

APPLICATION FOR A STANDARD PATENT OR
STANDARD PATENT OF ADDITION

631449

I/We

LTS LOHMANN Therapie-Systeme
GmbH & Co. KG,

of Irlicher Str. 55,
D-5450 Neuwied 12,
Federal Republic of Germany

hereby apply for the grant of a Standard Patent ~~Patent of Addition~~ for an invention
entitled: "APPLICATION AID FOR SHEET-LIKE SUBSTRATE SECTIONS"

which is described in the accompanying ~~provisional~~ complete specification.

~~I/We request that the Patent may be granted as a Patent of Addition to
the Patent applied for on Application No. filed~~

~~I/We request that the term of the Patent of Addition be the same as that
of the patent for the main invention or as much of the term of the
patent for the main invention as is unexpired.~~

This application is a Convention application and is based on an
application/numbered P 39 31 018.3 for a patent
or similar protection made in Federal Republic of Germany on Sept. 16, 1989.

M 020 03 700881

My/Our address for service is care of E. F. Wellington & Co., Patent
Attorney/s, 312 St. Kilda Road, Melbourne, in the State of Victoria,
Commonwealth of Australia.

DATED this 8th day of

August, A.D. 1990
LTS LOHMANN Therapie-Systeme
GmbH & Co. KG

Dr. Martin Barth

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Dr. Martin Barth

To: The Commissioner of Patents,
Commonwealth of Australia.

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APPLICATION AID FOR SHEET-LIKE SUBSTRATE SECTIONS

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(56) Prior Art Documents
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(57) Claim

1. An application aid for mechanically removable, sheet-like substrate sections, being multiply arranged on a sheet-like, flexible strip of carrier material, in the form of cuts or predetermined breaking lines within the carrier material, characterized in that for each individual substrate section a cut or a predetermined breaking line runs in the contact surface between substrate and carrier material and connects the opposing edges of the strip of carrier material, and that the carrier material projects over the substrate sections at least at one end of the carrier material.

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Related Art:

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Complete Specification for the invention entitled:

"APPLICATION AID FOR SHEET-LIKE SUBSTRATE SECTIONS"

The following statement is a full description of this invention
including the best method of performing it known to us.

DESCRIPTION

The present invention relates to an application aid for mechanically removable, sheet-like substrate sections multiply arranged on a sheet-like, flexible strip of carrier material in the form of cuts or pre-determined breaking lines within the carrier material; the present invention further relates to the use of said application aid for sheet-like therapeutic systems, plasters or labels.

10 Surfaces or parts of surfaces of substrates frequently have to be protected during the period of time between manufacture and use. The reasons for this, for example, may be maintaining their self-adhesiveness, sensitivity against mechanical damage, or to prevent escape of volatile components of the substrate.

Usually such a protection of the respective substrate surfaces is achieved by the contact with a sheet-like covering material which will be referred to in the following as carrier material for the substrate.

20 In this connection, the carrier material is connected with the substrate by means of adhesive forces which can be overcome by mechanical pulling-off forces.

This removing process, the transfer of the substrate section to the site of application, as well as the application itself involve many problems which in some cases are not yet solved satisfactorily.

These steps are particularly difficult if the contact surface of the substrate section with the carrier

material during the time between removal and application has to be absolutely free of contamination. In this connection, it is particularly necessary to prevent mechanical damage of the substrate contact surface and/or to maintain its sterility. In some cases, the contact surface of the substrate may also contain reactive substances which are to take effect only at the site of application. This particularly applies to pharmaceutical active substances which are applied in the form of plasters and have a pure topical effect.

A solution of this problem in case of pressure-sensitive adhesive foil dressings is described in European Patent No. 0144891. Here, two gripping edges of a supporting foil allow contamination-free removal of the protective covering of the pressure-sensitive adhesive layer, contamination-free transfer to the site of application, and contamination-free application, whereby subsequently the supporting foil is removed.

However, this solution is very expensive and this technical teaching cannot be applied to substrate sections having the size of coins or to a stock of substrate sections arranged on a section of carrier material. It has to be hinted at the fact that it is the multiple-arrangement of substrate sections on a section of carrier material which becomes more important in case of smaller sizes of substrate sections.

