

No. 733,852.

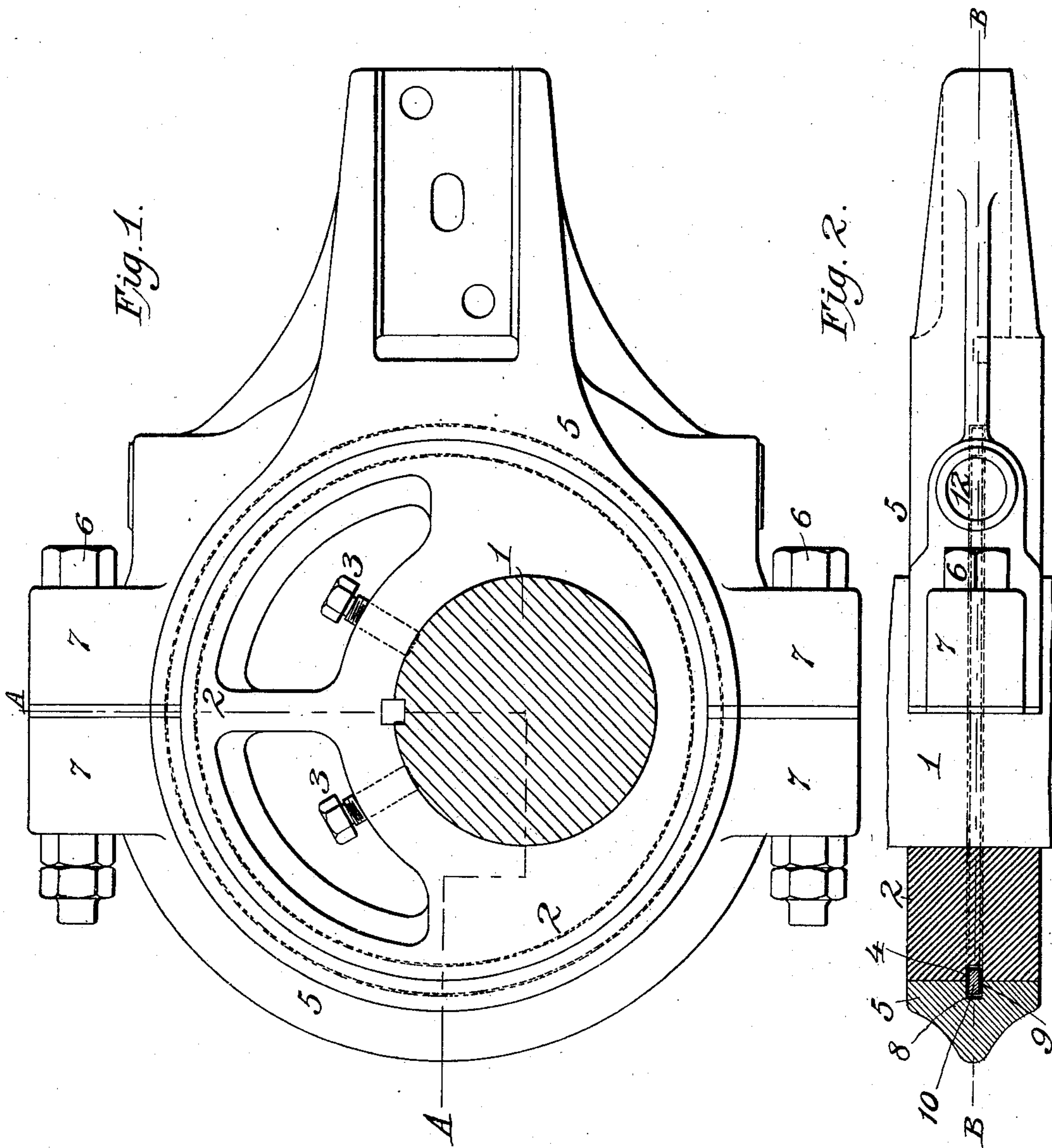
PATENTED JULY 14, 1903.

