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(54) Titre : PROCEDE POUR PRODUIRE UN EMPILEMENT DE POCHETTES SERVANT A CONSERVER ET A METTRE A DISPOSITION DES MEDICAMENTS SOUS FORME STRATIFIEE, MODELE DE POCHETTE POUR PRODUIRE LEDIT EMPILE MENT ET UTILISATION DUDIT MODELE

(54) Title: METHOD FOR THE PRODUCTION OF A STACK OF MEDICAMENT POUCHES USED FOR STORING AND SUPPLYING MEDICAMENT WAFERS, MEDICAMENT POUCH TEMPLATE FOR PRODUCING SAID STACK, AND USE OF THE MEDICAMENT POUCH TEMPLATE

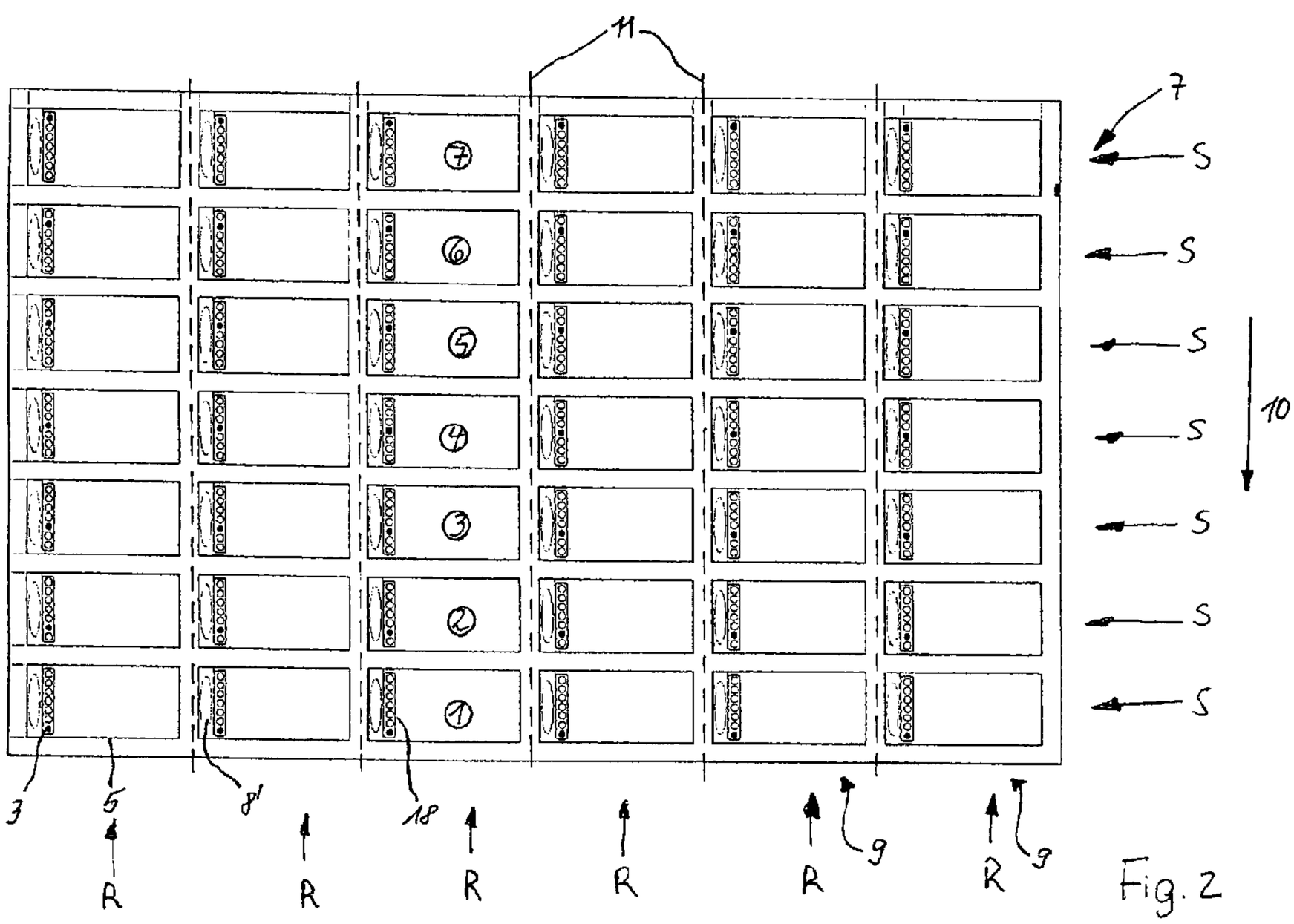

Fig. 2

(57) Abrégé/Abstract:
Disclosed is a method for safely producing stacks (100) of medicament pouches (4, 4', 4") containing medicament wafers (2), each of said pouches having a mark (3) in one of several adjacent marking sections (18) on a marking edge (17). In said method, the

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(57) Abrégé(suite)/Abstract(continued):
medicament pouches (4, 4', 4") are stacked on top of each other to form at least one stack (100) of medicament pouches such that the medicament pouches (4, 4', 4") in the at least one stack are arranged in the order in which the marks (3) thereof are located in successive marking sections (18), and, if applicable, a medicament pouch (4, 4', 4") having a mark (3) located at a first end of the marking edge (17) is arranged after a medicament pouch (4, 4', 4") having a mark (3) located at a second end of the marking edge (17).

Abstract

For the reliable production of stacks 100 of medicament pockets 4, 4', 4" containing medicament wafers 2 and having a marking 3 on a marking border 17 in one of a number of marking portions 18 arranged next to one another, the following process is carried out: stacking the medicament pockets 4, 4', 4" one on top of the other to form at least one stack 100 of medicament pockets, so that in the at least one stack there are following one another medicament pockets 4, 4', 4" of which the markings 3 are located in marking portions 18 following one another, and, if appropriate, a medicament pocket 4, 4', 4" with a marking 3 located at a first end of the marking border 17 follows a medicament pocket 4, 4', 4" with a marking 3 located at a second end of the marking border 17.

(Figure 4a)

Method for the production of a stack of medicament pouches used for storing and supplying medicament wafers, medicament pouch template for producing said stack, and use of the medicament pouch template

Description

The present invention relates to a process for producing a stack of medicament pockets for storing and presenting medicament wafers, including by the use of a ready-made supply of medicament pockets, and relates to uses for producing a stack and for producing a device for storing and presenting medicament wafers. Medicament wafers contain the medicaments in layered form. The medicament wafers may, in particular, contain hormonal medicaments, in particular medicaments for contraception or hormone replacement therapy.

Prior art:

Medicament wafers are devices in sheet form which contain pharmaceutical active substances that are contained in an active substance carrier. The active substances in the wafers may, for example, be administered transmucosally, i.e. via the mucous membrane of the mouth, in that the wafers are placed on or under the tongue, with the active substance carrier dissolving and thereby releasing the active substances. The wafers are presented in a form in which they are enclosed in pockets within a sheet, in order to protect them from mechanical and other environmental influences, for example moisture. According to DE 101 59 746 B4, these pockets may comprise at least one carrier sheet and at least one top sheet, at least the sheet of larger surface area having two parallel side edges and the sheet- or web-like material (wafer) being enclosed in a gas- and moisture-tight manner between the carrier sheet and the top sheet. Devices for storing and presenting the medicament wafers may contain pockets within sheets stacked therein. It goes without saying that the medicament wafers may also be formed differently, in that they do not necessarily comprise a sheet of a larger surface area and a sheet of a smaller surface area, but for example sheets of the same size. To produce the device according to DE 101 59 746 B4, the described pockets within a sheet that contain the medicament wafers are easily combined in a stack and introduced into the device. The device described there for storing and presenting the wafers comprises a housing which is partitioned at least once and against the lateral inner sides of which the side edges of the stacked pockets within a sheet lie, while that edge of a carrier sheet that protrudes beyond the edge of an

associated top sheet lies against a front inner side. The stacked pockets within a sheet are pressed against the upper inner side of the housing by means of a spring. The front, upper region of the housing has two slits for the separate delivery of the carrier sheet and the top sheet, it being possible for the wafer to be presented along with the carrier sheet or along with the top sheet. The spring has the task after removal of a pocket within a sheet to keep the remaining pockets within sheets together in the vicinity of the slits and position them for further removal. Arranged between the slits is a separating tool for separating the carrier sheet from the top sheet, against which tool the uppermost carrier sheet lies with its region lying in front of the front edge of the top sheet. A transporting element which can be rotated about an axis of rotation serves for transporting the medicament pockets out of the housing.

This device with its medicament pockets that can be removed one after the other has the disadvantage that a user using the removed medicament pockets for taking the medicament wafers on the one hand has no possibility of monitoring whether or not a wafer intended to be taken in a specific time period has already been taken or still has to be taken. Therefore, two wafers can easily be taken instead of one, or the user completely forgets to take the wafer.

On the other hand, with this closed device, the user also cannot see how many wafers he/she has already removed or how long the prescribed course must continue. One particular disadvantage of this device is furthermore that, on account of the closed type of design, the user also cannot see whether the device in fact contains all the medicament pockets that are necessary for the treatment. Opening of this compact device is not intended and would destroy it.

For taking hormonal medicaments, but also other medicaments, it is important that the medicaments are taken in a prescribed course, for example three times a day or once a day, the regime being prescribed by the doctor treating the patient. However, most medicaments are only taken during a limited time period, for instance until a condition to be treated has been completely cured. There are, however, also medicaments that have to be taken continually over a very long time period. In these cases, it may happen that the medicament is not taken, or not taken at the prescribed time. The success of a therapy is then often at risk. There has therefore been no lack of attempts to monitor the taking of medicaments, with particular value being placed on self-monitoring by the patient him/herself.

The completeness of a device containing medicament wafers is a fundamental prerequisite for the success of a medical treatment. This is all the more so in the case of the use of medicament wafers for contraception and for hormone replacement therapy. For this reason, when producing devices for time-dependent medicament administration, considerable effort is expended on quality assurance. In addition, of course, the user of these devices also has an interest in a monitoring possibility.

With regard to monitoring the time and the frequency of taking units of active substance in the form of tablets, coated tablets or the like, the prior art discloses what are known as medicament blisters, i.e. devices for storing tablets, coated tablets or the like in which tablets, coated tablets or the like are contained in pockets stamped in a first sheet and the sheet is connected to a second, tearable sheet, sealing the pockets. If the taking of the tablets is dependent on a specific time, indications, for example days of the week, may be provided on the second sheet.

For example, in EP 0 166 763 B1, a blister with pockets for the tablets arranged in a row is provided. In the production of the blisters, the pockets are assigned to the days of at least one calendar month in an unequivocal way, with furthermore successive integral numerical indications being arranged in an unequivocal relationship near the pockets in such a way that each pocket can be visually identified by one and only one calendar day of the calendar month and successive integral numerical indications being arranged on the basis of tearable zones in the second sheet in such a way that they can be seen from the rear side on the second sheet, and each zone being visually identifiable by one and only one calendar day of the calendar month. This allows each pocket to be visually identified both from the front side and from the rear side by one and only one calendar day. Consequently, the taking of the tablets on a daily basis and the observance of user compliance can be made easier.

Furthermore, in EP 0 511 726 B1 a description is given of an arrangement for receiving tablets in an array, comprising the following: a blister pack with a predetermined surface area, in which a number of tablets configured in a selected array are located, a container for receiving the blister pack and a daily calendar, which can be aligned with the array of tablets in the blister pack, the daily calendar being displaceable in order to position a selected starting day with a first tablet in the array of tablets, and indications being provided on the container and the blister pack having a locating notch near the edge and in the vicinity of a first tablet, so that the first tablet to be taken is indicated.

Furthermore, DE 10 2005 032 015 A1 discloses a case for receiving a blister pack which has a first half and a second half, articulated on said first half. The first half of the case is formed as a pocket for receiving the blister pack and has an outer part and an inner viewing part as well as first apertures in the viewing part and second apertures in the outer part, the first apertures being in line with the second apertures, to be precise at least where the containers for the tablets in the blister pack are located after being received in the pocket. The second half of the case has a compartment for receiving an indicating means indicating days of the week and windows for indicating the days of the week in an inner viewing area of the second half of the case in the region of the compartment, the windows being arranged in such a way that they are assigned to the columns of the containers of a blister pack received in the pocket.

However, these embodiments of devices for storing and presenting medicament units concern tablets in blister packs, the production processes of which differ fundamentally from production processes for devices with medicament wafers in medicament pockets.

Further examples of providing a patient with help to assist in ensuring that medicaments are taken in a regimented course in spite of the everyday distractions for the patient are, for example, devices for receiving the medicament packs in which the removal of individual tablets is automatically registered. Various proposals for this have been made in DE 198 50 890 A1 (dispensing device for medicaments, i.e. for tablets or the like), DE 197 39 438 A1 and DE 195 16 076 A1 (pack for solid-form medicament samples, i.e. for tablets or the like), DE 198 52 602 A1 (device and method for reminding that medicaments, i.e. tablets or the like, are taken at the right time), DE 102 13 547 C1 (blister pack arrangement), DE 41 34 237 C1 (device for registering the removal of a pill from a blister pack), EP 0 191 168 A2 (device for the storing and prompted taking of medicaments, i.e. of tablets or the like), DE 198 36 100 A1 (device for storing a medicament container, i.e. for tablets or the like), DE 102 17 929 A1 (device for dispensing tablets), US 2004/005 0746 A1 (pill holder and reminder device), WO 01/54646 A2 (pill dispenser with alarm function) and DE 10 2005 048 515 A1 (dispenser for solid medicament portions, i.e. tablets or the like, and use thereof).

However, there are no proposals for the monitored taking of medicament wafers to ensure that they are reliably administered. A dispenser for confectionery or medicaments in wafer form is known, for example, from DE 101 59746 B4. However, this device has the disadvantage that a

user is not provided with any monitoring possibility as to whether or not a taking course prescribed for a specific time period has been followed. It is therefore easily possible for two wafers to be taken instead of one, or for the user to forget completely to take the wafer. In particular, it is particularly important for the taking of contraceptives that the medicaments are taken over a very long time period without interruption and without irregularities. In this case, the user must pay very careful attention to taking a portion of the medicament every day without exception. Missing a portion would lead to considerable risks, as would the taking of two portions of medicament on the same day. Since it is quite possible, in particular in stressful situations, for the user to forget to take the medicament portion in the prescribed time period, for this indication there is in particular the problem that, as far as medicament wafers are concerned, there is no means of ensuring that they are reliably taken. In addition, it is also of course required for such means to be provided by means of a faultlessly operating and low-cost production process.

For this reason, a first object is to find means by which the medicament pockets containing the medicament wafers are prepared for a user in such a way that said user removes the wafers from the device, and takes them, in the sequence offered and at the intervals prescribed and in accordance with the time at which they should be taken. For this purpose, the device must be suitable for making it possible for the user to monitor the taking of medicament wafers prescribed over a specific time period. The device for storing and presenting the medicament wafers is additionally intended to be suitable for everyday use and to have the required mechanical stability. The medicament wafers are also intended to be reliably stored.

A further object is for it to be possible for such forms of administration to be produced easily and simply, and consequently at low cost, by a virtually faultless production process, so that the form of administration ensures the user that the wafer is reliably taken without error. Low-cost production of the form of administration also requires that a large number of such forms of administration can be produced in a short time.

Accordingly, a further object of the present invention is to devise the process for producing the stack in such a way that a simple check on the completeness of the stack, with regard to the number of medicament pockets, is possible already during the production process. In particular, faultless stacking is intended to be made possible, so that the stack contains neither too few nor too many medicament pockets. It is intended in this way to reduce the costs caused

by rejects and the costs for the final inspection of the stacks produced or for quality assurance.

Yet a further object of the present invention is to provide a ready-made supply of medicament pockets and a process for producing a stack of medicament pockets serving for storing and presenting medicament wafers from the ready-made supply of medicament pockets with which it is possible to create a stack that allows the user to monitor during use the medicament wafers that have already been removed.

Summary of the invention:

These and other objects are achieved by the claimed production process for stacks of medicament pockets serving for storing and presenting medicament wafers, by the claimed ready-made supply of medicament pockets for producing a stack of such medicament pockets and also by the claimed use of the ready-made supply of medicament pockets for producing a stack of such medicament pockets. Preferred embodiments of the invention are specified in the subclaims.

The process according to the invention serves for producing a stack of medicament pockets serving for storing and presenting medicament wafers, each medicament pocket respectively having on a marking border a marking in one of a number of marking portions arranged next to one another at the marking border.

A medicament pocket for the medicament wafer typically comprises a base or bottom sheet and a top sheet. The top sheet may be connected, for example adhesively bonded or welded, to the base or bottom sheet, or vice versa, by way of a preferably strip-shaped connection running along the side borders of the top sheet. Furthermore, in a particularly preferred embodiment, the base or bottom sheet and the top sheet may respectively have protruding tabs, which are not connected to one another, in each case on at least one side border. This makes it much easier for the medicament pocket to be pulled apart, and consequently opened, for the removal of the wafer contained therein, because the two sheets can be easily gripped. A medicament wafer is enclosed, preferably in an air- and moisture-tight manner, between the base or bottom sheet and the top sheet, within a region formed by the join. The pockets within the sheets may have a small elevation on account of the way in which they are formed, or just in the region of the wafer as a result of the latter.

The dispenser device to be produced by the process according to the invention for storing and presenting the medicament wafers contains the medicament pockets with the medicament wafers in the form of a stack (of pockets). In order to make it possible for the user to monitor whether in a specific time period a medicament wafer has already been taken or still has to be taken, time indications in particular may be arranged in the device parallel to a border of the medicament pockets. Furthermore, a marking is provided on each of the medicament pockets in such a way that markings provided on medicament pockets following one another in the stack are respectively in line with time indications following one another and that, if appropriate, in the stack a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border. This last-mentioned case applies whenever a number of medicament pockets that is greater than the number of marking portions on each medicament pocket are located in the stack, so that the sequence of markings following one another in the marking portions is repeated in the stack. The markings therefore follow medicament pockets following one another in the stack, but, whenever a medicament pocket has a marking in the last marking portion, the following medicament pocket in the stack has a marking again in the first marking portion. Following medicament pockets in the stack then again have markings in marking portions following one another.

For reliable self-monitoring by the user, according to the invention, once the stack has been received in the dispenser device for storing and presenting the wafers, the markings arranged on the marking border are in line with time indications. This makes it possible for the user to establish whether or not a wafer has been removed in a specific time period.

However, this stack must be faultlessly produced. This is so because, if a single medicament pocket is missing from the stack or there is a double medicament pocket in the stack, so that consequently a marking in a specific marking portion in the sequence of medicament pockets in the stack is missing or occurs doubly, the user is deceived, and may take the wrong medication, i.e. the user may forget to take a wafer or may take two wafers instead of one within the prescribed time period. Therefore, the production process for the stack must proceed faultlessly, in such a way as to produce stacks in which the medicament pockets with the markings are stacked one on top of the other such that the markings of medicament pockets following one another in the stack are in marking portions likewise following one another, or

that, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

In addition, it must be ensured that the stacks can be produced with high production efficiency, i.e., inter alia, with a high cycle rate.

For this reason, the following production process according to the invention for the stacks is provided to achieve the stated object:

Stacking the medicament pockets one on top of the other to form at least one stack of pockets, so that in the at least one stack there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

Whenever in this case, and otherwise in the present application, mention is made of the stacking of medicament pockets one on top of the other or the stacking of medicament pockets, this is meant to mean the placing of the medicament pockets one on top of the other, i.e. for example a medicament pocket stacked on a stack is placed onto the stack.

The stack produced by the process according to the invention may be used in particular for storing and presenting medicament wafers serving for contraception or hormone replacement therapy.

<u>Also provided for producing a stack of medicament pockets serving for storing and presenting medicament wafers is a ready-made supply of medicament pockets, from which the medicament pockets can be formed by singulation.</u>

With the provision of markings on in each case a marking border on the medicament pockets, it is ensured that the user can in each case monitor whether or not a wafer has already been taken in a certain prescribed time period. This takes place by checking whether the marking of the medicament pocket lying on top is in line with a time indication area that corresponds to the

time period in question.

Detailed description of the invention

In a preferred first implementational variant of the invention, the production process comprises the following process steps:

a) stacking the medicament pockets one on top of the other to form at least one first part-stack in a first production device, so that in each first part-stack there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border;

b) stacking further medicament pockets onto the at least one first part-stack in a second production device, so that in each part-stack formed in this way there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border;

c) if appropriate, repetition at least once of process step b) by respectively stacking further medicament pockets onto the at least one part-stack created in the second or in a further production device in further production devices to form finally at least one stack of medicament pockets.

The fact that, in this variant of the process, at least one first part-stack is first created in a first production device and further medicament pockets are stacked onto the at least one first part-stack in further production devices means that a very efficient manner of production is achieved, to be specific by virtue of the fact that, when stacking further medicament pockets onto the at least one first part-stack in the further production devices, it is preferably possible at the same time in turn for at least one next first part-stack to be created in the first production device. This allows the part-stacks to be created simultaneously. The same applies to the case where the at least one complete stack of pockets is not yet produced by the stacking of medicament pockets onto the at least one first part-stack in the second production device, but instead first only at least one second part-stack is created and still further medicament pockets have to be stacked

onto this at least one second part-stack. To be specific, medicament pockets are then stacked onto the at least one second part-stack in a third production device. The at least one third part-stack thereby created or the at least one complete stack of pockets thereby created is likewise preferably created simultaneously with the at least one first and at least one second part-stack, and so on.