European Patent Application No. 0 284 963 proposes an application aid in the form of a pull-off aid for mechanically removable, sheet-like substrate sections being multiply stocked up on a sheet-like, flexible section of carrier material. For this purpose, for each substrate section a curved cut or predetermined

breaking line is provided for within the contact surface between substrate and carrier material. By vertically applying pressure onto the carrier material in the region of the contact area, a portion of the carrier material predetermined by the cut or the breaking line is bendable in the direction of the substrate section and thus separates the edge portion of the substrate section adjacent to the cut or the predetermined breaking line from the carrier material. In this way a gripping area results at the substrate section permitting complete removal of the substrate section from the carrier material.

Although the problem of separating even smaller substrate sections from carrier materials is solved, still at least part of the contact surface of the substrate section has to be touched with the fingers or an auxiliary instrument, which in many cases is undesirable.

It is accordingly the object of the present invention to provide an application aid for mechanically removable, sheet-like substrate sections which are positioned in multiplicity on a section of a sheet-like, flexible carrier material in the form of cuts or predetermined breaking lines within the carrier material, which application aid permits application of the substrate sections in a manner free from contamination.

Surprisingly, this object could be achieved in that for each individual substrate section a cut or a predetermined breaking line running in the contact surface between substrate and carrier material connects the opposite edges of the strip of carrier material, and that the carrier material projects the substrate

sections at least at one end of the strip of carrier material.

Substrate and carrier material are sheet-like structures which may be multi-layered either each individually or both at the same time. The thickness of the laminate may range from splits of a millimeter to several millimeters. It is preferred that the cohesion between substrate and carrier material be managed by means of a pressure-sensitive adhesive, however, other forces, such as electrostatic or magnetic forces, may be employed, too.

According to the present invention punched substrate sections are ranged on a strip of carrier material in direct contact to one another or - due to reasons of shape or production - have a certain distance between them. The cuts or predetermined breaking lines are running within the carrier material itself regardless of geometry in the region of the contact surface of the substrate sections and the carrier material and thereby connect the opposing edges of the strip of carrier material. Preferably, the cuts or predetermined breaking lines between opposite edges of the carrier material are straight lines. However, they may also have a non-linear course.

Due to the fact that the strip of carrier material projects the substrate sections at least at one end, a gripping aid is formed with which a portion of the carrier material strip can be separated along the adjacent cut or predetermined breaking line, respectively. In this connection, the substrate section adheres to this portion and for the rest can be peeled off the carrier material in a contamination-free manner. Sub-

sequent to the contamination-free transfer to the site of application by gripping the projecting part of the carrier material, the exposed contact surface of the substrate section is brought into contact with the ac-
 5 ceptor without automatic contamination in situ, the rest of the carrier material is easily removed with the help of the projecting part, and the rest of the substrate surface is brought without contamination in-
 10 to the application position by pressing.

With the removal of the substrate section adjacent to the gripping aid, another part of the strip of carrier material is exposed which now in the same way serves as gripping aid for the second substrate section.

15 This procedure is continued until the last substrate section on the carrier material strip is removed.

Thus, during production, only one single gripping tab has to be provided for, while all following gripping surfaces for the further successive removal of the substrate sections are formed by removing the respec-
 20 tive preceding substrate section - irrespective of the number of substrate sections on the strip.

Thus, unnecessary waste of material is prevented and the required surface of carrier material is reduced to a minimum when the substrate sections of an all-over
 25 laminate of substrate and carrier material are punched out.

The strip of carrier material is flexible and can be rolled up like a coil in case of sufficient flexibility of the substrate thus permitting compact storage.

It is also possible to arrange several strips of carrier material in parallel, which strips then may be separated into individual strips at predetermined breaking lines situated between the individual strips.

- 5 The required cuts in the carrier material can be created by punching, cutting, squeezing or embossing, but as well by employing laser beams.

Suitable methods of forming the predetermined breaking lines are pre-punching, perforation, local chemical or thermal treatment, or the influence of laser beams.

10

The lines may be created prior or after application of the substrate or substrate sections.

A preferred use of the application system are multiply arranged substrate sections of sheet-like transdermal systems, plasters or labels.

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The invention will be further illustrated by way of example only with reference to the following Figures, in which

Figure 1 shows a top view on a section of a carrier material strip with square substrate sections contacting one another

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Figure 2 shows the cross-section along line I/I of Figure 1

Figure 3 shows a top view on a section of a carrier material strip with projecting edges

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Figure 4 shows a top view on a section of a carrier material strip with round substrate sections, and

Figure 5 shows a top view on a multiple-arrangement of strips of carrier material with round substrate sections.

