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(54) **Process of preparing and packaging a tobacco-related blend**

(57) A process of preparing a tobacco-related blend and packaging the blend in receptacles is described. The blend includes at least two components, at least one of the components including tobacco. In the process, the components are supplied from separate storage areas and fed to a filling station adapted to fill respective retail-sized receptacles with a predetermined amount of the blend. After a predetermined amount of each component of the blend has been filled into a common container, the blend is homogenised in the container. Preferably, the container is the retail-sized receptacle, e.g. a can, or the homogenised blend is filled from the container into the receptacle, e.g. a soft pouch.

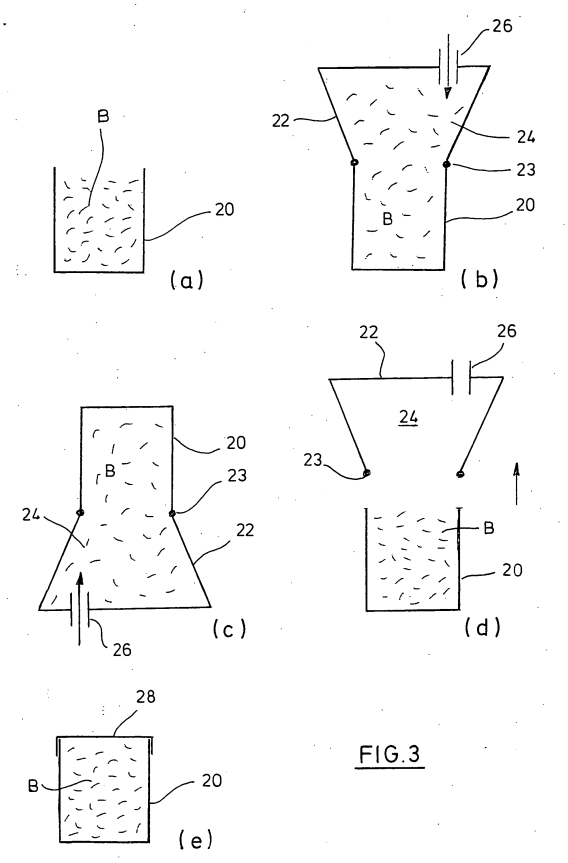


FIG.3

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Description

[0001] The invention relates to a process of preparing a tobacco-related blend and packaging the blend in retail-sized receptacles.

[0002] So-called loose tobacco is packaged in retail-sized receptacles like cans or pouches, which are sold by weight. Such tobacco is used, e.g., for rolling cigarettes or for filling pre-fabricated cigarette tubes.

[0003] Usually, loose tobacco is a blend of two or more than two components, wherein at least one of the components includes smokable tobacco. These components may include individual tobaccos (grades), pre-blended and pre-treated tobaccos (pre-blends), tobacco semi-products having undergone a particular process like expanded tobacco or reconstituted tobacco, etc., additives, and other smokable components. In the tobacco industry, tobacco blends are conventionally prepared in large charges, i.e. in amounts of several kilograms or even several tons, e.g. in blending boxes or blending silos. The components to be blended or mixed are supplied from separate storage areas and fed into the blending box or silo, where the blend is homogenised as a large charge. The homogenisation results in an even distribution of the components and also of the moisture of the blend.

[0004] A conventional process for producing blended cigarette filler is disclosed in EP 0 651 951 A.

[0005] After blending or after some additional storage time, the charge of the blend or part of the charge is supplied to a filling station, where it is divided into retail-sized portions and filled into receptacles like cans or pouches.

[0006] This conventional process, however, has several disadvantages. In particular, its flexibility is low, it requires large storage areas, the batch sizes do not match with sale volumes, and changing a blend can be time-consuming. Migrating ingredients result in an appreciable cleaning effort and the risk of cross-contamination.

[0007] The object of the invention is to improve the conventional process of blending and packaging loose tobacco, in particular to provide a greater flexibility of the process and to reduce costs.