It is also advantageous that, after the creation of each part-stack, it can be separately checked whether the part-stack has been faultlessly produced. This makes it possible to reject a faulty part-stack from the production process before the completion of a complete stack of pockets. This achieves the effect that additional medicament pockets are no longer stacked onto an already defective part-stack. On the one hand, this increases production capacity and on the other hand it reduces rejects.

In particular, in a further preferred embodiment of the invention, a first part-stack is created in the first production device by stacking medicament pockets one on top of the other, at least one second and third part-stack are created in a second and third production device by stacking further medicament pockets onto each previously formed part-stack and at least one complete stack of medicament pockets is created in a fourth production device by stacking further medicament pockets onto each third part-stack.

In a further preferred embodiment of the invention, the at least one first part-stack created in the first production device and the further part-stacks produced in further production devices, created by stacking further medicament pockets onto the at least one first part-stack, are created simultaneously, i.e. the further stacking of the medicament pockets onto the at least one first part-stack in the further production devices takes place at the same time as the creation of the at least one first part-stack in the first production device, the at least one first part-stack of course first having to be created in the first production device before it is transported into the second production device, so that further medicament pockets can be stacked there to form at least one second part-stack or at least one complete stack of medicament pockets. The same of course also applies to the case where further medicament pockets are stacked onto the at least one second part-stack in a third production device, so that at least one third part-stack can be created simultaneously with the at least one first and second part-stacks. This sequence can be continued as desired, to be specific by creating at least one fourth part-stack or by creating at least one complete stack of medicament pockets in a fourth production device,

creation of at least one fifth part-stack or creation of at least one complete stack of medicament pockets in a fifth production device, and so on.

In a second variant of the invention, the process comprises the following process steps:

a) stacking the medicament pockets one on top of the other to form at least one first part-stack in a first production device and in each case at least one further part-stack in further production devices, so that in each first part-stack and further part-stack there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border;

b) stacking the at least one first part-stack and the further part-stacks formed in process step a) one on top of the other to form at least one complete stack of medicament pockets, so that in each complete stack there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

In this second variant of the invention, therefore, the at least one first part-stack formed in the first production device and further part-stacks formed in further production devices (second, third, fourth part-stacks, etc.) in process step a) are stacked one on top of the other to form the stack of pockets, so that in the stack there are following one another medicament pockets of which the markings are located in marking portions following one another, and, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

In a preferred embodiment of this second implementational variant of the invention, four part-stacks are in each case first created and these four part-stacks are then respectively stacked one on top of the other to form in each case a complete stack of pockets.

In a further preferred embodiment of this second variant of the invention, the at least one first

part-stack created in the first production device and the further part-stacks created in the further production devices are created simultaneously, i.e. the respective stacking of the pockets of medicaments one on top of the other to form the at least one first part-stack, the at least one second part-stack, the at least one third part-stack, the at least one fourth part-stack, and so on, takes place at the same time.

The fact that, in this implementational variant, at least one part-stack is in each case first produced and then combined with the respective part-stacks (separately produced before) by stacking them one on top of the other to form the at least one complete stack of medicament pockets also allows in this case any defective part-stacks to be rejected from the production process before the entire stack of pockets is formed. Consequently, on the one hand low-cost production is made possible because the amount of rejects is minimized. On the other hand, the production process is consequently also speeded up, since the medicament pockets that would otherwise have been included in the defective stack can be used to produce faultless stacks.

In a further preferred embodiment of the two above variants of the invention, at least two first part-stacks are in each case created simultaneously by stacking the medicament pockets one on top of the other, at least two second part-stacks are created simultaneously, at least two third part-stacks are created simultaneously, and so on (in the first implementational variant of the invention, by stacking medicament pockets respectively onto already formed part-stacks, with the exception of the first part-stacks, and, in the second implementational variant of the invention, by in each case separate stacking of the medicament pockets one on top of the other to form corresponding part-stacks, the first, second, third part-stacks, etc. being subsequently brought together by stacking one on top of the other). For example, in each case six or twelve first part-stacks are created simultaneously by stacking the medicament pockets one on top of the other. This may take place in a suitable first production device by parallel conveyance of the medicament pockets. These simultaneously created six or twelve first part-stacks are then transferred into a second production device, where likewise six or twelve second part-stacks or six or twelve complete stacks of pockets are simultaneously produced. Or the six or twelve first part-stacks are brought together in a way corresponding to the second implementational variant in the second production device with six or twelve second part-stacks. These sequences may be continued as desired, for instance in that the six or twelve second part-stacks in the first variant of the invention are transferred into a third production device and in that six or twelve

third part-stacks or six or twelve complete stacks of pockets are created there by simultaneously stacking further medicament pockets onto the six or twelve second part-stacks, or by the six or twelve second part-stacks in the second variant of the invention then being brought together with the third part-stacks in the third production device.

A very efficient and high-speed manner of production is created by this procedure, since a number of part-stacks are created simultaneously in the production devices. However, for both variants of the process, simultaneous stacking is not only to be understood as meaning that the medicament pockets are stacked one on top of the other to form the respective part-stacks in synchronism, i.e. as it were "in the same cycle" or "synchronously". Rather, simultaneous stacking is also to be understood as meaning that the respective part-stacks are created approximately at the same time. The stacks of pockets may in this way be produced very quickly. However, synchronous stacking one on top of the other is preferred in this case. For this purpose, the respective production device is simultaneously fed a number of medicament pockets, and these simultaneously fed medicament pockets are then synchronously stacked one on top of the other to form the part-stacks.

In a further preferred embodiment of the invention concerning both variants of the invention, the medicament pockets are in each case stacked one on top of the other to create the part-stacks in a cassette. At least one cassette is preferably provided for this purpose, into which the medicament pockets are placed and then stacked one on top of the other. For example, six or twelve cassettes may be provided, for example arranged in a row or in a carousel.

Furthermore, the cassettes may, for example, be mobile in order to transport the part-stacks created in the cassettes to a further production device, in which each part-stack is brought together in a way corresponding to the second implementational variant of the invention with another part-stack, in that the further part-stack is placed onto the first part-stack in the cassette.

Alternatively, the cassettes may also be mobile in order to transport them to a second production device, in which further medicament pockets are stacked according to the first implementational variant of the invention onto the first part-stack. For example, the first part-stack may be formed by seven medicament pockets. In the second production device, seven medicament pockets may then likewise be stacked onto the first part-stack. After that, the

second part-stack, in the meantime containing 14 medicament pockets, may be transported into a third production device, in which, for example, a further seven medicament pockets are stacked onto the second part-stack. After that, the third part-stack, in the meantime containing 21 medicament pockets, may be transported into a fourth production device, in which, for example, a further seven medicament pockets are stacked onto the third part-stack. In principle, this process may be carried out in each case with any number of medicament pockets in each of the production devices and with any number of production devices. For example, stacks of pockets with 28 medicament pockets can be produced in this way.

If the wafers contained in the medicament pockets serve for hormone replacement therapy, the stacks of pockets typically contain 28 medicament pockets. The 28 medicament pockets may contain either 28 identical medicament wafers - in the case of a single-phase preparation - or 24 identical medicament wafers and a further four medicament wafers with a placebo or a different medicament - for contraception in the case a two-phase preparation - or 21 identical medicament wafers and a further seven medicament wafers with a placebo or a different medicament - likewise in the case of a two-phase preparation. In the case of the two-phase preparations, the medicament pockets which contain the wafers containing the placebo or the other medicament must be inserted at the beginning or end of the stack of pockets. For this purpose, the medicament pockets which contain the wafers containing the placebo or the other medicament are preferably either joined together to form a stack at the beginning, in a separate production device, or are stacked onto the already created part-stack at the end of the stacking operation, in a separate production device.

In further embodiments of the invention, the stacks of pockets, for example also for use for contraception, may also contain a different number of medicament pockets than 28, to be specific, for example, 30 medicament pockets. In this case, ten medicament pockets may be respectively added in each production device to the already existing part-stacks (or be stacked one on top of the other in order to create the first part-stack), or else seven medicament pockets may be respectively added (four times) and, in conclusion, two further medicament pockets may be added in a further production device.

In yet a further embodiment of the invention, the wafers may, in the case of use for contraception, also be used for what is known as a flexible taking regime, in which the wafers are removed during a first flexible taking phase which lasts at least 24 days and at most 120

days and in which the first flexible taking phase is followed by an interruption phase, lasting for example four days. In this case, the stack of pockets may also comprise, for example, 28 or 56 or 84 or 112 or 120 medicament pockets, or any other number. The schedule of stacking the medicament pockets one on top of the other according to the present invention is in this case respectively based in a corresponding way on the number of medicament pockets located in the stack.

In a preferred embodiment of the invention, seven marking portions may be located on the marking border of each medicament pocket. These marking portions, with a marking being provided in one of the marking portions of the medicament pocket, may, for example, correspond to the days of the week. In an assembled dispenser device for storing and presenting the medicament wafers, the marking portions may be in line with corresponding time indications on the device, for instance with indications of the days of the week, so that a marking in a marking portion on a medicament pocket which lies on top in the stack is in line with a specific indication of a day of the week on the device, for example with "Mo" for Monday, and consequently indicates to the user on which day the wafer in this medicament pocket must be taken, i.e. in the present case on the Monday.

Alternatively, for example, three marking portions, corresponding to three times of the day (morning, afternoon, evening) may also be provided, or else a different number of marking portions that corresponds to the respective requirements for the frequency of taking the medicine.

Furthermore, for example, seven medicament pockets may in each case be stacked one on top of the other to form at least one first part-stack. In the first implementational variant of the invention, in each case seven further medicament pockets are then stacked onto the at least one first part-stack to form a second part-stack, seven further medicament pockets are stacked onto the at least one second part-stack, and so on. In the second implementational variant of the invention, in addition to the first part-stacks, second, third part-stacks, etc., which in each case contain seven medicament pockets, are created. The respective part-stacks are then stacked one on top of the other.

This procedure may be advantageous in particular whenever the medicament pockets have seven marking portions, corresponding to the seven days of the week. In this case, the

medicament pockets in the part-stack preferably serve for the taking of the wafers during a week, if in each case one wafer per day is taken.

In a further preferred embodiment of the first variant of the invention, the stack is produced in the four production devices, in which seven medicament pockets are in each case stacked for each stack. In the second variant of the invention, to form a complete stack by respectively stacking medicament pockets one on top of the other, four part-stacks are created and these are then brought together. If the wafers are in each case taken once a day, and there are in each case seven medicament pockets in a part-stack, 28 wafers that are taken in 28 days are combined in the stack.

In a further preferred embodiment of the invention, the medicament pockets are created by singulation from a ready-made supply of medicament pockets, for example from a sheet. In the present sense, a sheet is understood as meaning a preferably rectangular, sheet-like formation. The sheet is preferably joined together in a layered form from various materials and comprises, for example, films or sheets of plastic, aluminium foils, paper or the like. For example, the medicament pockets may preferably be formed from two laminates between which the medicament wafer is located. The laminates may in this case have the following layer sequence: polyethylene/aluminium/ polyethylene terephthalate, the polyethylene layers respectively lying against the medicament wafer and the polyethylene terephthalate layers facing outwards.

A sheet is also to be understood as meaning a strip, i.e. an elongated sheet, which can for example be wound up onto a reel (coil).

For singulating, a sheet is preferably brought up to the individual production devices and placed under a singulating device. There, the individual medicament pockets are singulated from the sheet, preferably simultaneously. The singulation product (medicament pockets and singulating remains) are then transported to a removal location. From there, the medicament pockets are removed one after the other, for example by means of robot arms. The robot arms may be equipped with special sensors, in order to verify that each medicament pocket has been gripped, transported and deposited into the cassettes.

The medicament pockets are preferably singulated from the sheet by punching. This is a low-

cost and precise singulating technique. Other singulating techniques are likewise conceivable, for example cutting.

In a further preferred embodiment of the invention, the sheet contains areas corresponding to the medicament pockets, with in each case a medicament wafer and with in each case a marking in respective marking portions on respective area borders in a matrix-like arrangement. In the sheet, the medicament wafers are hermetically sealed by welding-in. Furthermore, apart from the markings, on the sheet there may also be imprints, which for example allow an identification of the medicament. The sheet preferably contains at least four and at most twelve rows of areas. For example, four, eight, ten or twelve rows of areas may be provided. Each of the rows contains, for example, seven or fourteen areas.

In a further preferred embodiment of the invention, areas of which the markings are located in marking portions following one another follow one another in a respective row on the sheet. As a result, the medicament pockets can be removed from the sheet in the logical sequence in which they are also stacked one on top of the other into the part-stack. A number of rows lying next to one another preferably have areas which are respectively identical to the adjacent areas of the other rows. Areas of a number of rows are singulated to form medicament pockets, which are then in each case fed to different part-stacks.

In a way according to the invention, this preferred process accordingly comprises the following steps:

i. providing a ready-made supply of medicament pockets , the ready-made supply of medicament pockets containing at least two adjacent rows of areas from which the medicament pockets are to be formed by singulation, and the markings being provided on areas following one another in the row in marking portions following one another, or, if appropriate, a medicament pocket with a marking located at a first end of the marking border following a medicament pocket with a marking located at a second end of the marking border;

ii. separating the at least two adjacent rows from one another along at least one separating line separating the rows, strips which contain the medicament pockets following one another in the rows being formed in a way corresponding to the number of rows;

iii. singulating the medicament pockets contained in the respectively formed strips by detaching each individual medicament pocket from its strip; and

iv. stacking the singulated medicament pockets of a respective strip to form a respective stack, so that, progressively from one medicament pocket to the next medicament pocket, the respective markings on the medicament pockets within each stack are arranged in marking portions following one another, or, if appropriate, a medicament pocket with a marking located at a first end of the marking border following a medicament pocket with a marking located at a second end of the marking border.

In particular, the process may comprise the following process steps:

i. transporting the ready-made supply of medicament pockets in a transporting direction, the ready-made supply of medicament pockets containing at least two adjacent rows of areas following one another in the transporting direction, the rows extending parallel to the transporting direction and the markings being provided on marking portions following one another in the row of areas following one another, or, if appropriate, a medicament pocket with a marking located at a first end of the marking border following a medicament pocket with a marking located at a second end of the marking border;

ii. separating the at least two adjacent rows from one another along at least one separating line following the transporting direction, strips which contain the medicament pockets following one another in the transporting direction being formed in a number corresponding to the number of rows;

iii. singulating the medicament pockets contained in the respectively formed strips by detaching each individual medicament pocket from its strip; and

iv. stacking the singulated medicament pockets of a respective strip to form a respective stack, so that, progressively from one medicament pocket to the next medicament pocket, the respective markings on the medicament pockets within each stack are arranged in marking portions following one another, or that, if appropriate, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

This process according to the invention has the advantage over the prior art that the production of the stacks takes place with greater reliability, because medicament pockets to be combined to form a stack are first held together in strips and are only separated from one another by singulation immediately before they are stacked one on top of the other. This reduces the risk of errors occurring in the sequence of medicament packs in the stack. Consequently, the correct number of medicament pockets and their sequence in the stack can be realized more easily.

In addition, it can be checked on the basis of the markings on the medicament pockets whether the stack has been satisfactorily created, for instance in that the stack is manually or automatically leafed through and the sequence of the markings on medicament pockets following one another in the stack is checked.

The fact that the medicament pockets are provided with the markings in a way according to the invention means that the user has the possibility when using a stack to determine whether or not he/she has already taken a medicament portion in the time period in question. The progress of taking the medicament wafers can consequently be monitored with the aid of the markings on the medicament pockets. Therefore, in addition to the general checking function, the markings assume the further function of quickly assigning a specific medicament wafer to a specific taking time period or taking time.

The ready-made supply of medicament pockets for producing stacks of medicament pockets serving for storing and presenting medicament wafers comprises at least two, preferably at least four and preferably at most twelve, for example four, eight, ten or twelve, adjacent rows, preferably extending transversely to the longitudinal direction of the ready-made supply of medicament pockets, of areas following one another, from which the medicament pockets are to be created by singulation. Preferably, each medicament pocket respectively has a marking in one of a number of portions arranged next to one another at the marking border. Furthermore, a marking is preferably provided on each medicament pocket on the ready-made supply of medicament pockets in such a way that the markings on medicament pockets following one another in the row are provided in marking portions following one another. If appropriate, in the rows, a medicament pocket with a marking located at a first end of the marking border follows a medicament pocket with a marking located at a second end of the marking border.

In a way according to the invention, the ready-made supply of medicament pockets is used for producing a stack of medicament pockets serving for storing and presenting medicament wafers.

Furthermore, the ready-made supply of medicament pockets may also be used for producing a dispenser device for storing and presenting medicament wafers. The device comprises i) a stack of medicament pockets containing the medicament wafers, with preferably in each case seven marking portions at a marking border and in each case one marking in one of the marking portions and ii) a carrier, arranged on which are preferably seven time indications with which the markings are in line.

The ready-made supplies of medicament pockets are preferably in the form of sheets in which there are areas which correspond to the medicament pockets. In a preferred embodiment of the invention, a sheet comprises six rows, adjacent to one another, of the medicament pockets following one another and seven medicament pockets following one another in each row. With a preferred number of 28 medicament pockets per stack, accordingly four sheets are required for the simultaneous production of six stacks.

In an alternative preferred embodiment of the invention, the ready-made supply of medicament pockets may, for example, also be provided in the form of a long strip, it being possible for the strip to be wound up onto a reel (coil) and then unrolled in the transporting direction for the process. For example, a strip comprises six adjacent rows, extending parallel to the transporting direction, of the areas following one another in the transporting direction for the medicament pockets.

In a preferred embodiment of the process, on the ready-made supply of medicament pockets, seven marking portions are located on each marking border of the medicament pockets. The markings are preferably located in a second medicament pocket region. In this case, the markings on areas following one another in a row on the ready-made supply of medicament pockets are provided on marking portions following one another, so that the markings progressively change in position from medicament pocket to medicament pocket in sequences of 7, i.e. from in each case the first medicament pocket to the seventh medicament pocket. If the ready-made supply of medicament pockets contains more than seven areas in each row, for example 14 areas, the sequence of markings following one another on areas following one

another in a row then begins once again from the start from the eighth medicament pocket to the fourteenth medicament pocket, and so on. In other words, it is preferred that, seen in the transporting direction, seven medicament pockets following one another are located in each row on the ready-made supply of medicament pockets. As a result, after singulating and stacking of the medicament pockets, weekly stacks are obtained, and these can finally be stacked to form a monthly stack with 28 medicament pockets.

Such dimensioning of the stacks with medicament pockets is advantageous in particular for use for contraception and hormone replacement therapy, because in this case a medicament portion must be taken once every day over several weeks, for example four weeks (28 days). By including 28 medicament pockets in a stack, the user can in each case use up a stack for such a cycle.

If the medicament wafers are to be taken daily, in a preferred embodiment the time indications are indications of the days of the week or indications of calendar days, the latter represented by the numbering of the days of the month. Indications of days of the week are preferred, however, and have the advantage over the indications of calendar days that the repetition takes place more frequently than in the case of the latter. This makes it possible for time indications to be provided more easily on the carrier, since, for the first day, it is merely necessary to choose the appropriate day of the week from the seven days of the week. The indications of days of the week, indications of calendar days or other time indications are preferably provided on the carrier at the beginning of a phase of taking the medicament wafers.

The ready-made supply of medicament pockets according to the invention preferably contains medicament wafers which contain medicaments for contraception or hormone replacement therapy. Within a row of medicament pockets there may be subgroups of medicament pockets in which there are medicament wafers that do not contain any medicament but are, for example, placebos, or contain medicaments which differ from the other medicament wafers (two-phase medicaments). For example, there may be placebos in every 25th - 28th medicament pocket in a row of medicament wafers. This has the advantage that, for example in the case of contraception, in which there are taking time periods in which no medicaments should be taken, the accustomed taking of the wafers does not have to be interrupted, since the placebos do not contain any active substances.

The separating of the at least two adjacent rows on the ready-made supply of medicament pockets from one another along the separating line, for example following the transporting direction, is preferably performed by cutting. The singulating of the medicament pockets contained in the strips formed is preferably performed by cutting or punching. In a particular embodiment of the invention, the separating of the strips from one another and the singulating of the medicament pockets from the strips may also be performed in each case by punching.

If the ready-made supply of medicament pockets still does not contain any openings for the medicament pockets, these can be introduced into the ready-made supply of medicament pockets or the medicament pockets, for example by punching, before or after the singulation.

Once the stack has been completed by stacking of the singulated medicament pockets, the stack can subsequently be arranged on a carrier. The medicament pockets may be connected to the carrier on the carrier by way of a connecting element. Or else the medicament pockets may be stacked on the carrier and connected by the connecting element while they are being stacked. In both cases, the stack is provided with improved stability by the carrier and can be handled more easily. Furthermore, the wafers are protected by the carrier against mechanical effects.

For example, the medicament pockets may be stacked on a carrier in each case to create a respective first part-stack. This makes a particularly reliable manner of production possible: the medicament pockets are preferably held in a carrier for use by the user. As a result, on the one hand the required stability is achieved, including to protect the medicament wafers from mechanical impairment, and on the other hand the time indications that serve for monitoring regular taking by the user can be provided on the carrier. By means of the carrier, the medicament pockets can also be combined and held in the stack. The fact that the medicament pockets of the first part-stack are already stacked onto the carrier means that they can be combined and held more easily. This dispenses with the otherwise necessary operation of transporting the completed stacked to the carrier in order to allow the stack to be fixed together with the carrier.

