

[EN] APPARATUS AND METHOD FOR ALIGNING CONDUCTORS OF COIL MEMBERS IN CORES OF ELECTRIC DYNAMIC MACHINES PRIOR TO WELDING OPERATIONS

[FR] APPAREIL ET PROCÉDÉ SERVANT À ALIGNER LES CONDUCTEURS D'ÉLÉMENTS DE BOBINE DANS LES NOYAUX DE MACHINES DYNAMIQUES ÉLECTRIQUES AVANT LES OPÉRATIONS DE SOUDURE

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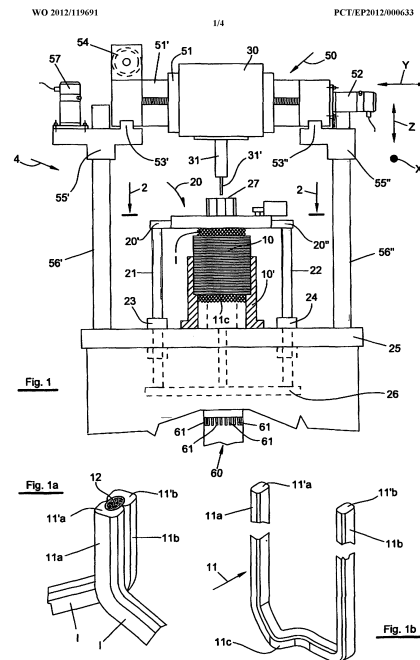
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Abstract:

<p>Apparatus and method for aligning wire conductors (11a, 11b) extending from coil members (11) inserted in slots of a core (10) of an electric dynamo machine to join the ends (11'a,11'b) of the wire conductors by means of a welding operation accomplished by welding means (30), comprising : a first member (41) having a plurality of passages (40); a second member (42) having a plurality of passages (40'); the first and second members (41,42) being assembled adjacent to each other to align in pairs the passages (40) of the first member (41) with the passages (40') of the second member (42); each pair of aligned passages (40,40') forming a single passage capable of receiving at least the end portions (11a, 11b) of two conductors; the first member (41) and the second member (42) being relatively moved in the circumferential direction (C) of the core to cause the sides of the passages (40,40') to engage and move the end portions (11a, 11b) of the wire conductors in the circumferential direction (C); a thrust in the radial direction (R) of the core being exerted on inclined portions (I) of the wire conductors to cause the end portions (11a, 11b) of the



Claims:

CLAIMS 1. Apparatus for aligning wire conductors (11a,11b) extending from coil members (11) inserted in slots of a core (10) of a dynamo electric machine to join the ends (11a,11b) of the wire conductors by means of a welding operation, accomplished by welding means (30) comprising : a first member (41) having a plurality of passages (40) ; a second member (42) having a plurality of passages (40') ; the first member (41) and second member (42) being assembled adjacent to each other to align in pairs the passages (40) of the first member (41) with the passages (40') of the second member (42); each pair of aligned passages (40,40') forming a single passage capable of receiving the end portions of at least two wire conductors (11a,11b); means (41',42',46) for relatively moving the first member (41) with respect to the second member (42) in the circumferential direction (C) of the core to cause the sides of the passages (40,40') to engage and move the end portions (11a, 11b) of the wire conductors in the circumferential direction (C) ; means (61) for pushing in the radial direction (R) of the core on inclined portions (I) of the wire conductors to cause the end portions (11a,11b) of wire conductors present in a single passage to engage each other in the radial direction (R) and the end portion of wire conductor most distant in the radial direction (R) in the single passage to engage the sides of the single passage in the radial direction (R) . 2. Apparatus according to claim 1 characterized in that a passage (40) of the first member (41) is delimited by opposite sides (W1,W1') facing in circumferential directions (C) of the core and by opposite sides (W2,W2') facing in radial directions (R) of the core (10) and; wherein a passage (40) of the second member (42) is delimited by opposite sides (W3,W3') facing in the circumferential directions (C) of the core (10) and opposite sides (W4,W4') facing in the radial directions (R) of the core (10); 3. Apparatus according to claim 1 wherein at least four end portions of wire conductors (11a,11b,11c,11d) are present in a single passage and the wire conductors are joined in pairs at their ends (11a,11b) by a welding operation that heats the ends (11a,11b) of the wire conductors to be joined. 4. Apparatus according to claim 3 comprising means (50) for translating the welding means (31) in at least two perpendicular directions (X,Y) for aligning the welding means (30) with the ends (11a,11b) of the wire conductors to be joined. 5. Apparatus according to claim 1 comprising means (21,22,27) for relatively moving the core (10) with respect to the first member (41) and the second member (42) parallel to a longitudinal axis (A) of the core (10) to receive the end portions (11a, 11b) of the conductors in the single passages. 6. Apparatus according to claim 1 wherein the first member (41) and the second

member (42) are configured like disk members having respective passages positioned in circumferential directions (C) and the radial directions (R) of the core (10). 7. Apparatus according to claim 1 wherein the end portions (11a,11b) of the conductors present in a single passage are engaged in the circumferential directions (C) near to the ends (11a,11b) of the conductors. 8. Apparatus according to claim 2 wherein the engagement of the end portions (11a, 11b) of the conductors in the circumferential direction (C) occurs by means of the sides of the passages facing the circumferential directions (C) and the engagement of the most distant end portion occurs against the sides facing in the radial direction (R). 9. Apparatus according to claim 1 wherein the single passage becomes narrower when the first member (41) moves relative to the second member (42) in the circumferential direction (C) . 10. Method for aligning wire conductors (11a,11b,) extending from coil members inserted in slots of a core (10) of a dynamo electric machine component in order to join the ends (11a,11b) of the wire conductors by means of a welding operation accomplished by welding means (30), comprising the steps of : providing a first member (41) having a plurality of passages (40) ; providing a second member (42) having a plurality of passages (40'); providing the first member (41) and the second member (42) assembled adjacent to each other to align in pairs the passages (40) of the first member (41) with the passages (40') of the second member (42); each pair of aligned passages (40,40') forming a single passage capable of receiving the end portions of at least two wire conductors (11a,11b); relatively moving the first member (41) with respect to the second member (42) in the circumferential direction (C) of the core (10) to cause the sides of the passages to engage and move the end portions (11a, 11b) of the wire conductors in the circumferential direction (C) ; pushing in the radial direction (R) of the core on inclined portions (I) of the wire conductors to cause the end portions (11a,11b) of wire conductors present in a single passage to engage each other in the radial direction (R) and the end portion of wire conductor most distant in the radial direction (R) of the single passage to engage the sides of the single passage in the radial direction (R). 11. Method according to claim 10 characterized in that the passage (41) of the first member (41) is delimited by opposite sides (W1,W1') facing in circumferential directions (C) of the core and by opposite sides (W2,W2') facing in radial directions (R) of the core (10) and; the passage (40) of the second member (42) is delimited by opposite sides (W3,W3') facing in the circumferential directions (C) of the core member (10) and opposite sides (W4,W4') facing in a radial direction (R). 12. Method according to claim 10 wherein at least four end portions of wire conductors