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J. C. YORDON

SHIM

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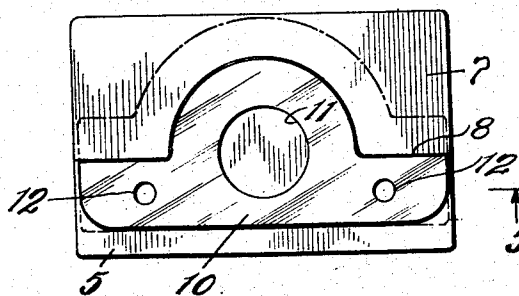


Fig. 1.

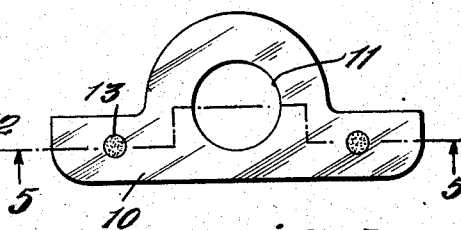


Fig. 4.

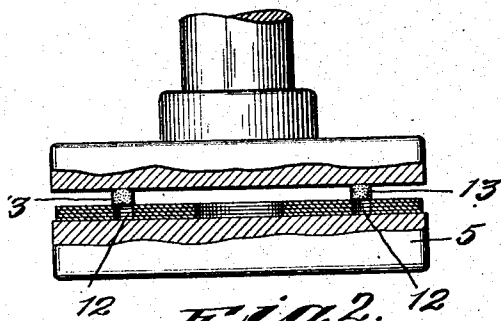


Fig. 2.

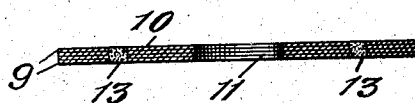


Fig. 5.

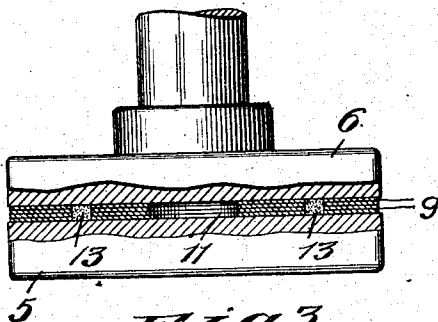


Fig. 3.

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JOHN CLIFFORD YORDON, OF QUEENS VILLAGE, NEW YORK, ASSIGNOR TO LAMINATED SHIM COMPANY, INC., OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF NEW YORK.

SHIM.

Application filed March 20, 1923. Serial No. 626,279.

This invention relates to an improved method of making shims of the type which are used between the parts of a divided bearing to hold the same in spaced relation, and more particularly to the so-called laminated shims which comprise a series of thin sheets of suitable metal such as brass, the same being held together by a suitable binder of relatively softer metal such as Babbitt metal or the like.

A particular object of the invention is to provide a shim, a leaf of which may be removed without disturbing the remaining leaves, and which will require no work thereon such as scraping away the binding material now found between the shim leaves.

A further object is to provide a shim which can be manufactured economically and in quantity without sacrificing the precision necessary in such articles.

Referring to the drawings, in which I have illustrated one embodiment of my invention:

Figure 1 is a top plan view of a press bed, the shim being shown in place thereon and the head of the press being represented in outline;

Figure 2 is a front elevation of the press, a portion thereof being broken away to expose a central section through the shim, the binders being shown in position to be acted upon by the head or pressure exerting member of the press;

Figure 3 is a view similar to Figure 2 and shows the binder after having been acted upon by the head of the press, to hold the laminæ of the shim in fixed relation;

Figure 4 is a top plan view of the finished shim; and

Figure 5 is a section taken on line 5—5 of Figure 4.

Referring to the drawings in detail, 5 indicates the bed of a power press, and 6 the head or pressure exerting member thereof, the former of which is suitably machined to provide a raised portion 7, the forward edge 8 of which is so shaped that the laminæ 9 may be assembled thereagainst in order to form a complete shim 10. This raised portion 7 is slightly lower than the thickness of the shim so that the head 6 in its downward movement will not be interfered with.

The shim laminæ are provided with the bolt holes 11 and two relatively smaller holes 12, into the latter of which the binding 13 is forced when the laminæ have been assembled, as illustrated in Figure 2. The binding 13 is cylindrically shaped and approximately as long as the shim is thick. It is of greater diameter than the holes 12 and when the laminæ have been assembled one binder 13, which is made of lead, Babbitt or other malleable metal, is placed over each hole 12 and, as shown in Figure 3, is forced into the holes 12 simultaneously by the descending head of the press. The binder, when crowded into holes 12 under pressure, will securely grip the adjacent edges of the laminæ 9 and hold them in close contact because the press head when it comes into contact with the uppermost lamination of the shim will have bound the laminæ together securely, but the final pressure on the shim will slightly compress the laminæ and the binder so that the shim will be practically solid. This will prevent the seepage of oil between the laminæ, which cannot be expelled by the tightening of the bolt which passes through hole 11, but which will, in the ordinary shim, work out by vibration, leaving the bearing loose.

When it is necessary to tighten up the bearing due to wear of the shaft, one of the laminæ may be removed by the insertion of a knife edge thereunder and the rest of the laminæ will not be disturbed or loosened. The projecting portion of the binder can then be pressed down flush with the top of the shim. This binder, therefore, permits of a finer adjustment inasmuch as it does not add to the thickness of the shim as a whole nor to the thickness of the individual lamina, and if the laminæ are drawn to a certain thickness, the necessary take-up in a bearing can be accomplished by the removal of as many laminæ as is necessary. Shims of varying thickness may be made up as needed and no allowance is necessary for the thickness of binding as is the case in some types of shims.

It is to be understood that the showing in the drawing of the laminæ thickness is greatly exaggerated for purposes of illustration. Also that I am not confined to a shim having laminæ of the same thickness,

but may use any thickness of laminæ and any suitable material both for the shim and the binder.

What I claim is:

5 1. As an improved article of manufacture, a shim composed of sheet material having openings therethrough, surrounded by the sheet material, and a filler disposed in said openings and serving to prevent the separation of said sheet material.

10 2. As an article of manufacture, a shim composed of sheet material having aligned openings therethrough, surrounded by the

sheet material, and a malleable filler member adapted to be forced into said openings 15 whereby the sheets will be caused to closely adhere to each other.

3. The shim described comprising a plurality of flat sheets in superposed relation, said sheets being provided with aligned 20 openings therethrough, surrounded by the sheet material, and each sheet being joined to all the other sheets by a metallic binder disposed in said openings.

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