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(54) **High-tension transformer**

Hochspannungstransformator

Transformateur à haute tension

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Description

The invention relates to a high-tension transformer as stated in the preamble of independent claims 1 and 5.

Such high-tension transformer is already known from DE-A-28 38 174. This known high-tension transformer comprises a first coil part having a through hole; and a second coil part having a cylindrical bobbin being provided with a forward end portion and a base end portion, a plurality of section collars being circumferentially formed on an outer peripheral surface of said cylindrical bobbin at prescribed intervals along its longitudinal direction, and lead wires being wound between said plurality of section collars, respectively; said second coil part being inserted in said through hole of said first coil part from said forward end portion of said cylindrical bobbin, and further being provided on said forward end portion of said cylindrical bobbin with a tapered portion being so tapered as to approach said outer peripheral surface of said cylindrical bobbin toward said forward end portion,

A flyback transformer (hereinafter referred to as an FBT) is also known as a high-tension transformer having a low-tension coil part which is inserted in a through hole of a high-tension coil part. Such an FBT is employed for supplying a high dc voltage to an anode of a cathode ray tube of a television receiver or the like.

Fig. 1 is a sectional view schematically illustrating the structure of the aforementioned FBT.

This FBT 1 has a pair of core members 2 and 3 which are coupled with each other to form an angular-annular core. The core members 2 and 3 have leg portions 2a, 2b, 3a and 3b respectively. Forward ends of the leg portions 2a and 3a as well as those of the leg portions 2b and 3b are bonded with each other respectively through adhesives (not shown) or the like. The leg portions 2a and 3a are inserted in a low-tension coil part 4, to be bonded with each other in this low-tension coil part 4.

The low-tension coil part 4 has a cylindrical bobbin 5 and a plurality of section collars 6 which are formed on the outer peripheral surface of the cylindrical bobbin 5 at prescribed intervals along its longitudinal direction. Lead wires 7 are wound on regions between the plurality of section collars 6 respectively. In other words, a plurality of lead wires 7 are wound on the outer peripheral surface of the cylindrical bobbin 5 by the so-called section winding. The cylindrical bobbin 5 is provided on its lower end with a flange part 5a, from which a plurality of terminal pins 8 are drawn out. Both ends of the lead wires 7 are connected to the terminal pins 8.

The low-tension coil part 4 is inserted in a high-tension coil part 9 having a through hole 9a. The high-tension coil part 9 is formed by winding a lead wire 10 such as an enamel copper wire on the outer peripheral surface of a cylindrical bobbin 9b.

In order to assemble the FBT 1, it is necessary to insert the low-tension coil part 4 in the through hole 9a

of the high-tension coil part 9. Namely, it is necessary to wind the lead wires 7 on the regions which are held between the plurality of section collars 6 respectively on the outer peripheral surface of the cylindrical bobbin 5 forming the low-tension coil part 4, and to thereafter insert the low-tension coil part 4 in the through hole 9a of the high-tension coil part 9.

This inserting operation is now described with reference to Fig. 2. Referring to Fig. 2, the lead wires 7 of the low-tension coil part 4 are omitted while only the cylindrical bobbin 9b is illustrated with respect to the high-tension coil part 9.

After the low-tension coil part 4 is assembled, the cylindrical bobbin 5 thereof is inserted in the through hole 9a of the cylindrical bobbin 9b forming the high-tension coil part 9, as shown by arrow A in Fig. 2. However, the cylindrical bobbin 5 is provided on its outer peripheral surface with the plurality of section collars 6. If the centers of the cylindrical bobbins 5 and 9b are not correctly aligned with each other, therefore, the section collars 6 collide with the cylindrical bobbin 9b, to break the cylindrical bobbin 5 or 9b. Therefore, the center of the cylindrical bobbin 5 forming the low-tension coil part 4 is correctly aligned with that of the cylindrical bobbin 9b, and the cylindrical bobbin 5 is carefully inserted in the cylindrical bobbin 9b. Thus, a long time is required for this inserting operation, leading to insufficient productivity.

