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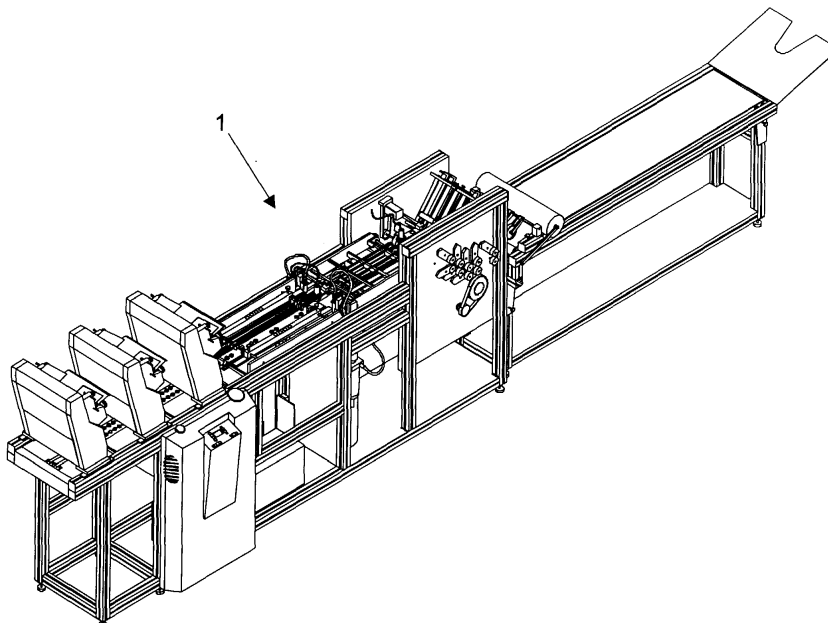
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(54) **Auto-enveloping machine for multiple sheets or similar**

(57) Auto-enveloping machine for multiple sheets or similar, constituted of an high demand auto-enveloping production equipment or auto-enveloping machine for multiple sheets (1) for gluing and folding of informative sheets (2), supplied by primary (3) or secondary (4) feeders, which are transported by the conveying device (5), enabling that in the way, they receive a controlled dosage of glue on their side edges, aspersed by glue injecting nozzles (6), being further allocated in an aligning tem-

plate (7) for the due stacking and alignment, executed by adjusting movable guides (8); once the stacking and alignment have been concluded, the informative sheets (2), mutually enclosed and attached by adhesion are released for the folding phase by dispensing roll working on a time basis (9) to act intermittently in synchronization with the previous production phases, where they are further compacted by compacting cylinders (10) and issued with the new auto-envelope formatting (11) with multiple sheets.

FIG. 4



Description

Field of application

[0001] The present application refers to an auto-envelope machine for multiple sheets or similar which has the aim of presenting an innovating system of scaling and folding of mercantile and informative correspondence belonging to the mechanical field aiming at grouping in ordered layers for further folding and gluing of leaflets, bank tickets, reports, statements of account, etc., with high demand of response and further delivery to the addressee.

[0002] There is, therefore, in the present patent application, a device especially designed and developed to obtain a great facility which achieves great advantages, in both its manufacturing as well as in its trading.

[0003] It is a further aim of the present patent application to present an ordering mechanical device, which paginates, glues and folds documents formatted in loose sheets with low costs for its industrial feasibility and which however meets the needs of robustness, safety and utility practice, offering this to the public consumer, an additional option in the similar market, which provides a number of possibilities and benefits to its users as compared to the current models, becoming a model of great acceptance in the consumer market.

Background of the invention

[0004] With the development of the banking and mercantile system, a new high demand scale documentation was produced, wherein all kind of information, from financial histories in the banking system to the disclosing of mercantile activities, are sent to customers and interested people by private and public address companies.

[0005] The production of this documentation is developed in high scale and for this reason there is the integrated, parallel and intensive need to prepare the enveloping of these reports for further sorting out to the involved addressees. The graphic technical means which meet the needs of producing enveloping of intense quantity of documentation produced by high demand, have developed into compatible solutions so that such procedure was successful and consisted in the building of machines which automatically perform the folding and gluing service of reports in compliance with the formatting specifications required by the technical means and alike.

[0006] Conceptually, this equipment is made of mechanical conveyers which take the loose sheet from a supplying device and conduct it in order to fold it in another sector of the machine by means of specific mechanical elements, which execute the whole work automatically by finishing the enveloping task or simply auto-enveloping, which is a more suitable denomination to the technical means, since the sheets are fold and glued overleaf, disregarding the so-called traditional envelopes, thus reducing costs, weight and other inputs.

[0007] The configurations of auto-envelope adopted up to now do not meet the needs any longer as regards the new demands which require a more sophisticated formatting, for example the case in which more than one report sheet needs to be sent attached to the same document, so as to guarantee continuity to the information listed or containing commercial pamphlets, which is common to the current market practices of the advertising means.

[0008] Owing to the new established practices, the present auto-envelope machine for multiple sheets or similar, which is the object of the present patent application, has developed a stand-alone machinery which is necessary to the productive execution of auto-envelope in its new formatting, wherein several sheets of related subjects or not are ordered, glued and folded in a single document, allowing the addressee to received all information compiled in a single remittance, with efficiency and reduced costs.

Disclosure of the invention

[0009] The referred machine basically carries out five different critical and different operations, regarding the loose sheets with information, which are collection, transposition, adhesive aspersion, alignment and folding with the further finishing and forwarding of the produced document.

[0010] The caption of informative sheets in general is obtained by means of a stand-alone machine attached to the enveloping machine entry, whose feeding device supplies the pagination material which is necessary to the self-envelope production, wherein such sheets are forwarded in sequence and guided by a mechanical conveyor to the next procedure, wherein specific adhesive is aspersed on the sheet specific edges to be ordered and stacked.

[0011] In the referred machine, the sheets, after receiving the adhesive, are further transported to a position of allocation where they are accumulated by overlapping or stacking up to a limited number; the sheets are then aligned by mechanical aligners and, after that, released to be compacted and folded in a single auto-envelope document.

[0012] The object of the present patent application refers to an innovating high demand auto-enveloping production equipment or auto-enveloping machine for multiple sheets to be glued and folded, supplied with primary or secondary feeders, which are transported through conveying devices, which enable that, along the way, they receive a controlled dosage of glue in their lateral edges, aspersed by means of glue injecting nozzles which are being further allocated in an aligning template for the due stacking and aligning and executed by adjusting movable guides.

[0013] Once the stacking and aligning has been performed, the informative sheets, mutually attached and enclosed by adhesion, are released for the folding phase

through a dispensing roll working on a time basis to act intermittently in synchronization with the previous productive phases, wherein they are further compacted by means of compacting cylinders and issued with the new auto-envelope formatting together with multiple sheets for the issuance module and dispensed to their respective addresses.

[0014] The auto-enveloping machine for multiple sheets, by being autonomous and adjustable, enables the production of auto-envelopes of different shapes, as it can be fed with informative sheets; this is feasible by coupling of the secondary feeding device, produced according to the specifications of each financial and institutional supplier of informative sheets.

[0015] In the folding device, the informative sheets enclosed by gluing are conducted by folding rolls and formatted in auto-envelope by specific templates, which are applied in their external sides, punches or creases for enabling the separation and opening of document by the authorized users.

[0016] The auto-enveloping machine for multiple sheets makes auto-envelopes with varied quantities of information sheets with accurately adjusted and parameterized stacking and scaling and enables, by active interference of lateral aligning levers, their positioning with the desired formation for further folding without the need of trimming their lateral sides.

[0017] A practical and innovating system ordering, gluing and folding destination documents is presented in the present patent application which provides for all aesthetic and functional qualities and is designed and developed according to the most modern techniques and materials, thus enabling its most varied usage which ranges from the industrial and commercial use to the mechanical technical use in several cases.

[0018] Its innovating concept allows to obtain an excellent level of functionality by providing an equipment of gluing and folding of destination documents which have big durability and simplicity, since it has been created mainly to be easily noticed.

[0019] It should be understood that the above machine is extremely simple in its construction because it is easy to operate, thus obtaining excellent practical and functional results and providing an innovating construction as against the known models since all its elements are integrated by simple assembly piece by piece.

[0020] Having an innovating concept, it results into an harmonic set of very peculiar aspects and above all, in addition to the constructive aspect, the model stands out because of its usage versatility and comfort.

