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(72) Inventors:
• **Biasetti, Marco**
42048 Rubiera (Reggio Emilia) (IT)
• **Denti, Luca**
41012 Carpi (Modena) (IT)

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(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano Gardi Patents,
Via Meravigli, 16
20123 Milano (IT)

(71) Applicant: **B.D. Elettrica S.R.L.**
42015 Correggio,
Frazione Prato(Reggio Emilia) (IT)

(54) **Machine for packaging products, particularly flowerpots**

(57) A machine (1) for packaging products, particularly flowerpots, comprising a frame (2) for supporting a worktop (3) that comprises at least one drawplate (4) for the passage of a corresponding product (V) to be packaged, means (5) for feeding at least one decorative and/or protective sheet (F) for packaging the product on the worktop at the drawplate, means (6) for releasing the

product onto the sheet at the drawplate (4) and presser means (10) that are suitable to force the product and the sheet to pass through the drawplate. Moreover, adhesion means are associated with the sheet and the product, are adapted to keep them in mutual contact following passage through the drawplate, and comprise at least one layer of adhesive material (M) that is interposed between the product (V) and the sheet (F).

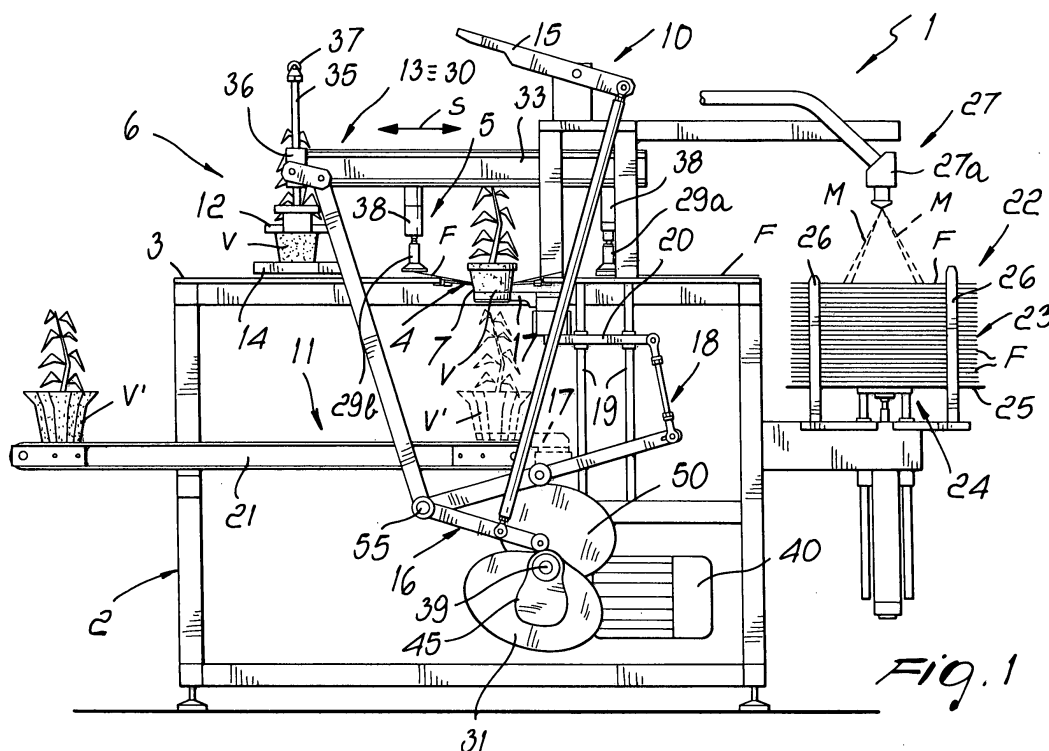


Fig. 1

Description

[0001] The present invention relates to a machine for packaging products, particularly flowerpots.

[0002] It is known that ornamental plants are generally sold in ordinary plastic or clay pots of low quality and low value.

[0003] In order to make their presentation more pleasant and increase their aesthetic value, these plants are generally packaged before displaying them at the point of sale or at the time of purchase.

[0004] Moreover, the package allows to facilitate the application of any adhesive labels or the like that bear bar codes or any other information related to the plants, which are unlikely to adhere firmly to the uneven and sometimes dirty surfaces of pots.

[0005] In commercial establishments, such as in particular supermarkets and hypermarkets, ornamental plants on sale, which are mostly small- or medium-sized, are displayed in dedicated departments in an already-packaged form ready for purchase.

[0006] These packages can be constituted for example by paper boxes, which are assembled on the pot so as to accommodate it inside them and from which the plant protrudes.

[0007] Although these boxes ensure a pleasant aesthetic result, they have rather high costs both for manufacture, due to the purchase of the sheets made of cardboard or the like and to their drawplate-cutting, and for assembly.

[0008] The operations for assembling and applying the boxes to the pots are in fact highly laborious and delicate and are generally performed by hand, entailing significant execution times that affect the sale price of the plants.

[0009] In view of the fact that the plants sold in commercial establishments are generally of a rather common type and have a relatively low cost, the importance of containing the cost related to their packaging is clearly understood.

[0010] Another type of package that is widely used as an alternative to the preceding one consists of a decorative sheet, which is closed around the pot and fixed to it by means of ribbons, laces, elastic bands or straps.

[0011] Said sheet can be made for example of paper, plastics or other material or can be of the so-called multiply type, i.e., constituted by two superimposed layers of different materials that adhere to each other.

[0012] In this case, the ribbon surrounds the decorative sheet above the rim of the pot to be packaged so as to avoid accidental opening of the resulting package.

[0013] The central portion of the sheet is therefore arranged in contact with the pot while its perimetric band assumes a pleasant undulated shape and surrounds the plant contained in the pot.

[0014] Although these decorative sheets are cheaper than said boxes, they are not free from drawbacks, including the fact that currently their application is per-

formed manually, entails substantial execution times and costs, and does not ensure an aesthetic result whose level is constant over time.

[0015] Depending on the dexterity and skill of the assigned operators, the placement of the pot on the sheet and the subsequent shaping of the sheet closed around said pot are in fact performed differently, obtaining in each instance more or less pleasant packages.

[0016] Moreover, it is noted that the placement of the ribbon above the rim of the pot to be packaged entails the need to use large sheets in order to obtain a pleasant visual effect of the resulting package.

