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(54) **SWITCHING APPARATUS, PARTICULARLY POWER CIRCUIT BREAKER**

SCHALTVORRICHTUNG INSBESONDERE LEISTUNGS-UNTERBRECHERSCHALTER

APPAREIL DE COMMUTATION, EN PARTICULIER, DISJONCTEUR DE CIRCUIT DE PUISSANCE

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(73) Proprietor: **Siemens Aktiengesellschaft**
80333 München (DE)

(72) Inventor: **PETRACEK, Milos**
561 51 Lethorad (CZ)

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Description

Technical Field

[0001] The invention concerns switching apparatus, particularly power circuit breaker, composed from cover and base of the apparatus case, equipped at least by the switchgear module and facilities for fitting of the switchgear module in the base of the apparatus case, particularly in the intermediate assembly phase prior to finishing production phase of the switching apparatus after fitting the cover to the switching apparatus.

Background Art

[0002] With continuing miniaturization and increase in the power parameters of switching apparatuses, particularly power circuit breakers, problems are introduced, connected with the need of maximum utilization of the built-up area of the cases of these switching apparatuses, connected with minimization or elimination of some of the internal partitions and fitting elements for various screws, rivets etc. At the same time, it is necessary to solve trouble-free assembly of the individual modules of the switching apparatus to aforesaid switching apparatus cases, particularly without the need of demanding manipulation with the bases of these cases, eg. flipping these cases upside-down during some of the partial assembly operations, particularly for insertion of fitting screws for various holders of the switchgear module etc. At present, for example, the sideboards for fitting of the switchgear are commonly fitted by at least two screws, or by some kind of riveting from upside, in the direction of all other assembly steps, whereas it is needed, in order to accommodate screw and rivet heads and bodies, to equip the case by appropriate juts (columns), taking-up space in the cases, both abroad and aloft, or from the downside after turning of the case upside-down, which presents the outlined assembly manipulation problem. During such bottom assembly, it is necessary to fit isolation coverings onto the bottom notches accommodating the screw and rivet heads, which further complicates the assembly process.

[0003] Document WO 01/16980 discloses a circuit breaker comprising a base, a cover and a switchgear module fitted with the use of side plates between phase (or dividing) walls in the base of the circuit breaker. Each side plate is slid into slots or channels (not shown) in its corresponding dividing wall. The side plates include pointed or raised regions which cooperate with the cover of the circuit breaker.

Nature of the Invention

[0004] The aim of the invention is to achieve optimal space utilization of the switching apparatuses cases, particularly for power circuit breakers, and to achieve effective fixture, especially of the switchgear module side-

boards, without the use of screws and/or rivets and without the need for areas occupied by juts etc. needed for these, with a concurrent increase in the effectiveness of the assembly steps and decrease in their number, whereas the given target is achieved by a solution under the invention, the principle of which is, that at least for the sideboards of the switchgear module, sliding clasp grooves with transitions to the upper half-grooves are implemented in the dividing plates of the base of the switching apparatus, at least one of which is equipped by a stopping jut on its wall for stroke with at least one hollow created on the body of each sideboard.

Description of the Figures in the Drawings

[0005] Further advantages and effects of the invention are apparent from the attached drawing, where Fig.1 is the angle view of the base of the switching apparatus case with dividing plates with notches for switchgear module mounting, with orientation marking of the arrangement of the sliding grooves and their half-grooves, equipped on the walls with stopping juts for stroke with hollows in one shown sideboard of the switchgear module, Fig.2 shows the cover of the base of the switching apparatus case equipped from the bottom-side by seating juts for final fixation of the position of the switchgear sideboards and other elements mounted onto the base of the switching apparatus case, Fig.3 is the detail of parts of the dividing plate in vertical section with mounted sideboard of the switchgear with marking of the course of the sliding grooves and their transitions into upper half-grooves with stopping juts and with marking of places of impact of the seating juts of the snapped cover onto the shaped or ending parts of the sideboard in the dividing plane of the base of the switching apparatus case.

Example of Carrying Out of the Invention

[0006] Base 1 of the switching apparatus case (Fig.1), particularly of the power circuit breaker, is a complex plastic molding with high dielectric resilience, which must withstand substantial mechanically static and dynamic load, including of effects of ionized gases. The complexity of the base 1 is determined, amongst others, by the fact that it must be made in a unified manner for the needs of various and variable internal electrical parts layout of the switching apparatus, eg. various triggers, remote-check and control switches, switchgear motor drive etc.

[0007] The base 1 of the switching apparatus case is, in accordance with the described example of its implementation, designed for a three-pole power circuit breaker. In the base 1 of the switching apparatus case there are notches 3 for mounting of the switchgear module (not pictured) created in the dividing plates 2. The switchgear module is assembled separately, whereas as part of it are two sideboards 4, partially encircling the shaft of the flexible switchgear contacts (not pictured), the purpose of which is to maintain a firm and reliable connection of

the aforesaid switchgear module in the base 1 of the case to the mentioned notch 3, without the use of various screws, rivets etc. and to claim minimum built-up space.

