W. S. PIERCE, Jr.

GEARING.

APPLICATION FILED OCT. 27, 1921.

1,418,461. Patented June 6, 1922.

Fig. 1.

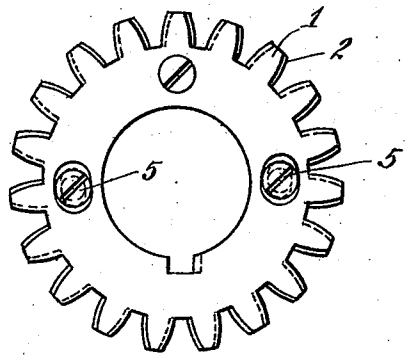


Fig. 2.

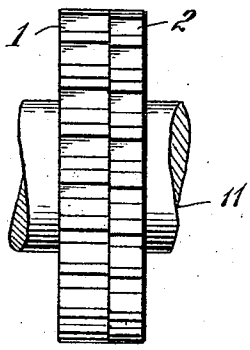


Fig. 3.

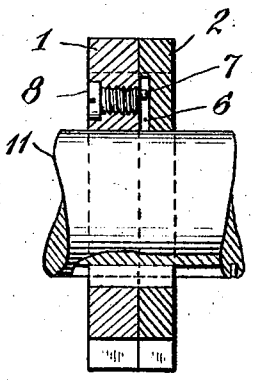


Fig. 6.



Fig. 4.

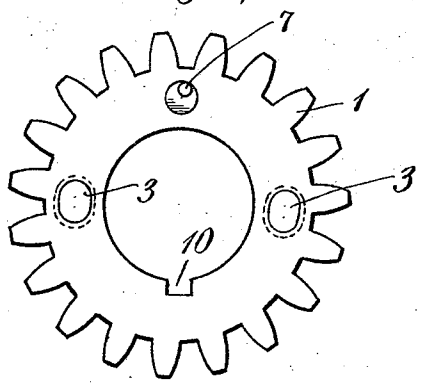
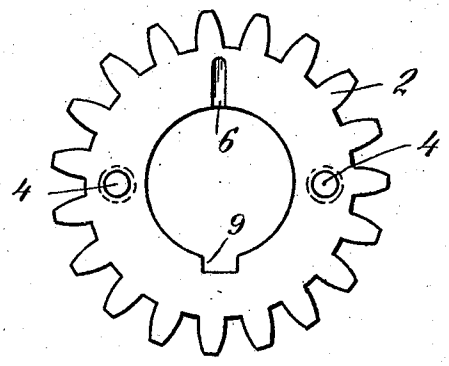


Fig. 5.



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GEARING.

1,418,461. Specification of Letters Patent. **Patented June 6, 1922.**

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To all whom it may concern:

Be it known that I, WINSLOW S. PIERCE, Jr., residing at Bayville, in the county of Nassau, State of New York, have invented certain new and useful Improvements in Gearing; and I do hereby 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.

My invention relates to a spur gear which is so made that it can be adjusted to compensate for wear.

It is a well known fact that ordinary spur gears do not operate very satisfactorily after they become worn. The worn teeth do not mesh properly and as a result the action is noisy and there is considerable play between the geared members.

In the present invention this undesirable feature of gear operation is eliminated. A gear is provided which may be adjusted to compensate for backlash in a manner explained below. This gear is made in two parts or segments, one of which may be called the working segment, and the other the compensating segment.

Referring to the drawing—

Figs. 1 and 2 show the two segments fastened together, the compensating segment being displaced circumferentially, from the working segment;

Fig. 3 is a section view showing the positive means by which the segments are displaced relative to each other;

Fig. 4 shows the surface of the working segment which contacts with the compensating segment;

Fig. 5 shows the surface of the compensating segment which contacts with the working segment; and

Fig. 6 shows the construction of the machine screw by means of which the segments are displaced relative to each other.

Referring to Figs. 1 and 2, numeral 1 represents the working segment of the gear. This segment transmits all of the power and is designed accordingly. The compensating segment 2 is made with teeth of the same size and shape as those on the other segment, but since the former segment 2 is not intended to transmit any power, its face may be made narrower than the face of the working segment 1. Referring to Figs. 4 and 5, holes 3 are provided through which machine screws 5 may be screwed into tapped holes 4 to secure the two parts of the gear together as in Fig. 1. The holes 3 are oblong to permit securing the segments together in a number of relative positions. In Figs. 3 and 5, a narrow slot 6 is shown, into which the eccentric lug 7 of the machine screw 8 projects.

When the gear is first assembled the teeth of the segment 2 are even with the teeth of the segment 1. After the gear teeth have become worn and it is desired to compensate for backlash, the screws 5 are loosened, and the screw 8 turned. The turning of this screw 8 displaces segment 2 circumferentially with respect to segment 1, by means of the eccentric lug 7 moving in slot 6. When this displacement is equal to the backlash, the screws 5 are tightened.

In order to permit this relative displacement of the two segments, the keyway 9 is made wider than the keyway 10. Segment 1 is keyed tightly to the shaft 11, and segment 2 is free to rotate on that shaft through a limited angle when the screws 5 are loosened.

As a modification of the present invention, the compensating segment may be mounted on a collar which is integral with the working segment. No keyway would then be required in the former segment.

I claim:

A spur gear consisting of two annular segments, one segment having means provided thereon whereby it may be fixed to a shaft, the other segment being free to rotate through a limited angle on said shaft, positive means for rotating the latter segment with respect to the former consisting of a machine screw extending through the former segment, said screw having an eccentric lug coacting with a slot in said latter segment, and means for fixing the two segments together at any predetermined relative position.

In testimony whereof I affix my signature.

WINSLOW S. PIERCE, JR.