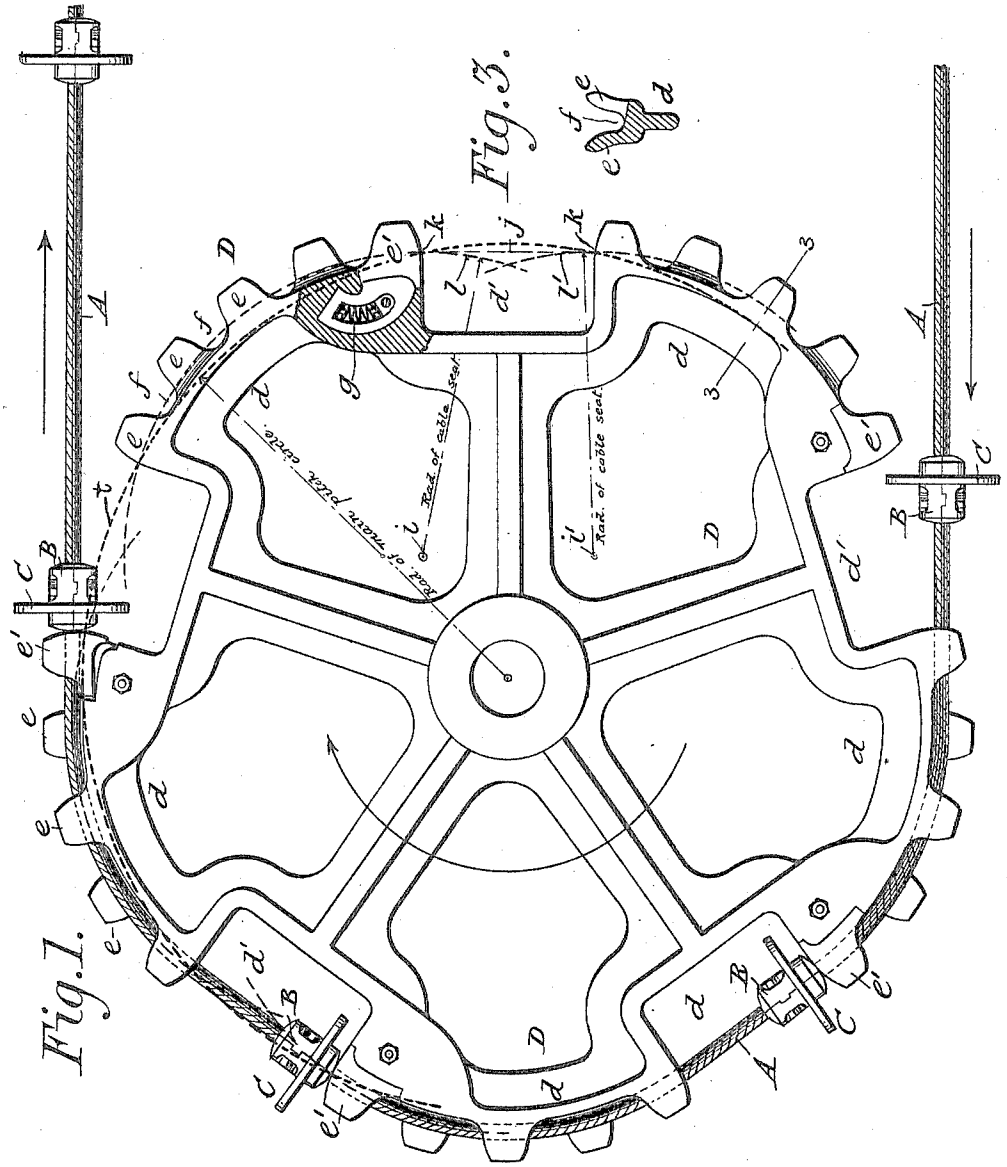
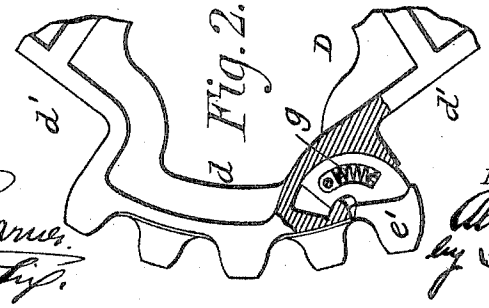
No. 811,134. PATENTED JAN. 30, 1906.

A. Q. DUFOUR.

SPROCKET WHEEL.

APPLICATION FILED JULY 15, 1905.





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SPROCKET-WHEEL.

No. 811,134. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed July 15, 1905. Serial No. 269,832.

To all whom it may concern:

Be it known that I, ALBERT Q. DUFOUR, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Sprocket-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to cable-power-transmission systems, and has for its object to improve the wheels over which pass the endless cable.

