to claim 1, **characterized in that:**

- between the base plate (11) and the overhead cover (12) is provided a connecting device (13) for blocking the apparatus in at least two different closing conditions,
- said connecting device (13) comprises two fixed hooks (25), that extend upwards from the base plate (11) and two corresponding swivel hooks (26) operated by a control shaft (27) which is supported crossways in said casing or cover (12) and equipped with levers or end ball grips (28), and
- said swivel hooks (26) turn on respective pins (29) between an inoperative released position and an active blocked position with the fixed hooks (25), by means of a possible intermediate simple stop position of the cover (12) on the base plate (11).

3. Apparatus according to the previous claims, in which the fixed hooks (25) are fastened to the base plate (11).

4. Apparatus according to any claim 1 or 2, in which the fixed hooks (25) are fixed to the front separable portion (111) of the base plate (11).

5. Apparatus according to claim 2, **characterized in that** said control shaft (27) is a single piece, and **in that** the swivel hooks (26) for their rotation in each of said positions are connected to the control shaft (27) by means of linking arms (30, 31, 32), and **in that** the levers or grips (28) are fixed to the ends of said shaft (27).

6. Apparatus according to claim 2, **characterized in that** said control shaft (27) is made up of two independent semi-shafts, and **in that** every counter hook (26), for its rotation in each of said positions, is connected to a respective semi-shaft by means of a linking arm (30, 31, 32), and that the levers or grips (28) are each fixed to a respective semi-shaft.

7. Apparatus according to any claim 2 to 6, **characterized in that** a cam (127) is fixed to said control shaft (27) and is associated with a slider (128) movable

and interacting with at least a micro switch (131) which is set up to enable the start of the functions of the apparatus only when it is in the exact strict closed blocked position.

8. Apparatus according to any claim 3 to 7, **characterized in that** a cam (127) is fixed to said control shaft (27) and is associated with a cursor (128), movable and interacting with a micro switch (131) designed to enable the start up of the functions of the apparatus only when it is in the strict closed blocked position, and with a bleed valve (130) provided to connect the suction chamber (18) with the atmosphere when the apparatus is in the open position.

9. Apparatus according to any of the previous claims, **characterized in that** at least the base plate (11) is provided with a housing (21) designed to receive a roll (22) of a tubular element which can be trimmed by a trimmer (23) for the preparation of bags at the required length.

10. Apparatus according to any of the previous claims, **characterized in that** the sealing bar (20) is biased by flexible means (120) tending to push it towards a contrary gasket (14) when the apparatus is closed.

11. Apparatus according to claim 9, **characterized in that** the trimmer (23) can overturn around a horizontal axis from an inactive position near said casing in a horizontal supporting position on the tubular element drawn from the roll to be cut crossways.

12. Apparatus according to claim 9, **characterized in that** the trimmer is associated with a turnerable element (21') associated with said upper casing and having a concurrent cavity to define the role carrier with the cavity (21) on the back of the suction chamber.

13. Apparatus according to any claim 1 to 12, **characterized in that** at least the vacuum pump and the pneumatic, electric and electronic means are integrated on a supporting panel.

14. Apparatus according to any claim 1 to 13, wherein said base plate (11) and said cover (12) are detachable one from the other.

Patentansprüche

1. Vorrichtung zur Erzeugung eines Vakuums in Behältern, sowohl in flexiblen wie Beuteln als auch in starren wie Gefäßen oder Dosen, zur Aufbewahrung von vakuumverpackten Produkten, bestehend aus einer Basisplatte (11) und einem Gehäuse oder Deckel (12), die miteinander verbunden sind, wobei der

Deckel (12) zwischen einer gehobenen unwirksamen Öffnungsposition und einer abgesenkten wirksamen Schließposition schwenkbar ist, wobei die Basisplatte (11) und der Deckel (12) zusammen in der Schließposition eine Saugkammer (18) begrenzen, die zur Aufnahme der Öffnungsmündung eines flexiblen Behälters vorgesehen ist, welcher durch eine Vakuumpumpe unter Vakuum zu setzen und mittels eines Siegelstabes (20) mit Hilfe von mechanischen, pneumatischen, elektrischen und elektronischen Steuermitteln zu versiegeln ist, wobei die Basisplatte (11) mit dem Gehäuse oder Deckel (12) verbunden ist und ein trennbares Vorderteil (111) aufweist, welches wie eine Schublade in einer Stirnseite der Basisplatte angeordnet bzw. geführt und mit mindestens einem Sammelbehältnis (15) für flüssige Substanzen versehen ist, sodass es getrennt vom übrigen Teil der Basisplatte (11) gehandhabt und gewaschen werden kann, wobei das besagte Sammelbehältnis (15) mit der Saugkammer (18) übereinstimmend ausgestaltet ist, und wobei das besagte trennbare Vorderteil (111) mit einer zum Siegelstab (20) gegenprofilierten Dichtung (14) bei geschlossener Vorrichtung versehen ist, wobei der besagte Siegelstab (20) auf dem besagten Gehäuse oder Deckel (12) angeordnet ist und der besagten Basisplatte (11) gegenüberliegt, wobei das besagte Sammelbehältnis eine Ausnehmung ist, die vollständig von einer Dichtung (16) auf der besagten Basisplatte (11) umgeben ist.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass:**

- zwischen der Basisplatte (11) und dem obenliegenden Deckel (12) eine Verbindungsvorrichtung (13) zur Blockierung der Vorrichtung in mindestens zwei verschiedenen Zuständen vorgesehen ist,
- die besagte Verbindungsvorrichtung (13) zwei sich aufwärts von der Basisplatte (11) erstreckende ortsfeste Haken (25) und zwei entsprechende Schwenkhaken (26) umfasst, die von einer Steuerwelle (27) betrieben werden, welche im besagten Gehäuse oder Deckel (12) quer gelagert und mit Hebeln oder End-Kugelgriffen (28) ausgerüstet ist, und
- die besagten Schwenkhaken (26) zwischen einer Nichtbetrieb-Freigabeposition und einer mit den ortsfesten Haken (25) wirksamen Blockierposition um entsprechende Zapfen (29) über einer möglichen Zwischenstoppposition des Deckels (12) auf der Basisplatte (11) drehen.

3. Vorrichtung nach den vorangehenden Ansprüche, in dem die ortsfesten Haken (25) an der Basisplatte (11) befestigt sind.

4. Vorrichtung nach einem der Ansprüche 1 oder 2, in dem die ortsfesten Haken (25) an das trennbare Vorderteil (111) der Basisplatte (11) fixiert sind.

5. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die besagte Steuerwelle (27) ein Einzelstück ist und die Schwenkhaken (26) zu ihrer Drehung in jeder der besagten Positionen mit der Steuerwelle (27) mittels Verbindungsarmen (30, 31, 32) verbunden sind, und dass die Hebel oder Griffe (28) an den Enden der besagten Welle (27) fixiert sind.

6. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die besagte Steuerwelle (27) aus zwei unabhängigen Halbwellen besteht, und dass jeder Gegenhaken (26) für seine Drehung in jeder der besagten Positionen mit einer entsprechenden Halbwellen mittels eines Verbindungsarmes (30, 31, 32) verbunden ist und dass die Hebel oder Griffe (28) jeweils an einer entsprechenden Halbwellen fixiert sind.

7. Vorrichtung nach einem der Ansprüche 2 bis 6, **dadurch gekennzeichnet, dass** ein Nocken (127) an der besagten Steuerwelle (27) fixiert und einem Schieber (128) zugeordnet ist, der beweglich und wirkverbunden mit mindestens einem Mikroschalter (131) ist, welcher dazu eingestellt ist, den Start der Vorrichtungsfunktionen nur zu erlauben, wenn die Vorrichtung sich in der exakten eng blockierten Schließposition befindet.

8. Vorrichtung nach einem der Ansprüche 3 bis 7, **dadurch gekennzeichnet, dass** ein Nocken (127) an der besagten Welle (27) fixiert und einem Gleitelement (128), das beweglich und mit einem Mikroschalter (131) wirkverbunden ist, der dazu bestimmt ist, den Anlauf der Vorrichtungsfunktionen nur zu erlauben, wenn die Vorrichtung sich in der eng blockierten Schließposition befindet, und mit einem Entlüftungsventil (130) zur Verbindung der Saugkammer (18) mit der Atmosphäre bei in Öffnungsposition befindlicher Vorrichtung.

9. Vorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** mindestens die Basisplatte (11) ein Gehäuse (21) aufweist zum Aufnehmen einer Rolle (22) eines rohrförmigen Elementes, das mittels einer Schneidvorrichtung (23) zum Bereitstellen von Beuteln der geforderten Länge abgeschnitten werden kann.

10. Vorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Siegelstab (20) durch Federmittel (120) vorgespannt ist, um diesen in Richtung auf die Gegendichtung (14) im geschlossenen Zustand der Vorrichtung zu drücken.

11. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** die Schneidvorrichtung (23) um eine Horizontalachse zwischen einer unwirksamen Position nahe bei dem besagten Gehäuse und einer horizontalen Stützposition auf dem rohrförmigen Element kippbar ist, das zum Querschneiden von der Rolle abziehbar ist. 5
12. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** der Schneidvorrichtung ein kippbares Element (21') zugeordnet ist, das dem oberen Gehäuse zugeordnet ist und einen übereinstimmenden Hohlraum aufweist, um zusammen mit dem Hohlraum (21) auf der Rückseite der Saugkammer einen Rollenträger zu definieren. 10 15
13. Vorrichtung nach einem der Ansprüche 1 bis 12, **dadurch gekennzeichnet, dass** mindestens die Vakuumpumpe und die pneumatischen, elektrischen und elektronischen Mittel auf einer Trägerplatte integriert sind. 20
14. Vorrichtung nach einem der Ansprüche 1 bis 13, **dadurch gekennzeichnet, dass** die besagte Basisplatte (11) und der besagte Deckel (12) voneinander lösbar sind. 25

Revendications

1. Appareil pour créer le vide dans des récipients, à la fois flexibles, tels que des sacs, et rigides, tels que des vases ou des boîtes, pour conserver des produits emballés sous vide, comprenant une plaque (11) de base et une enveloppe ou un couvercle (12) assemblés entre eux, dans lequel le couvercle (12) est mobile par rotation par rapport à l'autre position inactive relevée ouverte et une position de fonctionnement abaissée fermée, dans laquelle la plaque (11) de base et le couvercle (12) sont associés de manière à délimiter, dans la position fermée, une chambre d'aspiration (18) conçue pour recevoir l'embouchure d'un récipient flexible qui doit être mis sous vide par une pompe à vide et scellé au moyen d'une barre d'étanchéité (20) à l'aide de moyens de commande mécaniques, pneumatiques, électriques et électroniques, dans lequel la plaque (11) de base est connectée à l'enveloppe, ou couvercle, (12) et présente une partie avant séparable (111) positionnée et guidée comme un tiroir dans une partie avant de la plaque de base et munie d'au moins un réceptacle (15) pour les substances liquides, de sorte qu'elle peut être manipulée et lavée séparément d'une partie restante de la plaque de base (11), dans laquelle ledit réceptacle (15) est conçu pour coïncider avec la chambre d'aspiration (18), et dans lequel ladite partie avant séparable (111) est munie d'un joint opposé profilé (14) pour la barre d'étanchéité 30 35 40 45 50 55

(20) lorsque l'appareil est fermé, ladite barre d'étanchéité (20) étant sur dite enveloppe ou couvercle (12) et tournée vers ladite plaque (11) de base, ledit récipient étant une fente entièrement entourée par un joint (16) prévu sur ladite plaque de base (11).

