J. E. DUKELOW.

CHAIN DRIVING BELT.

APPLICATION FILED NOV. 27, 1906.

921,095. **Patented May 11, 1909.**

Fig. 1.

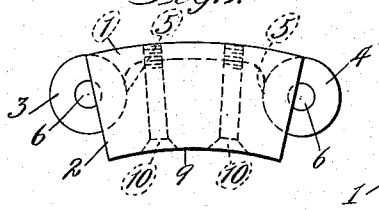


Fig. 2.

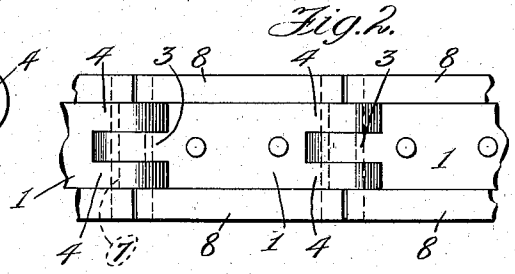


Fig. 3.

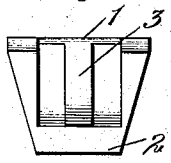
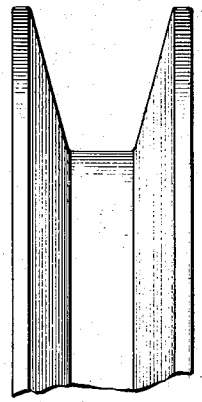


Fig. 6.



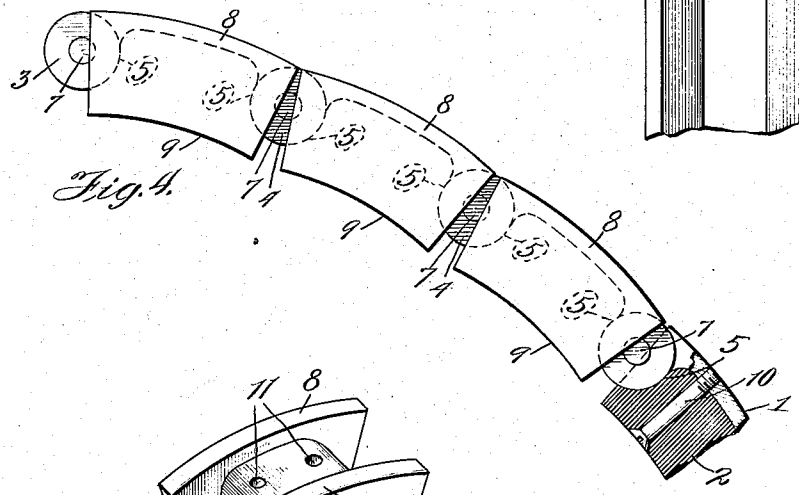


Fig. 4.

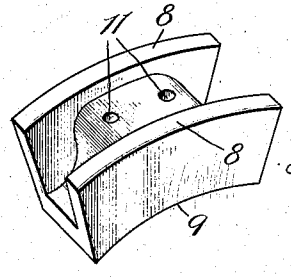


Fig. 5.

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UNITED STATES PATENT OFFICE.

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CHAIN DRIVING-BELT.

No. 921,095. Specification of Letters Patent. Patented May 11, 1909.

Application filed November 27, 1906. Serial No. 345,338.

To all whom it may concern:

Be it known that I, JOHN E. DUKELOW, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Chain Driving-Belts, of which the following is a description.

My invention relates to means for transmitting power between pulleys or sheaves having suitably formed faces, and positioned substantially in the same plane.

The object of my invention is to provide a power transmitter which is substantially unaffected by moisture or variations in temperature, and which while engaging the pulleys or sheaves with a suitably positive grip, is practically free from any tendency to stretch or become distorted under a load or when subjected to severe usage.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, wherein like or similar reference characters indicate like or corresponding parts; Figure 1 is a side elevation of a single link of my device. Fig. 2 is a plan view of a link and portions of adjacent links at its opposite ends. Fig. 3 is an end view of a link. Fig. 4 is a side elevation showing several links connected. Fig. 5 is a perspective view of the cushioned portion of a link; and Fig. 6 is a view showing the preferred form of pulley rim adapted to coöperate with the form of my device shown in the drawings.

My device consists essentially of a plurality of pivotally connected links each comprising a metal part 1, and a cushion 2, rigidly connected to the metal part and formed to engage the face of the pulley or sheaves upon which the device is to operate. The several metal parts are pivotally connected to each other at their extremities and bear all the driving strain, while the cushion parts merely engage the faces of the pulleys to transmit the driving effort from the driving pulley to the chain, and from the chain to the driven pulley, and have no part in the transmission of the power when not in contact with one or the other of the pulleys.

In the form shown the central portion of the metal part is substantially rectangular in section and slightly curved while its extremities 3, and 4, are suitably enlarged to coöperate with the adjacent links and form a pivotal or hinged connection between their extremities.