C. W. LEE.  
ECCENTRIC.

APPLICATION FILED MAR. 7, 1903.

NO. MODEL.

2 SHEETS—SHEET 1.



WITNESSES  
*Sidney P. Hollingsworth*  
*C. B. Pull*

INVENTOR  
*Charles W. Lee*  
by *J. H. W. T. Howard*  
Attorneys



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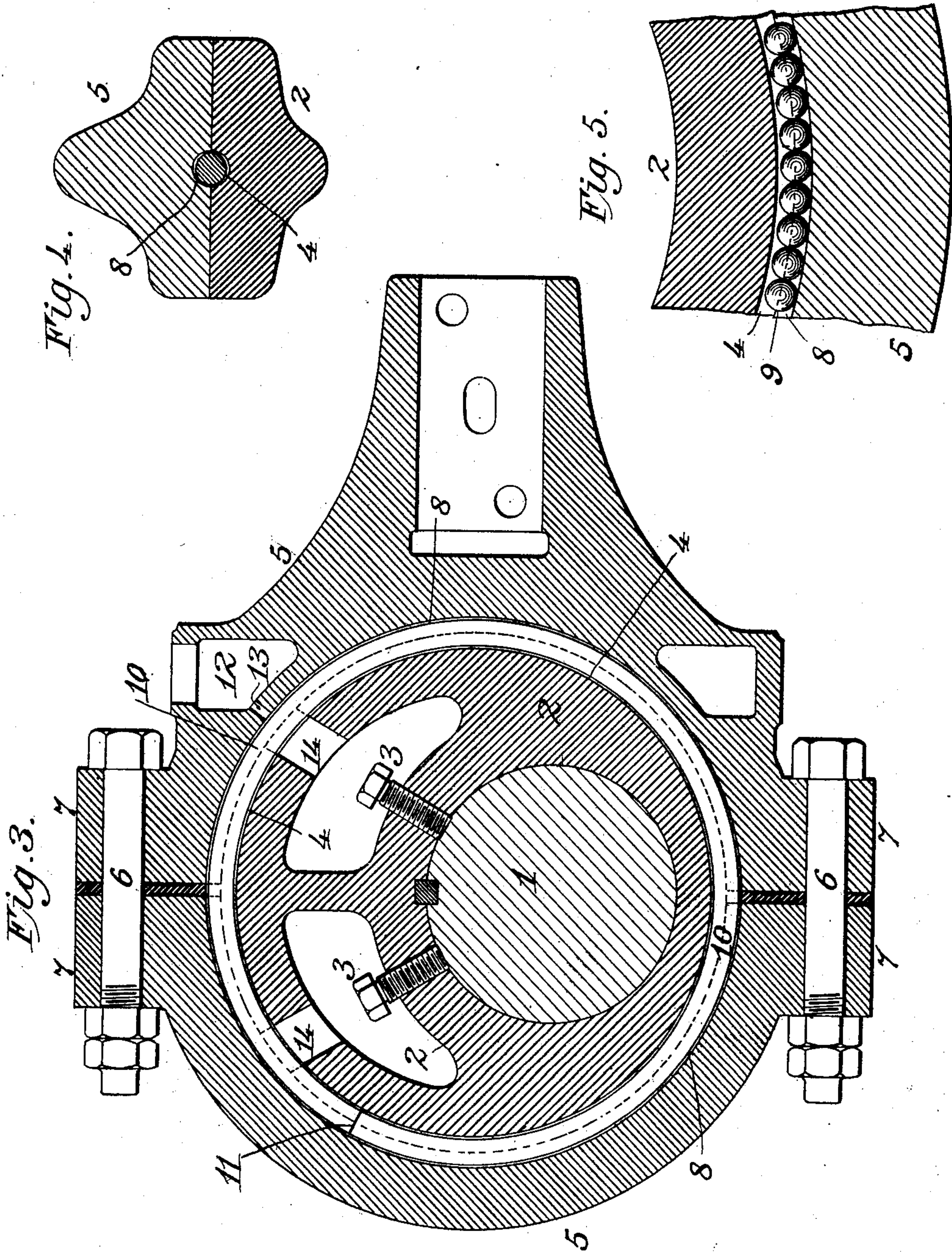
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# UNITED STATES PATENT OFFICE.

