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(71) Applicant: **Comelz S.p.A.**
27029 Vigevano (IT)

(72) Inventor: **CORSICO PICCOLINO, Alessandro**
27029 Vigevano (PV) (IT)

(74) Representative: **Botti, Mario**
Botti & Ferrari S.r.l.
Via Cappellini, 11
20124 Milano (IT)

(54) **ACCESSORY DEVICE TO FACILITATE THE FEEDING OF SHEETS OF MATERIAL TO BE CUT IN CNC MACHINES**

(57) The present invention relates to an accessory device (9) for a numerical control machine (1) and for facilitating the feeding of sheets (2) of material to be subjected to cutting towards a conveyor belt (6) of the machine (1). Advantageously, the device (9) comprises a

support plane (14) equipped with at least one crosspiece holding element (15) for holding at least one sheet (2) or a multilayer of said sheets (2), said plane (14) being actuated by motorized means mutually approaching and/or moving away with respect to the conveyor belt.

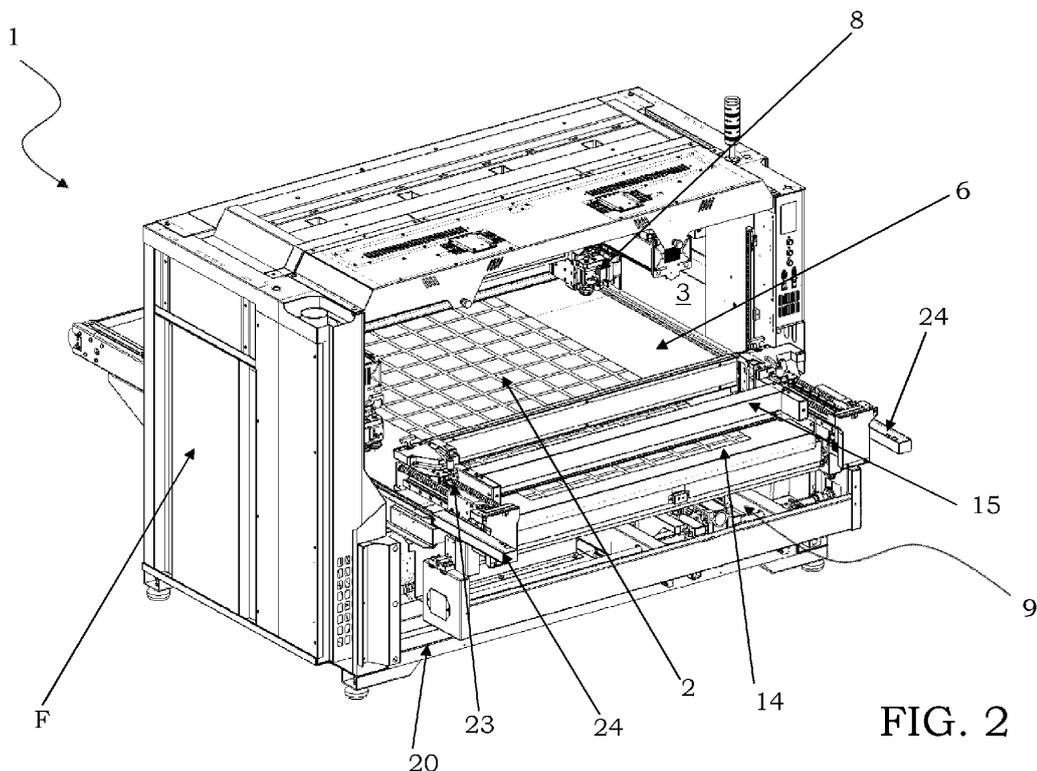


FIG. 2

Description

Field of application

[0001] The present invention relates to an accessory device for a numerical control machine.

[0002] More particularly, the invention relates to an improved device to facilitate the feeding of sheets of material to be processed in die-cutting machines, for instance for cutting sheets of material such as fabrics for clothing and hide goods, footwear items, automotive and furnishing articles or non-woven fabrics, leather, natural or synthetic hides, synthetic materials and the like. However, the following description is made with reference to this application field with the only purpose of simplifying the exposition thereof.

[0003] More particularly, but not exclusively, the invention relates to an apparatus of the above-mentioned type and comprising:

- a processing chamber or room;
- conveying means adapted to feed the sheet into said processing chamber along a forward direction;
- toll heads adapted to operate on the sheet in said processing chamber.

Prior art

[0004] As it is well known in this technical field, there are numerical control die-cutting apparatuses or machine tools capable of cutting sheets of material in an automated manner according to a predefined cutting pattern. The material to be cut may be for instance a sheet of plastic material, a natural hide, a fabric, a non-woven fabric, a cellulose-based material and the like.

[0005] In particular, these machines are equipped with a conveyor belt capable of moving the sheet to be cut along a plane XY, which will be hereinafter also defined cutting table, and inside a cutting chamber, which is provided with cutting tool heads actuated by computerized means for processing the material.

[0006] In this kind of apparatuses, the material arranged on the conveyor belt, and which must be cut, could move during the movement of the belt, especially considering that the material could not be entirely positioned above the belt yet.

[0007] For instance, a few meters long sheet material could lie on the belt just by an initial section to be cut during the subsequent forward movement of the belt. Essentially, the remaining meters of the sheet material may hang on the front part of the machine or lie and be extended on a support arranged in front of the machine waiting for the conveyor belt to move forward.

[0008] Usually, it happens that materials in roll are lying just by an initial section of about one meter on the mouth of the machine, whereas the rest of the material is still

rolled up. The rolls are usually placed on roll racks and the material is unwound while the belt moves forward.

[0009] In this context, however, there is a risk that the material slips with respect to the moving belt especially when the material to be cut comprises a plurality of several overlapped sheets, usually of equal length, or in cases in which the material comes from several rolls simultaneously.

[0010] Generally, the material to be cut is held on the conveyor belt by suction means arranged below said belt and kept in operation while the belt moves forward, so as to ensure the desired holding of the sheet.

[0011] However, in case of cutting of overlapped sheets of material forming a multilayer, often the suction means are not enough to ensure that the material to be cut is held since just the first layer is well held, whereas the upper layers are integral to the lower layer only by gravity and friction and tend to move during the cutting step, thus often resulting in a not optimal processing. This problem also arises with particularly breathable materials.

[0012] A second problem also arises during these processing, the insertion of a new sheet is particularly difficult and above all it is not possible to do it in time masking with respect to the cutting. The very placing of a new sheet on the machine is not at all easy both for very flexible or loose materials such as the fabrics and for multilayer sheets, but the length of these sheets as well hinders the operation.

