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(54) **APPARATUS FOR APPLYING AN ADHESIVE TAPE ON A BAG CONTAINING FOOD**

VORRICHTUNG ZUM ANBRINGEN EINES KLEBEBANDES AUF EINEN BEUTEL MIT LEBENSMITTEL

APPAREIL POUR APPLIQUER UN RUBAN ADHÉSIF SUR UN SAC CONTENANT DES ALIMENTS

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## Description

**[0001]** The present invention relates to an apparatus for applying an adhesive tape on a bag containing food.

**[0002]** Apparatuses for applying an adhesive tape on a bag containing food are known.

**[0003]** For example, patent EP1633633 shows an apparatus of this type, comprised in a packaging machine. The apparatus comprises a frame which supports a driven wheel, which supports a spool about which a tape carrying a succession of adhesive labels is wound. A series of guide rollers defines the path followed by said tape which, once deprived of labels, ends its travel by winding on a spool integral with a drive wheel supported by the frame.

**[0004]** During operation, an adhesive label, encountering a folded top of the bags, leaves the tape of the labeling machine and adheres to the top of the bag so to ensure that the flap remains folded. The bag exiting from the machine has a welded flap, folded and arranged in horizontal position, which is held in such position by virtue of an adhesive label.

**[0005]** US-A-2006/137827 describes an apparatus for cutting and applying an adhesive tape on a bag.

**[0006]** It is the object of the present invention to make an innovative apparatus for applying an adhesive tape on a bag containing food.

**[0007]** According to the invention, such object is achieved by an apparatus as defined in claim 1.

**[0008]** Advantageously, the apparatus according to the present invention makes the cutting and simultaneous application of a portion of adhesive tape over a bag more efficient.

**[0009]** A practical embodiment of the present invention is shown by way of non-limiting example in the accompanying drawings, in which:

figure 1 shows a front view of an apparatus for applying an adhesive tape according to the present invention;

figure 2 shows a top view of the apparatus of Fig. 1;

figure 3 shows a section view of the apparatus of Fig. 1 taken along line III-III;

figure 4 shows a section view of the apparatus of Fig. 2 taken along line IV-IV;

figure 5 shows a section view of the apparatus of Fig. 1 taken along line V-V;

figure 6 shows a section view of the apparatus of Fig. 1 taken along line VI-VI;

figure 7 shows a perspective view of a detail of the apparatus of Fig. 1;

figures 8-16 show details of the apparatus of Fig. 1 during the operation steps.

**[0010]** Fig. 1 shows an apparatus 600 according to the present invention for cutting and applying a portion 601 of adhesive tape 602 over a bag 2 containing foods for fixing an upper flap 502 with which it is provided.

**[0011]** The adhesive tape 602 is a plastic or paper tape on a side of which an adhesive substance is applied, while the opposite side is not adhesive.

**[0012]** The apparatus 600 may be comprised in a packaging machine which encloses small-sized food, e.g. short pasta, inside said bag 2, belonging to a paced succession of bags 2. The bag 2 is for example a flat bottom package made of plastic material filled with short pasta. However, the apparatus 600 may also be comprised in further types of industrial machines.

**[0013]** In the case of packaging machine, the apparatus 600 may be arranged downstream of an upper flap folding share (not shown in the figures), which has a vertical inlet and a horizontal outlet connected to each other by a slot which gradually descends and rotates by 90°. When it arrives at the inlet of the share, the upper flaps of each bag 2 filled with the short pasta are mutually approached and welded so as to form a vertical upper flap, the top portion of which is also folded. The purpose of the flap folding share is to receive in input the upper flap of the vertical inlet slot and by virtue of the gradual angular variation of the slot to turn the upper flap by 90° and to output it in substantially horizontal position, whereby forming a flap 502.

**[0014]** So, the apparatus 600 according to the present invention is able to receive the bags 2 with the upper flap 502 folded over the bag 2 in substantially horizontal position from said share, said bags 2 being taken to the apparatus 600 by conveying means 700 able to convey a paced sequence of said bags 2 along a moving direction X.

**[0015]** Between the share and said apparatus 600 there may be a pressing apparatus (not shown in the figures) able to provide a squared shape to the previously filled bag 2, by compression, in order to improve the shape quality.

**[0016]** The apparatus 600 for applying said portion 601 of adhesive tape 602 comprises at least one spool 603 of said adhesive tape 602 arranged on an idle wheel 604 positioned in a tape holder bracket 605, said tape holder bracket 605 being hinged on a rear supporting plate 606, in order to be able to change its orientation. As shown in Fig. 1, the spool 603 of adhesive tape 602 is positioned in a top part of the apparatus 600.

**[0017]** Furthermore, the apparatus 600 comprises at least one motorized roller 607 for unwinding the adhesive tape 602 from said spool 603. Said at least one motorized roller 607 comprises at least one rough surface able to feed the adhesive tape 602 to allow its unwinding from said spool 603 of adhesive tape 602. In particular, the apparatus 600 comprises a motor 608 able to move at least one pulley 610 integral with said motorized roller 607 by a belt 609. The motor 608 is supported by a motor holder plate 611, which is fixed to the rear supporting plate 606 by a movable bracket 612. The motorized roller 607 is positioned in a lower part of the apparatus 600.

**[0018]** Arranged underneath said idle wheel 604 on which the spool 603 of adhesive tape 602 is arranged,

there is a first idle roller 613 on top of which the adhesive tape 602 winds; said first idle roller 613 is also positioned on said tape holder bracket 605.

**[0019]** The apparatus 600 comprises at least one pair of pivoting idle rollers 614, 615 fixed to the end of the plate 651 elastically hinged on the rear supporting plate 606 and able to keep the adhesive tape 602 taut between the idle wheel 604 and said motorized roller 607, said pair of pivoting idle rollers 614, 615 being arranged at a lower height than the first idle roller 613. Particularly, the plate 651 is fixed to a pin 616 inserted in a specific hole made in the rear supporting plate 606, a spring 617 being inserted on said pin 616 and having a first end coupled to a first socket head screw integral with the pin 616 and a second end coupled to the rear supporting plate 606.

**[0020]** One roller 614 of said pair of pivoting idle rollers 614, 615 is able to receive the adhesive tape 602 from said first idle roller 613, said adhesive tape 602 being wound as an "S" between the rollers of the pair of pivoting idle rollers 614, 615, so that the elastic force of the spring 617 opposes the unwinding of the adhesive tape 602 caused by the traction by the motorized roller 607. The adhesive tape 602 is wound under the second idle roller 614 which receives the adhesive tape 602 from said first idle roller 613, while it is wound on top of the other roller 615 of the pair which provides it to the motorized roller 607.

**[0021]** A second idle roller 620, arranged at a lower height with respect to the pair of pivoting idle rollers 614, 615, is able to receive the adhesive tape 602 from said roller 615 of the pair, the adhesive tape 602 being wound underneath said second idle roller 620 and being sent through at least one idle roller 621, 622 towards said motorized roller 607. In particular, a third idle roller 621 is configured to receive the adhesive tape 602, winding it on top and sending it to a fourth idle roller 622 (positioned substantially at the same height as the motorized roller 607) which, after having wound it underneath, sends it to said motorized roller 607. Said third and fourth idle rollers 621, 622 are vertically aligned with each other.

**[0022]** The motorized roller 607 is able to take, by a fifth idle roller 623, the adhesive tape 602 in interposition by a roller with central groove 624 and with a roller with central relief 625 of complementary shape with respect to that of the central groove and cooperating with each other so that the central relief is at least partially inserted in the central groove.

**[0023]** The adhesive tape 602 is wound on top of the motorized roller 607, near the fifth motorized roller 623 and between the roller with central groove 624 and roller with central relief 625. The roller with central relief 625 is pressed onto said roller with central groove 624 and both are configured to deform the adhesive tape 602 so as to longitudinally stiffen the structure and facilitate its cutting. The roller with central relief 625 is supported by a pair of mutually orthogonal levers 626, 627, of which one (lever 626) is coupled with a plate hinged to said rear supporting plate 606, in order to be able to lift the central

relief 625 to replace the adhesive tape 602.

**[0024]** The motor 608, by said belt 609, also moves a further pulley 628 which is integral with at least said roller with a central groove 624, which therefore is also motorized and synchronized with said motorized roller 607 (Figs. 2, 4).

**[0025]** The apparatus 600 comprises moving means 629 of an applicator 630 provided with a cutting blade 631, said moving means 629 being configured to vertical move the applicator 630 with the cutting blade 631 which slides on a counter-blade 640 between a resting position and a cutting and applying position. When cutting, the cutting blade 631 cooperates with the counter-blade 640 of cutting said portion 601 of adhesive tape 602 and simultaneously applying said cut portion 601 onto said upper flap 502, as will be explained in greater detail below.

**[0026]** The applicator 630 is arranged at a higher height with respect to the conveying means 700 of the bags 2 and with respect to each of the bags 2 themselves.

**[0027]** In particular, the applicator 630 is a solid "L"-shaped element, connected to said moving means 629 by a joint 618, said "L"-shaped element comprising a vertical face and a horizontal face 635. The cutting blade 631 is fixed to the vertical face of the "L"-shaped element with the sharp edge underneath, while the horizontal face 635, i.e. the lower one, acts as a contact surface with the non-adhesive side of the portion 601 of adhesive tape 602.

**[0028]** On the other hand, the counter-blade 640 comprises a plate provided with an opening 637 through which the adhesive tape 602 is introduced, said opening 637 having a sharp base 652, as the cutting blade 631; the shape of the sharp base 652 may be, for example, straight, slightly curved or "V"-shaped.

**[0029]** The deformed adhesive tape 602, coming from said roller with central groove 624 and roller with central relief 625, arranged upstream and near the cutting blade 631 is inserted in said opening 637 of the counter-blade 640; the free end of the adhesive tape 602 which crosses the opening 637 of the counter-blade 640 is the portion 601 of adhesive tape 602 which will be cut by the sliding of the cutting blade 631 and applied on the bag 2.

**[0030]** As mentioned, the applicator 630 is arranged on top with respect to the bag 2 and so that, in cutting and applying position, the portion 601 of adhesive tape 602 is applied in part on said upper horizontal flap 502, folded over the bag 2, and in part on at least one surface of the bag 2 (e.g. for example the upper and side surface) to ensure that the upper flap 502 remains folded.

**[0031]** Advantageously, the applicator 630 comprises an air suction hole 636 able to allow the portion 601 of adhesive tape 602 to adhere to the applicator 630 once it has been cut and positioned accurately over the upper flap 502 and bag 2. In particular, said suction hole 636 is made in said horizontal face 635 of the "L"-shaped element.

**[0032]** The moving means 629 comprise a pneumatic cylinder 632 connected to said applicator 630. The pneu-

matic cylinder 632 is fixed to said rear supporting plate 606 by an angular plate 633 connected between a side 634 and the rear supporting plate 606 itself.

