(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 July 2013 (04.07.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/100761 Al

(51) International Patent Classification:
F16G 5/16 (2006.01) *B21D 53/14* (2006.01)

(21) International Application Number:
PCT/NL20 12/000081

(22) International Filing Date:
24 December 2012 (24. 12.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1039270 28 December 201 1 (28. 12.201 1) NL

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available):* AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available):* ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

WO 2013/100761 A1

(54) Title: DIVIDED, BLANKING MEMBER FOR THE PURPOSE OF BLANKING TRANSVERSE ELEMENTS FOR USE IN A DRIVE BELT FOR A CONTINUOUSLY VARIABLE TRANSMISSION

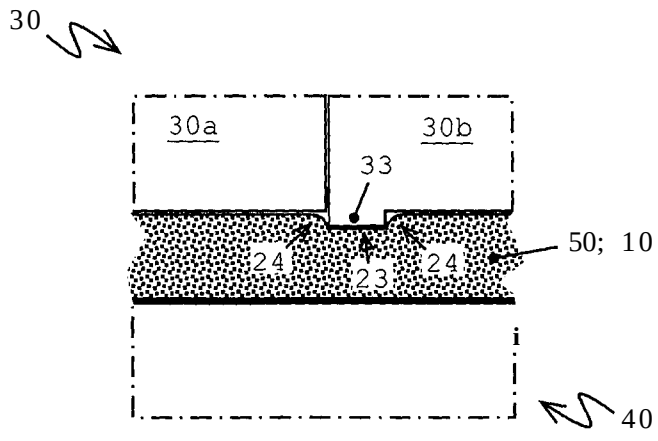


Fig. 9

(57) Abstract: The invention concerns a blanking member (30) that is used in cutting transverse elements (10) for a drive belt for a continuously variable transmission from basic material (50). The blanking member (30) being composed of two parts (30a, 30b) that are positioned against each other, each part (30a, 30b) for cutting a different part of the transverse element (10), whereof at least one part (30b) is provided with a raised edge (33) that extends along a seam between the said two blanking member parts (30a, 30b). The blanking member (30) in accordance with the invention forms a depression (23) in the transverse element (10), thus avoiding that a line-shaped bulge is formed on top of the transverse element (10) by basic material (50) forced into the said seam under influence of forces exerted in cutting the transverse element (10).

DIVIDED, BLANKING MEMBER FOR THE PURPOSE OF BLANKING TRANSVERSE ELEMENTS FOR USE IN A DRIVE BELT FOR A CONTINUOUSLY VARIABLE TRANSMISSION

The present invention relates to a blanking member which is destined to be applied for the purpose of a blanking process in which transverse elements for use in a drive belt for a continuously variable transmission are blanked out of basic material, which transverse elements are having a relatively broad base portion having pulley sheave contacting surfaces for contact with pulley sheaves of pulleys of the continuously variable transmission, and supporting surfaces for supporting carriers of the drive belt, a top portion, and a relatively narrow neck portion interconnecting the base portion and the top portion. The said blanking member is provided with a base portion, a neck portion and a top portion in a corresponding manner and is composed of at least two parts that are positioned against each other, such that, during blanking of the transverse element, one part of the blanking member forms the supporting surfaces and another part thereof forms at least a part of the outer contour of the said top portion of the transverse element.

Furthermore, the present invention relates to a blanking device in which the blanking member is applied, a method for manufacturing transverse elements for use in a drive belt for a continuously variable transmission, wherein the blanking member is being applied to blank the transverse elements out of basic material, a transverse element which is manufactured by applying that method, and a drive belt having a number of such transverse elements .

A drive belt for a continuously variable transmission is generally known. Usually, such a drive belt comprises two endless carriers shaped like a closed loop for carrying a plurality large number of transverse elements. The transverse elements are arranged along the entire circumference of the carriers, wherein, during operation of the continuously variable transmission, they are capable to transmit forces which are related to a movement of the drive belt.

In the following description of a transverse element, the directions as mentioned refer to the situation in which the

transverse element is part of the drive belt. A thickness direction of the transverse element corresponds to a circumferential direction of the drive belt. A vertical transverse direction of the transverse element corresponds to a radial direction of the drive belt. A horizontal transverse direction of the transverse element corresponds to a direction perpendicular to both the longitudinal direction and the vertical transverse direction .

In the horizontal transverse direction, at opposite sides, the transverse element is provided with recesses for at least partially receiving the carriers of the drive belt. For the purpose of supporting the carriers, the transverse element comprises supporting surfaces. In the horizontal transverse direction, at opposite sides, for the purpose of contact between the transverse element and pulley sheaves of a pulley of the continuously variable transmission, the transverse element is provided with pulley sheave contacting surfaces which, in the direction of the supporting surfaces, are divergent with respect to each other. The terms "top" and "bottom" which are used in the following are related to the direction of divergence; this is defined as being from bottom to top.