[0013] In any case, when a new sheet is placed on the machine, it is necessary to respect some precautions which are listed below:

- taking care of the alignment of the sheet with respect to the movement of the belt; that is, making sure that the sheet does not drift towards the right or left sides of the cutting chamber as the sheet moves forward on the belt;
- taking care of the mutual alignment of the multilayered sheets so that the various layers are aligned to each other, in order to avoid having to reduce the width of the cutting field and/or to cut outside some layers;
- adequately preparing the arrival of the successive sheet, especially if multilayered, for instance on a loading plane outside the conveyor belt in order to avoid interrupting or slowing down the flow of the cutting.

[0014] The prior art also suggested adopting side clamps or pressers associated with the conveyor belt for holding the sheets.

[0015] However, this solution is not always useful or effective. If the cutting involves just one hide sheet or semi-finished product the clamps are unnecessary. Furthermore, in the very case of the hide it is often necessary

for an operator to intervene inside the working room for instance to flatten or inspect the hide and the above clamps even represent an obstacle.

[0016] Alternatively to the clamps, the prior art also suggested a solution described in European patent n° EP 2 022 741 to Atom and comprising a first stabilization movable crosspiece and a second and parallel movable dragging crosspiece which presses on the conveyor belt and on the material to temporarily block the sheets to be cut by a dragging section of the conveyor belt in the forward direction Y.

[0017] Although advantageous under various aspects and substantially meeting the purpose, this solution has some drawbacks.

[0018] First of all, this solution is supplied with the numerical control machine and the dragging conveyor belt and cannot be easily removed for a possible change of processing.

[0019] The kind of movement of the first crosspiece, which stabilizes the overlapped-sheet material during the cutting, and that of the second crosspiece which makes the multilayer periodically move forward, along with the conveyor belt, is relatively cumbersome and not particularly efficient in terms of production yield. Furthermore, the presence of this pair of transversal clamps actually extends the load portion of the numerical-control machine and makes it burdensome for operators to access the loading area located before the cutting chamber of the machine.

[0020] The technical problem underlying the present invention is to provide an accessory device for a numerical control machine, to facilitate the feeding of sheets of material to be cut, device which has structural and functional features so as to allow overcoming the above-mentioned limitations and drawbacks which still affect the known solutions, thus optimizing the feeding and correct positioning of the sheet or of the multilayer of sheets to be cut in the machine.

[0021] More particularly, the invention has the object of conceiving an accessory device that can make the numerical control machine associated therewith multifaceted, thus allowing rapid processing changes, for example from hide materials to synthetic or fabric materials and vice versa.

[0022] Another object of the invention is to allow processing sheets of different materials with the same numerical control machine.

[0023] A further object of the invention is to provide an improved apparatus which can perform the operations of preparing the sheets to be processed in time masking with respect to the cutting and/or the processing steps which the sheets of material are subjected to.

Summary of the invention

[0024] The solution idea underlying the present invention is to provide a movable plane for supporting a free end of the sheets to be processed; said plane being pro-

vided with at least one transversal clamps for stabilizing the sheet or sheets and being cantilever extended close to the proximal end of the conveyor belt.

[0025] Advantageously, said plane is further retractable guided when it is no longer necessary for the processing to be carried out.

[0026] Based on said solution idea the technical problem is solved by a device for a numerical control machine to facilitate the feeding of sheets of material to be processed towards a conveyor belt of the machine, characterized in that it comprises a support plane provided with at least one crosspiece holding element for holding at least one sheet or a multilayer of said sheets, said plane being actuated by motorized means which mutually approach and/or move away with respect to the conveyor belt.

[0027] Advantageously, in an exemplary embodiment, the movable plane is angularly retractable movable in a rest position below said conveyor belt. In a further embodiment the plane is removably associated with the machine.

[0028] More particularly, the invention comprises the following additional characteristics, taken individually or in combination if required.

[0029] The movable plane is angularly retractable movable in a rest position below said conveyor belt.

[0030] Furthermore, the movable plane is retractable associated with a lower front portion of the machine.

[0031] Said plane is horizontal-translation moved in a direction parallel to the forward direction between a backward position, in which it is spaced from a proximal end of said conveyor belt to a feeding position, in which it is partially overlapped to said proximal end.

[0032] Furthermore, the plane is movably guided on support guides from a rest position in which it is vertically extended close to a lower front portion of the machine to an operating position in which it is horizontally extended.

[0033] It should be noticed that the holding element is crosspiece-structured and is above the sheet-supporting movable plane and is guided along an axis which is substantially orthogonal to the arrangement of said movable plane.

[0034] The holding crosspiece holding element, extended transversally to said movable plane, is equipped with multiple presser elements which are movably guided towards said movable plane for holding said sheet or multilayer of sheets.

[0035] The pressers are pistons which are movably guided in respective seats of said crosspiece to abut onto the surface of the sheet or of the multilayer of sheets with the purpose of holding the material adhering on the movable plane.

[0036] The crosspiece-configured holding element is actuated in closure to hold the sheet or multilayer during the horizontal translation movement of the movable plane.

[0037] The features and advantages of the apparatus according to the invention will become apparent from the

following description of an embodiment thereof given by way of non-limiting example with reference to the accompanying drawings.

Brief description of the drawings

[0038] In those drawings:

- figure 1 shows a perspective and schematic view of an apparatus according to the present invention for the facilitated feeding of sheets of material to be processed;
- figure 2 shows a perspective and schematic view of the apparatus of figure 1 in a different operating condition;
- figure 3 shows a further perspective and schematic view of the apparatus of figure 1 in a different operating condition;
- figures 4A and 4B show respective perspective and detail views of the apparatus according to the present invention in two different operating conditions;
- figure 5 shows a perspective and schematic view of the apparatus of figure 1 in a different set-up configuration;
- figure 6 shows a further perspective and schematic view of the apparatus of figure 5 in a different operating condition.

Detailed description

[0039] With reference to those figures, a numerical control apparatus for cutting sheets of material according to the present invention with an accessory device 9 that is removably associated with the apparatus 1 is globally and schematically indicated with the reference number 1.

[0040] The figures represent schematic views and are not drawn to scale, but instead they are drawn so as to emphasize the important features of the invention. Moreover, in the figures, the different elements are depicted in a schematic manner, their shape varying depending on the application desired.

[0041] Moreover, the same reference numbers refer to elements that are identical in shape or function. Finally, particular features described in relation to an embodiment illustrated in a figure are also applicable to the other embodiments illustrated in the other figures.

[0042] In its more general form, the apparatus 1 is a machine adapted to process, and in particular is adapted to automatically cut, folding or flexible sheets 2 of material, for instance fabrics for clothing items or accessories, leather, natural or synthetic hides, non-woven fabrics, cellulose-based material, other synthetic materials and

the like.