[0008] For this purpose, sliding clasp grooves 5,6 with transitions onto the upper half-grooves 7,8 are created for the sideboards 4 (Fig.3) of the switchgear module in the dividing plates 2 of the base 1 of the switching apparatus case, from which at least one of the upper half-grooves 7,8 is equipped on its wall by stopping jut 9 for stroke with at least one hollow 10 created in the body of each sideboard 4. In the dividing plates 2 of the base 1 are for sideboards 4 created, across to the sliding clasp grooves 5,6 for example, seating juts 11,12 for securing the mounting position and consequently also the final end position of the sideboards 4 after cover 13 snap (Fig. 2) to the base 1 of the switching apparatus case. The switchgear module (not pictured) will slip, with the use of its two sideboards 4, into the base 1, whereas these sideboards 4 will reach their appropriate positions, corresponding with their final positions.

[0009] Guidance and clasp effects of the sliding clasp grooves 5,6, seating juts 11,12 together with stopping juts 9 on the upper half-grooves 7,8 form a system for the engaged sideboards 4, that securely prevents the power reaction from the tried switchgear (not pictured) to lift any of the sideboards 4 from its latched position in the base 1 of the switching apparatus case.

[0010] After fixing of the cover 13, the shaped contacts 14,15 add-up to the final latching of the sideboards 4, acting from the upper side on the dividing plane of the switching apparatus case, for example on the mounting 16 of the sideboard 4 and on the bent bracket 17, created on the opposite side of the sideboard 4.

Claims

1. The switching apparatus, particularly power circuit breaker, composed from cover and base of the apparatus case, equipped at least by the switchgear module, fitted with the use of sideboards between the dividing plates in the base of the apparatus case, which is **characterized in that**, at least for the sideboards (4) of the switchgear module, in the dividing plates (2) of the base (1) of the switching apparatus case, sliding clasp grooves (5,6) are created, with transition to the upper half-grooves (7,8), from which at least one is equipped on its wall with stopping jut (9) for stroke with at least one hollow (10) created on the body of each sideboard (4).

Patentansprüche

1. Schaltvorrichtung, insbesondere Leistungsschalter, bestehend aus Abdeckung und Basis des Vorrichtungsgehäuses, ausgerüstet mit mindestens dem Schaltanlagenmodul sowie mit der Verwendung von

Seitenplatten zwischen den Trennplatten in der Basis des Vorrichtungsgehäuses, **dadurch gekennzeichnet, dass** mindestens für die Seitenplatten (4) des Schaltanlagenmoduls in den Trennplatten (2) der Basis (1) des Schaltvorrichtungsgehäuses Gleitklammernuten (5, 6) mit einem Übergang zu den oberen Halbnuten (7, 8) hergestellt sind, von denen mindestens eine an ihrer Wand mit einem Anschlagvorsprung (9) zum Eingriff mit mindestens einer am Körper jeder Seitenplatte (4) hergestellten Ausnehmung (10) ausgerüstet ist.

Revendications

1. Appareil de commutation, en particulier disjoncteur de puissance, composé d'un couvercle et d'une base du boîtier de l'appareil, équipé d'au moins du module d'appareillage de connexion, adapté à l'utilisation de panneaux latéraux entre les plaques de division dans la base du boîtier de l'appareil, qui est **caractérisé en ce que**, au moins pour les panneaux (4) latéraux du module d'appareillage de connexion, dans les plaques (2) de division de la base (1) du boîtier de l'appareil de commutation, il est créé des rainures (5, 6) coulissantes d'agrafage avec une transition vers les demi-rainures (7, 8) supérieures, dont l'une au moins est équipée sur sa paroi d'une saillie (9) d'arrêt pour coopérer avec au moins un creux (10) créé sur le corps de chaque panneau (4).

