

No. 751,779.

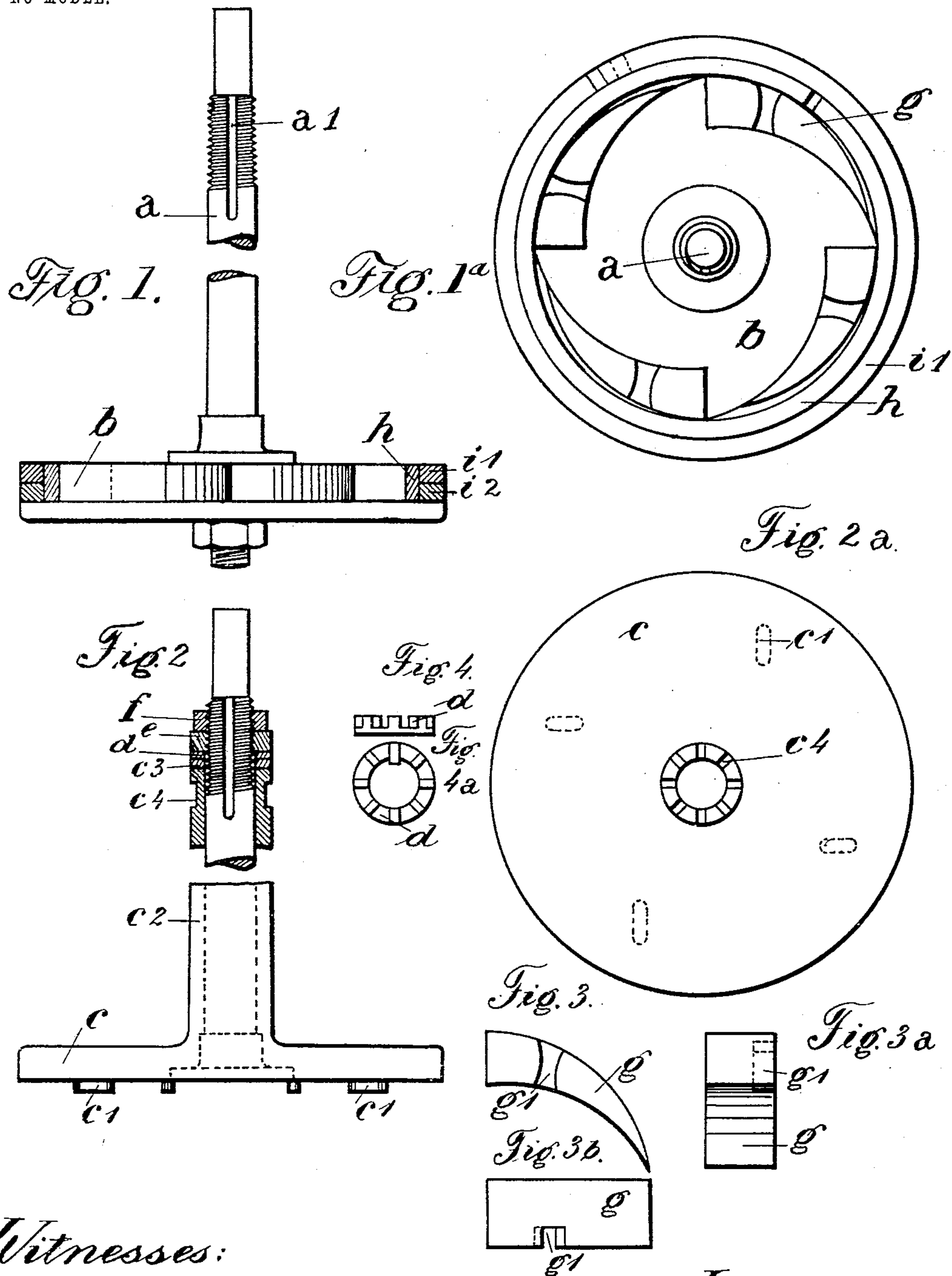
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P. BODE.