In the vertical transverse direction, from bottom to top, the transverse element comprises successively a base portion, a neck portion whose dimensions in the horizontal transverse direction are smaller than those of the base portion, and a top portion whose dimensions in the horizontal transverse direction are larger than those of the neck portion at the position of the connection to the neck portion. The base portion comprises the supporting surfaces and the pulley sheave contacting surfaces. In the drive belt, the base portion is located at the side of the inner circumference of the drive belt, whereas the top portion is located at the side of the outer circumference of the drive belt.

The transverse element is manufactured from sheet-shaped basic material by means of a blanking process. In particular, this blanking process is a so-called fine blanking process, wherein two blanking members, namely a cutting member and a supporting member are applied, wherein the cutting member is destined to cut the transverse element out of the basic material under the influence of a cutting force, and wherein the supporting member is destined

to support the transverse element during the blanking process by a supporting force smaller than the cutting force.

During the blanking process, the bottom or working surface of the cutting member contacts and penetrates into a part of the basic material under the influence of pressure, wherein a relative movement of the transverse element to be blanked and the surrounding basic material is realized. At the same time, the top or working surface of the supporting member contacts and supports the same part of the basic material, however, on the opposite side from the cutting member. In this way, the said part of the basic material, which part represents the transverse element to be blanked, is detached from the surrounding basic material.

In both the cutting member and the supporting member, similar to the transverse element to be blanked, a base portion, a neck portion and a top portion are distinguishable. A circumference of both the cutting member and the supporting member is substantially egual to a desired circumference of the transverse element. In the following, it is assumed that the various directions which are defined in relation to the transverse element relate to the blanking members in a similar way.

It is possible that at least one of the cutting member and the supporting member comprises at least two parts. For example, JP 2010-029918 shows a cutting member having two parts and WO 2008/051070 shows a supporting member having two parts.

An application of a blanking member, which is divided in two parts, has a number of advantages with respect to an application of a one-piece blanking member. With a divided blanking member, a formation process of the transverse elements during the blanking process can be controlled in a better way, because a tilting movement of the transverse element to be blanked is suppressed, since the forces prevailing during the blanking process are more equally distributed. Another advantage is the fact that both blanking member parts can be separately loaded, by means of which the total accuracy with which the transverse elements are being formed increases. Additionally, the separation into two blanking member parts allows the (easy) application of a surface coating or surface treatment to the blanking member parts. Such coating and/or treatment can be desired to reduce wear of the respective blanking member(s) and/or to improve the blanking result, e.g. in

terms of the accuracy and/or finish of the surfaces formed thereby. In particular at the location of the surfaces of the cutting member defining and forming the recesses of the transverse elements such coating or treatment is to be preferred.

A disadvantage, or problem even, of the divided blanking member is that, under the influence of the pressures and forces prevailing during the blanking process, the two or more parts thereof can separate relative to one another at the location of the seam there between. Even though such separation or seam between the blanking member parts will normally remain very small, it still occurs that base material is forced into such seam, thus forming a slightly elevated ridge or line-shaped bulge on the surface of the transverse element after blanking. Such a ridge will typically have a detrimental impact on the operation of the drive belt in the transmission. Firstly, during operation of the drive belt, the ridge will to a smaller or larger extent disturb the predetermined, ideally aligned contact between adjoining transverse elements. Secondly, a part of the ridge material may be worn-off quite easily and cause problems elsewhere in the transmission such as causing abrasive wear and/or clogging of the hydraulic system of the transmission.

It is an objective of the present invention, in the blanking process incorporating a divided blanking member, to mitigate the detrimental effects of the said ridge or bulge and, preferably, to avoid that such is formed in the first place. This objective is achieved by a divided blanking member whereof the working surface of at least one part is provided with a raised edge extending along the seam between this one part and another part of the blanking member.

When the divided blanking member according to the present invention is applied, a depression is formed in the transverse element at the location of the seam between the blanking member parts. Due to the nature of the blanking process, such depression will on both sides thereof smoothly merge, via rounded edges, with the higher lying, adjoining parts of the surface of the transverse element. As a result, the formation of the above-mentioned ridge is prevented or, at least, such ridge can be fully contained in the depression. At the same time, the advantages known to be

provided by the application of a divided blanking member are maintained .

In a preferred embodiment of the blanking member according to the present invention, the said raised edge is provided with a protruding height within the range 10 to 150 micron, preferably between 20 and 50 micron relative to a main part of the working surface of such blanking member. With a protruding height of around 30 micron optimal result were achieved in accordance with the present invention. Further, a width of the raised edge is preferably of larger dimension (e.g. by a factor of 10) in relation to the protruding height thereof. A preferred range for such width thus spans between 100 and 1500 micron, with a practical optimum at around 300 micron. These dimensions typically suffice to contain the said detrimental ridge.

Within the scope of the invention, it is possible to provide both parts of the divided blanking member with the above-described raised edge, in each case extending along and immediately adjacent to the seam between such parts. In this embodiment of the blanking member, the said elevated ridge or line-shaped bulge on the surface of the transverse element may still be formed at the location of the seam between the blanking member parts. However, such ridge or bulge will, in this case, be contained in the depression that formed in the transverse element by the raised edges of the blanking member parts.

