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(71) Applicant: **ASEA BROWN BOVERI AB**
721 83 Västeras (SE)

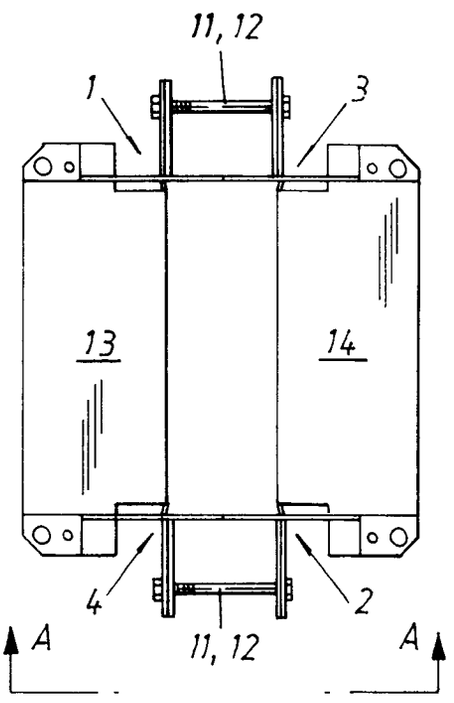
(72) Inventors:
- **Andersson, Jerker**
  771 60 Ludvika (SE)
- **Goldwitz, Rune**
  781 99 Idkerberger (SE)
- **Lindkvist, Tommy**
  771 52 Ludvika (SE)
- **Magnusson, Ronny**
  771 52 Ludvika (SE)
- **Sjögren, Lars**
  771 94 Ludvika (SE)

(74) Representative: **Karlsson, Leif Karl Gunnar et al**
L.A. Groth & Co. KB,
Box 6107
102 32 Stockholm (SE)

(54) Holding flanges

(57) To facilitate the assembly of an iron core, coil and holding flanges to form an electromagnetic unit for capacitor voltage transformers, there are used holding flanges which consist solely of three pairs of mutually different metal-plate flange-parts (1, 2; 3, 4; 13, 14) which together with screw joints (11, 12), the iron core and the coil can form an electromagnetic unit. In addition to fixating, holding and shielding the electromagnetic unit, the novel flange-parts also provide means for supporting a complete unit prior to mounting the same, means for the attachment of a damping circuit, means for positioning the entire unit in an oil box, means for guiding the unit when mounting the same in said box, means for the attachment of a compensating reactor, means for lifting the entire unit and means for earthing all parts to be earthed. The three pairs of mutually different plate-metal flange-parts are arranged in pairs in mirror image to one another and, together with a core and a coil, can be used in the manufacture of an electromagnetic unit, such as to enhance the operational performance thereof and to provide a high degree of reliability.

Fig. 2



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Description

TECHNICAL FIELD

The present invention relates to a method of arranging holding flanges on an electromagnetic unit, for instance on capacitor voltage transformers, and to holding flanges arranged in accordance with the method.

BACKGROUND ART

Holding flanges, or press flanges, hitherto used with electromagnetic units of capacitor voltage transformers normally comprise eight differently configured parts, which function to fixate and hold together the transformer core with the aid of screw joints, and to shield the sharp corners of the core. The flanges may be provided with holes for lifting and lowering the unit when fitting and removing the same respectively.

SUMMARY OF THE INVENTION

In order to simplify the manufacture of electromagnetic units provided with iron cores, coils and holding flanges and to facilitate fitting of said units to capacitor voltage transformers, the present invention proposes the use of holding flanges which consist solely of three pairs of mutually different plate-metal holding flange parts which together are able to form an electromagnetic unit together with screw joints, the iron core and the coil. In addition to fixating, holding together and shielding the transformer core, the holding-flanges also provide means for supporting a complete unit prior to fitting the same, means for the attachment of a damping circuit, means for adjusting the unit when mounted in an oil box, means for guiding a unit in the oil box when mounting said unit in said box, means for the attachment of a compensating reactor, and attachment means to facilitate lifting of the entire unit and for earthing all parts that are to be earthed. The aforesaid three pairs of differently configured metal-plate flange-parts may be arranged in pairs in mirror image to one another, and used in the manufacture of an electromagnetic unit together with core and coil.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates the six mutually different flange-parts according to the invention from above.