It is possible to stack the singulated medicament pockets directly on a carrier. In this case, the carrier may also already comprise the connecting element or part of the connecting element. This achieves the effect that the stack created is already mechanically combined and can no

longer fall apart during subsequent handling. This makes a reliable manner of production possible. As far as the first implementational variant of the invention is concerned, after the production of a first part-stack, further medicament pockets are stacked onto the first part-stack, so that the further medicament pockets are likewise held by the connecting element. As far as the second implementational variant of the invention is concerned, each further part-stack, i.e. the second, third, fourth part-stack, etc., may also be stacked onto the first part-stack in such a way that the medicament pockets contained in the further part-stacks are likewise held by the connecting element. This procedure achieves immediate fixing of the individual medicament pockets, so that falling apart of a part-stack or of the finished stack, for example during a transporting operation, can no longer take place.

The medicament pockets also preferably have openings which are in line with one another and through which the connecting element can be led. As a result, the medicament pockets are connected to one another and at the same time preferably arranged movably in relation to one another. This has the advantage of compensating for the small elevations in the medicament pockets that are caused in the medicament pockets by the medicament wafers. This allows the medicament pockets to lie on one another in the stack in an orderly way. In this way, on the one hand an aesthetically pleasing device is created. On the other hand, the wafers in the stack are subjected to minimal mechanical loading, and are consequently carefully stored.

In a further embodiment of the invention, the carrier also has a guiding element for guiding the medicament pockets on the carrier. This achieves the effect that the medicament pockets on the carrier are stacked one on top of the other with their edges substantially exactly flush and can also remain this way thereafter.

It is advantageous for the production of the stack if the medicament pockets are placed in cassettes and respectively stacked one on top of the other in said cassettes. If a carrier is used, it is first placed in the respective cassette, so that the medicament pockets can be deposited on it.

The time indications are preferably provided on the carrier in such a way that they are in line with the marking portions on the medicament pockets when the medicament pockets are combined with the carrier.

In a preferred embodiment of the invention, the stack may also be combined by means of a connecting element without a carrier being used. In this case, the medicament pockets may be connected to the connecting element instead of to the carrier when they are stacked one on top of the other in the first production device. In addition, a guiding element may also be used in this case, in order to be able to stack the medicament pockets one on top of the other and hold them together with their edges exactly flush. The stack of pockets held together by means of the connecting element can then be exchangeably fastened to a carrier. For example, the carrier may be formed in such a way that a stack can be easily fastened to it. This makes it possible to make the stack exchangeable in the carrier, and consequently to allow the carrier to be refilled with the stack. This makes a more sophisticated design of the carrier possible, since it is not discarded once the wafers are used up but is reused.

The connecting element may be, for example, a rivet or some other connecting element that holds the stack together in a way preventing manipulation. The connecting element connects the medicament pockets to one another, so that they are preferably arranged movably in relation to one another. In the case of a rivet, the connecting element may comprise in each case two connecting element parts, for example in rod form, which can be fitted or screwed one into the other or can be adhesively bonded to one another. The connecting element may also be in rod form. In a further embodiment of the invention, the connecting element may also be formed in a compact type of construction, in which it comprises two parts, it then being able to fill the openings in the medicament pockets virtually completely when it is assembled. The connecting element may, in particular, comprise a lower part in box form, with a rib arranged therein for passing through the openings, and another part that closes off the lower part in box form. Furthermore, the lower part in box form of the connecting element in box form may comprise a base plate, a wall located on the base plate and partially enclosing the medicament pockets, and consequently guiding them, as well as the rib. In any event, the connecting element is to be understood as meaning a component which is led through the openings in the medicament pockets and connects the medicament pockets. Consequently, a rivet and the rib of the connecting element formed in the compact type of construction may be understood as connecting elements. In the case of the rib, additional suitable holding devices at the foot and head of the rib are of course required for holding the stack together. These additional holding devices may be realized, for example, by the box construction, comprising the lower part in box form and the upper part. Alternatively, differently designed foot and head parts which hold the stack together may also be provided at the foot and head of the rib. The rib may also be formed

as a rivet with two rivet heads in the form of ribs. When the connecting element parts forming the at least one connecting element are assembled, these parts may engage with one another, and preferably cannot be released from one another again without destroying them, or they may be adhesively bonded or welded to one another or else connected to one another by some other connecting technique. In all these cases, what is known as a tamperproof closure is concerned, i.e. a closure that prevents manipulation. It is particularly preferred if the connecting of the at least two parts that form the connecting element is achieved by a form fit. A rivet is to be understood as meaning a connecting element which comprises at least two parts, which engage in one another and are thereby connected to one another with a form fit, and which is also capable by having appropriate head formations of clamping together the stack of medicament pockets arranged in between.

The carrier is preferably produced from paperboard, plastic or metal. Preferably, the carrier encloses the stack of pockets, in order to protect the individual medicament pockets. For this purpose, the carrier may be formed as an elongated strip, which is folded around the stack. For example, a front tab, protruding on one side of the strip, may be formed as a lid. Furthermore, a tab protruding on the other side of the strip may, for example, be formed as a cover. The cover and the lid may, for example, be equipped with suitable closing means to close the carrier around the stack, for instance as a hook-and-loop, pressure, magnet, insert or rubber-band closure.

The time indications may be provided on the carrier or on the connecting element.

The dispenser device containing the stack produced by the process according to the invention is preferably of a forgery-proof configuration. For this purpose, one or more security features that allow the genuineness of the device to be checked are provided on the device, for example imprints in microscript, holograms, tilt images or other security features.

A perforation serving for tearing off a second medicament pocket region of the medicament pocket containing the medicament wafer is preferably respectively introduced into each medicament pocket. The perforation may, for example, be introduced into the ready-made supply of medicament pockets before the marking is provided on it or only after that. The perforation makes it possible for the medicament wafers to be easily removed from the stack, for instance by tearing out or removing a second medicament pocket region from the stack.

The first medicament pocket region remains in the residual stack after the second region has been torn out.

In a preferred embodiment of the invention, the perforation is not formed over the entire width of the medicament pockets but is shortened overall, merging at both its ends into slits. The slits create a notch effect, which makes it even easier for the second medicament pocket regions to be removed. The perforation may be introduced, for example, by suitable punching tools.

In a further preferred embodiment of the invention, a further step is provided before the stacking of the singulated medicament pockets, a step in which the medicament pockets are additionally provided in each case with a border cutout, the cutouts becoming incrementally larger in the stack from medicament pocket to medicament pocket, so that, seen over all the medicament pockets, a step-shaped progression of the cutouts forms in the stack and in this way markings provided on the medicament packs are made visible. For this purpose, on each medicament pocket within a stack, graphic marks are preferably provided at the border, seen in the transporting direction, for example in the form of a symbol, such as a coloured double dot, a smiley face, a company logo or a crossbar, which are progressively removed by the introduction of the cutouts. The cutouts, which may for example be punched out from the medicament pocket during the production process, expose the view in the finished stack of the graphic mark on the medicament pocket lying thereunder in the stack that can respectively be seen in the region of the cutout. These graphic marks may already be printed on the ready-made supply of medicament pockets. The cutouts and the graphic marks that can be seen through them have the advantage that the production personnel or a suitable monitoring device can easily check during the production of the stacks that they are complete, and can consequently easily check the number of medicament pockets in the stack.

In a preferred embodiment of the invention, this mark is provided on one of the aluminium layers or one of the polyethylene terephthalate layers.

The figures described below serve for a general understanding of the invention. However, they are not to be understood restrictively, but are merely intended to explain specific embodiments that are preferred, without excluding other preferred embodiments.

Figure 1 shows a schematic representation of the process sequence of the process according

to the invention;

Figure 2 shows the layout of a sheet from which medicament pockets are obtained by punching out; Figure 2a shows a variant of the sheet from Figure 2;

Figure 3 shows a perspective view of a stack produced from a ready-made supply of medicament pockets in an embodiment according to the invention;

Figure 4 shows a further embodiment according to the invention of a booklet of wafer pockets containing a stack of pockets produced by the process according to the invention in various stages of assembly in a perspective representation; Figure 4a shows a stack of pockets and a connecting element; Figure 4b shows the booklet of wafer pockets when open; Figure 4c shows the booklet of wafer pockets when closed; Figure 4d shows the booklet of wafer pockets in side view; Figure 4e shows an alternative embodiment with a rubber band for closing the booklet of wafer pockets; Figure 4f shows an alternative embodiment with a tab for closing the booklet of wafer pockets; Figure 4g shows an alternative embodiment with a magnet closure;

Figure 5 shows yet a further embodiment according to the invention of a booklet of wafer pockets containing a stack of pockets produced by the process according to the invention in various stages of assembly in a perspective representation; Figure 5a shows the carrier before the clamping of the stack; Figure 5b-1 shows the stack and the connecting element with guide, each on their own; Figure 5b-2, like Figure 5b-1, shows the stack and the connecting element assembled and clamped; Figure 5c shows the booklet of wafer pockets open, after connecting to the carrier; Figure 5d shows the booklet of wafer pockets closed;

Figure 6 shows yet a further embodiment according to the invention of a booklet of wafer pockets containing a stack of wafers produced by the process according to the invention in various stages of assembly in a perspective representation; Figure 6a shows the carrier with the connecting element and guide; Figures 6b and 6c show the booklet of wafer pockets complete or partly open, after bringing the stack into place; Figure 6d shows the stack of wafer pockets closed; Figure 6e, like Figure 6a, shows it with a different arrangement of the days-of-the-week strip;

Figure 7 shows yet a further embodiment according to the invention of a booklet of wafer pockets containing a stack produced by the process according to the invention in side view;

Figure 8 shows yet a further embodiment according to the invention of a booklet of wafer pockets containing a stack produced by the process according to the invention in a

perspective view; the booklet of wafer pockets has step-shaped cutouts.

The same reference numerals in the figures designate the same elements.

In Figure 1, the process sequence according to the invention is schematically reproduced by the ready-made supply of medicaments and production devices that are used in the production of the stacks. The element shown may represent devices that can be used for carrying out the process. However, other configurations of the devices used may also be employed, provided that they serve the purposes according to the invention.

The sheets 7 containing the medicament pockets in the form of areas are fed to punching devices 26, 26' in modules 30, 30', 30''. The number of modules is based on the total number of medicament pockets 4 to be included in a stack of pockets and the number of areas for medicament pockets in a row that are contained on a sheet, i.e. the number of medicament pockets that are fed to each module. If, for example, a total of 28 medicament pockets are to be combined in a stack and there are seven medicament pockets in a row on a sheet, four modules must be provided.

In Figure 2, an example of a layout of a sheet 7 is represented, with a total of 6 x 7 = 42 medicament pockets on the same number of areas 5. The areas are arranged in rows R and columns S. In the present case, six rows and seven columns are provided. The rows and columns are indicated in Figure 2 by way of example by arrows. The areas located in a row on a sheet can be assigned to a stack. Areas of different rows can be assigned to different stacks.

Area regions 8' for apertures and marking portions 18 on a marking border of the respective area can be respectively seen in the areas 5. Within the marking portions, markings 3 are provided, for example by a printing process, to make it easier for the user to monitor regular taking of the medicine. It can be seen that the position of the markings on the marking border in different rows, but the same columns, is the same in each case, while the position of the markings in areas following one another in a row follows one after the other: seen from the bottom, the markings are placed in the lowermost, second-lowermost, third-lowermost marking portion, and so on.

The six adjacent rows R represented, each with seven areas 5, are first cut along the separating

lines 11 into six strips 9, before the medicament pockets are singulated from the strips 9. One strip in each case is then further processed by detaching each individual medicament pocket. The medicament pockets singulated in this way are then respectively stacked one on top of the other, for example to form weekly stacks. Subsequently, a further sheet 7 is processed by the same process. For example, six weekly stacks are created from a sheet. By respectively placing on the six first weekly stacks, obtained from a first sheet 7, a further 21 medicament pockets, which are obtained from three further sheets 7, a total of six stacks each containing 28 medicament pockets are formed. The fact that the strips 9 are preferably created first, and only then are the medicament pockets cut off from the respective strips or separated by punching, means that the medicament pockets belonging to a stack are held together in the form of a strip for as long as possible. According to this way of performing the process, only immediately before the medicament pockets are stacked one on top of the other are they separated from the strips 13. Consequently, sorting errors are avoided, so that the reliability in the creation of the stacks is increased.

A variant of the ready-made supply of medicament pockets from Figure 2 is presented in Figure 2a. This ready-made supply 7 differs from that described above in that eight rows R each of seven areas 5 are provided for the production of medicament pockets. Furthermore, each area has an oval opening 8, which is punched out, a perforation 12, by way of which a first medicament pocket region and a second medicament pocket region are connected to one another, as well as lateral notches 13 at the perforations. Furthermore, on both longitudinal sides of the ready-made supply 7 there are protruding borders 14, in which continuous perforations 15 are located. These perforations 15 serve for transporting the ready-made supply 7, for instance in the same way as advancing a film. The rows R of the sheet 7 are arranged parallel to a direction in which the sheet is transported during the production of the medicament pockets (arrow 10).

Adjacent to the openings 8, the marking portions 18 and markings 3 in the marking portions can be seen in the areas 5. Within a row R of seven areas 5 following one another (encircled numbers, see Figure 2), the positions of the markings 3 change progressively from area to area. On the other hand, the positions of the markings 3 within a column S remain unchanged.

The ready-made supply 7 from Figure 2a differs from that described above according to Figure 2 in that eight rows R each of seven areas 5 are provided for the production of medicament

pockets.

According to Figure 1, each of the modules 30, 30', 30" are fed two of such sheets 7 (see arrows in Figure 1). The regions on the sheets that correspond to the individual rows R and S are likewise schematically shown in Figure 1.

The sheets 7 are placed simultaneously onto the punching tables 27, 27' of the punching devices 26, 26'. There, the medicament pockets 4 are punched out in a way corresponding to the area bordering in Figures 2 and 2a. At the same time, the apertures 8 are also formed by punching out. The punching tables are displaceable in parallel in a way corresponding to the arrows. As a result, a sheet can be arranged under the punching device, and aligned if appropriate, before the punching and can be displaced out of the punching region (upwards in Figure 1) after the punching out of the medicament pockets. It is consequently possible for a further sheet to be already placed on the punching table while the already punched-out medicament pockets, and finally also the punching remains, are still being successively removed from the punching table. For this purpose, the punching operation takes place in the front region of the punching table (in the lower region in Figure 1), in which the sheet for punching is also first deposited and fixed, for example by applying a vacuum. After the punching, the punching tables are displaced rearwards (away from the sheet feed), so that the punched-out medicament pockets can be removed from the punching table.

Serving for the removal of the individual medicament pockets 4 are special robot arms (not represented), which are equipped with sensors in order to ensure that the medicament pockets individually picked up are reliably picked up, reliably transported and reliably deposited again. With the robot arms, the medicament pockets are deposited in cassettes 25, 25', 25", 25"',.... Before a first medicament pocket is placed in, there are in each case in the cassettes carriers for the stacks of pockets, which carriers contain rivets or other connecting means. The medicament pockets are placed onto the respective carriers in such a way that the rivets are led through the aperture 8. As a result, the medicament pockets are held and additionally guided. Even if the stacks of pockets formed are improperly treated, they can then no longer easily fall apart.

In each of the modules 30, 30', 30" there are twelve cassettes. Therefore, a module can be respectively fed two sheets 7 simultaneously, since each sheet contains six rows R of

medicament pockets. The sheets 7 fed to the individual modules are punched simultaneously. Furthermore, in each module the punched-out pockets 4 of a specific column S are brought into the cassettes simultaneously.

Once all the medicament pockets 4 of the sheets 7 in the modules 30, 30', 30" have been transported into the corresponding cassettes 25, 25', 25", 25"',..., part-stacks have been produced there. In the present case, each first part-stack in the first module 30 contains seven medicament pockets. In the second module 30', second part-stacks have already been produced by stacking seven medicament pockets onto the first part-stack. Consequently, the second part-stacks already contain 14 medicament pockets, and so on.

After respective completion of the part-stacks, all the cassettes 25, 25', 25", 25"',... of the modules 30, 30', 30" are displaced simultaneously to the right. Consequently, the cassettes of the first module 30 then reach the second module 30', the cassettes of the second module 30' reach the third module 30", and so on.

After the displacement of the cassettes 25, 25', 25", 25"',... from one module 30, 30', 30" to the module arranged alongside on the right, medicament pockets 4 punched out from sheets 7 are in turn placed into the cassettes 25, 25', 25", 25"',... of the modules 30, 30', 30". Consequently, first part-stacks of medicament pockets are in turn formed in the first module 30. In the further modules 30', 30", further medicament pockets are added to the already present part-stacks, so that in the present case part-stacks with 14 medicament pockets are formed in the second module 30', part-stacks with 21 medicament pockets are formed in the third module and finished stacks with 28 medicament pockets are formed in the fourth module 30".

After completion of the stacks of pockets in the fourth module 30", the stacks are removed, the rivet connections on the stacks are closed, and the carrier strips are folded around in order to protect the stacks.

Figure 3 shows a stack 100, produced by a preferred process, of medicament pockets 4, 4', 4" serving for storing and presenting medicament wafers 2, the medicament pockets being connected to one another after the stacking or already during the stacking. Each medicament pocket 4, 4', 4" respectively has on a marking border a marking 3 in one of a number of marking portions 18 arranged next to one another at the marking border (only represented on the

medicament pocket 4 lying on top). The medicament pockets 4, 4', 4" have second medicament pocket regions 11 and first medicament pocket regions 10, with respective openings 8 in line with one another. The connecting element 200 is led through the opening 8. The connecting element 200 connects the medicament pockets 4 to one another and arranges them movably in relation to one another. The opening 8 is formed as a long hole and the connecting element 200 is formed as a rivet. The first medicament pocket regions 10 and the second medicament pocket regions 11 are respectively connected to one another by way of a perforation 12, so that the detaching of the medicament wafer 2 that is located in the second medicament pocket region 11 from the first medicament pocket region 10 is made easier at the perforation 12. In this case, the first medicament pocket region 10 remains in the stack 100.

In Figure 4, a further embodiment of a booklet of wafer pockets containing a stack 100 of pockets produced by the process according to the invention is shown in a perspective representation. The stack 100 of wafer pockets from Figure 4 is formed in substantially the same way as the booklet of wafer pockets according to Figure 3, although by contrast with Figure 3 the markings 3 and the marking portions 18 are not located adjacent to the perforation 12, but on the opposite border of the medicament pocket regions 11.

The stack 100 of pockets comprises a multiplicity of medicament pockets 4, 4', 4", for example 28 pockets, of which only the uppermost medicament pocket 4 can be seen. The medicament pockets 4, 4', 4" have second medicament pocket regions 11 and first medicament pocket regions 10. The medicament pockets in each case contain a welded-in wafer 2. At the lower border 17, which is a marking border, there are marking portions 18. On one of the marking portions there is a marking 3. In the second medicament pocket (not visible), lying under the upper visible medicament pocket, this marking is provided on the marking portion that lies next to the first marking portion, in which the marking on the uppermost medicament pocket is located.

The first medicament pocket regions 10 and the second medicament pocket regions 11 are respectively connected to one another by way of a perforation 12, the perforation being formed shorter overall than in Figure 3, i.e. it does not extend over the entire width of the medicament pockets 4, 4', 4" but merges at both its ends into slits 13, 13', which act like a notch. This has the effect of making it easier to remove the medicament wafer 2, by even easier detachment of the second medicament pocket region 11 from the first medicament pocket region 10 at the

perforation 12. The first medicament pocket region 10 remains in the booklet of wafer pockets after the detachment of the second medicament pocket region 11. Furthermore, the medicament pockets have respective openings in line with one another, here in the form of a long hole 8, through which the rivet 200 or a rib passes in the assembled state of the booklet.

In this embodiment, by contrast with that of Figure 3, the medicament pockets 4, 4', 4" are connected by a compact connecting element 200, comprising a lower connecting element part 210 and an upper connecting element part 220, which completely fills the opening 8 in the assembled state, the connecting elements being formed as a rivet. Above the stack 100 of pockets, the two-part rivet 200 is shown: the rivet has a lower part 210 and an upper part 220. The lower part passes from below through the long holes 8. The pillar-like rivet holders 211, 212 are fastened on a base plate 213, spaced apart from one another in such a way that the outer flanks of the rivet holders lie loosely against the rounded ends of the long holes. These outer flanks are tilted slightly upwards, so that the medicament pockets placed one after the other onto the lower rivet part easily slide with their respective long hole onto the rivet (enlarged representation of the rivet holder 212). Once the entire stack of pockets is formed, the rivet is closed, in that the upper rivet part 220 is pressed between the pillar-like rivet holders. For the connection of the upper rivet part to the lower rivet part with a form fit, both rivet parts have for this purpose serrated side faces, which interlock with one another. Once the rivet is closed, the stack of pockets can be handled without any problem, without having to fear that the integrity of the stack could be impaired during handling. Furthermore, the riveted stack of pockets can also be used for refilling a carrier. In Figure 4d it is shown that the rivet is made to be of such a length that the medicament pockets have vertical play on it. As a result, allowance can be made for the difference in thickness of the wafer pocket regions on the pockets in comparison with the other regions. The medicament pockets also slide on the rivet without any friction.