[0043] In the context of the present invention, the term "sheet" indicates any element of any shape and material, having a substantially two-dimensional size and a certain thickness (generally reduced), which must be cut through the apparatus 1. As it will be noticed hereinafter in greater detail, often the cutting of a plurality of sheets stacked on top of each other or of substantially coincident shape and size, even if not necessarily, is performed.

[0044] The apparatus 1 is thus a numerical control machine equipped with data and program memories. In particular, the apparatus 1 comprises a control unit 21 including said memories and suitably programmed and responsible for the management and automatic control thereof. The control unit may be for instance an integrated computerized unit or may be external to the apparatus 1 and operatively connected thereto. Furthermore, the control unit may be a unique central unit or may comprise a plurality of local units, considered as controllers associated with various actuators arranged on and in the machine.

[0045] In general, as illustrated in figure 1, the apparatus 1 of the present invention comprises a frame F, made for example of a metallic material, which supports and encloses the main components of the machine.

[0046] More particularly, the apparatus 1 comprises a cutting chamber or working room 3 inside which the sheet 2 processing takes place. The cutting chamber 3 has a loading inlet 4 through which the sheet 2 is fed and an outlet 5 from which the cut portions of said sheet 2 are recovered.

[0047] Furthermore, the apparatus 1 comprises a motorized conveyor belt 6 which crosses the cutting chamber 3 from the inlet 4 to the outlet 5 and is adapted to feed and carry the sheet 2 into said cutting chamber 3.

[0048] The conveyor belt 6 is covered by a sacrificial and breathable support layer (not shown in the figures) which is subjected to multiple cutting steps during various processing and which is periodically replaced. Below the support layer, conventional suction means are provided (also not illustrated in the figures), which allow holding the sheet 2 in place on the conveyor belt 6 during the forward movement due to suction.

[0049] As previously mentioned, the inlet 4 gives access to the cutting chamber 3 which is crossed by the conveyor belt 6, said cutting chamber 3 being equipped on top thereof with a plurality of image detectors 7 intended to take images of the sheet 2 to be cut.

[0050] Specifically, for cutting a multilayer it is preferred to mount a telecamera that corrects any errors in moving the belt by reading a tachometer band on one side of the conveyor belt 6.

[0051] Now with particular reference to the examples of figures 3 to 5, a device advantageously adopted in the apparatus 1 to more easily feed and suitably position the sheet 2 on the conveyor belt 6 is described in detail.

[0052] This expedient provides for equipping the apparatus 1 with an accessory device 9 to facilitate the feed-

ing of this sheet 2.

[0053] Said accessory device 9 is removably associated with the apparatus 1 and comprises at least one movable element or plane 14 supported in the operating position close to a proximal end 13 of the conveyor belt 6 through a suitable support structure 25 connected to a lower front portion 20 of the frame F of the apparatus 1.

[0054] The movable plane 14 is substantially a rectangular plate support, on which surface the sheet 2 to be loaded onto the conveyor belt 6 is arranged. An edge 19 is optionally provided on only one side of the movable plane 14 to facilitate the alignment of the sheet 2.

[0055] The movable plane 14 is movably guided on support guides 24 from a rest position, in which it is vertically extended close to the above lower front portion 20 to an operating position in which it is horizontally extended. Support motorized means 23 for said movable plane 14 for actuating said plane are provided between the two extreme positions.

[0056] Said motorized means 23 are electric stepper motors which are adjustable with particular precision and interlocked to the control unit of the apparatus 1.

[0057] Said motorized means 23, and the respective support guides 24, are structured to actuate the movable plane 14 in roto-translation starting from a laying rest position and to make it assume an operating position in which it is partially above the proximal end 13 of the conveyor belt 6. In the rest position the plane 14 is folded away parallel to the lower front portion 20 of the frame F.

[0058] The motorized plane 14 is configured to facilitate the feeding of a sheet 2 to be processed on the conveyor belt 6, said movable plane 14 being movably and mutually guided towards and away from the proximal end 13 of the conveyor belt 6.

[0059] Still more particularly, the movable plane 14 is moved in horizontal translation in a direction parallel to the movement direction of the conveyor belt 6 (i.e. the direction Y) and is particularly movably guided between a backward or retracted position, in which it is spaced apart from the proximal end 13 of the conveyor belt 6, as illustrated in figure 2, and a feeding position, in which it is partially overlapped to said proximal end 13 of the conveyor belt 6, as illustrated in figure 3. A separation interspace or port is defined between a greater side of the movable plane 14 and the proximal end 13 of the belt 6 when the movable plane is in the backward position.

[0060] Instead, when it is in the feeding position, a distal portion of the movable plane 14 is capable of partially overlapping the conveyor belt 6, for instance by a section of some tens of centimeters, so as to easily feed the sheet 2 by placing the free end of the sheet 2 on said conveyor belt 6.

[0061] During the horizontal translation movement of the movable plane 14, the sheet material to be processed or cut is held by a clamp or holding element 15 associated with the movable plane 14.

[0062] In an embodiment, the holding element 15 is a crosspiece which is above the movable plane 14 and is

movably guided along an axis that is substantially orthogonal to the arrangement or sliding direction of said movable plane 14 (i.e. substantially orthogonal to the direction Y). We could say that the crosspiece 15 is angularly moved by a pneumatic actuator 19 and is capable of raising and lowering, abutting against the material arranged on said movable plane 14, as it is well shown in figures 4A and 4B.

[0063] More generally, the crosspiece 15 is movably and mutually guided away from and towards with respect to the surface of the movable plane 14, regardless of whether or not it is extended horizontally. Therefore, the previously used expression raising and lowering is to be referred to the arrangement or extension of the surface of the movable plane 14 whatever its spatial arrangement.

[0064] More particularly, the movable plane 14 and the crosspiece 15 are integral while the plane 14 moves forward; a pneumatic actuator 29 keeps them joined. Therefore, when the plane 14 moves, the crosspiece 15 also moves. However, it is possible to release the crosspiece 15 from the plane 14 by deactivating the pneumatic actuator 29. When the plane 14 is completely backward, although in the horizontal operating position, it could be convenient to release the crosspiece 15 and manually push it forward in order to have the plane 14 completely free. The sheet 2, or multilayer of sheets, is placed onto the plane 14, the crosspiece is set backward (even manually) and it couples again to the plane through the actuator. This operation is optional and useful to facilitate the loading of a new sheet without having to put it under the crosspiece.

[0065] When it abuts onto the movable plane 14 and the multilayered sheet lying thereon, the crosspiece 15 exerts a pressure, realizing in this way the desired holding of the material during the movement of the movable plane 14, i.e. while feeding the sheet.

