C. ELOESSER.

DRIVING PULLEY.

APPLICATION FILED AUG. 24, 1910.

1,031,433.

Patented July 2, 1912.

2 SHEETS—SHEET 1.

Fig. 1

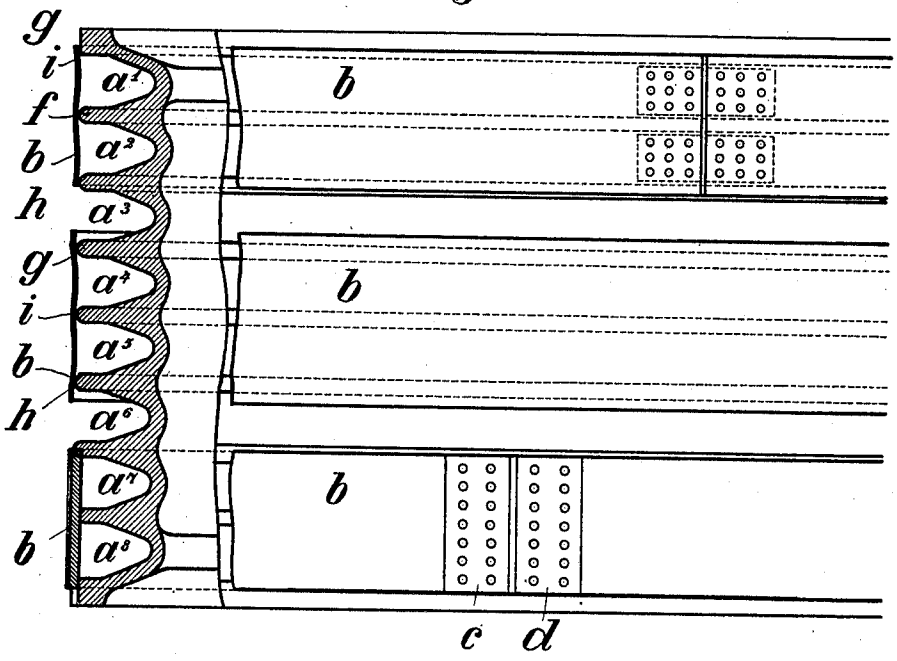
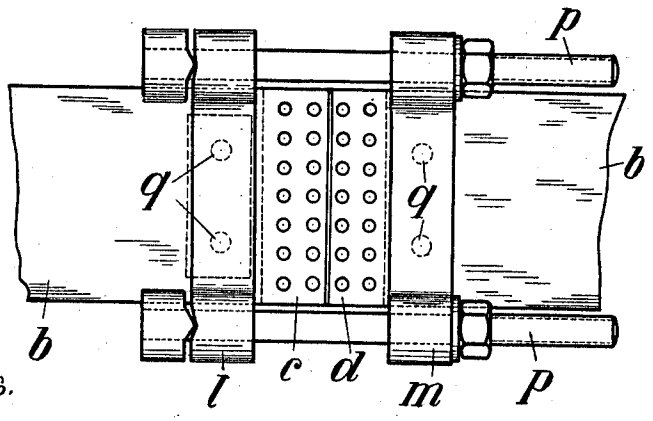


Fig. 4



Witnesses.

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2 SHEETS—SHEET 2.

