J. H. CARVER,
GEAR, ROLL, AND THE LIKE,
APPLICATION FILED DEC. 8, 1916.

1,242,141. Patented Oct. 9, 1917.

Fig. 1.

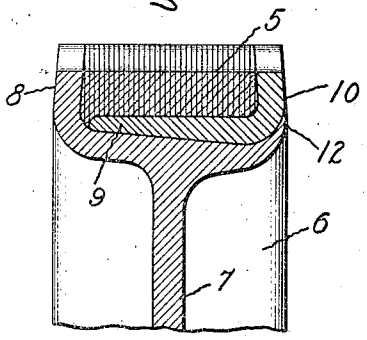


Fig. 2.

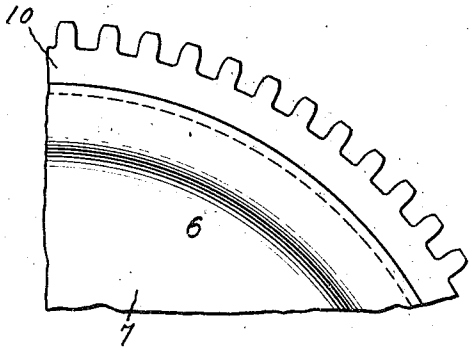


Fig. 3.

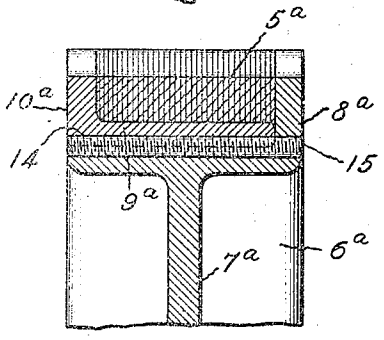
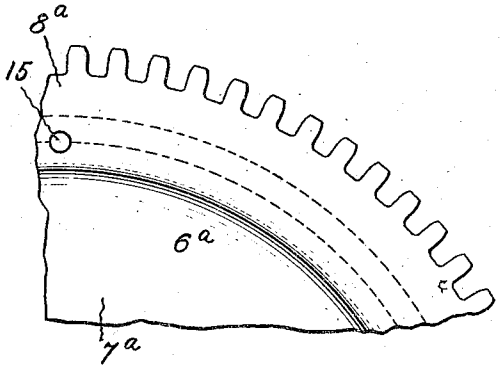


Fig. 4.



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UNITED STATES PATENT OFFICE.

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GEAR, ROLL, AND THE LIKE.

1,242,141. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed December 8, 1916. Serial No. 135,893.

To all whom it may concern:

Be it known that I, JAMES H. CARVER, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Gears, Rolls, and the like.

The present invention relates to gears, rolls, and the like, which are made of a compressible material, forming a compressible element, held between metallic holders or shroudings. The compressible material may, for example, be spinnable textile fabric, rawhide, cloth, or the like.

The object of my invention is to provide an improved metallic holder for gears, rolls, and the like of this general type.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the present instance I have shown my invention as applied to a gear wheel, the compressible material of which is formed of spinnable textile fabric, as this is a material to which I have found my holder well adapted, but it will be understood, of course, that it is not limited thereto.

In the accompanying drawings, Figure 1 is a radial section through a portion of a gear wheel embodying my invention; Fig. 2 is a side elevation, and Figs. 3 and 4 are views similar to Figs. 1 and 2 illustrating a modification.

Referring to Figs. 1 and 2, 5 indicates a compressible element forming the main portion of the gear rim which is supported in a holder comprising an annular member 6 which has a web 7 and an integral flange or shroud 8. A second member is provided which has a tapered cylindrical portion 9 that makes a good fit with the periphery of the member 6. It also has a flange or shroud 10 between which and the flange 8, the compressible element 5 is clamped. The two holding members are fastened to each other by means of rolling the end face of the member 6 over the corner of the flange 10 as indicated at 12. This fastens the two parts of the holder firmly together.