While the low- and high-tension coil parts 4 and 9 are correctly aligned with each other in assembling in order to avoid the aforementioned problem, it is necessary to improve accuracy of a robot or a sequencer block which is employed in this case. Thus, the cost required for such a production equipment is remarkably increased.

An object of the present invention is to provide another high-tension transformer, which low-tension coil part can be readily inserted in a high-tension coil part through a low-priced equipment.

According to one aspect of the present invention, the high-tension transformer is characterized in that the first coil part is provided with a high-tension coil; the second coil part is provided with a low-tension coil; and one or more of said plurality of section collars have sectional shapes along said longitudinal direction of said cylindrical bobbin being so formed as to approach said outer peripheral surface of said cylindrical bobbin toward said forward end portion, thereby defining said tapered portion.

In insertion of the low-tension coil part, therefore, the low-tension coil part is smoothly inserted in the through hole of the high-tension coil part. Even if the center of the low-tension coil part slightly deviates from that of the through hole of the high-tension coil part, the low- and high-tension coil parts can be readily and correctly aligned with each other due to the action of the tapered portion. Namely, the tapered portion comes into contact with the inner wall of the through hole of the high-

tension coil part to facilitate insertion of the low-tension coil part into the high-tension coil part so long as the forward end portion of the former is introduced into the through hole of the latter, whereby the center of the low-tension coil part is correctly aligned with that of the through hole.

Therefore, it is possible to smoothly insert the low-tension coil part in the high-tension coil part without much increasing the accuracy of an equipment, such as a robot or a sequencer block, for example, which is employed for this insertion. Thus, it is possible to reduce the cost required for the production equipment for the high-tension transformer. In addition, it is possible to reduce the operation time for inserting the low-tension coil part in the high-tension coil part due to no requirement for correct alignment, thereby improving productivity also in this point.

As already mentioned, the sectional shapes of the section collars along the longitudinal direction of the cylindrical bobbin are so formed as to approach the outer peripheral surface of the cylindrical bobbin toward its forward end portion, whereby the section collars are provided with the tapered portion(s).

When the tapered portion is thus defined by the section collar(s), the tapered portion may be provided on the section collar of the frontmost position which is closest to the forward end portion of the cylindrical bobbin. Further, this section collar may be formed by a plurality of section collars which are divided in the circumferential direction, or by that having a continuous shape in the circumferential direction.

Alternatively, the sectional shapes of the plurality of section collars may be formed to have the aforementioned tapered portions respectively. Namely, all section collars may be formed to have the aforementioned tapered portions. Preferably, the plurality of section collars which are arranged along the longitudinal direction of the cylindrical bobbin are so formed that outer edges thereof approach the outer peripheral surface of the cylindrical bobbin toward its forward end portion.

According to a second aspect of the present invention, the high-tension transformer is characterized in that the first coil part is provided with a high-tension coil; the second coil part is provided with a low-tension coil; and in that the tapered portion is formed by inclined surfaces of auxiliary members, said auxiliary members being arranged at least on a forward end side of that of said section collars being located on a frontmost position.

This auxiliary members may be formed independently of the section collars at a prescribed distance therefrom, while the same is preferably integrally formed with the section collars.

The foregoing and other objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of the present invention when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic sectional view for illustrating the overall structure of a conventional FBT;

Fig. 2 is a schematic partially fragmented sectional view for illustrating a step of inserting a low-tension coil part in a high-tension coil part in the conventional FBT;

Fig. 3 is a schematic sectional view for illustrating the overall structure of an FBT according to an embodiment of the present invention;

Fig. 4 is a partially fragmented side elevational view showing the appearance of a cylindrical bobbin employed in the FBT according to the embodiment of the present invention;

Fig. 5 is a partially fragmented side elevational view showing a first modification of the cylindrical bobbin employed in the FBT according to the embodiment of the present invention;

Fig. 6 is a partially fragmented side sectional view showing a second modification of the cylindrical bobbin employed in the FBT according to the embodiment of the present invention; and

Fig. 7 is a partially fragmented side sectional view showing a third modification of the cylindrical bobbin employed in the FBT according to the embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the present invention which is applied to an FBT serving as an exemplary high-tension transformer is now described with reference to the drawings.