[0017] The aim of the present invention is to eliminate the above-mentioned drawbacks of known packages, by providing a machine for packaging products, particularly flowerpots, that allows to reduce significantly the processing times and costs and uses rather low-cost materials.

[0018] Within this aim, an object of the present invention is to obtain packages whose shape is as similar as possible and whose aesthetic value is constant over time.

[0019] Another object of the present invention is to facilitate the application of any adhesive labels or the like and to ensure their durable adhesion.

[0020] Another object of the present invention is to reduce significantly the consumption of material used to obtain the packages without however penalizing their aesthetic value.

[0021] Another object of the present invention is to provide a machine that is simple, relatively easy to provide in practice, safe in use, effective in operation, and has a relatively low cost.

[0022] This aim and these and other objects that will become better apparent hereinafter are achieved by the present machine for packaging products, particularly flowerpots, which comprises a frame for supporting a worktop that comprises at least one drawplate for the passage of a corresponding product to be packaged, means for feeding at least one decorative and/or protective sheet for packaging said product on said worktop at said drawplate, and means for releasing said product onto said sheet at said drawplate, adhesion means being associated with said sheet and with said product and being suitable to keep them in mutual contact following passage through said drawplate, characterized in that it comprises presser means, which are suitable to force the passage of said product and of said sheet through said drawplate and in that said adhesion means comprise at least one layer of adhesive material that is interposed between said product and said sheet.

[0023] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of a machine for packaging products, particularly flowerpots, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a schematic front view of the machine according to the invention;

Figure 2 is a partial schematic plan view of the machine of Figure 1;

Figures 3 and 4 are two partial schematic views of the machine of Figure 1, respectively illustrating the release and feeder means and the grip and removal means;

Figure 5 is a partial schematic view of the machine of Figure 1, illustrating the presser means in a first operating configuration;

Figure 6 is a partial view of Figure 5, in which the presser means are in a second operating configuration;

Figure 7 is a schematic view of an alternative embodiment of the applicator means of the machine according to the invention.

[0024] With reference to the figures, the reference numeral 1 generally designates a machine for packaging products, particularly flowerpots.

[0025] The machine 1 is suitable in particular to package flowerpots V which contain the corresponding plants, which are preferably small- and medium-sized.

[0026] The machine 1 comprises a frame 2 for supporting a horizontal worktop 3, which comprises at least one drawplate 4 for the passage of a pot V to be packaged, means 5 for feeding a decorative and/or protective sheet F for packaging said pot on the worktop 3 at the drawplate 4, and means 6 for releasing a pot V onto the sheet F at said drawplate.

[0027] Adhesion means are provided which are associated with the sheet F and with the pot V and are suitable to keep them in mutual contact following passage through the drawplate 4.

[0028] In particular, said adhesion means comprise at least one layer of adhesive material M, which is interposed between the sheet F and the pot V and is preferably applied to the upper face of the sheet F.

[0029] As an alternative, such layer may be applied externally to the pot V or both to the pot and to the sheet F.

[0030] The sheet F is of the type traditionally used in the packaging of plants and can be constituted for example by paper, plastics, or other material, or can be of the so-called multi-ply type.

[0031] For example, it can be quadrangular or circular and can have a smooth or corrugated perimetric edge.

[0032] The sheet F is arranged by the feeder means 5 so that the drawplate 4 is located at its central region.

[0033] In passing through the drawplate 4, the sheet F is folded onto the pot V and its central portion is arranged so that it adheres to the outer surface of the pot, while the perimetric portion of the sheet F is left protruding above the pot V so as to surround the plant contained therein.

[0034] The layer of adhesive material M maintains the adhesion of the sheet F to the pot V after passage

through the drawplate 4.

[0035] The drawplate 4 is constituted by a substantially elastic membrane, which is provided with an opening 7 for the passage of the pot V, together with the corresponding sheet F, and is accommodated at a receptacle 8 formed on the worktop 3.

[0036] The membrane is preferably provided with a plurality of radial notches 9 distributed along the opening 7.

[0037] Conveniently, the machine 1 comprises presser means 10, which are suitable to force the passage of the pot V and of the sheet F through the drawplate 4.

[0038] Further, the machine 1 is provided with means 11 for gripping and removing the packaged pot V' from the drawplate 4, which are arranged below the worktop 3 proximate to the drawplate.

[0039] The release means 6 comprise a first automatic and preferably self-centering clamp 12, which is supported by the frame 2 above the worktop 3 and can slide along a sliding direction S that is parallel to said worktop between a configuration for gripping the pot V and a configuration for releasing it at the drawplate 4, and first means 13 for actuating the sliding of the first clamp.

[0040] The first clamp 12 may be for example of the pneumatic type.

[0041] Further, the release means 6 comprise a first continuous conveyor 14, such as for example a conventional conveyor belt, for feeding a plurality of pots V, which is arranged transversely to the direction S and so that its unloading side is arranged in a lower region proximate to the first clamp 12 in the grip configuration.

[0042] The first conveyor 14 is arranged above the worktop 3.

[0043] The presser means 10 comprise an oscillating lever 15, which is supported by the frame 2 above the drawplate 4, and second means 16 for actuating the oscillation of the lever.

[0044] In the rotation of the oscillating lever 15, a first end of the lever presses on the first clamp 12, producing its translational motion toward the worktop 3, so as to insert, at least to a first extent, the pot V in the drawplate 4.

[0045] The oscillating lever 15 is pivoted proximate to the centerline to the frame 2, and its second end, which lies opposite the first end, is associated with the second actuation means 16.

[0046] The grip and removal means 11 comprise a second automatic clamp 17, which is preferably self-centering, is supported by the frame 2 below the drawplate 4, and can slide in a vertical direction between a configuration for gripping the pot V' from the drawplate and a configuration for releasing the pot, and third means 18 for actuating the sliding of the second clamp 17.

[0047] The second clamp 17 may be for example of the pneumatic type.

[0048] The frame 2 is provided with at least two profiled elements 19, which are arranged vertically and

along which a sliding block 20 is slidably associated, the sliding block supporting the second clamp 17 in a cantilever manner.

[0049] Moreover, the grip and removal means 11 have a second continuous conveyor 21, for transferring the pots V', which is arranged so that its loading side is in a lower region proximate to the second clamp 17 in the release configuration.

[0050] The second conveyor 21 is constituted for example by a conventional conveyor belt.