Brief illustration of the drawings

[0021] Moreover, for a better understanding on how the auto-envelope machine for multiple sheets or similar works, the enclosed illustrating drawings are presented, where can be seen:

- Fig. 1 shows a top view of the auto-enveloping machine for multiples sheets.
- Fig. 2 shows a left side view of the enveloping machine for multiple sheets.
- 5 Fig. 3 shows a right side view of the auto-enveloping machine for multiple sheets.
- Fig. 4 shows a back top profile view of the auto-enveloping machine for multiple sheets.
- Fig. 5 shows a front top profile view of the auto-enveloping machine for multiple sheets.
- 10 Fig. 6 shows a top front view of the information sheets feeders (2) at the auto-enveloping machine entry for multiple sheets, indicating the transposition way for the auto-envelope formatting.
- 15 Fig. 7 shows an exploded perspective view of the information sheet feeders with several mechanical components of the auto-enveloping machine for multiple sheets.
- 20 Fig. 8 shows a top front view of the glue transport and injection devices of auto-enveloping machine for sheets.
- Fig. 9 shows an exploded perspective view of the injection device of the auto-enveloping machine for multiple sheets.
- 25 Fig. 10 shows a top front view of the conveyor while positioning the information sheets for further alignment produced by the lateral alignment guides of the auto-enveloping machine for multiple sheets.
- 30 Fig. 11 shows a top front view of the folding device and of the stabilized conveyor supporting the stacked information sheets showing the alignment produced by action of the alignment guides of the auto-enveloping machine for multiple sheets.
- 35 Fig. 12 shows a top front view of the conveying fold, releasing the stacked information sheets for further folding.
- 40 Fig. 13 shows an exploded perspective view of the devices for aligning, folding and other mechanical components of the auto-enveloping machine for multiple sheets.
- Fig. 14 shows a top front view of the auto-enveloping machine for multiple sheets, finishing the information sheets formatting production stacked, aligned, fold and creased as auto-envelopes.
- 45 Fig. 15 shows an exploded perspective top front view of the destination issuance device of the formatted auto-envelopes.
- 50 Fig. 16 shows an exploded perspective view of the auto-enveloping machine for multiple sheets with devices of feeding, transport, gluing, alignment and fold.
- 55 Fig. 17 shows a back top perspective view of the devices of primary and secondary feeding of the auto-enveloping machine for multiple sheets

- provided with informative sheets.
- Fig. 18 shows a back top perspective view of the devices of primary and secondary feeding of the auto-enveloping machine for multiple sheets with informative sheets sent for auto-enveloping production.
- Fig. 19 shows an exploded perspective view of the device for secondary feeding of auto-enveloping machine for multiple sheets.

Detailed description of the preferred embodiment

[0022] In compliance with the extent the figures above listed illustrate, the auto-envelope machine for multiple sheets or similar idealizes an innovating high demand auto-enveloping production equipment or auto-enveloping machine for multiple sheets 1 for gluing and folding of report sheets, supplied by primary 3 or secondary 4 feeders which are transported by conveying device 5, which allows that, in the way, they receive a controlled dosage of glue on their side edges, which are aspersed by glue injecting nozzles 6, being further allocated in an aligning template 7 for the due stacking and alignment, executed by adjusting movable guides 8.

[0023] Once the stacking and aligning have been performed, the informative sheets 2, mutually attached and enclosed by adhesion, are released for the folding phase through a dispensing roll 9 working on a time basis to act intermittently in synchronization with the previous productive phases, wherein further they are compacted by means of compacting cylinders 10 and issued with the new auto-envelope formatting 11 together with multiple sheets for the issuance module 12 and dispensed to their respective addresses.

[0024] The auto-enveloping machine for multiple sheets 1, by being autonomous and adjustable, enables the production of auto-envelopes 11 of different shapes, as it can be fed with informative sheets; this is feasible by coupling of the secondary feeding device 4, produced according to the specifications of each financial and institutional supplier of informative sheets 2.

[0025] In the folding device 14 the informative sheets 2 enclosed by gluing are conducted by folding rolls 15 and formatted in auto-envelope by specific templates, which are applied in their external sides, punches or creases for enabling the separation and opening of the document by the authorized users.

[0026] The auto-enveloping machine for multiple sheets 1 makes auto-envelopes 11 with varied quantities of information sheets 2 with accurately adjusted and parameterized stacking and scaling and enables, by active interference of adjustment movable guides 8, their positioning with the desired formatting for further folding without the need of trimming their lateral sides.

[0027] Therefore, the present solution enables a considerable cost reduction in its sending and sorting out of correspondence owing to a better rationalization in the formatting of sending documents or auto-envelopes.

[0028] It is possible to verify through what has been exposed above that the auto-envelope machine for multiple sheets or similar, now referred to as a great utility device, presents, as we can underline from the above analysis and from the figures shown, a number of differences as against the existing conventional models in the consumer market and whose constructive and functional techniques are completely different from those related to the state-of-the art.

Claims

1. Auto-envelope machine for multiple sheets or similar, **characterized by** an high demand auto-enveloping production equipment or auto-enveloping machine for multiple sheets (1) for gluing and folding of informative sheets (2), supplied by primary (3) or secondary (4) feeders, which are transported by a converting device (5), the machine further comprising:

- glue injecting nozzles (6) for delivering a controlled dosage of glue on the side edges of the sheets (2),
- an aligning template (7) for the due stacking and alignment, executed by adjusting movable guides (8), of said informative sheets (2);
- a dispensing roll (9) which, once the stacking and alignment have been concluded, folds said informative sheets (2), mutually enclosed and attached by adhesion, said dispensing roll (9) working on a time basis to act intermittently in synchronization with the previous production phases,
- compacting cylinders (10) for compacting and issuing said informative sheets (2) with the new auto-envelope formatting (11) with multiple sheets for the issuance module (12) and sorted out to their respective addresses, in the one-fold device (14), said informative sheets (2) enclosed by gluing, are conducted by folding rolls (15) and formatted in auto-envelope by specific templates, being then, applied in their external sides, punches and crease for enabling the separation and opening of the document by authorized user.