2. Appareil selon la revendication 1, **caractérisé en ce que:**

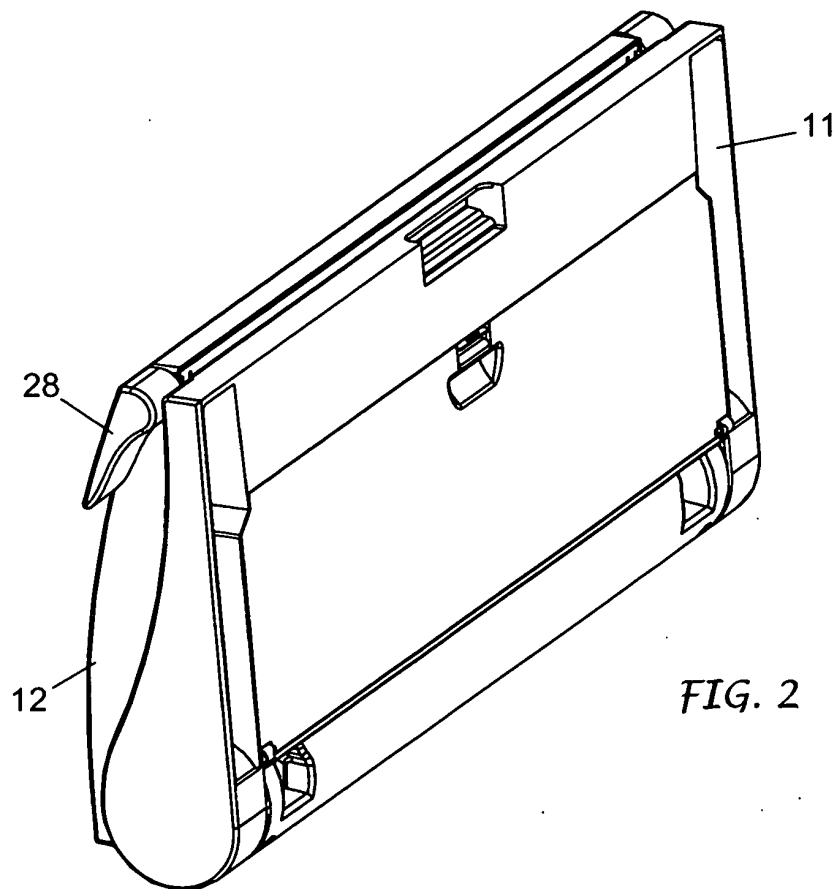
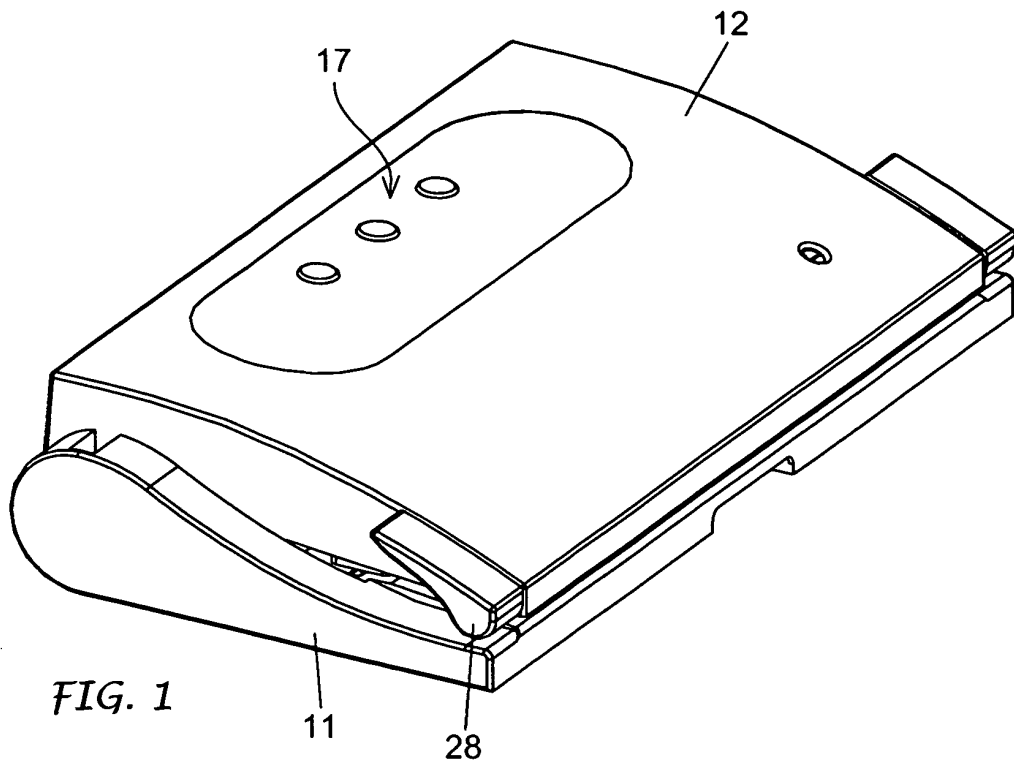
- entre la plaque (11) de base et le couvercle surélevé (12) est prévu un dispositif de raccordement (13) pour verrouiller l'appareil dans aux moins deux différentes états de fermeture,
- ledit dispositif de raccordement (13) comprend deux crochets fixes (25) qui s'étendent vers le haut depuis la plaque (11) de base et deux correspondants crochets pivotants (26) actionnés par un arbre de commande (27) qui est supporté transversalement dans ladite enveloppe ou ledit couvercle (12) et équipé de leviers ou poignées d'extrémité (28), et
- lesdits crochets pivotants (26) tournent sur des respectifs pivots (29) entre une position inopérante délogée et une position active verrouillée avec les crochets fixes (25), au moyen d'une possible position intermédiaire simple d'arrêt du couvercle (12) sur la plaque (11) de base.

3. Appareil selon les revendications précédentes, dans lequel les crochets fixes (25) sont attachés à la plaque (11) de base. 30
4. Appareil selon l'une quelconque des revendications 1 ou 2, dans lequel les crochets fixes (25) sont fixés sur la partie avant séparable (111) de la plaque (11) de base. 35
5. Appareil selon la revendication 2, **caractérisé en ce que** ledit arbre de commande (27) est d'une seule pièce, et **en ce que** les crochets pivotants (26), pour tourner dans chacune des dites positions, sont connectées à l'arbre de commande (27) au moyen de bras de liaison (30, 31, 32), et **en ce que** les leviers ou poignées (28) sont fixés aux extrémités dudit arbre (27). 40 45
6. Appareil selon la revendication 2, **caractérisé en ce que** ledit arbre de commande (27) est composé de deux demi-arbres indépendants, et **en ce que** chaque contre-crochet (26), pour tourner dans chacune des dites positions, est connecté à un respectif demi-arbre au moyen d'un bras de liaison (30, 31, 32), et **en ce que** chacun des leviers ou poignées (28) est fixé à un respectif demi-arbre. 50 55
7. Appareil selon l'une quelconque des revendications 2 à 6, **caractérisé en ce que** une came (127) est fixée audit arbre de commande (27) et est associée

à un curseur (128) mobile et qui interagit avec au moins un micro-interrupteur (131) qui est configuré de façon à activer les fonctions de l'appareil uniquement quand il est dans la position exacte de fermeture et de verrouillage absolu.

