(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 540 626 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.01.2013 Bulletin 2013/01

(51) Int Cl.:
B65B 19/22 *(2006.01)* ***B65B 59/04*** *(2006.01)*

(21) Application number: **12169220.6**

(22) Date of filing: **24.05.2012**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **29.06.2011 IT BO20110378**

(71) Applicant: **G.D S.p.A.**
40133 Bologna (IT)

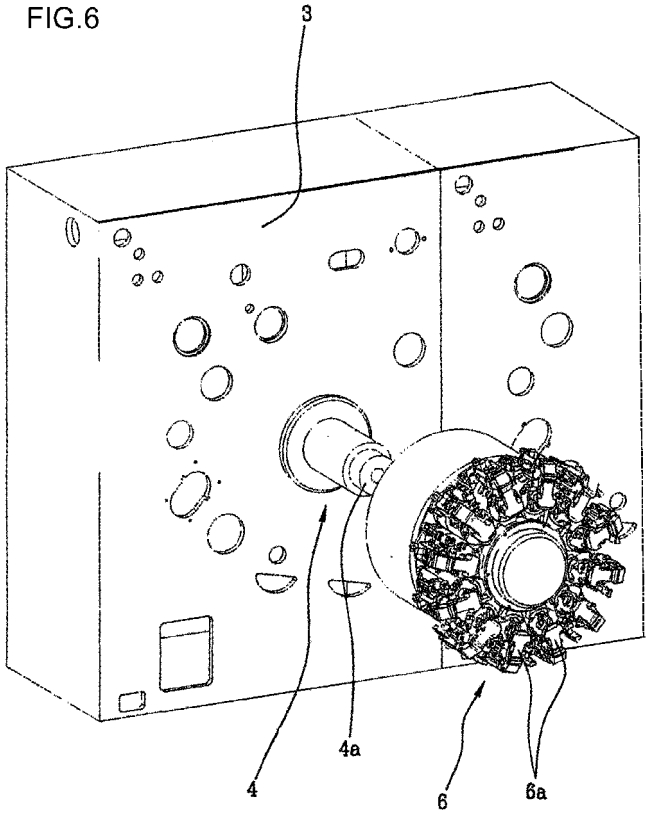
(72) Inventors:
- **Tale', Fabrizio**
  40133 Bologna (IT)
- **Campagnoli, Enrico**
  40019 Sant'Agata Bolognese (Bologna) (IT)

(74) Representative: **Bianciardi, Ezio**
Bugnion S.p.A.
Via di Corticella, 87
40128 Bologna (IT)

(54) **Packer machine for producing packets of cigarettes**

(57) A packer machine of packets of cigarettes comprises a plurality of types of rotary conveyors (5, 6, 7, 14, 15), which can be removably connected to respective movement shafts (4) to allow the substitution of the conveyors themselves with conveyors (6, 7; 14, 15) of a different type and/or the movement of the conveyors (6, 7; 14, 15) to a different position relative to the other conveyors (6, 7; 14, 15) in such a way as to achieve different configurations depending on the type of packet to be packed and the type of wrapping material to be used.

FIG.6



EP 2 540 626 A1

Description

[0001] This invention relates to a packer machine of packets of cigarettes.

[0002] This invention is particularly advantageously applied in a packer machine of packets of cigarettes with continuous operation.

[0003] Cigarette packer machines are machines designed to produce packets which each contain a group consisting of a predetermined number of cigarettes (usually each group is made up of twenty cigarettes).

[0004] The market currently supplies three main types of packets of cigarettes.

[0005] A first type comprises rigid packets, in particular having a hinged lid, in which the group of cigarettes is initially wrapped in an inner wrapping material (usually silver paper) which completely surrounds the cigarettes.

[0006] The packet obtained in that way is then covered with a rigid material, normally made of paper, created from a suitably punched flat blank which is folded to obtain a rigid packet, often comprising a lower container part and an upper lid hinged to the lower part.

[0007] A second type comprises soft packets, in which the group of cigarettes initially wrapped in an inner wrapping material (silver paper) is then also wrapped in a soft wrapping material, usually a sheet of light paper, normally called a label, bearing advertising, brands and other graphics.

[0008] The sheet of paper designed to form the outer cover is suitably shaped to produce an outer wrapper which leaves the top of the silver paper cover exposed (therefore, without an upper closing cover).

[0009] A third type of packet, of the semi-rigid type, is also spreading on the market.

[0010] That type of packet is substantially similar to a soft packet, with a visible top, but the outer cover is produced starting with a blank made of semi-rigid material, for example a paper or plastic material, the outside bearing advertising, brands and other graphics.

[0011] Said semi-rigid material is more deformable than the material used to make the outer wrapper of rigid packets, and at the same time is more rigid than the "soft" material.

[0012] The packer machines currently on the market are designed to interface, at infeed, with a device for feeding a flow of cigarettes which are normally arranged so that they are transversal to the direction of feed, and at outfeed they release the completely formed packets, which if necessary will be subjected to a further wrapping phase with external transparent film.

[0013] Such machines produce a succession of groups of cigarettes (normally groups of twenty) and transport said groups through a first station for application and folding of the inner cover made of silver paper, a second station for application and folding of the outer cover (whether rigid, semi-rigid or soft) and, if necessary, a station for application of excise stamps.

[0014] The stations for application and folding of the covering materials vary depending on the type of packet to be made. Therefore, the structure of the conventional packer machines is preset for producing a specific type of packet and such machines therefore cannot be used to produce packets of a different type to that original provided for.

[0015] As a result, should it become necessary to produce packets of a different type, two or more machines would have to be purchased which were structured in such a way as to make the desired different types of packet.

[0016] The aim of this invention is to provide a packer machine of packets of cigarettes which can be adapted to produce different types of packets.

[0017] The technical need indicated and the aims specified are achieved by a packer machine of packets of cigarettes comprising the features set out in one or more of the appended claims.

[0018] The invention will now be described with reference to the accompanying drawings which illustrate a preferred embodiment of it and in which:

- Figure 1 is a side view of a packer machine of packets of cigarettes according to this invention and in a first operating configuration;
- Figure 2 is a side view of a packing station of the machine of Figure 1;
- Figures 3 and 4 are side views of the packing station of Figure 2 respectively in a second and a third operating configuration; and
- Figures 5 and 6 show a conveyor of the packing station of Figure 2 respectively in a mounted configuration and an unmounted configuration.