FIG. 1

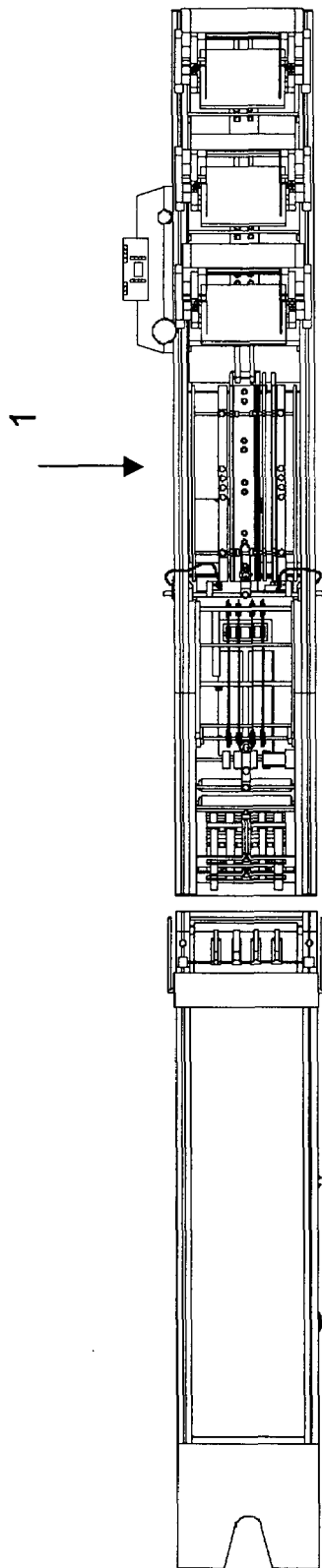


FIG. 2

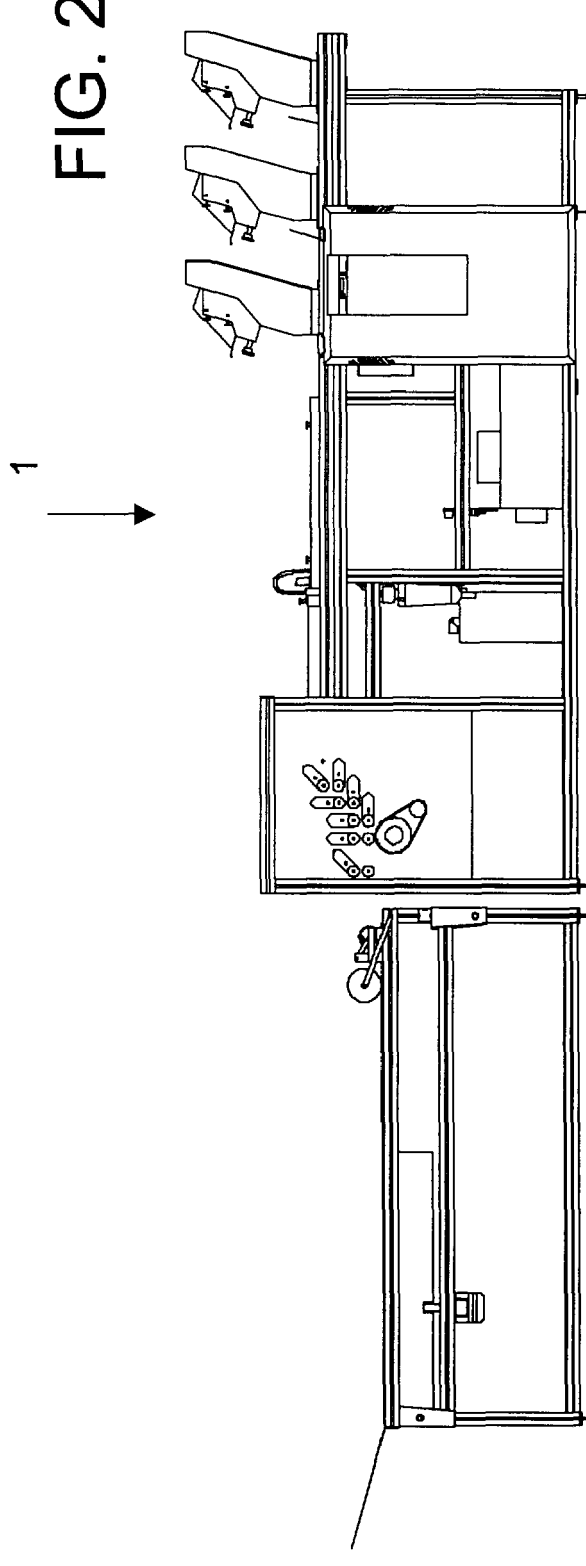


FIG. 3

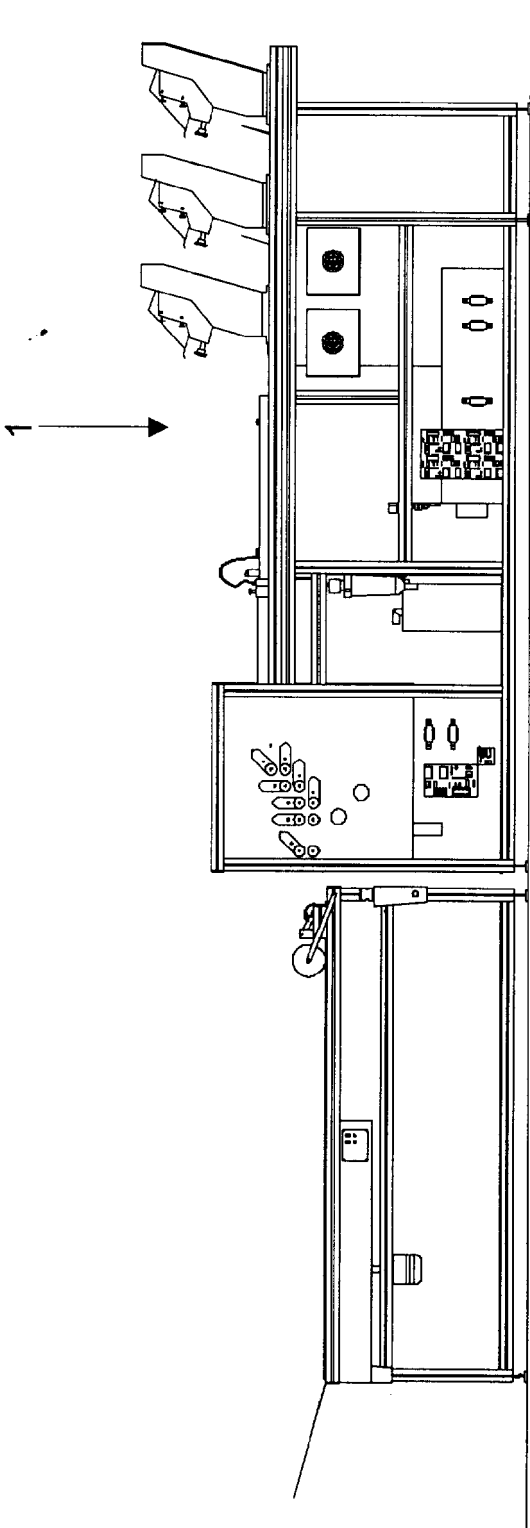


FIG. 4