In the production of the stack 100, the lower connecting element 210 is, for example, held by a holding device, or if appropriate a carrier, and the singulated medicament pockets 4, 4', 4" or the finished stack 100 is/are placed onto the lower connecting element part 210 by way of the openings 8. Subsequently, the connecting element 200 is closed by placing on the upper connecting element part 220.

For example, the lower rivet part 210 is preferably fastened on a carrier strip 300. When creating the first part-stack from medicament pockets 4, the carrier strips are preferably placed

together with the lower rivet part first into the cassettes 25, 25', 25", 25"',... (Figure 1). The medicament pockets are then placed onto this strip, the lower rivet part that is fastened on the carrier strip respectively sliding into the long hole 8 of the pockets, and on the one hand guiding the pockets, the position of which is fixed, and on the other hand also holding them.

After the stacking of all the medicament pockets of a booklet of wafer pockets one on top of the other, the carrier strip 300 is provided with a days-of-the-week strip 350. The days-of-the-week strip is provided in such a way that it is in line with the marking portions 18 on the medicament pockets 4, 4', 4". This allows the user to identify on which day of the week the wafer 2 of the medicament pocket 4 lying on top must be taken.

The carrier strip 300 is then folded around, both at the upper end and at the lower end, in such a way that the upper end forms a cover 320 for the booklet of wafer pockets. Information concerning the manufacturer and the name of the medicament, for example, may be provided on the cover. The cover extends substantially over the entire area of the medicament pockets 4. After folding around, it is fixed by the upper river part 220 being pressed in between the pillar-like rivet holders 211, 212 of the lower river part 210.

The lower end of the carrier strip 300 is likewise folded around, so that it forms a lid 330 for the medicament pockets 4. The closed state of the booklet of wafer pockets can be seen in Figure 4c. The lid 330 reaches over the cover 320. The two parts are connected to one another by way of a releasable closure. For example, hook-and-loop fasteners 410, 420 may be provided on the inner side of the lid and on the outer side of the cover. The hook-and-loop closures are shown in Figure 4d. A magnet closure is shown in Figure 4g. For this purpose, for example, a metal strip is provided in the border of the lid 330, preferably over the entire width of the lid, and, for example, a magnetized metal strip is provided on the bordering region of the cover 320, likewise preferably over the entire width of the cover.

An alternative embodiment of the booklet of wafer pockets is shown in Figure 4e: instead of the hook-and-loop closure or the magnet closure, a rubber band 430 is provided, which band is fastened to the lower part of the carrier 300 and is pulled over the cover 320 to close the booklet.

A further embodiment of the booklet of wafer pockets is shown in Figure 4f. In this case, a tab 440 formed by punching and bent out downwards is provided on the cover 320, which tab can engage in a long hole 450 in the lid 330 when the booklet of wafer pockets is closed.

In Figure 5, a further embodiment of a booklet of wafer pockets containing a stack 100 of pockets produced by the process according to the invention is shown in various stages of assembly in a perspective representation.

The stack 100 of pockets comprises a multiplicity of medicament pockets 4, for example 28 pockets, of which only the uppermost medicament pocket can be seen. The medicament pocket contains a welded-in wafer 2. At the lower border 17, which is a marking border, there are marking portions 18. On one of the marking portions there is a marking 3. In the second medicament pocket (not visible), lying under the upper visible medicament pocket, this marking is provided on the marking portion that lies next to the first marking portion, in which the marking on the uppermost medicament pocket is located.

The medicament pockets 4 are notched on two sides in the upper region at 13, 13' and have a perforation 12. Furthermore, the medicament pockets have long holes 8, through which a rib 214 passes in the assembled state of the booklet.

Shown above the stack 100 of pockets in Figure 5b-1 is the fastening device 200, which is formed in two parts: the fastening device has a lower part 210 and an upper part 220. The lower part comprises a rib 214 and a frame 215, which are both provided on a base plate 213. The rib passes from below through the long holes 8. The frame 215 bounds the base plate on three sides and partly on the fourth side. Where this frame is absent, the medicament pockets can reach over a connecting part having the perforation. Moreover, this frame snugly encloses the upper (first) part of the medicament pockets and consequently represents an outer guide for the medicament pockets, so that the latter are securely fixed in the booklet of wafer pockets without play. The upper part of the fastening device is formed by a plate 220, which can be fastened on the lower part with a form fit or a material bond. In the case of a connection with a material bond, the plate may, for example, be connected to the lower part by means of ultrasonic welding. For a connection with a form fit, for example, undercuts are provided on one of the two parts and projecting parts are provided on the other of the two parts.

Once the fastening device 200 is closed, the (clamped) stack 100 of pockets can be handled without any problem, without having to fear that the integrity of the stack could be impaired during handling.

The lower part 210 of the fastening device 200 is preferably fastened on a carrier strip 300, for example by adhesive bonding. If, to create the stack of medicament pockets, a first part-stack is created, the carrier strip is preferably first placed along with the lower part 210 in the respective cassette 25, 25', 25'', 25''',... (Figure 1) for the creation thereof from medicament pockets 4. The medicament pockets are then placed onto this strip, the rib 214 of the lower part 210 that is fastened on the carrier strip respectively sliding into the long hole 8 of the pockets. The medicament pockets are held on the carrier strip by this rib and the frame 215. Furthermore, the position of the medicament pockets is thereby fixed exactly.

After all the medicament pockets of a booklet of wafer pockets have been stacked one on top of the other, the carrier strip 300 is provided with a days-of-the-week strip 350. The days-of-the-week strip is provided in such a way that it is in line with the marking portions 18, and consequently with in each case a marking 3 on the medicament pockets 4. This allows the user to identify which day of the week the wafer of the medicament pocket lying on top must be taken.

The carrier strip 300 is then folded around at the lower end in such a way that this end forms a lid 330 for the booklet of wafer pockets. Information concerning the manufacturer and the name of the medicament, for example, may be provided on the cover. The cover in this case extends substantially over the entire area of the medicament pockets.

The upper end of the carrier strip 300 is not folded around. At this point, the fastening device 200 forms a box, which closes off the book of wafer pockets at the upper border. The closed state of the booklet of wafer pockets can be seen in Figure 5d. The lid 330 extends over the fastening device. The two parts are connected to one another by way of a releasable closure. For example, magnet closures may be provided on the inner side of the lid and on the outer side of the fastening device, for example a metal strip on one side and a magnetized metal strip on the other side. The part-elements of the magnet closure may also be contained in the respective components in a concealed manner.

In Figure 6, a further embodiment of a booklet of wafer pockets containing a stack 100 of pockets produced by the process according to the invention is shown in various stages of assembly in a perspective representation.

The stack 100 of pockets comprises a multiplicity of medicament pockets, for example 28 pockets, of which only the uppermost medicament pocket 4 can be seen. The medicament pocket contains a welded-in wafer 2. At the lower border 17, which is a marking border, there are marking portions 18. On one of the marking portions there is a marking 3. In the second medicament pocket (not visible), lying under the upper visible medicament pocket, this marking is provided on the marking portion that lies next to the first marking portion, in which the marking on the uppermost medicament pocket is located.

The medicament pockets 4 are notched on two sides in the upper region at 13, 13' and have a perforation 12. Furthermore, the medicament pockets have long holes 8, through which a rib 214 passes in the assembled state of the booklet.

In Figure 6a, the fastening device 200 is shown on the carrier strip 300. The fastening device is formed in two parts: it has a lower part 210 and an upper part 220. The lower part comprises a rib 214, a frame 215 and a base plate 213. The rib passes from below through the long holes 8. The frame 215 rests on the border of the base plate 213. It bounds the base plate on three sides and partly on the fourth side. Where this frame is absent, the medicament pockets 4 can reach over a connecting part having the perforation. Moreover, this frame snugly encloses the upper (first) part of the medicament pockets and therefore guides the latter, so that they are securely fixed in the booklet of wafer pockets without play. The upper part of the fastening is formed by the plate 220, which can be fastened on the lower part with a form fit or a material bond. This plate 220 is, for example, connected to the carrier strip 300 with a material bond (by adhesive bonding or the like).

The lower part 210 of the fastening device 200 is fastened on the carrier strip 300, for example by adhesive bonding. When creating a stack from medicament pockets or a first part-stack from medicament pockets 4, the carrier strips along with the lower part 210 are preferably laid first, or placed first in the cassettes 25, 25', 25", 25"',... (Figure 1). The medicament pockets are then placed onto these strips, the rib 214 of the lower part of the fastening device that is fastened on the carrier strip respectively sliding into the long hole 8 of the pockets. The medicament

pockets are held on the carrier strip by this rib and frame 215. Furthermore, its position is fixed exactly by the frame.

After all the medicament pockets 4 of a booklet of wafer pockets have been stacked one on top of the other, the carrier strip 300 is provided with a days-of-the-week strip 350. The days-of-the-week strip may be provided both at the position shown in Figure 6a and at the position shown in Figure 6e. The days-of-the-week strip is provided in such a way that it is in line with the marking portions 18 on the medicament pockets 4. This allows the user to identify which day of the week the wafer of the medicament pocket lying on top must be taken.

The carrier strip 300 is then folded around at the upper end in such a way that this end forms a lid 320 for the booklet of wafer pockets. Information concerning the manufacturer and the name of the medicament, for example, may be provided on the cover. The cover in this case extends over the entire area of the medicament pockets 4 and over the overhang of the carrier at the lower end of the booklet.

The lower end of the carrier strip 300 is folded around in such a way that the block 340 is obtained. The cover 320 reaches over the block. The two parts are connected to one another by way of a releasable closure. For example, magnet closures may be provided on the inner side of the cover and on the outer side of the block.

Once the connecting element has been folded around and closed, the booklet of wafer pockets is assembled.

In Figure 7, yet a further embodiment of the booklet of wafer pockets is represented. As in the case of the booklet from Figure 5, the lid 330 of the carrier 300 is pulled from below over the stack 100 of pockets and covers it in the closed state. By contrast with the embodiment from Figure 5, a rivet has been used as the connecting element 200. This rivet serves at the same time together with the corresponding opening in the lid as a closure for the booklet of wafer pockets, in that a protruding part of the rivet is inserted into a hole in the lid.

Figure 8 shows a perspective view of a booklet of wafer pockets produced from a ready-made supply of medicament pockets, with a stack 100 substantially analogous to Figure 4, although the medicament pockets 4, 4', 4" additionally have in each case a lateral cutout 16. The cutouts

16 are respectively located on a border of the medicament pockets 4, 4', 4" that the first and second medicament pocket regions 10, 11 have in common, the individual cutouts being configured in such a way that, in the medicament pockets 4, 4', 4" following one another, they become incrementally larger from medicament pocket to medicament pocket from top to bottom in the stack. Seen over all the medicament pockets 4, 4', 4" in the stack 100, this produces a step-shaped progression of the cutouts 16 from medicament pocket to medicament pocket. The cutouts 16, which are for example punched out from each of the medicament pockets 4, 4', 4" during the production process, expose the view of the graphic mark 21, represented as a double dot, that is respectively introduced in the region of the cutout 16 on the medicament pocket 4', 4" lying thereunder in the stack 100.

In this embodiment, the stack 100 is arranged on a carrier 300. The stack 100 and the carrier are connected to one another by three rivets 200, 200', 200". It is optionally also possible for only one rivet 200' or, for example, the connecting element according to Figure 4 to be used for connecting the stack 100 to the carrier. On the medicament pocket 4 lying on top, the marking 3 and the marking portions 18 can be seen in the second medicament pocket region 11.

In this embodiment, the carrier 300 has a region 360 protruding beyond the lower border of the second medicament pocket regions 11 and has time indications 350 (a days-of-the-week strip) on this region, the time indications, here indications of the days of the week, being in line with the marking portions 18.

The time indications 350 are provided, for example, by adhesive attachment and have the indications of the days of the week in German "Mo", "Di", "Mi", "Do", "Fr", "Sa" and "So". The strip is prepared in such a way that the indication of the first day of the week appears on the extreme left. A first marking 3 in line with the indication of the day of the week "Mo" is provided on the medicament pocket 4 lying on top. Further markings 3 are not shown, since they are concealed by the medicament pockets 4 lying over them.

Patent claims

1. Process for producing stacks (100) of medicament pockets (4, 4', 4") serving for storing and presenting medicament wafers (2), each medicament pocket (4, 4', 4") respectively having on a marking border (17) a marking (3) in one of a number of marking portions (18) arranged next to one another at the marking border (17), the process including the following process step: stacking the medicament pockets (4, 4', 4") one on top of the other to form at least one stack (100), so that in the at least one stack (100) there are following one another medicament pockets (4, 4', 4") of which the markings (3) are located in marking portions (18) following one another, and, if appropriate, a medicament pocket (4, 4', 4") with a marking (3) located at a first end of the marking border (17) follows a medicament pocket (4, 4', 4") with a marking (3) located at a second end of the marking border (17).

2. Process according to Claim 1, characterized in that the process comprises the following process steps:

   a) stacking the medicament pockets (4, 4', 4") one on top of the other to form at least one first part-stack in a first production device (30), so that in each first part-stack there are following one another medicament pockets (4, 4', 4") of which the markings (3) are located in marking portions (18) following one another, and, if appropriate, a medicament pocket (4, 4', 4") with a marking (3) located at a first end of the marking border (17) follows a medicament pocket (4, 4', 4") with a marking (3) located at a second end of the marking border (17);
   b) stacking further medicament pockets (4, 4', 4") onto the at least one first part-stack in a second production device (30'), so that in each part-stack formed in this way there are following one another medicament pockets (4, 4', 4") of which the markings (3) are located in marking portions (18) following one another, and, if appropriate, a medicament pocket (4, 4', 4") with a marking (3) located at a first end of the marking border (17) follows a medicament pocket (4, 4', 4") with a marking (3) located at a second end of the marking border (17);
   c) if appropriate, repetition at least once of process step b) by respectively stacking further medicament pockets (4, 4', 4") onto the at least one part-stack created in the

second or in a further production device (30') in further production devices (30") to form finally at least one stack (100) of medicament pockets (4, 4', 4").

3. Process according to Claim 2, characterized in that a first part-stack is created in the first production device (30) by stacking medicament pockets (4, 4', 4") one on top of the other, at least one second and third part-stack are created in a second and third production device (30') by stacking further medicament pockets (4, 4', 4") onto each previously formed part-stack and at least one stack (100) is created in a fourth production device (30") by stacking further medicament pockets (4, 4', 4") onto each third part-stack.

4. Process according to Claim 1, characterized in that the process comprises the following process steps:

a) stacking the medicament pockets (4, 4', 4") one on top of the other to form at least one first part-stack in a first production device (30) and in each case at least one further part-stack in further production devices (30', 30"), so that in each first part-stack and further part-stack there are following one another medicament pockets (4, 4', 4") of which the markings (3) are located in marking portions (18) following one another, and, if appropriate, a medicament pocket (4, 4', 4") with a marking (3) located at a first end of the marking border (17) follows a medicament pocket (4, 4', 4") with a marking (3) located at a second end of the marking border (17);
b) stacking the at least one first part-stack and the further part-stacks formed in process step a) one on top of the other to form at least one stack (100) of medicament pockets (4, 4', 4"), so that in each stack (100) there are following one another medicament pockets (4, 4', 4") of which the markings (3) are located in marking portions (18) following one another, and, if appropriate, a medicament pocket (4, 4', 4") with a marking (3) located at a first end of the marking border (17) follows a medicament pocket (4, 4', 4") with a marking (3) located at a second end of the marking border (17).

5. Process according to Claim 4, characterized in that four part-stacks are in each case stacked one on top of the other to form in each case a stack (100) of medicament pockets (4, 4', 4").

6. Process according to one of the preceding claims, characterized in that seven marking

portions (18) are located on the marking border (17) of each medicament pocket (4, 4', 4").

7. Process according to one of the preceding claims, characterized in that seven medicament pockets (4, 4', 4") are in each case stacked one on top of the other to form a first part-stack.

8. Process according to one of Claims 2-7, characterized in that at least two first part-stacks are in each case created simultaneously by stacking the medicament pockets (4, 4', 4") one on top of the other.

9. Process according to one of the preceding claims, characterized in that the medicament pockets (4, 4', 4") are in each case stacked one on top of the other to create the part-stacks in a cassette (25, 25', 25", 25'").

10. Process according to one of the preceding claims, characterized in that the medicament pockets (4, 4', 4") are stacked one on top of the other to create a respective first part-stack on in each case a carrier (300).

11. Process according to Claim 10, characterized in that the carrier (300) has at least one connecting element (200), holding the medicament pockets (4, 4', 4") on the carrier (300) and in that further medicament pockets (4, 4', 4") or further part-stacks of medicament pockets (4, 4', 4") are stacked onto the first part-stack, so that the further medicament pockets (4, 4', 4") or the medicament pockets (4, 4', 4") contained in the further part-stacks are likewise held by the connecting element (200).

12. Process according to Claim 11, characterized in that the carrier (300) also has a guiding element (215) for guiding the medicament pockets (4, 4', 4") on the carrier (300).

13. Process according to one of Claims 10-12, characterized in that time indications (350) are provided on the carrier (300), so that the time indications (350) are in line with the marking portions (18).

14. Process according to Claim 13, characterized in that the time indications (350) are

indications of the days of the week.

15. Process according to one of the preceding claims, characterized in that the medicament pockets (4, 4', 4") are created by singulation from a ready-made supply of medicament pockets (7).

16. Process according to one of the preceding claims, characterized in that the process comprises the following further steps:

i) providing a ready-made supply of medicament pockets (7), the ready-made supply of medicament pockets (7) containing at least two adjacent rows (R) of areas (5) from which the medicament pockets (4, 4', 4") are to be formed by singulation, and the markings (3) being provided on areas (5) following one another in the row (R) in marking portions (18) following one another;

ii) separating the at least two adjacent rows (R) from one another along at least one separating line (11) separating the rows (R), strips (9) which contain the medicament pockets (4, 4', 4") following one another in the rows (R) being formed in a way corresponding to the number of rows (R);

iii) singulating the medicament pockets (4, 4', 4") contained in the respectively formed strips (9) by detaching each individual medicament pocket (4, 4', 4") from its strip (9); and

iv) stacking the singulated medicament pockets (4, 4', 4") of a respective strip (9) to form a respective stack (100), so that, progressively from one medicament pocket (4, 4', 4") to the next medicament pocket (4, 4', 4"), the respective markings (3) on the medicament pockets (4, 4', 4") within each stack (100) are arranged in marking portions (18) following one another.

17. Process according to Claim 16, characterized in that process step i) additionally comprises the transporting of the ready-made supply of medicament pockets (7) in a transporting direction (22), the at least two rows (R) being adjacent, parallel to the transporting direction (22), and the areas (5) following one another in the transporting direction, the separating line (11) following the transporting direction (22) and the medicament pockets (4, 4', 4") following one another in the transporting direction (22).

18. Process according to one of the preceding claims, characterized in that a stack (100)

contains 28 medicament pockets (4, 4', 4").

19. Process according to one of the preceding claims, characterized in that the stack (100) is arranged on a carrier (300) and is connected to the latter by way of a connecting element (200) or in that the medicament pockets (4, 4', 4") are stacked on the carrier (300) and connected to the latter by way of the connecting element (200).

20. Process according to one of the preceding claims, characterized in that a perforation (12) serving for tearing off a second medicament pocket region (11) of the medicament pocket (4, 4', 4") containing the medicament wafer (2) is respectively introduced into each medicament pocket (4, 4', 4").

21. Process according to Claim 20, characterized in that the marking (3) is located in the second medicament pocket region (11).

22. Process according to one of Claims 16-21, characterized in that the separating of the at least two adjacent rows (R) from one another is performed by cutting.

23. Process according to one of Claims 16-22, characterized in that the singulating of the medicament pockets (4, 4', 4") contained in the strips (9) formed is performed by cutting or punching.

24. Process according to one of Claims 16-23, characterized in that the ready-made supplies of medicament pockets (7) are sheets.

25. Process according to Claim 24, characterized in that each sheet (7) comprises six or eight rows (R), adjacent to one another, of the medicament pockets (4, 4', 4") following one another and seven medicament pockets (4, 4', 4") following one another in each row (R).

26. Process according to one of Claims 16-25, characterized in that a further step is provided before the stacking of the singulated medicament pockets (4, 4', 4"), a step in which the medicament pockets (4, 4', 4") are additionally provided in each case with a border cutout (16), so that the cutouts (16) become incrementally larger in the stack (100) from medicament pocket (4, 4', 4") to medicament pocket (4, 4', 4") and, seen over all the

medicament pockets (4, 4', 4"), a step-shaped progression of the cutouts (16) forms in the stack (100).

27. Process according to one of the preceding claims, characterized in that the medicament wafers (2) are designed for use for contraception or for hormone replacement therapy.

28. Ready-made supply of medicament pockets (7) for producing a stack (100) of medicament pockets (4, 4', 4") serving for storing and presenting the medicament wafers (2), the ready-made supply of medicament pockets (7) comprising at least two adjacent rows (R) of medicament pockets (4, 4', 4") following one another and each medicament pocket (4, 4', 4") respectively having on a marking border a marking (3) in one of a number of marking portions (18) arranged next to one another at the marking border and a marking (3) being provided on each medicament pocket (4, 4', 4") on the ready-made supply of medicament pockets (7) in such a way that the markings (3) on medicament pockets (4, 4', 4") following one another in the row (R) are provided in marking portions (18) following one another.

29. Ready-made supply of medicament pockets (7) according to Claim 28, characterized in that seven marking portions (18) are located on each marking border.