**[0033]** The counter-blade 640 is fixed to a support 638 in turn hinged to the rear supporting plate 606 so as to be able to regulate the position as a function of the type of bag 2. An appropriately shaped and height-adjustable protection sheet 639 is able to keep the belt in horizontal position along its entire advancement path.

**[0034]** Furthermore, the counter-blade 640 is provided with a layer of felt 641, over said opening 637, able to lubricate the cutting blade 631 by a lubricant received from a lubricator 619 through a lubrication conduit arranged behind the counter-blade 640. The cutting blade 631 and the counter-blade 640 are lubricated by the sliding of the cutting blade 631 on the felt layer 641 moistened by the lubricant.

**[0035]** The apparatus 600 also comprises further moving means 642 of a brush element 643 able to press an end of said portion 601 of adhesive tape 602 on at least one surface of the bag 2. In particular, the brush element 643 slide on said upper part intended to come into contact with a surface of the bag 2 to attach it to said at least one surface of the bag 2. Said further moving means 642 are configured to move the brush element 643 between a resting position, in which it is not in contact with the portion 601 of adhesive tape 602, and a working position, in which there is contact with the end of the portion 601, sliding pressed on the bag 2.

**[0036]** The further moving means 642 comprise a further pneumatic cylinder 644 to which said brush element 643 is connected, which in turn comprises a brush 645 which departs from an attachment plate 646. Said further pneumatic cylinder 644 is fixed to the rear supporting plate 606 by adjustment means 647 able to vary the positioning of the brush 645. The adjustment means 647 comprise a block 648 fixed to the rear supporting plate 606 provided with a pair of elongated holes (height adjustment), through which an orientation plate 649 is fixed by screw; the pneumatic cylinder 632 is fixed to said orientation plate 649 by supporting angle bar 650 partially hinged (angular position) to said orientation plate 649.

**[0037]** Finally, the apparatus 600 comprises on the bottom a guide 653 represented by a plate arranged along the moving direction X of the bags 2, able to take the bag 2 to near an opening in which the guide 653 itself is provided at the applicator 630.

**[0038]** In the operation, the apparatus 600 for applying a portion 601 of adhesive tape 602 operates according to the following steps.

**[0039]** The motorized roller 607 feeds the adhesive tape 602, unwinding it from said spool 603. The adhesive tape 602 is always appropriately tensioned by virtue of the action of the pair of pivoting idle rollers 614, 615 through which the adhesive tape 602 is wrapped.

**[0040]** In a first step (Figs. 8, 9), the adhesive tape 602 let out from said roller with central groove 624 and roller with central relief 625, after having been mutually inter-

posed, is arranged inside the opening 637 of the counter-blade 640. As mentioned, the free end of the adhesive tape 602 which crosses the opening 637 of the counter-blade 640 is the portion 601 of adhesive tape 602 which will be applied on the bag 2. The applicator 630 is in resting position, i.e. arranged over and not in contact with the free end of the adhesive tape 602 which crosses the opening 637 of the counter-blade 640. The brush element 643 is also in resting position, and therefore the brush 645 is not in contact with the adhesive tape 602.

**[0041]** In a second step (Fig. 10), the applicator 630 is moved downwards by the moving means 629 and moved to cutting position. The cutting blade 631, by sliding on the counter-blade 640, cuts the free end of the adhesive tape 602 which crosses the opening 637 of the counter-blade 640; particularly, the lower sharp flap of the cutting blade 631 and the sharp base 652 of the opening 637 of the counter-blade 640 work as scissors and cut the portion 601 of adhesive tape 602 which will be applied onto the bag 2. Such portion 601 is sucked against the horizontal face 635 of the applicator 630 by the air suction hole 636, thus remaining firmly positioned in contact with the applicator 630 with the non-adhesive side of the portion 601. The brush element 643 remains in the resting position (Fig. 11).

**[0042]** In a third step (Fig. 12), the applicator 630 is moved upwards by the moving means 629 and moved to cutting position. The horizontal face 635 of the "L"-shaped element is placed in contact with the bag 2 and the portion 601 of adhesive tape 602 is positioned so as to be applied on said upper flap 502 folded over the bag 2 in substantially horizontal portion and in part intended to come into contact with a surface of the bag 2. The brush element 643 is moved downwards by the further moving means 642 and taken towards the working position near the portion 601 (Fig. 13).

**[0043]** In a fourth step (Fig. 14), the brush element 643 is in working position and the blade 645 runs on said portion 601 of adhesive tape 602 intended to come into contact with a surface of the bag 2 to attach it to the top and side surface of the bag 2. The applicator 630 is moved upwards by the moving means 629 and moved to cutting position.

**[0044]** In a fifth step (Fig. 15), the applicator 630 is in resting position, like the brush element 643. The portion 601 of adhesive tape 602 is applied onto the bag 2 and the apparatus 600 is ready to manufacture a successive bag 2 of the paced succession.

**[0045]** By virtue of the apparatus 600, according to the present invention, the cutting and the simulation application of a portion 601 of adhesive tape 602 over a bag 2 is allowed, making it possible to speed up manufacturing.

## 55 Claims

1. Apparatus (600) for cutting and applying a portion (601) of adhesive tape (602) over a bag (2) contain-

ing foods for fixing an upper flap (502) with which it is provided, comprising

at least one spool (603) of said adhesive tape (602) arranged on an idle wheel (604) and at least one motorized roller (607) for unwinding the adhesive tape (602) from said spool (603),

moving means (629) of an applicator (630) provided with a cutting blade (631), said applicator (630) being configured to cut said portion (601) of adhesive tape (602) by said cutting blade (631) and simultaneously to apply said cut portion (601) onto said upper edge (502) of the bag (2),

at least one pair of tilting idle rollers (614, 615) fixed to the ends of a plate (651) which is elastically hinged to a rear support plate (606) of the apparatus (600) and able to apply tension to the adhesive tape (602) between said idle wheel (604) and the motorized roller (607), said adhesive tape (602) being wrapped up like a "S" between the rollers of the pair of tilting idle rollers (614, 615), so that an elastic force is opposed to the unwinding of the adhesive tape (602) caused by the traction of said motorized roller (607),

**characterized in that** said apparatus (600) further comprises a roller (624) with a central groove and a roller (625) with a central relief of complementary shape with respect to that of said central groove, said roller (624) with a central groove and roller (625) with a central relief being close and upstream to said cutting blade (631) and being configured to receive said adhesive tape (602) interposed between them and deforming the section to longitudinally stiffen the structure and facilitate the cutting by the cutting blade (631).

2. Apparatus (600) according to claim 1, **characterized in that** it further comprises moving means (642) of a brush element (643) able to press an end of said portion (601) of adhesive tape (602) on at least one side surface of the bag (2), sliding on a part of the portion (601) which is intended to come into contact with a surface of the bag (2), said further moving means (642) being configured to move the brush element (643) between a resting position, in which it is not in contact with the portion (601) of adhesive tape (602), and a working position, in which the end of the portion (601), by sliding under pressure, is in contact on the bag (2).

3. Apparatus (600) according to claim 1, **characterized in that** said applicator (630) is arranged on top with respect to the bag (2) and **in that** said moving means (629) is configured to vertically move the applicator (630) with the cutting blade (631) which slides on a counter-blade (640), said cutting blade (631) cooperating with the counter blade (640) to cut said portion (601) of adhesive tape (602) and to simultaneously apply said cut portion (601) onto said upper flap (502) of the bag (2).

4. Apparatus (600) according to claim 3, **characterized in that** said counter-blade (640) comprises a plate provided with an opening (637) with a sharp base (652) through which the adhesive tape (602) is introduced, said portion (601) of adhesive tape (602) being the free end of the adhesive tape (602) which passes through the opening (637) of the counter-blade (640) and which is cut by the sliding of the cutting blade (631) and applied onto the bag (2).

5. Apparatus (600) according to claim 3, **characterized in that** said applicator (630) is a solid "L"-shaped element, connected to said moving means (629) by a joint (618), said "L"-shaped element comprising a vertical face and a horizontal face (635), said cutting blade (631) being fixed to the vertical face of the "L"-shaped element by the lower sharp edge, while said horizontal face (635), i.e. the lower one, act as a contact surface with the non-adhesive side of the portion (601) of adhesive tape (602).

6. Apparatus (600) according to claim 5, **characterized in that** said applicator (630) comprises an air suction hole (636) able to allow the cut portion (601) of adhesive tape (602) to adhere to the applicator (630) and be positioned in a precise manner over the upper flap (502) and bag (2), said suction hole (636) being made in said horizontal face (635) of the "L"-shaped element.

7. Apparatus (600) according to claim 4, **characterized in that** said counter blade (640) is provided with a layer of felt (641), above said opening (637), able to lubricate the cutting blade (631) by a lubricant received from a lubricator (619) by a lubrication duct, said cutting blade (631) and said counter blade (640) being lubricated by the sliding of the cutting blade (631) on the felt layer (641) moistened by the lubricant.

#### Patentansprüche

1. Vorrichtung (600) zum Schneiden und Anbringen eines Teils (601) eines Klebebandes (602) über einem Beutel (2), der Lebensmittel enthält, zum Befestigen einer oberen Lasche (502), mit der er versehen ist, umfassend  
 mindestens eine Spule (603) des Klebebandes (602), die auf einem Leerlaufrollrad (604) angeordnet ist, und mindestens eine motorisierte Rolle (607) zum Abwickeln des Klebebandes (602) von der Spule (603),  
 Bewegungsmittel (629) eines Applikators (630), der mit einer Schneidklinge (631) versehen ist, wobei der Applikator (630) so konfiguriert ist, dass er den Abschnitt (601) des Klebebandes (602) mit der Schneidklinge (631) schneidet und gleichzeitig den