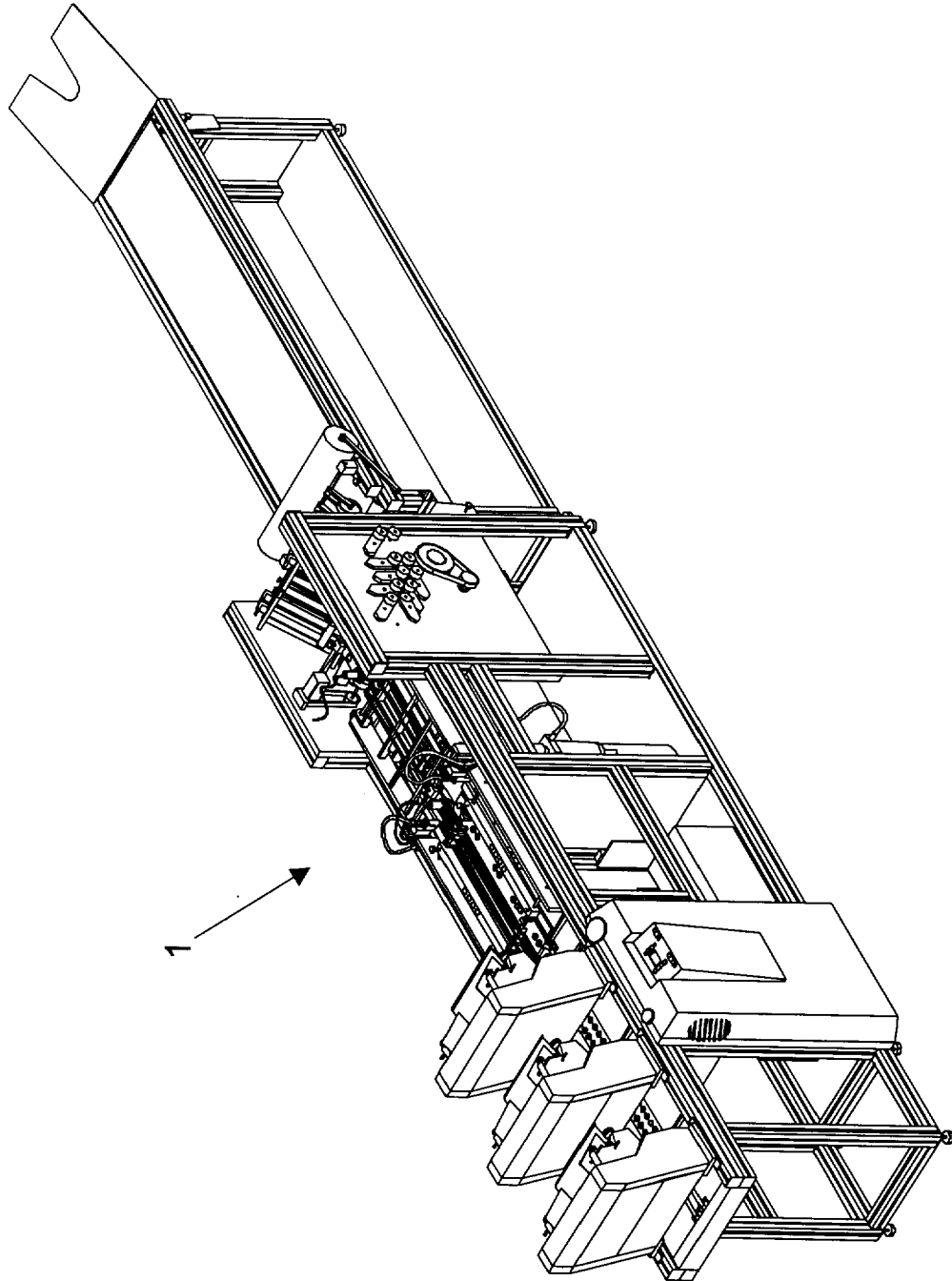


FIG. 5

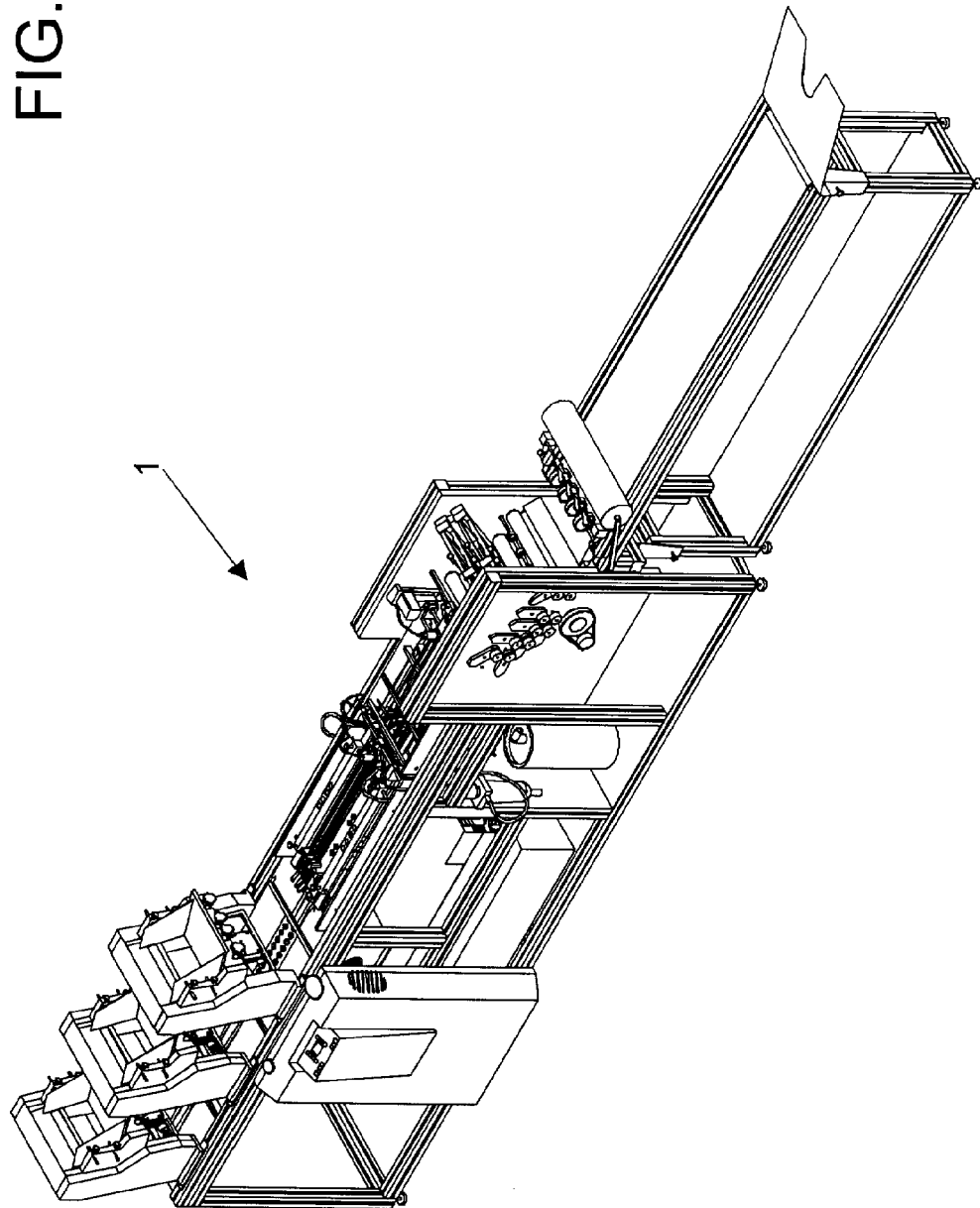


FIG. 6

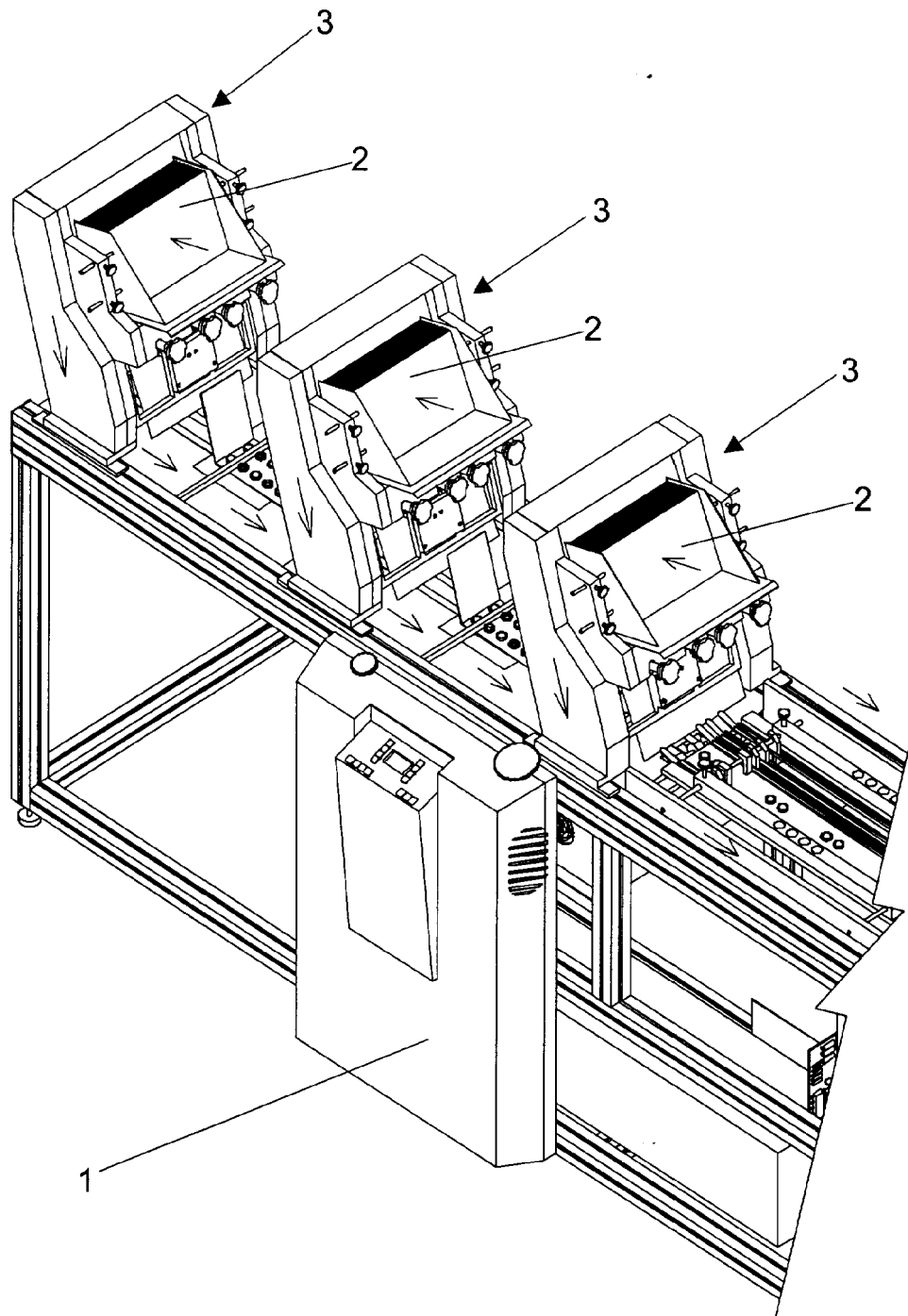


FIG. 7