Figure 2 illustrates from above the flange-parts when assembled in accordance with the invention.

Figure 3 is a side view of the six mutually different flange-parts according to the invention.

Figure 4 is a side view of the flange-parts when assembled in accordance with the invention.

Figure 5 illustrates from above the assembled flange-parts together with other equipment in a capacitor voltage transformer.

Figure 6 is a side view of the capacitor voltage transformer of Figure 5 and shows flange-parts and other equipment.

DESCRIPTION OF AN EXEMPLIFYING EMBODIMENT

Figures 1-4 illustrate the configuration and the assembly of the various holding-flange parts. The holding flanges consist of three different pairs of metal-plate parts which are arranged in pairs to form together a holding and supporting casing for an iron core and coil. The flange-parts 1, 2 of one pair are mutually identical and face towards one another and are intended to be placed diagonally around the core. The flange-parts 3 and 4 of another pair are also mutually identical and face towards one another when placed diagonally around the core, wherein the flange-parts 1 and 3 and the flange-parts 2 and 4 are configured, or designed, so that when fitted they will together act as a smooth earth plane around a fitted winding, such as a high voltage winding on part of the iron core. The flange-parts 1-4 also include lifting holes 5 and attachment holes for the attachment of a damping coil, for instance. The flange-parts 1-4 are provided with guide cylinders 6 to facilitate fitting and fastening of the flange-parts to the assembled iron core, coil and other equipment in a box, said guide cylinders or sleeves coacting with corresponding guiding and fastening rods 27 provided in the bottom of said box in mounting and securing the iron core, coil and other equipment. The flange-parts 1-4 also include outwardly angled flange surfaces 7, 8 which are provided with upper and lower holes 9, 10 by means of which the flange-parts hold together and fixate the iron core and coil together through the medium of screw joints 11, 12. The third pair of flange-parts 13, 14 are mutually identical and provided with an upper planar part 15 and a lower generally planar part 16 which is angled down from the planar part 15. The upper planar parts 15 are provided with holes 17 which are disposed to enable the flange-parts 13, 14 to be connected to the flange-parts 1-4 with the aid of the earlier mentioned guide and fastening rods 27. Holes 18 are provided to enable the flange-parts 13, 14 to be connected to the flange-parts 1-4 through the medium of holes 10 and screw joints 12. When the screw joints 11 and 12 are fitted and tightened on the guide and attachment rods 27, the flange-parts 1-4 and 13-14 will together function as a unit which fixates and secures the iron core and coil and also support any other electrical equipment.

With a starting point from an open iron core held by the flange-parts 1, 3, 13, 14 in the manufacture of an electromagnetic unit, a coil is first threaded on one leg of the core. A core part is placed between the leg of the open iron core and the flange-parts 4 and 2 are then fitted against the flange-parts 13 and 14. When the flange-parts are correctly positioned, said parts are connected together with the iron core with the aid of the

screw joints 11 and 12.

Figures 5 and 6 illustrate a unit comprising holding flanges 2, 4, iron core 19, coil 20 and other equipment mounted on the flanges and lowered into a box 21, which in the illustrated case may conveniently have the form of a circular container, optionally slightly conical, having an upper, larger openable end. By providing a trench 22 on the bottom of the container, the bottom outwardly lying part of the core 19 may be allowed to seat in the trench and guide rod attachments 23 placed over and on one side of the trench, therewith enabling the upper planar portions 15 of the flange-parts 13, 14 to stand on the upper bottom of the box and simultaneously earthed with a small free space for accommodating transformer oil around the outwardly lying part of the core. The holes in the flange-parts may be used for the direct attachment of an attenuating or damping coil 24. The upwardly facing holes on the flange-parts can be used for the direct attachment of a damping resistor 25 and also for the attachment of a compensating reactor 26.