Fig. 3 is a schematic sectional view showing the overall structure of an FBT 21 according to the embodiment of the present invention.

The FBT 21 has a core which is formed by a pair of core members 22 and 23. The core members 22 and 23 have pairs of leg portions 22a, 22b, 23a and 23b respectively. The leg portions 22a and 22b are bonded with the leg portions 23a and 23b through insulating adhesives (not shown) respectively. The core, having an angular-annular shape, which is formed by the core members 22 and 23 is inserted in a low-tension coil part 24 in the portion where the leg portions 22a and 23a are bonded with each other.

The low-tension coil part 24 has a cylindrical bobbin 25 which is made of synthetic resin, for example. This cylindrical bobbin 25 is substantially cylindrical as a whole, and has a flange portion 25c on its base end portion 25b which is opposite to its forward end portion 25a. A plurality of section collars 26 and 27 are formed on an outer peripheral surface of the cylindrical bobbin 25. Further, lead wires 28 are wound on the outer peripheral surface of the cylindrical bobbin 25 in regions between the plurality of section collars 26 and 27 respectively.

Namely, a plurality of lead wires 28 are so section-wound that a plurality of wound portions are arranged along the longitudinal direction of the cylindrical bobbin 25. Both ends of the lead wires 28 are connected to terminal pins 29 which are drawn out from the flange portion 25c.

The lead wires 28 can be formed by conductors such as enamel copper wires, for example, having insulation-coated surfaces.

The low-tension coil part 24 is inserted in the high-tension coil part 30. The high-tension coil part 30 has a cylindrical bobbin 31 which is made of synthetic resin or a metal having an insulated surface, for example. A lead wire 32 consisting of an enamel coil wire or the like is wound on an outer peripheral surface of the cylindrical bobbin 31.

Since the cylindrical bobbin 31 has a cylindrical shape, the high-tension coil part 30 has a through hole 30a so that the aforementioned low-tension coil part 24 is inserted in this through hole 30a.

Further, a case 32 is mounted to enclose the high-tension coil part 30 receiving the low-tension coil part 24, and this case 32 is filled up with insulating resin (not shown).

The feature of the FBT 21 according to this embodiment resides in that the cylindrical bobbin 25 forming the low-tension coil part 24 is provided on its outer peripheral surface with a tapered portion. Fig. 4 illustrates only the cylindrical bobbin 25 shown in Fig. 3 in a partially enlarged manner. The cylindrical bobbin 25 is provided with the plurality of section collars 26 and 27 which are arranged at prescribed intervals along its longitudinal direction. Such plurality of section collars 26 and 27 are also arranged along the circumferential direction respectively.

The section collars 26 in proximity to the forward end portion 25a of the cylindrical bobbin 25, i.e., provided on the frontmost position, have shapes which are different from those of the remaining section collars 27. Namely, the section collars 26 have inclined surfaces 26a which are so formed that sections along the longitudinal direction of the cylindrical bobbin 25 approach the outer peripheral surface thereof toward the forward end portion 25a. Namely, the inclined surfaces 26a define the tapered portion of the present invention. According to this embodiment, the plurality of section collars 26 which are circumferentially arranged on the frontmost position of the cylindrical bobbin 25 have the inclined surfaces 26a, so that the plurality of section collars 26 define the tapered portion according to the present invention.

