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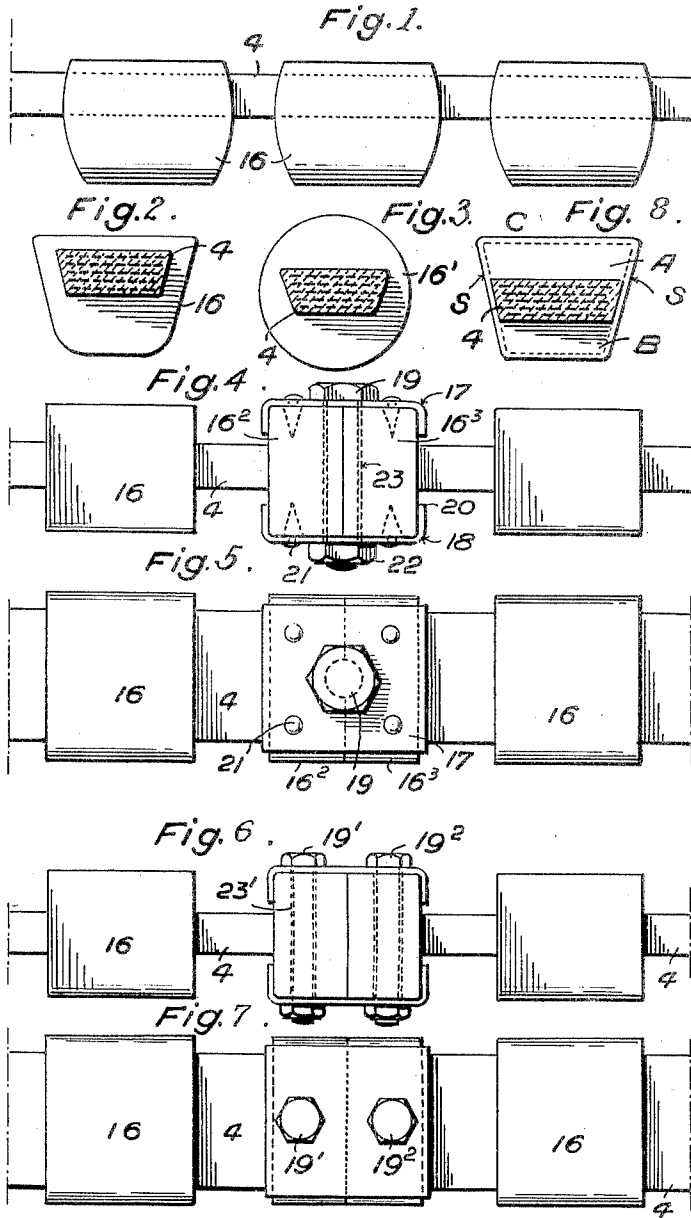
1,655,920

R. RODERWALD

POWER TRANSMITTING OR DRIVING BELT

Filed June 23, 1925

2 Sheets-Sheet 1



Inventor:

Rudolf Roderwald

by C. P. Kuepel
Attorney.

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Fig. 9.

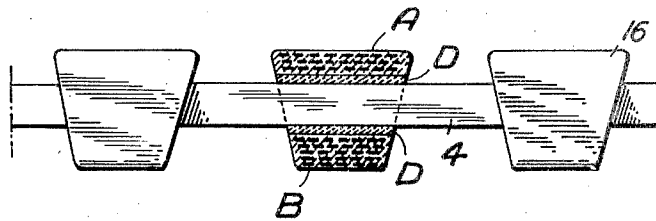


Fig. 10.

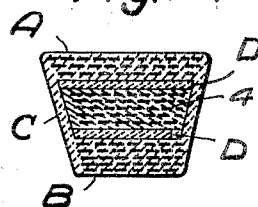
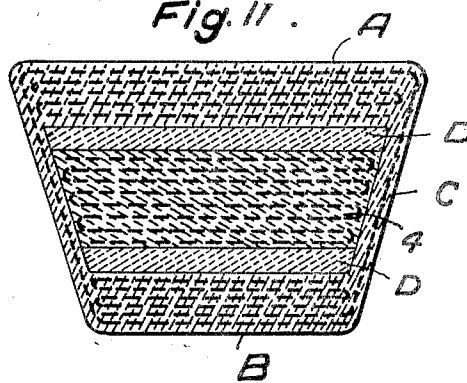


Fig. 11.