[0051] Accordingly, the second clamp 17 unloads the pots V' onto the second conveyor 21. Advantageously, the machine 1 comprises a unit 22 for storing a plurality of sheets F, the feeder means 5 being suitable to individually separate said sheets and pick them up one at a time.

[0052] The storage unit 22 comprises a stack 23 of sheets F, which is arranged proximate to the worktop 3, and preferably comprises pusher means 24, which are suitable to keep the sheet F that is arranged at the top of said stack at a level that is proximate to the level of the worktop 3.

[0053] The pusher means 24 are constituted for example by a fluid-operated actuator, which is supported by the frame 2 below the stack 23 and in which the piston presses from below against a pan 25 for supporting the stack, which is accommodated between a plurality of containment guides 26 that protrude vertically from the frame 2.

[0054] As an alternative, the storage unit 22 might provide, for example, a reel for feeding a continuous strip of decorative and/or protective material, strip cutting means being interposed between the storage unit 22 and the drawplate 4 in order to obtain sheets F, having a suitable geometry and dimensions, to be fed toward said drawplate.

[0055] The machine 1 comprises means 27 for applying the layer of adhesive material M, which are suitable to spread the layer on a portion 28 of the upward face of the sheet F arranged at the top of the stack.

[0056] Preferably, the portion 28 is constituted by a ring, which is arranged at the central portion of the sheet F which, in passing through the drawplate 4, is arranged so as to adhere to the pot V at its upper rim.

[0057] The diameter of the ring is variable according to the dimensions of the pot V.

[0058] It should be noted that by making the sheet F adhere to the pot V at its upper rim, one obtains a significant reduction of the extension of the sheet F required to obtain the same visual effect that one would obtain by applying said sheet to the pot V by tying it with ribbons or the like.

[0059] In this case, the perimetric band of the sheet F in fact opens with an undulated shape directly above the rim of the pot V, without forming the narrower region that inevitably occurs at the ribbon that is used traditionally.

[0060] The application means 27 may have, for example, a conventional spray dispenser 27a, which is ar-

ranged above the stack 23 and is associated with means for feeding the adhesive material M, which are not shown since they are of a known type.

[0061] If the storage unit 22 has a feeder reel, the application means 27 can be arranged directly on the worktop 3.

[0062] The feeder means 5 comprise at least one grip element 29, which is supported by the frame 2 above the worktop 3 and can move along the direction S, and fourth means 30 for actuating the sliding of said element.

[0063] The grip element 29 is preferably of the sucker or clamp type or the like.

[0064] Conveniently, the machine 1 may be provided with means for applying an adhesive label E or the like to the sheet F taken from the stack 23, such means not being shown in the figures and being arranged below the worktop 3.

[0065] The label E may have, for example, a bar code or any type of information related to the type of plant contained in the corresponding pot V.

[0066] The label E is thus applied below the central portion of the sheet F, designed to be arranged at the bottom of the pot V, so as to facilitate its adhesion and subsequent reading for example by means of bar code readers.

[0067] In this case, the feeder means 5 comprise two grip elements 29, which are mutually spaced and can move simultaneously along the direction S; one of said grip elements, designated by the reference numeral 29a, is suitable to take the first sheet F from the stack 23 and carry it to the applicator means, and the other grip element, designated by the reference numeral 29b, is suitable to transfer the previously taken sheet F, with the label E already applied thereto, from the applicator means to the drawplate 4.

[0068] The applicator means are arranged in an intermediate position between the stack 23 and the drawplate 4 and at a distance from them that is on the same order of magnitude as the gap between the two grip elements 29.

[0069] In an alternative embodiment of the invention, the two grip elements 29 might have respective fourth mutually independent actuation means 30.

[0070] The first, second, third and fourth actuation means, designated respectively by the reference numerals 13, 16, 18 and 30, may be for example of the fluid-operated (pneumatic or hydraulic) type, of the mechanical type, or of the electromechanical type.

[0071] If such means are of the mechanical type, each one can be provided with a respective rotating cam for actuating a corresponding lever system.

[0072] In the particular embodiment shown, the first actuation means 13 and the fourth actuation means 30 are mutually integrated (Figure 3) and comprise a first rotating cam 31, which is associated with a first lever system 32 for actuating the alternating sliding, along the direction S, of a carriage 33 that supports the first clamp 12 and the grip elements 29.

[0073] The carriage 33 is arranged above the worktop 3 along the direction S and rests slidingly on a plurality of supporting wheels 34, which are freely associated with the frame 2.

[0074] The first clamp 12 is associated with a vertical bar 35, which is inserted slidingly within a sleeve 36 that is rigidly coupled to the carriage 33, by interposing an elastic compression spring, not shown in the figures, which is pre-adjusted so as to keep the level of the first clamp fixed during sliding in the direction S.

[0075] The downward thrust applied by the presser means 10 is such as to contrast the reaction of said spring, so as to allow the downward translational motion of the first clamp 12 in the release configuration.

[0076] The rod 35 is associated in an upper region with a free wheel 37, on which the oscillating lever 15 rests when the first clamp 12 is in the release configuration.

[0077] The grip elements 29 are also associated, so that they can move in a vertical direction, with the carriage 33 by interposing respective actuators 38.

[0078] The first cam 31 is keyed to a rotating shaft 39 that is associated with a motor 40.

[0079] The first lever system 32 is constituted by a first lever 41, which has an end that acts as a tappet and rests on the first cam 31, by a linkage 42, which is pivoted to the sleeve 36, and by a second lever 43, which is interposed between the preceding ones.

[0080] The first lever 41 and the second lever 43 are mutually connected so as to form a single substantially L-shaped body.

[0081] Moreover, there is a first elastic traction spring 44, which is interposed between the second lever 43 and the frame 2 and keeps the end of the first lever 41 in contact with the first cam 31.

[0082] Figure 3 shows in solid lines the carriage 33, which is arranged so as to place the first clamp 12 at the release configuration, and shows in dashed lines the carriage in a position that is intermediate between the two end configurations.

[0083] The second actuation means 16 (Figure 5) comprise a second rotating cam 45, which is also keyed to the shaft 39 and is associated with a second lever system 46 for actuating the oscillation of the oscillating lever 15.

[0084] The second lever system 46 is constituted by a third lever 47, which has an end that rests on the second cam 44 and acts as a tappet, and by a fourth lever 48, whose opposite ends are pivoted respectively along the third lever 47 and to the second end of the oscillating lever 15.