In the FBT 21 according to this embodiment, the section collars 26 which are provided on the frontmost position have the aforementioned inclined surfaces 26a among those provided on the outer peripheral surface of the cylindrical bobbin 25, whereby the section collars 26 hardly interfere with the cylindrical bobbin 31 forming the high-tension coil part 30 when the low-tension coil

part 24 is inserted in the through hole 30a of the high-tension coil part 30. Further, the tapered portion is defined by the section collars 26, whereby the low-tension coil part 24 can be smoothly inserted in the high-tension coil part 30. When the center of the cylindrical bobbin 25 slightly deviates from that of the through hole 30a provided in the high-tension coil part 30, the inclined surfaces 26a of the section collars 26 come into contact with the cylindrical bobbin 31 of the high-tension coil part 30 upon insertion of the low-tension coil part 24. Since the inclined surfaces 26a of the section collars 26 are in contact with a wall surface of the cylindrical bobbin 31 upon such insertion, the center of the cylindrical bobbin 25 is correctly aligned with that of the through hole 30a. Thus, it is possible to smoothly insert the low-tension coil part 24 in the through hole 30a of the high-tension coil part 30.

While Fig. 4 shows only the cylindrical bobbin 25 of the low-tension coil part 24, the aforementioned lead wires 28 are wound on the outer peripheral surface of the cylindrical bobbin 25 in advance of the insertion.

In the aforementioned embodiment, the tapered portion is defined by providing the inclined surfaces 26a on the collars 26 which are located on the frontmost position among the plurality of section collars 26 and 27. However, the tapered portion of the present invention is not restricted to such an example alone.

As shown in Fig. 5, for example, a single section collar 36 may be formed on the cylindrical bobbin 25 to be continuous along its circumferential direction, as that provided on the frontmost position. When a lead wire which is wound at the back of the section collar 36 provided on the frontmost position is drawn out, the section collar 36 inhibits no such drawing of the lead wire. Thus, the frontmost section collar 36 may be continuous along the circumferential direction.

Alternatively, the section collars 26 located on the frontmost position may be provided with auxiliary members 47 on portions which are close to the forward end portion 25a of the cylindrical bobbin 25, as shown in Fig. 6. The auxiliary members 47 have inclined surfaces 47a which are so formed that sections along the longitudinal direction of the cylindrical bobbin 25 approach the outer peripheral surface of the cylindrical bobbin 25 toward the forward end portion 25a. Thus, the tapered portion of the present invention is defined by the inclined surfaces 47a of the auxiliary members 47. While all of the plurality of section collars 26 which are arranged on the frontmost position are provided with the auxiliary members 47 in Fig. 6, the section collars 26 may include those provided with no auxiliary members 47. In order to facilitate alignment for inserting the cylindrical bobbin 25 in the through hole 30a of the high-tension coil part 30, the aforementioned auxiliary members 47 may be provided at least on a pair of section collars 26, to be opposed to each other through the cylindrical bobbin 25.

While the auxiliary members 47 are arranged to be in contact with the section collars 26 provided on the

frontmost position in Fig. 6, the same may alternatively be arranged on positions, separated from the section collars 26 provided on the frontmost position, which are closer to the forward end portion 25a. However, the auxiliary members 47 are preferably integrated with the section collars 26 provided on the frontmost position as shown in Fig. 6, so that it is possible to further reliably prevent the section collars 26 from breakage.

While the tapered portions are defined by the section collars 26 and 36 provided on the frontmost positions in the examples shown in Figs. 4 to 6, the remaining section collars 27 may also define tapered portions. As shown in Fig. 7, for example, the plurality of remaining section collars 27 which are arranged at prescribed intervals along the longitudinal direction of the cylindrical bobbin 25 may also be provided with inclined surfaces 27a and 27b, thereby defining a plurality of tapered portions. In this case, it is preferable that the plurality of section collars 26 and 27 defining the tapered portions are so formed that outer edges thereof approach the outer peripheral surface of the cylindrical bobbin 25 toward the forward end portion 25a, as shown in Fig. 7.

While the above description has been made with reference to an embodiment which is applied to an FBT, the present invention is not restricted to such an FBT. Namely, the present invention is applicable to an arbitrary high-tension transformer other than the FBT, so far as the same comprises a low-tension coil part and a high-tension coil part receiving the low-tension coil part, with a plurality of section collars which are formed on an outer peripheral surface of a cylindrical bobbin, forming the low-tension coil part, on which lead wires are section-wound.