As shown each extremity of the metal part is substantially circular in section and bent inward, their adjacent walls forming substantially parallel shoulders 5—5 at right angles to the face of the link for a purpose which will be hereinafter explained.

The end 3 is suitably reduced in width to form the central member of a hinge joint and provided with an opening 6 to receive a suitable pin 7. The end 4 is forked to coöperate with the end 3 of a second link, the two sides being each provided with an opening 6 and sufficiently separated to receive the end 3 between them, and each of sufficient width to fill the offset upon the opposite sides of the end 3 thereby providing, when several links are connected, a chain of substantially uniform width.

The cushion 2 may be formed of any suitable substance, such for example, as leather, rubber, fiber or the like, and is suitably formed to snugly fit between the shoulders 5—5 and against the back of the metal part 1. The portions 8—8 on opposite sides of the metal part project so as to substantially inclose the metal part 1 upon its face and both edges. The coöperating faces of the metal part and cushion thus interlock to prevent both transverse and longitudinal movement between the parts of the link. The outer faces of the cushion 2 are preferably formed to accurately fit the groove in the face of the sheave or pulley with which it is to coöperate, and are preferably so proportioned that, when in operative position upon the pulley the face 9 of the cushion will not reach the bottom of the groove in the pulley thus securing the well known wedging action common in many types of power transmitting devices.

The cushions 2 may be attached to the metal part 1 in any desired manner. As shown suitable screws 10—10 are provided passing through suitable openings 11—11 in the cushion 2 and engaging suitably threaded openings in the metal part 1.

The shoulders 5—5 preferably are of sufficient size to engage the cushion part 2 near its extremities and hold the same against longitudinal movement upon the metal part, relieving the screws 10—10 from substantially all stress except merely that required to hold the metal part 1 and cushion 2 in suitable contact. The extremities 3 and 4 are also

bent inward or otherwise formed to bring the pivotal connection between the links intermediate the faces and backs of the cushions and preferably as near the faces 9 as possible, so that the longitudinal strain between the metal part and cushion has very little tendency to tear these parts from each other. The side walls 8—8 of the cushion 2 preferably are formed to extend slightly beyond the ends of the pins or rivets 7 and the openings 6—6 so as to secure an almost continuous and unbroken engaging surface upon the cushions 2 and to prevent accidental longitudinal movement of these pins in case their usual fastening fails at any time when in operation.

It will be observed that in my device a driving member is provided having practically all the desirable features of a rubber or leather belt but entirely free from the variations in tension incident to changes of temperature, and moisture, in the atmosphere and also, by providing the shoulders 5—5 to practically receive all the strain incident to transmitting the power from the cushions to the metal parts and by having the pivotal connection between the links brought as near to the face 9 of the cushion as possible, freed from the disagreeable tendency common to devices of this character viz., metal chains with cushion friction surfaces, of pulling the cushions from the metal parts.

Having thus described my invention it is obvious that various immaterial modifications may be made in my device without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form and construction shown.

What I claim as new, and desire to secure by Letters Patent is:—

1. In a device of the kind described, a plurality of pivotally connected links, each comprising a metal part provided with a shoulder at each end, and a cushion having a longitudinal recess in its back adapted to receive said metal part, and coöperating with said shoulders to prevent longitudinal movement between said cushion and metal part.

2. In a device of the kind described, a plurality of pivotally connected links each comprising a metal part, and a cushion having a longitudinal recess in its back adapted to receive said metal part, the proximate faces of said metal part and cushion being formed to interlock to prevent either transverse or longitudinal movement therebetween.

3. In a device of the kind described, a plurality of pivotally connected links, each comprising a metal part and a cushion said metal part being bent inward at its extremities bringing the pivotal connections between the links intermediate the faces and backs of said cushion.

4. In a device of the kind described, a plurality of pivotally connected links, each comprising a metal part and a cushion having a longitudinal recess formed in its back to receive said metal part, said metal part having a shoulder formed at each end thereof having their proximate faces substantially parallel and adapted to receive a portion of said cushion between them to control the longitudinal position of said cushion upon said metal part.

5. In a device of the kind described, a plurality of pivotally connected links each comprising a metal part and a cushion having a longitudinal recess formed in its back to receive said metal part, said metal part having a shoulder formed at each end thereof having their proximate faces substantially parallel and adapted to receive a portion of said cushion between them to control the longitudinal position of said cushion upon said metal part, and the pivotal connection between said links positioned intermediate the faces and backs of said cushion.

6. In a device of the kind described, a plurality of pivotally connected links, each comprising a metal part and a cushion, said metal part being partially inclosed by said cushion and having its extremities bent inward forming shoulders engaging said cushion near its extremities, and bringing the pivotal connections between the links intermediate the faces and backs of said cushions.

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Witnesses:
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