(57) Abrégé/Abstract:
This unit apparatus, which is attached to a chassis and contains a plurality of stacked units to which devices are attached, is provided with the following: a device-protecting cover that is located on the front-surface side of the aforementioned units, protects
(57) **Abstract (continued):**

the aforementioned devices, and is formed by bending a top section or a bottom section; and a unit frame that has a unit base that wraps around the bent top-section surface or bottom-section surface of the device-protecting cover. Said device-protecting cover and unit frame form a unit compartment.
ABSTRACT

In a unit apparatus in which units each equipped with a device are disposed in multiple stages and are attached to a housing, the unit apparatus includes: a device-protecting cover which is disposed on the front surface side of the unit and is formed by bending an upper part or a lower part thereof to protect the device; and a unit frame body having a unit base which is disposed in lapped relation on the bent upper part surface or the bent lower part surface of the device-protecting cover. The device-protecting cover and the unit frame body constitute a unit chamber.
DESCRIPTION

TITLE: UNIT APPARATUS

TECHNICAL FIELD

[0001] The present invention relates to a unit apparatus which is for preventing an arc gas, which is discharged from a device such as a breaker during a short-circuit fault, from entering into upper and lower units.

BACKGROUND ART

[0002] A conventional unit apparatus like a distribution board has no partition between units and thus becomes in a communicated state; and accordingly, an arc gas discharged from a device such as a breaker during a short-circuit fault stretches to the upper and lower units and the fault is likely to be enlarged.

[0003] As shown in Fig. 10 and Fig. 11, a conventional unit apparatus like a control center is structured such that there is not a partition structure which is for shielding between units 1 on the unit 1 side, a partition plate 4 which is for partitioning between the units 1 is previously provided on the housing 3 side at a position matched with the height of each unit 1, a unit chamber 5 is constituted on the housing 3 side separately from constituent components of the unit 1 on the unit 1 side, and an arc gas discharged from a device 2 such as a breaker is shielded.

[0004] Thus, the partition plate 4 needs to be separately provided on the housing 3 side in addition to the constituent components
of the unit 1; and accordingly, it causes increases in the number of components and an assembly work time. Further, when a change in stacking and a change in size of the unit 1 occur, the partition plate 4 provided on the housing 3 side also needs a repartition work in accordance with the change in stacking of the unit 1 and it causes an increase in cost.

PRIOR ART DOCUMENT

PATENT DOCUMENT


SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0006] The aforementioned conventional unit apparatus like the distribution board has no partition between the units 1 and thus becomes in the communicated state; and accordingly, the arc gas discharged from the device such as the breaker during the short-circuit fault stretches to the upper and lower units and the fault is likely to be enlarged.

[0007] Furthermore, the conventional unit apparatus like the control center is structured such that there is not the partition structure which is for shielding between the units 1 on the unit 1 side to which the device 2 such as the breaker is attached, the partition plate 4 which is for partitioning between the units 1 is previously provided on the housing 3 side at the position matched with the height of each unit 1, the unit chamber 5 is constituted on the housing 3 side separately from the constituent components
of the unit 1 on the unit 1 side, and the arc gas discharged from the device 2 such as the breaker is shielded. Thus, the partition plate 4 needs to be separately provided on the housing 3 side in addition to the constituent components of the unit 1; and accordingly, it causes the increases in the number of components and the assembly work time. Further, when the change in stacking and the change in size of the unit 1 occur, the partition plate 4 provided on the housing 3 side also needs the repartition work in accordance with the change in stacking and the change in size of the unit 1 and it causes the increase in cost.

[0008] The present invention has been made to solve the above described problem, and an object of the present invention is to provide a unit apparatus which can shield between units by a simple configuration.

MEANS FOR SOLVING THE PROBLEMS

[0009] According to the present invention, there is provided a unit apparatus in which units each equipped with a device are disposed in multiple stages and are attached to a housing. In the unit apparatus, the unit apparatus includes: a device-protecting cover which is disposed on the front surface side of the unit and is formed by bending an upper part or a lower part thereof to protect the device; and a unit frame body having a unit base which is disposed in lapped relation on the bent upper part surface or the bent lower part surface of the device-protecting cover. The device-protecting cover and the unit frame body constitute a unit
chamber.