In addition to the square substrate sections (11) contacting one another, Figure 1 shows the cuts (12) between the substrate sections. The substrate sections (11) are in flush termination with the edge of the carrier strip (10) which projects from the substrate sections at the lower end.

10 The cuts or predetermined breaking lines within the strip of carrier material are designated as (13).

In Figure 2 the cross-section through Figure 1 along the line I/I illustrates the positions of Figure 1. It is made clear that the carrier material (10) projects over the substrate sections at the right end of the strip and thus forms the first gripping area. The cuts or predetermined breaking lines (13) positioned centrally below the substrate sections permit contamination-free removal of the individual substrate sections (11) which are separated from one another by cuts (12).

The strip of carrier material (30) shown in Figure 3 additionally projects the square substrate sections (31) at the longitudinal edges of the strip; in this case too, the substrate sections - which are separated by cuts (32) - are in close contact. The cuts or predetermined breaking lines (33) within the carrier material are positioned in the lower half of the contact surface between carrier material and substrate section. The location of these lines is to be arranged in such a way that the size of the remaining contact area

of the substrate section at the gripping tab of the carrier material will be of sufficient size to take up the required forces for pulling off the remaining part of the substrate section. On the other hand, the remaining part must not become that small that its contact area at the site of application is not adequate to withstand the forces during removal of the still adhering section of carrier material.

In Figure 4, too, the strip of carrier material (40) projects the round substrate sections (41) which can be removed and applied one after the other without contamination of the contact surface starting from the lower end by means of the cuts or predetermined breaking lines (43). The substrate sections need not be square or round, but may have any shape required by practice and the respective purpose of application. Even on the same strip of carrier material there may be different geometric shapes of substrate sections.

Figure 5 shows an arrangement in which three strips of carrier material (50) are formed from a larger section of carrier material by predetermined breaking lines (54). The round substrate sections (51) are distributed symmetrically on the strip (50) and are provided with cuts or predetermined breaking lines (53) in the lower third of their contact surface in the carrier material strip (50) thus permitting the desired handling of the substrate sections.

Prior to application of the substrate sections, the strips are separated individually at the predetermined breaking lines (54). The arrangement shown merely is an example to illustrate the principle of multiple-arrangements.

It becomes obvious from the drawings in Figure 1 and Figures 3 to 5 that the present invention permits an optimal use of the area of the carrier material and that of the substrate.

- 5 It is understood that the specification and examples are illustrative but not limitative of the present invention and that other embodiments within the spirit and scope of the invention will suggest themselves to those skilled in the art.

- 10 The matter contained in each of the following claims is to be read as part of the general description of the present invention.

The claims defining the invention are as follows:

1. An application aid for mechanically removable, sheet-like substrate sections, being multiply arranged on a sheet-like, flexible strip of carrier material, in the form of cuts or predetermined breaking lines within the carrier material, characterized in that for each individual substrate section a cut or a predetermined breaking line runs in the contact surface between substrate and carrier material and connects the opposing edges of the strip of carrier material, and that the carrier material projects over the substrate sections at least at one end of the carrier material.
2. An application aid according to claim 1 wherein the carrier material and/or the substrate exhibit a multi-layered structure.
3. An application aid according to claims 1 or 2 wherein the strip of carrier material carrying the substrate sections can be rolled up like a coil.
4. An application aid according to claims 1 or 2 wherein individual strip of carrier material can be obtained from multi-arrangements by separation of predetermined breaking lines.
5. An application aid according to any one of claims 1 to 4 wherein the adhesion of the substrate sections to the carrier material is effected by pressure-sensitive adhesives, or by electrostatic or magnetic forces.

6. The use of the application aid according to any one of the preceding claims in sheet-like therapeutic systems, plasters or labels.

7. An application aid for mechanically removable, sheet-like substrate sections, being multiply arranged on a sheet-like, flexible strip of carrier material, in the form of cuts of predetermined breaking lines
 5 within the carrier material, substantially as hereinbefore described with reference to any one of the embodiments illustrated in the accompanying drawings.

DATED this 20th day of August, 1990

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 By its Patent Attorneys,
 E. F. WELLINGTON & CO.,
 By:

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61129/90.