The present invention will be explained in more detail on the basis of the following description of a preferred embodiment of the invention with reference to the drawing, in which equal reference signs indicate equal or similar components, and in which:

figure 1 is a diagrammatical side view of a continuously variable transmission with drive belt;

figure 2 is a schematic representation of a main body surface of a transverse element for a drive belt for a continuously variable transmission;

figure 3 is a side view of the transverse element shown in figure 2;

figure 4 diagrammatically shows a longitudinal section of a blanking area of a blanking device, and of basic material being placed in there;
figure 5 diagrammatically illustrates the blanking process;
figure 6 is a schematic, perspective view of a divided blanking member in an assembled state;
figure 7 is a schematic, perspective exploded view of the divided blanking member shown in figure 6;
figure 8 is a schematic, perspective exploded view of a divided blanking member modified in accordance with the present invention;
figure 9 is a schematic, cross-section of the novel divided blanking member of figure 8 modified in accordance with the present invention;

Figure 1 diagrammatically shows a continuously variable transmission, which is particularly suitable for utilization in a motor vehicle. The continuously variable transmission is indicated in general by the reference numeral 1.

The continuously variable transmission 1 comprises two pulleys 4, 5 being arranged on separate pulley shafts 2, 3. A drive belt 6 being shaped like a closed loop is arranged around the pulleys 4, 5, and serves for transmitting torque between the pulley shafts 2, 3. Each of the pulleys 4, 5 comprises two pulley sheaves, wherein the drive belt 6 is positioned and clamped between said two pulley sheaves, so that a force can be transmitted between the pulleys 4, 5 and the drive belt 6 with the help of friction.

The known drive belt 6 comprises two endless carriers 7 shaped like a closed loop for carrying a plurality large number of transverse elements 10. Usually, the carriers 7 are each composed of a number of relative thin and flexible, i.e. ribbon-like rings. The transverse elements 10 are arranged along the entire circumferential length of the carriers 7, wherein the transverse elements 10 are mutually adjacent to each other and are moveable with respect to the carriers 7 in the circumferential direction. For sake of simplicity, only a number of these transverse elements 10 are shown in figure 1. Both the carriers 7 and the transverse elements 10 are manufactured from metal.

Figure 2 and figure 3 show an example of the known transverse element 10. A first main body surface of the transverse element 10 is indicated in general by the reference numeral 11, whereas a second main body surface of the transverse element 10 is indicated in general by the reference numeral 12. The main body surfaces 11, 12 are extending, at least partly, perpendicular to the circumferential direction of the drive belt 6. In the drive belt 6, at least a part of the first main body surface 11 of the transverse element 10 contacts at least a part of the second main body surface 12 of an adjacent transverse element 10, whereas at least a part of the second main body surface 12 of the transverse element 10 contacts at least a part of the first main body surface 11 of another adjacent transverse element 10. A side surface 13 of the transverse element 10 is located between the main body surfaces 11, 12.

In the vertical transverse direction, the transverse element 10 comprises, successively, a base portion 14, a relatively narrow neck portion 15 and a top portion 16. In the drive belt 6, the base portion 14 is located at the side of the inner circumference of the drive belt 6, whereas the top portion 16 is located at the side of the outer circumference of the drive belt 6. At the transition to the neck portion 15, the base portion 14 of the transverse element 10 as shown in figure 2 comprises two supporting surfaces 17, which serve for supporting the two carriers 7 of the drive belt 6 and which are part of the side surface 13 of the transverse element 10. The top portion 16 comprises two retaining surfaces 19, which are each located opposite a respective one of the supporting surfaces 17, which serve for retaining the carriers 7 in the vertical transverse direction and which are likewise part of the said side surface 13. Furthermore, the base portion 14 comprises two pulley sheave contacting surfaces 18, which are each located on a respective side thereof in the horizontal transverse direction, which serve to contact the pulley sheaves of the pulleys 4, 5 and which are likewise part of the said side surface 13.

At the first main body surface 11 of the transverse element 10, a projection 21 is arranged. In the shown example, the projection 21 is located at the top portion 16, and corresponds to a hole 22 in the second main body surface 12. In the drive belt 6,

the projection 21 of the transverse element 10 is at least partially located in the hole 22 of an adjacent transverse element 10. The projection 21 and the corresponding hole 22 serve to prevent mutual displacement of adjacent transverse elements 10 in a plane perpendicular to the circumferential direction of the drive belt 6.

The above-described transverse element 10 is manufactured by means of a blanking device 60 in a blanking process, in particular a so-called fine blanking process, wherein the transverse element 10 is cut out of sheet-shaped basic material 50. In figure 4, the blanking device 60 and the sheet-shaped basic material 50 are diagrammatically illustrated in a cross-section. In the blanking device 60 a cutting member 30 and a supporting member 40 are applied. The cutting member 30 serves to cut the transverse element 10 during the blanking process, whereas the supporting member 40 serves to support the transverse element 10 during the blanking process. Hereto, the bottom or working surface 31 of the cutting member 30 and a top or working surface 41 of the supporting member 40 are pressed against the basic material 50, at mutually opposite sides thereof. Accordingly, these working surfaces 31, 41 have an outline that substantially corresponds to the circumferential shape of the transverse element 10 to be blanked, i.e. that substantially follow the contour of the side surface 13 thereof. Thus, like in the transverse element 10, it is possible to distinguish a base portion, a relatively narrow neck portion and a top portion in the cutting member 30 and the supporting member 40.