[0019] This invention relates to a packer machine of packets of cigarettes able to produce different types of packets, and in particular packets which are of the soft, rigid and semi-rigid types.

[0020] In fact, the configuration of the packer machine can, if necessary, be changed in a way suitable for making the packet of the desired type.

[0021] This description refers, by way of example only, to a packer machine initially configured for the production of packets of the rigid type and then set up to adopt a configuration suitable for producing packets of the soft or semi-rigid type. With reference to Figure 1 the numeral 1 denotes in its entirety a packer machine of packets of cigarettes made according to this invention.

[0022] The machine 1 comprises (from right to left) a station 100 for feeding wrapping materials, a station 200 for feeding cigarettes and a packing station 2.

[0023] The station 100 for feeding wrapping materials, of the substantially known type, comprises one or more magazines of wrapping materials which, in the embodiment illustrated, comprise a reel 110 of an inner wrapping material, a magazine 120 of coupons and a reel 130 of rigid paper material designed to form, following successive cutting and folding operations, collars of the type

used in rigid packets.

[0024] Preferably, the reel 110 is a reel of silver paper. With reference to the station 200 for feeding cigarettes, this comprises a hopper 210 (of the known type) the top of which is designed to receive a mass of cigarettes positioned horizontally and to release the cigarettes in ordered groups on a bucket conveyor 220 below the hopper 210.

[0025] The cigarettes are released from the hopper 210 to the bucket conveyor 220 according to known methods which are not described in detail herein.

[0026] The following is a detailed description of the packing station 2, which is the part of the packer machine 1 to which this invention relates.

[0027] The packer station 2 shown in Figure 1 is set up to perform the following steps:

- wrapping each group of cigarettes in an inner wrapping material (silver paper);
- applying a collar on the above-mentioned wrapper applied to the group of cigarettes;
- producing the rigid outer wrapper by folding a flat blank made of rigid material;
- any further steps such as, for example, applying a coupon or excise stamp, etc.

[0028] To perform said steps, the packing station 2 comprises a supporting wall 3, preferably vertical, with a plurality of movement shafts 4 (Figure 6), preferably horizontal, and a plurality of types of conveyors 5, 6, 7, each of which can be connected to a respective movement shaft 4.

[0029] The movement shafts 4 are preferably all kinematically connected to each other to guarantee that the conveyors 5, 6, 7 operate in a synchronised fashion. To do that, the packer machine 1 may be equipped with a reticular system of connecting rods and cranks which connects the movement shafts 4 to each other and connects them to a single shared motor (not illustrated).

[0030] Said system is described in Italian patent application B097A000371.

[0031] Moreover, in the embodiment illustrated in the accompanying drawings, each conveyor 5, 6, 7 comprises a rotary support, able to rotate coaxially with the respective movement shaft 4, equipped on its periphery with a plurality of equipment units 5a, 6a, 7a. The equipment units 5a, 6a, 7a of each conveyor 5, 6, 7 are designed to make contact with a type of wrapping material partly or completely surrounding the groups "G" of cigarettes and they are also designed to operate in conjunction with the equipment units 5a, 6a, 7a of at least one adjacent conveyor 5, 6, 7.

[0032] In particular, the equipment units 5a, 6a, 7a comprise pockets for conveying the groups "G" of cigarettes or the packets, and/or heads for conveying the wrapping material and/or folders for folding the wrapping material.

[0033] In more detail, the first conveyor 5 is positioned immediately downstream of the bucket conveyor 220 for receiving from the latter a succession of groups "G" of cigarettes which are fed in a direction of feed "A".

[0034] At an interconnecting zone between the first conveyor 5 and the bucket conveyor 220 there is also a device 8 for releasing the inner wrapping material (silver paper) arriving from the above-mentioned reel 110.

[0035] The peripheral equipment units 5a of the first conveyor 5 therefore receive pieces of silver paper and a succession of groups "G" of cigarettes and, with the aid of folders of the known type (for example applied to the supporting wall 3) completely wrap the group "G" of cigarettes in the piece of silver paper.

[0036] The first conveyor 5 is also interconnected with a device 9 for releasing collars, the device being connected to the reel 130 of rigid paper material and designed to cut and/or punch the paper material to produce a succession of collars, releasing them to the first conveyor 5. The collars are then associated with respective pieces of silver paper wrapped around the groups "G" of cigarettes. Interposed between the device 9 for releasing collars and the respective reel 130 there is a compensating device 10, for example pneumatic, designed to absorb any irregularities in the feed of the paper material, evening out the release of the collars to the first conveyor 5.

[0037] Located immediately downstream of the first conveyor 5 is the second conveyor 6, which receives the groups "G" of cigarettes previously wrapped in the silver paper and also receives blanks "S" made of rigid material picked up from a magazine 11 by a suitable device 12 for releasing the blanks "S", interposed between the magazine 11 of blanks "S" and the second conveyor 6 for picking up a blank "S" from the magazine 11 and releasing it to the first conveyor 5.

[0038] The magazine 11 is designed to contain the blanks "S" which are arranged to lie vertically and stacked horizontally. Moreover, the device 12 for releasing blanks "S" comprises a support rotating about a horizontal axis and equipped with pickup equipment units on its periphery.

[0039] With the aid of suitable folder means of the known type (including, for example, curved deflectors and/or mobile grippers), while the group "G" of cigarettes is on the second conveyor 6 at least a part of the blank "S" is folded.

[0040] Downstream of the second conveyor 6 there is the third conveyor 7, which receives the semi-finished packet from the second conveyor 6 and completes the folding of the remaining parts of the blank "S", completing production of the rigid packet "P".

[0041] As was the case for the second conveyor 6, the third conveyor 7 is also associated with suitable folder means of the known type (comprising, for example, curved deflectors and/or mobile grippers) designed to fold predetermined portions of the packet "P".

[0042] Located downstream of the third conveyor 7 there is a transfer device 13 designed to receive the fin-

ished packets from the packing station and to send them to a storage magazine or to a further station for application of an external transparent film.

[0043] At least one of the conveyors 5, 6, 7 can be substituted with conveyors of a different type and/or can be moved to a different position relative to the other conveyors 5, 6, 7 and can be mounted on different movements shafts 4 provided on the supporting wall 3. That allows a redistribution and/or a substitution of the conveyors 5, 6, 7 with a change in the type of packet to be packed and in the type of wrapping material to be used.

