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Packaging for a Switchgear Cabinet

The invention relates to packaging for the components of a disassembled switchgear cabinet or a disassembled switchgear cabinet rack (hereinafter also called switchgear cabinet for short), wherein the individual components or groups of components are each packed in a partial package composed of one or several package elements.

In connection with a known form of distribution, the switchgear cabinets are delivered to the customers in a disassembled state. To this end, the prefabricated parts of the switchgear cabinet are respectively packed together individually or in groups. The customer can then unpack the individual components and assemble the switchgear cabinet. However, it is often necessary for the assembled switchgear cabinet to be temporarily stored or conveyed on. But since it is no longer protected by packaging material, damage can occur. Relief is then provided in that repackaging of the assembled switchgear cabinet is provided by the customer.

Packaging for a refrigerator is known from DE 44 14 813. The packaging has a cover at the bottom and one at the top. The refrigerator can be placed into the cover on the bottom. The cover at the top rests on the cover of the refrigerator. A lateral covering extends between the covers at the top and at the bottom, which is embodied as a hose made of a fabric. Tightening straps are used for connecting the covers at the bottom and the top.

It is the object of the invention to provide packaging for a switchgear cabinet, by means of which a considerable reduction of the packaging outlay can be achieved.

This object is attained by means of the characteristics of claim 1

Thus, the packaging material for the components of the switchgear cabinet can be converted in such a way that it can also be used for covering the assembled switchgear cabinet. Because of this, no additional packaging outlay is required.

In accordance with a preferred embodiment of the invention it can be provided that one or several lateral coverings can be used as packaging material for one or several lateral switchgear cabinet element, for example lateral walls, cabinet doors or the like. In accordance with the invention it is therefore possible to separately pack the bottom and cover component groups, as well as the lateral



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switchgear cabinet elements as components of the switchgear cabinet. These components in particular also define the lateral surfaces of the switchgear cabinet to be covered when the switchgear cabinet is assembled. Thus, in accordance with the invention these components are packaged in such a way that the associated packaging material can again be used as a cover for these components, even when the switchgear cabinet has been assembled.

In order to be able to enclose the ready-assembled switchgear cabinet quickly and simply with little outlay, a possible embodiment of the invention provides that the covers at the bottom and top each have a bottom, from which a circumferential edge is beveled off, that in the assembled state of the switchgear cabinet the bottom rests against the outside at the bottom or the top of the bottom and cover component groups and the edge is arranged at a distance in respect to the bottom/cover component group, so that an insertion area results between the bottom/cover component group and the edge, into which plug-in inserts of the lateral coverings can be inserted. The system of packaging a switchgear cabinet can then proceed in such a way that first the individual parts of the switchgear cabinet are unwrapped from the partial packages. Thereafter, one of the covers is placed on the floor, wherein its edges are upwardly directed. The switchgear cabinet can then be placed on the bottom of this cover. Subsequently the plug-in inserts of the lateral coverings can be inserted into the insertion area between the edge and the bottom component group. Then the second cover, which covers the cover component group, can be placed on the inserted lateral coverings. In the course of this the facing plug-in inserts of the lateral coverings also enter into the insertion areas. The packaging assembled in this way can then be secured by means of adhesive strips or strapping tape.

In their function as covering elements for the assembled switchgear cabinet, the lateral coverings can be embodied in such a way that they have two legs, spaced apart parallel from each other, which are connected with each other in a U-shape by means of a connecting section, and that the connecting section completely covers a side of the switchgear cabinet, and the legs cover the adjoining sides of the switchgear cabinet at least partially. Two U-shaped lateral coverings, whose legs are directed toward each other, can be employed here, in particular for covering the assembled switchgear cabinet.

However, it is also possible for the lateral coverings to have two legs extending vertically in respect to each other, each of which covers a side of the switchgear cabinet at least partially.

In accordance with a preferred embodiment of the invention it is provided that the packaging elements consist of corrugated paperboard, which is covered on one or both sides with cardboard. This material has a sufficient stability, which makes it possible to cover even large lateral surfaces of the assembled switchgear cabinet without additional reinforcing measures becoming necessary. Moreover, the corrugated paperboard can be easily recycled.

The invention will be explained in greater detail in what follows by means of an exemplary embodiment represented in the drawings. Shown are in:

Fig. 1, a switchgear cabinet rack in a perspective view from above, which is partially enclosed in packaging material,

Fig. 2, the representation in Fig. 1 in a perspective frontal view, but wherein packaging has been further completed, and

Fig. 3, the completely packaged switchgear cabinet rack in accordance with Figs. 1 and 2 in a perspective lateral view.

A switchgear cabinet rack, which has a bottom and cover component group 10, is represented in a perspective partial view in Fig. 1. The bottom component group 10 is connected with the cover component group 10 via vertical profiled frame sections 11. The cover component group 10 is closed off by means of a covering sheet metal piece 12 on the top. The switchgear cabinet rack can be enclosed in packaging material. The packaging material essentially consists of four components. These are in detail two covers 20 and two lateral coverings 30. Each of the covers 20 and the lateral coverings 30 is constructed in the same way.