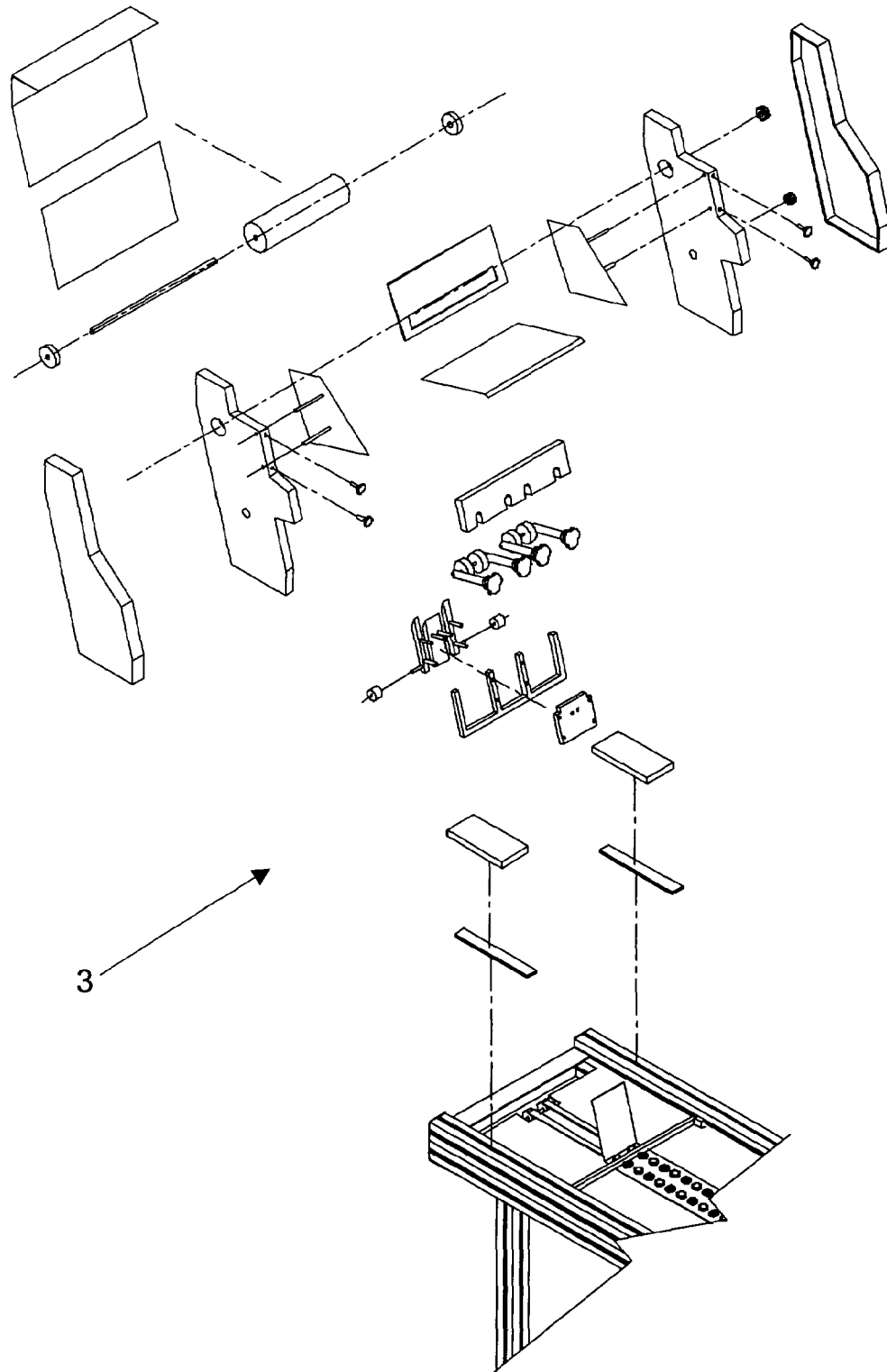


FIG. 8

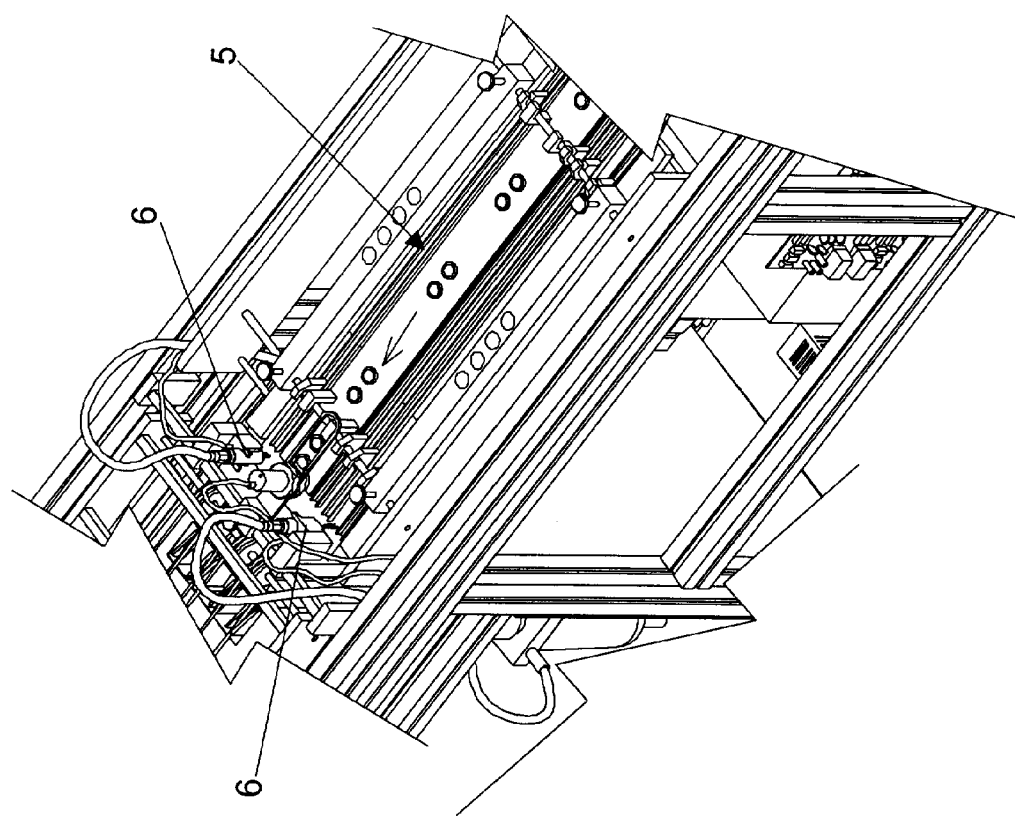


FIG. 9

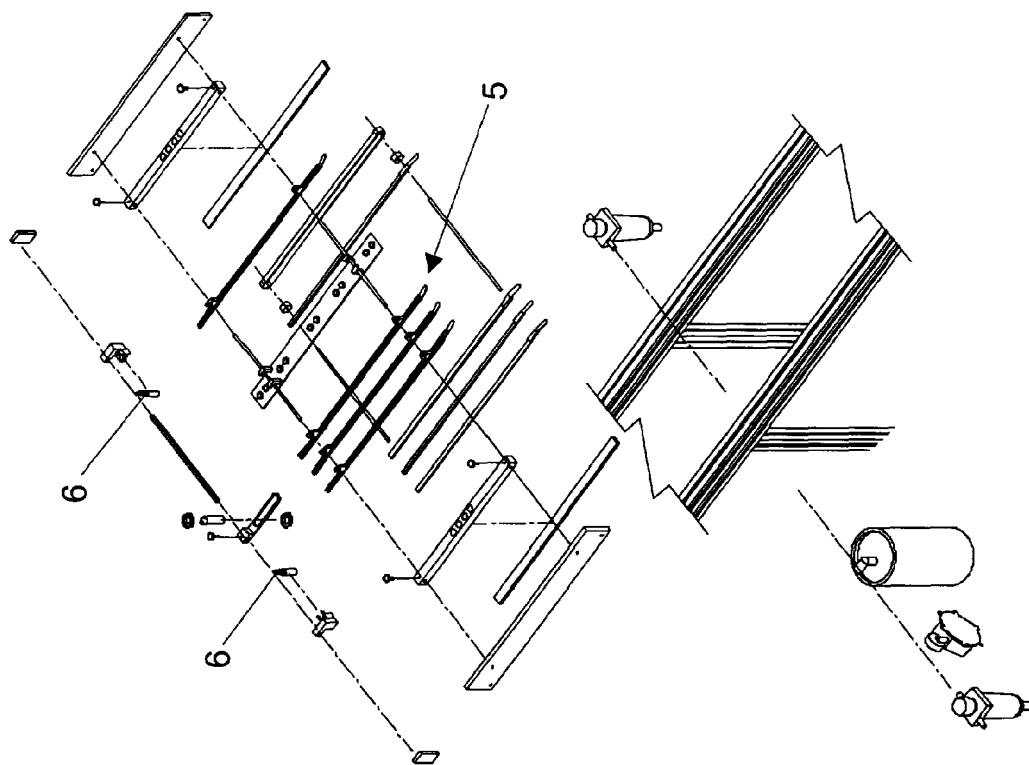


FIG. 10

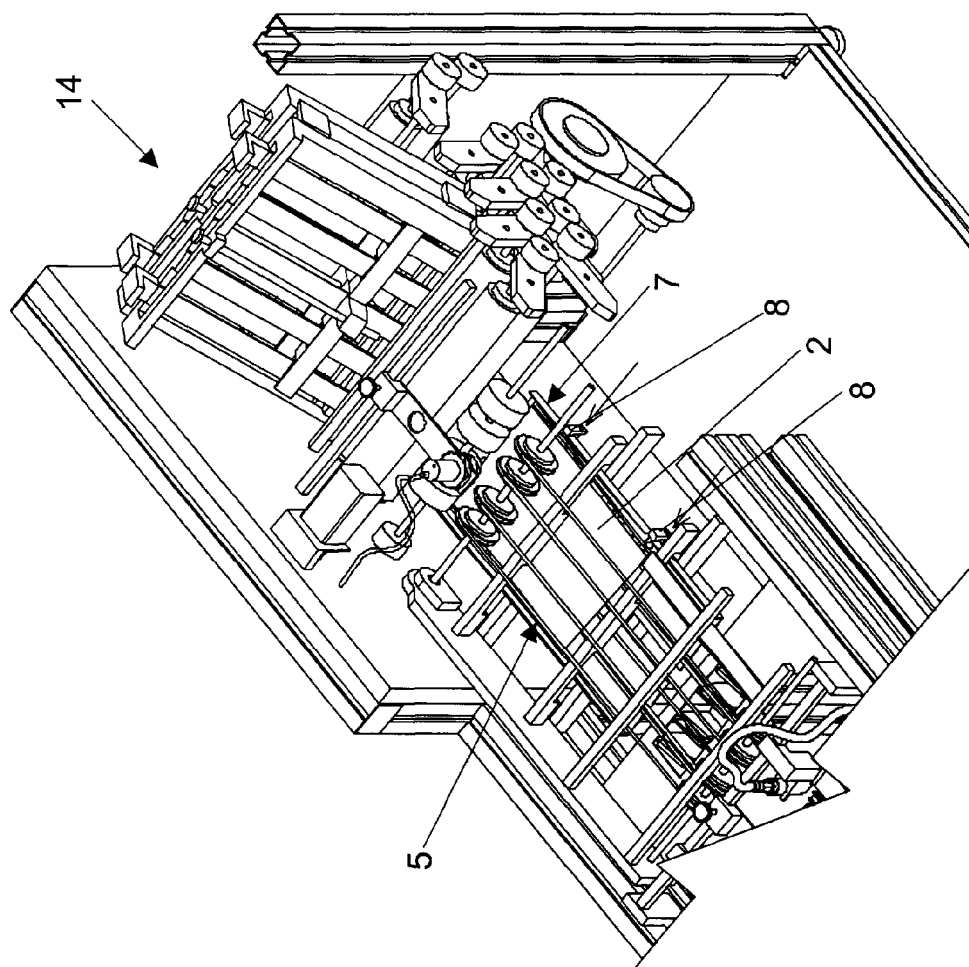