Claims

1. A method of arranging holding flanges on a transformer, **characterized** by arranging three pairs of mutually identical flange-parts around an iron core and a coil so as to fixate and hold the core with the coil, wherein three pairs of mutually identical flange-parts are fitted pair-wise around an open iron core with coil from respective sides thereof and fixated and fastened to the iron core with the aid of screw joints between the flange-parts disposed in mirror image while, at the same time, connecting part of the iron core so as to close said core.

2. A transformer holding flange arrangement, **characterized** by three different pairs (1, 2; 3, 4; 13, 14) of flange-parts which together function to fixate and support a core fitted with a coil, wherein at least one pair of flange-parts (1, 2; 3, 4) are arranged diagonally in corners and are pair-wise identical, and wherein a further pair of mutually identical flange-parts (13, 14) are disposed centrally opposite one another.

3. A holding flange arrangement according to Claim 2, **characterized** in that each flange-part (1-4, 13, 14) has an angled part (7, 8, 16); and in that each angled part has an outer hole (10, 18), wherein the holes (10) on the angled parts (7, 8) of said diagonally disposed flange-parts (1-4) are intended to register with the holes (18) on the angled parts (16) of respective centrally disposed flange-parts (13, 14) so as to enable said angled parts to be connected together.

4. A holding flange arrangement according to Claim 2, **characterized** in that each diagonally disposed flange-part (1-4) has an angled part (7, 8) which includes an inner hole (9) which is intended to be brought into register with an inner hole (9) on the other flange-part of said pair so as to enable said parts to be connected together.

5. A holding flange arrangement according to Claim 2, **characterized** in that the diagonally disposed flange-parts (1-4) are provided with guide sleeves (6).

6. A holding flange arrangement according to Claim 5, **characterized** in that said centrally disposed flange-parts (13, 14) have outer corners and are provided with holes (17) in said corners, said outer holes (17) being intended to fit onto said guide sleeves for connection therewith.