5

8. Appareil selon l'une quelconque des revendications 3 à 7, **caractérisé en ce que** une came (127) est fixée audit arbre de commande (27) et est associée à un curseur (128) mobile et qui interagit avec un micro-interrupteur (131) qui est configuré de façon à activer les fonctions de l'appareil uniquement quand il est dans la position de fermeture et de verrouillage absolu, et à une valve de purge (130) prévue pour relier la chambre d'aspiration (18) avec l'atmosphère lorsque l'appareil est dans la position ouverte. 10
9. Appareil selon l'une quelconque des revendications précédentes, **caractérisé en ce que** au moins la plaque (11) de base est munie d'un logement (21) conçu pour recevoir un rouleau (22) d'un élément tubulaire qui peut être rogné par une rogneuse (23) pour la préparation de sacs ayant la longueur requise. 15 20 25
10. Appareil selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la barre d'étanchéité (20) est sollicitée par des moyens flexibles (120) tendant à la pousser vers un joint opposé (14) lorsque l'appareil est fermé. 30
11. Appareil selon la revendication 9, **caractérisé en ce que** la rogneuse (23) peut se retourner autour d'un axe horizontal à partir d'une position inactive près de ladite enveloppe jusqu'à une position horizontal de support sur l'élément tubulaire tiré du rouleau pour être coupé en travers. 35
12. Appareil selon la revendication 9, **caractérisé en ce que** la rogneuse est associée à un élément renversable (21') associé à ladite enveloppe supérieure et comportant une cavité coopérant pour définir le porte-rouleaux avec la cavité (21) à l'arrière de la chambre d'aspiration. 40 45
13. Appareil selon l'une quelconque des revendications 1 à 12, **caractérisé en ce que** au moins la pompe à vide et les moyens pneumatiques, électriques et électroniques sont intégrés sur un panneau de support. 50
14. Appareil selon l'une quelconque des revendications 1 à 13, dans lequel ladite plaque (11) de base et ledit couvercle (12) sont détachables l'une de l'autre. 55



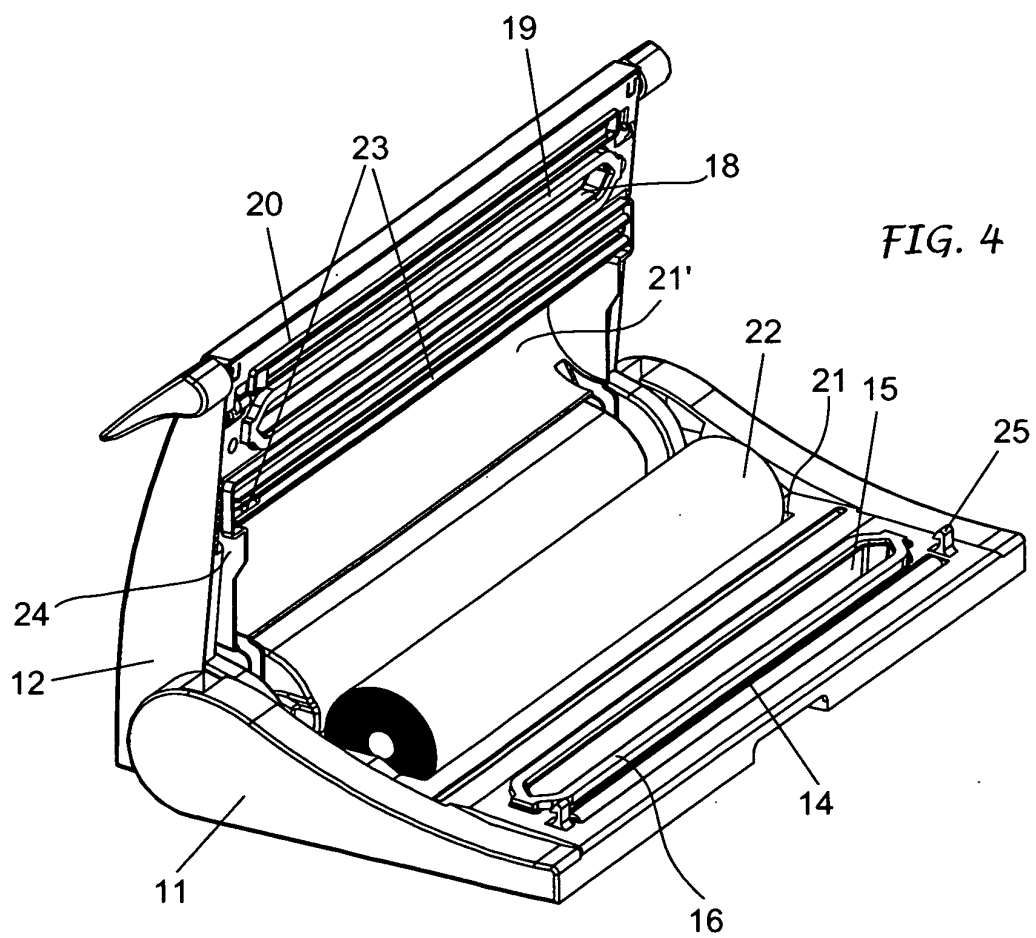
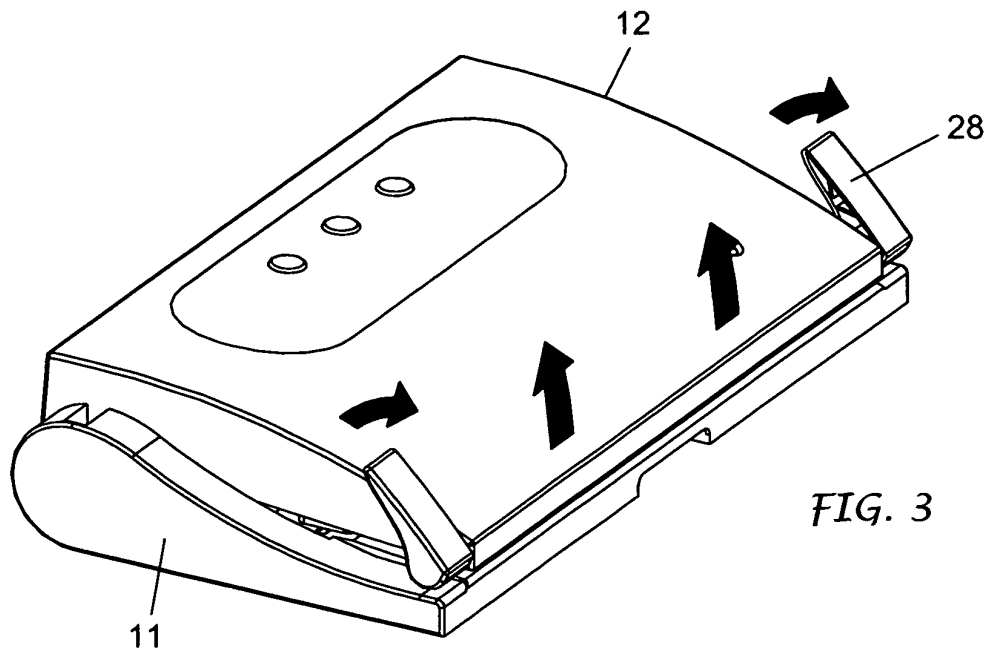