In assembling, the member 6 may be mounted in a press and the element 5 placed in position thereon. Above this is placed the second member and the whole is then subjected to a high pressure. This brings the two members into the position as shown in the drawing. The end face of the member 12 can then be rolled over the corner of the flange 10 by means of a suitable tool, while the assembled parts are held under pressure in the press.

It is to be noted that the flanges 8 and 10 are inclined toward each other from the base outward. This gives a dove-tailed connection between the members and the element 5 so that the element 5 is strongly anchored against centrifugal force. Furthermore, due to this inclined structure of the flanges 8 and 10, they will withstand a greater axial force for a given thickness than they would if they were not so inclined. This is of importance since the compressible element 5 exerts considerable pressure against the flanges in an axial direction. It will be understood, of course, in the case of a gear wheel, that the teeth are cut thereon after the parts have been assembled, as just described. In other cases, the blank formed as described may be finished as is necessary or desirable.

Referring now to Figs. 3 and 4, the arrangements of the compressible element and holding members are the same as that shown in Fig. 1, except that instead of the two holding members being fastened together by rolling the edge of the one over the corner of the other, they are held together by means of threaded bolts or screws. In Figs. 3 and 4 the same reference numerals have been applied to corresponding parts, with the exception that the exponent "a" has been added. The openings 14 into which the bolts or screws 15 are threaded are bored partly in the one member 6^a and partly in the other member 9^a, the line of division between these members being clearly illustrated in Fig. 4. As many of these screws or bolts may be used as found desirable. The manner of assembling the modification shown in Figs. 3 and 4 may be the same as that already described in connection with Figs. 1 and 2, the holes 14 being bored and threaded and the bolts or screws 15 inserted therein, while the parts are under pressure in the press.

The arrangements described have the advantage that the metallic holder comprises but two principal members which may be easily and cheaply made, as by forging or drawing and readily fastened together.

The arrangements also have the advantage that the fastening of the parts together is a comparatively cheap and simple operation, the arrangement shown in Figs. 1 and 2 requiring the boring of no holes whatever, while that shown in Figs. 3 and 4 requires but the boring of a few holes. The result is a very strong, light structure and one comparatively cheap to build. It will also be noted that the two members are annular in outline and are angular or L-shaped in cross-section and that they telescope one within the other. This results in a very strong and rugged structure. The two members mutually support and strengthen each other. The telescoping of the members also guards against the peripheral portions of the flanges 8 and 10 spreading.

The arrangements in Figs. 1 and 2 I consider particularly advantageous from the view point of assembling and of strength of the finished holder.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

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

1. In an apparatus of the character described, the combination of a compressible element and a metallic holder therefor comprising two principal parts, each comprising an annular ring with a flange on one side, said annular rings telescoping one into the other to bring the flanges into contact with the compressible element, and means for fastening the two parts together.

2. In a gear wheel, the combination of a body member of textile fibers, a metallic holder therefor comprising two annular rings, one of which telescopes into the other, and both of which have flanges forming a holder for the body member, and means for fastening the rings together.

3. In an apparatus of the character described, the combination of an annular body member of compressible material, a holder therefor comprising two parts which slip within the bore of said annular body member telescoping one within the other, and have flanges which engage the body member, and means for fastening the two parts together.

4. In an apparatus of the character described, the combination of an annular body member of compressible material, a holder therefor comprising two parts which slip within the bore of said annular body member telescoping one within the other, and have flanges which engage the body member, one of said parts being turned over the other to fasten them together.

5. In a gear wheel, the combination of a body member of textile fibers, and a metallic holder therefor comprising two principal parts, one of which telescopes into the other, and both of which have flanges which are inclined with respect to each other, and between which said body member is held under compression, one of said parts being turned over the other to unite the same.

In witness whereof, I have hereunto set my hand this 7th day of December, 1916.

JAMES H. CARVER.