[0044] To do that, the movement shafts 4 are made in such a way as to allow interchangeability of the conveyors 6, 7.

[0045] In the embodiment illustrated, at least the second and third conveyors 6, 7 are interchangeable, the first conveyor 5 remaining the same for the different types of packets to be produced. However, the interchangeability could be extended to all of the conveyors 5, 6, 7 described above.

[0046] The above-mentioned interchangeability may be achieved by ensuring that the movement shafts 4 comprise respective connecting portions 4a, designed for mounting the conveyors 6, 7, which are identical to each other for promoting an assortment of possible mounting combinations for the conveyors 6, 7 on the movement shafts 4.

[0047] Each conveyor 5, 6, 7 comprises a cavity (not visible in the accompanying drawings) designed to arbitrarily receive one of the movement shafts 4. The shaft - cavity coupling may be made by means of a key connection to promote the transmission of torque.

[0048] Each conveyor 5, 6, 7 comprises inside it transmission means connected to the equipment units 5a, 6a, 7a of the conveyor 5, 6, 7 for moving the equipment units 5a, 6a, 7a following operation of the movement shaft 4.

[0049] Said movement means may comprise, for example, cam and cam follower systems, operating in the known way and which therefore are not described in detail. The inclusion of the movement means in the conveyors 5, 6, 7 considerably facilitates operations for substituting or redistributing the conveyors 5, 6, 7, which can be removed by sliding them off the related movement shafts 4 so that they can be mounted on different movement shafts 4.

[0050] To change the type of packets produced, the packer machine 1 also comprises a fourth and a firth conveyor 14, 15, interchangeable with the third and fourth conveyors 6, 7, for varying the type of packet made between a rigid packet and a semi-rigid or a soft packet, and vice versa.

[0051] In more detail, the fourth conveyor 14 is set up for folding, around a group "G" of cigarettes previously wrapped in silver paper, a wrapping material designed to produce a packet of the soft or semi-rigid type without an upper lid.

[0052] In contrast, the fifth conveyor 15 is set up for transferring a semi-finished packet (that is to say, for example, a group "G" of cigarettes" simply wrapped in silver paper) between a conveyor positioned upstream and a conveyor positioned downstream.

[0053] Each conveyor 14, 15 comprises a rotary support able to rotate coaxially with the respective movement shaft 4 and equipped on its periphery with a plurality of equipment units 14a, 15a. The equipment units 14a, 15a of each conveyor 14, 15, are designed to make contact with a type of wrapping material partly or completely surrounding the groups "G" of cigarettes and they are also designed to operate in conjunction with the equipment units 5a, 6a, 7a, 14a, 15a of at least one adjacent conveyor 5, 6, 7, 14, 15.

[0054] The embodiment illustrated in Figure 3 describes the configuration which the packer machine 1 must be made to adopt for producing packets of cigarettes of the semi-rigid type.

[0055] In that configuration, the second conveyor 6, set up for folding a part of the blank "S" made of rigid material, is substituted with the fourth conveyor 14, set up for completely folding a blank "S" made of semi-rigid material, while the third conveyor 7, set up for completing folding of the blank "S" made of rigid material, is substituted with the fifth conveyor 15, set up for transferring the semi-rigid packet arriving from the fourth conveyor 14 towards the transfer device 13.

[0056] Folding of the blank "S" made of semi-rigid material is carried out only using the fourth conveyor 14.

[0057] Moreover, since the semi-rigid type of packets do not need collars, the above-mentioned device 9 for releasing collars can be removed. To allow that, the device 9 for releasing collars is applied in a removable fashion to the supporting wall 3, so that it can be fitted or removed with a change in the type of production required. In particular, it can be applied to the supporting wall 3 in the configuration for production of packets made of rigid material, and removed during other different types of production.

[0058] Moreover, in the embodiment in Figure 3 the compensating device 10 has been removed.

[0059] During the production of packets made of semi-rigid material (Figure 3), the blanks "S" made of semi-rigid material can be feed by means of the device 12 for releasing blanks described above, which picks up from the magazine 11. Alternatively, the blanks "S" made of semi-rigid material could be fed from a reel, as is usually the case when producing packets of cigarettes of the soft type.

[0060] The embodiment illustrated in Figure 4 describes the configuration which the packer machine 1 must be made to adopt for producing packets of cigarettes of the soft type.

[0061] In that configuration, the second conveyor 6 of Figure 2, set up for folding a part of the blank "S" made of rigid material, is substituted with the fifth conveyor 15, set up for transferring the semi-finished packet (group "G" of cigarettes simply wrapped in the silver paper) towards the fourth conveyor 14, located downstream of the

fifth conveyor 15, which in contrast is set up for completely folding a piece of soft wrapping material.

[0062] In other words, the configurations of Figure 3 and Figure 4 differ at least in that the position of the fourth and fifth conveyors 14, 15 is inverted.

[0063] Moreover, in the embodiment in Figure 4, a device 16 for releasing pieces of soft wrapping material is used, the device being interconnected with a respective reel (not illustrated) for feeding a continuous web of soft wrapping material and being associable with the fourth conveyor 14 for releasing a piece of soft wrapping material onto the fourth conveyor.

[0064] Advantageously, the device 16 for releasing pieces of material being removably applicable to the supporting wall 3 for allowing changes in the type of packet made between a rigid packet and a semi-rigid or a soft packet, and vice versa.

[0065] Moreover, this configuration requires the use of a further compensating device 10' (different to the previous one), acting on the continuous web fed to the device 16 for releasing pieces, so as to even out the feed speed and therefore to even out the rate at which the pieces are released to the fourth conveyor 14.

[0066] Moreover, in the view in Figure 4 the device 12 for releasing blanks "S" made of rigid or semi-rigid material has been removed, since it was not compatible with the production of packets made of soft material.

[0067] Figures 5 and 6 show a detail of the supporting wall 3, having a plurality of openings located in predetermined positions for allowing the mounting, when required, of one or more of the devices described above (devices for releasing blanks or pieces of wrapping material or collars and/or folder devices associated with the conveyors, etc.).

[0068] This invention achieves the preset aim by overcoming the above-mentioned disadvantages of the prior art.