[0085] The second lever system 46 is associated with a second elastic traction spring 49, which is interposed between the third lever 47 and the frame 2 and keeps the end of the third lever in contact with the second cam 45.

[0086] Figure 5 illustrates the machine 1 with the first clamp 12 in the grip configuration and the oscillating lever 15 in the raised position; Figure 6 illustrates the machine 1 with the first clamp 12 in the release configuration and the oscillating lever 15 in the lowered position.

Figure 6 illustrates the machine 1 with the first clamp 12 in the release configuration and the oscillating lever 15 in the lowered position.

[0087] The third actuation means 18 (Figure 4) comprise a third cam 50, which is also keyed on the shaft 39 and is associated with a third lever system 51 for actuating the alternating sliding in a vertical direction of the second clamp 17.

[0088] The third lever system 51 is constituted by a fifth lever 52, which acts as a tappet and is kept tangent to the third cam 50 by means of a third elastic traction spring 53, which is interposed between the fifth lever and the frame 2, and by a sixth lever 54, the opposite ends of which are pivoted respectively to the fifth lever 52 and to the sliding block 20.

[0089] The first lever system 32, the second lever system 46 and the third lever system 51 are interconnected, since the first lever 41, the third lever 47 and the fifth lever 52 are assembled so that they can rotate about a common pivot 55.

[0090] The first cam 31, the second cam 45 and the third cam 50, according to a method that is known to the person skilled in the art, are shaped so as to have appropriate profiles that provide the motion that one wishes to impart to the corresponding transmission elements.

[0091] However, alternative embodiments of the actuation means are also possible.

[0092] In an alternative embodiment, shown in Figure 7, the applicator means 27 comprise at least one device 56 for dispensing the adhesive material M, such as a hot-melt glue gun, a spray dispenser or the like, which is fed by means of a flexible hose 56 and is supported in an upper region proximate to the stack 23 by a unit 58 for actuation along a substantially circular path that lies on a plane that is substantially parallel to the plane of arrangement of the sheets F arranged in the stack 23 and is therefore horizontal.

[0093] The actuation unit 58 comprises a shaft 59, which is actuated so as to rotate about an axis R, which is substantially perpendicular to the plane of arrangement of the sheets F in the stack 23 and is therefore vertical, by a gearmotor 60, which is supported by the frame 2; a pivot 61, which is associated with the shaft 59 and is arranged transversely thereto; a first ball joint 62, which is associated with an end of the pivot 61 and is interposed between said pivot and a first end of a bar 63 whose longitudinal axis A is inclined with respect to the axis R and is incident thereto, and supports at the second end, which is arranged opposite the first end, the dispensing device 56; and a second ball joint 64, which is supported by the frame 2 and is interposed between the frame and the bar 63 at a region where the axes R and A intersect.

[0094] The dispenser 56 is provided with at least one outlet 56a for the outflow of the adhesive material, which is arranged proximate to the longitudinal axis A and is preferably arranged thereon.

[0095] Conveniently, in order to be able to vary the diameter of the circumference formed by the layer of adhesive material M distributed by the dispenser 56, the actuation unit 58 is provided with means 65 for adjusting the angular position of the bar 63 with respect to the shaft 59, which comprise for example conventional screw means, not shown in detail, for stopping the pivot 61 that is inserted so as to pass through said shaft.

[0096] With reference to an operating cycle of the machine 1, operation is as follows: the first clamp 12, initially in the release configuration, moves toward the grip configuration; during the corresponding stroke of the carriage 33, the grip elements 29 entrain the corresponding sheets F, so that the grip element 29b feeds the corresponding sheet F at the drawplate 4.

[0097] It should be noted that the applicator means 27 have applied beforehand a layer of adhesive material M to the sheet F taken by the grip element 29a from the stack 23.

[0098] The first clamp 12 in the grip configuration takes a pot V from the first conveyor 14 and the carriage 33 thus begins the return stroke toward the release configuration; in this step, the grip elements 29a and 29b, which have already released the corresponding sheets F respectively at the applicator means and at the drawplate 4, are inactive.

[0099] The carriage 33 begins to perform a translational motion along the direction S so as to move the first clamp 12 to the release configuration, while the applicator means 27 dispense a preset amount of adhesive material M onto the new first sheet F of the stack 23.

[0100] The presser means 10 produce the translational motion of the first clamp 12 toward the drawplate 4, on which a sheet F is already arranged.

[0101] The pot V, with the corresponding sheet F interposed, is then pushed through the drawplate 4 so as to arrange said sheet so that it adheres to the outer surface of the pot V.

[0102] The first clamp 12 releases the pot V; the lower portion of said pot, which protrudes below the worktop 3, is gripped, together with the covering sheet F, by the second clamp 17 arranged in the grip configuration.

[0103] In passing through the opening 7, the portion 28 of the sheet F is arranged so as to adhere to the pot V, ensuring its adhesive bonding.

[0104] The third actuation means 18 produce the downward translational motion of the second clamp 17, which once it has reached the release configuration unloads the packaged pot V' onto the second conveyor 21.

[0105] In practice, it has been found that the described invention achieves the proposed aim and objects and in particular the object of automating and thus improving the speed and reducing the cost of the process for packaging flowerpots.

[0106] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0107] All the details may further be replaced with other technically equivalent ones.

[0108] In practice, the materials used, as well as the shapes and dimensions, may be any according to requirements without thereby abandoning the protective scope of the appended claims.

[0109] The disclosures in Italian Patent Application No. M02003A000330 from which this application claims priority are incorporated herein by reference.

[0110] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A machine for packaging products, particularly flowerpots, which comprises a frame for supporting a worktop that comprises at least one drawplate for the passage of a corresponding product to be packaged, means for feeding at least one decorative and/or protective sheet for packaging said product on said worktop at said drawplate, and means for releasing said product onto said sheet at said drawplate, adhesion means being associated with said sheet and with said product and being adapted to keep said sheet and product in mutual contact following passage through said drawplate, **characterized in that** it comprises presser means, which are adapted to force the passage of said product and of said sheet through said drawplate and **in that** said adhesion means comprise at least one layer of adhesive material that is interposed between said product and said sheet.
2. The machine according to claim 1, **characterized in that** it comprises means for gripping and removing said packaged product from said drawplate, said means being arranged below said worktop.
3. The machine according to one or more of the preceding claims, **characterized in that** said release means comprise a first automatic clamp, which is supported by said frame above said worktop and can slide in a direction that is substantially parallel thereto between a configuration for gripping said product to be packaged and a configuration for releasing said product at said drawplate, and first means for actuating the sliding of said first clamp.
4. The machine according to one or more of the preceding claims, **characterized in that** said release means comprise a first continuous conveyor for feeding a plurality of products to be packaged, which is arranged so that its unloading side is at said

first clamp in the grip configuration.