Inventor:

Rudolf Roderwald

By C. P. Grapel
Attorney.

UNITED STATES PATENT OFFICE.

RUDOLF RODERWALD, OF BERLIN, GERMANY.

POWER TRANSMITTING OR DRIVING BELT.

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My invention relates to improvements in power transmitting belts of the V-type adapted particularly to transmit power from an axis of railway-cars to a grooved wheel provided on a dynamo shaft for driving the same, although capable of various other uses.

I am aware, that heretofore many attempts have been made to comply with the requirements for driving the dynamos of railway-cars, but all known belts are indeed not adapted to fulfill these requirements, the reason thereof being, that such belts are exposed to the weather and to the fact, that the distance between the axle of the car and the car-body supporting the dynamo varies when the car is running through curves and the like. Metallic bands with frictional bodies thereon do not have the required expansion, and bands made of other material have but short life, the reason being, that the frictional bodies are usually fastened by rivets or screws to the band. This method of fastening weakens the supporting section of the band and, moreover, bodies fastened in such manner are pulled off in a short time.

A further difficulty to be overcome is to securely interconnect the ends of a band of the usual material.

Therefore, it is one of the most important objects of my invention to fasten the frictional bodies on a band so that the supporting section of the band is not distorted or weakened.

It is a further object of my invention to interconnect the ends of the belt, in a novel manner so that the end-member does not differ in its outer-dimensions from the other frictional bodies.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a side elevation of a portion of a belt constructed according to this invention.

Figure 2 is a transverse section taken through the same.

Figure 3 is a similar view of a modification of the same.

Figure 4 is a side elevation of another modification of the belt.

Figure 5 is a top plan view of the same.

Figure 6 is a side elevation of a further modified form of the invention.

Figure 7 is a top plan view of the same.

Figure 8 is a transverse section through the same.

Figure 9 is an enlarged side elevation partly in section of a still further modified form of the belt.

Figure 10 is a transverse section there-through, and

Figure 11 is a further enlarged cross section through the latter form of belt.

Referring to the drawings 4 designates the band or lengthwise extending portion of the belt which is made up of a plurality of layers of fabric impregnated with rubber, and wherein, preferably, no metal is employed. On this band 4 are secured in suitable spaced apart relation a plurality of frictional bodies 16, which are of rubber or rubber composition and which are vulcanized upon the band 4, so as to hold the bodies 16 firmly thereto and in proper relation with respect to each other without the use of separate fastening devices. It will be noted that by this construction the connection is a solid one and the band 4 is not distorted or weakened by perforations, such as caused by rivets, bolts and the like.

In the form shown in Figures 1 and 2, the band 4 passes through the upper portions of the bodies 16 and the latter have their lateral faces converging inwardly toward the working surface of the belt and the lower corners of the bodies are rounded off, as shown to advantage in Figure 2.

In the modification shown in Figure 3, the bodies 16' are preferably cylindrical in form and the band 4 passes substantially centrally or axially through the bodies to accommodate a different type of pulley groove with which the belt may be used. In the form shown in Figures 4 and 5, the frictional bodies 16 are connected to the band 4 by vulcanization as above described, but the band 4 of this form of the invention is of substantial width and approaches the width of the frictional bodies 16 with sufficient thickness of the bodies at the lateral edges of the band to insure the proper securement of the bodies on the band. The band 4 in this form is made relatively wide

so that the ends of the belt may be firmly secured together. The means utilized for fastening the ends of the band 4 together comprises a pair of clamps 17 and 18 bent at right angles at 20 and between which are fitted a pair of friction blocks 16² and 16³. The clamps 17 and 18 may be provided with tongues 21 penetrating the blocks 16² and 16³ and may be connected together by a single clamping bolt 19 provided with a nut 22, the bolt extending through semi-cylindrical openings provided in the blocks 16² and 16³. By means of this construction of connecting device the band 4 may be relatively wide to take up the strains transmitted during its operation and the bolt is so located that it may easily follow the band of the belt when the latter traverses a pulley of relatively small diameter and with the least amount of resistance.