- geschnittenen Abschnitt (601) auf den oberen Rand (502) des Beutels (2) aufbringt, mindestens ein Paar kippbarer Leerlaufrollen (614, 615), die an den Enden einer Platte (651) befestigt sind, die elastisch an einer hinteren Trägerplatte (606) der Vorrichtung (600) angelenkt ist und das Klebeband (602) zwischen dem genannten Leerlaufrollen (604) und der motorisierten Rolle (607) unter Zugspannung setzen kann, wobei das Klebeband (602) wie ein "S" zwischen den Rollen des Paares von kippbaren Leerlaufrollen (614, 615) aufgewickelt ist, so dass eine elastische Kraft dem Abwickeln des Klebebandes (602) entgegengesetzt ist, die durch den Zug der motorisierten Rolle (607) verursacht wird,
- dadurch gekennzeichnet, dass** die Vorrichtung (600) ferner eine Rolle (624) mit einer zentralen Nut und eine Rolle (625) mit einem zentralen Relief von komplementärer Form in Bezug auf diejenige der zentralen Nut umfasst, wobei die Rolle (624) mit einer zentralen Nut und die Rolle (625) mit einem zentralen Relief nahe und vor der Schneidklinge (631) angeordnet sind und so konfiguriert sind, dass sie das zwischen ihnen angeordnete Klebeband (602) aufnehmen und den Querschnitt verformen, um die Struktur in Längsrichtung zu versteifen und das Schneiden durch die Schneidklinge (631) zu erleichtern.
2. Vorrichtung (600) nach Anspruch 1, **dadurch gekennzeichnet, dass** sie außerdem Mittel (642) zum Bewegen eines Bürstenelements (643) umfasst, die geeignet sind, ein Ende des Abschnitts (601) des Klebebandes (602) auf mindestens eine Seitenfläche des Beutels (2) zu pressen, indem sie auf einem Teil des Abschnitts (601) gleiten, der dazu bestimmt ist, mit einer Fläche des Beutels (2) in Kontakt zu kommen, wobei das weitere Bewegungsmittel (642) so konfiguriert ist, dass es das Bürstenelement (643) zwischen einer Ruheposition, in der es nicht in Kontakt mit dem Abschnitt (601) des Klebebandes (602) ist, und einer Arbeitsposition, in der das Ende des Abschnitts (601) durch Gleiten unter Druck auf dem Beutel (2) in Kontakt ist, bewegt.
3. Vorrichtung (600) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Applikator (630) in Bezug auf den Beutel (2) oben angeordnet ist und dass das Bewegungsmittel (629) so konfiguriert ist, dass es den Applikator (630) mit der Schneidklinge (631), die auf einer Gegenklinge (640) gleitet, vertikal bewegt, wobei die Schneidklinge (631) mit der Gegenklinge (640) zusammenwirkt, um den Abschnitt (601) des Klebebandes (602) zu schneiden und gleichzeitig den geschnittenen Abschnitt (601) auf die obere Lasche (502) des Beutels (2) aufzubringen.
4. Vorrichtung (600) nach Anspruch 3, **dadurch ge-**

**kennzeichnet, dass** die Gegenklinge (640) eine Platte umfasst, die mit einer Öffnung (637) mit einer scharfen Basis (652) versehen ist, durch die das Klebeband (602) eingeführt wird, wobei der Abschnitt (601) des Klebebandes (602) das freie Ende des Klebebandes (602) ist, das durch die Öffnung (637) der Gegenklinge (640) hindurchgeht und das durch das Gleiten der Schneidklinge (631) geschnitten und auf den Beutel (2) aufgebracht wird.

5. Vorrichtung (600) nach Anspruch 3, **dadurch gekennzeichnet, dass** der genannte Applikator (630) ein massives L-förmiges Element ist, das mit den genannten Bewegungsmitteln (629) durch ein Gelenk (618) verbunden ist, wobei das genannte L-förmige Element eine vertikale Fläche und eine horizontale Fläche (635) aufweist, wobei die genannte Schneidklinge (631) an der vertikalen Fläche des L-förmigen Elements an der unteren scharfen Kante befestigt ist, während die genannte horizontale Fläche (635), d. h. die untere, als Kontaktfläche mit der nicht klebenden Seite des Teils (601) des Klebebandes (602) wirkt.
6. Vorrichtung (600) nach Anspruch 5, **dadurch gekennzeichnet, dass** der genannte Applikator (630) eine Luftansaugöffnung (636) aufweist, die es dem abgeschnittenen Abschnitt (601) des Klebebandes (602) ermöglicht, an dem Applikator (630) zu haften und auf präzise Weise über der oberen Lasche (502) und dem Beutel (2) positioniert zu werden, wobei die genannte Ansaugöffnung (636) in der genannten horizontalen Fläche (635) des "L"-förmigen Elements ausgeführt ist.
7. Vorrichtung (600) nach Anspruch 4, **dadurch gekennzeichnet, dass** die Gegenklinge (640) oberhalb der Öffnung (637) mit einer Filzschicht (641) versehen ist, die in der Lage ist, die Schneidklinge (631) durch ein Schmiermittel zu schmieren, das von einer Schmiervorrichtung (619) über einen Schmierkanal erhalten wird, wobei die Schneidklinge (631) und die Gegenklinge (640) durch das Gleiten der Schneidklinge (631) auf der durch das Schmiermittel befeuchteten Filzschicht (641) geschmiert werden.

#### Revendications

1. Appareil (600) pour couper et appliquer une partie (601) de ruban adhésif (602) sur un sac (2) contenant des aliments pour fixer un rabat supérieur (502) dont il est doté, comprenant :
- au moins une bobine (603) dudit ruban adhésif (602) agencée sur une roue folle (604) et au moins un galet motorisé (602) pour dérouler le ruban adhésif (602) de ladite bobine (603),

- un moyen de déplacement (629) d'un applicateur (630) prévu avec une lame de coupe (631), ledit applicateur (630) étant configuré pour couper ladite partie (601) de ruban adhésif (602) par ladite lame de coupe (631) et simultanément appliquer ladite partie coupée (601) sur ledit bord supérieur (502) du sac (2),
- au moins une paire de galets de guidage inclinés (614, 615) fixés sur les extrémités d'une plaque (651) qui est élastiquement articulée par rapport à une plaque de support arrière (606) de l'appareil (600) et pouvant appliquer une tension sur le ruban adhésif (602) entre ladite roue folle (604) et le galet motorisé (607), ledit ruban adhésif (602) étant enroulé comme un « S » entre les galets de ladite paire de galets de guidage inclinés (614, 615), de sorte qu'une force élastique est opposée au déroulement du ruban adhésif (602) provoqué par l'attraction dudit galet motorisé (607) ;
- ledit appareil (600) étant **caractérisé en ce qu'**il comprend en outre un galet (624) avec une rainure centrale et un galet (625) avec un relief central de forme complémentaire par rapport à celle de ladite rainure centrale, ledit galet (624) avec une rainure centrale et le galet (625) avec un relief central étant proches et en amont de ladite lame de coupe (631) et étant configurés pour recevoir ledit ruban adhésif (602) intercalé entre eux et déformant la section afin de renforcer longitudinalement la structure et faciliter la découpe par la lame de coupe (631) .
2. Appareil (600) selon la revendication 1, **caractérisé en ce qu'**il comprend en outre un moyen de déplacement (642) d'un élément de brosse (643) pouvant comprimer une extrémité de ladite partie (601) de ruban adhésif (602) sur au moins une surface latérale du sac (2), coulissant sur une partie de la partie (601) qui est prévue pour venir en contact avec une surface du sac (2), ledit moyen de déplacement supplémentaire (642) étant configuré pour déplacer l'élément de brosse (643) entre une position de repos dans laquelle il n'est pas en contact avec la partie (601) de ruban adhésif (602), et une position de travail dans laquelle l'extrémité de la partie (601), en coulissant sous pression, est en contact sur le sac (2).
3. Appareil (600) selon la revendication 1, **caractérisé en ce que** ledit applicateur (630) est agencé sur le dessus par rapport au sac (2) et **en ce que** ledit moyen de déplacement (629) est configuré pour déplacer verticalement l'applicateur (630) avec la lame de coupe (631) qui coulisse sur une lame antagoniste (640), ladite lame de coupe (631) coopérant avec la lame antagoniste (640) pour couper ladite partie (601) du ruban adhésif (602) et pour appliquer
- simultanément ladite partie coupée (601) sur ledit rabat supérieur (502) du sac (2).
4. Appareil (600) selon la revendication 3, **caractérisé en ce que** ladite lame antagoniste (640) comprend une plaque prévue avec une ouverture (637) avec une base pointue (652) à travers laquelle le ruban adhésif (602) est introduit, ladite partie (601) de ruban adhésif (602) étant l'extrémité libre du ruban adhésif (602) qui passe par l'ouverture (637) de la lame antagoniste (640) et qui est coupée par le coulisserment de la lame de coupe (631) et appliquée sur le sac (2).
5. Appareil (600) selon la revendication 3, **caractérisé en ce que** ledit applicateur (630) est un élément solide en forme de « L », raccordé audit moyen de déplacement (629) par un joint (618), ledit élément en forme « L » comprenant une face verticale et une face horizontale (635), ladite lame de coupe (631) étant fixée sur la face verticale de l'élément en forme de « L » par un bord pointu inférieur, alors que ladite face horizontale (635), c'est-à-dire la face inférieure, sert de surface de contact avec le côté non adhésif de la partie (601) du ruban adhésif (602).
6. Appareil (600) selon la revendication 5, **caractérisé en ce que** ledit applicateur (630) comprend un trou d'aspiration d'air (636) pouvant permettre à la partie découpée (601) du ruban adhésif (602) de se fixer sur l'applicateur (630) et être positionnée d'une manière précise sur le rabat supérieur (502) et le sac (2), ledit trou d'aspiration (636) étant réalisé dans une face horizontale (635) de l'élément en forme de « L ».
7. Appareil (600) selon la revendication 4, **caractérisé en ce que** ladite lame antagoniste (640) est prévue avec une couche de feutre (641), au-dessus de ladite ouverture (637), pouvant lubrifier la lame de coupe (631) grâce à un lubrifiant reçu d'un lubrificateur (619) par un conduit de lubrification, ladite lame de coupe (631) et ladite lame antagoniste (640) étant lubrifiées par le coulisserment de la lame de coupe (631) sur la couche de feutre (641) humidifiée par le lubrifiant.