[0008] This object is achieved by a process of preparing a tobacco-related blend and packaging the blend in receptacles, which has the features of claim 1. Advantageous versions of the invention follow from the dependent claims.

[0009] The process according to the invention is a process of preparing a tobacco-related blend and packaging the blend in receptacles, wherein the blend includes at least two components, at least one of the components including tobacco. The components are supplied from separate storage areas and are fed to a filling station which is adapted to fill respective retail-sized receptacles with a predetermined amount of the blend. According to the invention, a predetermined amount of each component of the blend is filled into a common container, and the blend is homogenized in the container. Thereafter, the container and the homogenised blend therein are used to provide at least one retail-sized receptacle containing the predetermined amount of the blend.

[0010] In advantageous embodiments of the invention, the retail-sized receptacle to be filled comprises the container, e.g. a can, and after the blend has been homogenised, the container is closed with a closure, e.g. a lid (in the step called providing step). In other words, the components of the blend are directly filled into the can used as retail receptacle and are homogenised in the can, and thereafter the can is closed by a lid.

[0011] If the tobacco-related blend is to be sold in a (soft) pouch as the retail-sized receptacle, it will be more advantageous to use a container different from a pouch, preferably a rigid container (bucket) which is part of the filling station or links a weighing/dosing station and the filling station, and to fill, in the providing step, the homogenised blend from this container into a pouch. It is conceivable to divide the contents of the container into several portions and to fill each portion into an individual pouch. It might be more advantageous, however, to fill each pouch with the amount of the homogenised blend in the container in order to avoid such separating step.

[0012] The process according to the invention permits the arrangement of a desired blend in the last moments of production. The blend has not to be homogenised and stored in large charges, which would decrease flexibility of the process and increase storage time (and possibly aroma losses), but it is homogenised, e.g., in a retail can or just before filling into a retail pouch. In this way, the process is very flexible, the blend can be changed quickly, and small charges can be handled in a cost-effective manner, including individually designed blends. It is possible to bring together components of a blend which would be destroyed or separated or segregated when applying conventional techniques, e.g. particularly small, heavy or fragile parts of the blend. Moreover, the blend can contain components which cannot be used in conventional techniques, e.g. liquids (e.g. aqueous solutions or flavourants dissolved in alcohol), volatile compounds or even gases. Another advantage is that there is no need for cleaning a large storage container when a blend is to be changed because the storage container is not used for the whole blend but only for a component, for which it can be continuously used.

[0013] Preferably, the predetermined amount of the components to be filled into the container is determined by weighing or volumetric dosing. This step can be performed on-line or quasi continuously in a filling station or a related weighing/dosing station. Suitable weighing devices and volumetric dosing devices are known in the art.

[0014] In advantageous embodiments of the invention, the container, during at least part of the filling step, permits access to its interior via an access area, e.g. the top opening of a can before a lid is applied. During the homogenising step, the access area is closed by a closure

device in order to prevent the particles and constituents of the blend from escaping from the container. Such closure device can comprise a mixing space in addition to the mixing space already present in the container, which may significantly improve the efficiency of the homogenising step.

[0015] The homogenising step requires a circulation of the particles and constituents of the blend in the container. This can be accomplished by blowing a pressurised gas (e.g., air or an inert gas) into the container or by rotating the container upside down.

[0016] As already mentioned, the process according to the invention permits the use of liquid components of the blend, e.g. of aqueous solutions of additives or of flavourants dissolved in alcohol. If the receptacle is closed shortly after filling in the components of the blend and after homogenising the blend, such components will stay in the receptacle, even if they are volatile.

[0017] It is even possible to fill a gas into the retail-sized receptacle, preferably a chemical inert gas like nitrogen or carbon dioxide to avoid disadvantageous reactions with oxygen. This gas can be considered as one (or more than one) of the components of the blend.