5. The machine according to one or more of the preceding claims, **characterized in that** said presser means comprise an oscillating lever, which is supported by said frame above said first clamp in the release configuration and second means for actuating the oscillation of said lever, said oscillating lever being adapted to push downward the first clamp in the release configuration. 5
6. The machine according to one or more of the preceding claims, **characterized in that** said grip and removal means comprise a second automatic clamp, which is supported by said frame below said drawplate and can slide substantially at right angles to said worktop, between a configuration for gripping said packaged product from said drawplate and a configuration for releasing said product, and third means for actuating the sliding of said second clamp. 10
7. The machine according to one or more of the preceding claims, **characterized in that** said grip and removal means comprise a second continuous conveyor for transferring the packaged products, which is arranged so that its loading side is at said second clamp in the release configuration. 15
8. The machine according to one or more of the preceding claims, **characterized in that** it comprises a unit for storing a plurality of said sheets, said feeder means being suitable to individually separate said sheets and take them one at a time. 20
9. The machine according to one or more of the preceding claims, **characterized in that** said storage unit comprises at least one stack of said sheets, which is arranged proximate to said worktop. 25
10. The machine according to one or more of the preceding claims, **characterized in that** said storage unit comprises pusher means, which are suitable to keep the sheet that is arranged at the top of said stack at a level that is proximate to the level of said worktop. 30
11. The machine according to one or more of the preceding claims, **characterized in that** said storage unit comprises at least one reel for feeding a continuous strip of decorative and/or protective material, cutting means being interposed between said reel and said drawplate in order to obtain said sheet to be fed toward said drawplate. 35
12. The machine according to one or more of the preceding claims, **characterized in that** it comprises means for applying said layer of adhesive material 40

to said sheet and/or said product.

13. The machine according to one or more of the preceding claims, **characterized in that** said applicator means are arranged above said stack of sheets and are adapted to apply said layer of adhesive material to at least one portion of the upward face of the sheet that is arranged at the top of said stack. 45
14. The machine according to one or more of the preceding claims, **characterized in that** said portion is substantially annular. 50
15. The machine according to one or more of the preceding claims, **characterized in that** said applicator means comprise at least one spray dispenser. 55
16. The machine according to one or more of the preceding claims, **characterized in that** said applicator means comprise at least one device for dispensing the adhesive material, which is supported in an upper region proximate to said stack by a unit for actuation along a substantially circular path that lies on a plane that is substantially parallel to the plane of arrangement of said sheets in said stack. 60
17. The machine according to claim 16, **characterized in that** said actuation unit comprises: a shaft, which rotates about an axis that is substantially perpendicular to the plane of arrangement of said sheets in said stack; a pivot, which is associated with said shaft and is arranged transversely thereto; a first ball joint, which is interposed between said pivot and a bar for supporting said dispenser, which is arranged so that its longitudinal axis is inclined with respect to said rotation axis and is incident thereto; and a second ball joint, which is interposed between said frame and said bar in the region where said rotation axis and said longitudinal axis mutually intersect. 65
18. The machine according to one or more of claims 16 and 17, **characterized in that** said dispenser comprises at least one outlet for the outflow of said adhesive material, which is arranged proximate to said longitudinal axis. 70
19. The machine according to one or more of claims 16 to 18, **characterized in that** it comprises means for adjusting the angular position of said bar with respect to said shaft. 75
20. The machine according to one or more of claims 16 to 19, **characterized in that** said dispenser comprises a hot-melt glue gun, a spray dispenser or the like. 80
21. The machine according to one or more of the pre-

ceding claims, **characterized in that** said feeder means comprise at least one grip element, which is supported by said frame above said worktop and can slide substantially parallel thereto, and fourth means for actuating the sliding of said element.