[0066] Alternatively, in another embodiment, the crosspiece 15 is fixed and prefixed at a distance from the plane 14 and comprises a plurality of presser elements, for instance five or six, housed for instance in respective perforated seats obtained in the crosspiece 15.

[0067] The pressers are for instance pistons which are movably guided in the above seats and configured to abut onto the surface S of the sheet 2 with the purpose of holding the material adhering on the movable plane 14 in the initial step when it approaches the proximal end 13 of the belt 6. The number of pressers can vary depending on the needs and/or circumstances, for example, in one embodiment, five pistons are distributed in equidistant positions along the crosspiece.

[0068] Furthermore, the accessory device 9 comprises a motor 16 which is configured to move a kinematic mechanism 28 having worm screws, which are responsible for the translation movement of the movable plane 14. More particularly, through this kinematic mechanism 28 having screws and gears, a pair of worm screws 26, which a pair of sliding blocks 27 is connected to, is moved. The mov-

able plane 14 is connected to the pair of sliding blocks 27 and the rotation of the worm screws 26 actuates in translation the sliding blocks 27 and, as a result, the movable plane itself in the direction Y.

[0069] Thanks to the presence of the accessory device 9, the sheet 2 may be positioned on the conveyor belt 6 in a simple and effective manner. In fact, the movable plane 14 is substantially cantilever supported outside the apparatus 1 and makes it easy for the operator to prepare the new sheet to be loaded. Furthermore, it also facilitates the alignment of the various layers of sheets 2 with each other and their alignment with respect to the movement of the conveyor belt.

[0070] The crosspiece holding element 15 further allows effectively holding the sheet to be fed while approaching the proximal end 13 of the conveyor belt 6.

[0071] Once the movable plane 14 overlaps the conveyor belt 6 in the feeding position, the crosspiece 15, or the pistons 30 associated therewith, is raised, eliminating the pressure exerted onto the movable plane 14 and onto the sheet 2.

[0072] Now, with more particular reference to the example of figure 4, a further expedient of the machine 1 of the present invention is described.

[0073] According to an embodiment of the present invention, the inlet 4 of the cutting chamber 3 comprises a closure element 10, which may be for instance a glass or plexiglass plate or screen connected to the frame F of the apparatus 1 or equipped with an own frame which is in turn connected to the frame F.

[0074] The closure element 10 arranged at the inlet 4 is movable between a first position or open position (as shown in figure 5), in which the access to the cutting chamber 3 from the inlet 4 is allowed, and a second position or closed position (end-stroke position), in which the access to said cutting chamber 3 is not allowed.

[0075] In a preferred embodiment of the present invention, illustrated in figure 6, in closed position the closure element abuts onto the surface of the sheet 2, exerting thereonto a certain pressure. Still more preferably, the closure element 10 is square- or rectangular-shaped and abuts onto the surface of the sheet 2 pressing at grooves present on the front side of the plane 14.

[0076] Suitably, the closure element 10 is configured to be automatically kept in open position when the cutting means 8 are not actuated, and thus when the processing of the sheet 2 does not occur. In this way, the closure element 10 remains raised if the apparatus 1 is off or stopped, just as it automatically raises once the cutting of the sheet 2 is finished and thus once the cutting means 8 are stopped.

[0077] The closure element 10 is further configured to be automatically kept in closed position during the actuation of the cutting means 8, and thus during the processing of the sheet 2. In this way, the closure element 10 automatically lowers as soon as the cutting means are operated.

[0078] The above automatic opening and closing op-

erations of the closure element 10 according to the operating condition of the cutting means 8 are managed by the above control unit 21, which is operatively connected both with the cutting means 8 and with the movement means of said closure element 10. In particular, the apparatus 1 comprises suitable movement means (for instance pistons, not illustrated in the figures) adapted to automatically move the closure element 10. The movement means are connected to the control unit 21 for automatically controlling the movement of the closure element as above illustrated.

[0079] The movement of the closure element 10 occurs in a direction Z which is substantially orthogonal to the sliding direction Y of the del conveyor belt 6, even if other configurations are possible and fall within the scope of the present invention.

[0080] Furthermore, in an embodiment of the present invention, the closure element 10 cooperates with the accessory device 9, holding the sheet 2 while the movable plane 14 draws back. In other words, as soon as the closure element 10 presses onto the sheet 2, the pressure of the holding crosspiece 15 is released and the movable plane 14 draws back, the sheet 2 being in fact suitably held by said closure element 10.

[0081] Alternatively, the holding of the sheet 2 may not be performed by the closure element 10 but by a further holding element which is fixed to the frame of the apparatus 1. However, it is noticed that the particular holding mode of the sheet 2, once said sheet has passed through the inlet 4 of the chamber 3, may vary according to the needs.

[0082] In any case, the above movements of the holding element 15 may occur in a completely automated manner and may be managed by the central unit 21.

[0083] It is also to be noticed that the operations which the sheet 2 is subjected to provide for the conveyor belt 6 to move several times, in particular for synthetic materials sheets up to fifty meters long can be obtained and their dragging through chamber 3 involves various conveyor belt drives 6. As a result, in case of particularly long sheets 2, the movable plane 14 is also made to slide several times away from and approaching with respect to the proximal end 13 of the conveyor belt 6 thus facilitating the sliding and dragging of the particularly long sheet 2.

[0084] Suitably, the movement of the movable plane 14 is controlled in an automated way by the control unit 21 and, in an embodiment, it is synchronized with that of the conveyor belt 6.

[0085] The intervention of the crosspiece 15 as material holding presser is particularly useful when the front part of a new sheet is inserted, but also up to the end of the cutting operation along with the conveyor belt forward movement.

[0086] As previously anticipated, when a sheet 2 has been almost completely cut, the plane 14 moves away from the conveyor belt 6 leaving a passage port through which the tail or anyway the remaining portion of the load-

ed sheet may fall. As a result, it is not necessary to wait for the previous sheet to be completely cut in order to have the front part of the machine 1 free from the movable plane for a possible intervention of the operator.

[0087] Suitably, the possibility to have a folded away plane as above described allows reducing the dimensions of the plane itself, although keeping it fastened to the apparatus 1, thus reducing the overall dimensions and providing an effective and compact system.

[0088] In fact, when the movable plane 14 is in the folded position, even the crosspiece 15 is hidden and does not entail any burden to the operator. This is particularly advantageous since, for some materials, it may also not be necessary to use the movable plane 14, thus making the machine particularly versatile.