FIG. 5

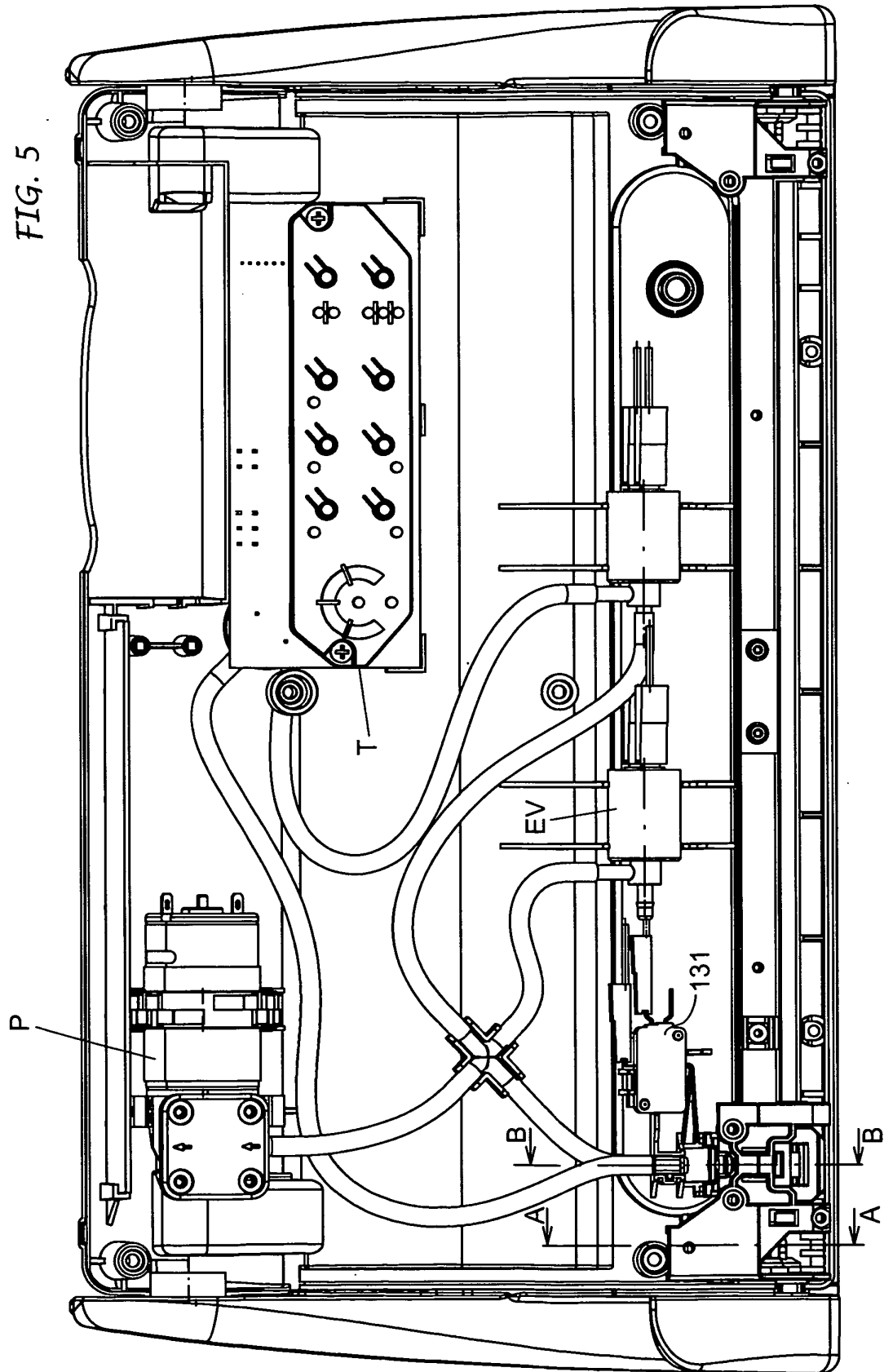
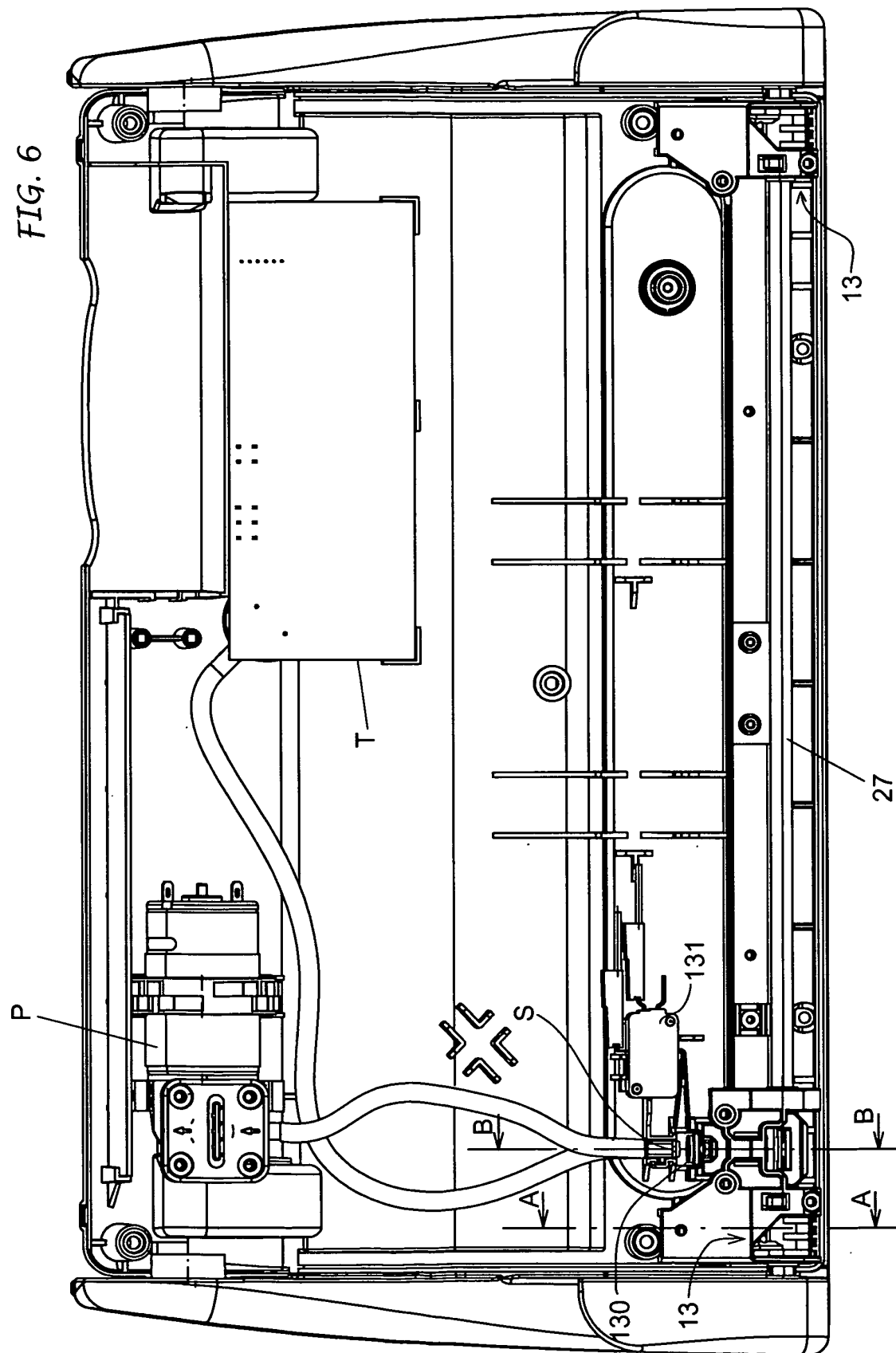
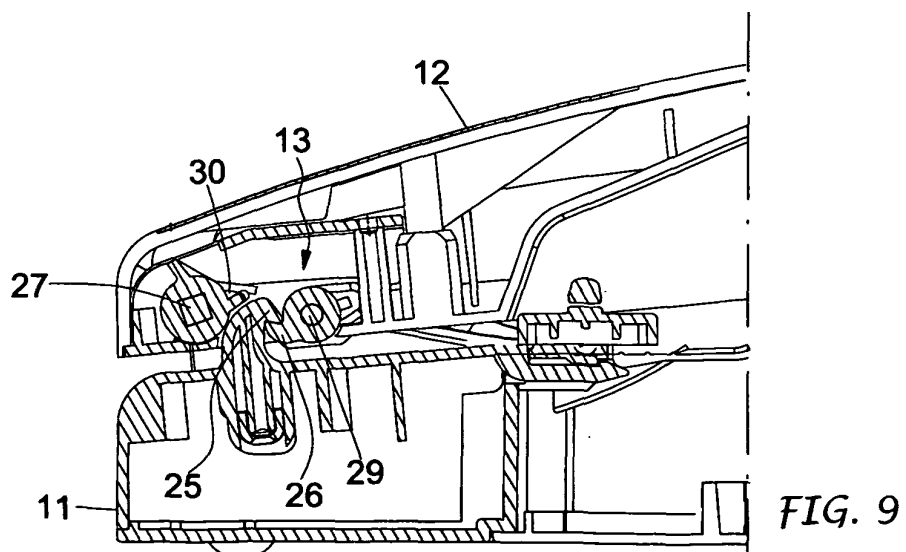
