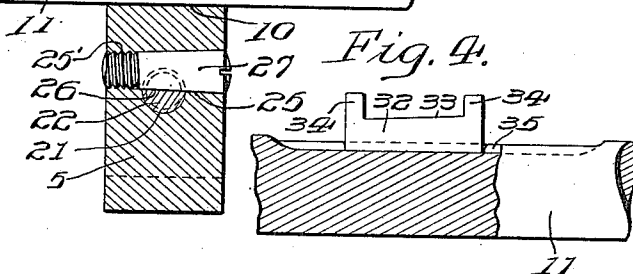
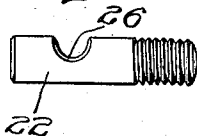
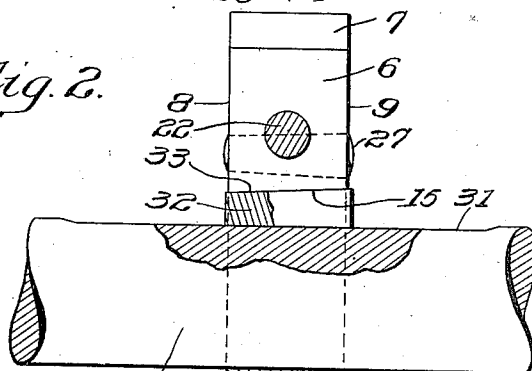
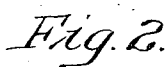


SPLIT GEAR.

1,041,448.

Patented Oct. 15, 1912.



INVENTOR

INVENTOR
Charles J. Dougherty.

BY

1 June 1944.

ATTORNEY

WITNESSES

F. J. Hartman.

J. Stuart Freeman.

UNITED STATES PATENT OFFICE.

CHARLES J. DOUGHERTY, OF PHILADELPHIA, PENNSYLVANIA.

SPLIT GEAR.

1,041,448.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed February 5, 1912. Serial No. 675,572.

To all whom it may concern:

Be it known that I, CHARLES J. DOUGHERTY, a citizen of the United States, and a resident of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Split Gears, of which the following is a full, clear, and exact disclosure, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a gear or pinion that can be placed upon and secured to, and readily removed from any portion of a shaft of given diameter, and which will be adapted for use where the available shaft space is limited.

A further object is to provide in such a gear or pinion, comprising a plurality of separable sections, a simple and efficient means for securely and firmly holding the sections together. And a further object is to provide, in combination with such a pinion and means for securely holding the sections thereof together, a simple and efficient means for keying said pinion to a shaft, and so arranged as to act throughout its operative extent substantially without placing additional stress upon the means for uniting the sections.

With these and other objects in view, such as are hereinafter brought out in the specification and claims, the invention presents a simplicity of construction and efficiency of operation which is fully illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a pinion constructed in accordance with the preferred form of the invention, and showing a part thereof in section; Fig. 2 is a transverse section of the pinion on the line 2—2 of Fig. 1; Fig. 3 is an enlarged detail view of one of the joining pins shown in Fig. 1; and Fig. 4 is an enlarged detail view showing a modified manner in which the key can be made to engage the shaft.

Referring to the drawings, which illustrate the preferred embodiment of the invention, the gear is shown as comprising two sections 5 and 6, having curved sides provided with any desired number of teeth 7, and two oppositely disposed parallel plane faces 8 and 9, the sections together being formed so that they present a central circular opening 10, the walls of which are adapted to encircle a shaft 11. The sections

5 and 6 are separated along a plane 12, passing diametrically through the gear and at right angles to the plane faces 8 and 9, and centrally disposed with relation to said plane 12 and on one side of the opening 10 is a key-way formed by the adjacent oppositely disposed rectangular recesses 14 and 15, in the sections 5 and 6 respectively. Each of the sections 5 and 6 is furthermore provided with a drilled and tapped hole 20 extending inwardly and at right angles to that plane which forms a division between the sections and on opposite sides of the central opening 10. Also each section is similarly provided with a drilled hole 21, opposite to and in alinement with the tapped hole 20 in the other section. For securing the sections of the pinion together, pins 22 having one end portion threaded, are screwed firmly into each of the holes 20 in the respective sections and, projecting beyond the respective plane faces 12 and at right angles thereto, the free ends of said pins are adapted to slidably enter the respective oppositely situated sockets 21. Finally, to secure the pins 22 snugly in the holes 21, there are drilled and tapered holes 25, at right angles to the faces 8 and 9 of the sections, and to the longitudinal axes of the holes 21, and also having their longitudinal centers substantially tangential to the inner sides of said holes 21. Also one or both of the holes 25 is threaded adjacent to the end of smaller diameter, as shown at 25'.