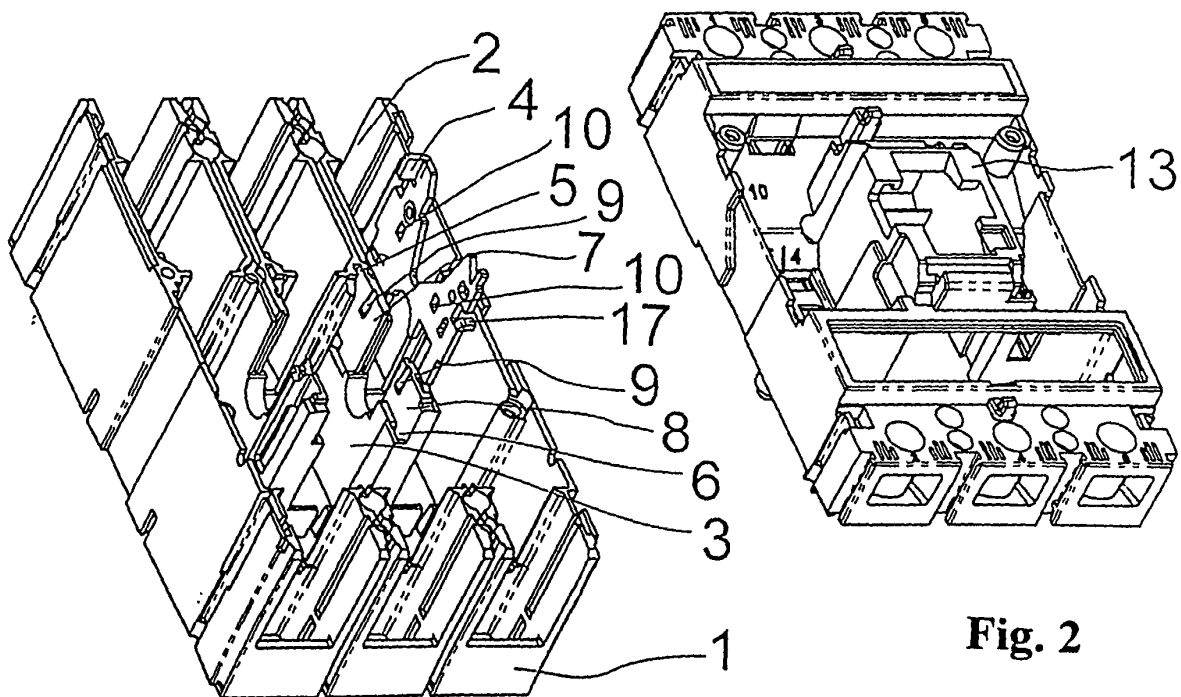


Fig. 1

Fig. 2

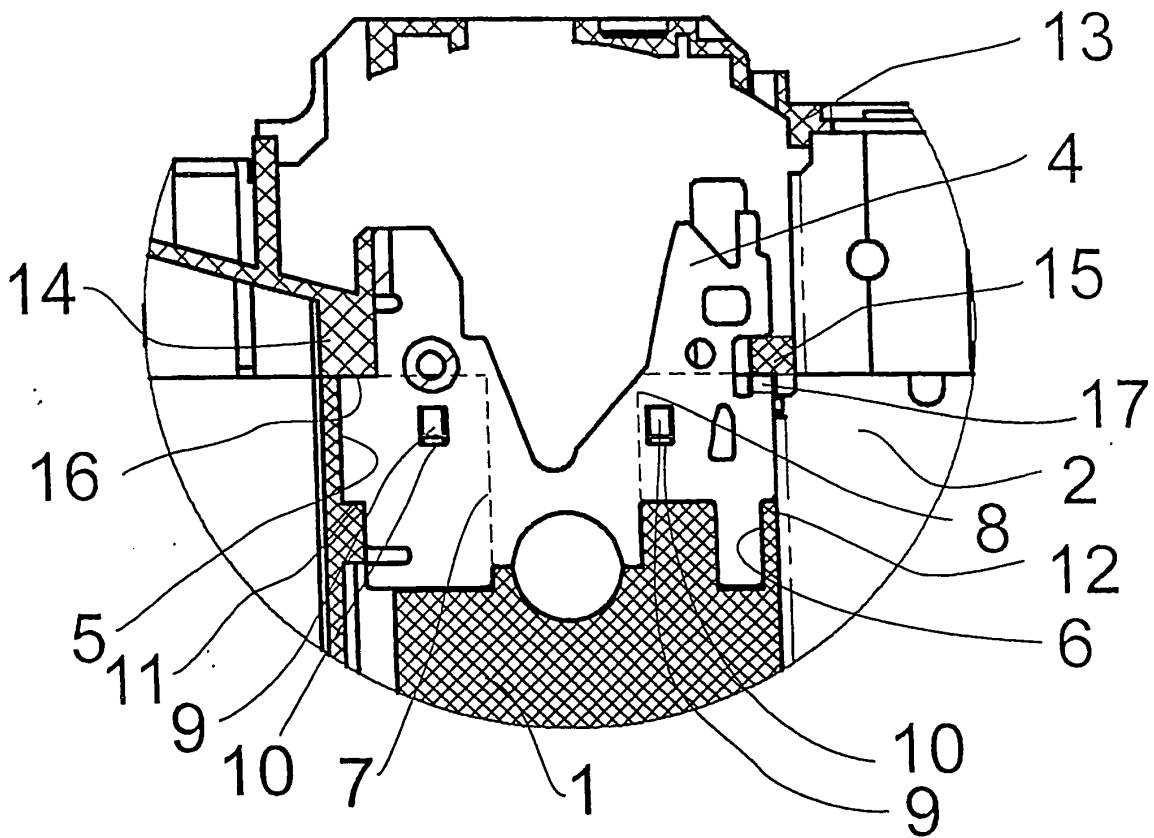


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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