Claims

1. A high-tension transformer comprising:

- a first coil part (30) having a through hole (30a); and
- a second coil part (24) having a cylindrical bobbin (25) being provided with a forward end portion (25a) and a base end portion (25b), a plurality of section collars (26, 27) being circumferentially formed on an outer peripheral surface of said cylindrical bobbin (25) at prescribed intervals along its longitudinal direction, and lead wires (28) being wound between said plurality of section collars (26, 27), respectively;
- said second coil part (24) being inserted in said through hole (30a) of said first coil part (30) from said forward end portion (25a) of said cylindrical bobbin (25), and further being provided on said forward end portion (25a) of said cylindrical bobbin (25) with a tapered portion being so tapered as to approach said outer peripheral surface of said cylindrical bobbin (25) toward

said forward end portion (25a),

characterized in that

- the first coil part (30) is provided with a high-tension coil;
 - the second coil part (24) is provided with a low-tension coil; and in that
 - one or more of said plurality of section collars (26, 27) have sectional shapes along said longitudinal direction of said cylindrical bobbin (25) defining said tapered portion.
2. The high-tension transformer as claimed in claim 1, **characterized in that** said tapered portion is formed by that (26) of said plurality of section collars (26, 27) being arranged on a position being closest to said forward end portion (25a) of said cylindrical bobbin (25).
 3. The high-tension transformer as claimed in claim 2, **characterized in that** said section collar (26) being arranged on said position being closest to said forward end portion (25a) of said cylindrical bobbin (25) consists of a plurality of section collars being divided in the circumferential direction.
 4. The high-tension transformer as claimed in claim 2, **characterized in that** said section collar (36) being arranged on said position being closest to said forward end portion (25a) of said cylindrical bobbin (25) has a continuous shape along the circumferential direction.
 5. A high-tension transformer comprising:
 - a first coil part (30) having a through hole (30a); and
 - a second coil part (24) having a cylindrical bobbin (25) being provided with a forward end portion (25a) and a base end portion (25b), a plurality of section collars (26, 27) being circumferentially formed on an outer peripheral surface of said cylindrical bobbin (25) at prescribed intervals along its longitudinal direction, and lead wires (28) being wound between said plurality of section collars (26, 27), respectively;
 - said second coil part (24) being inserted in said through hole (30a) of said first coil part (30) from said forward end portion (25a) of said cylindrical bobbin (25), and further being provided on said forward end portion (25a) of said cylindrical bobbin (25) with a tapered portion being so tapered as to approach said outer peripheral surface of said cylindrical bobbin (25) toward said forward end portion (25a),

characterized in that

- the first coil part (30) is provided with a high-tension coil;
- the second coil part (24) is provided with a low-tension coil; and
- in that said tapered portion is formed by inclined surfaces (47a) of auxiliary members (47),
- said auxiliary members (47) being arranged at least on a forward end side of that of said section collars (26) being located on a frontmost position.

6. The high-tension transformer as claimed in claim 5, **characterized in that** said auxiliary members (47) are integrally formed with said section collar (26) being located on said frontmost position on its forward end side.
7. The high-tension transformer as claimed in one of the claims 1 to 6, **characterized in that** it is designed as a flyback transformer.