The cover 20 has a flat bottom 23, from which an edge 21, 22 has been beveled off at right angles. The edge 21, 22 is formed over the circumference. As Fig. 2 shows, the lateral coverings 30 have two legs 31, which are parallel with each other and are connected with each other by means of a connecting section 32.

For packaging the switchgear cabinet rack, the bottom component group 10 is placed on the bottom 23 of the cover 20. In this case the edges 21, 22 of the cover 20 are at a distance from the bottom component group 10, so that a circumferential insertion area 24 results. The lateral coverings 30 can be inserted into the insert area 24 by means of plug-in shoulders. As Fig. 2 shows, the two connecting sections 32 of the lateral coverings 20 cover two sides of the switchgear cabinet rack. The legs 31 adjoining them at right angles partially cover the remaining sides of the

switchgear cabinet rack. Here, end sections 33 of the legs 31 of the two lateral coverings 30 are at a distance from each other. It is also conceivable that the end sections 33 overlap each other.

As Fig. 3 shows, the completion of packaging takes place by means of a further cover 20. The cover 20 is plugged over the lateral coverings 30. In the process, the plug-in shoulders on the top of the lateral coverings 30 enter into the plug-in areas 24 formed between the edges 21, 22 and the cover component group 10. In the assembled state of the upper cover 20, the bottom 23 rests on the covering sheet metal piece 12 of the switchgear cabinet rack. To fix the individual packaging elements in place, adhesive tapes or strapping tape can be used. The packaging represented in Figs. 1 to 3 is also used for covering the individual parts of the switchgear cabinet. The bottom and cover component groups 10 can be packed together as one packaging unit. The two covers 20 are used for this. The two shell-shaped covers 20 are here placed around the bottom, and cover component groups 10 in such a way that they are enclosed on all sides. The lateral coverings 30 are used for packing the front and the rear switchgear cabinet door. Each one of the switchgear cabinet doors is packed here in its own lateral covering 30.

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New claim 1 (replaces original claim 1)

1. Packaging, containing the components of a disassembled switchgear cabinet or a disassembled switchgear cabinet rack (hereinafter also called switchgear cabinet for short), wherein the components comprise a bottom and a top component group (10) and one or several lateral switchgear cabinet elements,

5 wherein the packaging has a cover (20) at the bottom and at the top and one or several lateral coverings (30) as the packaging elements,

wherein the bottom and the top component groups (10) are supplied in a package composed of the cover (20) at the bottom and at the top,

10 wherein the lateral switchgear cabinet elements are packed in one or several lateral coverings (30),

wherein the packaging elements can be used for the external covering of the assembled switchgear cabinet,

wherein it is then possible to cover the bottom and the top component group (10) at least partially by means of the cover (20) on the bottom and on the top,

15 wherein the one or several lateral coverings (30) then extend between the covers (20), which cover the assembled switchgear cabinet at least laterally,

the connecting section completely covers a side of the switchgear cabinet, and the legs (31) cover the adjoining sides of the switchgear cabinet at least partially.

5. Packaging in accordance with claim 4,
characterized in that

for covering the assembled switchgear cabinet, two U-shaped lateral coverings (30) are employed, whose legs (31) are directed toward each other.

6. Packaging in accordance with one of the preceding claims 1 to 4,
characterized in that

in their function as covering elements for the assembled switchgear cabinet, the lateral coverings (30) have two legs extending vertically in respect to each other, each of which covers a
5 side of the switchgear cabinet at least partially.

7. Packaging in accordance with one of claims 1 to 7,
characterized in that

the packaging elements consist of corrugated paperboard, which is covered on one or both sides with cardboard.

the bottom and cover component group is supplied by packaging material comprised of the cover on the bottom and on the top.

2. Packaging in accordance with claim 1,
characterized in that

one or several of the lateral coverings (30) can be used as packaging material for one or several lateral switchgear cabinet elements, for example lateral walls, cabinet doors or the like.

3. Packaging in accordance with claim 1 or 2,
characterized in that

the covers (20) at the bottom and top each have a bottom (23), from which a circumferential edge (21, 22) is beveled off,

5 in the assembled state of the switchgear cabinet the bottom (23) rests against the outside at the bottom or the top of the bottom and cover component groups (10) and the edge (21, 22) is arranged at a distance in respect to the bottom/cover component group (10), so that an insertion area (24) results between the bottom/cover component group and the edge (21, 22), into which plug-in inserts of the lateral coverings (30) can be inserted.

4. Packaging in accordance with one of the preceding claims,
characterized in that

in their function as covering elements for the assembled switchgear cabinet, the lateral covering (30) has two legs (31), spaced apart parallel from each other, which are connected with each other in a U-shape by means of a connecting section (32), and