[0069] Thanks to the possibility of removing the conveyors (and the connected devices for releasing blanks, collars and pieces), in fact, the packer machine according to this invention can be quickly and simply subjected to a configuration change so as to change the type of production.

[0070] That configuration change involves the substitution of one or more conveyors with others of a different type or may require that the position of two conveyors be inverted.

[0071] The configuration change described above keeps the other parts of the machine unchanged and, therefore, the number of parts needed for the configuration change is very small, basically limited to the substitute conveyors and to the feed devices associated with them.

Claims

1. A packer machine of packets of cigarettes, each type of packet comprising a group (G) of cigarettes wrapped in wrapping material; with a change in the type of production required, the packets changing in type between a packet of the rigid type, of the semi-rigid type or of the soft type; and with a change in the type of packet, the wrapping material changing between a plurality of types of materials available; the machine (1) comprising a supporting wall (3) for a plurality of movement shafts (4) and a plurality of types of conveyors (5, 6, 7, 14, 15) each of which can be connected to a respective movement shaft (4), the types of conveyors (5, 6, 7, 14, 15) being selected and being positioned on the supporting wall (3) according to a pre-ordered reciprocal arrangement depending on the type of packet to be packed and the type of wrapping material to be used; each conveyor (5, 6, 7) being equipped with respective equipment units (5a, 6a, 7a, 14a, 15a) designed to be positioned in contact with a type of wrapping material partly or completely surrounding the groups (G) of cigarettes and designed to operate in conjunction with the equipment units (5a, 6a, 7a) of at least one adjacent conveyor (5, 6, 7, 14, 15); the equipment units (5a, 6a, 7a, 14a, 15a) comprising pockets for conveying the groups or packets, and/or heads for conveying the wrapping material and/or folders for folding the wrapping material, **characterised in that** when the type of packet to be packed and the type of wrapping material to be used change, at least one of the conveyors (6, 7; 14, 15) can be substituted with a conveyor (6, 7; 14, 15) of a different type and can be moved to a different position relative to the other conveyors (6, 7; 14, 15) and can be mounted on a different movement shaft (4) provided on the supporting wall (3).

2. The machine according to claim 1, **characterised in that** the movement shafts (4) comprise respective connecting portions (4a), designed for mounting the conveyors (5, 6, 7) on the supporting wall (3), which are identical to each other for producing an assortment of possible mounting combinations for the conveyors (5, 6, 7, 14, 15) on the movement shafts (4).

3. The machine according to claim 1 or 2, **characterised in that** each conveyor (5, 6, 7, 14, 15) comprises a cavity designed to receive one of the movement shafts (4) and inside comprises transmission means connected to the equipment units (5a, 6a, 7a, 14a, 15a) of the conveyor (5, 6, 7, 14, 15) for moving the equipment units (5a, 6a, 7a, 14a, 15a) following operation of the movement shaft (4).

4. The machine according to any of the claims from 1 to 3, **characterised in that** the conveyors (5, 6, 7, 14, 15) comprise:

- a first conveyor (5), for completely folding,

around a group (G) of cigarettes, an inner sheet of wrapping material which is directly in contact with the cigarettes;
- a second conveyor (6) and a third conveyor (7), which are designed to be positioned one after another in a direction of feed (A.) of groups (G) of cigarettes in the packer machine (1) and are designed to completely fold, around a group (G) of cigarettes, a blank (S) intended for obtaining a packet of the rigid type;
- a fourth conveyor (14), designed for folding, around a group (G) of cigarettes, a wrapping material intended for obtaining a packet of the soft or semi-rigid type without an upper lid; and
- a fifth conveyor (15), designed for transferring a finished packet or a semi-finished packet between a conveyor (6, 14) positioned upstream and a conveyor (14) positioned downstream;
the second and third conveyors (6, 7) being interchangeable with the fourth and fifth conveyors (14, 15) for varying the type of packet made between a rigid packet and a semi-rigid or a soft packet, and vice versa.

5. The machine according to claim 4, **characterised in that** it also comprises a device (12) for releasing blanks (S) made of rigid material or blanks made of semi-rigid material, the device (12) for releasing blanks (S) being interconnected with a magazine (11) for blanks (S) and being associable with the second or the fourth conveyor (6, 14) for releasing a blank (S) on the second or on the fourth conveyor (6, 14); the releasing device (12) being removably applicable to the supporting wall (3) for allowing changes in the type of packet made between a rigid packet and a semi-rigid or a soft packet, and vice versa.

6. The machine according to claim 4 or 5, **characterised in that** it comprises a device (16) for releasing pieces of soft wrapping material, the device (16) for releasing pieces of material being interconnected with a reel for feeding a continuous web of soft wrapping material and being associable with the fourth conveyor (14) for releasing a piece of soft wrapping material onto the fourth conveyor (14); the device (16) for releasing pieces of material being removably applied to the supporting wall (3) for allowing changes in the type of packet made between a rigid packet and a semi-rigid or a soft packet, and vice versa.

7. The machine according to claim 4 or 5, also comprising a device (9) for releasing a collar made of rigid material operating in conjunction with the first conveyor (5); the device (9) for releasing the collar being removably applied to the supporting wall (3) for allowing changes in the type of packet made, between a rigid packet and a semi-rigid or a soft packet, and vice versa.