CHARLES W. LEE, OF LAWRENCEVILLE, VIRGINIA.

## ECCENTRIC.

SPECIFICATION forming part of Letters Patent No. 733,852, dated July 14, 1903.

Application filed March 7, 1903. Serial No. 146,743. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. LEE, a citizen of the United States, residing at Lawrenceville, in the county of Brunswick and State of Virginia, have invented certain new and useful Improvements in Eccentrics, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to an improvement in eccentrics, particularly such as are used on locomotive-engines wherein the width or thickness of the eccentric-block is limited, but is also adapted to eccentrics as employed in all classes of engines—stationary, marine, or otherwise—or to the numerous and varied uses in which an eccentric may be utilized as a mechanical appliance.

The almost universal practice heretofore in fitting the strap to the eccentric-block has been to rabbet each edge of said block, leaving a central projection, and to cut out the inner part of the strap to fit such projection, leaving side flanges to engage the rabbets. As thus constructed the flanges on the strap are designed to prevent side play between the block and the strap; but in practical use the wear between the parts is so great that an undue amount of side movement is soon produced, which requires that the engine or eccentric shall be sent to the shop for repair. Frequently a new strap is required; but if the old one can be retained its groove is filled with some suitable metal and then turned out to register with the projection on the block, this being an expensive operation, requiring the services of a skilled mechanic in properly measuring and calipering the width and depth of the groove on the inside of the strap.

In my improvement the periphery of the block is turned flat throughout its full width, as is also the inner surface of the strap. This work, which is of a simple character, may be done on a lathe by an unskilled workman or apprentice, and after the block and strap have been so turned and fitted a narrow central groove of rectangular, semicircular, or other form is made in each part, so that when the parts are assembled these grooves will register. Into the space formed by the grooves I place a metal ring of the shape of the opening, which ring may be formed of a single

piece divided at one point to permit its insertion or of several pieces, the dimensions in cross-section being slightly less than those of the opening formed by the two grooves. By making the ring slightly smaller than the opening in which it is placed there is little or no friction or consequent wear, the ring practically floating in the opening, and as the latter is well adapted to receive a lubricant the oil is thoroughly distributed between the wearing-surfaces of the block and strap.

Another advantage of my improved eccentric is in the ease with which the described lateral play may be taken up, for when the defect due thereto becomes sufficiently great to be detrimental to the operation of the engine or mechanism of which the eccentric forms a part it may be quickly and cheaply remedied by removing the strap from the block and substituting a thicker ring—a work not requiring skilled labor.

Other advantages arising from the use of my improvement are hereinafter pointed out.

Referring to the drawings, Figure 1 shows in side elevation an eccentric constructed in accordance with my invention. Fig. 2 is a cross-section on the line A A of Fig. 1, and Fig. 3 a section on the line B B of Fig. 2. Figs. 4 and 5 show modifications.

Similar numerals of reference indicate similar parts in the respective figures.

1 indicates an engine or other shaft on which an eccentric-block 2 is keyed and further secured by means of bolts 3 3, tapped into the eccentric-block and bearing against the shaft 1. The periphery of the eccentric-block 2 is straight—that is to say, parallel to its axis—a groove 4 of rectangular, semicircular, or other suitable shape in cross-section being formed therein. The strap 5, as in ordinary practice, is made in two parts united by bolts 6, passing through flanges 7. As viewed in the transverse sections, Figs. 2 and 4, the meeting or coacting surfaces of the strap 5 and the eccentric-block 2, respectively, are in a straight line, differing in this respect from the ordinary constructions in which either the eccentric-block has been furnished with outside flanges between which the strap is fitted or the said block has been rabbeted, leaving a central projection, and the strap cut out to fit such projection,