30. Ready-made supply of medicament pockets (7) according to either of Claims 28 and 29, characterized in that seven medicament pockets (4, 4', 4") are located in each row (R).

31. Ready-made supply of medicament pockets (7) according to one of Claims 28-30, characterized in that the medicament wafers (2) contain medicaments for contraception or hormone replacement therapy.

32. Ready-made supply of medicament pockets (7) according to one of Claims 28-31, characterized in that the medicament pockets (4, 4', 4") additionally have in each case graphic marks (21) at the border.

33. Use of the ready-made supply of medicament pockets (7) according to one of Claims 28-32 for producing a stack (100) of medicament pockets (4, 4', 4") serving for storing and presenting medicament wafers (2).

34. Use of the ready-made supply of medicament pockets (7) according to one of Claims 28-33 for producing a device for storing and presenting the medicament wafers (2), comprising i) a stack (100) of medicament pockets (4, 4', 4") containing the medicament wafers (2), with in each case seven marking portions (18), and ii) a carrier (300), arranged on which are seven time indications (350) with which the markings (3) are in line.

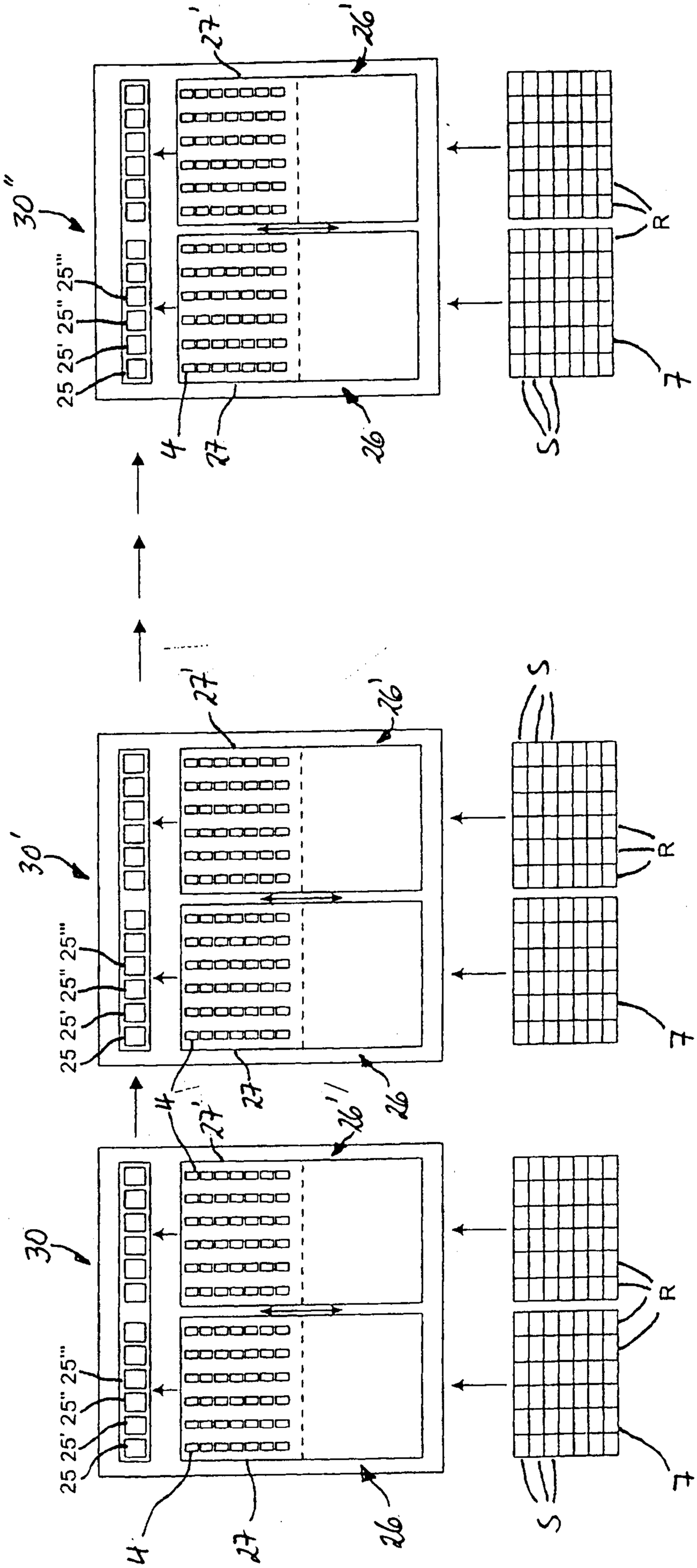


Fig. 1

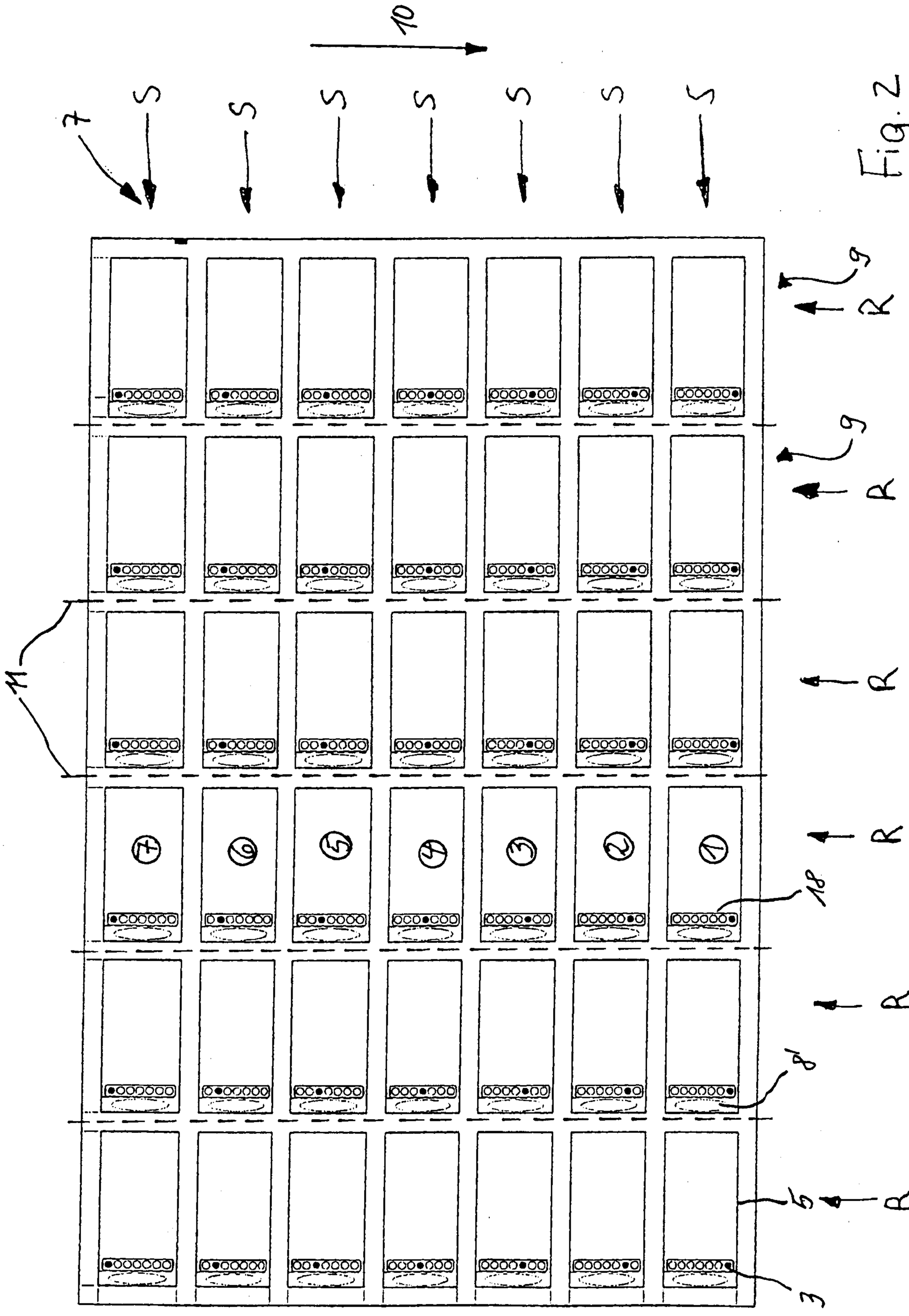


Fig. 2

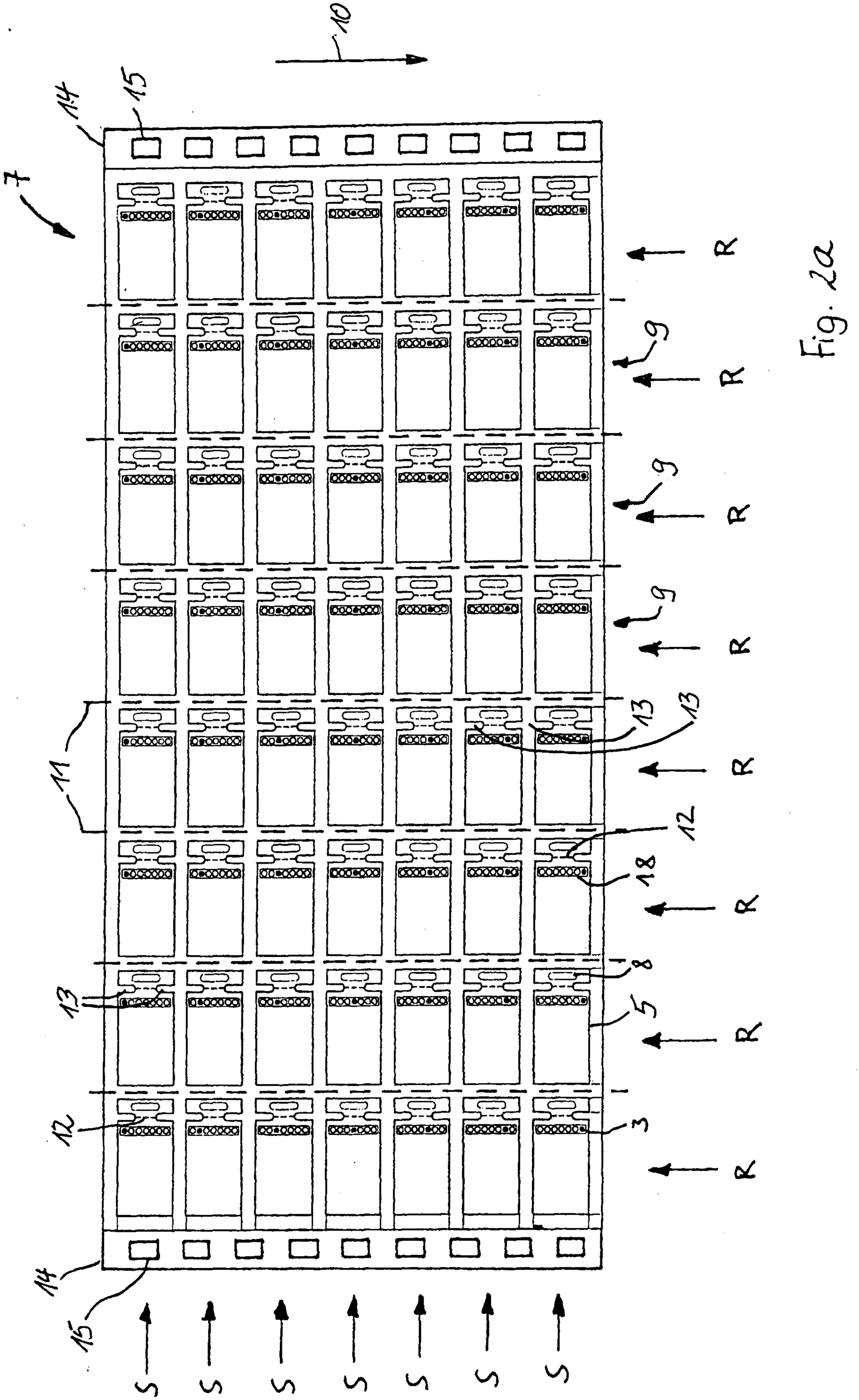


Fig. 2a

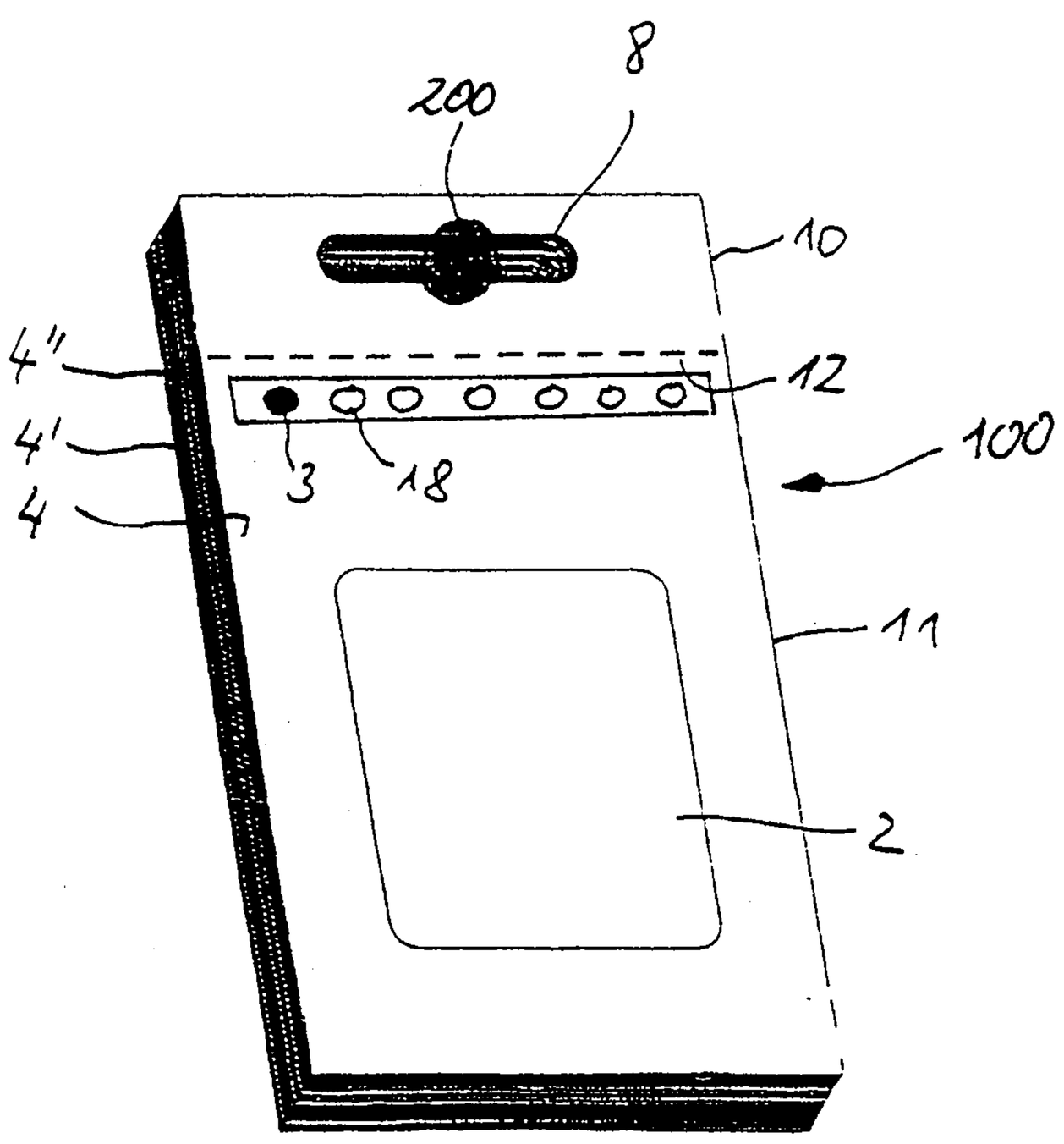


Fig.3

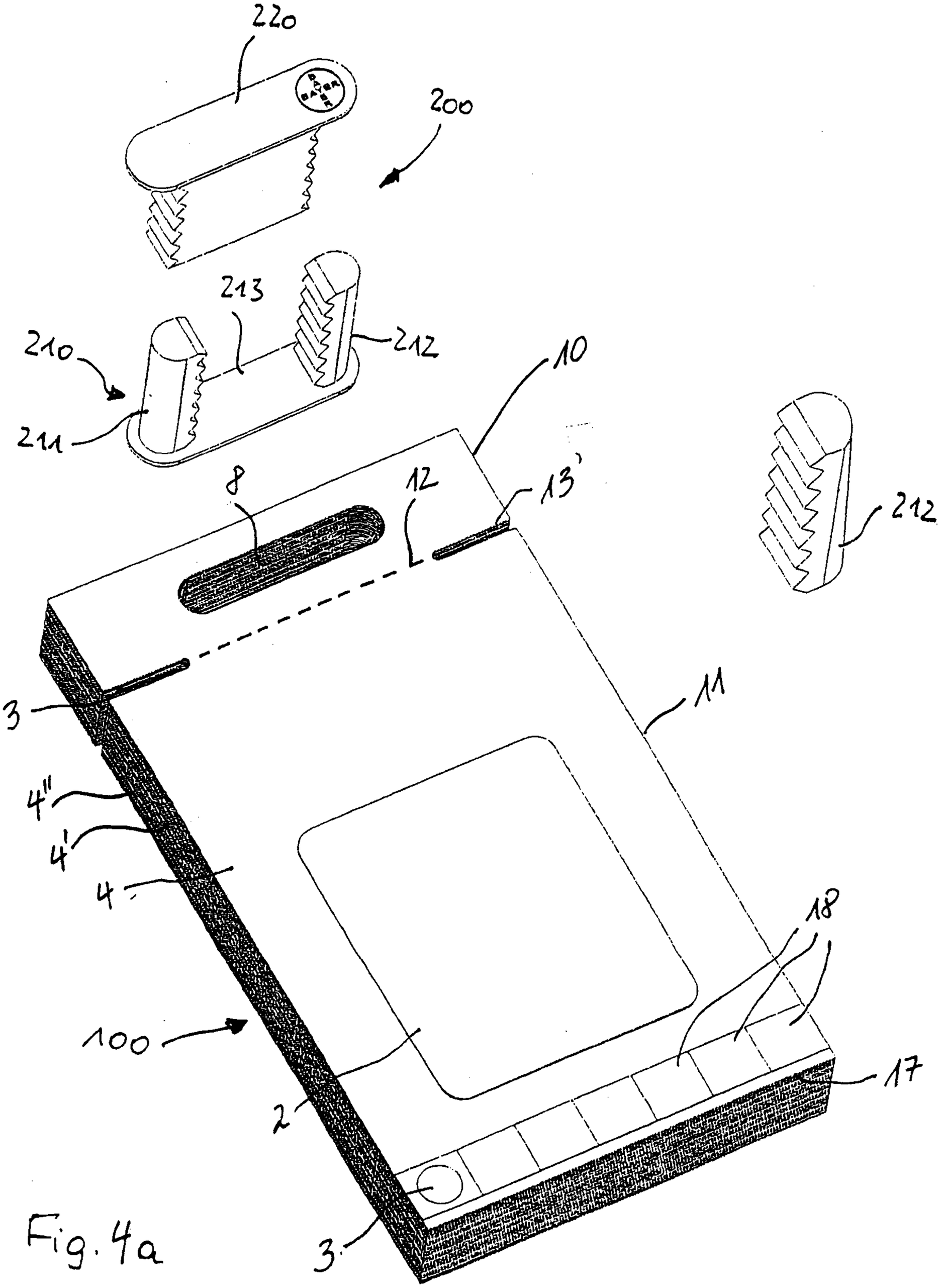


Fig. 4a

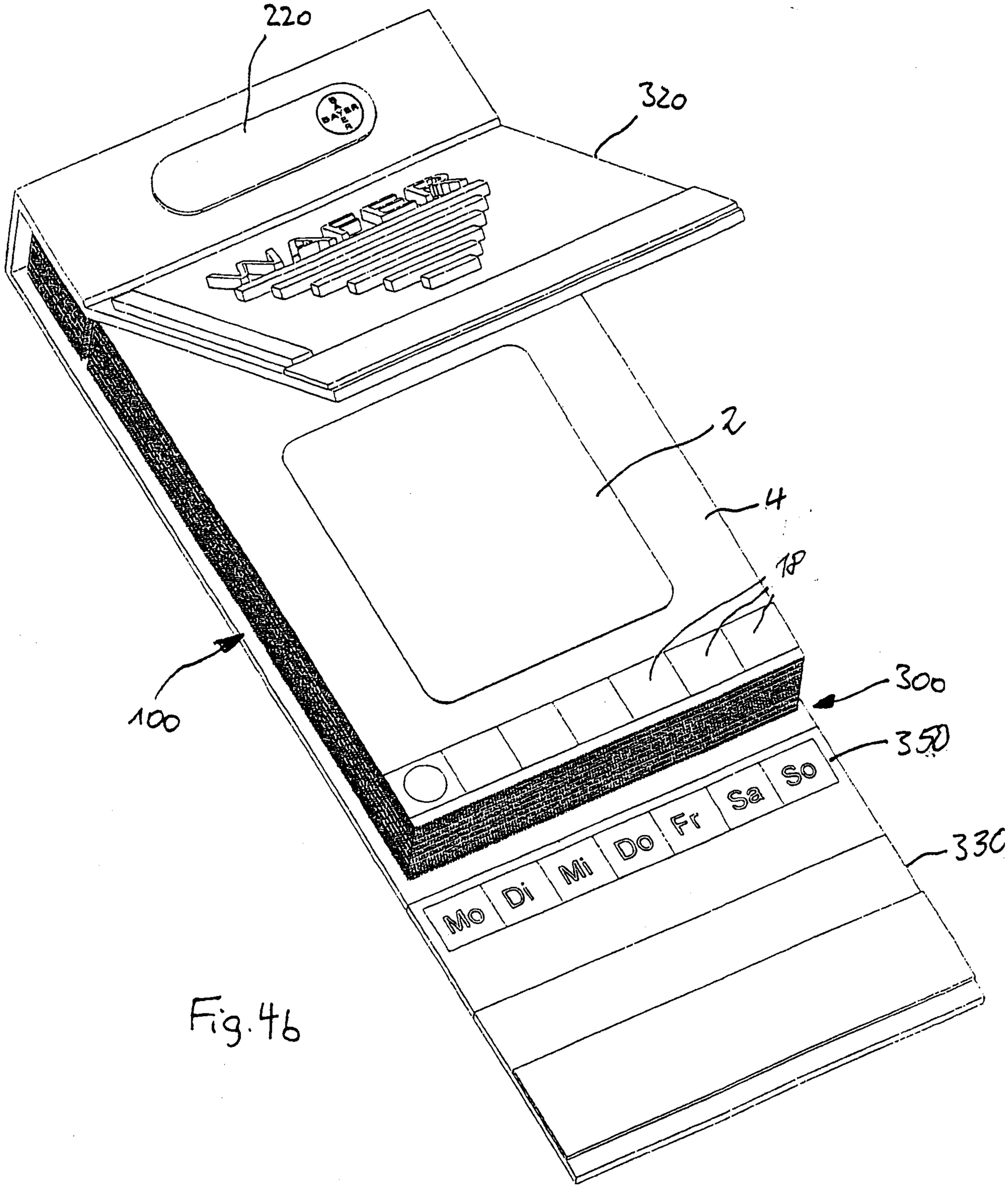


Fig. 4b

