(No Model.)

I. W. DOEG.

SECTIONAL GEAR WHEEL.

No. 301,695. Patented July 8, 1884.

Fig. 1.

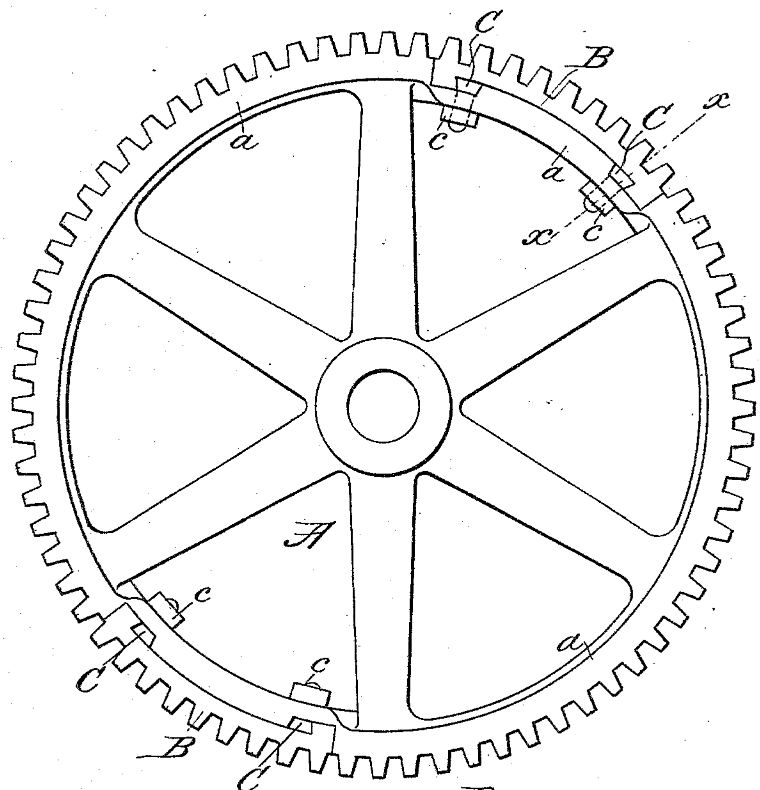


Fig. 2.

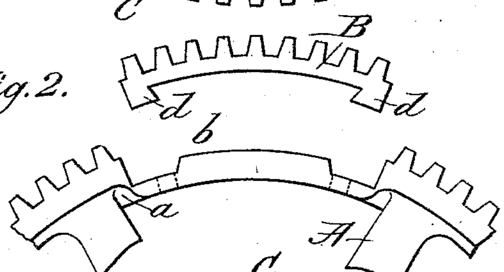
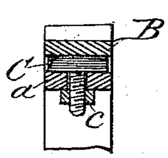


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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SECTIONAL GEAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 301,695, dated July 8, 1884.

Application filed May 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, ISSACHAR W. DOEG, a citizen of the United States, residing at New Market, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Sectional Gear-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to gear-wheels, the object being to provide a simple and ready means of repairing the injury done by excessive wear to those portions of the peripheries of such wheels as are subjected to unequal strain.

To this end the invention consists in a gear-wheel the periphery of which is recessed at the points of excessive wear, and in the combination with such wheel of detachable cogged sections or segments secured in said recessed portions of the main wheel or body, as hereinafter more fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a side view of a spur-gear with my invention applied. Fig. 2 is a partial view of the same, showing the removable part or segment of the cogged rim detached. Fig. 3 shows a wedge-headed bolt or connection. Fig. 4 is a section on the line *x x* of Fig. 1.

At those points on the periphery of the gear-wheel A in which excessive wear is experienced, the rim *a* is formed with an uncogged recess, *b*, for the reception of a detachable cogged segment or section, B, which may be secured to the rim by any suitable means. When the gear A is to be meshed between two others and actuated with an oscillatory movement, so that the wear will come unequally upon opposite sides of its periphery, the detachable segments B B will be arranged as shown in Fig. 1. These detachable segments may, however, be arranged at any desired point with relation to each other, and one, two, or more of such detachable segments may be employed, according to the points of contact with adjacent gearing. At those points on the periphery of the gear-wheel where the detachable cogged segments are secured the recessed part of the rim *a* is drawn inward, as shown, so as to enable the segment B to be made of suitable thickness to insure strength, and yet permit the points of its cogs to be brought into a true circle with the points of the fixed cogs.

The detachable segment B is secured in place within the recess *b* by means of one or more wedge-headed bolts, C, the shanks of which are screw-threaded and passed through bolt-holes in the recessed rim *a*, beneath which they engage with nuts *c*, that are screwed up on to the bolt, so as to hold the parts in close contact. In the drawings the detachable segment is shown as being held by two of these bolts, the recessed portion of the rim *a* being centrally thickened, and having a depression at each end for the reception of the wedge-shaped heads of the bolts C, and of a lug, *d*, on the end of said detachable segment. The inner sides of the lugs *d d* are beveled or inclined to correspond with the shape of the wedge-headed bolt C, the thickened portion of the rim *a* within the recess *b* being also formed with beveled ends to fit the sides of said bolt-heads.

In connecting the parts the bolts C C are first passed through the bolt-holes in the recessed part of the rim. The detachable section or segment B is then slipped into place sidewise, with its lugs *d d* filling the ends of the recess *b* at the outer sides of the wedge-shaped bolt-heads. The nuts *c c* are then placed upon the bolt-shanks and screwed up with a wrench or spanner, so as to secure the parts firmly, the detachable segment being held in place by the pressure of the wedge-shaped bolt-heads against the inclined or beveled sides of the lugs *d d*. Instead of employing two bolts, it is obvious that the segment B can be secured by means of one bolt keyed centrally into the under part of said segment, or the detachable cogged segment can be secured to the wheel by any suitable means.

The advantage of my invention will be apparent. When it becomes necessary to replace a worn gear, instead of requiring a

wholly new one, it is only necessary to detach the worn segments B B and substitute new ones. It is obvious that the cost of these segments and the time and labor required to put them in place will be much less than would be involved in replacing the entire gear-wheel.

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

1. The combination of the gear-wheel A, having its rim recessed at one or more points, the detachable cogged segments B B, and means for securing said segments in the recessed portion of the gear-rim, substantially as described.

2. The combination of the gear-wheel A, having a cogged rim, *a*, provided with recesses *b b*, the detachable cogged segments B B, and the wedge-headed bolts C C, substantially as described.

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

ISSACHAR W. DOEG.

Witnesses:

GEO. L. DEARBORN,

ARTHUR N. DEARBORN.