The advantages incident to the use of cables, in lieu, for instance, of chains as the endless power-transmitting elements of conveyer and similar systems has long been recognized. In systems of this type it is customary to provide the endless cables with attachments that are adapted to engage the sprockets of the wheels or with conveyer attachments which also operate to engage the sprockets, or with both kinds of attachments, and to construct the wheels with a few comparatively long peripheral sections which serve as sprockets and with which the cables engage and to separate these sections of the wheel by wide gaps in which the attachments on the cables rest as they pass the wheels. It has been demonstrated that there is a tendency on the part of the cable to crystallize and finally break at points immediately adjacent to the attachments, due to the fact that at these points the cable is bent more or less sharply as it passes the turning wheels of the system, the oft-repeated bending resulting disastrously to the life of the cable. To overcome this objectionable feature is the object of this invention, and this is accomplished by so constructing the wheels with which the cables engage that the sharp bending thereof at the attachments is avoided.

In the accompanying drawings, Figure 1 is an elevation of a part of a power-transmitting system comprising a driving-wheel, a section of cable engaging therewith, and a series of attachments applied to the cable. Fig. 2 is an enlarged view of a section of the driven wheel. Fig. 3 is a cross-sectional view taken on the line 3 3 of Fig. 1.

In the drawings, A represents the cable, B blocks that are applied thereto, and C flights or conveying attachments. The particular style and the arrangement of the blocks and flights is immaterial so far as my present invention is concerned.

D represents a wheel with which the cable engages, that shown in Fig. 1 being the driving-wheel. The wheel is formed with a series of peripheral sections d, with which the cable engages, and a series of gaps d' separating the sections. The sections and gaps are comparatively long, as is customary in wheels to be used in connection with cable-power-transmitting systems of the type herein illustrated. Each of the sections d is provided with a series of staggered teeth e, between which is a groove f, in which rests the cable.

I have represented one of the end teeth e' of each of the peripheral sections d as being movable and acted upon by a spring g; but this feature need not here be described, as it is no part of my invention and is fully described in Patent No. 649,563, dated May 15, 1900, to W. W. Willson.

It is apparent that the cable being flexible tends to follow a straight line in passing across the gaps d'. Heretofore it has been customary to form the seats for the cable in the peripheral sections of the wheel on arcs of a circle that is concentric with the axis of revolution of the wheel. It therefore followed that the cable was bent more or less sharply at each gap, the bends being the sharpest where the blocks engaged with the sprockets of the wheel.

In constructing a wheel according to my invention the points where the cable contacts or comes into engagement with the ends of the sections d are all concentrically disposed relative to the axis of the wheel, the path followed by these points being represented in Fig. 1 by the dotted circle t, while the longitudinal intermediate portions of the sections are eccentrically disposed, being carried outward beyond the circle t, with the result that there is less bending of the cable as it leaves one section and passes across a gap d' to the next than in the earlier constructions which I have described. I prefer that the cable-seat should be formed on the arc of a circle of less radius than the radius of the circle t, and a wheel with the cable-seats thus disposed is shown in the drawings. The particular location of the center (designated i) of the cable-seat in each section is such that the straight line j, connecting the points k k on the opposite sides of the gap d', shall be tangential to the circle

l, struck from that center i. As this line j is tangential not only to this circle l and the corresponding cable-seat, but also to the circle l', struck from the center i', it follows that the cable in passing from one contact or section of the wheel to the next does not to any practical extent bend at all, the consequence being that the wear upon the cable is reduced and its life much prolonged.

What I claim is—

1. A sprocket-wheel for use in cable-power-transmission apparatus provided with a series of sections in which are formed cable-seats and with gaps between the sections, the seat for the cable in each section having its longitudinal intermediate portion disposed outside of a circle concentric with the axis of revolution of the wheel and including the points of contact of the cable with the ends of the sections, substantially as set forth.

2. A sprocket-wheel for use in cable-power-transmission apparatus provided with a series of sections in which are formed cable-seats and with gaps between the sections, the cable-seat in each section being formed on the arc of a circle of less radius than the radius of a circle struck from the axis of revolution of the wheel and including any part of the said cable-seat, substantially as set forth.

3. A sprocket-wheel for use in cable-power-transmission apparatus provided with a series of sections in which are formed cable-seats and with gaps between the sections, the cable-seat in each section being on the arc of such a circle that a straight line crossing the gap from the contact-point k of that section to the contact-point k of the next section is tangential to such arc, substantially as set forth.

4. In combination with a flexible driving device having wheel-engaging attachments, a wheel whose periphery is divided into sections by gaps or recesses for the said wheel-engaging devices each of said sections between the recesses having a peripheral seat which lies outside of the circle that passes through the driving-points at the ends of the said sections, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT Q. DUFOUR.

Witnesses:
ROBT. H. PANSEL,
F. R. WILLSON, Jr.