Fig.1

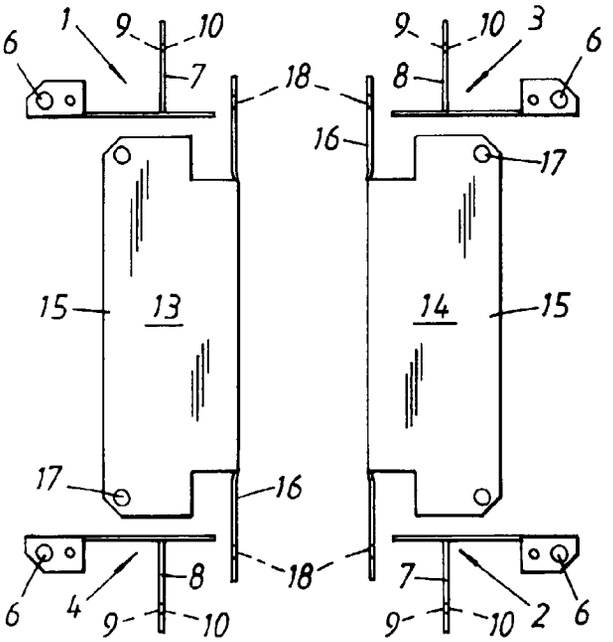


Fig.2

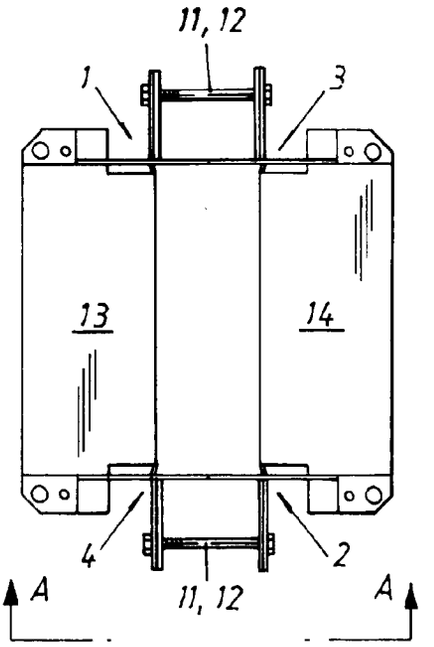


Fig.3

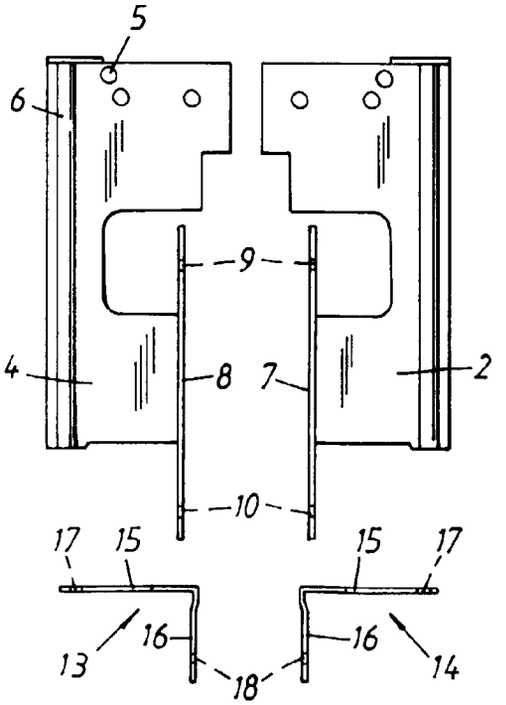


Fig.4

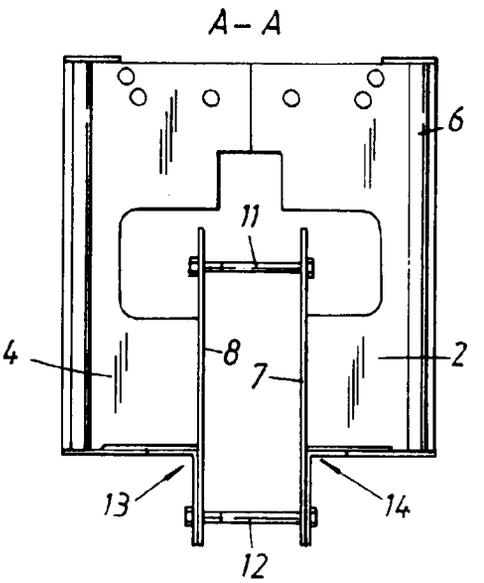


Fig.5

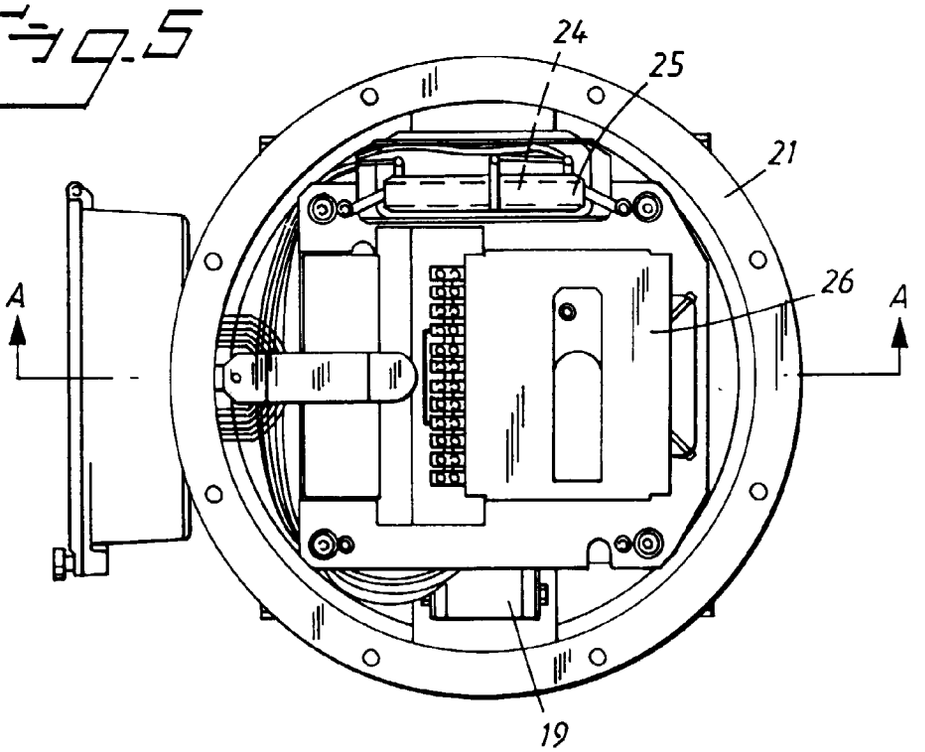
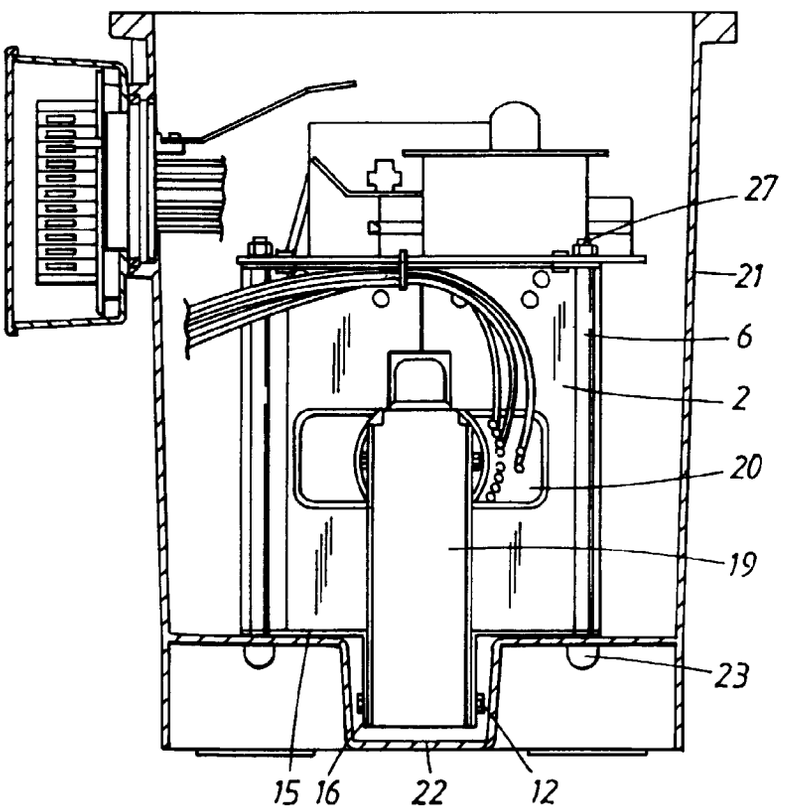


Fig.6

A - A



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EUROPEAN SEARCH REPORT

Application Number
EP 96 85 0067.8

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.6)
A	US, A, 2910663 (S.H. WILK ET AL), 27 October 1959 (27.10.59)	1,2	H01F 27/26

TECHNICAL FIELDS SEARCHED (Int. Cl.6)

H01F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
STOCKHOLM	18 July 1996	MAGNUS WESTÖÖ

CATEGORY OF CITED DOCUMENTS

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