FIG. 11

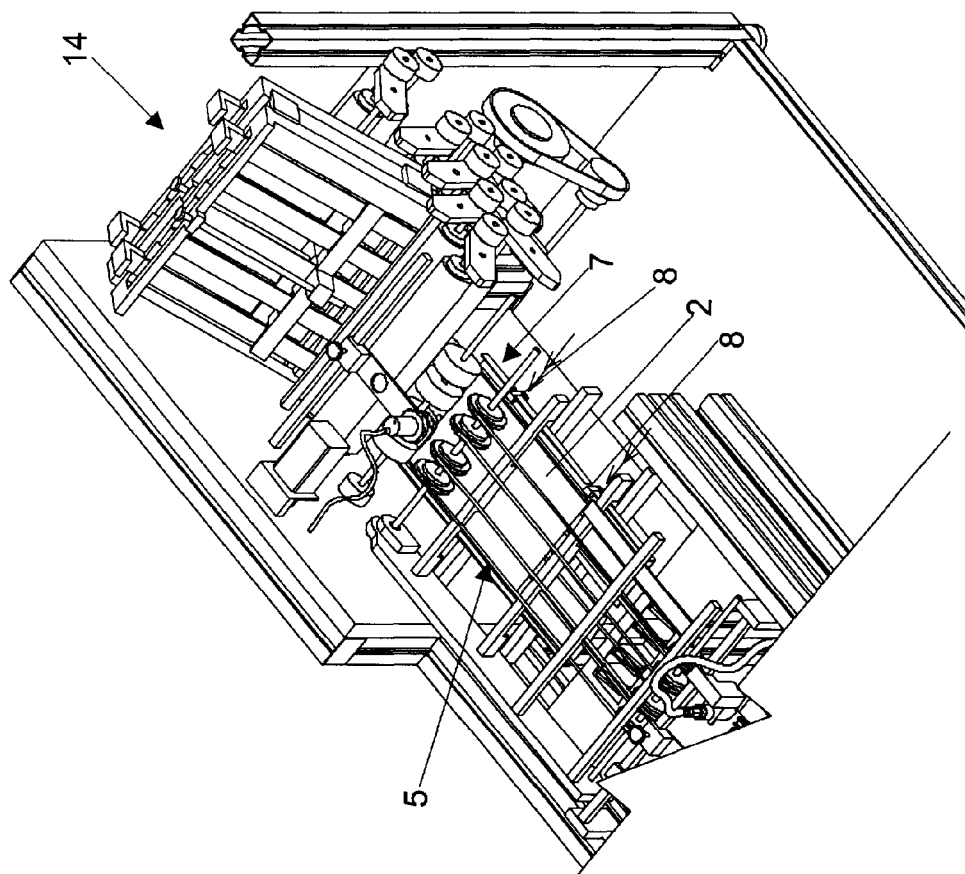


FIG. 12

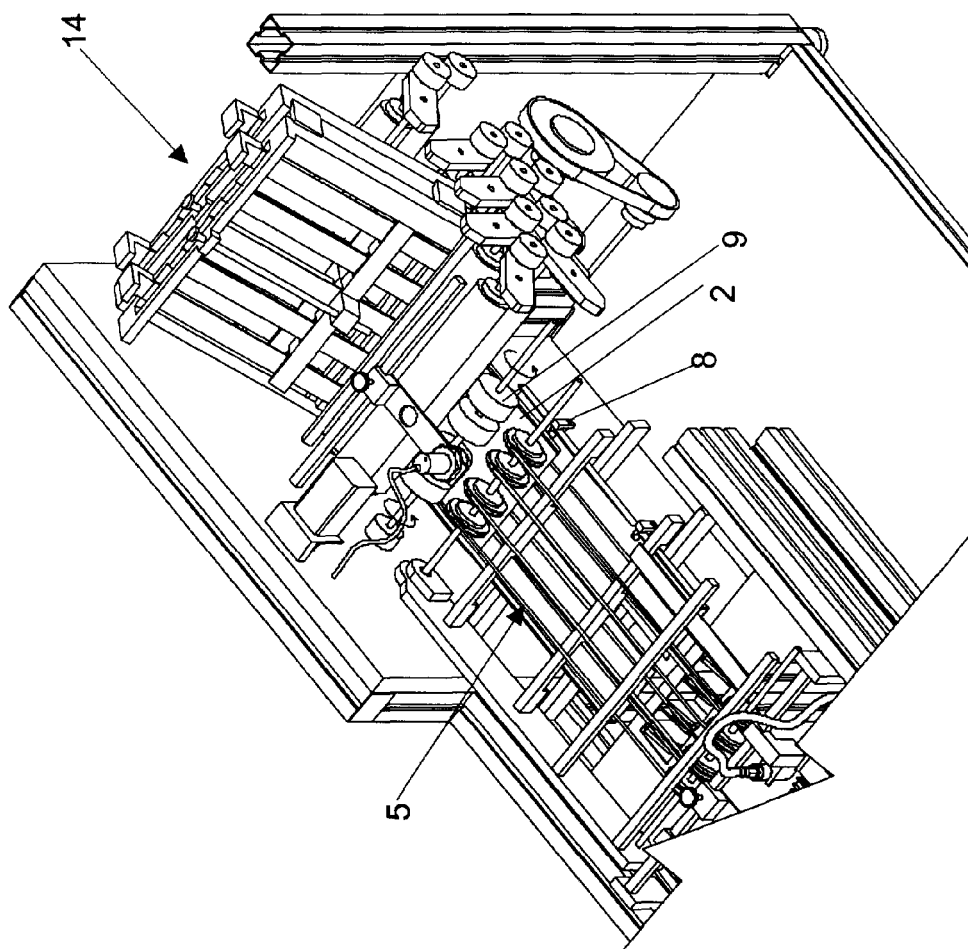
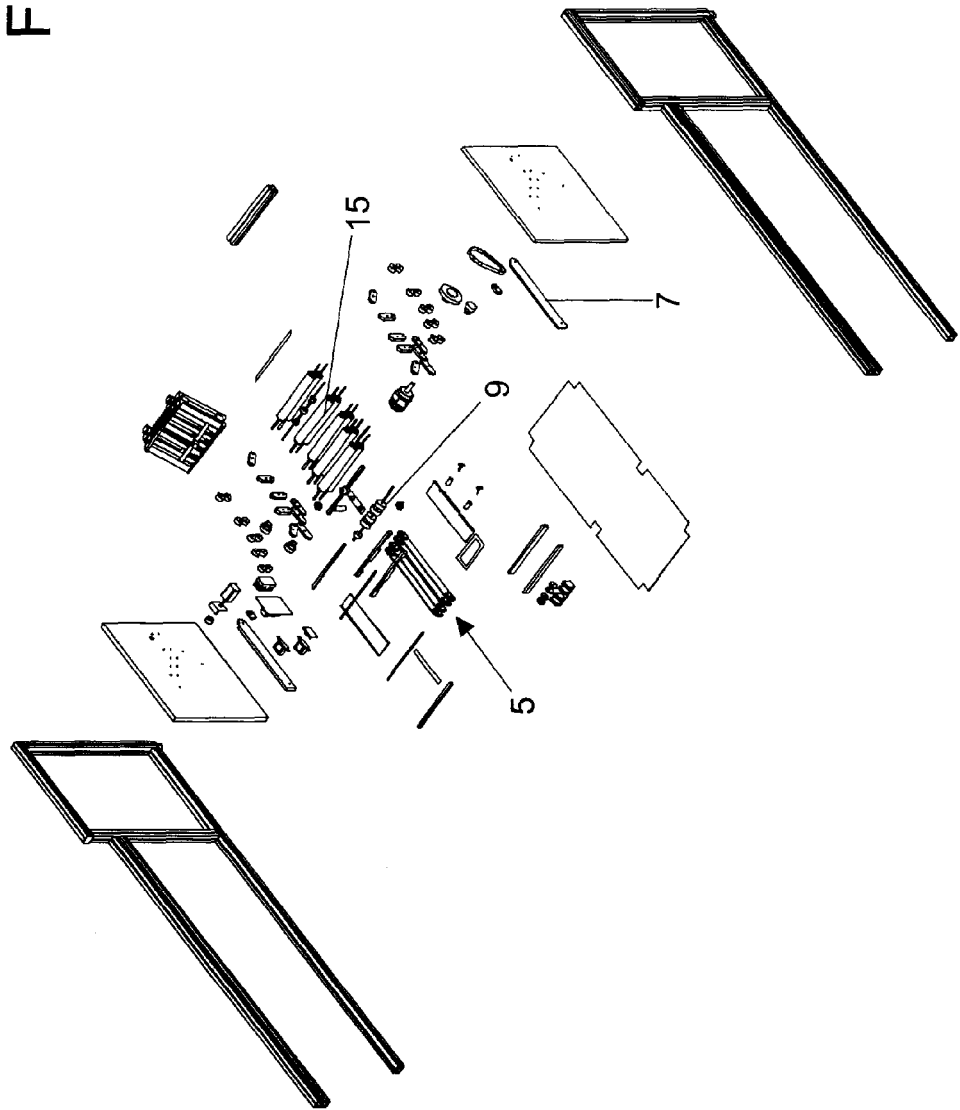