The cutting member 30 is being received in a guiding space 61 in a guiding plate 62 which is having as an important function guiding the cutting member 30 during a blanking movement. Correspondingly, the supporting member 40 is being received in a receiving space 63 in a mould 64 which is having as an important function guiding both the supporting member 40 and the transverse element 10 during a blanking movement. The receiving spaces 63, naturally, have a shape that substantially corresponds to the circumferential shape of the transverse element 10 to be blanked as well.

In the blanking process, the basic material 50 is thus located between the cutting member 30 and the guiding plate 62, on

the one hand, and between the supporting member 40 and the mould 64, on the other hand. A part 51 of the basic material 50 which is located between the cutting member 30 and the supporting member 40 is destined to constitute the transverse element 10. During the blanking process, the cutting member 30 is moved relative to the guiding plate 62 and the mould 64 towards the supporting member 40, which supporting member 40 follows the movement of the cutting member 30, however, while exerting a counter-pressure. The cutting member 30 is pressed completely through the basic material 50 and the transverse element 10 is formed by the detachment of the blanking part 51 from the rest of the basic material 50, as is illustrated in figure 5.

Also during the blanking process, because of the respective (counter-) pressure exerted on the blanking part 51 by the cutting member 30 and the supporting member 40, the main body surfaces 11, 12 of the transverse element 10 are shaped and calibrated, e.g. by forming the said projection 21 and hole 22. In this latter respect it is also remarked that the basic material 50 can be completely planar, i.e. rectangular in cross-section, but is also possible to apply a stepped or otherwise pre-shaped basic material 50.

In connection with the above-described blanking device and blanking process it is known to apply a cutting member 30 and/or a supporting member 40 that is/are divided into separable parts. Figures 6, as an example, provides a schematized, perspective view of a divided cutting member 30 comprising two parts 30a, 30b that are held together when used in the blanking device 60 of figures 4 and 5 and as shown in this figure 6, but that are otherwise completely separate and/or separable, as shown in figure 7. It is remarked that for the sake of simplicity, a projection of the cutting member 30 that is required for making the recess 22 in the transverse element 10, is not shown in the figures 6 and 7. In this respect, it is noted that it is a practical possibility to apply a separate element for forming the recess 22 in the transverse element 10, wherein the cutting member 30 has a recess in which the element is being received, and wherein the element is movably arranged with respect to the other parts of the cutting member 30.

In the divided cutting member 30 of figures 6 and 7 a seam 32 between the two parts 30a, 30b thereof, is defined as a

straight line in he neck portion 15 of the transverse element 10, however, other shapes and locations of such seam 32 are possible within the concept of the invention. In this configuration, it is important that the cutting member parts 30a, 30b are accurately and closely contacting one another, practically without play at the position of the said seam 32 there between. Still, in practice and in spite of an optimal contact between the cutting member parts 30a, 30b, these parts 30a, 30b can mutually separate during blanking under the influence of the pressures and forces prevailing therein, such that base material 50 can be forced there between, forming a slightly elevated ridge or line-shaped bulge on -in this example- the first main body surface 11 of the neck portion 15 the transverse element 10. Even though such ridge will be of relatively limited height, e.g. 30 micron, it can still have a detrimental impact on the operation of the drive belt 6 in the transmission 1, as discussed hereinabove.

According to the present invention, the formation of such a detrimental ridge can, however, be avoided by providing at least one part 30a, 30b of the divided blanking member 30, 40 with a raised edge 33 that is raised relative to other parts of the working surface 31, 41 and that extends along the seam 32 between this one part 30a, 30b and another part 30a, 30b of the respective blanking member 30, 40. Such a novel blanking member 30, 40, in this case a cutting member 30, is illustrated, schematically and not to scale, in the figure 8.

In figure 8, the top-most part 30b of the divided cutting member 30, which top-most part 30b is intended for cutting the top portion 16 of the transverse element 10, is provided with the raised edge 33. Thus, during the blanking process, the top surface 34 of the raised edge 33 will contact the base material before the (rest of the) working surface 31; 31a, 31b of the divided cutting member 30 does and, as the material of 51 of the transverse element 10 is cut loose from the rest of the basic material, will make a linear indentation or depression 23 in the transverse element 10 (see figure 9) that spans the (local) width of the transverse element 10 at the location of the seam 32 between the two parts 30a, 30b of the cutting member 30. 50. By the formation of the said depression 23 during blanking, it is realized that the said detrimental ridge can not be formed.