In Figures 6 and 7 a modified form of the connector is shown and wherein the blocks 16² and 16³ may be provided with two openings 23' for the reception of clamping bolts 19' and 19².

Referring now particularly to Figures 9, 10, and 11, the band 4 is constructed of an upper part A and a lower part B which may be vulcanized separately or independently on the band 4, and when this is done a thin cloth band C may be vulcanized about the elements A, 4 and B so that the thickness only of the band C remains beyond the outer edges of the band 4. This thickness of the reinforcing or binding band C is so small, as compared with the width of the belt, that it is practically negligible. This structure provides a frictional body 16 which is built up of fabric impregnated with rubber similar to that of the band 4 in order to equalize and distribute the strain imposed on the belt and to thus insure the even wear on all parts of the belt structure.

In Figures 9, 10 and 11 it will be noted that if desired a layer D of pure rubber may be inserted between the band 4 and the frictional body sections A and B so as to provide the necessary cushioning and gripping action of the bodies 16 as they pass over pulleys. By means of this structure, when the belt passes over pulleys, the inner part B will be compressed while the outer part A of each frictional body 16 will be stretched to some extent. According to this invention all forms shown may be constructed of rubber or a composition thereof, although the fabric layers are preferably used where the belt is subjected to considerable strain and rough usage.

From the foregoing description considered in connection with the accompanying drawings, the construction and the advantages of the invention will be readily understood. Although, I have herein described some practical embodiments of my inven-

tion, which have given highly satisfactory results in actual use, it is nevertheless to be understood, that the essential features of my improvements might likewise be embodied in numerous other alternative constructions. Accordingly therefore, the privilege is reserved of resorting to all such legitimate changes in the form, construction and relative arrangement of the several parts as may be fairly considered within the spirit and scope of the invention as claimed.

What I claim is:

1. In a V-type belt, the combination of a plurality of rubber impregnated fabric strips adapted to resist driving strains, and rubber containing frictional bodies spaced apart along the strips on both sides in a directly superimposed order, the said frictional bodies surrounding the strips in the form of a frame, the whole being vulcanized together.

2. In a V-type belt, the combination of a plurality of rubber impregnated fabric strips adapted to resist driving strains, and rubber containing frictional bodies spaced along the strips on both sides in a directly superimposed order, the said frictional bodies surrounding the strips in the form of a frame, the frame having upper and lower parts and two smaller side parts connecting the said upper and lower parts together, the whole being vulcanized together.

3. In a V-type belt, the combination of a plurality of rubber impregnated fabric strips adapted to resist driving strains, and rubber containing frictional bodies spaced along the strips on both sides in a directly superimposed order, the said frictional bodies surrounding the strips in the form of a frame, the latter being formed by an upper and a lower part and by two smaller side parts connecting the said upper and lower parts together, the said upper and lower parts and the said side parts being built up by rubber impregnated fabric strips, the said strips passing through the said side parts and the whole being vulcanized together.

4. In a V-type belt, the combination of a plurality of rubber impregnated fabric strips adapted to resist driving strains, rubber containing frictional bodies spaced along the strips on both sides thereof, and in a directly superimposed order, the said frictional bodies surrounding the strips in the form of a frame, the latter being formed by an upper and a lower part and by two smaller side parts connecting the said upper and lower parts together, the said upper and lower part and the said side parts being built up by rubber impregnated fabric strips, the said strip passing through the said side parts, and an intermediate layer of pure rubber being interposed between the belt

and the upper and lower part of the frictional body, the whole being vulcanized together.

5. In a V-type belt, the combination of a plurality of rubber impregnated fabric strips adapted to resist driving strains, rubber containing frictional bodies spaced along the strips on both sides in a directly superimposed order, the said frictional bodies surrounding the strips in the form of a frame, the latter being formed by an upper and a lower part and by two smaller side parts connecting the said upper and lower parts together the said upper and lower parts and

the said side parts being built up by rubber impregnated fabric strips, the said strip passing through the said side parts, an intermediate layer of pure rubber interposed between the strips and the upper and lower parts of the frictional body, a fastener for the ends of the strips having two clamps one above and the other below the strips, the said clamps being superimposed on two halves of the end frictional bodies and screws securing the clamps in place.

In testimony that I claim the foregoing as my invention I have signed my name.

RUDOLF RÖDERWALD.