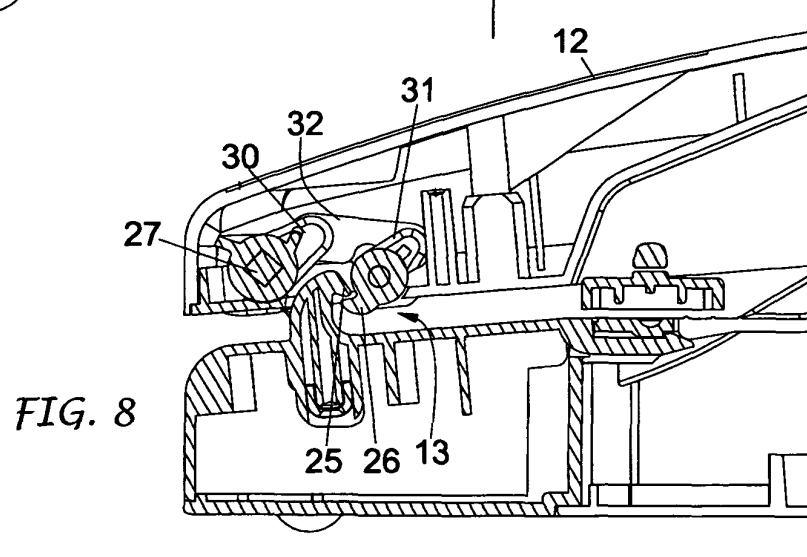
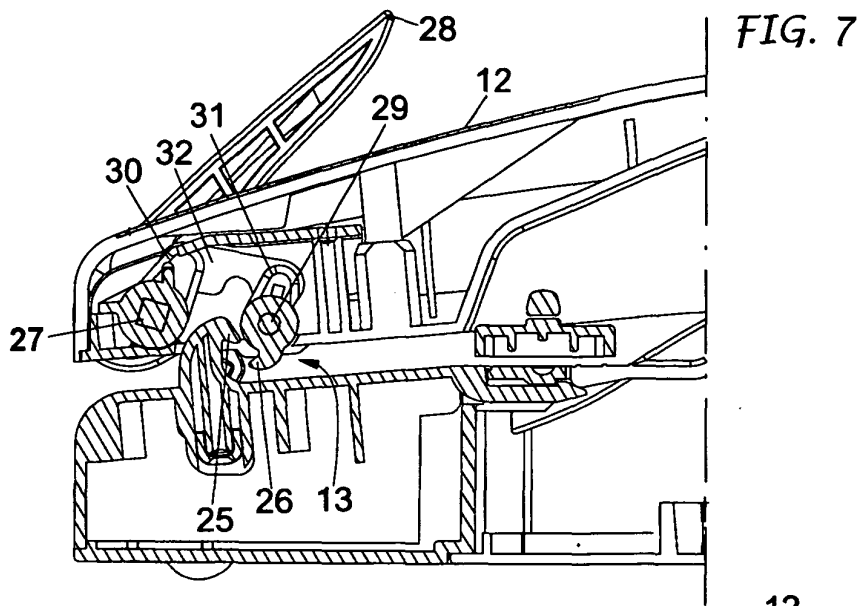
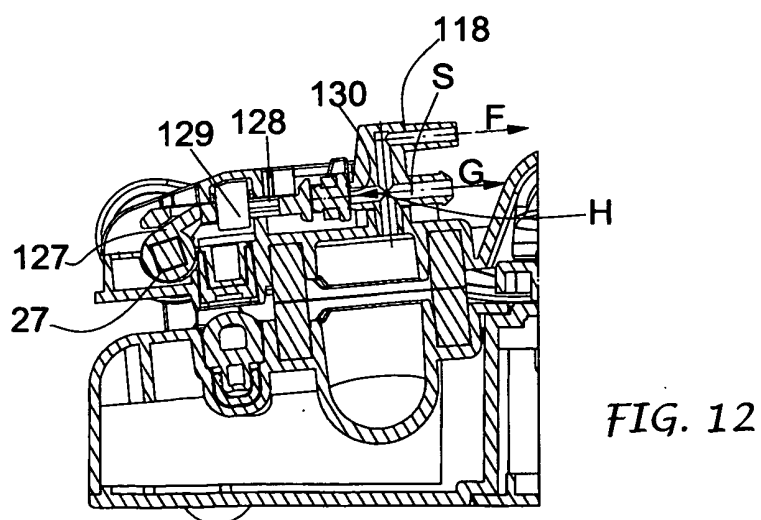
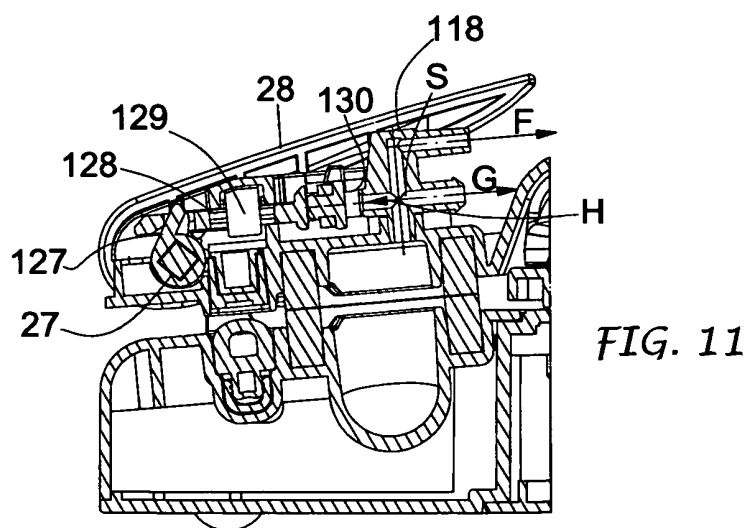