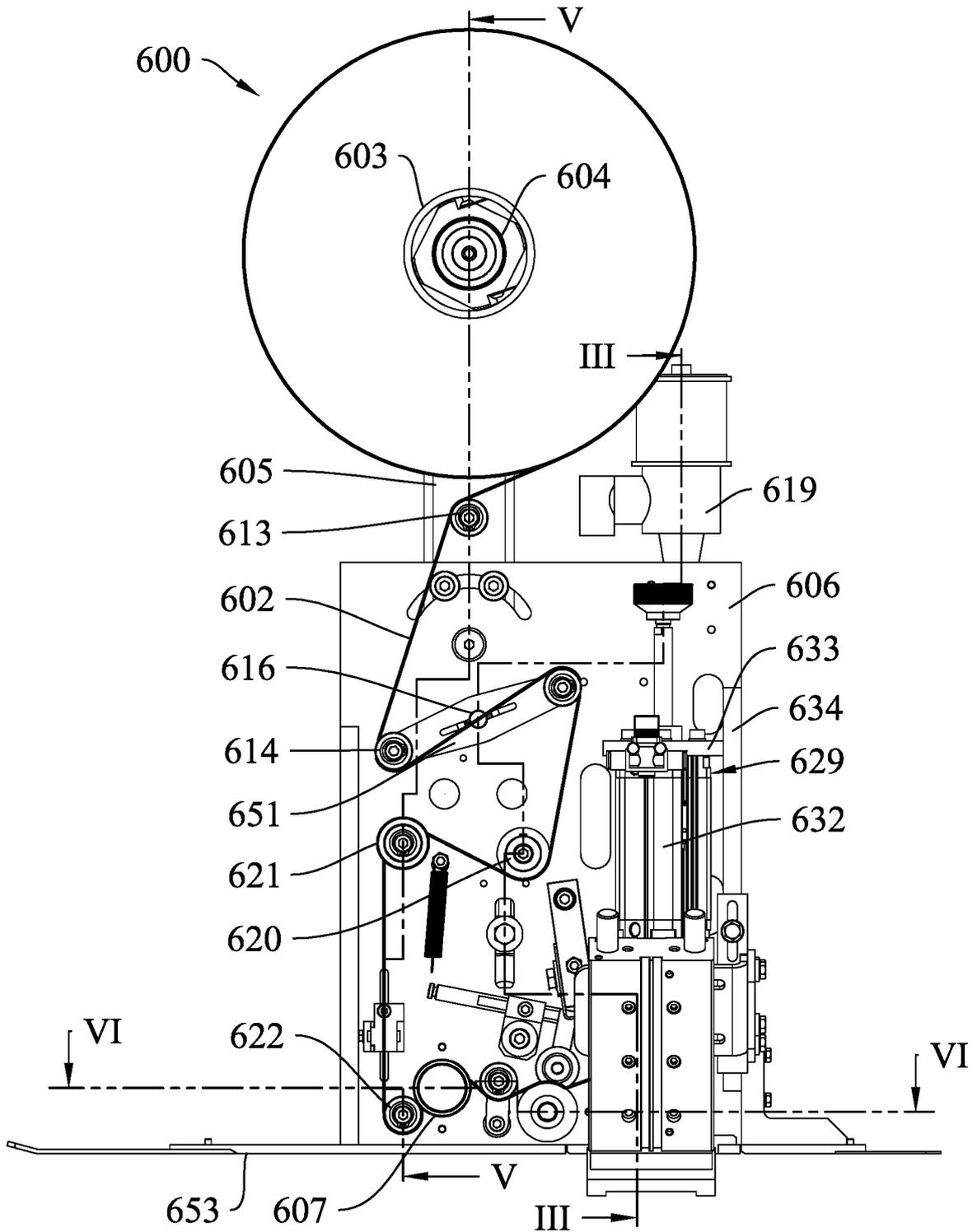


FIG.1

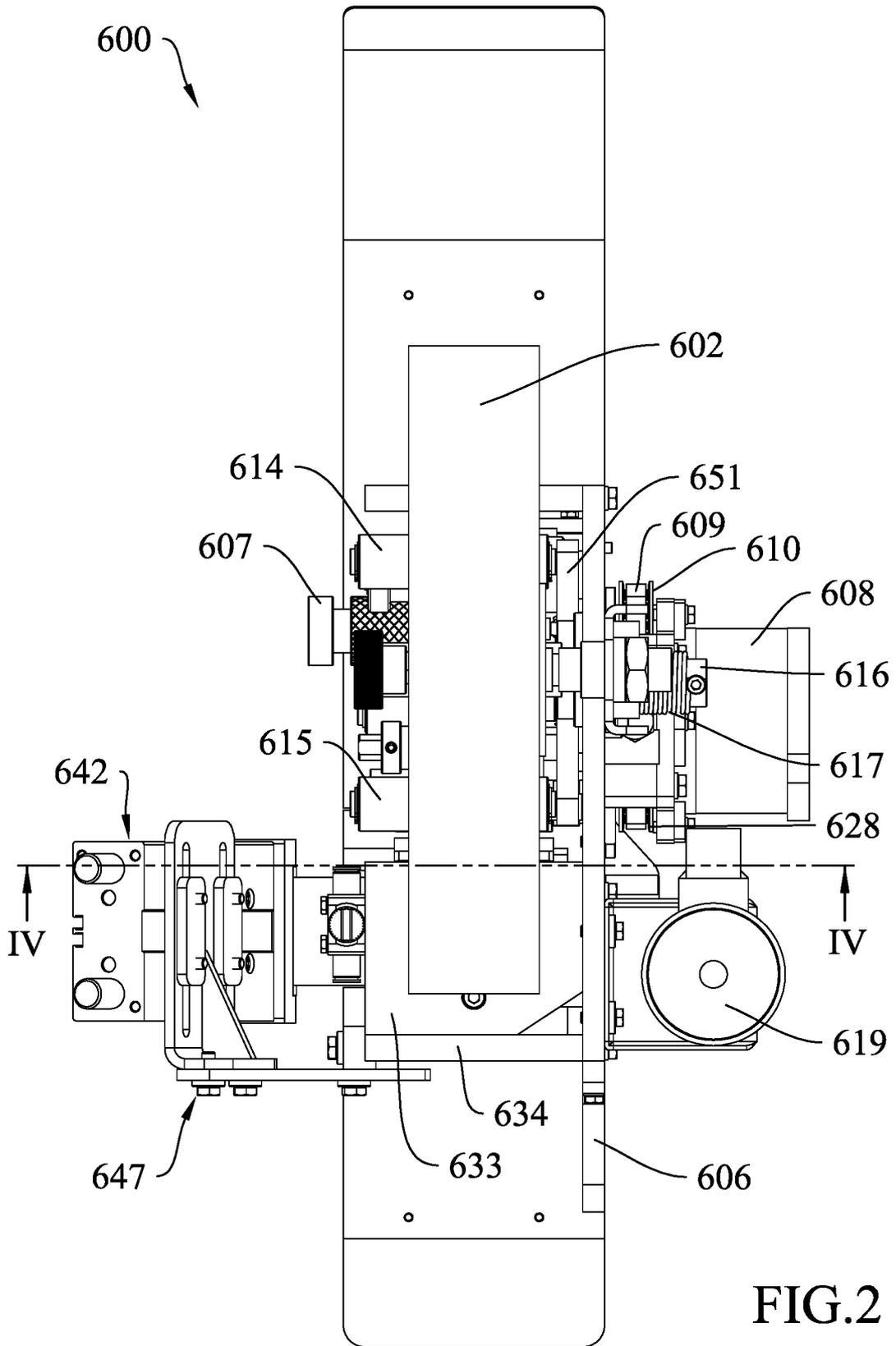


