

ABB Patent GmbH
Mannheim
Mp.-No. 98/542

14 November 1997
PAT 4-Ft/Ki

5 Holding cup for a toroidal-core transformer, preferably
for a fault-current circuit breaker ✓

Description

The invention relates to a holding cup in accordance with the preamble of Claim 1.

10 Such a holding cup has an annular space which is bounded
inside and outside by a respectively cylindrical wall,
the annular space being opened towards one side in the
axial direction. An annular-core transformer is placed
into said annular space, and then the annular space is
15 sealed by means of a cover. The phase conductor has
primary winding, on the one hand, and the conductor or
conductors of one or more secondary windings, on the
other hand, are threaded through the central through-
hole.

20 In a known embodiment, the cover is constructed as an
annulus whose inside diameter is slightly smaller than
the outside diameter of the inner annular space wall, and
whose outside diameter is slightly larger than the inside
diameter of the outer annular space wall. Located in each
case in the region of the free end on the inner and outer
25 surface, respectively, of the annular space is a groove
into which the inner or outer edge, respectively, of the
cover is snapped.

30 Because of the production process, there are present on
the outer end edges of the outer annular ring wall
circumferential burrs which are sharp-edged enough to
chafe through the thin insulation of the secondary
winding wire.

It is the object of the invention to create a holding cup of the type mentioned at the beginning in which the fixing of the cover is simplified and any burrs which can chafe through the insulation of the secondary winding wire are avoided.

This object is achieved according to the invention by means of the characterizing features of Claim 1.

Thus, according to the invention the cover is provided in the middle with a cylindrical projecting collar which can be inserted into the through-hole and by means of which the cover can be latched tight in the through-hole; moreover, the cover covers the free edge of the outer wall of the annular space, with the result that any burrs located on the holding cup are covered by the cover.

In accordance with an advantageous refinement of the invention, the cover has an outer circumference which is equal to the outer circumference of the holding cup or of the outer annular space wall, and in the region of the outer circumference it has a circumferential strip which projects in the same direction as the collar and engages in the annular space for guiding purposes.

So that this guidance is rendered optimum, the free edge of the outer annular space wall has a step in which the strip engages. In this arrangement, the inside diameter of the strip can then be constructed to be equal to the inside diameter of the outer annular space wall.

The invention, and further advantageous refinements and improvements of the invention together with further advantages are to be explained and described in more detail with the aid of the drawing, in which an exemplary embodiment of the invention is represented.

The sole figure shows a sectional view through a holding cup according to the invention.

- The holding cup 10 has an outer cylindrical annular space wall 11 and an inner, likewise cylindrical annular space wall 12, which are connected to one another at one end by an annular base 13, with the result that the annular space 14 is open in one direction. Located inside the inner annular space wall 12 is a through-hole 15 through which supply cables 16 (only one being represented) are threaded. A toroidal-core transformer 17 is located inside the annular space 14.
- 10 The annular space 14 is closed by means of a cover 18 which has in its middle region a feed-through opening 19 which is aligned with the through-hole 15, with the result that the supply cables 16 can also be threaded through the feed-through opening 19.
- 15 The feed-through opening 19 is surrounded on one side of the cover 18 by a cylindrical collar 20 whose outer surface 21 at first tapers conically towards the free end of the collar 20 and then merges into a conical expansion 22 which is adjoined by a cylindrical section 23; the collar section 24 on the cylindrical section 23 serves as an outwardly projecting latching nose. The inner surface 25 of the inner annular space wall has a circumferential nose 26 whose inside diameter is smaller than the outside diameter of the cylindrical section 23, with the result that when the collar 20 is pressed in, the nose 24 can snap behind the circumferential nose 26. So that the inner annular space wall 12 is resilient in the region of the circumferential nose 26, the inner annular space wall 12 has in the region of the nose 26 a slot 27 which is open towards the free end of the inner annular space wall 12; overall, three or four such slots can be provided relatively uniformly on the circumference, as a result of which the spring properties in the region of the nose 26 are optimized.
- 35 On the surface where the collar 20 is integrally formed, the cover 18 has a circumferential strip 28, and the

outer annular space wall 11 a step 29, which engage in one another so that the cover 18 is guided in the region of its outer circumference by the strip 28 and the step 29.

- 5 The cover 18 is provided at its free edge with an arcuate, circumferential chamfer 30; any burrs are located in the region of the kerf 31 and no longer in the region of the arcuate transition 30, with the result that a secondary winding 32 threaded through the through-hole
- 10 15 no longer experiences any damage to its insulation.

Patent claims

1. Holding cup for a toroidal-core transformer, having an annular space in which the transformer is placed, and a concentric through-hole, which is located
5 inside the annular space and is separated from the annular space by an inner annular space cylinder wall, and having a cover sealing the annular space, characterized in that the cover (18) has in the middle an approximately cylindrical collar (20), which projects
10 outwards in the axial direction from the cover and which can be inserted into the through-hole (15) and be latched tight in the through-hole (15), and covers the free edge of the outer annular space wall.
2. Holding cup according to Claim 1, characterized
15 in that the cover (18) has an outer circumference which is equal to the outer circumference of the holding cup (10), and has in the region of the outer circumference a circumferential strip (28) which projects in the same direction as the collar (20) and engages in the annular
20 space (14).
3. Holding cup according to Claim 2, characterized in that the free edge of the outer annular space wall (11) has a step (29) in which the strip engages.
4. Holding cup according to Claim 3, characterized
25 in that the inside diameter of the strip (28) is equal to the inside diameter of the outer annular space wall (11).