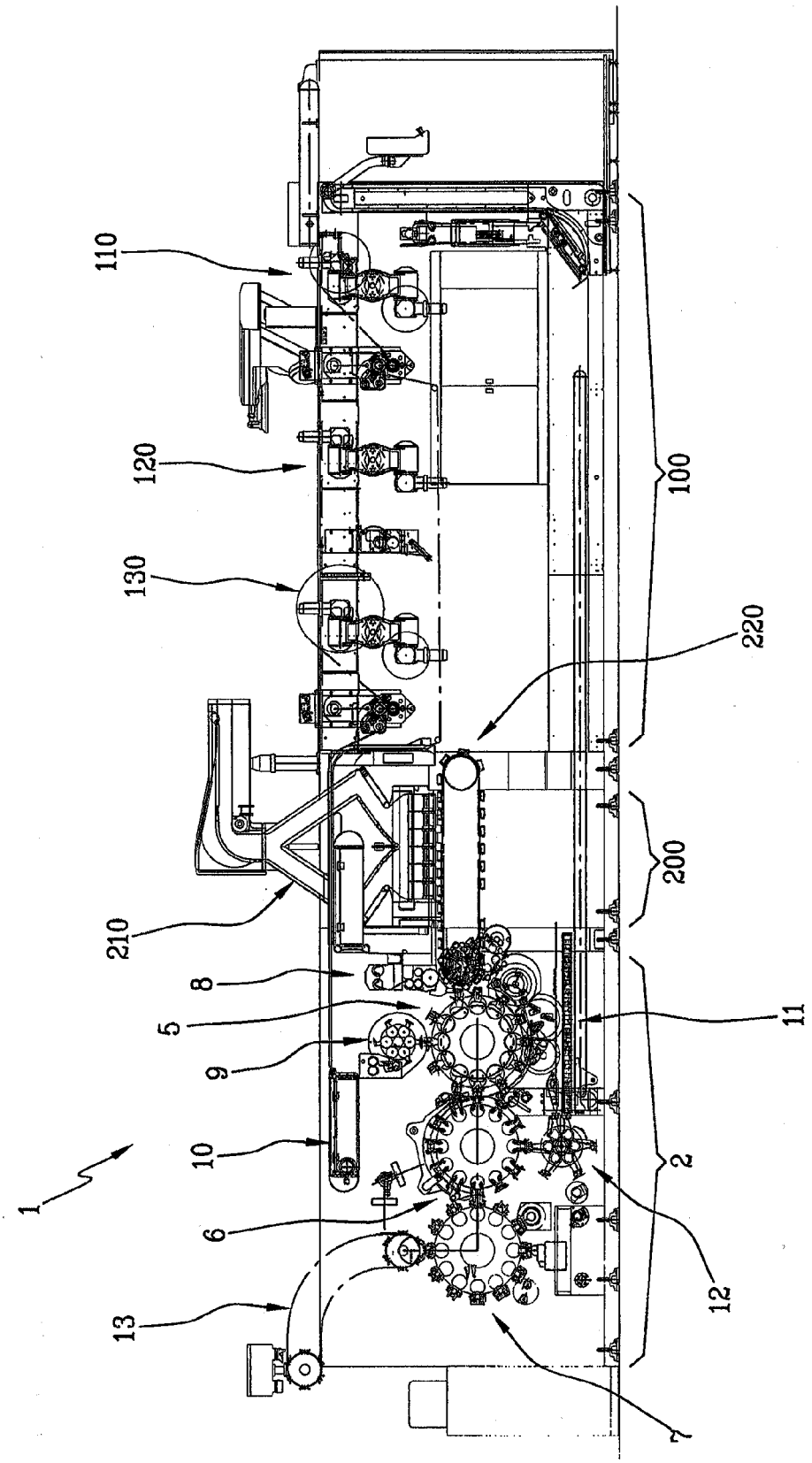
8. The machine according to any of the claims from 1 to 7, **characterised in that** each conveyor (5, 6, 7, 14, 15) comprises a rotary support equipped on its periphery with a plurality of equipment units (5a, 6a, 7a, 14a, 15a).

9. A method for changing the type of packet which can be made with a packer machine of packets of cigarettes, each type of packet comprising a group (G) of cigarettes wrapped in wrapping material; with a change in the type of production required, the packets changing in type between a packet of the rigid type, of the semi-rigid type or of the soft type; and with a change in the type of packet, the wrapping material changing between a plurality of types of materials available; the machine (1) comprising a supporting wall (3) for a plurality of movement shafts (4) and a plurality of types of conveyors (5, 6, 7, 14, 15) each of which can be connected to a respective movement shaft (4), the types of conveyors (5, 6, 7, 14, 15) being selected and being positioned one after another on the supporting wall (3) according to a preordered reciprocal arrangement depending on the type of packet to be packed and the type of wrapping material to be used; with a change in the type of packet to be packed and the type of wrapping material to be used, the method comprising a step of substituting at least one conveyor (5, 6, 7, 14, 15) with a conveyor (5, 6, 7, 14, 15) of a different type, the step of moving said at least one conveyor (5, 6, 7, 14, 15) into a different position relative to the other conveyors (5, 6, 7, 14, 15) and the step of mounting said at least one conveyor (5, 6, 7, 14, 15) on a different movement shaft (4) provided on the supporting wall (3).

10. The method according to claim 9, wherein the substitution step is performed by substituting at least one conveyor (5, 6, 7, 14) for performing at least one folding step with a conveyor (15) designed only for conveying finished or semi-finished packets of cigarettes.

11. The method according to claim 9 or 10, wherein the substitution step is performed by also substituting at least one conveyor (5, 6, 7, 14, 15) for performing at least one folding step with a conveyor (5, 6, 7, 14, 15) designed to perform at least one folding step and having a different structure and/or geometry.