FIG. 2

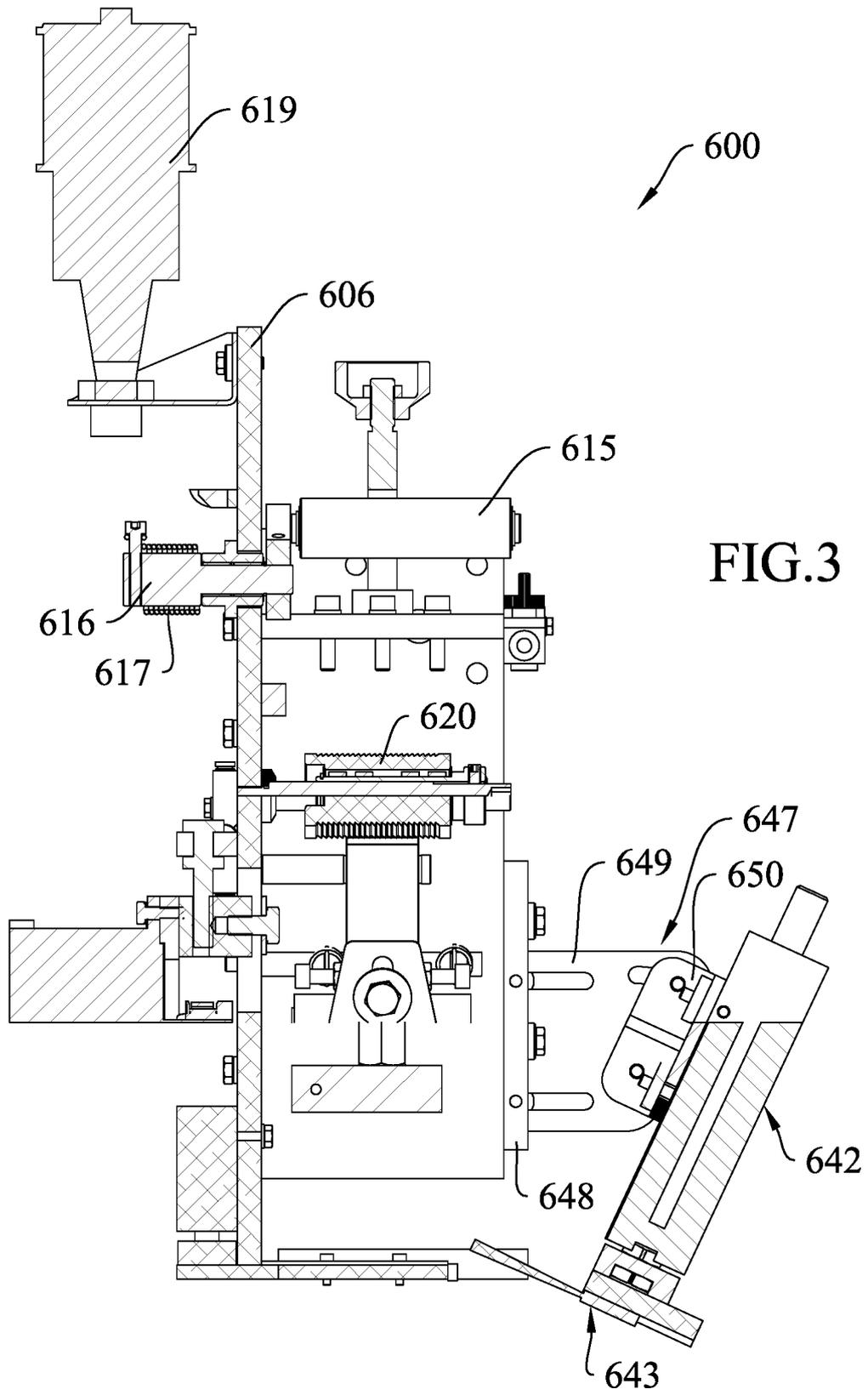
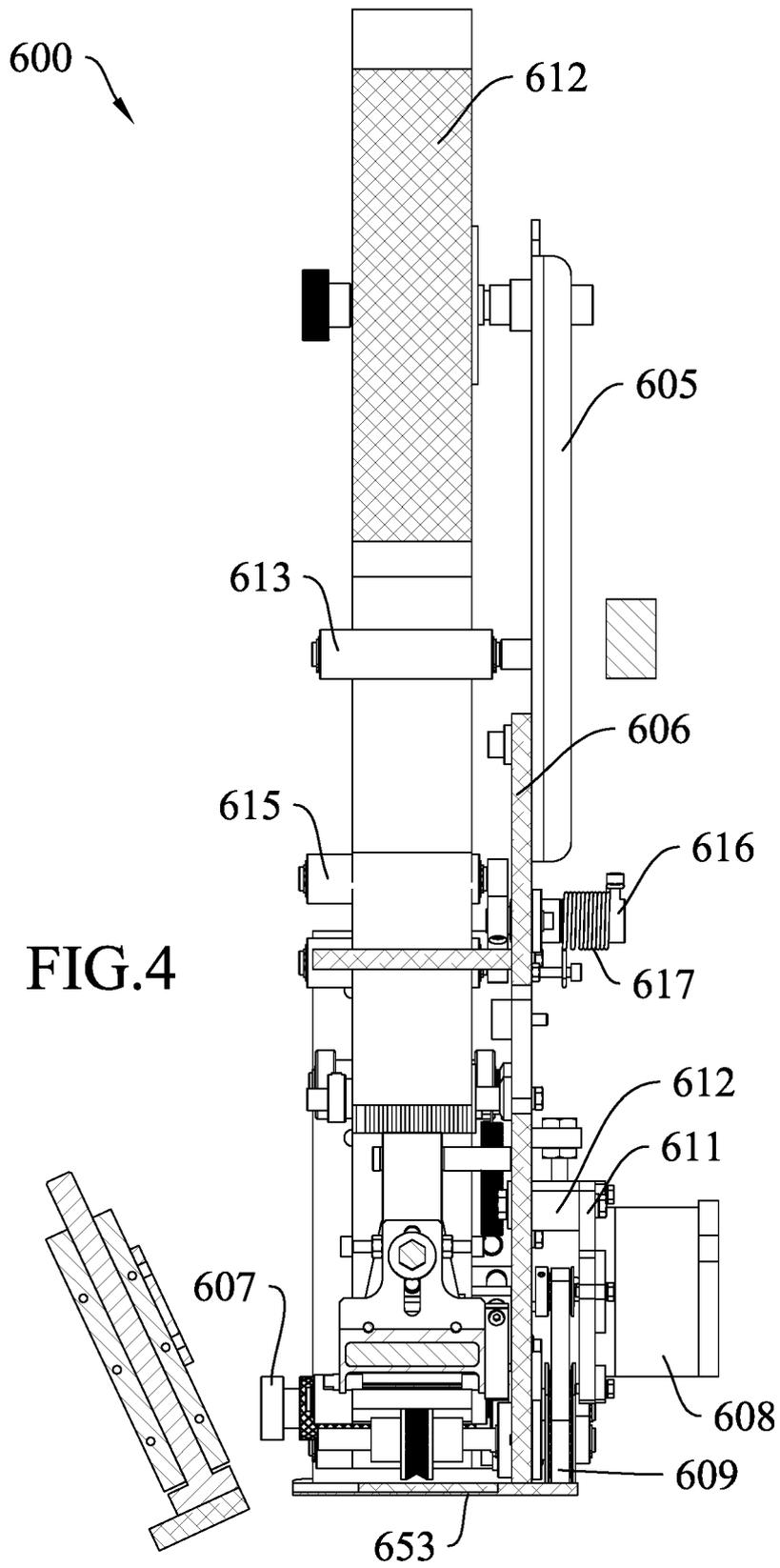