Claims

1. Accessory device (9) for a numerical control machine (1) for facilitating the feeding of sheets (2) of material to be processed towards a conveyor belt (6) of the machine, **characterized in that** it comprises a support plane (14) equipped with at least one crosspiece holding element (15) for holding at least one sheet (2) or a multilayer of said sheets (2), said plane (14) being actuated by motorized means mutually approaching and/or moving away with respect to the conveyor belt.
2. Accessory device (9) according to claim 1, **characterized in that** said movable plane (14) is angularly and retractable movable in a rest position below said conveyor belt (6).
3. Accessory device (9) according to claim 1, **characterized in that** said movable plane (14) is retractable associated with a lower front portion (20) of the machine (1).
4. Accessory device (9) according to claim 1, **characterized in that** the plane (14) is horizontal-translation moved in a direction parallel to the forward direction (Y) between a backward position, in which it is spaced from a proximal end (13) of said conveyor belt (6) to a feeding position wherein it partially overlaps said proximal end (13).
5. Accessory device (9) according to claim 1, **characterized in that** said plane (14) is movably guided on support guides (24) from a rest position, in which it is vertically extended close to a lower front portion (20) of the machine (1) to an operating position in which it is horizontally extended.
6. Accessory device (9) according to claim 1, **characterized in that** said crosspiece-structured holding element (15) is above the movable plane (14) for supporting the sheet (2) and is guided along an axis which is substantially orthogonal to the arrangement of said movable plane (14).
7. Accessory device (9) according to claim 1, **characterized in that** said holding crosspiece holding element (15) is extended transversally to said movable plane (14) and is equipped with several pressor elements (30) which are movably guided towards said movable plane (14) for holding said sheet/s (2).
8. Accessory device (9) according to claim 7, **characterized in that** the pressor elements (30) are pistons which are movably guided in respective seats of said crosspiece holding element (15) for abutting onto the surface (S) of the sheet (2) or of the multilayer with the purpose of holding the material adhering on the movable plane (14).
9. Accessory device (9) according to any one of the previous claims, wherein said crosspiece-configured holding element (15) is actuated in closure to hold the sheet (2) or the multilayer during the horizontal translation movement of the movable plane (14).
10. Accessory device (9) according to claim 1, **characterized in that** it is removably associated with the machine (1).
11. Apparatus (1) according to any one of the previous claims, comprising a control unit arranged and configured both to control said accessory device (9) and to move said apparatus (1) in an automated manner.
12. Numeric control apparatus (1) for feeding at least one sheet (2) or a multilayer of sheets of material to be processed, comprising:
 - a processing chamber or room (3);
 - conveying means (6) adapted to feed the sheet (2) into said processing chamber (3) along a forward direction (Y);
 - tool heads (8) adapted to operate on the sheet (2) in said processing chamber (3);**characterized in that** it further comprises:
 - an accessory device (9) associated with said apparatus and structured according to any one of claims 1 to 10.
13. Apparatus according to claim 12, **characterized in that** said accessory device is mounted in the rest position close to a lower front portion (20) of the apparatus.
14. Apparatus according to claim 12 **characterized in**

that said accessory device (9) has the support plane (14) which is actuated by the rotation-motorized means from the rest position to an operating position in which the plane is horizontally extended and **in that** in said operating position it is translation guided mutually approaching and/or moving away towards the conveying means (6).

15. Apparatus according to claim 12, **characterized in that** said accessory device (9) is mounted on wheels and is removably associated with the apparatus.