FIG. 13



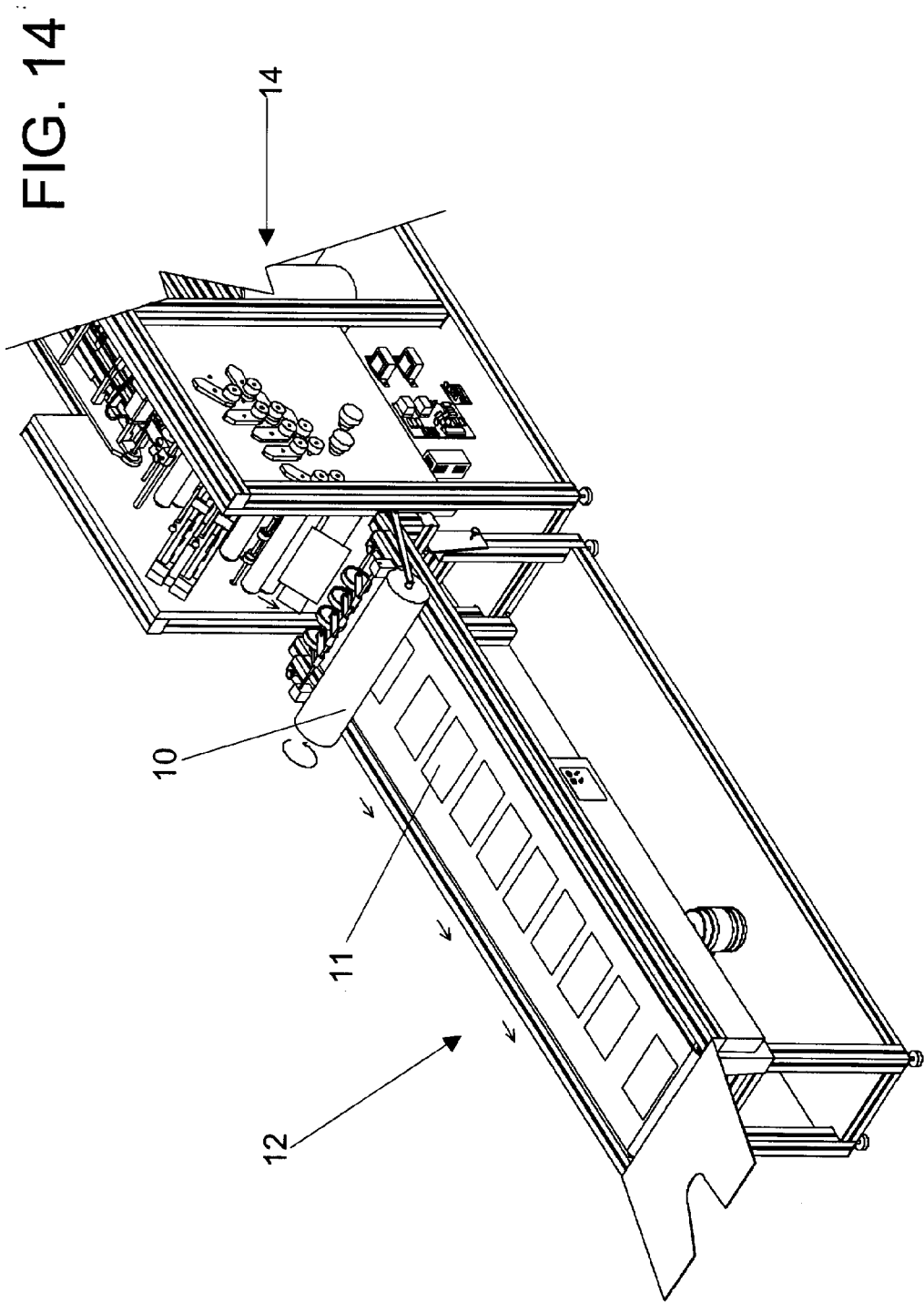


FIG. 15

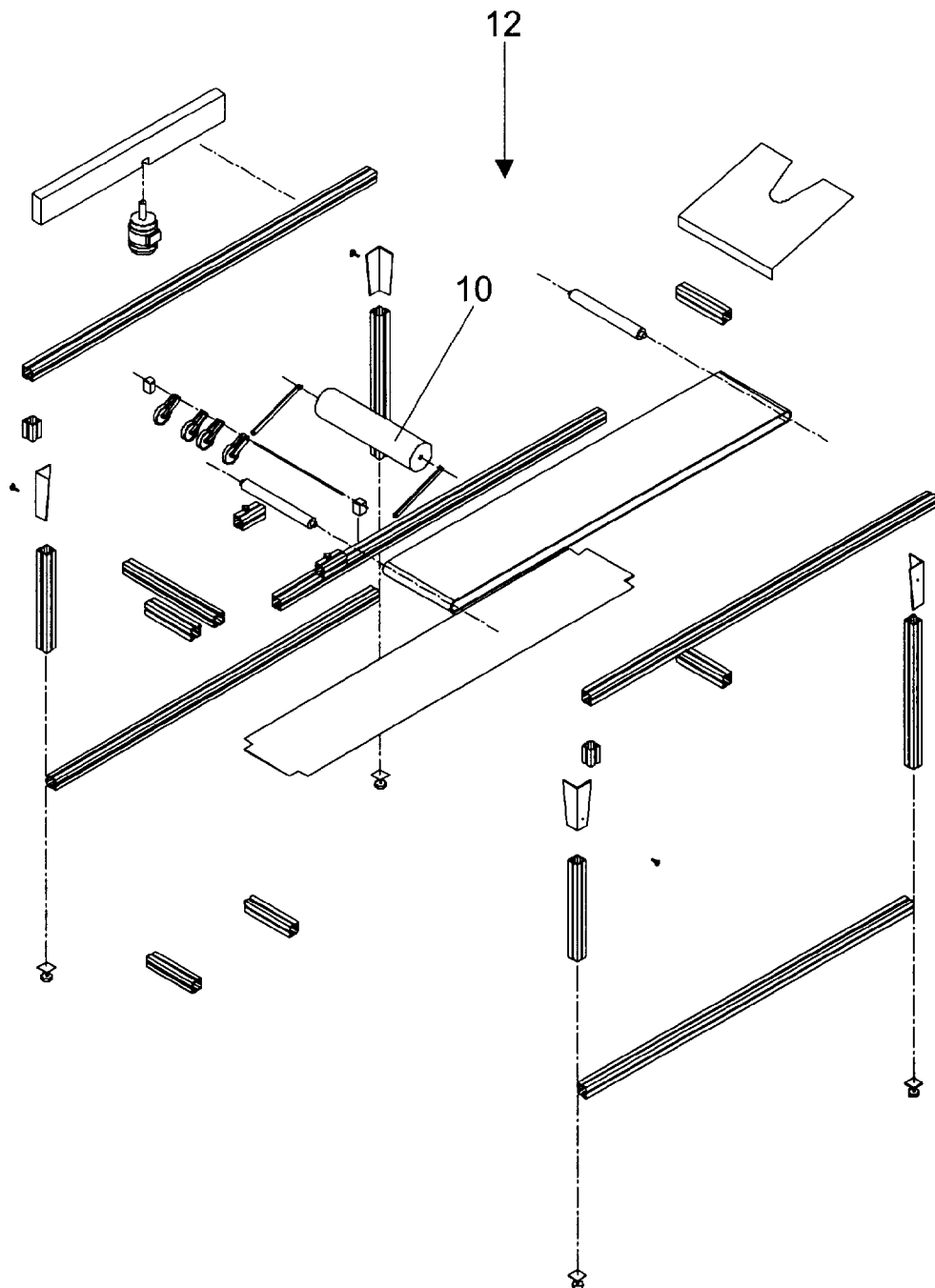


FIG. 16

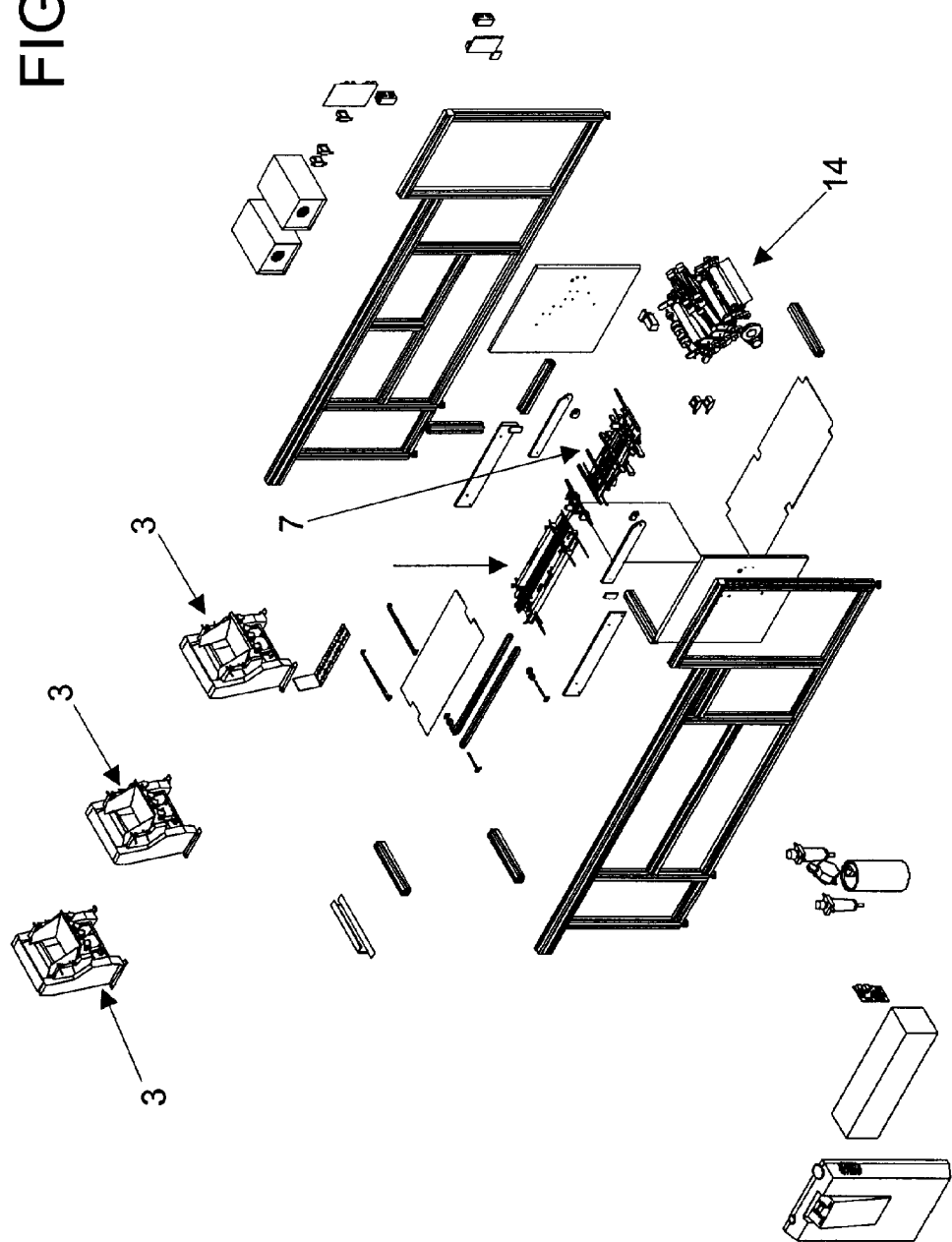