FIG.3



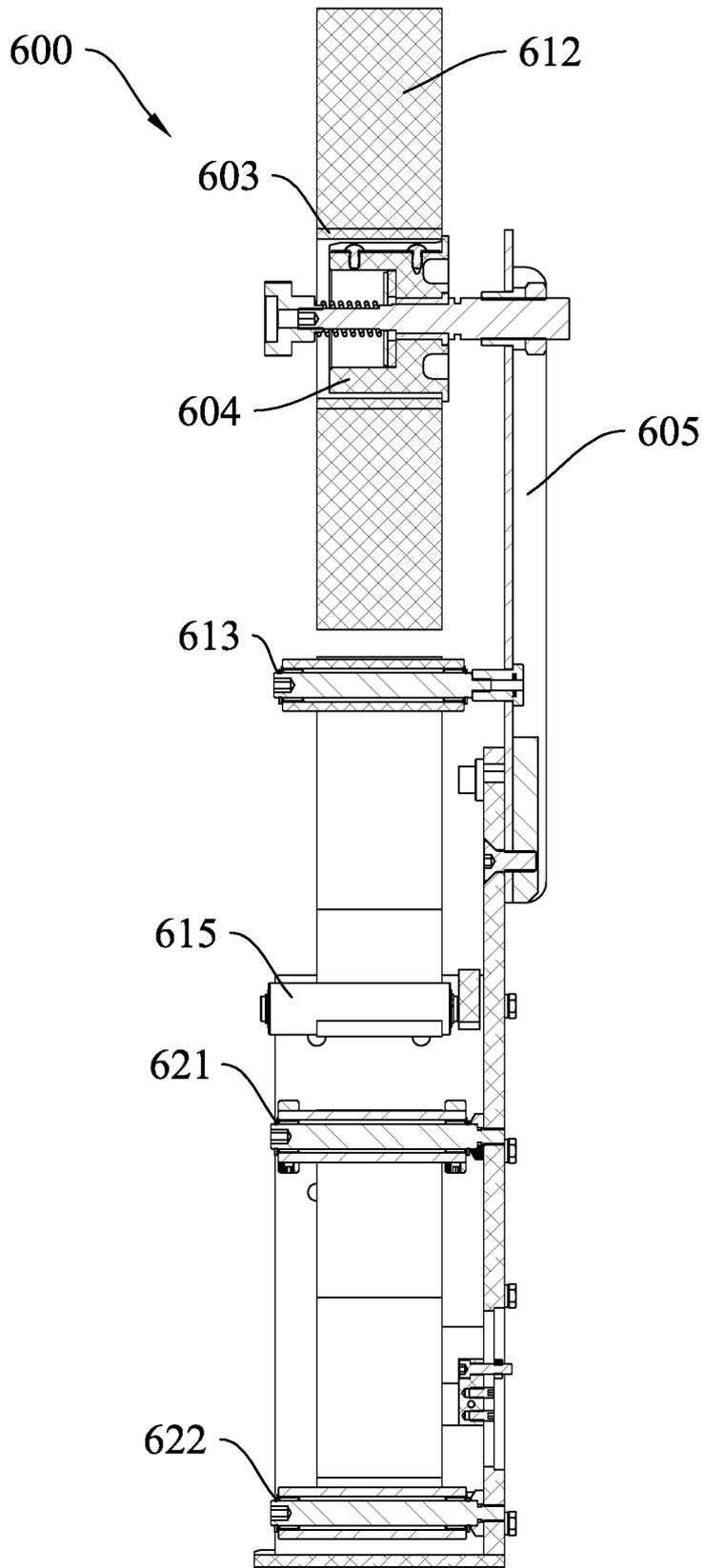


FIG.5

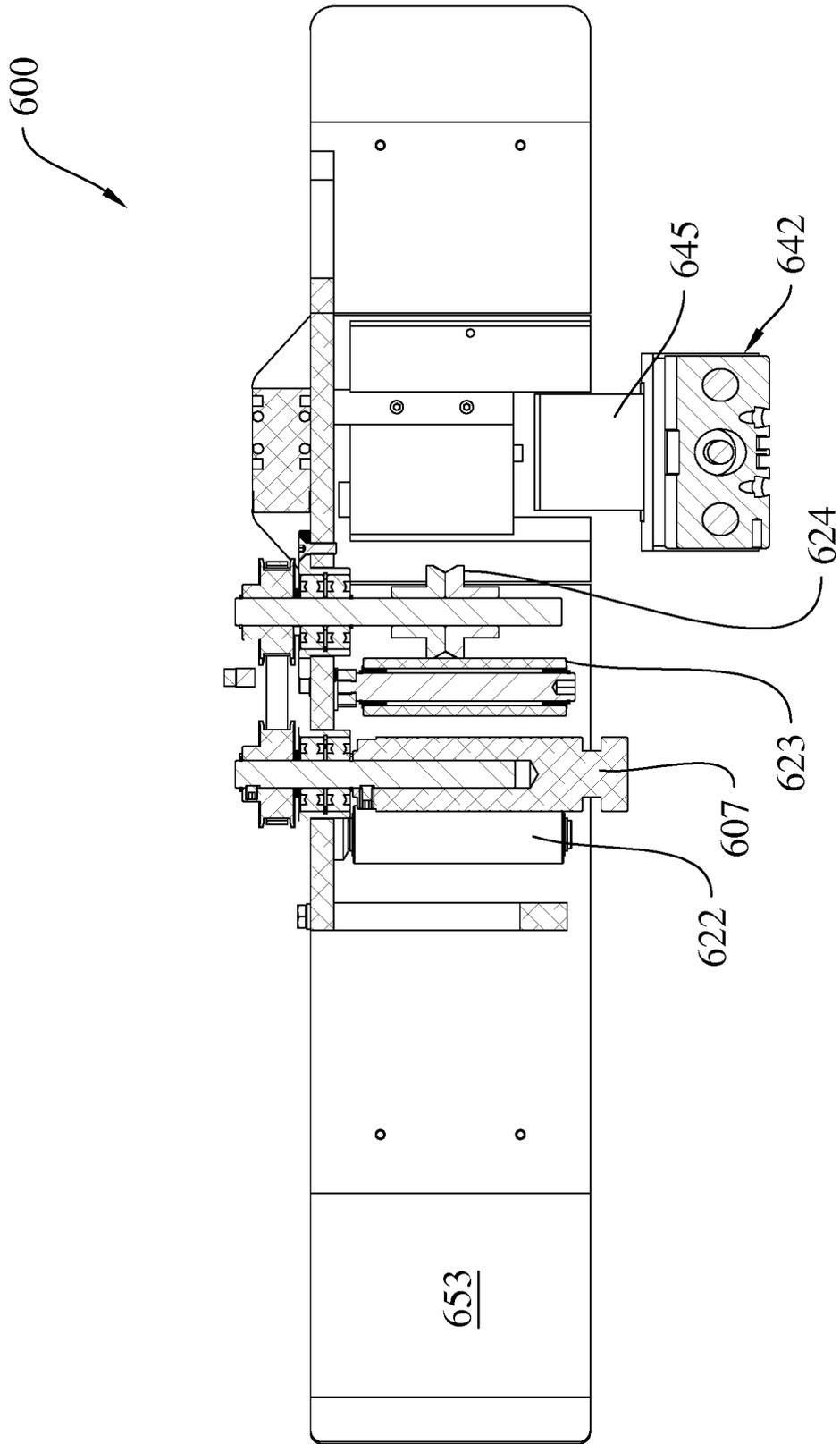
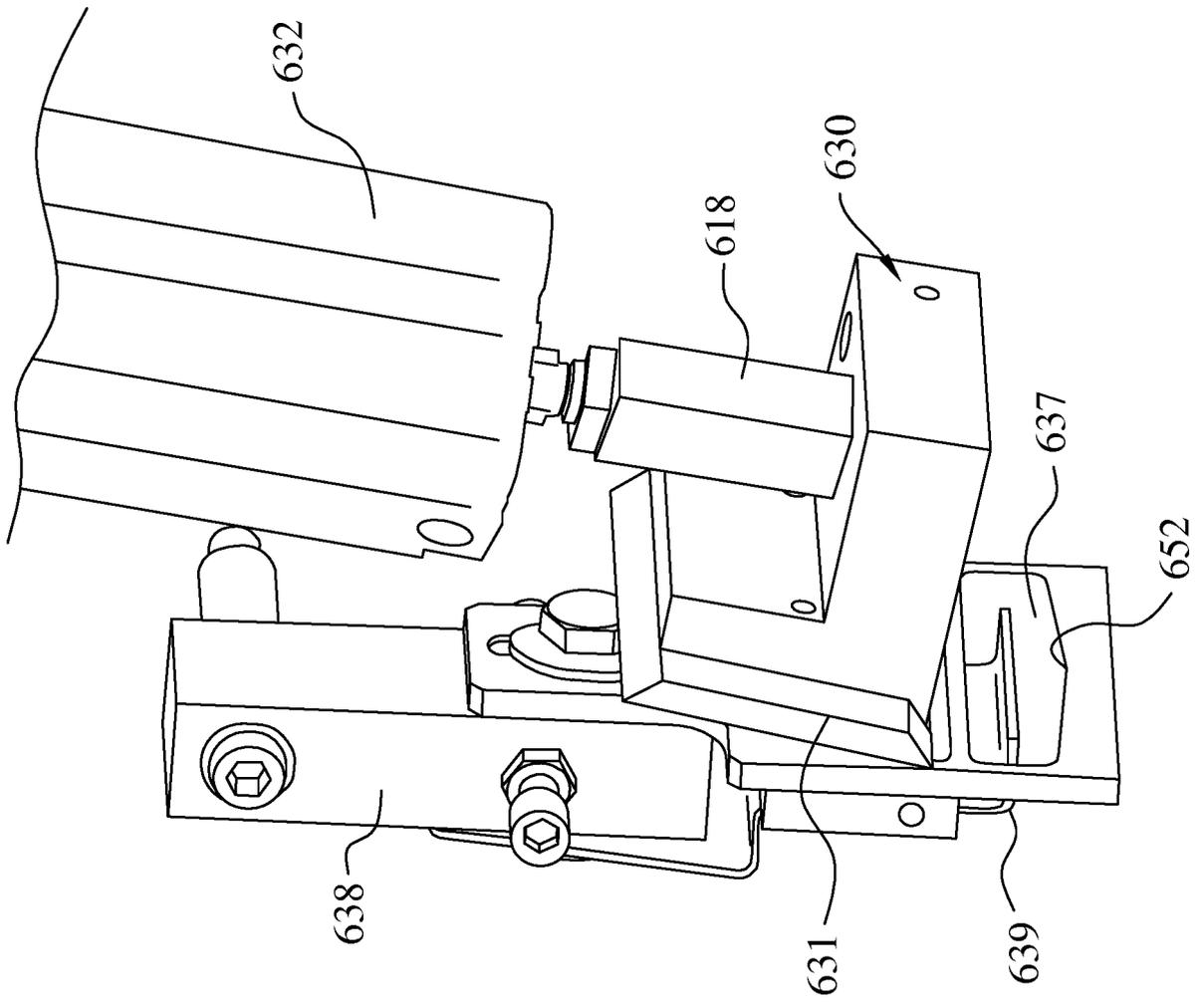