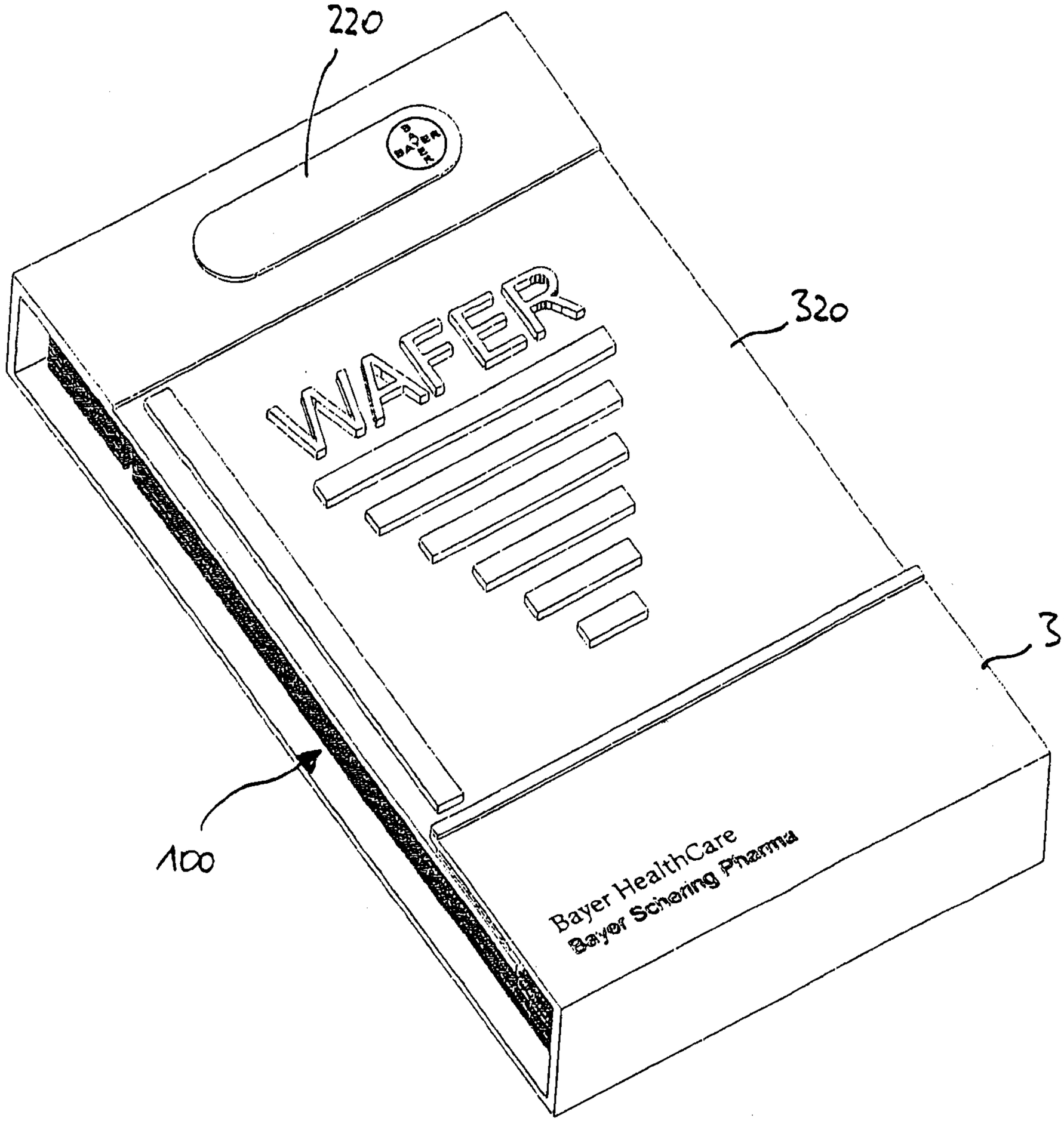

220
320
330
100
WAFER
Bayer HealthCare
Bayer Schering Pharma

Fig. 4c

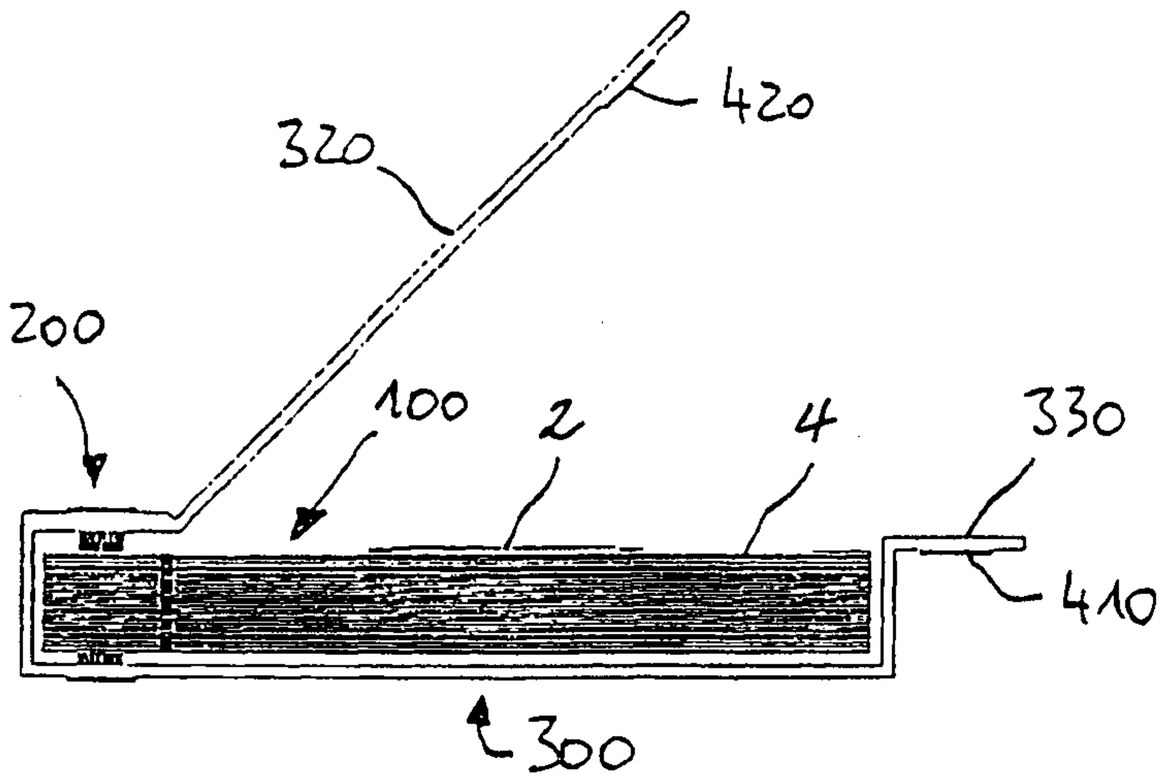


Fig. 4d

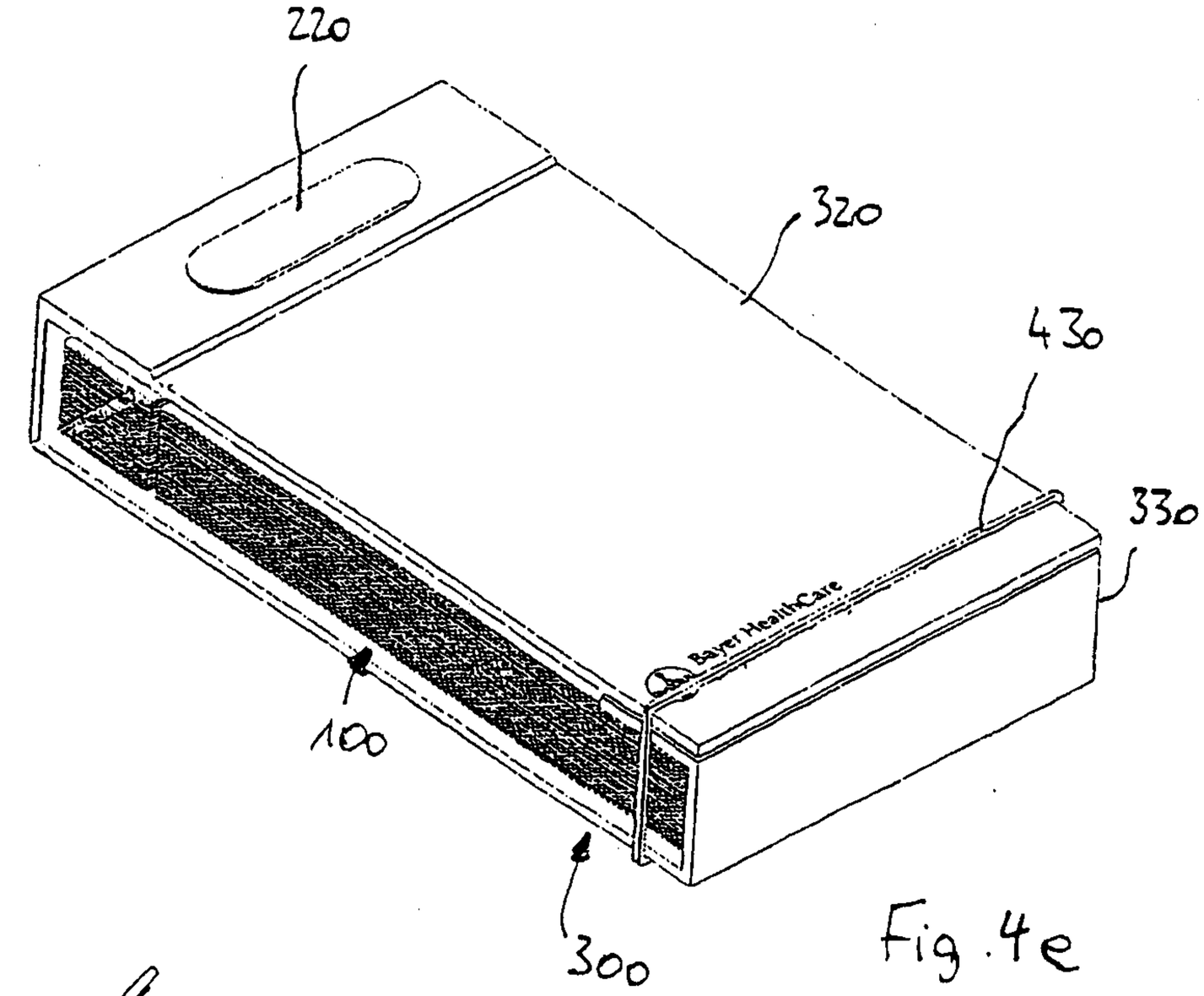


Fig. 4e

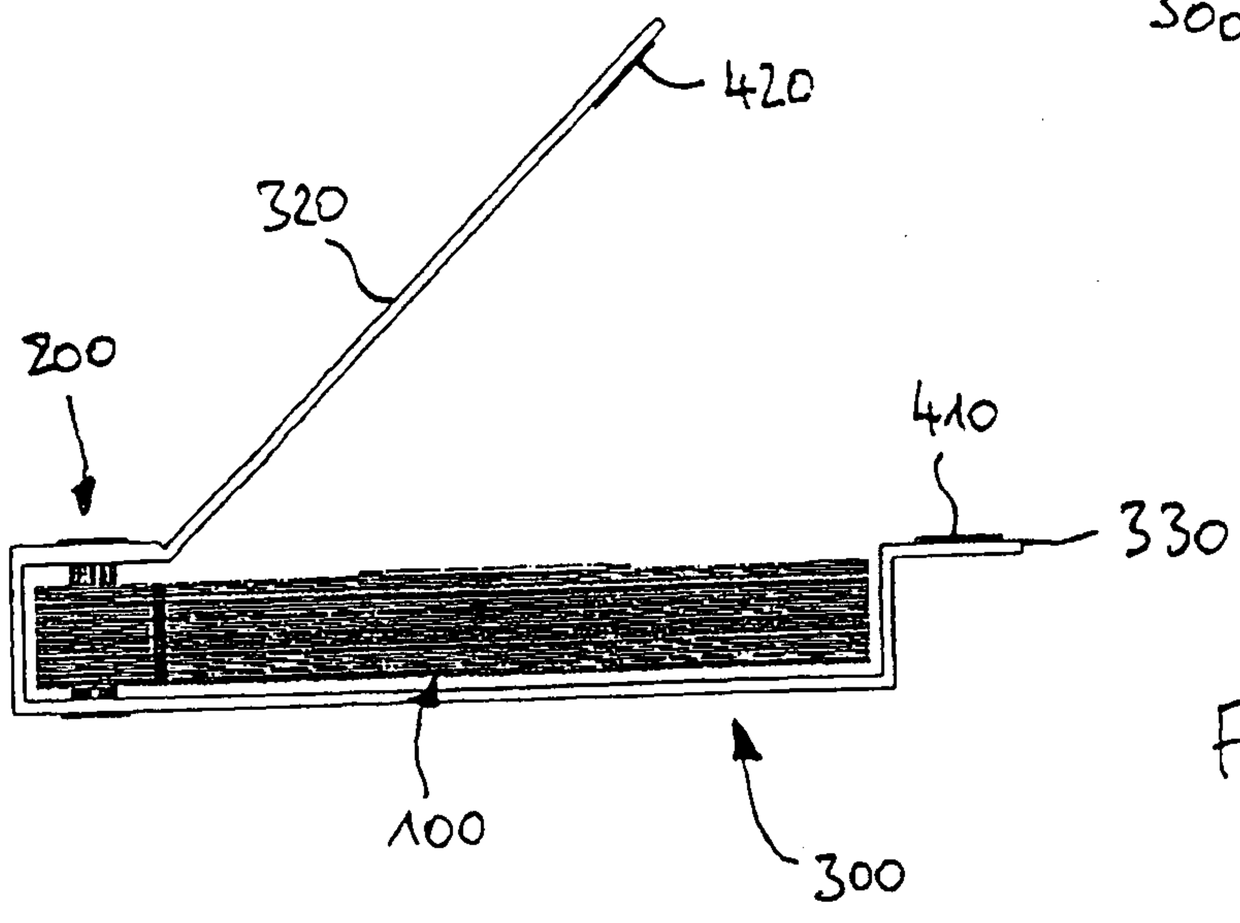


Fig. 4g

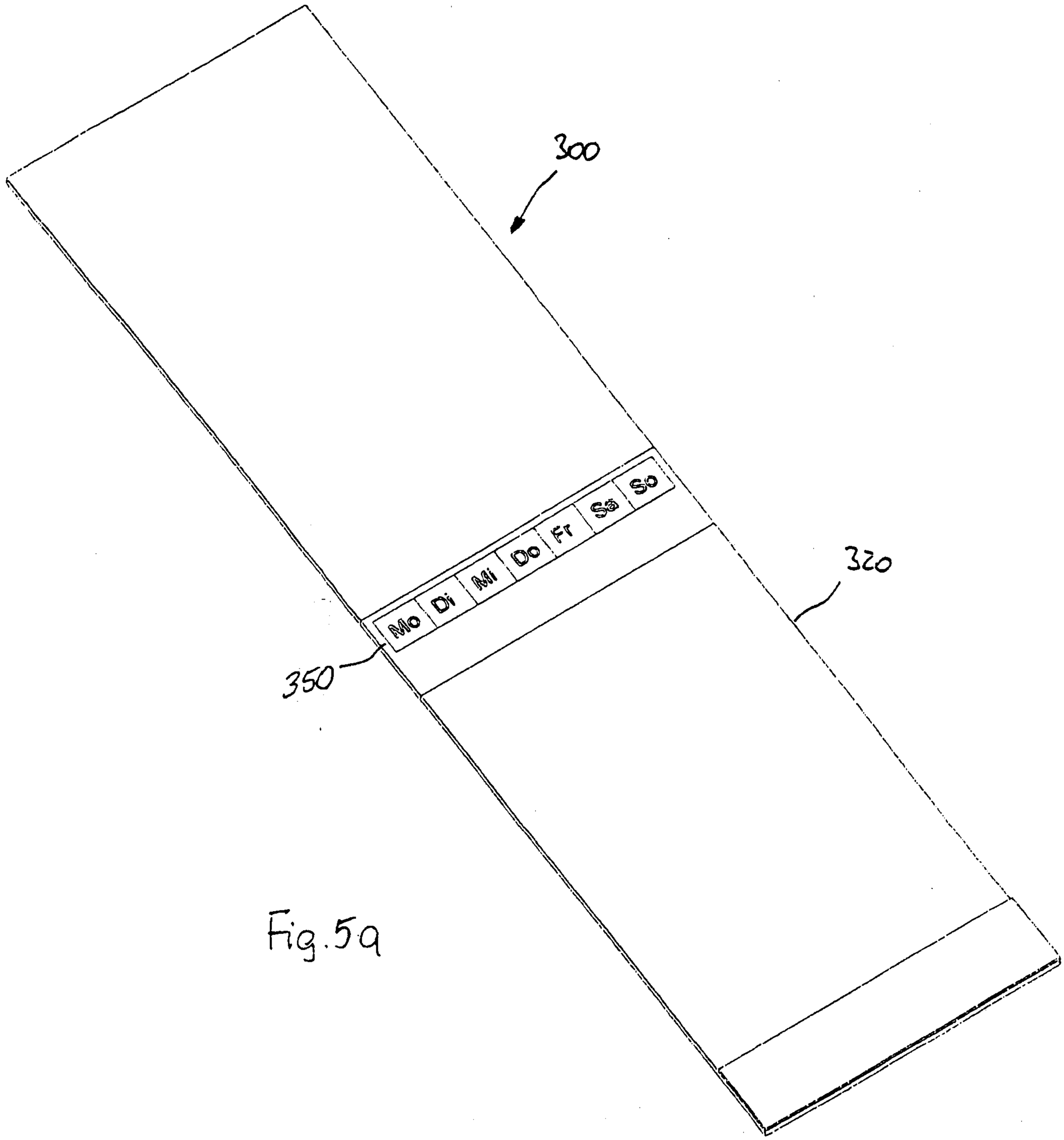


Fig. 5a

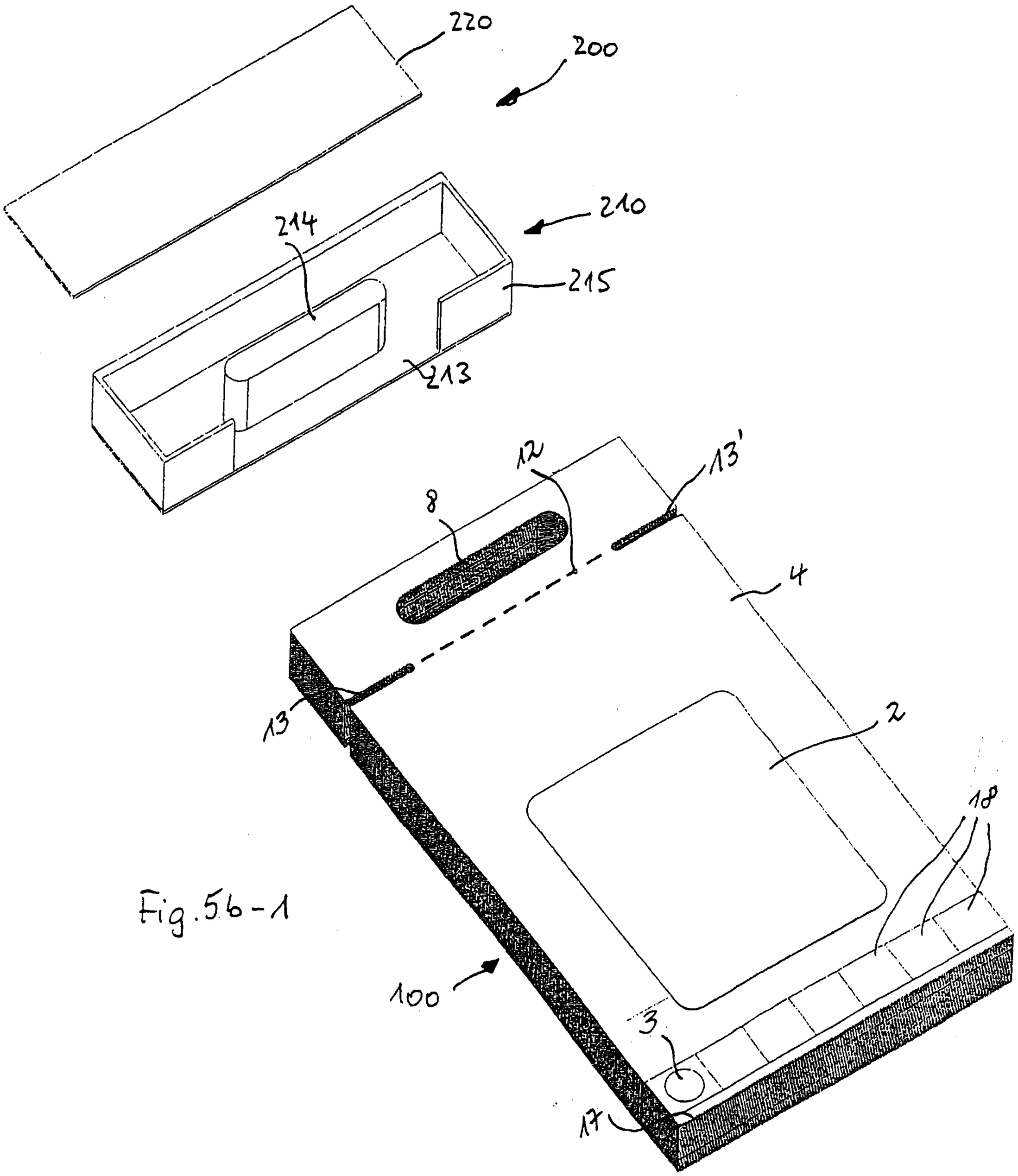


Fig.56-1

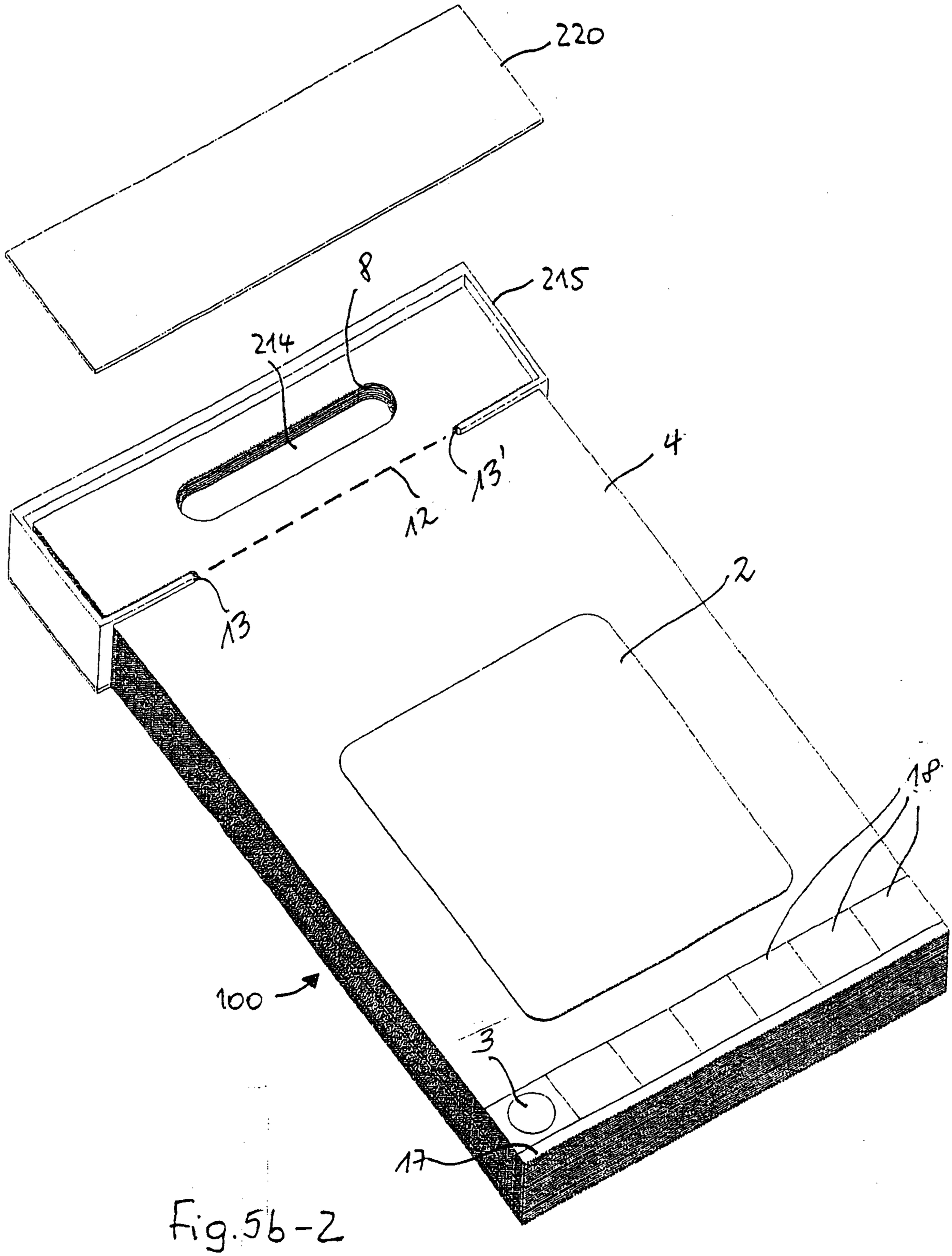


Fig.5b-2

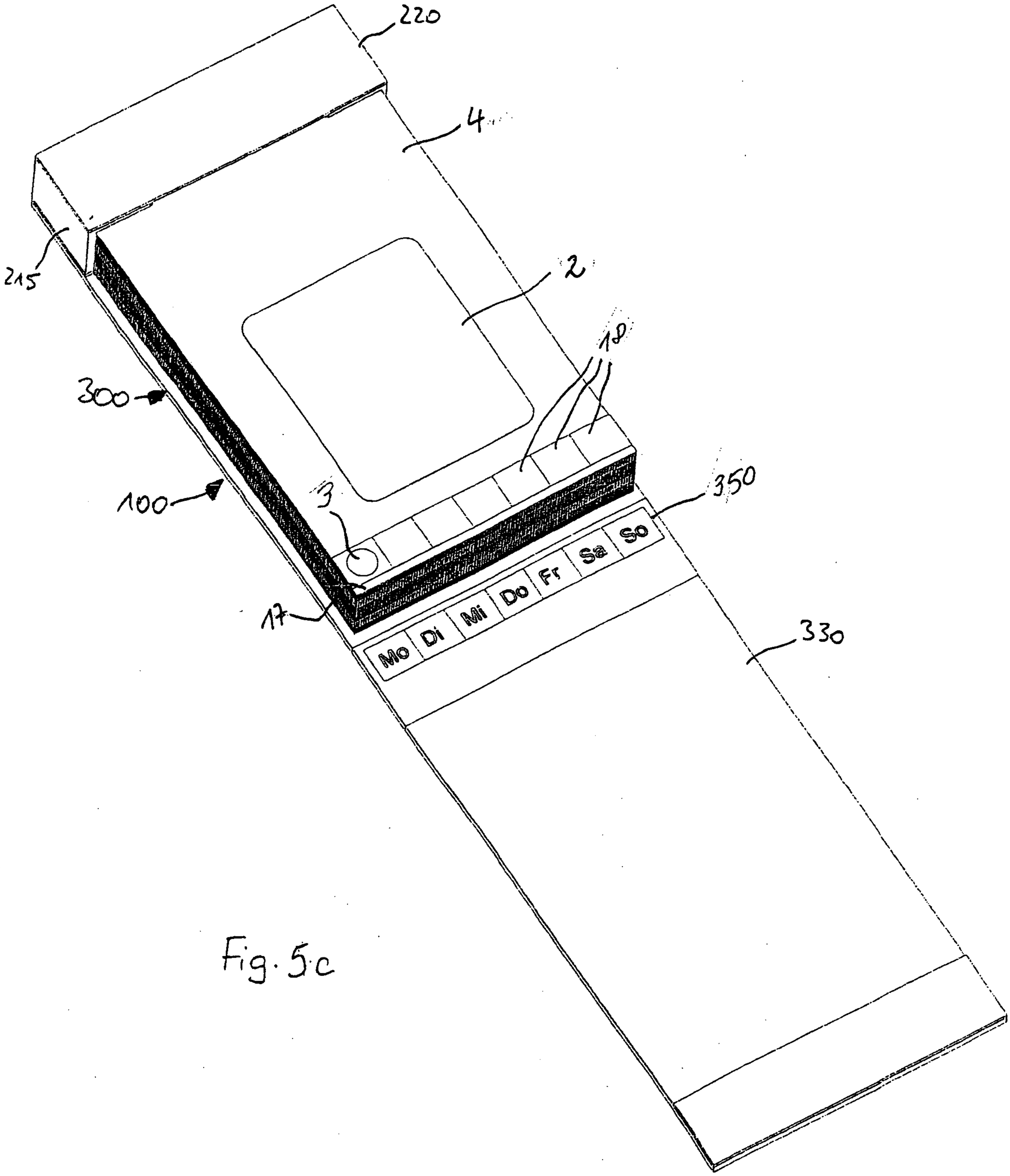


Fig. 5c

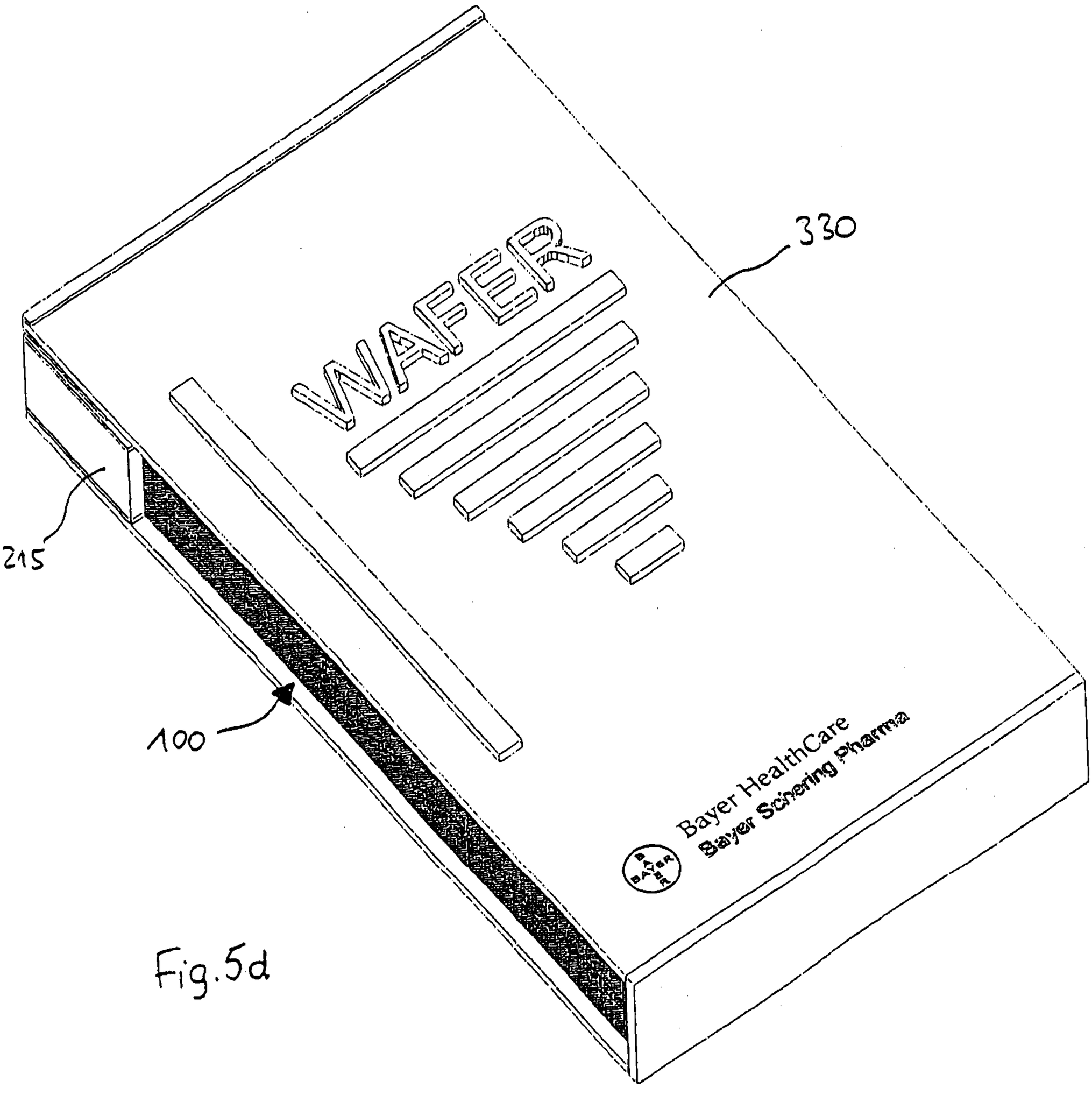
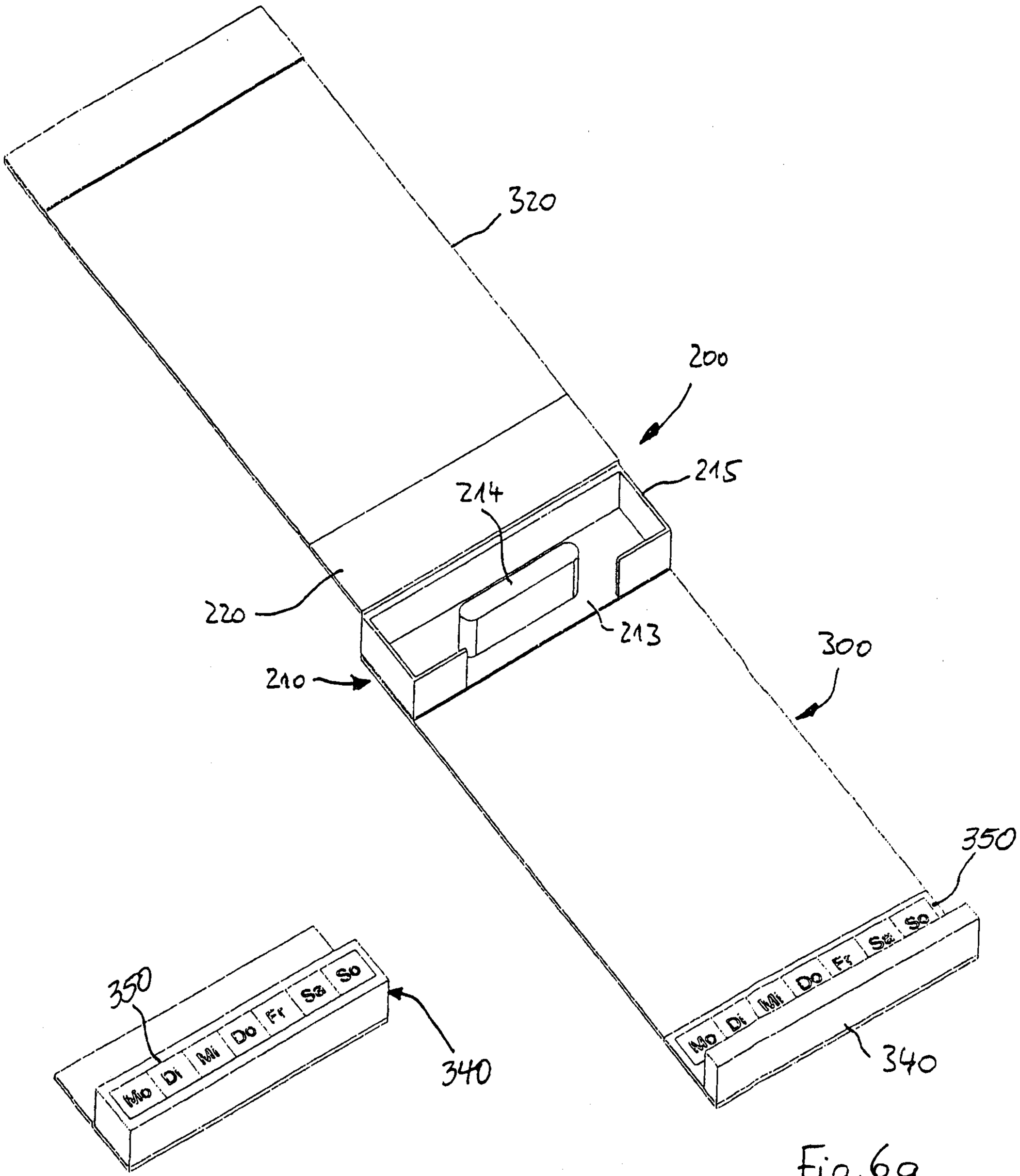


Fig.5d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200
215
214
220
213
210
300
350
Mo
Di
Mi
Do
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Sa
So
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So
340