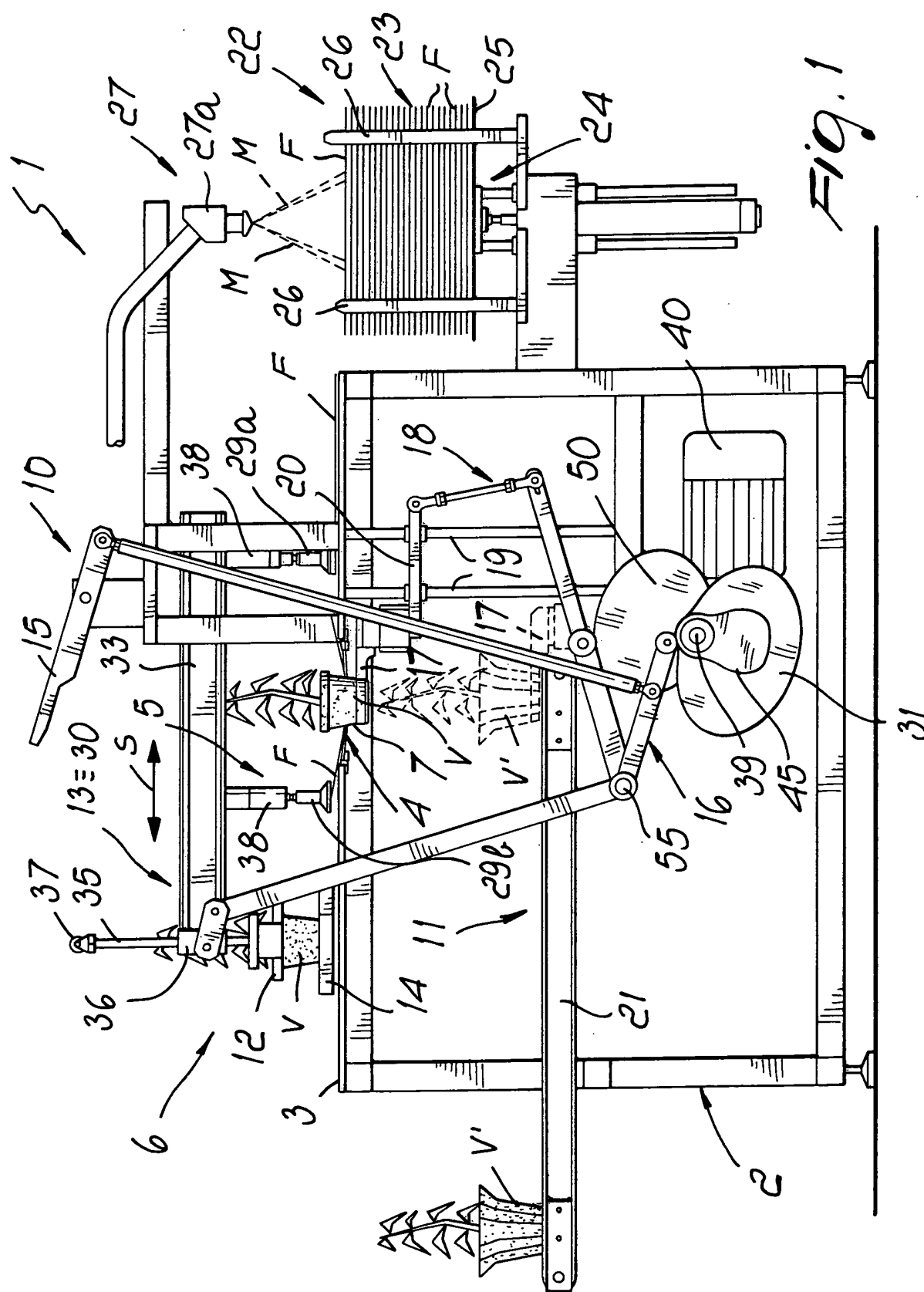
22. The machine according to one or more of the preceding claims, **characterized in that** said grip element is of the type with suckers, with a clamp or the like. 5
23. The machine according to one or more of the preceding claims, **characterized in that** it comprises means for applying an adhesive label or the like to said sheet taken from said storage unit, said means being arranged below said worktop between said unit and said drawplate. 10
24. The machine according to one or more of the preceding claims, **characterized in that** said applicator means are adapted to apply said label or the like at, and on the opposite side of, the portion of said sheet that can be associated with the lower surface of said product. 15
25. The machine according to one or more of the preceding claims, **characterized in that** said feeder means comprise two of said grip elements, which are mutually spaced and can move simultaneously, one of said grip elements being adapted to take one of said sheets from said storage unit and to carry it to said applicator means, the other grip element being suitable to transfer the sheet previously taken by said applicator means to said drawplate, the applicator means being arranged in an intermediate position between said storage unit and said drawplate and at a distance therefrom that is on the same order of magnitude as the gap comprised between the two grip elements. 20
26. The machine according to one or more of the preceding claims, **characterized in that** said drawplate is constituted by a substantially elastic membrane, which is provided with an opening for the passage of said product and of said sheet and is associated with said worktop. 25
27. The machine according to one or more of the preceding claims, **characterized in that** said membrane is provided with a plurality of notches, which are arranged in a substantially radial direction and are distributed along said opening. 30
28. The machine according to one or more of the preceding claims, **characterized in that** at least one among said first, second, third and fourth actuation means is of the fluid-operated type. 35

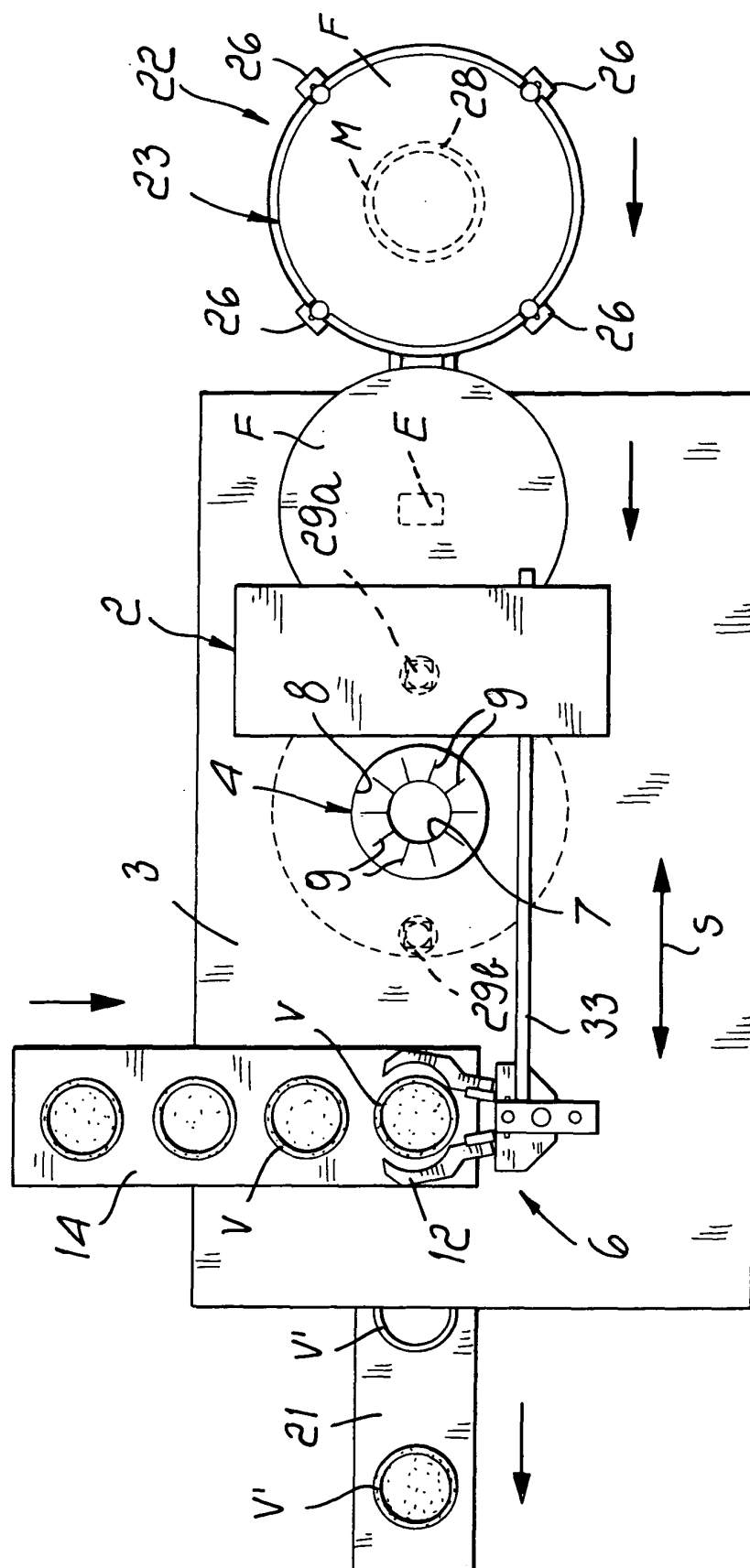
29. The machine according to one or more of the preceding claims, **characterized in that** at least one among said first, second, third and fourth actuation means is of the electromechanical type.