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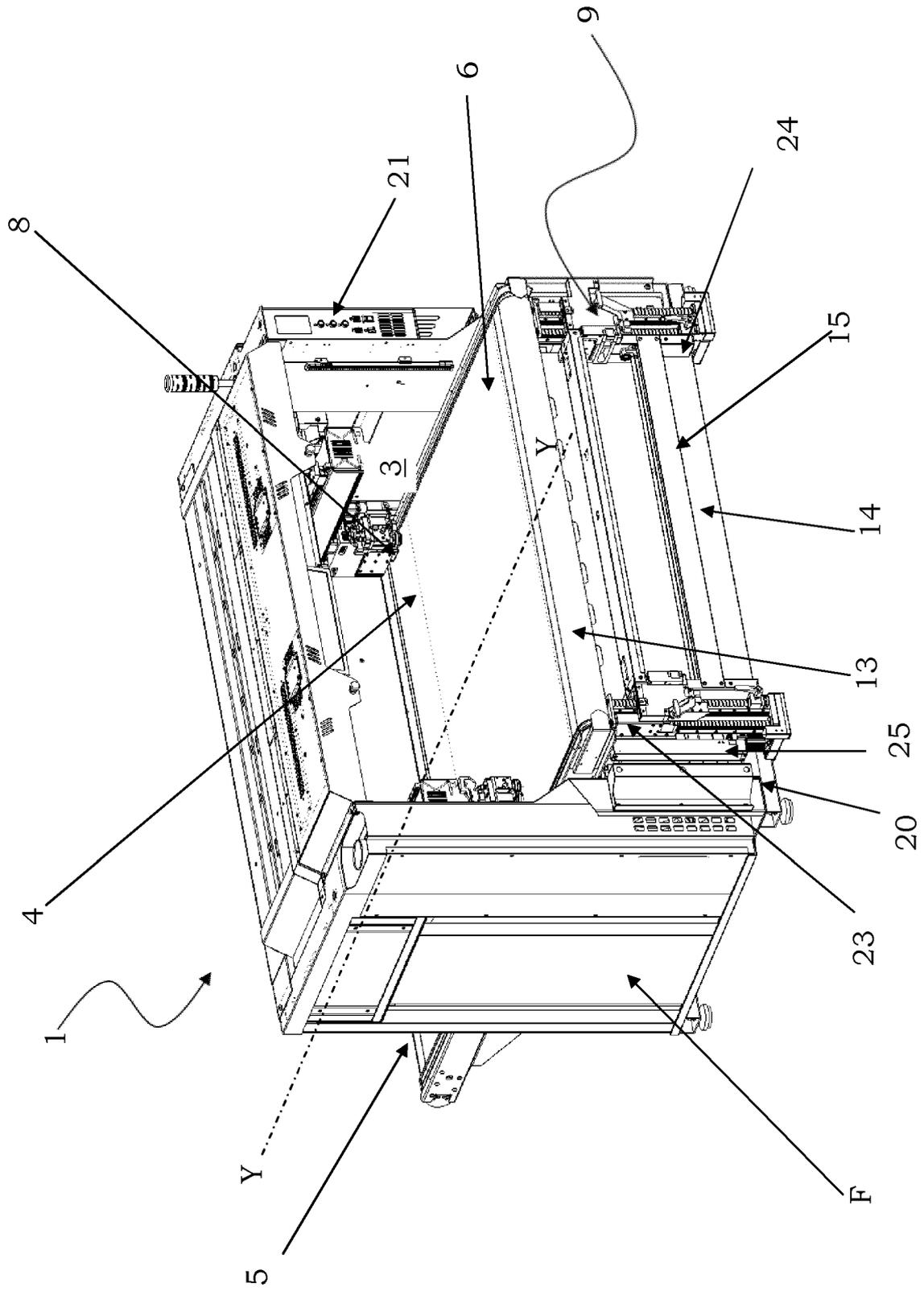
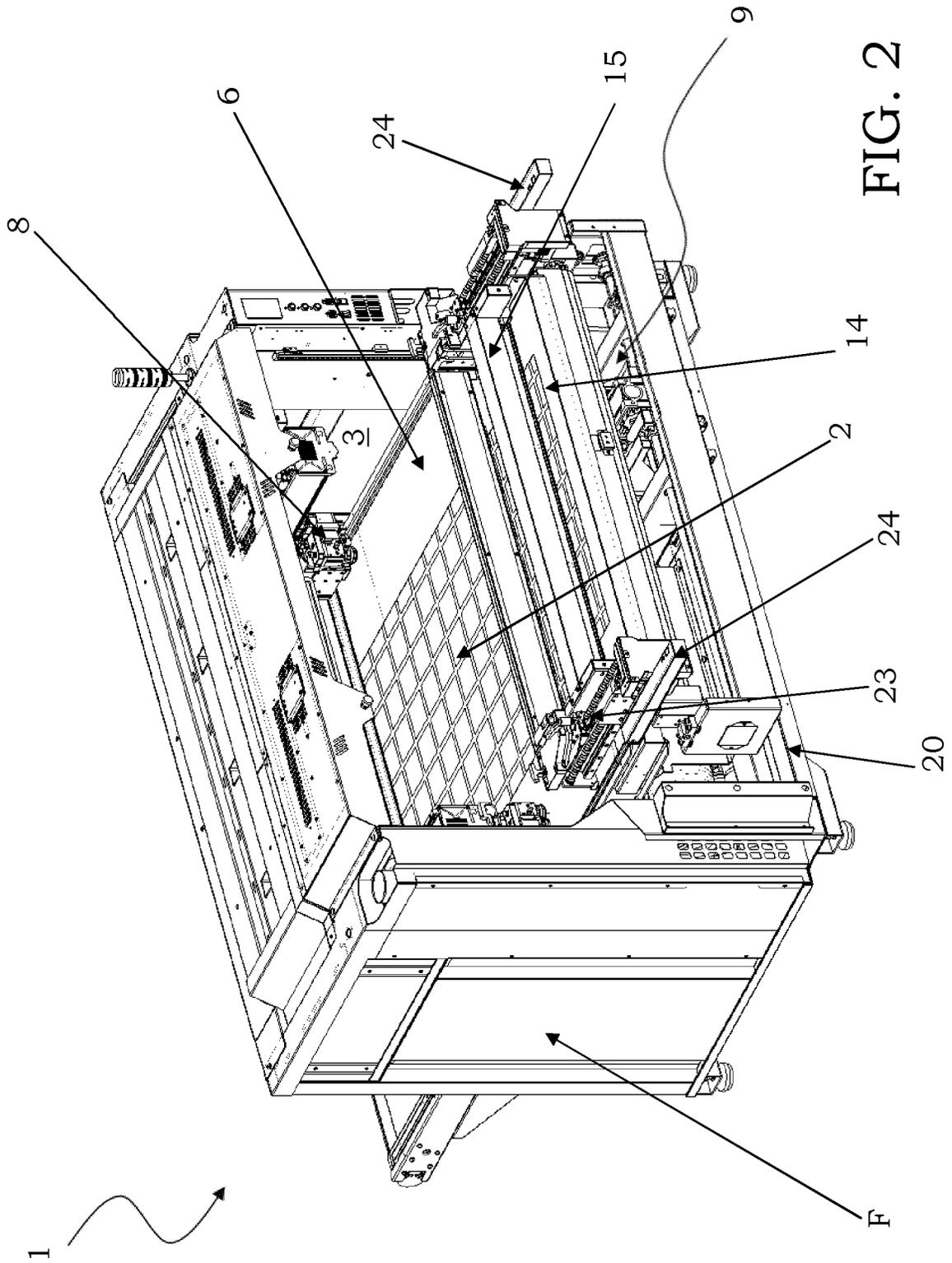