FIG.6

FIG.7





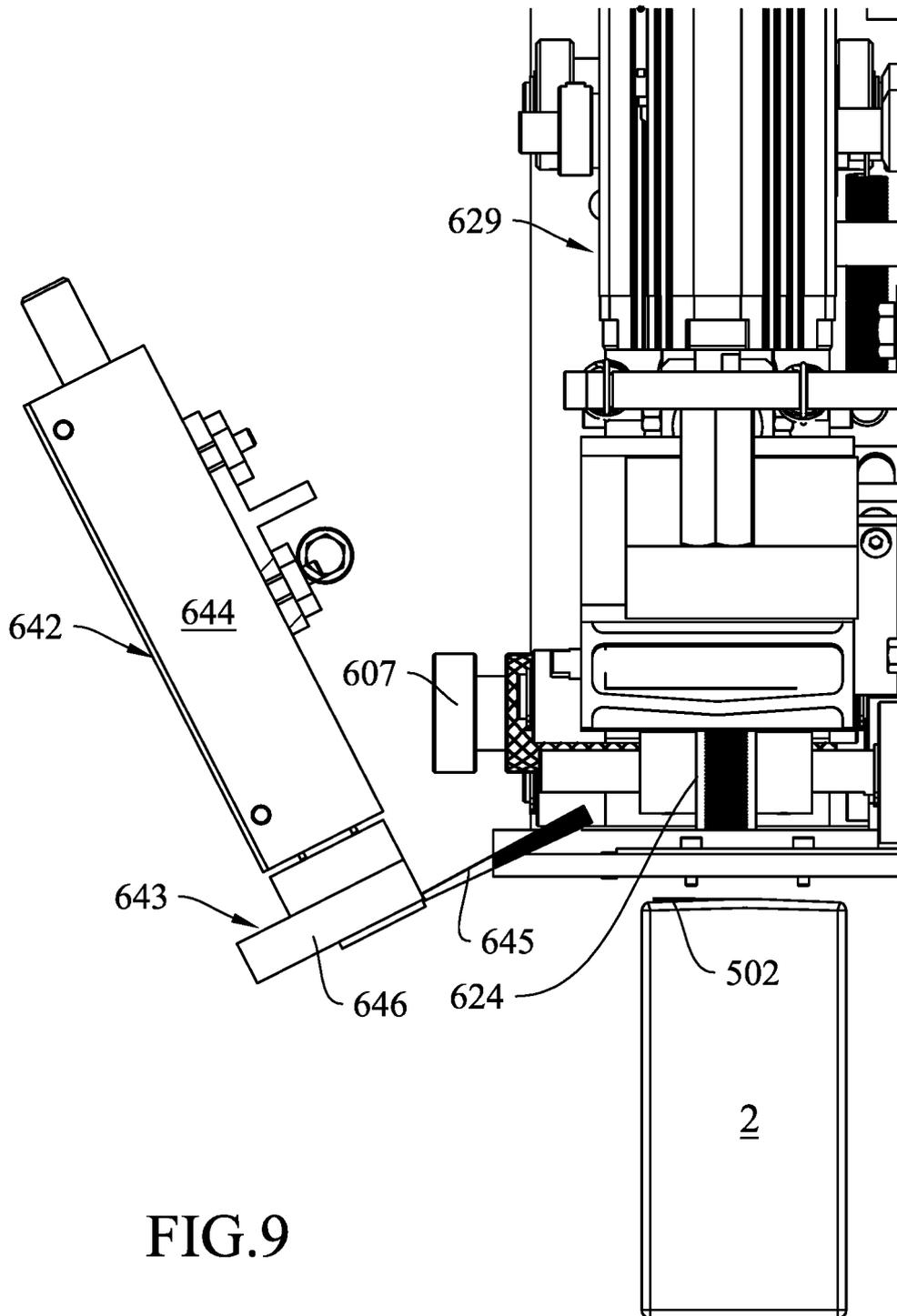


FIG.9

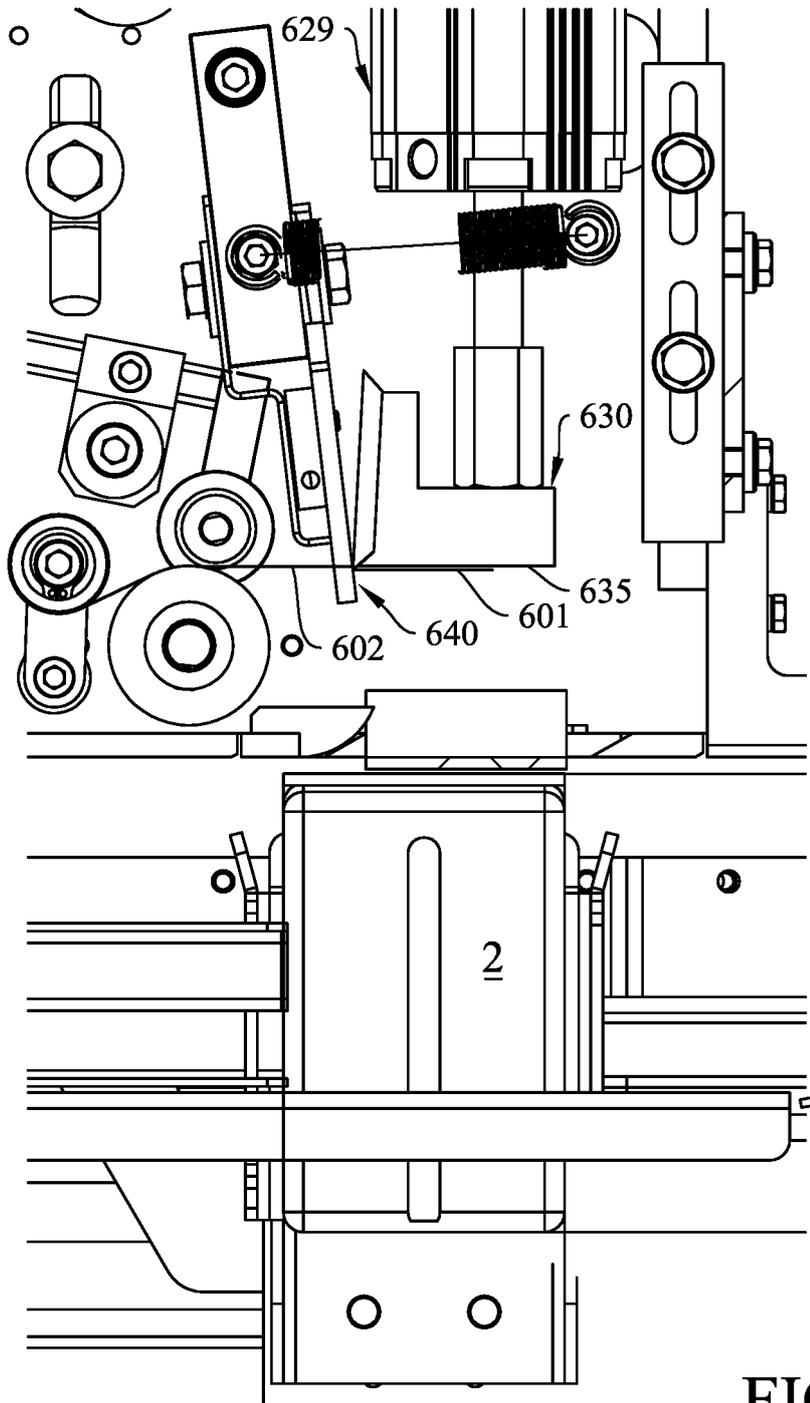


FIG.10

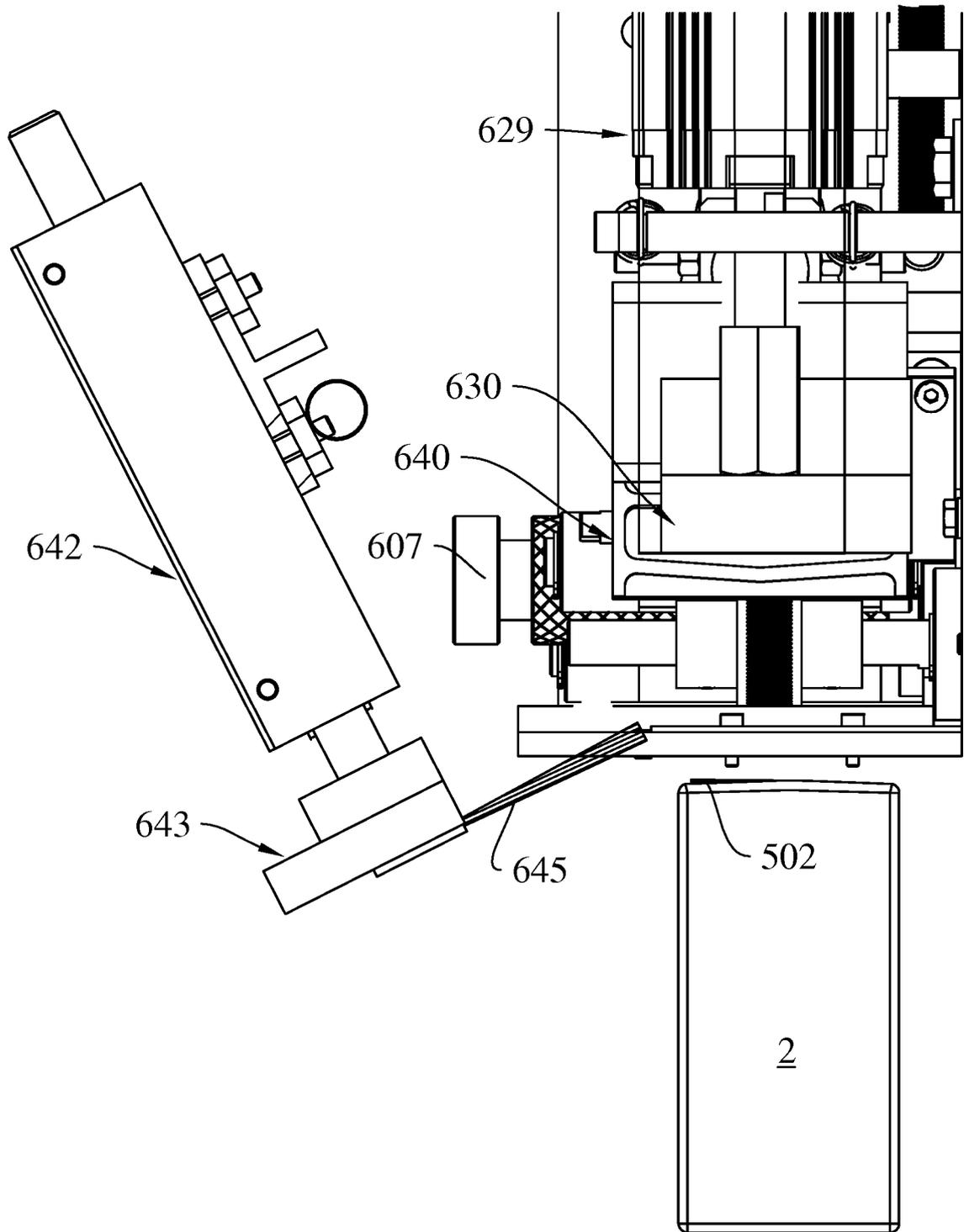
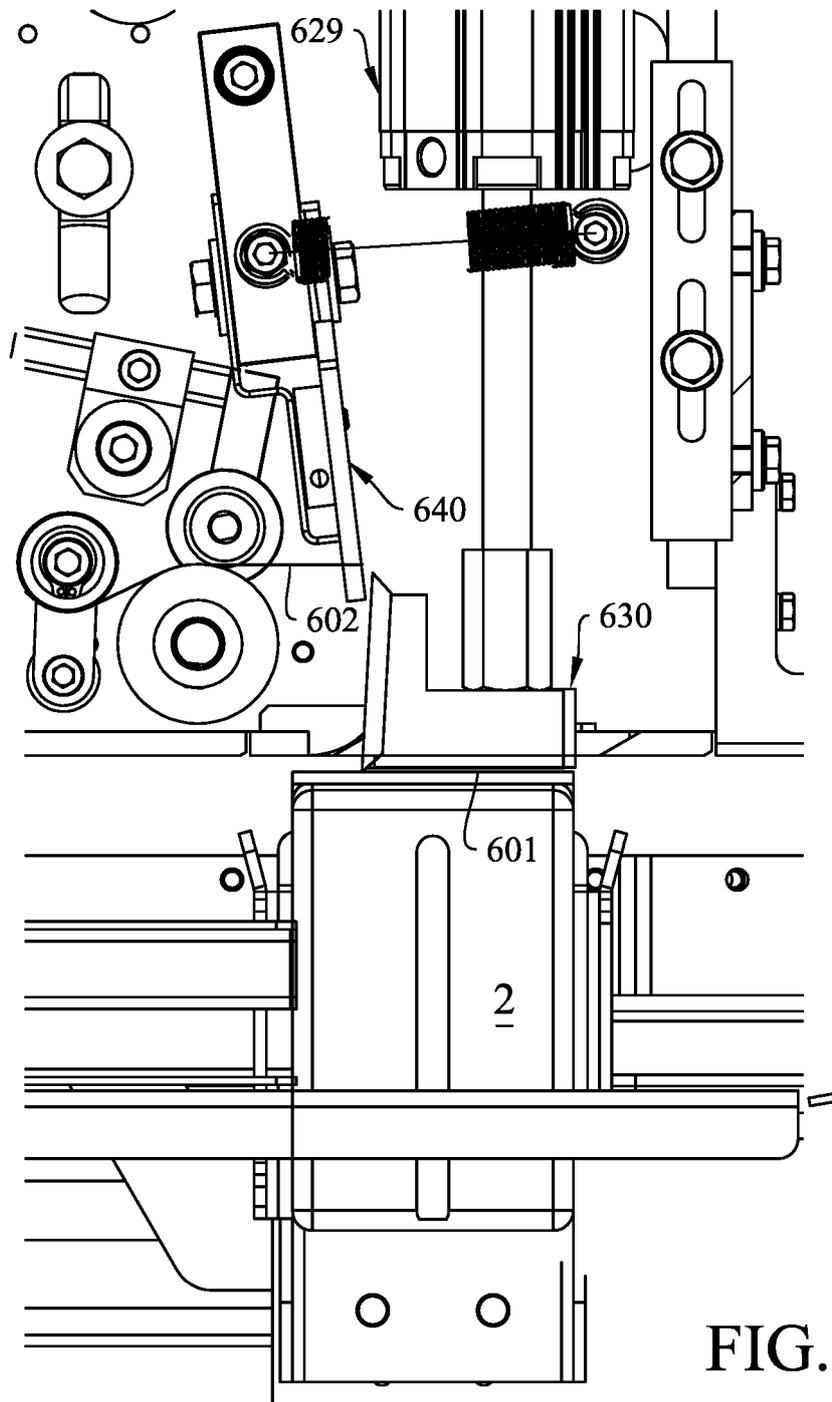