Patentansprüche

1. Hochspannungstransformator mit:

- einem ersten Spulenteil (30) mit einem Durchgangsloch (30a) ; und
- einem zweiten Spulenteil (24) mit einem zylindrischen Spulenhalter (25), der mit einem vorderen Endbereich (25a) und einem Sockelendbereich (25b) versehen ist, wobei mehrere Unterteilungsstege (26, 27) in Umfangsrichtung an der Außenumfangsfläche des zylindrischen Spulenhalters (25) mit vorbestimmten Intervallen entlang dessen Längsrichtung angeordnet sind und Zuleitungsdrähte (28) jeweils zwischen die mehreren Unterteilungsstege (26, 27) gewickelt sind;
- wobei dieser zweite Spulenteil (24) vom vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) her in das Durchgangsloch (30a) des ersten Spulenteils (30) eingeführt ist und er ferner am vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) mit einem verjüngten Bereich versehen ist, der in solcher Weise verjüngt zuläuft, dass er sich zum vorderen Endbereich (25a) hin an die Außenumfangsfläche des zylindrischen Spulenhalters (25) annähert;

dadurch gekennzeichnet, dass

- der erste Spulenteil (30) mit einer Hochspannungsspule versehen ist;
- der zweite Spulenteil (24) mit einer Niederspannungsspule versehen ist und
- ein oder mehrere der mehreren Unterteilungs-

stege (26, 27) Schnittformen entlang der Längsrichtung des zylindrischen Spulenhalters (25) aufweisen, die den verjüngten Bereich bilden.

2. Hochspannungstransformator nach Anspruch 1, **dadurch gekennzeichnet**, dass der verjüngte Bereich durch denjenigen (26) der mehreren Unterteilungsstege (26, 27) gebildet ist, der an der Position liegt, die sich am nächsten am vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) befindet.

3. Hochspannungstransformator nach Anspruch 2, **dadurch gekennzeichnet**, dass der Unterteilungssteg (26), der an der Position angeordnet ist, die am nächsten am vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) liegt, aus mehreren Unterteilungsstegen besteht, die in der Umfangsrichtung unterteilt sind.

4. Hochspannungstransformator nach Anspruch 2, **dadurch gekennzeichnet**, dass der Unterteilungssteg (26), der an der Position am nächsten am vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) liegt, durchgehende Form entlang der Umfangsrichtung aufweist.

5. Hochspannungstransformator mit:

- einem ersten Spulenteil (30) mit einem Durchgangsloch (30a); und
- einem zweiten Spulenteil (24) mit einem zylindrischen Spulenhalter (25), der mit einem vorderen Endbereich (25a) und einem Sockelendbereich (25b) versehen ist, wobei mehrere Unterteilungsstege (26, 27) in Umfangsrichtung an der Außenumfangsfläche des zylindrischen Spulenhalters (25) mit vorbestimmten Intervallen entlang dessen Längsrichtung angeordnet sind und Zuleitungsdrähte (28) jeweils zwischen die mehreren Unterteilungsstege (26, 27) gewickelt sind;
- wobei dieser zweite Spulenteil (24) vom vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) her in das Durchgangsloch (30a) des ersten Spulenteils (30) eingeführt ist und er ferner am vorderen Endbereich (25a) des zylindrischen Spulenhalters (25) mit einem verjüngten Bereich versehen ist, der in solcher Weise verjüngt zuläuft, dass er sich zum vorderen Endbereich (25a) hin an die Außenumfangsfläche des zylindrischen Spulenhalters (25) annähert;

dadurch gekennzeichnet, dass

- der erste Spulenteil (30) mit einer Hochspan-

- nungsspule versehen ist;
- der zweite Spulenteil (24) mit einer Nieder-
spannungsspule versehen ist und
- der verjüngte Bereich durch schräge Flächen
(47a) von Hilfselementen (47) gebildet ist;
- wobei diese Hilfselemente (47) zumindest an
der Vorderendseite derjenigen Unterteilungs-
stege (26) angeordnet sind, die an der vorder-
sten Position liegen.

6. Hochspannungstransformator nach Anspruch 5,
dadurch gekennzeichnet, dass die Hilfselemente
(47) einstückig mit demjenigen Unterteilungssteg
(26) ausgebildet sind, der an der vordersten Positi-
on an der Seite des Vorderendes liegt.

7. Hochspannungstransformator nach einem der An-
sprüche 1 bis 6, **dadurch gekennzeichnet**, dass
er als Zeilenrücklauftransformator konzipiert ist.