Fig. 2

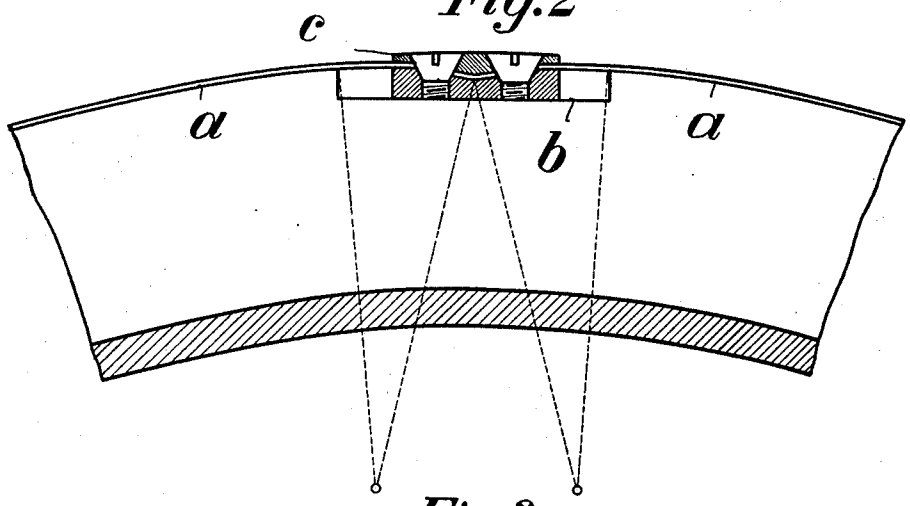
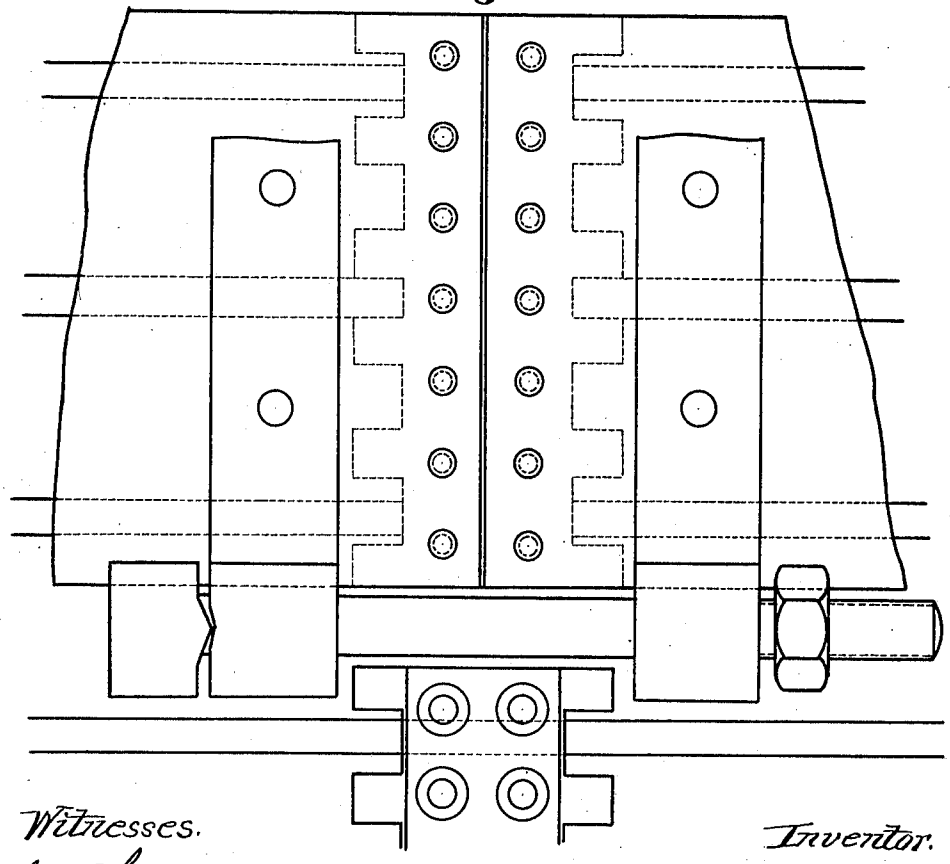


Fig. 3



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DRIVING-PULLEY.

1,031,433. Specification of Letters Patent. Patented July 2, 1912.

Application filed August 24, 1910. Serial No. 578,757.

To all whom it may concern:

Be it known that I, CARL ELOESSER, citizen of Prussia, Germany, residing at Hardenbergstrasse 37, Berlin-Charlottenburg, Germany, have invented new and useful Improvements in and Relating to Driving-Pulleys, of which the following is a specification.

The problem of conversion of rope-sheaves into strap-sheaves is one which presents itself very frequently, since the transmission of power by means of tight metal bands for instance has proved advantageous for just those power transmissions for which previously rope transmission was used. A difficulty in this conversion lies in the fact that the grooved rope-sheaves are not suited for the accommodation of metal bands; and on the other hand, a substitution of pulleys with a smooth surface for the large rope-sheaves would involve large expense and trouble. The most natural means for the conversion of a rope sheave into a pulley with a smooth surface, namely that of applying a casing covering the entire sheave, has proved to be technically unsuitable. A wooden filler, especially, would be unsatisfactory for metal bands.