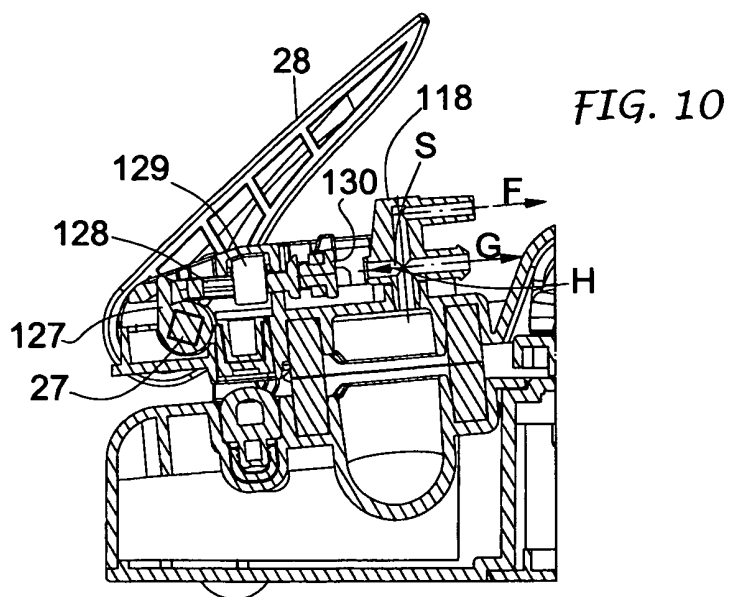
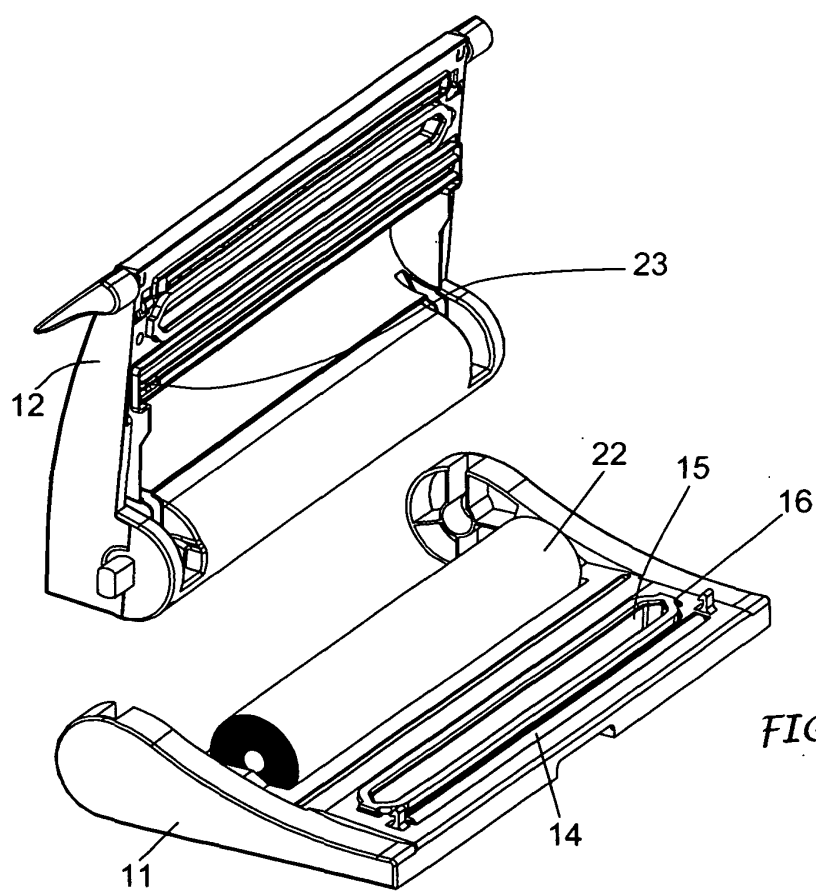
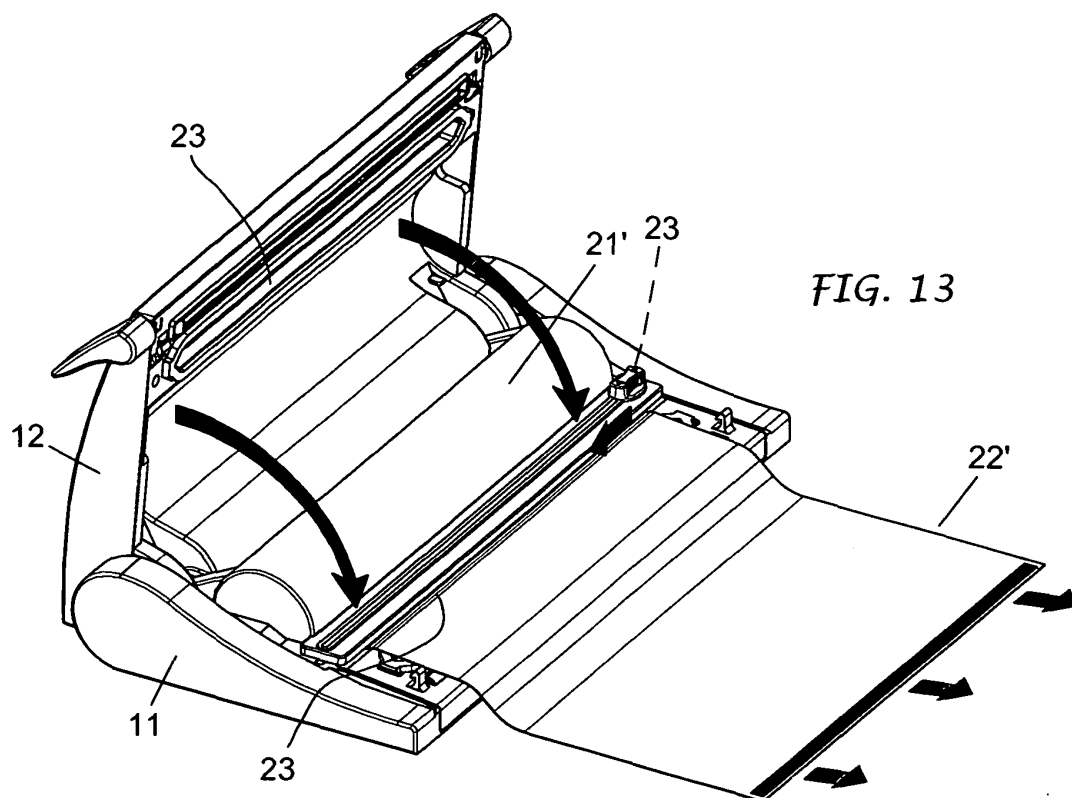