Revendications

1. Un transformateur haute tension comprenant :

- une première partie de bobine (30) comportant
un trou traversant (30a) ; et
- une seconde partie de bobine (24) comportant
une bobine cylindrique (25) pourvue d'une partie
d'extrémité avant (25a) et d'une partie d'ex-
trémité de base (25b), une pluralité d'anneaux
de section (26, 27) étant formés, de manière
circonférentielle, sur une surface périphérique
extérieure de ladite bobine cylindrique (25) à
intervalles prescrits le long de son sens longi-
tudinal, et des fils conducteurs (28) enroulés
entre ladite pluralité d'anneaux de section (26,
27), respectivement ;
- ladite seconde partie de bobine (24) étant insé-
rée dans ledit trou traversant (30a) de ladite
première partie de bobine (30) à partir de ladite
partie d'extrémité avant (25a) de ladite bobine
cylindrique (25) et étant, de plus, pourvue, sur
ladite partie d'extrémité avant (25a) de ladite
bobine cylindrique (25), d'une partie effilée,
étant effilée de manière à approcher ladite sur-
face périphérique extérieure de ladite bobine
cylindrique (25) vers ladite partie d'extrémité
avant (25a),

caractérisé en ce que

- la première partie de bobine (30) est pourvue
d'une bobine haute tension ;
- la seconde partie de bobine (24) est pourvue
d'une bobine basse tension ; et en ce que
- un ou plusieurs de ladite pluralité d'anneaux de
section (26, 27) ont des formes en coupe le long

dudit sens longitudinal de ladite bobine cylin-
drique (25) définissant ladite partie effilée.

2. Le transformateur haute tension selon la revendication 1, caractérisé en ce que ladite partie effilée est formée par celui (26) de ladite pluralité d'anneaux de section (26, 27) qui est agencé à une position la plus proche de ladite partie d'extrémité avant (25a) de ladite bobine cylindrique (25).

3. Le transformateur haute tension selon la revendication 2, caractérisé en ce que ledit anneau de section (26) agencé à ladite position la plus proche de ladite partie d'extrémité avant (25a) de ladite bobine cylindrique (25) consiste en une pluralité d'anneaux de section divisés dans le sens circonférentiel.

4. Le transformateur haute tension selon la revendication 2, caractérisé en ce que ledit anneau de section (36) agencé à ladite position la plus proche de ladite partie d'extrémité avant (25a) de ladite bobine cylindrique (25) a une forme continue le long du sens circonférentiel.

5. Le transformateur haute tension comprenant :

- une première partie de bobine (30) comportant
un trou traversant (30a) ; et
- une seconde partie de bobine (24) comportant
une bobine cylindrique (25) pourvue d'une partie
d'extrémité avant (25a) et d'une partie d'ex-
trémité de base (25b), une pluralité d'anneaux
de section (26, 27) étant formés, de manière
circonférentielle, sur une surface périphérique
extérieure de ladite bobine cylindrique (25) à
intervalles prescrits le long de son sens longi-
tudinal, et des fils conducteurs (28) enroulés
entre ladite pluralité d'anneaux de section (26,
27), respectivement ;
- ladite seconde partie de bobine (24) étant insé-
rée dans ledit trou traversant (30a) de ladite
première partie de bobine (30) de ladite partie
d'extrémité avant (25a) de ladite bobine cylin-
drique (25) et étant, de plus, pourvue, sur ladite
partie d'extrémité avant (25a) de ladite bobine
cylindrique (25), d'une partie effilée, étant effi-
lée de manière à approcher ladite surface pé-
riphérique extérieure de ladite bobine cylindri-
que (25) vers ladite partie d'extrémité avant
(25a),

caractérisé en ce que

- la première partie de bobine (30) est pourvue
d'une bobine haute tension ;
- la seconde partie de bobine (24) est pourvue
d'une bobine basse tension ; et en ce que
- ladite partie effilée est formée par les surfaces

- inclinaées (47a) d'éléments auxiliaires (47) ;
- lesdits éléments auxiliaires (47) étant agencés au moins sur un côté d'extrémité avant de celui desdits anneaux de section (26) placé à une position la plus en avant.