30. The machine according to one or more of the preceding claims, **characterized in that** at least one among said first, second, third and fourth actuation means is of the mechanical type.

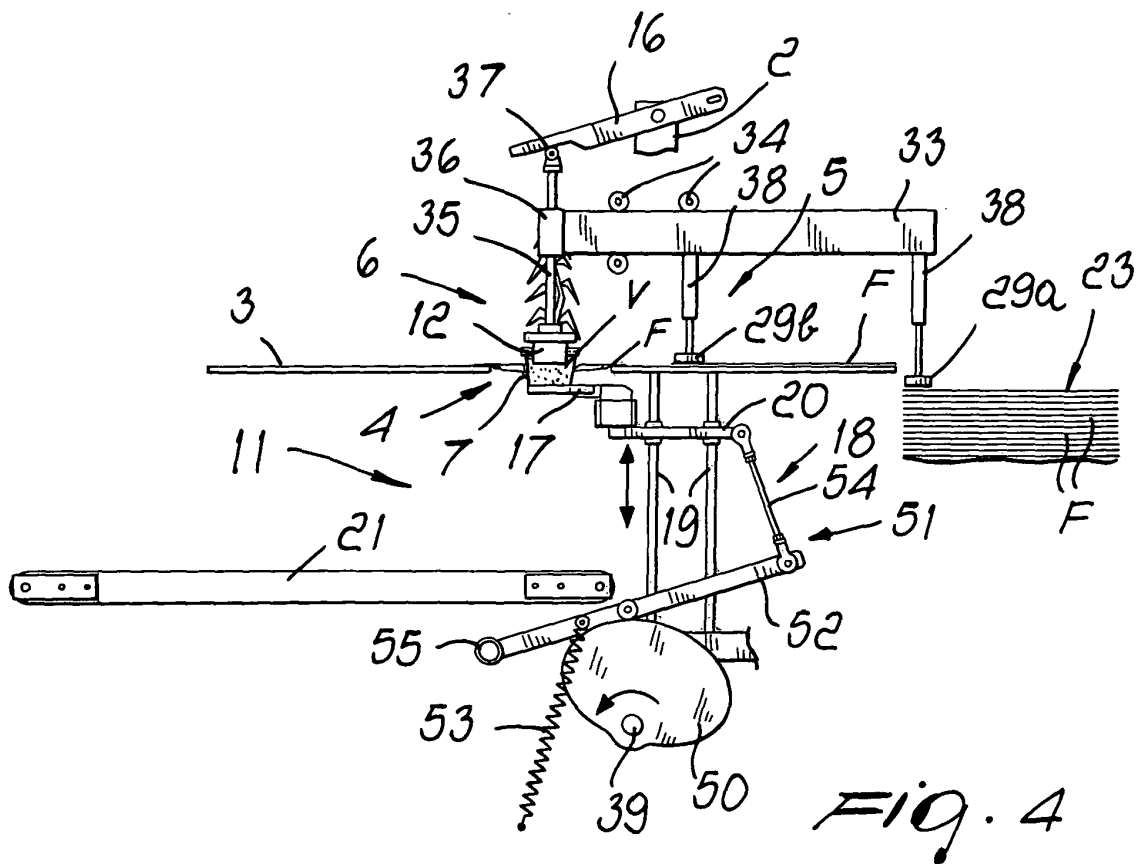
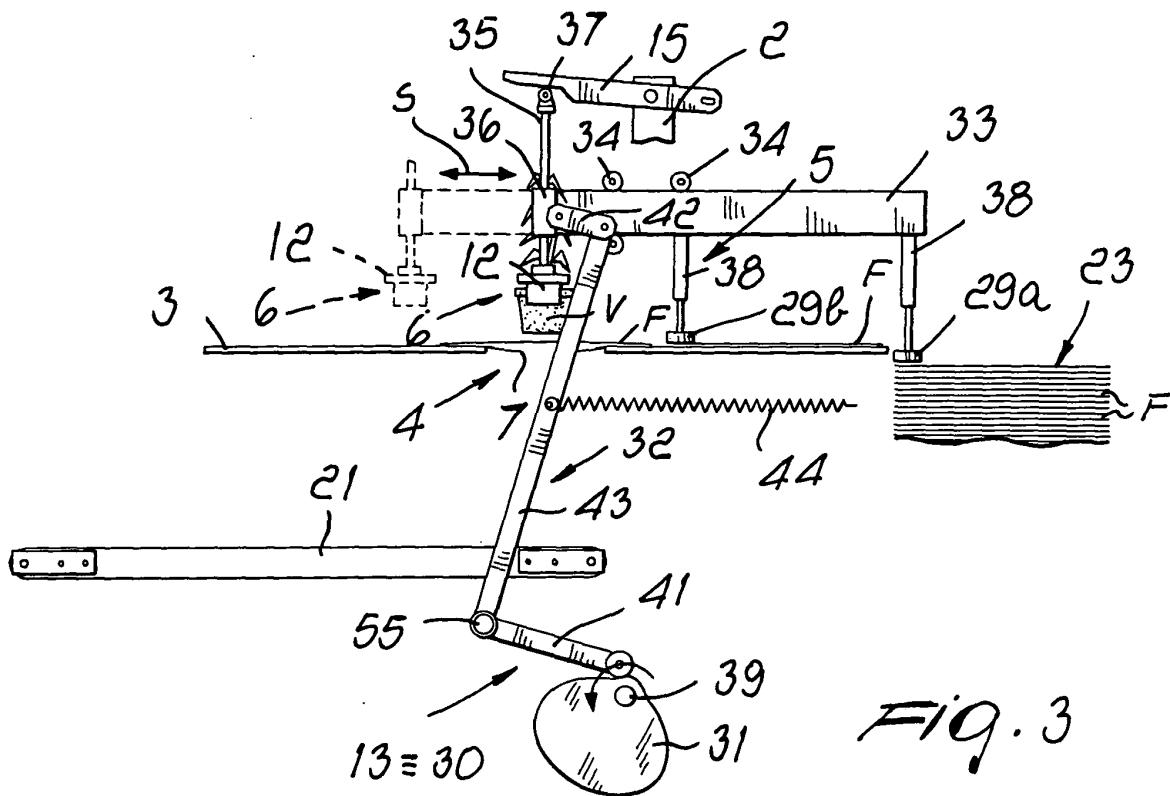
31. The machine according to one or more of the preceding claims, **characterized in that** at least one among said first, second, third and fourth actuation means is of the mechanical type and comprises a respective rotating cam for actuating a corresponding lever system.