side flanges being left to engage the rabbets, as already mentioned. The object in this feature of my invention of making the said meeting or coacting surfaces straight is to adapt them in the most advantageous manner to take the entire wear produced between the block and strap. The inner surface of the strap 5 has formed therein a groove 8 similar to that, 4, in the block, the two grooves registering and forming, when the parts are assembled, a rectangular, circular, or other shaped opening. Within the space or opening 9 is placed a ring 10 of corresponding cross-section, but fitted freely therein, so that it is found in practice there is but slight friction or wear on the ring except on its sides. The ring 10 may be divided only at 11 to permit of insertion in the groove 4 of the block 2, although the ring, if desired, may be made in two or more segments. The two parts of the strap 5 having been placed around the block, the ring 10 enters the grooves 9 therein, the two-part strap being united by bolts 6.

Fig. 4 shows the ring circular in cross-section, and Fig. 5 a further modification, consisting in the employment of a series of balls, which in certain uses of my invention may be substituted for the ring and perform its functions.

Attention is called to the fact that the wearing-surfaces of the eccentric block and strap are in contact and form, as seen in the transverse sections, Figs. 2 and 4, above referred to, a straight line from one face to the other, thereby affording a broader bearing-surface when the thickness of the block is limited, as in locomotives, than is the case with eccentrics as heretofore ordinarily constructed, the thin ring 10 being sufficiently strong to prevent the strap from slipping from the block.

An oil-receptacle 12 is formed in the strap 5 and connected with the groove 8 by a small canal 13. An oil-cup of conventional form may be used instead of the receptacle.

When the eccentric-block is made in one piece, as in the drawings, the hole for each fastening-bolt 3 must be drilled from the periphery of the block, the outer portion 14 of the hole being made larger for the passage of the bolt-head. These bolts in ordinary use at times work loose and passing outwardly through the opening 14 come in contact with the strap and cause undue wear and sometimes destruction of the strap; but in the use of my device the ring 10 prevents the bolts from coming in contact with the strap, thus obviating the defect mentioned.

I am aware that heretofore an eccentric-block and a strap for the same have been used, a space being provided between them in which is placed a wear-ring entirely encircling the block, and that the wear ordinarily borne by the adjoining faces of the block and strap has been distributed over the surfaces

of the said adjoining faces of the block and strap and of the ring. In my invention the ring interposed between the block and the strap is in no sense a wear-ring, it being what I term a "retaining floating ring," or, in other words, one practically free, as shown in the cross-sectional view, Fig. 3, from contact with either the block or the strap, the consequence being that the wear is borne entirely by the adjoining faces of the block and strap. The same result is produced in my invention by the use of the series of balls, as shown in the modification Fig. 5, instead of the ring, the balls not serving to take the wear, but only to prevent lateral play between the eccentric block and strap.

I do not restrict myself to the exact details of construction, combination, and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by the skilled mechanic, and such departures from what is herein described and claimed not involving invention I consider as within the scope and terms of my claims.

Having thus described my invention, I claim—

1. An eccentric-block and an encircling strap each having a straight wearing-surface and an annular groove therein, combined with a ring loosely inclosed within the space formed by said grooves, substantially as set forth.
2. A peripherally-grooved eccentric-block, and an internally-grooved eccentric-strap having its bearing on said block, combined with a ring loosely fitting said grooves, substantially as set forth.
3. A straight-faced peripherally-grooved eccentric-block, and an internally-grooved strap encircling said block and having a straight bearing-surface in contact with the straight periphery of said block, combined with a ring loosely fitting within said grooves, substantially as set forth.
4. An eccentric-block and its encircling strap having straight contacting bearing-surfaces, and each having a centrally-disposed annular groove, combined with a ring loosely inclosed within said grooves, substantially as set forth.
5. In combination an eccentric-block and its encircling strap having straight contacting faces and each having a centrally-disposed groove, a ring loosely inclosed within said grooves, an oil-reservoir, and a canal connecting the oil-reservoir with one of said grooves, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

CHARLES W. LEE. [L. S.]

In presence of—

CHAS. E. MAY,  
J. W. UPCHURCH.