FIG.1

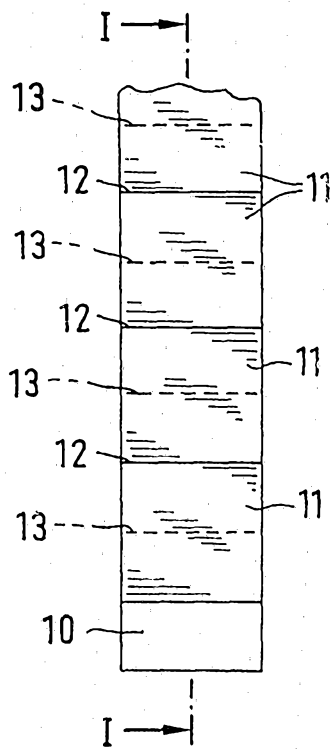


FIG.3

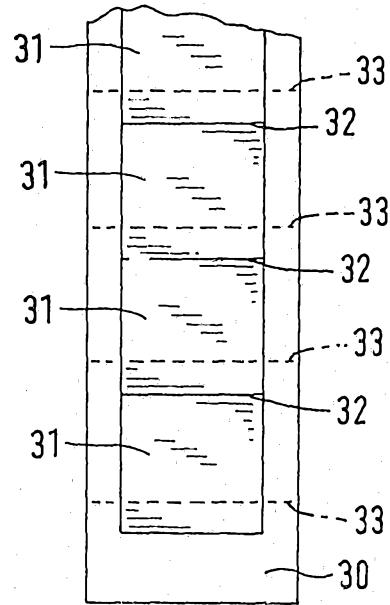


FIG.2

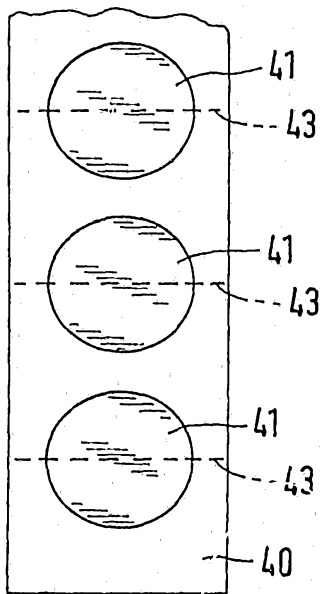
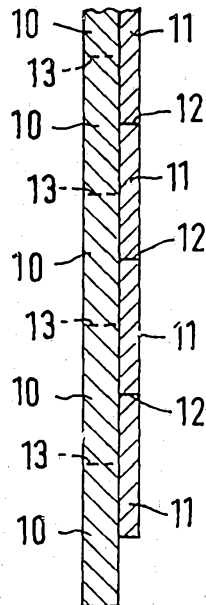


FIG.4

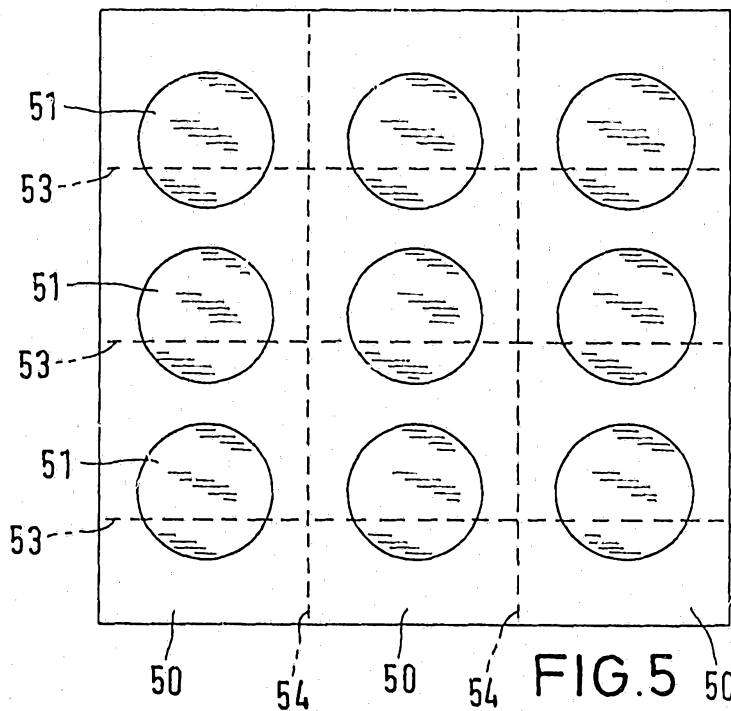


FIG.5