FIG. 17

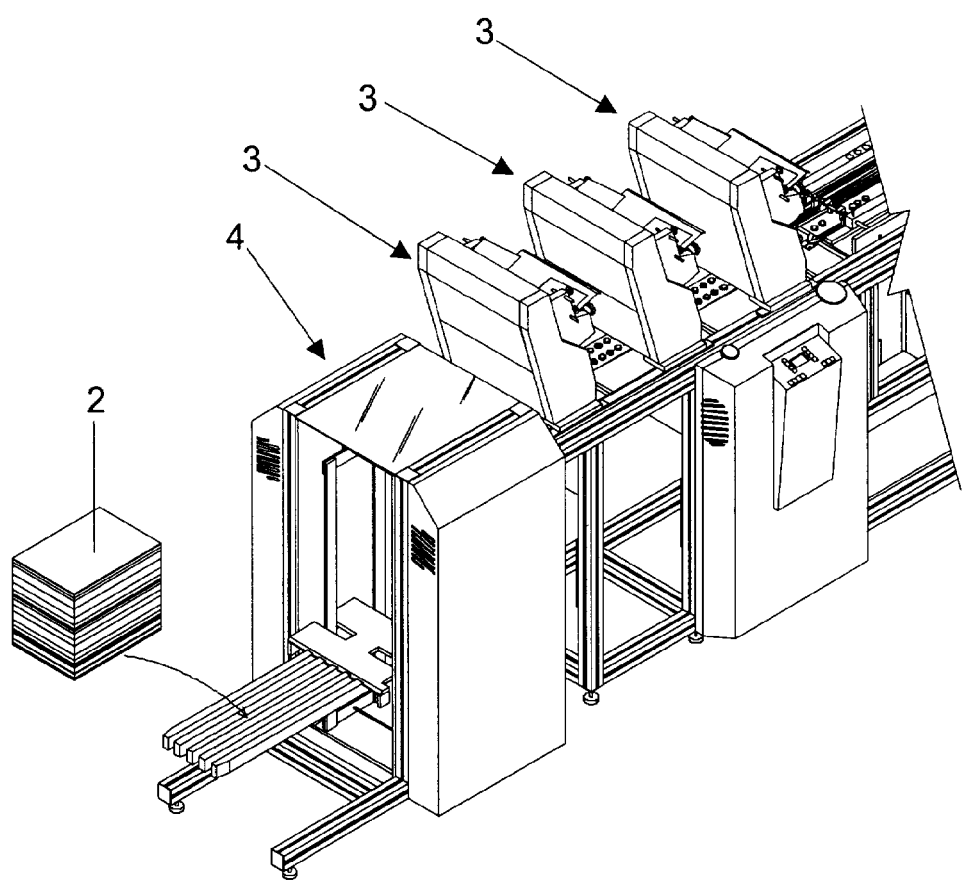


FIG. 18

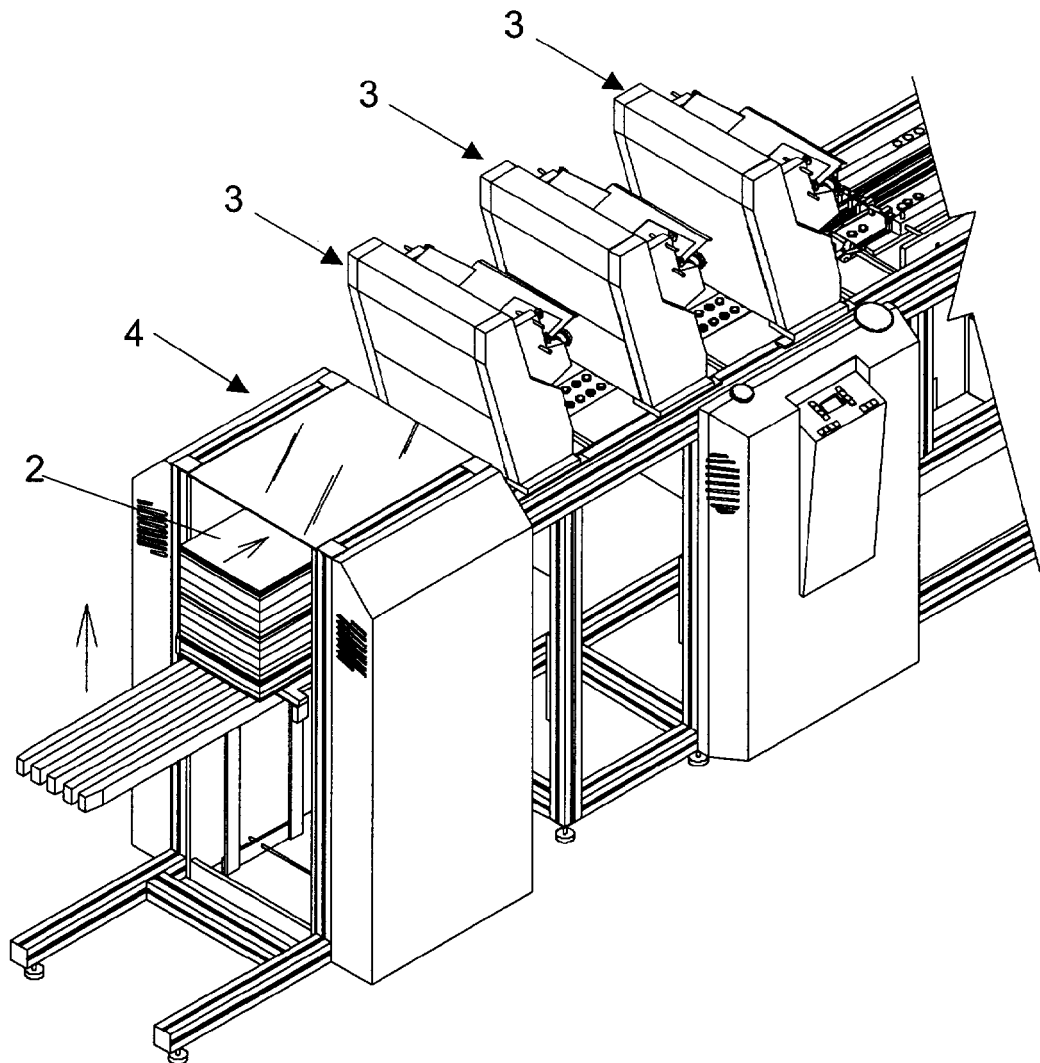


FIG. 19

