J. A. SHARPNACK.

SHIM.

APPLICATION FILED SEPT. 12, 1919.

1,359,438. **Patented Nov. 16, 1920.**

Fig. 1.

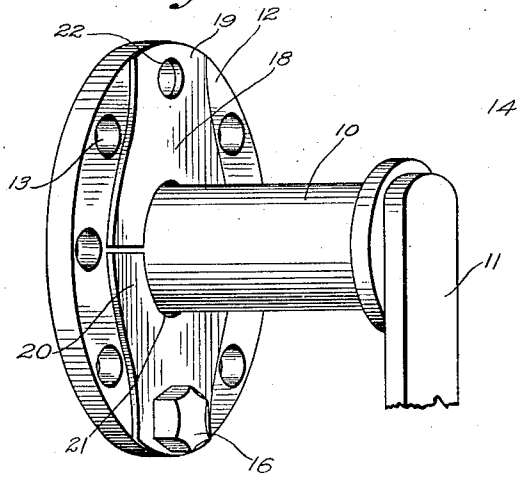


Fig. 2.

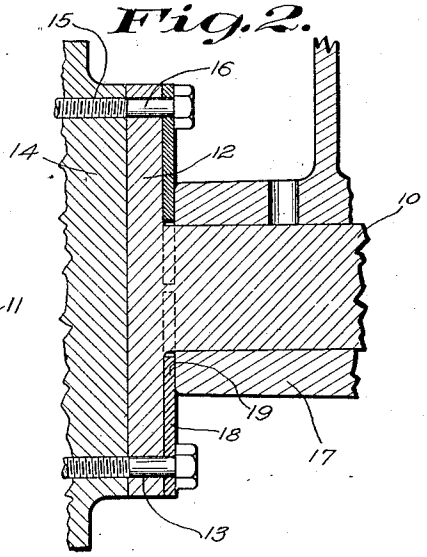


Fig. 3.

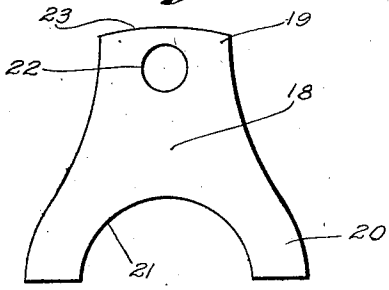
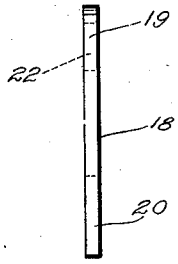


Fig. 4.



WITNESSES

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SHIM.

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To all whom it may concern:

Be it known that I, JAMES A. SHARPNACK, a citizen of the United States, and a resident of Rices Landing, in the county of Greene and State of Pennsylvania, have invented a new and Improved Shim, of which the following is a full, clear, and exact description.

This invention relates to shims, and more particularly to a device of this kind designed to prevent end play of internal-combustion motor crank shafts, the shim comprising a flat body having an arcuate part adapted to be disposed adjacent to a cylindrical element, and means for securing the body in place.

An object of the invention is to provide a simple, inexpensive and durable shim for taking up wear and preventing end play of motor shafts and the like, which is capable of a plurality of uses, and which is particularly adapted for use with crank shafts of automobile motors.

A further object of the invention is to provide a shim which may be fashioned from any suitable material, and of different sizes and thicknesses, and which can be readily placed in position or removed with a minimum of effort.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claim.

Reference is to be had to the accompanying drawings forming part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a perspective view of a part of a crank shaft and fly wheel flange showing two shims of my invention in position;

Fig. 2 is a fragmentary, longitudinal section of part of a crank shaft and fly wheel, showing two shims in place;

Fig. 3 is a plan view of an embodiment of the invention; and

Fig. 4 is a side elevation of the device.

Before proceeding to a more detailed explanation of my invention it should be clearly understood that while the shim is particularly useful in taking up and preventing end play of the crank shafts of automobile engines, it can also be used for other, similar purposes. It may be fashioned from sheet steel or any material adapted for the purpose, and in different sizes and thicknesses.

Referring more particularly to the drawings, I have shown part of a crank shaft 10, having the usual cranks 11, and at one extremity, a laterally extending, circular flange 12, provided with a plurality of symmetrically disposed bolt-holes 13. This flange serves the purpose of carrying the fly wheel 14, the hub of which is provided with bolt-holes 15 registering with the holes 13, as is shown in Fig. 2. The fly wheel is secured to the flange by means of the usual bolts 16. The part of the shaft 10 adjacent to the flange is mounted in the usual manner in a suitable bearing 17 of the crank case.

The shim of my invention has a body 18, of flat or plate-like form, and of any suitable thickness. Its one end 19, is comparatively narrow, and the body is outwardly extended to form a bifurcation 20 at the other end. The bifurcation presents an arcuate or concaved inner edge 21, which is substantially semi-circular. Near the end 19, the body of the shim has a circular opening 22. The edge 23 of the body, at the end 19, is likewise arcuate but convex.

The shims are best used in pairs, as shown in Fig. 1. They are placed in juxtaposition to the flange—if not so appearing on the copy on file the flange 12, with the bifurcation embracing the crank shaft 10, the shims being inserted between the flange 12 and the corresponding end of the bearing 17, to make a snug fit. The shims are secured in place by means of the bolts 16, which pass through the openings 22 of the shims, provided for the purpose. It will be readily seen that in order to insert or remove the shims it is merely necessary to take out two bolts, and none of the other parts is disturbed. The form of the shims is such that they can be readily positioned, and together almost completely embrace the crank shaft, thus presenting a substantial surface for wear.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

The combination with a crank shaft bearing sleeve and a crank shaft journal therein and provided with a circular flange at one end disposed in slightly spaced relation with respect to the end of the bearing

sleeve, a fly wheel disposed in abutting relation in respect to the flange, said fly wheel and flange having a plurality of symmetrically disposed bolt-holes arranged concentric to the axes thereof, a pair of shim plates disposed against the flange and each comprising a flat body having a bifurcation presenting a concaved edge and relatively tapered end provided with a convexed outer edge formed with a central aperture adapted to aline with said bolt holes at opposite sides diametrically of the flange and fly wheel, said plates coacting to envelop the shaft between the flange and the adjacent end of the bearing sleeve to take up end play, and bolts engaged through said plates and flange and threadedly connected with the fly wheel to secure said parts in abutting assembled relation.

JAMES ANSON SHARPNACK.