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6. Le transformateur haute tension selon la revendication 5, caractérisé en ce que lesdits éléments auxiliaires (47) sont formés intégralement avec ledit anneau de section (26) situé à ladite position la plus en avant sur son côté d'extrémité avant.
7. Le transformateur haute tension selon l'une quelconque des revendications 1 à 6, caractérisé en ce qu'il est conçu comme un transformateur de retour de spot.

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FIG. 1 PRIOR ART

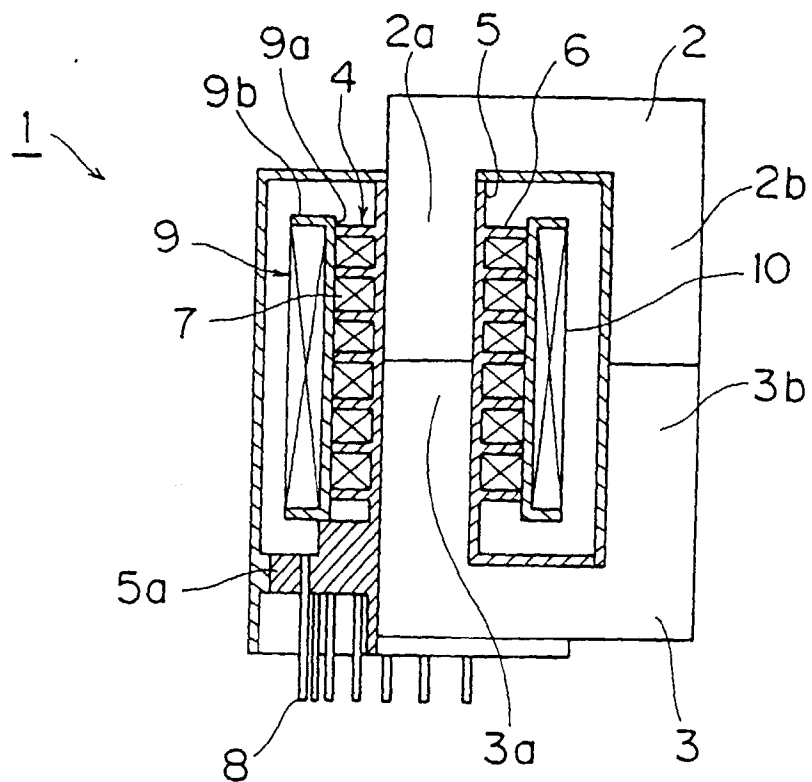


FIG. 2 PRIOR ART

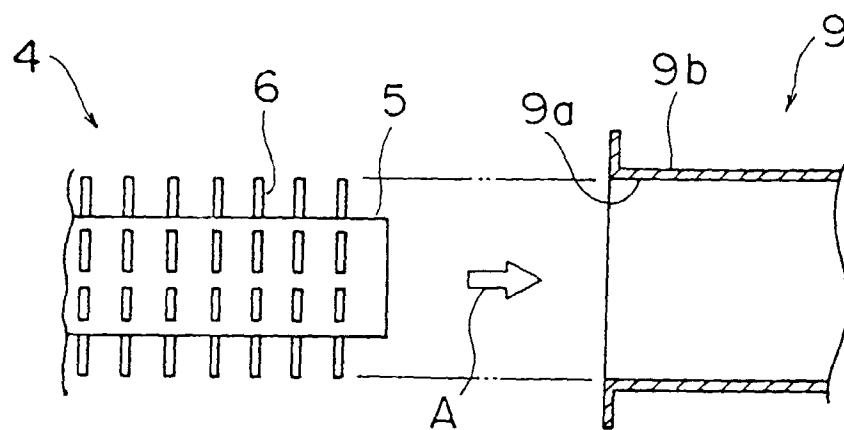


FIG. 3