FIG.1



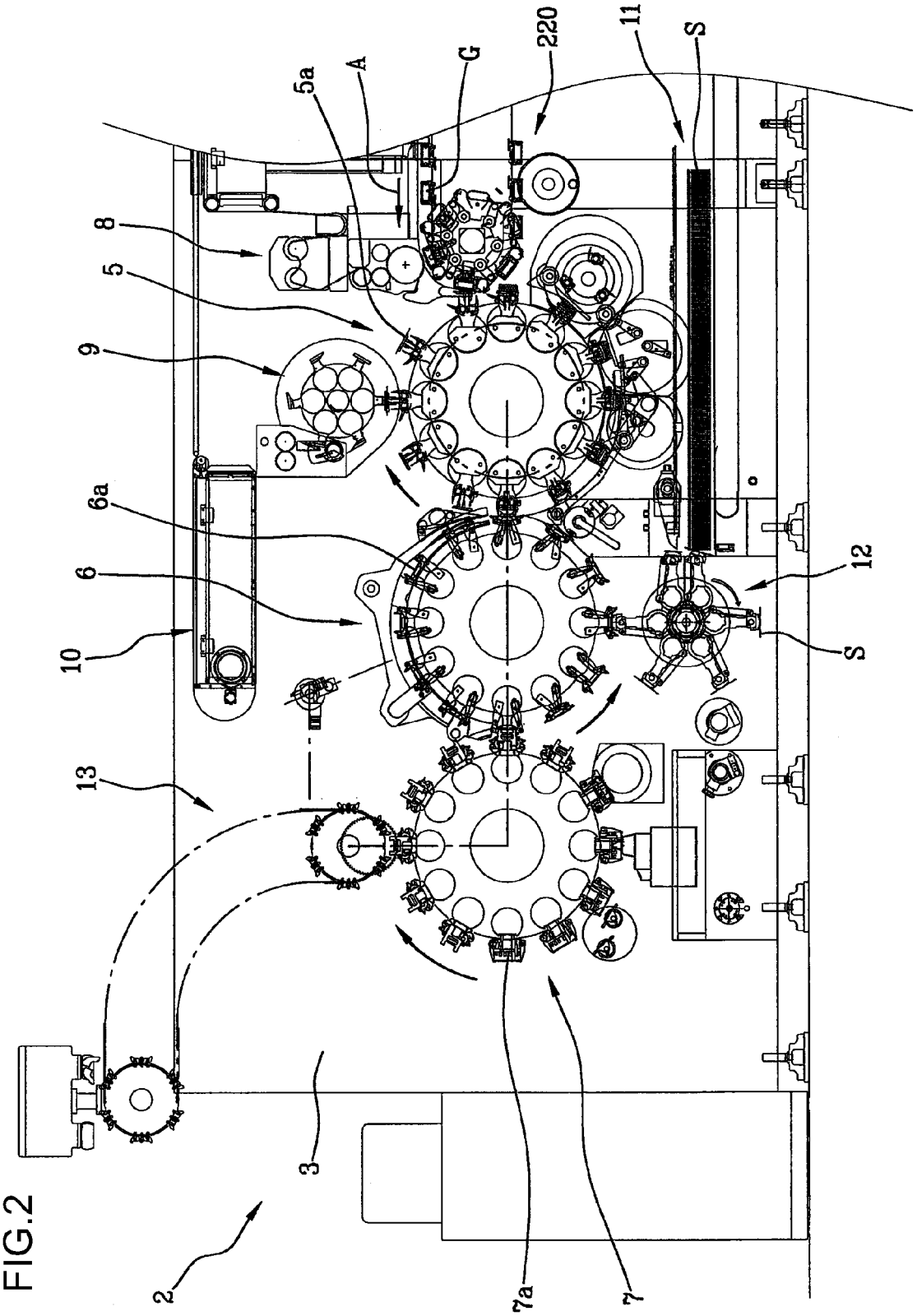


FIG.2

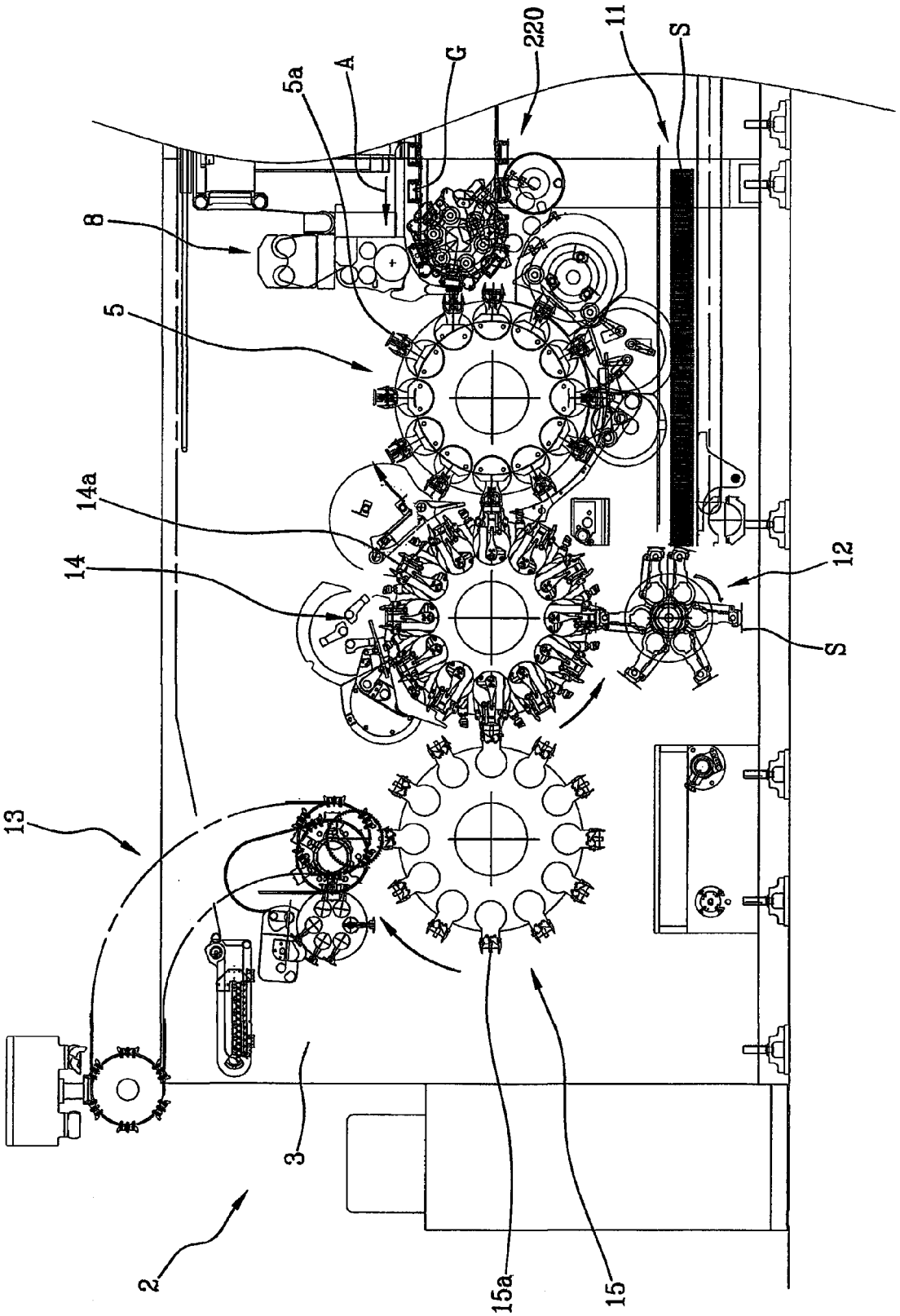


FIG.3

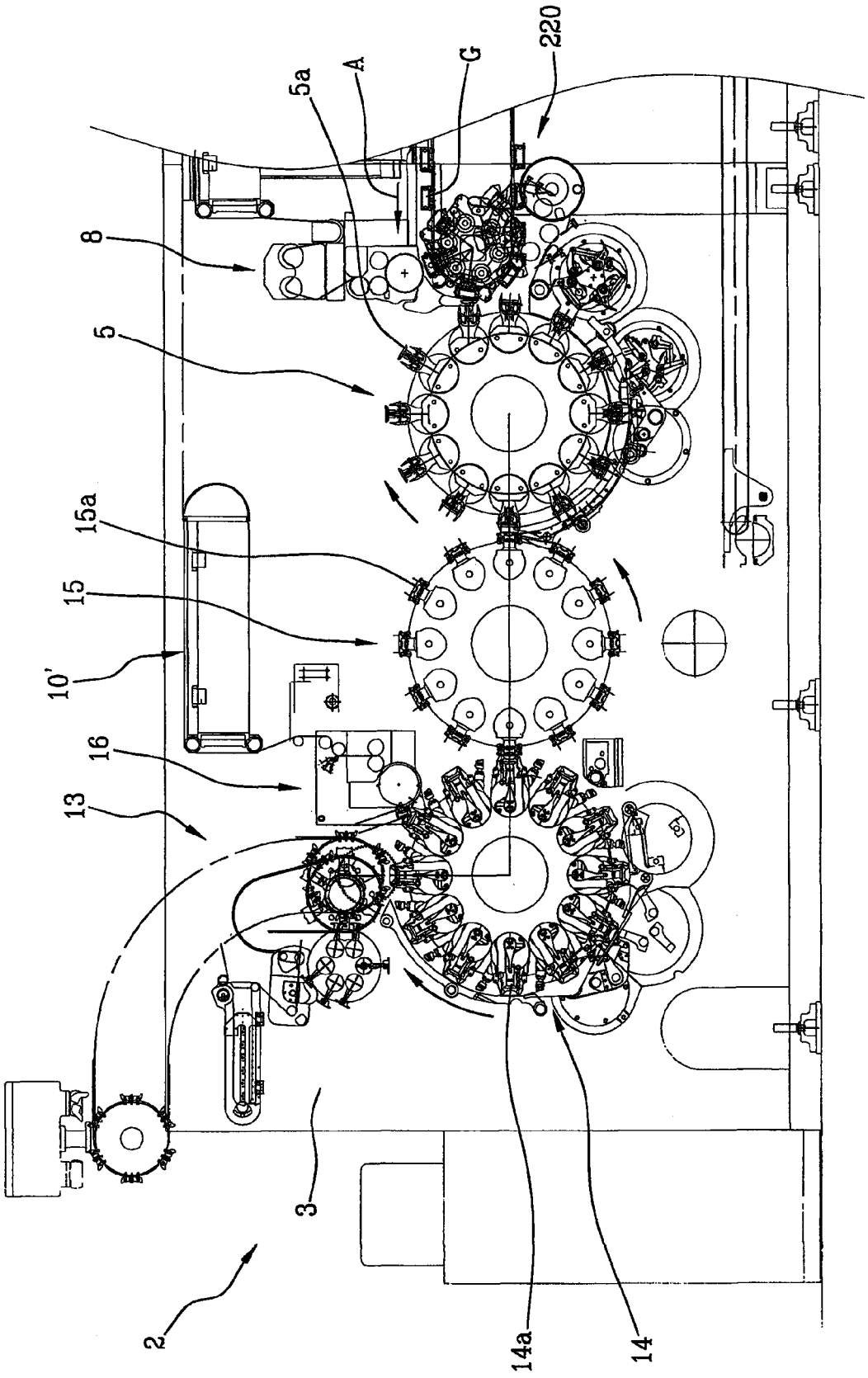


FIG.4

FIG.5

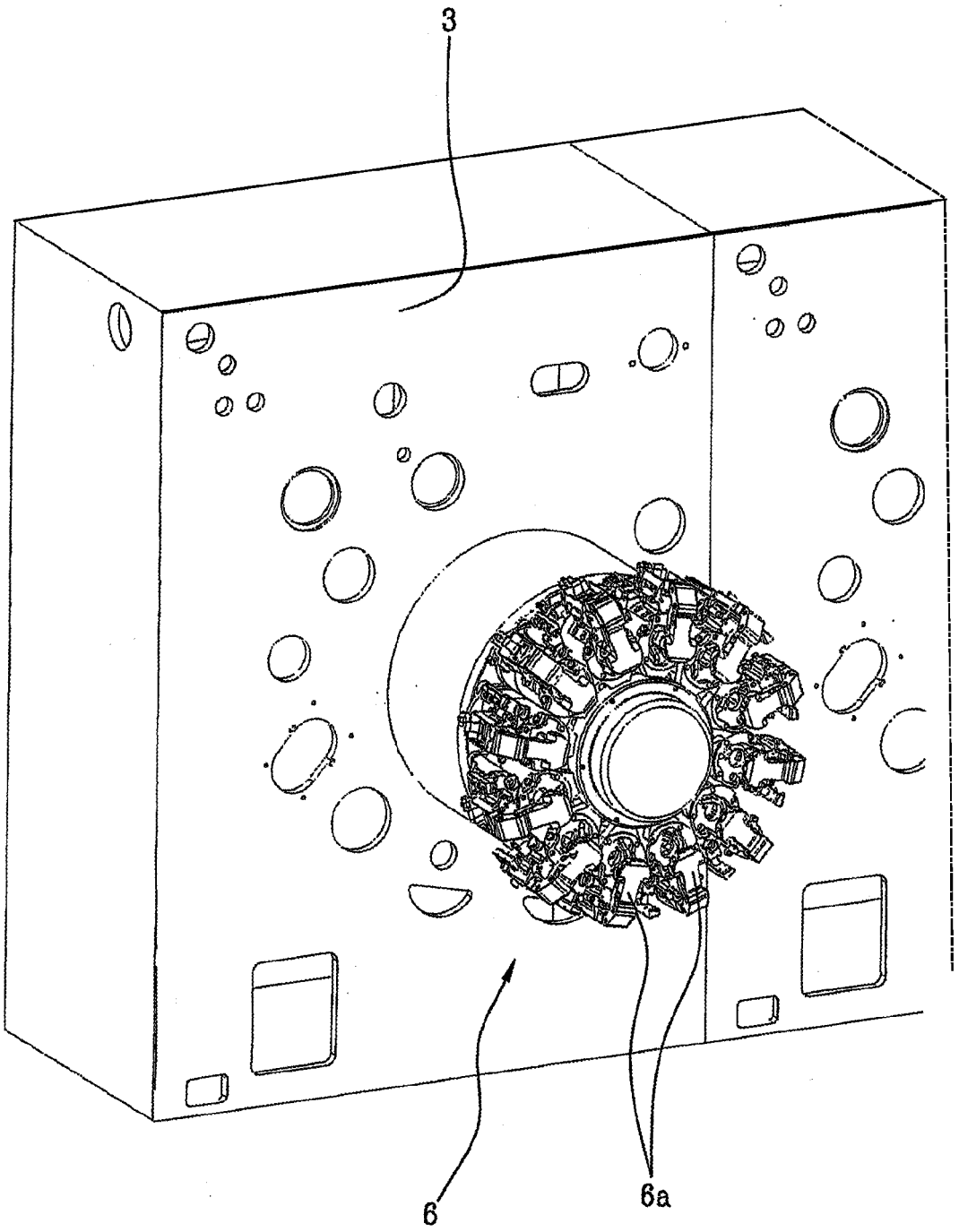
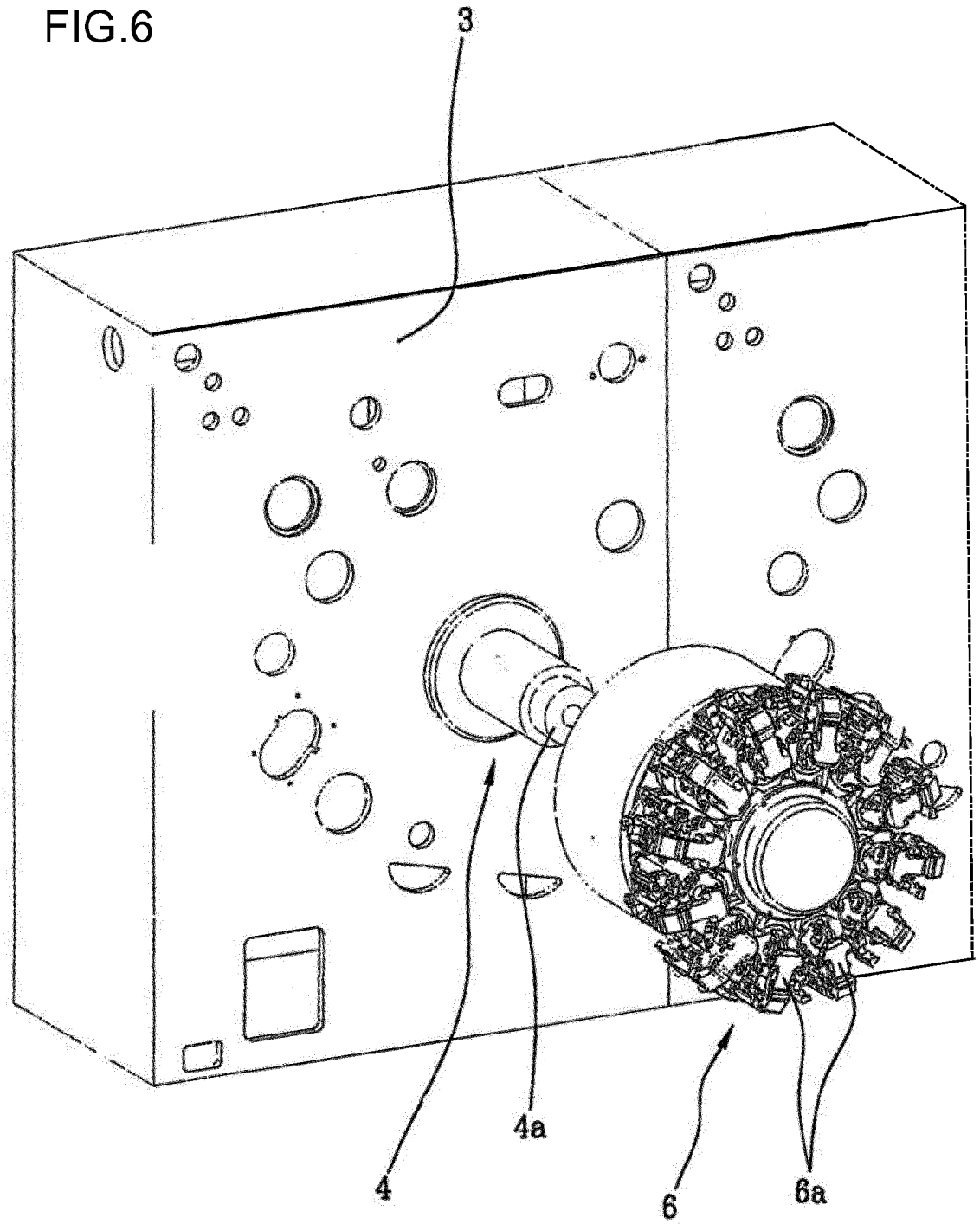


FIG.6



Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 12 16 9220

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2008/016822 A1 (POLLONI ROBERTO [IT] ET AL) 24 January 2008 (2008-01-24) * the whole document * -----	1-10	INV. B65B19/22 B65B59/04
A	EP 1 475 306 A1 (TOPACK VERPACKTECH GMBH [DE] HAUNI PRIMARY INTERNAT GMBH [DE]) 10 November 2004 (2004-11-10) * paragraph [0014] * -----	1-10	

TECHNICAL FIELDS SEARCHED (IPC)

B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 October 2012	Schelle, Joseph

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 12 16 9220

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-10-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008016822 A1	24-01-2008	AT 406310 T	15-09-2008
		EP 1732809 A1	20-12-2006
		JP 2007527827 A	04-10-2007
		US 2008016822 A1	24-01-2008
		WO 2005087595 A1	22-09-2005
EP 1475306 A1	10-11-2004	AT 356028 T	15-03-2007
		EP 1475306 A1	10-11-2004

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- IT B097000371 A **[0030]**