[0018] Generally, the filling step and the homogenising step can be performed successively, but also simultaneously or partially simultaneously. The latter means that one or more than one of the components, e.g. a liquid component and/or a gaseous component, but also solid components, can be filled into the container during the homogenising step, e.g. through a port in a closure device for an access area of the container.

[0019] In the following, the invention is explained in more detail by means of embodiments. The drawings show in

Figure 1 a schematic diagram illustrating an embodiment of the process according to the invention, which is used to prepare and fill a tobacco-related blend into cans,

Figure 2 a schematic diagram illustrating another embodiment of the process according to the invention, which is used to fill a tobacco-related blend into pouches, and

Figure 3 in parts (a) to (e) schematic views illustrating consecutive steps in an embodiment of the process according to the invention, in which cans are filled with a tobacco-related blend, in particular with respect to homogenising the blend in the can.

[0020] Figure 1 is a schematic diagram illustrating a process in which a tobacco-related blend is prepared and packaged in retail-sized receptacles. In this embodiment, the receptacles are cans closed by a lid.

[0021] T_1 to T_n represent the components of the blend considered. The components T_1 to T_n are stored in separate storage areas, e.g. silos, vessels or containers, usually in amounts in the order of several kilograms or even several tons. At least one of the components comprises tobacco. For example, a component can be constituted of an individual kind (grade) of tobacco, e.g. Virginia tobacco. It is also conceivable that a component already comprises a pre-blend or blend of several subcomponents, e.g. an American blend (including Virginia, Burley and Oriental tobacco). Additives and other smokable components are conceivable as well, e.g. mint leaf. This also includes liquid components, e.g. liquid aroma compositions. Moreover, the components can include gases, e.g. nitrogen or carbon dioxide which could be filled into a can in order to prevent any detrimental effects of oxygen before the can is opened for the first time by the end consumer.

[0022] The components T_1 to T_n are fed to a filling station which is adapted to fill respective cans with a predetermined amount of the blend. In a step 1, a predetermined amount of each component T_1 to T_n intended to be filled into one can is determined by weighing or volumetric dosing. Suitable weighing or dosing devices, which can determine the mass or volume of materials like the constituents of a tobacco blend in an on-line process, are known in the art. The amount of each component determined in this way is filled into a given can. In the embodiment, each can comprises a lateral wall and a bottom wall, whereas a lid is missing during the filling step so that the cans can be filled via their open top sides when they pass the outlets of tubes supplying the predetermined amount of each component. In this way, the desired blend is put together in each individual can. After the predetermined amount of each component has been filled into the can, however, the blend is not yet homogenised, i.e. not yet sufficiently mixed.

[0023] In the next step of the process, designated by reference numeral 2 in Figure 1, the blend is homogenised in the can. Generally, it is possible that the filling step and the homogenising step are at least partially performed simultaneously. For example, a liquid or gaseous component might be filled into the can during the homogenising step. An example of how the homogenising step can be accomplished is described below by means of Figure 3. Finally, the can is closed by a lid and virtually ready for sale. Box 3 in Figure 1 represents the sale.

[0024] For running the process, a conventional filling station can be adapted, e.g. by providing additional on-line weighing or dosing devices so that each component of the blend can be weighed or dosed before it is filled into a respective can, and by designing suitable outlets of the transport lines running between the weighing or dosing devices and the filling position of the can so that the outlets fit to the open top side of the can. Moreover, a device for performing the homogenising step 2 has to be included in the filling station.

[0025] Figure 2 illustrates an embodiment of the process in which a predetermined amount of a tobacco-related blend is packaged into respective pouches serving as

retail-sized receptacles. The components T_1 to T_n of the blend can be the same as or similar to the components of the blend in the embodiment described by means of Figure 1. The same holds for the supply lines and weighing or volumetric dosing devices.