ADVANTAGEOUS EFFECT OF THE INVENTION

[0010] According to the unit apparatus according to the present invention, there can be obtained the unit apparatus which can shield between units by a simple configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Fig. 1 is a side view showing a unit single body in a unit apparatus according to Embodiment 1 of the present invention; Fig. 2 is a side view showing a unit single body in the unit apparatus according to Embodiment 1 of the present invention; Fig. 3 is a front view showing a multi-placed state in the unit apparatus according to Embodiment 1 of the present invention; Fig. 4 is a side view showing the multi-placed state in the unit apparatus according to Embodiment 1 of the present invention; Fig. 5 is a perspective view showing the multi-placed state in the unit apparatus according to Embodiment 1 of the present invention; Fig. 6 is a side view showing a unit single body in a unit apparatus according to Embodiment 2 of the present invention; Fig. 7 is a side view showing a unit single body in the unit apparatus according to Embodiment 2 of the present invention; Fig. 8 is a side view showing a unit single body in a unit apparatus according to Embodiment 3 of the present invention; Fig. 9 is a side view showing a unit single body in the unit apparatus according to Embodiment 3 of the present invention; Fig. 10 is a front view showing a conventional unit apparatus; and
Fig. 11 is a side view showing the conventional unit apparatus. MODE FOR CARRYING OUT THE INVENTION


Hereinafter, Embodiment 1 of the present invention will be described with reference to Fig. 1 to Fig. 5. Then, in each of the drawings, identical or equivalent members and portions will be described with the same reference numerals (and letters) assigned thereto. Fig. 1 is a side view showing a unit single body in a unit apparatus according to Embodiment 1 of the present invention. Fig. 2 is a side view showing a unit single body in the unit apparatus according to Embodiment 1 of the present invention. Fig. 3 is a front view showing a multi-placed state in the unit apparatus according to Embodiment 1 of the present invention. Fig. 4 is a side view showing the multi-placed state in the unit apparatus according to Embodiment 1 of the present invention. Fig. 5 is a perspective view showing the multi-placed state in the unit apparatus according to Embodiment 1 of the present invention.

[0013] In order to solve the aforementioned problems, there needs to provide the partition structure, which can shield the arc gas, between the units 1 without providing the partition plate 4 on the housing 3 side.

[0014] In this Embodiment 1, as shown in Fig. 1 to Fig. 5, a device-protecting cover 103, which is disposed on the front surface side of a unit 101 to which a device 102 such as a breaker is attached, is formed in a channel shape by bending an upper part 103a and a
lower part 103b thereof. In the case of Fig. 1, there is provided a unit frame body 104 which has a unit base 105 disposed in extended and lapped relation on the upper part 103a surface of the device-protecting cover 103, a unit chamber 106 is formed by the device-protecting cover 103 and the unit frame body 104, and a partition function is provided by the unit base 105 of the unit frame body 104 extended on the upper part 103a surface of the device-protecting cover 103. In the case of Fig. 2, there is provided a unit frame body 104 which has a unit base 107 disposed in extended and lapped relation on the lower part 103b surface of the device-protecting cover 103, a unit chamber 106 is formed by the device-protecting cover 103 and the unit frame body 104, and a partition function is provided by the unit base 107 of the unit frame body 104 extended on the lower part 103b surface of the device-protecting cover 103.

[0015] As described above, the unit base 105 or the unit base 107 of the unit frame body 104 is configured to have the partition function by attaching the unit base 105 or the unit base 107 of the unit frame body 104 in extended and lapped relation on either the upper part 103a surface or the lower part 103b surface of the device-protecting cover 103. By doing so, a leakage of an arc gas discharged from the device 102 such as the breaker to the unit base 105 side or the unit base 107 side of the unit frame body 104 having the partition function can be minimized. Then, as shown in Fig. 4, the units 101 having the partition function are multi-stacked
and placed in the housing 3 in such a manner, whereby automatically
shielding between all the units 101 can be achieved and the arc
gas discharged from the device 102 such as the breaker during a
short-circuit fault can be prevented from entering into the units
101 disposed above and below.

[0016] Then, as in the aforementioned conventional unit apparatus,
the partition plate 4 does not need to be separately provided on
the housing 3 side; and therefore, increases in the number of
components and an assembly work time are not caused and an increase
in cost can also be minimized. Further, the partition plate 4 is
not provided on the housing 3 side; and therefore, it is capable
of easily dealing with, even in the occurrence of a change in
stacking and a change in size of the unit.


Embodiment 2 of the present invention will be described with
reference to Fig. 6 and Fig. 7. Then, in each of the drawings,
identical or equivalent members and portions will be described with
the same reference numerals (and letters) assigned thereto. Fig.
6 is a side view showing a unit single body in a unit apparatus
according to Embodiment 2 of the present invention. Fig. 7 is a
side view showing a unit single body in a unit apparatus according
to Embodiment 2 of the present invention.