FIG. 11



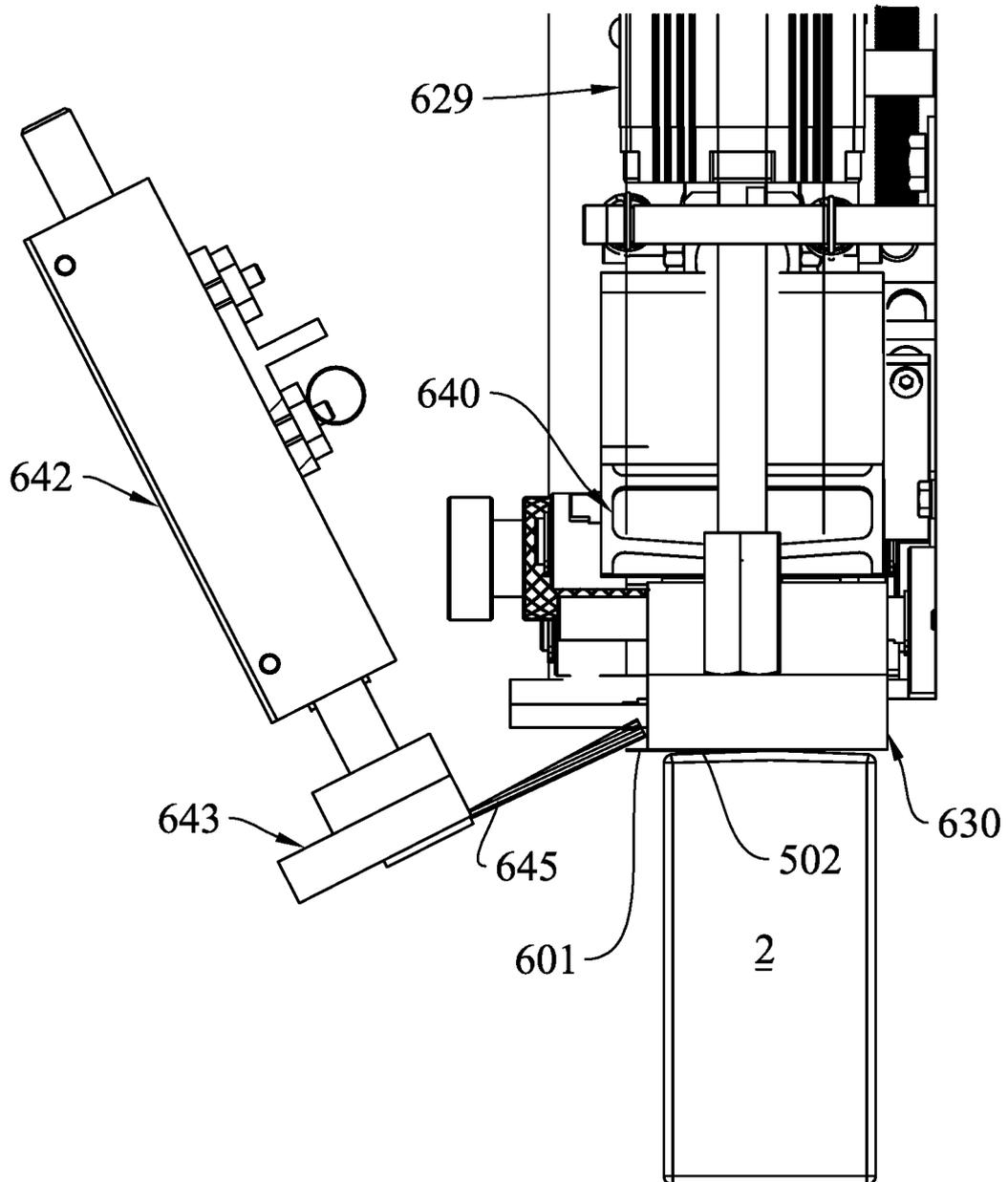


FIG.13

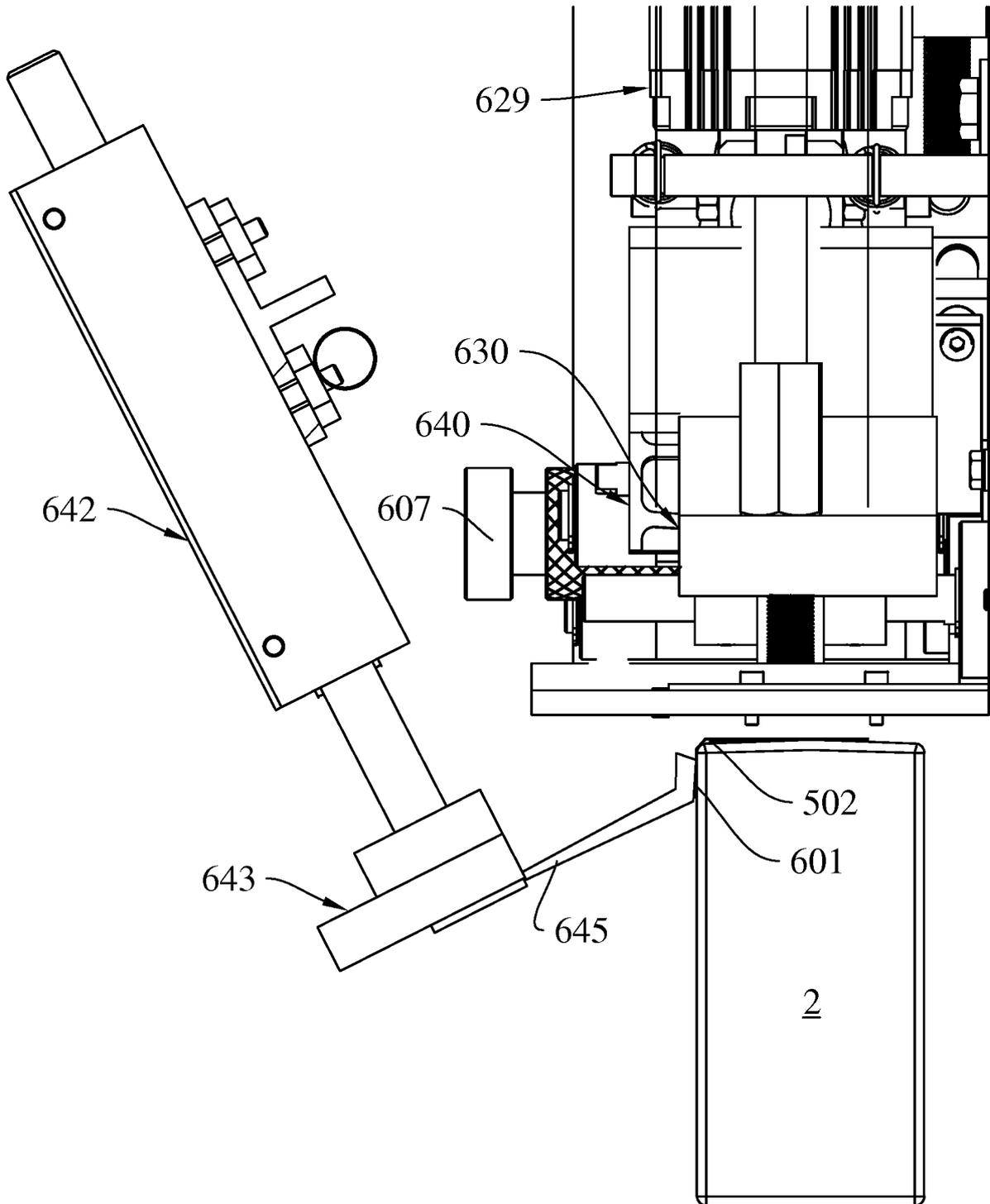


FIG.14

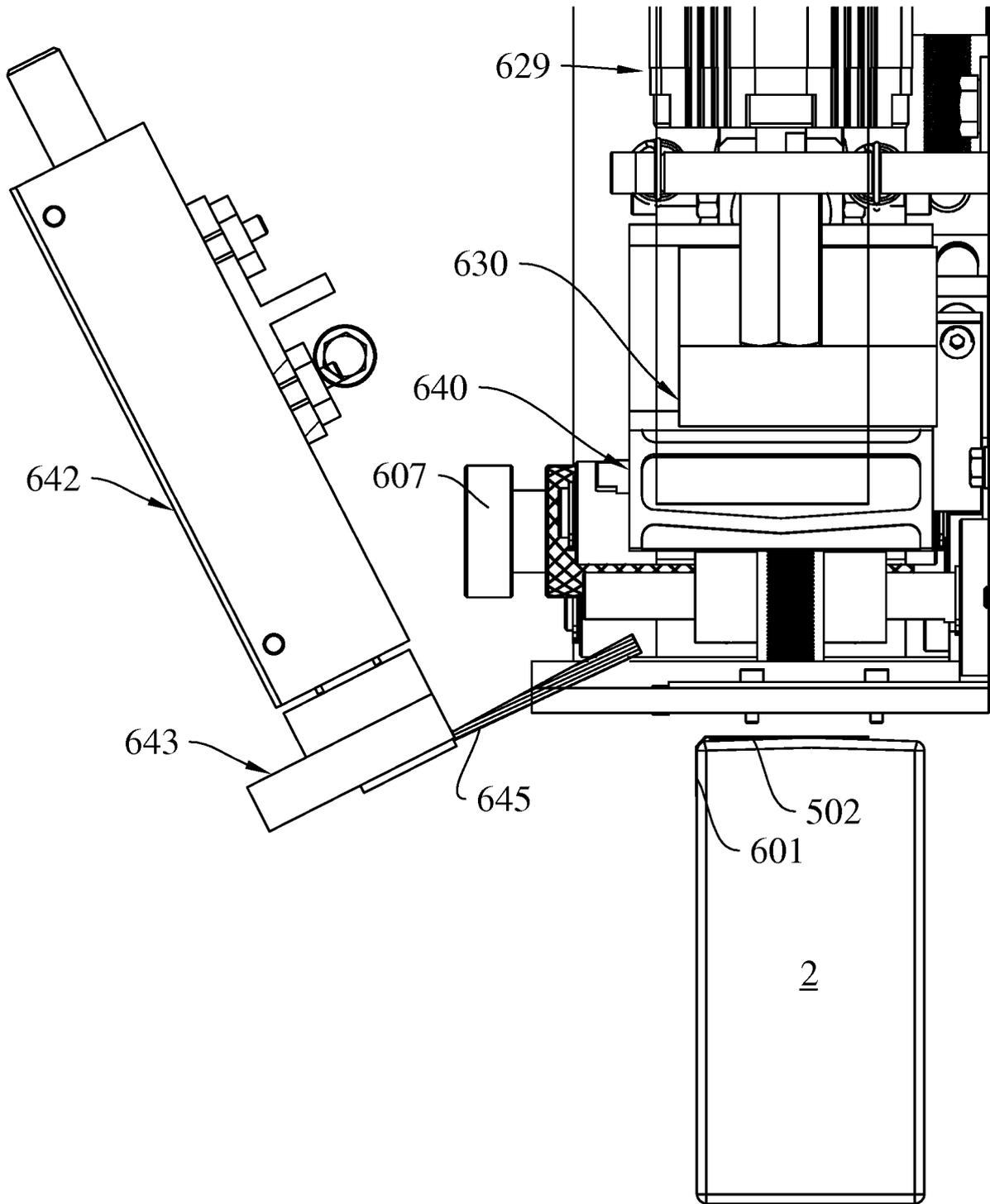


FIG. 15

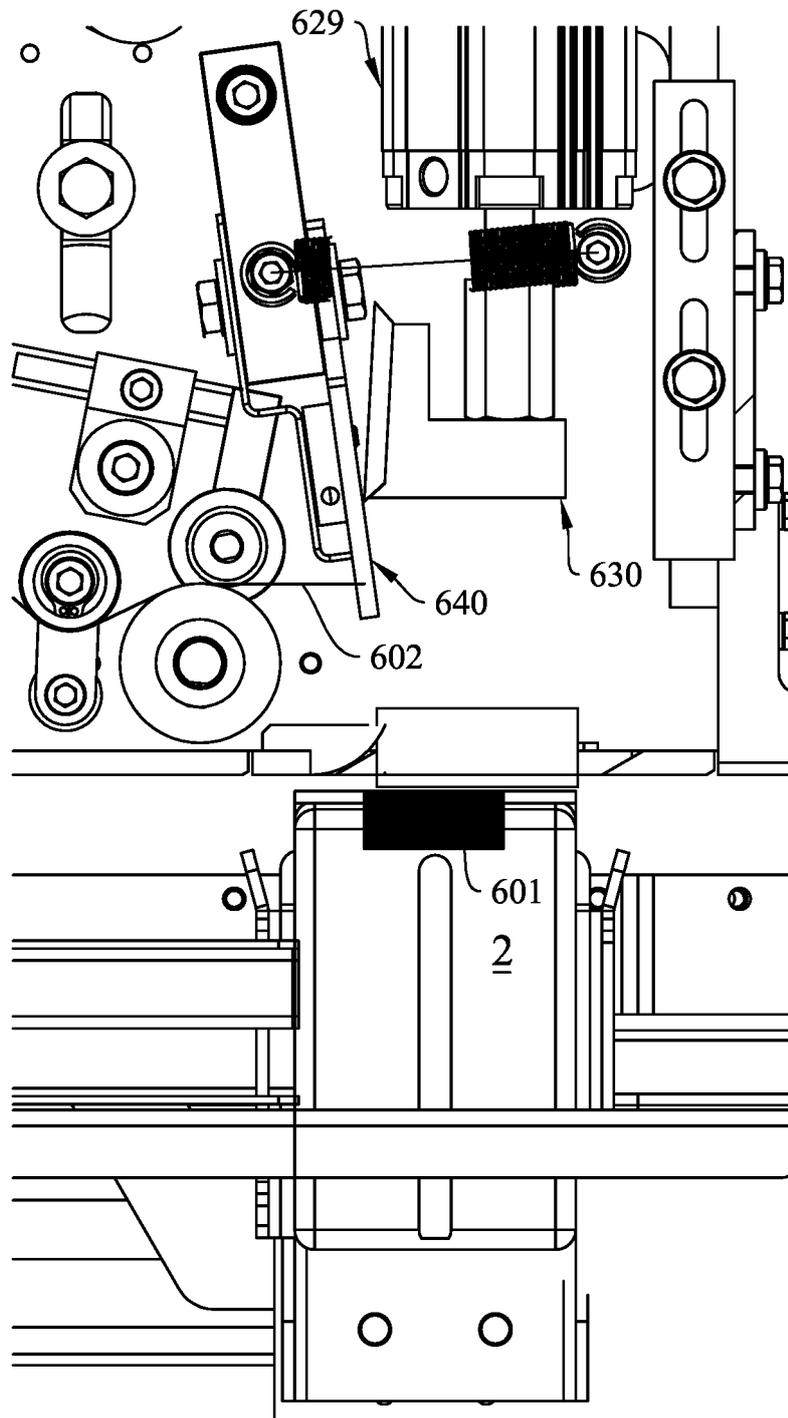


FIG.16

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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