FIG. 1



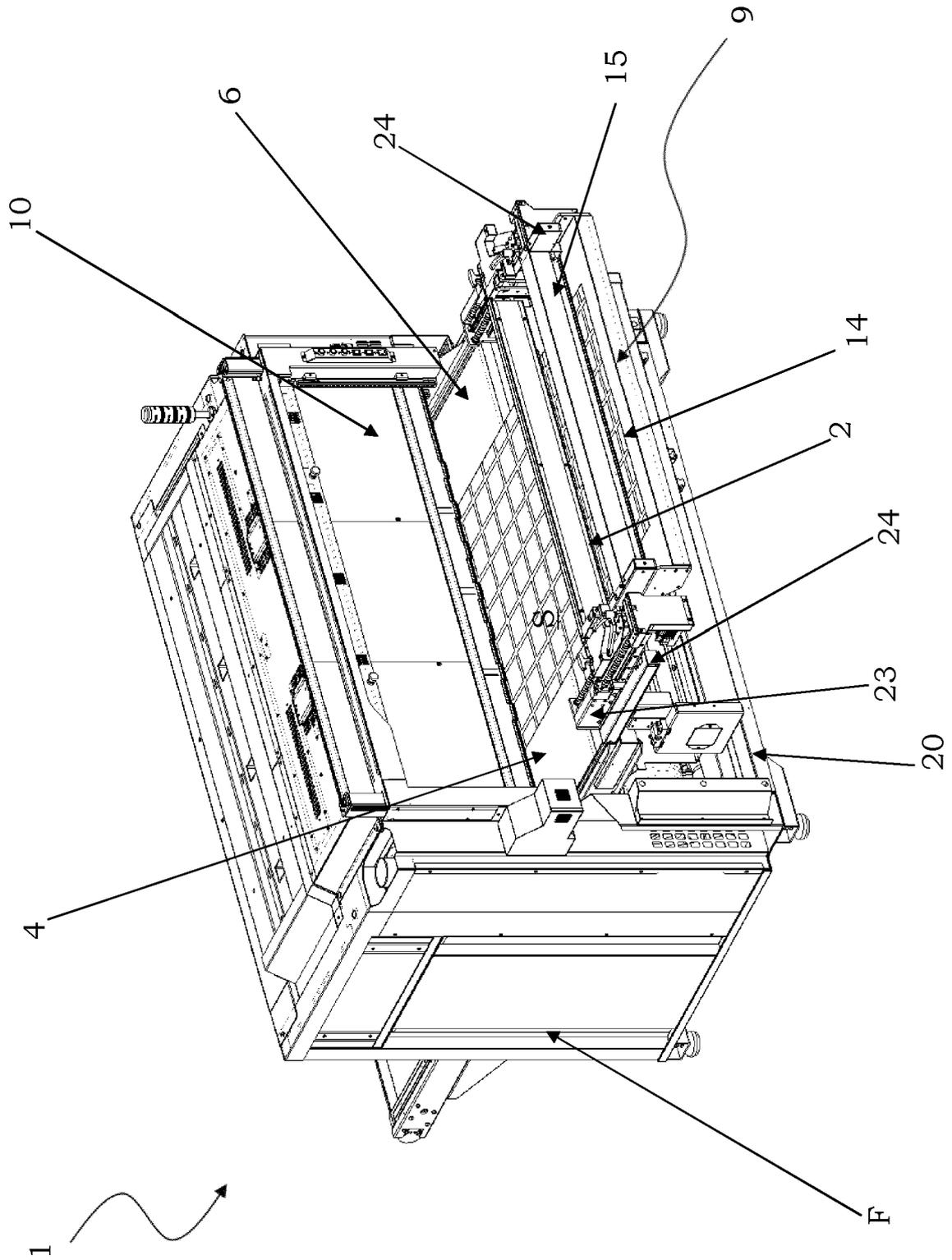


FIG. 3

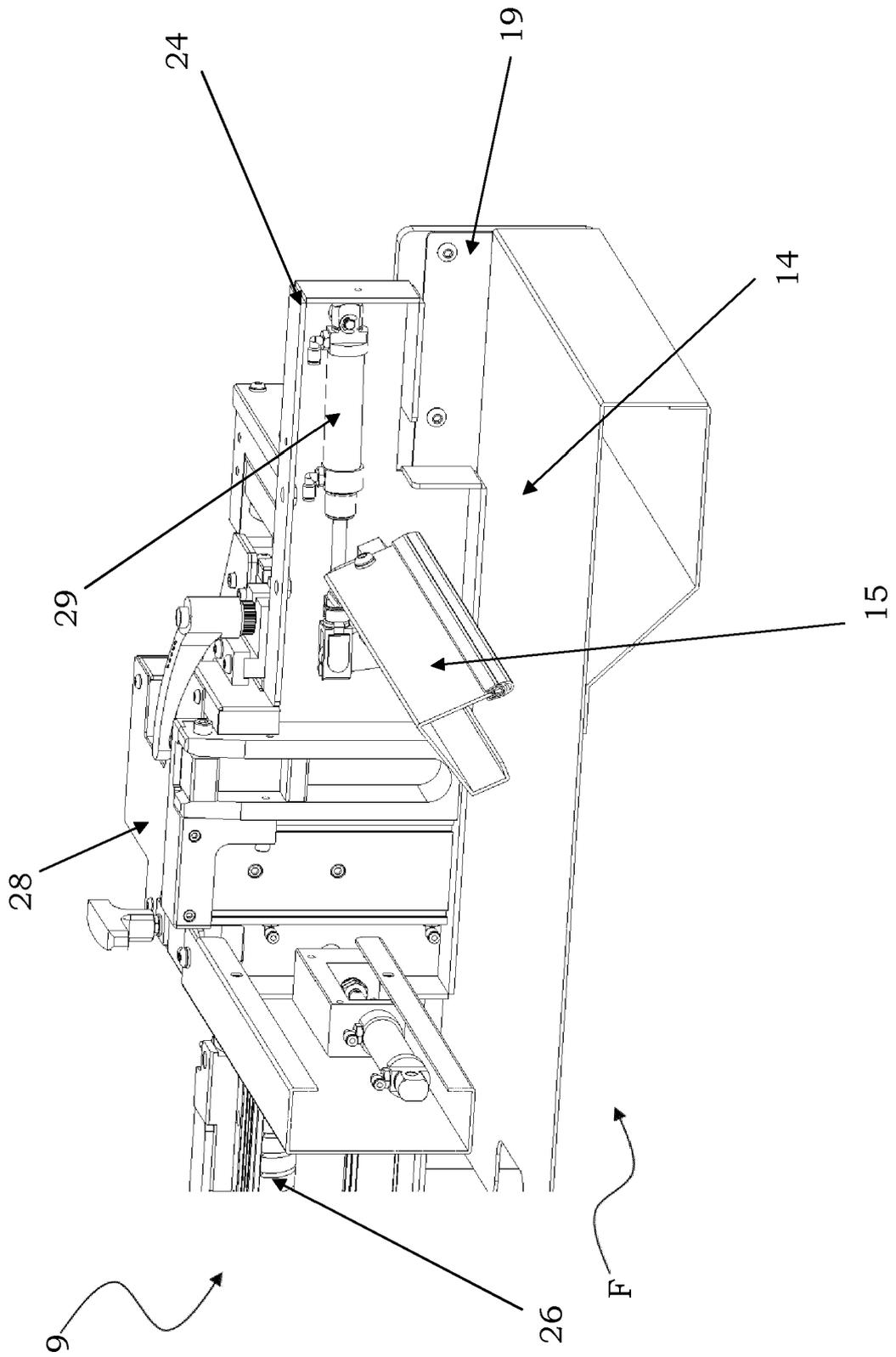


FIG. 4A

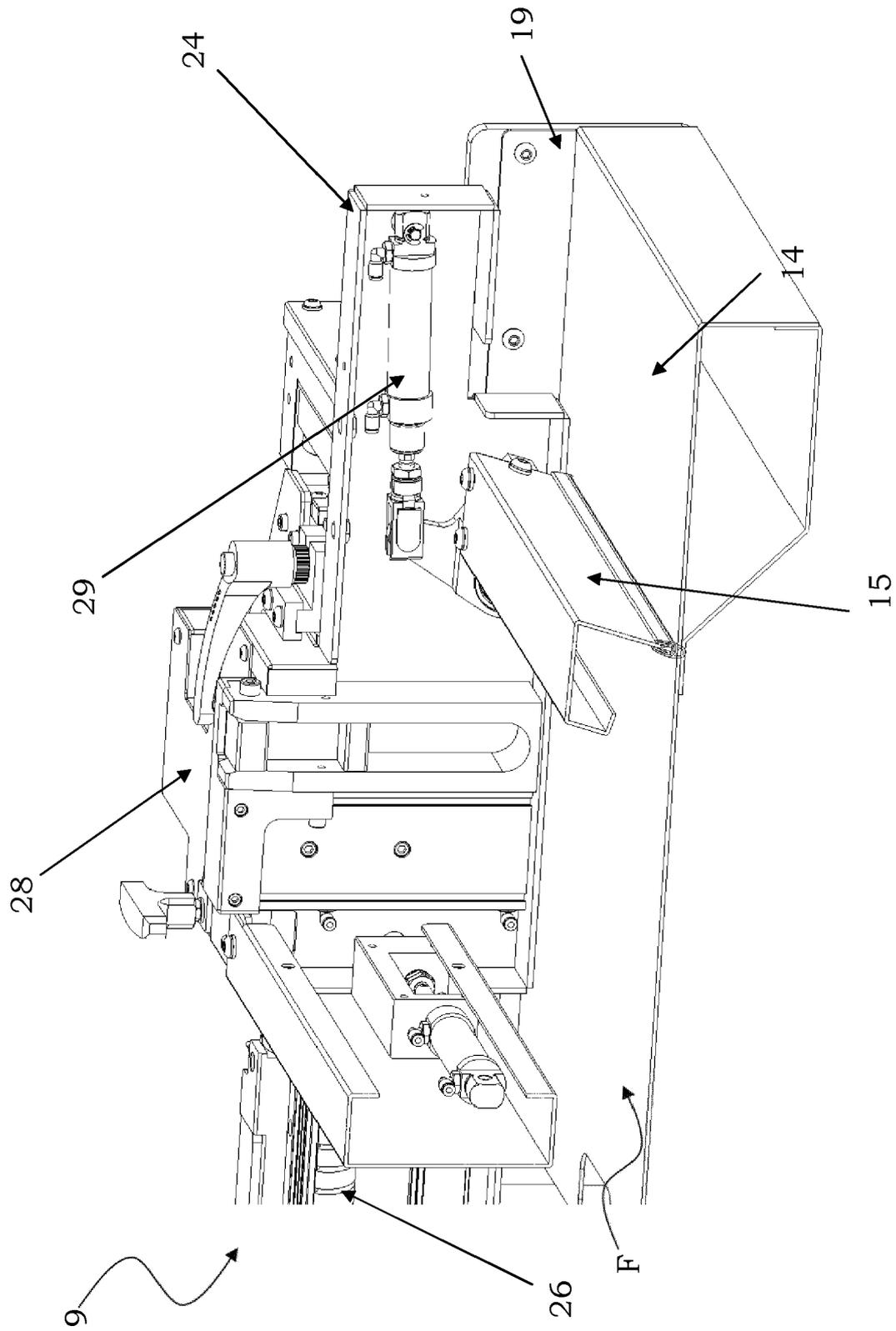