FIG. 6









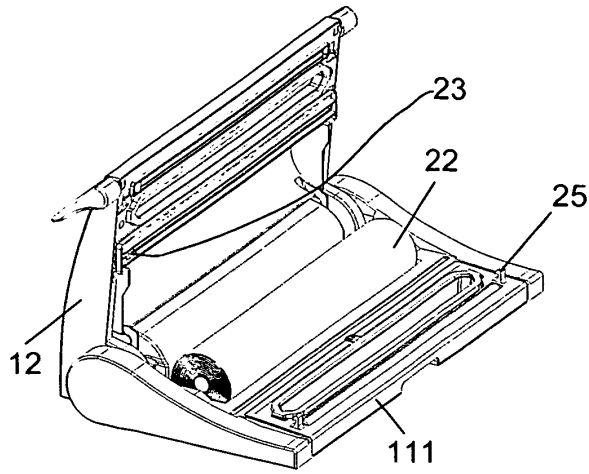


FIG. 15

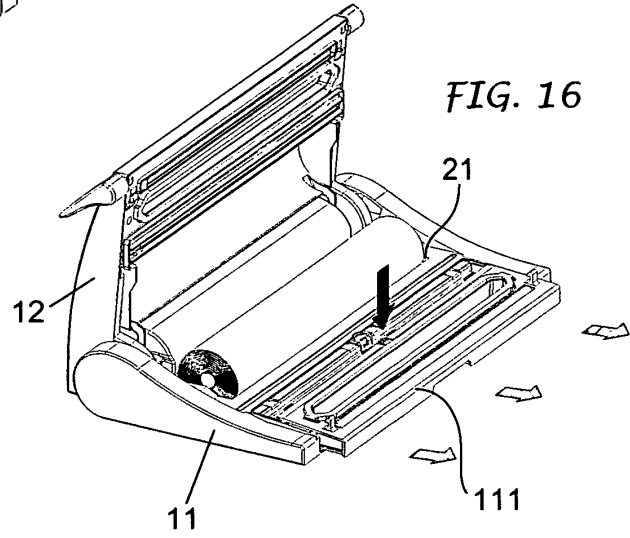


FIG. 16

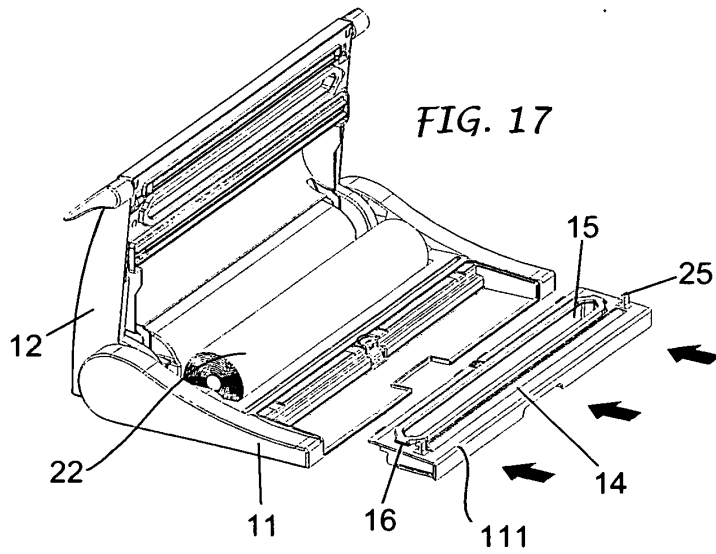


FIG. 17

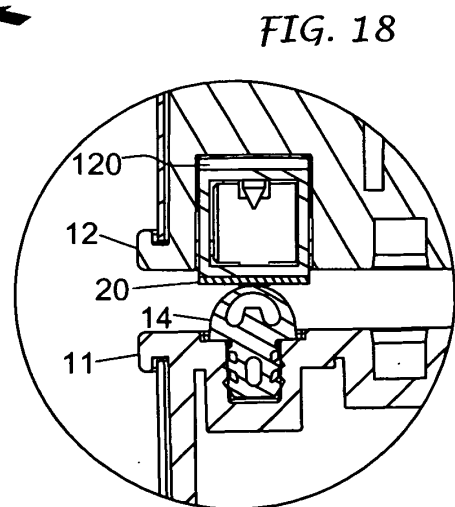


FIG. 18

REFERENCES CITED IN THE DESCRIPTION

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