DEVICE FOR ADJUSTING PISTON RINGS FROM OUTSIDE THE CYLINDERS.

APPLICATION FILED NOV. 9, 1903.

NO MODEL.



Witnesses:  
*Joseph Schaeffer*  
*William Edersheim*

Inventor:  
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# UNITED STATES PATENT OFFICE.

PAUL BODE, OF DUISBURG, GERMANY.

DEVICE FOR ADJUSTING PISTON-RINGS FROM OUTSIDE THE CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 751,779, dated February 9, 1904.

Application filed November 9, 1903. Serial No. 180,376. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL BODE, engine-fitter, a citizen of the German Empire, and a resident of 4 Ziethen street, Duisburg, Rhine Province, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Devices for Adjusting Piston-Rings from Outside the Cylinders, of which the following is a specification.

10 Piston-rings as heretofore usually fitted cannot have their tension adjusted without removing a cylinder-cover, taking out the piston, and pulling it to pieces.

15 This invention consists in a device whereby the rings can be adjusted from outside the cylinder.

Figure 1 is a vertical section, and Fig. 1<sup>a</sup> a plan view, of a piston constructed so as to fulfil the object of my invention. Fig. 2 is a 20 side view, and Fig. 2<sup>a</sup> a plan, of the operating means for adjustment. Fig. 3 is a plan, Fig. 3<sup>a</sup> a side view, and Fig. 3<sup>b</sup> an end view, of a detail. Fig. 4 is a side view, and Fig. 4<sup>a</sup> a plan, of another detail.

25 The piston-rod *a* is in any suitable manner fixed to the body of the piston, which is provided with cams or teeth *b*, four in number in this example. To the piston belongs the cover *c*, which is provided with lugs *c'* on its 30 under side and is continued up into a sleeve *c*<sup>2</sup> on the piston-rod *a* and on its upper face is formed with radial notches *c*<sup>3</sup>. A disk *d*, formed with teeth on its under side, engages with the notches *c*<sup>3</sup>, but is by feather and 35 groove *d'* prevented from turning on the piston-rod. On a screwed part of the piston-rod *a* are provided a nut *e* and check-nut *f*.

40 *g g g g* are loose tongues placed between an open adjusting-ring *h* and the cams or teeth *b*. These tongues have recesses *g'*, into which the lugs *c'* of the piston-cover *c* engage.

*h* is an adjusting-ring, which may be provided between the piston-rings *i' i*<sup>2</sup> and the tongues *g*.

In order to expand the piston-rings against 45 the interior surface of the cylinder, the nuts *f* and *e* and the disk *d* are loosened. The part *c*<sup>2</sup> can then by applying a spanner to the part *c*<sup>4</sup> be turned so that the lugs *c'*, engaging 50 with the tongues *g*, cause the latter to rise upon the cams *b*, and thereby open the ring *h* and also the rings *i' i*<sup>2</sup> and press them tighter against the cylinder. The part *c*<sup>2</sup> is then fixed 55 in position by means of the disk *d* and this again secured by the nuts *e* and *f*.

Having now particularly described and ascertained my said invention and its nature and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with the threaded piston- 60 rod and the piston having cam-surfaces, of a series of tongues seating on the piston so as to be engaged by said cam-surfaces thereof, a piston-cover having depending lugs therein, said lugs engaging said tongues, a sleeve formed 65 integral with the cover engaging over the piston-rod, said sleeve being adapted to be rotated, and means engaging the threaded portion of the piston and the upper end of the sleeve to lock the latter. 70

2. In combination with the piston and the piston-rod, cam-surfaces on the piston, tongues mounted so as to movably engage said cam-surfaces, said tongues being recessed, a piston-cover having depending lugs engaging in the 75 recesses of the tongues, a sleeve on the cover encircling the piston-rod for rotating the cover and means for retaining the sleeve in locked position with relation to the piston-rod.

In witness whereof I have hereunto set my 80 hand in presence of two witnesses.

PAUL BODE.

Witnesses:

JOSEF SCHAEFFERN,  
WILLIAM ESSENWEIN.