The cross-sectional shape of the transverse element 10 in the vicinity of the location where the two parts 30a, 30b of the cutting member 30 meet, is schematically indicated in figure 9. In this figure 9, it is shown that the depression 23 thus provided in the transverse element 1 merges, via rounded edges 24, with the higher lying, adjoining parts the main body surface 11 of the transverse element 10.

In the foregoing, one specific, i.e. top-most part 30b of the divided cutting member 30 was described as being provided with the said raised edge 33. However, it is entirely possible that the other, lower-most part 30a or indeed both such parts 30a, 30b of the cutting member 30 are provided with such a raised edge 33. Moreover, either additionally or alternatively, the parts 40a, 40b of the divided supporting member 40 could be provided with a corresponding raised edge as well.

It will be clear to a person skilled in the art that the scope of the present invention is not limited to the examples discussed above, but that various amendments and modifications thereof are possible without deviating from the scope of the invention as defined in the appended claims.

CLAIMS

1. A blanking member (30), destined to be used in a blanking process for cutting from basic material (50) transverse elements (10) for use in a drive belt (6) for a continuously variable transmission (1), defines a working surface (31) that is destined to arrive into contact with the basic material (50) in the blanking process and that is composed of at least two parts (30a, 30b), which blanking member parts (30a, 30b) are positioned against each other with a seam (32) there between and which blanking member parts (30a, 30b) each define a part (31a, 31b) of the working surface (31), characterized in that at least one blanking member part (31b) is provided with a raised edge (33) adjacent to the seam (32) having a top surface (34) that is part of the working surface (31) of the blanking member (30).

2. The blanking member (30) according to the claim 1, characterized in that the top surface (34) of the raised edge (33) of the said one blanking member part (31b) is located at least 10 micron and at most 150 micron above a part of the working surface (31) directly adjacent to the raised edge (33).

3. The blanking member (30) according to the claim 1, characterized in that the top surface (34) of the raised edge (33) of the said one blanking member part (31b) is located 20 to 30 micron above a part of the working surface (31) directly adjacent to the raised edge (33).

4. The blanking member (30) according to the claim 1, 2 or 3, characterized in that the raised edge (33) extends along the full length of the seam (32) between the blanking member parts (30a, 30b) and is between 100 to 1500 micron wide.

5. The blanking member (30) according to either one of the preceding claims, characterized in that the blanking member (30) is destined to push through the basic material (50) in the blanking process in order to cut the transverse element (10) out of the basic material (50).

6. The blanking member (30) according to either one of the preceding claims, characterized in that a circumference of the blanking member (30) is substantially equal to a circumference of the transverse element (10) to be blanked, which transverse element (10) comprises a relatively wide base portion (14) with pulley sheave contacting surfaces (18) for the contact with pulleys (4, 5) of the continuously variable transmission (1) and with supporting surfaces (17) for the support of carriers (7) of the drive belt (6), a top portion (16) and a relatively narrow neck portion (15) that connects the base portion (14) and the top portion (16) together, and in that the seam (32) between the blanking member parts (30a, 30b) is located opposite the neck portion (15).

7. Blanking device (60) provided with the blanking member (30) according to either one of the preceding claims.

8. Method for manufacturing transverse elements (10) for use in a drive belt (6) for a continuously variable transmission (1), wherein the blanking member (30) according to either one of the claims 1-6, or the blanking device (60) according to claim 7 is applied to cut the transverse elements (10) out of basic material (50).

9. Transverse element (10) for use in a drive belt (6) for a continuously variable transmission (1), which transverse element (10) comprises a relatively wide base portion (14) with pulley sheave contacting surfaces (18) for the contact with pulleys (4, 5) of the continuously variable transmission (1) and with supporting surfaces (17) for the support of carriers (7) of the drive belt (6), a top portion (16) and a relatively narrow neck portion (15) that connects the base portion (14) and the top portion (16) together, characterized in that the transverse element (10) is manufactured by means of the blanking member (30) according to either one of the claims 1-6, the blanking device (60) according to claim 7, or the manufacturing method according to claim 8.

10. Transverse element (10) for use in a drive belt (6) for a continuously variable transmission (1), which transverse element (10) comprises a relatively wide base portion (14) with pulley sheave contacting surfaces (18) for the contact with pulleys (4, 5) of the continuously variable transmission (1) and with supporting surfaces (17) for the support of carriers (7) of the drive belt (6), a top portion (16) and a relatively narrow neck portion (15) that connects the base portion (14) and the top portion (16) together, characterized in that the neck portion (15) of the transverse element (10) is provided with a linear impression (23) extending over the width of the neck portion (15).

11. Drive belt (6) for a continuously variable transmission (1) with one or more transverse element (10) according to the claim 9 or 10.