[0026] In a dosing step 11, a predetermined amount of each component of the blend to be filled into a respective pouch is determined (in the embodiment by weighing as described before) and filled into a container. This container, however, is not a pouch, but it is a component of the filling station, e.g. a container (bucket) having rigid walls. For example, the container can be shaped like a can (without a lid) as in the embodiment described by means of Figure 1.

[0027] In the next step, indicated in Figure 2 by reference numeral 12, the blend in the container is homogenised. In principle, this can be achieved as described below by means of Figure 3. Generally, it is possible to fill one or more than one component into the container during the homogenising step, as already mentioned before. Thereafter, the contents of the container are filled into a pouch. Preferably, this is just one pouch. It is conceivable, however, that the contents of the container are divided into several equal portions, wherein each one of these portions is filled into one pouch. Generally, the homogenising step can be better performed in a container having rigid walls than in a soft pouch. Finally, the respective pouches are closed and ready for sale (box 13).

[0028] Figure 3 displays several schematic views of a can containing a desired amount of a blend B just before, during and after the homogenising step (step 2 in Figure 1).

[0029] Figure 3(a) shows a can 20 in a lateral section after the desired amount B of the blend has been filled into the can 20 via its open top side.

[0030] In Figure 3(b) a closure device 22 has been placed on the can 20. The closure device 22 comprises an annular seal 23 running about the lower edge of a lateral wall so that the connection between the can 20 and the closure device 22 is tight. Moreover, the closure device 22 provides for some extra mixing space 24. At its top side, the closure device 22 comprises an inlet 26 for pressurised gas. If components of the blend (e.g., liquids) are to be filled into the can 20 during the homogenising step, this could be done through a port in the closure device (not shown in the figures).

[0031] Pressurised gas entering the interior of the closure device 22 and the can 20 strikes the particles of the blend, moves them around and mixes them, which results in a homogenisation of the blend. The degree of homogenisation depends, e.g., on the duration of the interaction with the pressurised gas. It can be improved by rotating or tilting the can 20 and the closure device 22, as shown in Figure 3(c).

[0032] At the end of the homogenisation step, the closure device 22 can be removed from the can 20, see Figure 3(d). Finally, the can 20 is closed by a lid 28, as shown in Figure 3(e).

Claims

1. Process of preparing a tobacco-related blend and packaging the blend in receptacles, wherein the blend includes at least two components (T_1-T_n), at least one of the components (T_1-T_n) including tobacco, the process comprising the steps:

   - supplying the components from separate storage areas and feeding the components (T_1-T_n) to a filling station adapted to fill respective retail-sized receptacles (20, 28) with a predetermined amount of the blend (B),
   - filling a predetermined amount of each component (T_1-T_n) of the blend into a common container (20),
   - homogenising the blend (B) in the container (20),
   - providing, by using the container (20) and the homogenised blend (B) therein, at least one retail-sized receptacle (20, 28) containing the predetermined amount of the blend (B).

2. Process according to claim 1, **characterised in that** the retail-sized receptacle (20, 28) to be filled comprises the container (20) and **in that** the providing step includes the step of closing the container (20) with a closure (28).

3. Process according to claim 2, **characterised in that** the container is a can (20) and **in that** the closure is a lid (28).

4. Process according to claim 1, **characterised in that** the retail-sized receptacle to be filled is a pouch and **in that** the providing step includes the step of filling the homogenised blend from the container into at least one pouch.

5. Process according to anyone of claims 1 to 4, **characterised in that** the predetermined amount of at least one of the components (T_1-T_n) to be filled into the container (20) is determined by weighing.

6. Process according to anyone of claims 1 to 5, **characterised in that** the predetermined amount of at least one of the components (T_1-T_n) to be filled into the container (20) is determined by volumetric dosing.

7. Process according to anyone of claims 1 to 6, **characterised in that** the container (20), during at least part of the filling step, permits access to its interior via an access area and **in that**, during the homogenising step, the access area is closed by a closure device (22).