32. The machine according to one or more of the preceding claims, **characterized in that** said first and fourth actuation means are mutually integrated and comprise a first rotating cam, which is associated with a first lever system for actuating the sliding of a carriage for supporting said first clamp and said grip elements, which is arranged above said worktop and rests slidingly on supporting wheels associated with said frame. 40





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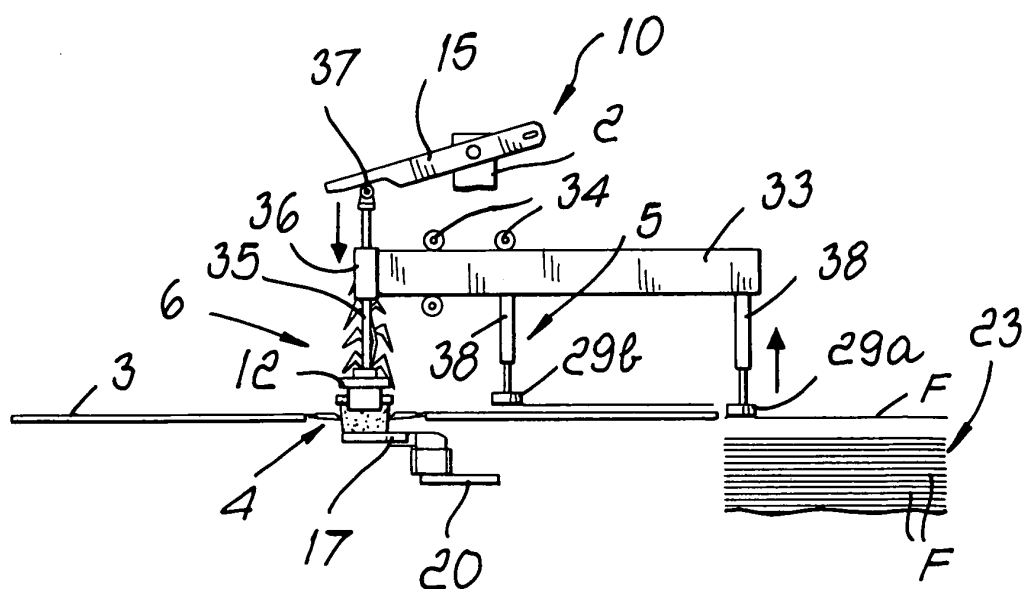
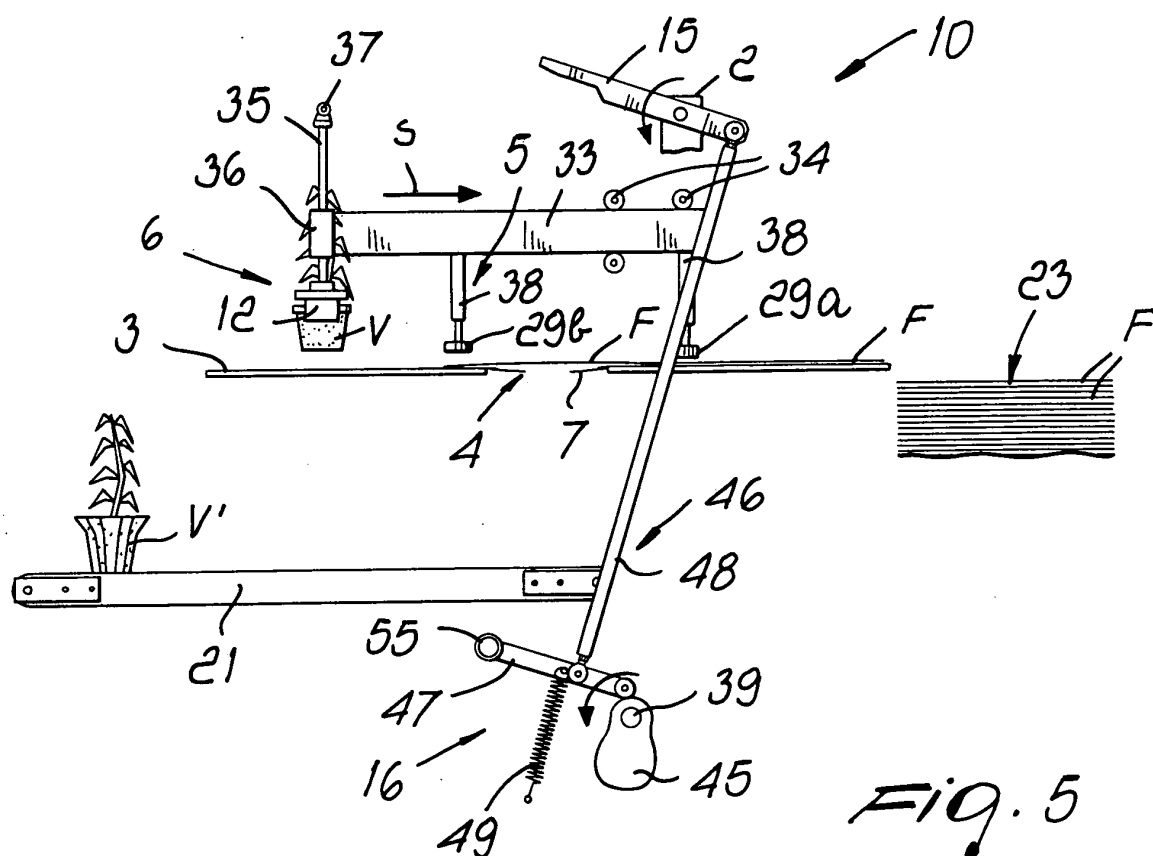


Fig. 6