[0018] In the aforementioned Embodiment 1, there has been described
the case in which the device-protecting cover 103 is formed in the
channel shape by bending the upper part 103a and the lower part
103b thereof. However, in this Embodiment 2, a device-protecting cover is structured to have a partition function by bending either an upper part or a lower part thereof.

[0019] In Fig. 6, the partition function is provided by bending the upper part 108a side of a device-protecting cover 108 and by arranging a unit base 105 of a unit frame body 104 in extended and lapped relation on the upper part 108a surface of the device-protecting cover 108. The units 101 having the partition function are multi-stacked and placed in a housing 3 in such a manner, whereby automatically shielding between all the units 101 can be achieved and an arc gas discharged from a device 102 such as a breaker during a short-circuit fault can be prevented from entering into the units 101 disposed above and below.

[0020] Furthermore, in Fig. 7, the partition function is provided by reversely bending the lower part 109a side of a device-protecting cover 109 and by arranging a unit base 107 of a unit frame body 104 in extended and lapped relation on the lower part 109a surface of the device-protecting cover 109. The units 101 having the partition function are multi-stacked and placed in the housing 3 in such a manner, whereby automatically shielding between all the units 101 can be achieved and the arc gas discharged from the device 102 such as the breaker during the short-circuit fault can be prevented from entering into the units 101 disposed above and below.

[0021] Embodiment 3.

Embodiment 3 of the present invention will be described with
reference to Fig. 8 and Fig. 9. Then, in each of the drawings, identical or equivalent members and portions will be described with the same reference numerals (and letters) assigned thereto. Fig. 8 is a side view showing a unit single body in a unit apparatus according to Embodiment 3 of the present invention. Fig. 9 is a side view showing a unit single body in a unit apparatus according to Embodiment 3 of the present invention.

[0022] In the aforementioned Embodiment 1, there has been described the case in which the device-protecting cover 103 is formed in the channel shape by bending the upper part 103a and the lower part 103b thereof. However, in this Embodiment 3, a device-protecting cover is composed of an upper cover body formed by bending an upper part thereof and a lower cover body formed by bending a lower part thereof.

[0023] Fig. 8 shows a case where a device-protecting cover 110 is composed of an upper cover body 111 formed by bending an upper part 111a and a lower cover body 112 formed by bending a lower part 112a. Then, a partition function is provided by arranging a unit base 105 of a unit frame body 104 in extended and lapped relation on the upper part 111a surface of the upper part cover body 111 of the device-protecting cover 110. Units 101 having the partition function are multi-stacked and placed in a housing 3 in such a manner, whereby automatically shielding between all the units 101 can be achieved and an arc gas discharged from a device 102 such as a breaker during a short-circuit fault can be prevented from entering into
the units 101 disposed above and below.

[0024] Furthermore, in Fig. 9, the partition function is provided by reversely arranging a unit base 107 of a unit frame body 104 in extended and lapped relation on the lower part 112a surface of the lower part cover body 112 of the device-protecting cover 110. The units 101 having the partition function are multi-stacked and placed in the housing 3 in such a manner, whereby automatically shielding between all the units 101 can be achieved and the arc gas discharged from the device 102 such as the breaker during the short-circuit fault can be prevented from entering into the units 101 disposed above and below.

[0025] Incidentally, the present invention can freely combine the respective embodiments and appropriately change and/or omit the respective embodiments, within the scope of the present invention. INDUSTRIAL APPLICABILITY

[0026] The present invention is suitable for achieving a unit apparatus capable of shielding between units by a simple configuration.
CLAIMS

1. A unit apparatus in which units each equipped with a device are disposed in multiple stages and are attached to a housing, wherein said unit apparatus includes:
a device-protecting cover which is disposed on the front surface side of said unit and is formed by bending an upper part or a lower part thereof to protect said device; and
a unit frame body having a unit base which is disposed in lapped relation on the bent upper part surface or the bent lower part surface of said device-protecting cover, and
wherein said device-protecting cover and said unit frame body constitute a unit chamber.

2. The unit apparatus according to claim 1, wherein said device-protecting cover is formed in a channel shape by bending the upper part and the lower part.

3. The unit apparatus according to claim 1, wherein said device-protecting cover is composed of an upper cover body formed by bending the upper part and a lower cover body formed by bending the lower part.