In drilling and tapering holes 25 while the pins 22 are in the said holes 21 and the gear sections are abutting, a semicircular tapering recess 26 is formed in the side of each of the respective pins 22, and upon the insertion of a correspondingly tapered and threaded pin 27 into the holes 25, and in engagement with the walls of the recess 26 of the pins 22, said last-named pins are thereby drawn snugly inwardly and held at the innermost limit of their operative paths. Furthermore, from the fact that the pins 27 are tapered and conform to the recesses in the pins 22 therefor, it is to be noted that by driving or screwing the former inwardly, the recesses in the latter are so arranged that said latter pins will be drawn inwardly, and the points of said gear held firmly together.

For the purpose of securing the gear upon the shaft 11, said shaft is provided with a milled portion 31, segmental to the shaft

in cross-section, and coöperating with the flat surface of said segmental portion is a key 32, having a slanting side 33, shaped to bear against the corresponding slanting sides of the recesses 14 and 15 in the sections 5 and 6, respectively. The key 32 in the modified form in Fig. 4, is also provided at its ends with outwardly directed lugs 34, which offer an enlarged surface for use when driving the key in either of the respective opposite directions, as well as to prevent the total separation of the key from the gear when the latter is at a given position upon the shaft 30. In Fig. 4 is also shown a modified way in which the key 32 can be made to coöperate with the shaft 11. In this form a groove 35 is milled longitudinally of the shaft and of a width equal to that of the segment described and shown in the preferred form. By this latter arrangement, it is obvious that the groove offers an increase in the resistance against the turning of the gear upon the shaft.

It is to be understood that, while but one form of the many which this invention may assume has been illustrated and described, the invention is not to be limited to the precise details of construction, which are herewith illustrated, but that the respective parts may be so arranged as to adapt themselves to any particular conditions, so long as they remain within the spirit of the invention and scope of the appended claims.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:

1. A gear wheel comprising two sections provided with coöperating recesses for the reception of a shaft, one of said sections being provided upon one side of its respective recess with a socket, a pin secured unitarily to the other of said sections and operative to engage said first section in said socket and provided with a tapered transverse recess segmental in cross section, tapered means arranged to laterally enter said socket and the recess in said pin to firmly secure said sections together, and tapered means for keying said gear to a shaft, said last-mentioned means coöperating with each of said sections simultaneously and capable of operating without substantially increasing the longitudinal stress upon said pin.

2. A gear wheel comprising two sections, each of said sections being provided with a

socket, a pin secured unitarily to each of said sections and operative to engage the other of said sections in the socket opposite thereto and provided with a tapered recess segmental in cross section, tapered means transversely arranged to enter each of said sockets and fit within the recess within each of said pins to draw and firmly secure said sections together, and tapered means for keying said sections to a shaft, said last-mentioned means coöperating with both of said sections simultaneously and operative to perform its function without increasing the longitudinal tension upon said pins.

3. A gear wheel comprising two sections, each of said sections being provided with a socket, a pin secured unitarily to each of said sections and operative to engage the other of said sections in the socket opposite thereto and provided with a tapered recess, and tapered means transversely arranged to enter each of said sockets and fitting within the recess within each of said pins to draw and firmly secure said sections together, said tapered means being in threaded engagement with their respective adjacent sections.

4. A gear wheel comprising two sections, each of said sections being provided with a socket, a pin secured unitarily to each of said sections and operative to engage the other of said sections in the socket opposite thereto and provided with a tapered recess, and tapered means transversely arranged to enter each of said sockets and fitting within the recess within each of said pins to draw and firmly secure said sections together, each of said tapered means having one of its ends in threaded engagement with its adjacent section.

5. A gear comprising two sections, in combination with a pin firmly secured to one of said sections and extending within a socket within the other of said sections, and tapered means laterally entering said socket and in threaded engagement with said second section for drawing into and securing said pin in said socket.

In witness whereof I have hereunto set my hand this ninth day of January, A. D., 1912.

CHARLES J. DOUGHERTY.

Witnesses:

JAY R. GRIER,

ALSTON B. MOULTON.