FIG. 4B

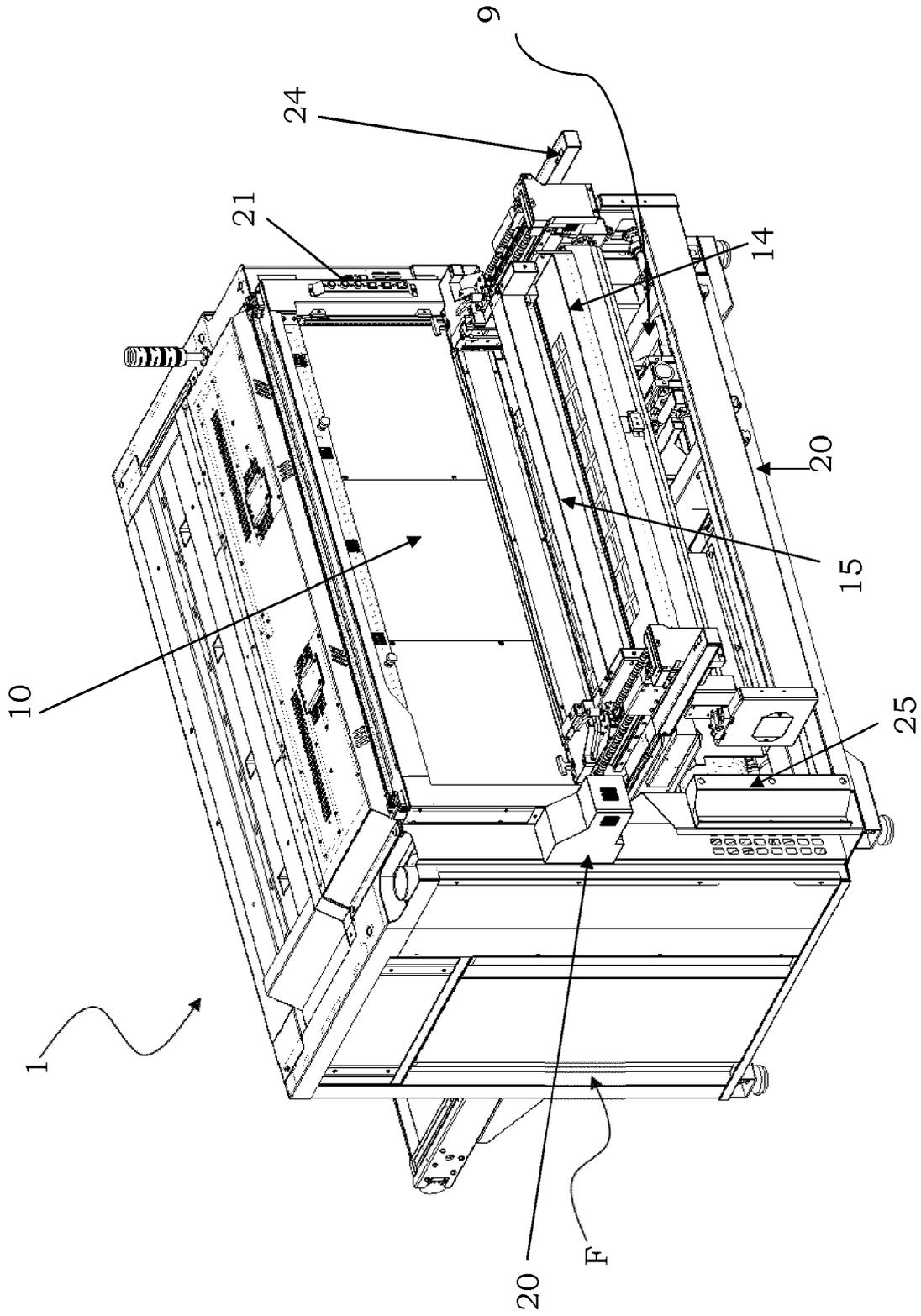


FIG. 6



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