According to the invention the rope sheaves are rendered suitable for a strap or metal band drive by means of flexible metal bands which are stretched around the sheaves. This method permits of being carried out very simply and advantageously if instead of the whole width of the sheave being covered, only single grooves are converted into cylindrical surfaces by means of the covering; so that in this case the metal bands run on the single ring pulleys. It is preferable here, to cover two adjacent grooves with one common band, so that the tension in the covering band over the rib separating the two grooves in question may produce a convexity in the surface of the band, which convexity shall prevent any sideslipping of the metal drive-band.

The bands are advantageously fitted as follows: The band is first stretched by means of a stretching apparatus the pins of the jaws of which, fit into correspondingly placed holes in the two ends of the band, which are thus brought close together. They are then either connected by means of a rigid piece or are united to form one rigid piece. The fastening may be laid in a recess in the ribs. The tension which is thus permanently maintained in the band, prevents any slipping of the band from the sheave.

In Figure 1 a rope-sheave is shown, partly in plan, partly in section, which in accordance with the invention is converted for use with strap or steel-band transmission. Of the grooves a^1, a^2, a^3, etc., two adjacent ones as a^1 and a^2, a^4 and a^5, a^7 and a^8 are covered with a common steel band b. The ends c and d of each band are screwed to the common fish-plates e and e' while the band is under tension. The band is supported upon the middle rib f and the two side ribs g and h and deformation through the tension is produced in such a manner, (as shown in the figure) that a convexity in the surface of the band results over the rib f at i. Instead of utilizing two fish-plates lying one in each groove, for connecting a single band as is represented in plan in Fig. 1, a single fish-plate for the total band width can be used extending across both grooves as the cross-section in Fig. 1 shows. In this case recesses k must be provided in those ribs in which the fish-plate lies. At the same time these recesses have the advantage of preventing any unintended slippage of the band upon the sheave through the action of the power-transmitting strap. The recessed connecting piece can also be fastened by means of several screws to the rope-sheave itself.

In Figs. 2 and 3 an improved modification of fastening device for the sheave covering is shown, which presents important advantages over the more simple method in Fig. 1. The ends of the sheave-covering a, are held between two curved plates b and c which latter are connected together by means of screws or rivets. The ends receive a considerably sharper curvature than the remaining part of the covering. By means of this method, any tearing of the covering-ends which might possibly occur in the case of the method in Fig. 1, especially when the fastening undergoes any change of position, is avoided. As may be seen from Fig. 3 the curved plate under the covering is provided with projections which fit in between the sides of the ribs and insure an uninterrupted connection between fastening and sheave. On each side of the center are two projections which grip the corresponding sheave ribs so that lateral movement of the tire is entirely prevented.

For the production of the necessary tension in the covering band, any species of stretching appliance can be used, whose jaws are adjustable by means of a screw; for example of the kind shown in Fig. 4 in plan. Each of the jaws *l* and *m* catches with the one or more pins *q*, with which it is fitted on the under-side, in holes in the free ends *c* and *d* of the covering band *b*, which latter is previously laid around the sheave. The holes can be suitably protected to prevent them from tearing away. The jaws being drawn together by means of the bolts *p*, the pins *q* cause the band *b* to be drawn hard over the grooves which are to be covered, until the ends of the proportionately dimensioned band meet. The ends are then united through being screwed to a common rigid plate, while the band is still in the stretched condition. The stretching appliance can then be removed and the tension in the band remains. To facilitate the production of the necessary tension, it is desirable to warm the bridging-band as much as possible about its entire circumference, and to maintain it in this warmed condition until the fastening has been accomplished.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave.

2. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave, protecting a groove of said rope-sheave.

3. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave, protecting two adjacent grooves.

4. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave, a rigid connecting piece under the band uniting the free ends.

5. In a belt-gearing, the combination with a rope-sheave of a covering, comprising a flexible metal band stretched around the sheave, and a rigid connecting piece uniting the free ends that piece being laid under the band in a recess into the ribs between the grooves.

6. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave, the free band ends provided with holes into which the pins of the stretching-jaws may project.

7. In a belt-gearing, the combination with a rope-sheave of a covering, consisting of a flexible metal band stretched around the sheave, rigid connecting pieces uniting the free ends, one being laid under the band and one being laid over the band.

8. In a belt-gearing, the combination with a rope-sheave of a covering, comprising a flexible metal band stretched around the the sheave and a rigid connecting piece uniting the free ends, that piece being equipped with curved projections which fit into the individual grooves.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL ELOESSER.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.