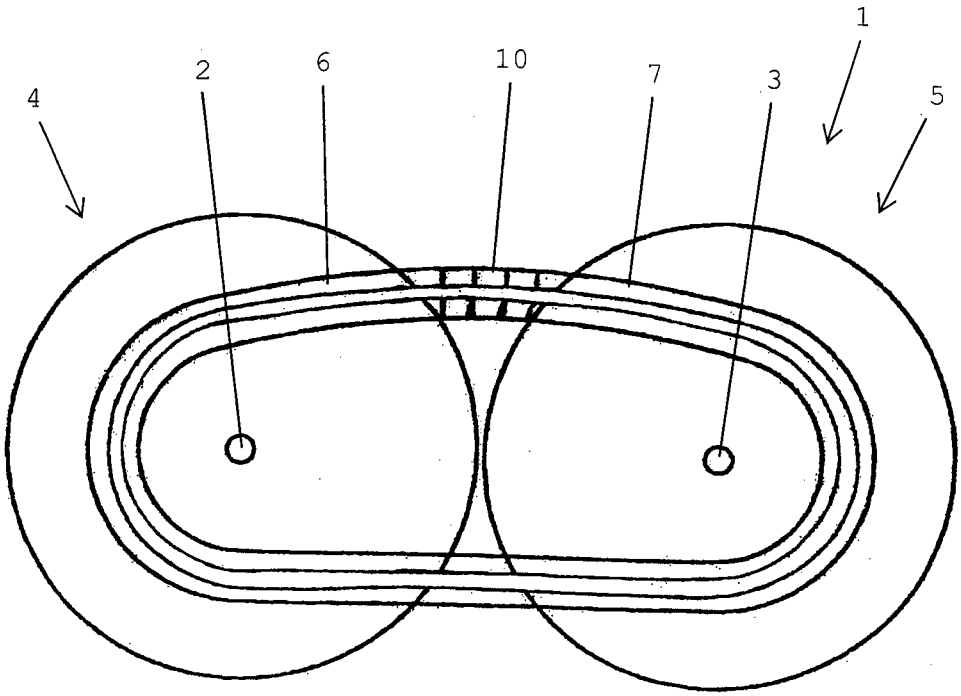


Fig. 1

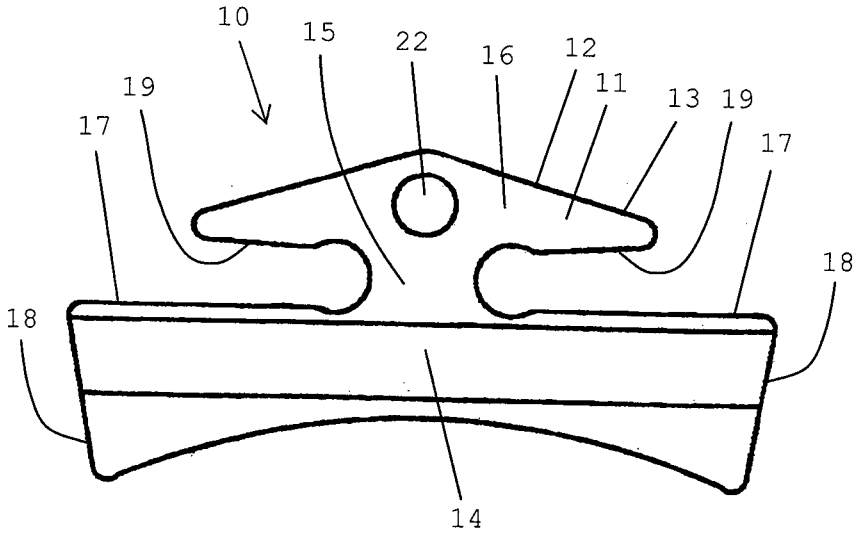


Fig. 2

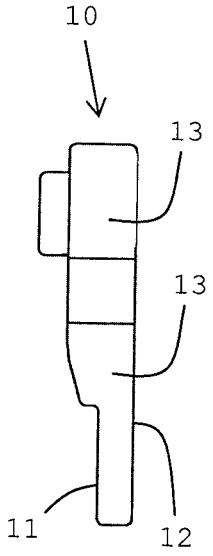


Fig. 3

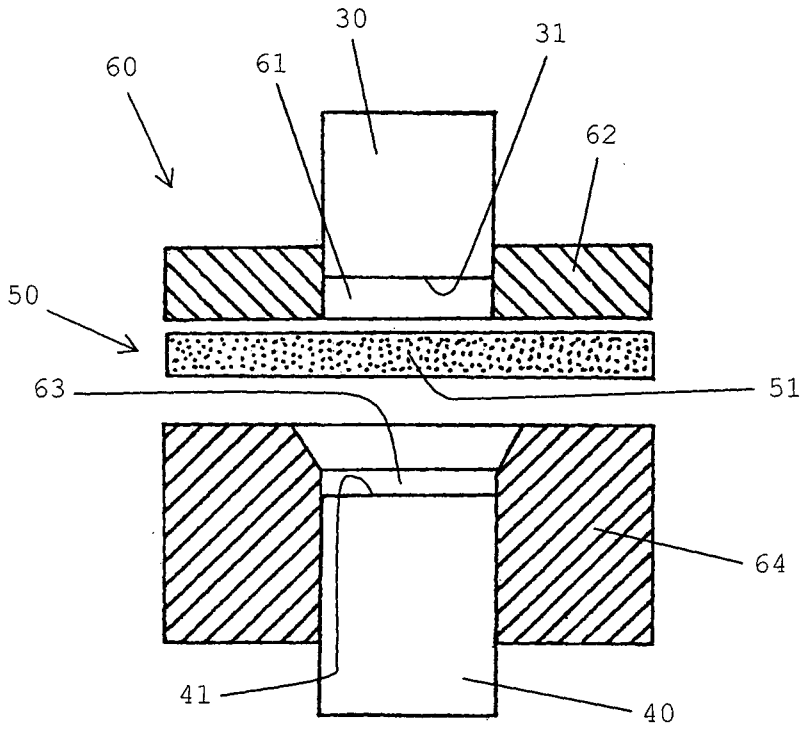


Fig. 4

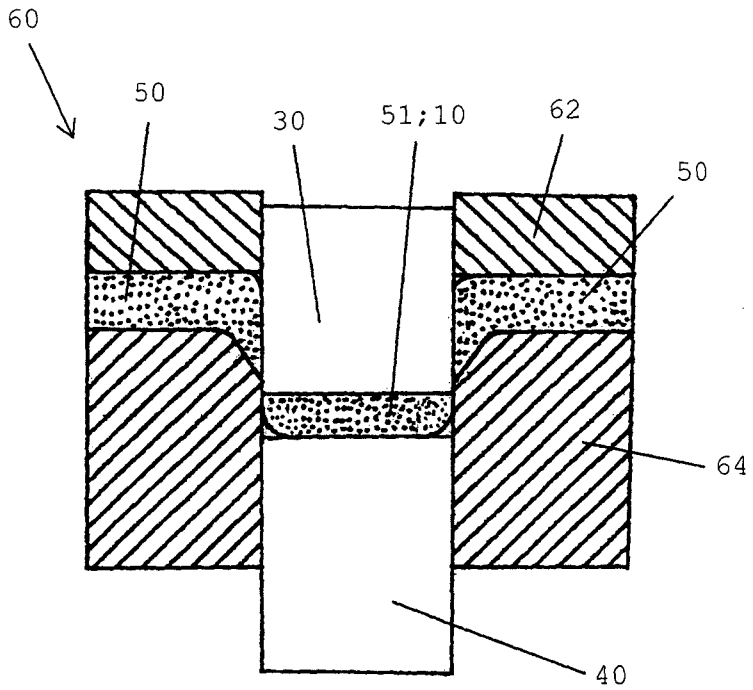


Fig. 5

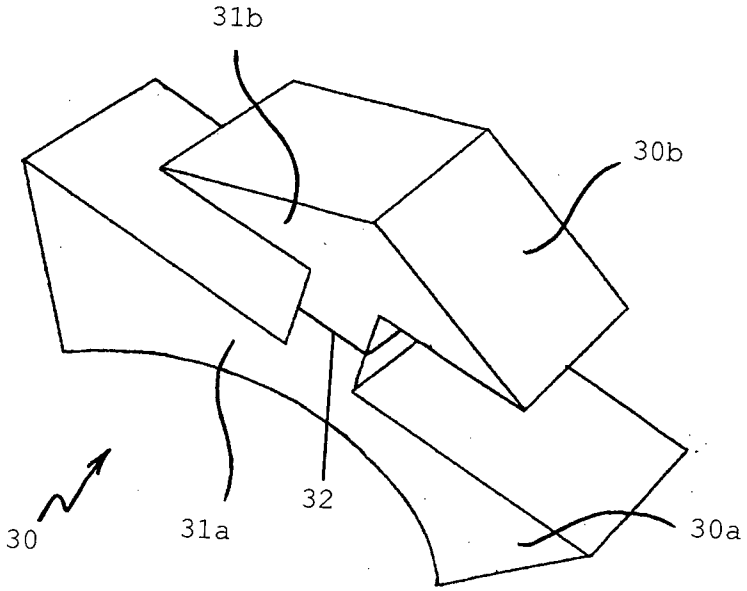


Fig. 6

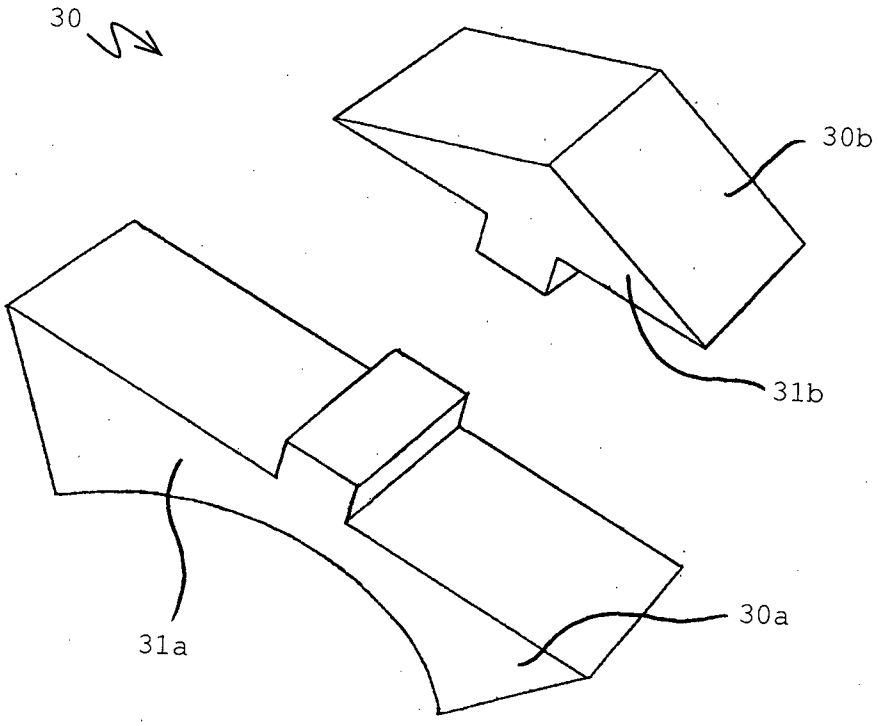


Fig. 7

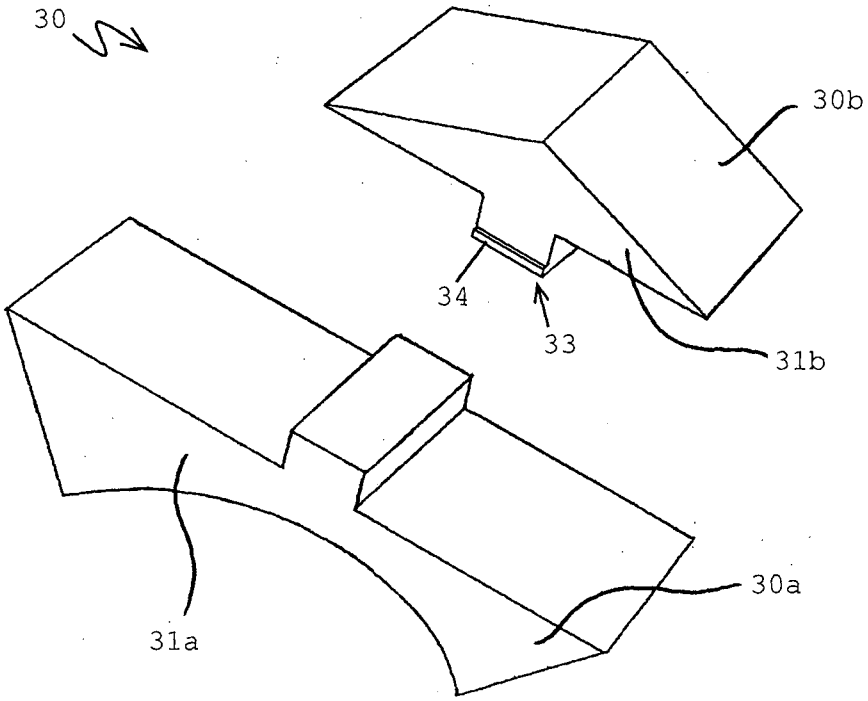


Fig. 8

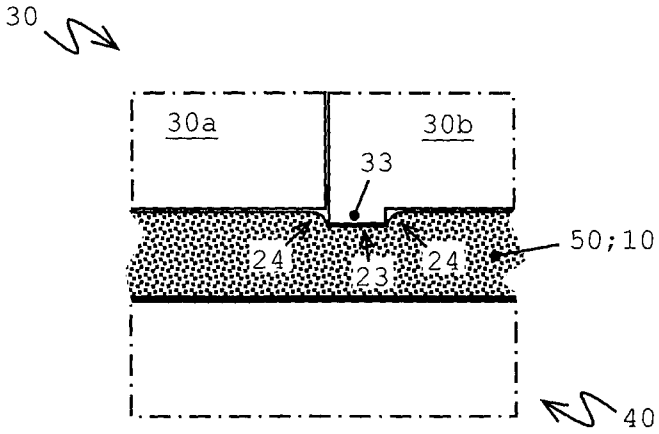


Fig. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2012/000081

A. CLASSIFICATION OF SUBJECT MATTER
INV. F16G5/16 B21D53/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F16G B21D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004/004942 A1 (DOORNES TRANSMISSIE BV [NL] ; MUTSAERS ROBERT ARNOLDUS ANDRE [NL] ; VAN) 15 January 2004 (2004-01-15) figures 10, 11 page 17, line 30 - line 38	1
A	WO 2004/036083 A2 (DOORNES TRANSMISSIE BV [NL] ; LITH JOHANNES HENDRIKUS [NL] ; LEMPERJER0) 29 April 2004 (2004-04-29) figure 4	1
A	US 2002/138986 A1 (WAKUI HIROSHI [JP]) 3 October 2002 (2002-10-03) figures 10-13 paragraph [0040] - paragraph [0045]	7,8

-/- .

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
12 April 2013	22/04/2013

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Terrier de la Chaise

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INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2012/000081

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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International application No
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