8. Process according to claim 7, **characterised in that**

the closure device (22) comprises a mixing space (24).

9. Process according to anyone of claims 1 to 8, **characterised in that**, during the homogenising step, a pressurised gas is blown into the container (20).

10. Process according to anyone of claims 1 to 9, **characterised in that**, during the homogenising step, the container (20) is rotated upside down.

11. Process according to anyone of claims 1 to 10, **characterised in that** at least one of the components (T_1-T_n) includes a liquid.

12. Process according to anyone of claims 1 to 11, **characterised in that** a gas is filled into the retail-sized receptacle (20, 28).

13. Process according to anyone of claims 1 to 12, **characterised in that** the filling step and the homogenising step are at least partially performed simultaneously.

14. Process according to claim 13, **characterised in that** a liquid component (T_1-T_n) is filled into the container (20) during the homogenising step.

15. Process according to claim 13 or 14, **characterised in that** a gaseous component (T_1-T_n) is filled into the container (20) during the homogenising step.

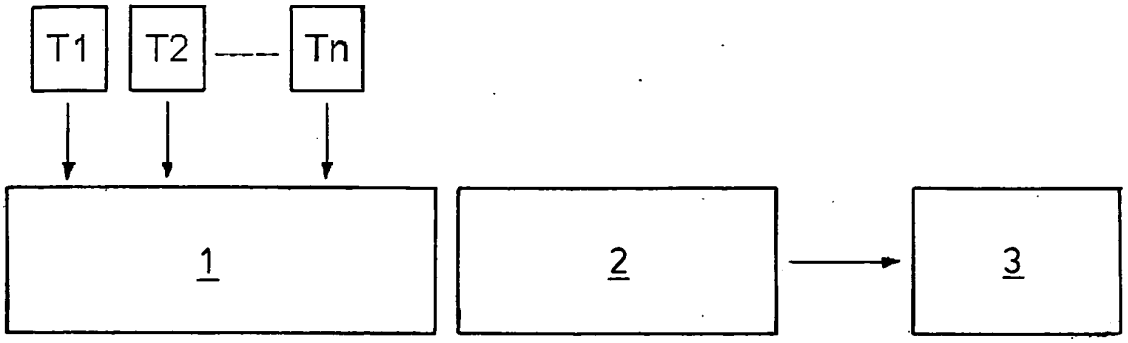


FIG. 1

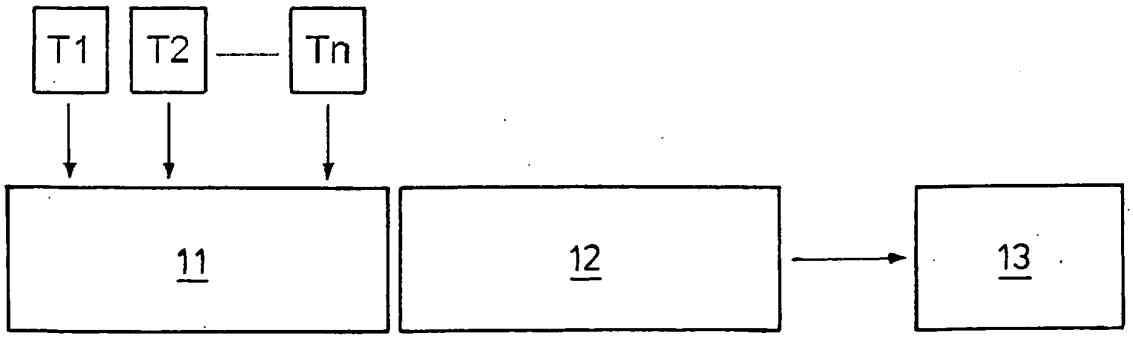


FIG. 2

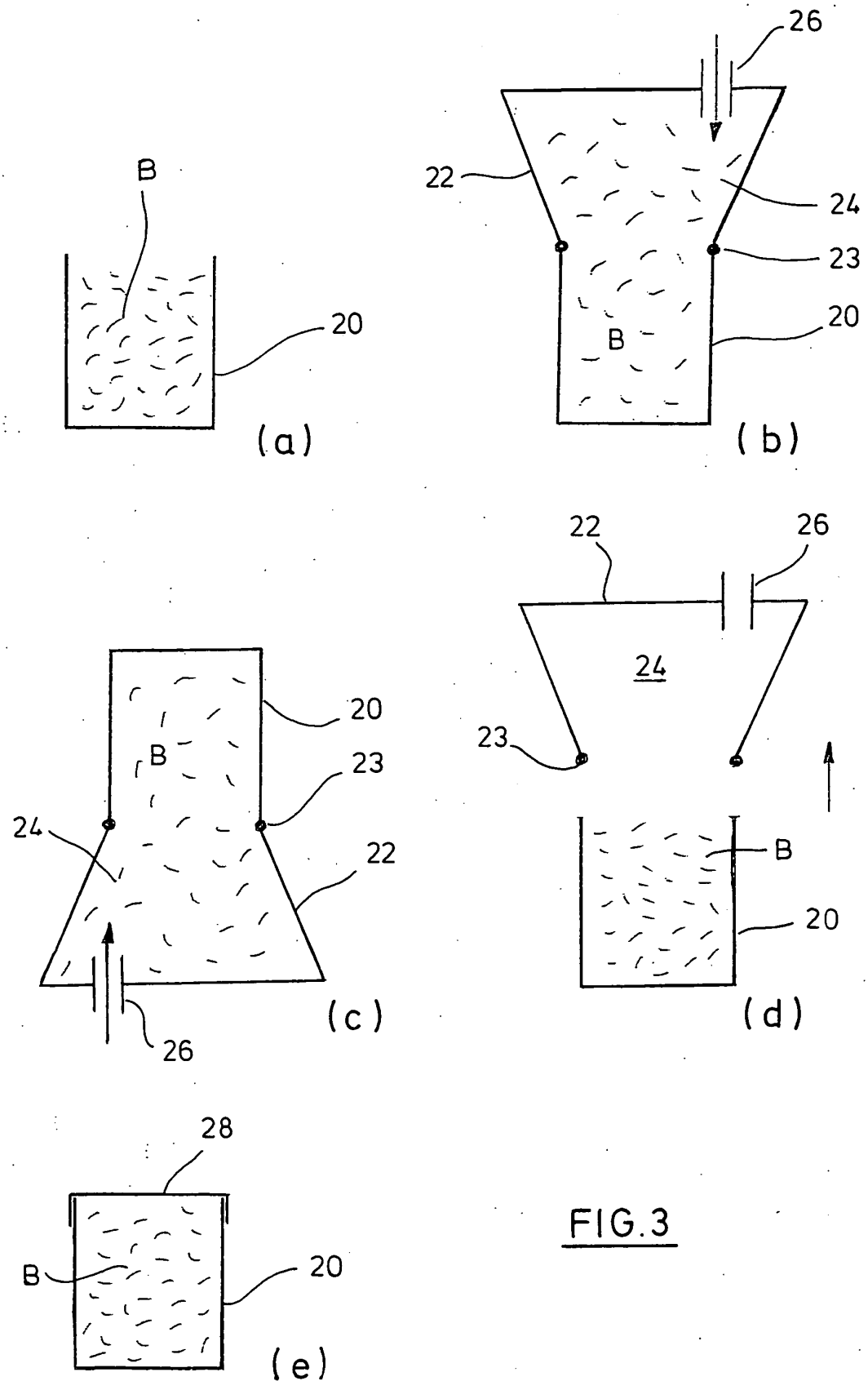


FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 12 19 2535

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 July 2013	Damiani, Alberto

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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