Fig.6e

Fig.6a

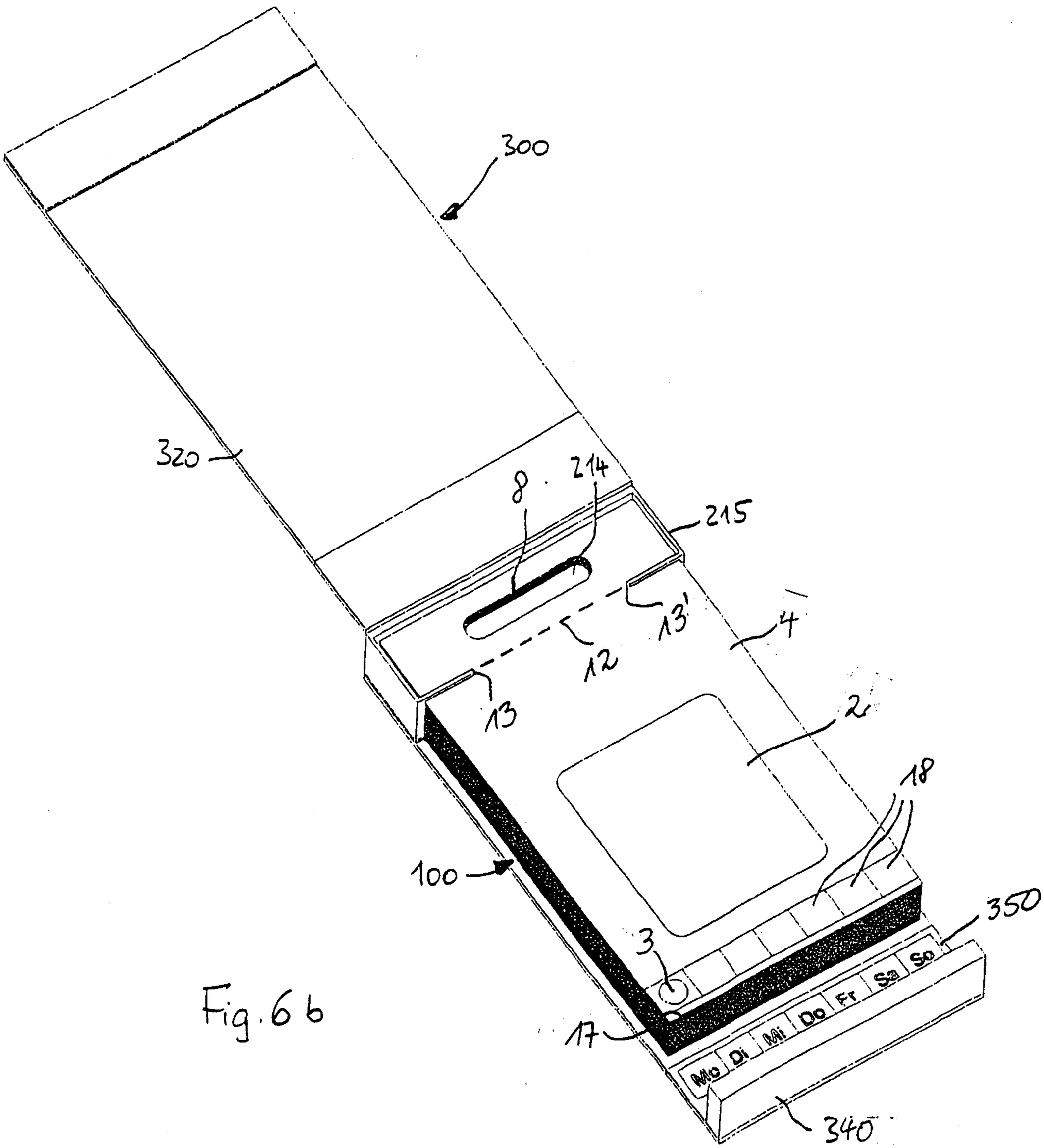


Fig. 6b

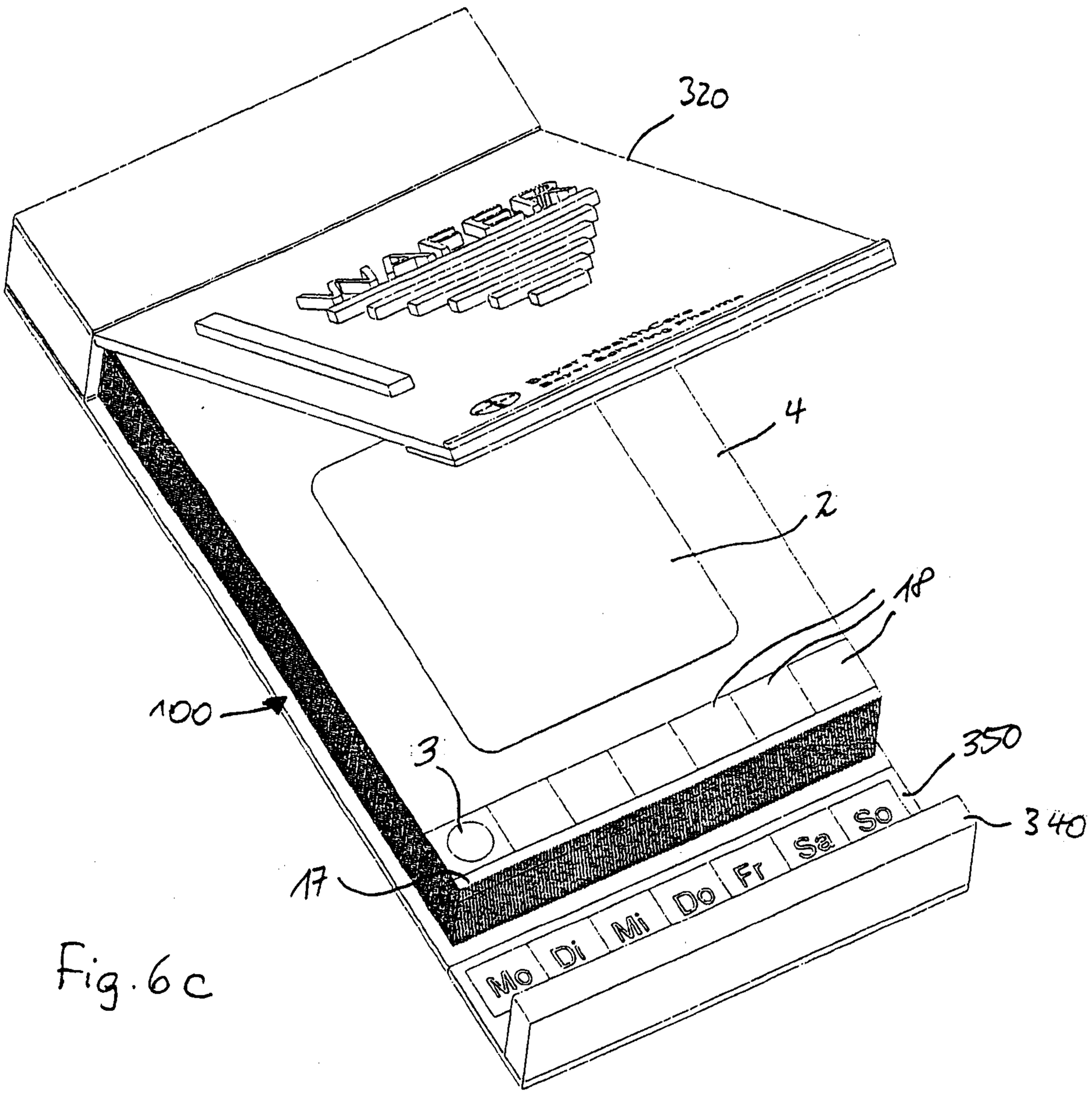


Fig. 6c

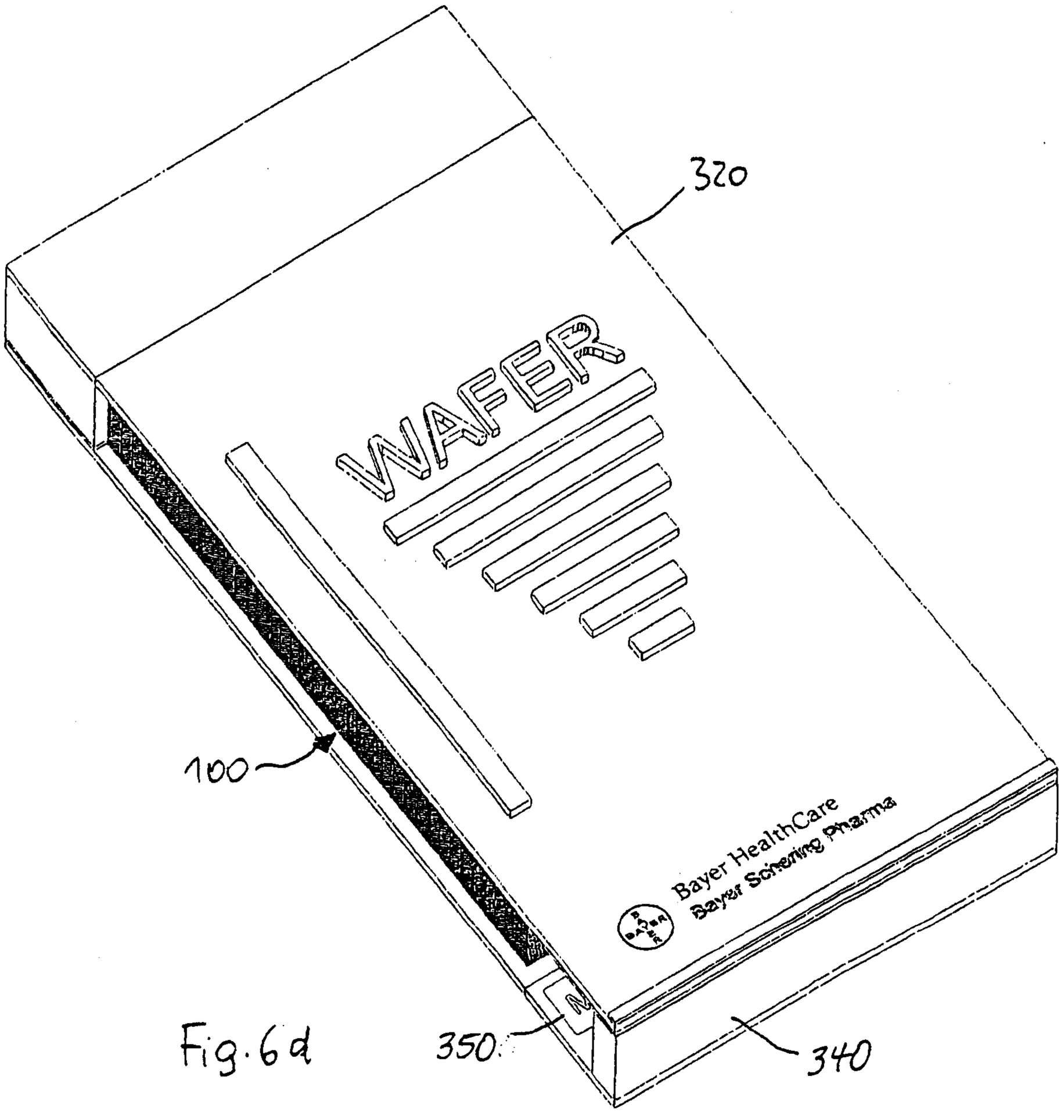
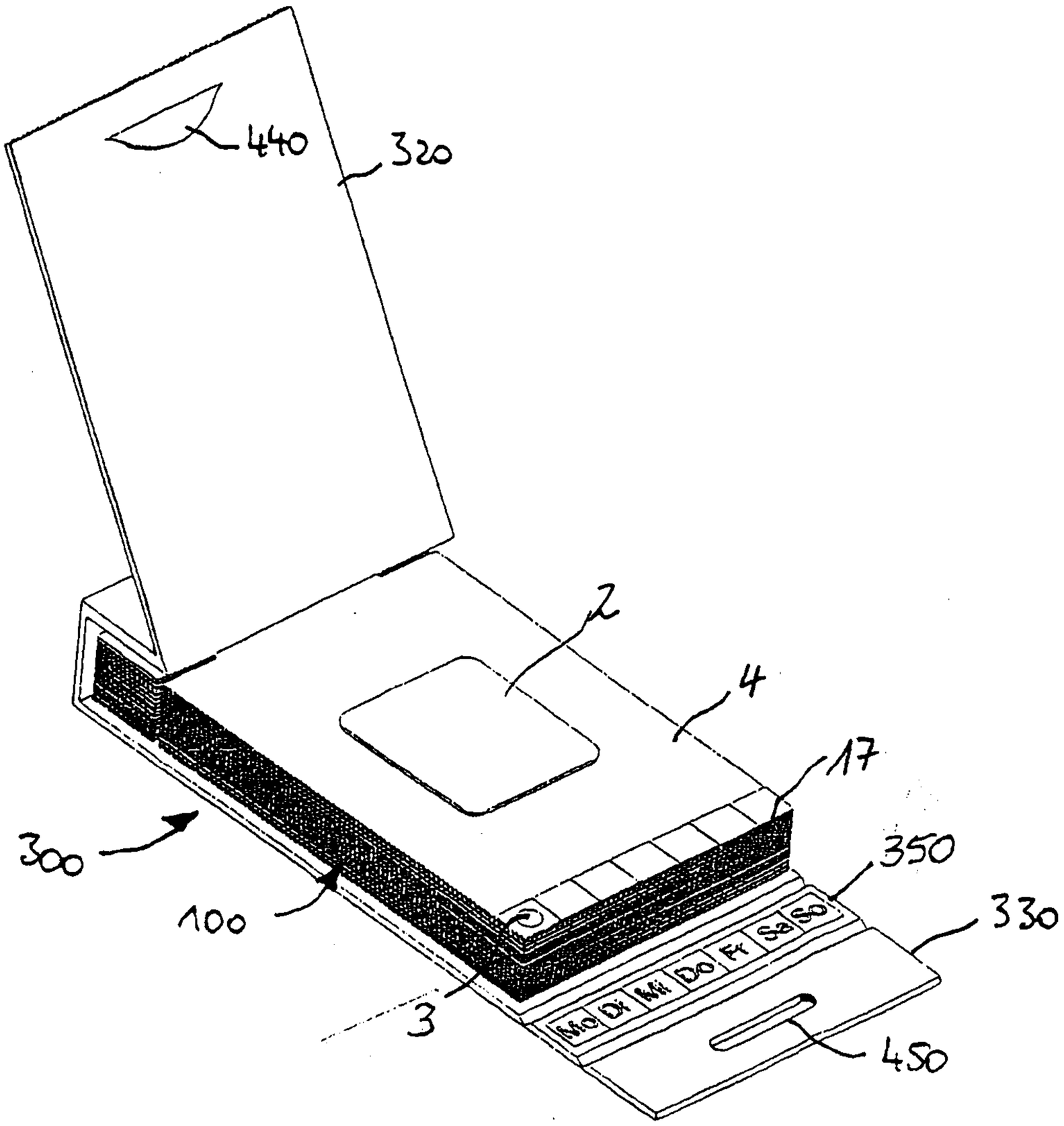

320
WAFER
100
Bayer HealthCare
Bayer Schering Pharma
350
340

Fig. 6d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320
2
4
17
350
330
300
100
3
Esc
Di
Mi
Do
Fr
Sa
So
450

Fig. 4.f

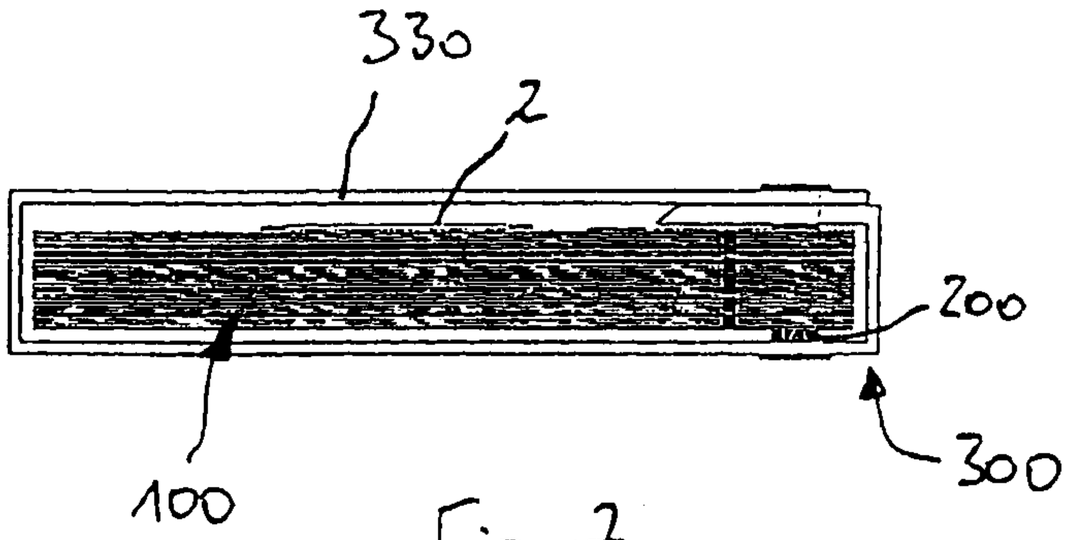
330
1
2
200
100
300

Fig. 7

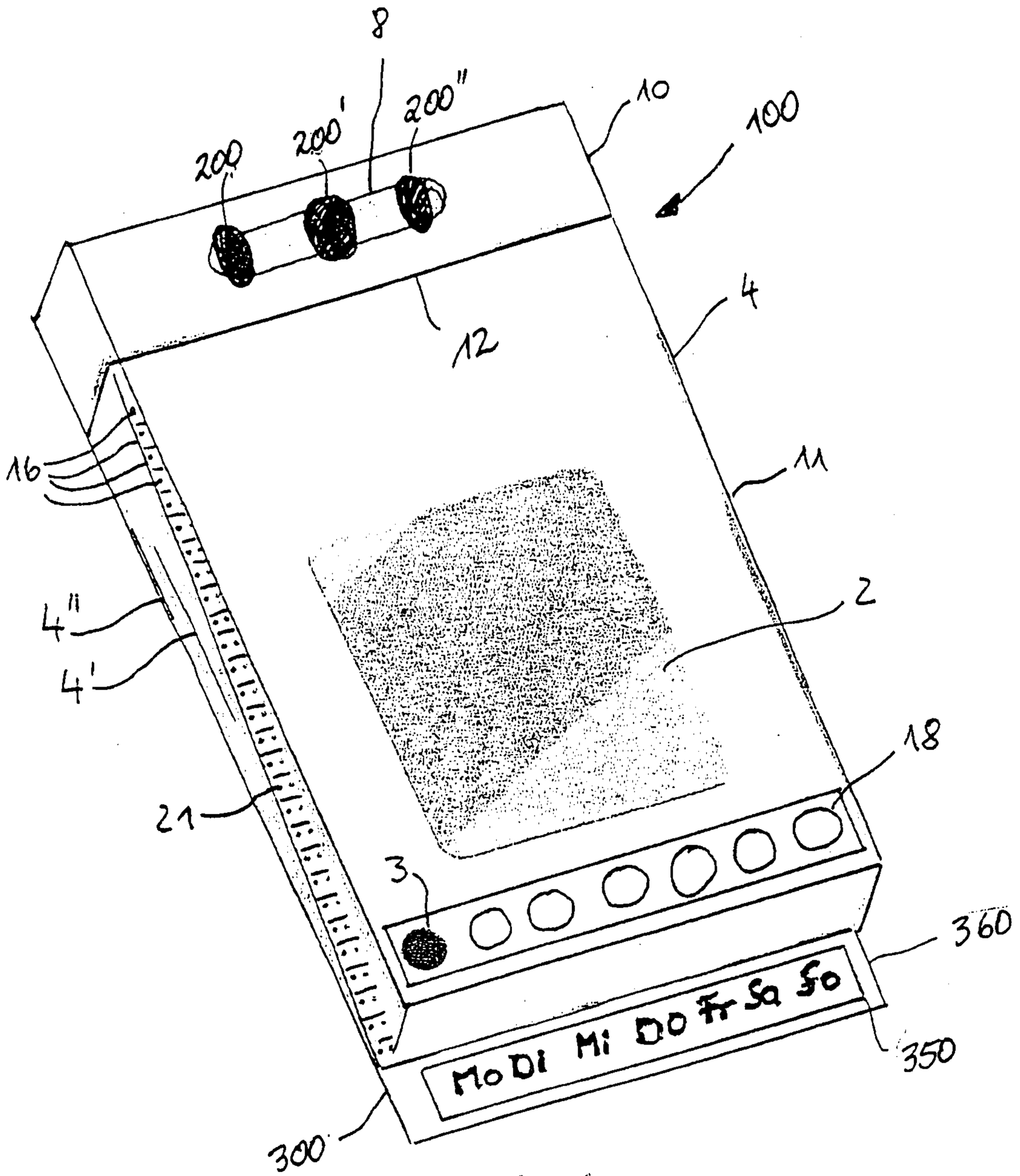
8
200
200'
200"
10
100
12
4
16
11
4"
2
4'
18
21
3
360
Mo Di Mi Do Fr Sa So
350
300

Fig. 8

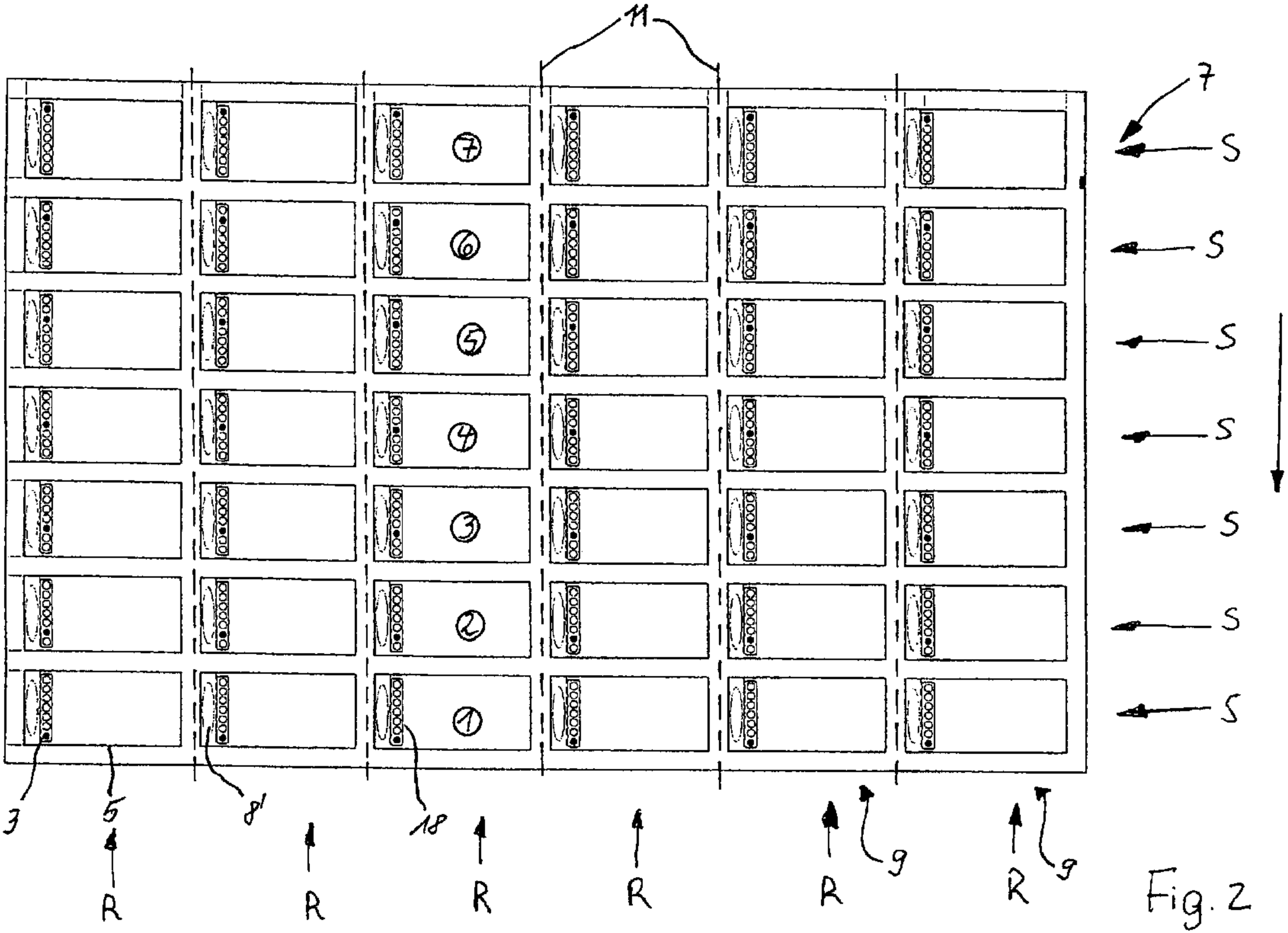

Fig. 2