June 14, 1927. 1,632,602

L. D. HOPFIELD

DREDGE TUMBLER

Filed Nov. 29, 1926 2 Sheets-Sheet 1

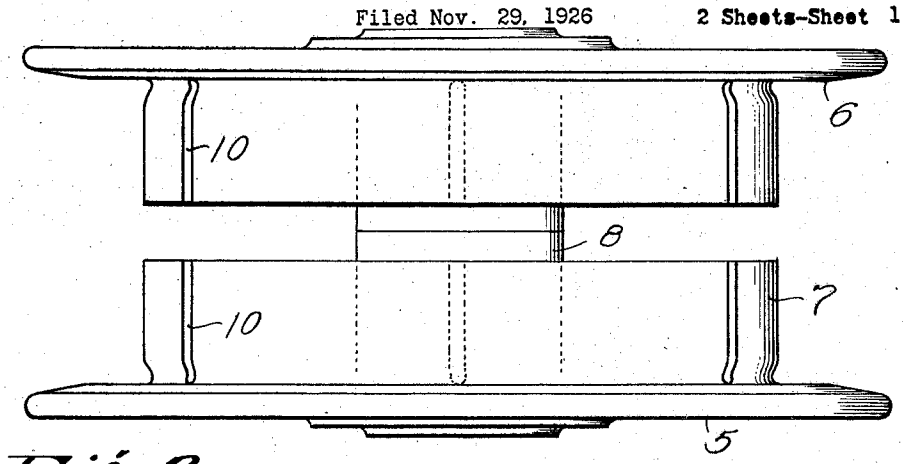


Fig. 2.

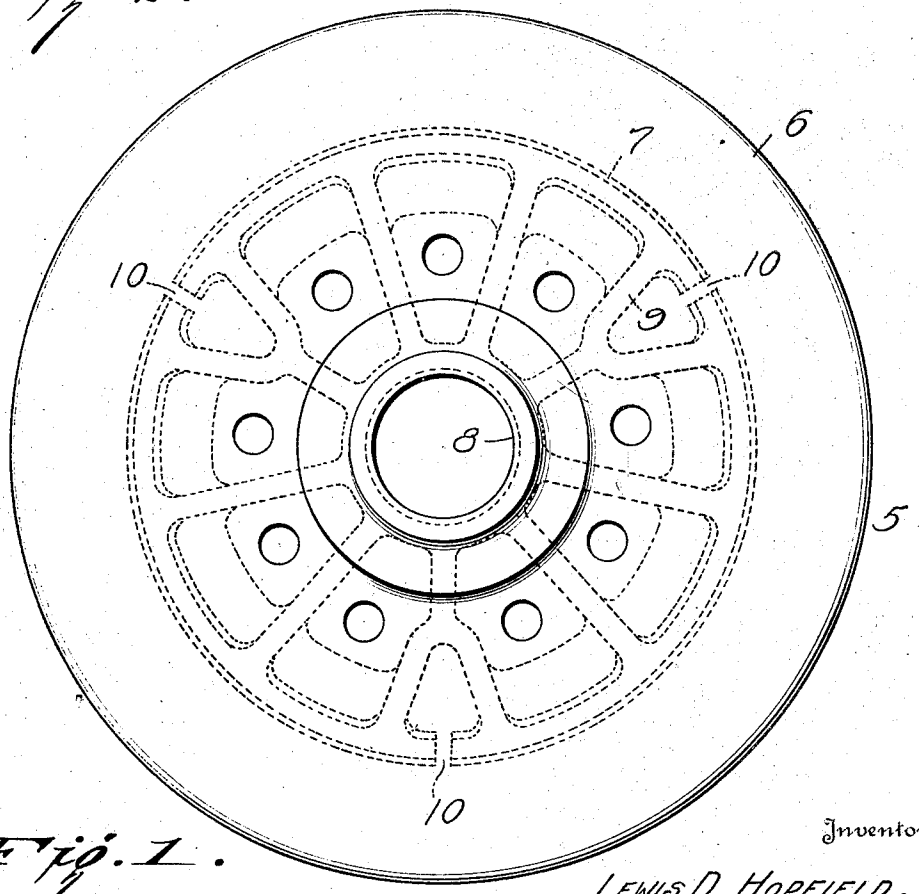


Fig. 1.

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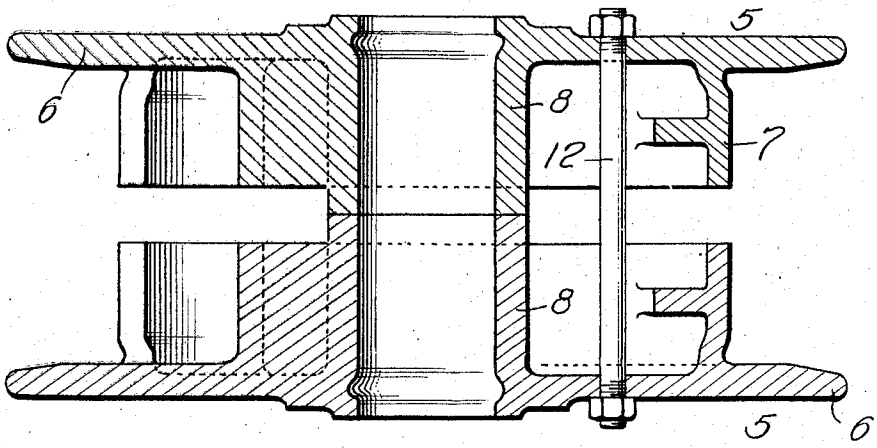


Fig. 3.

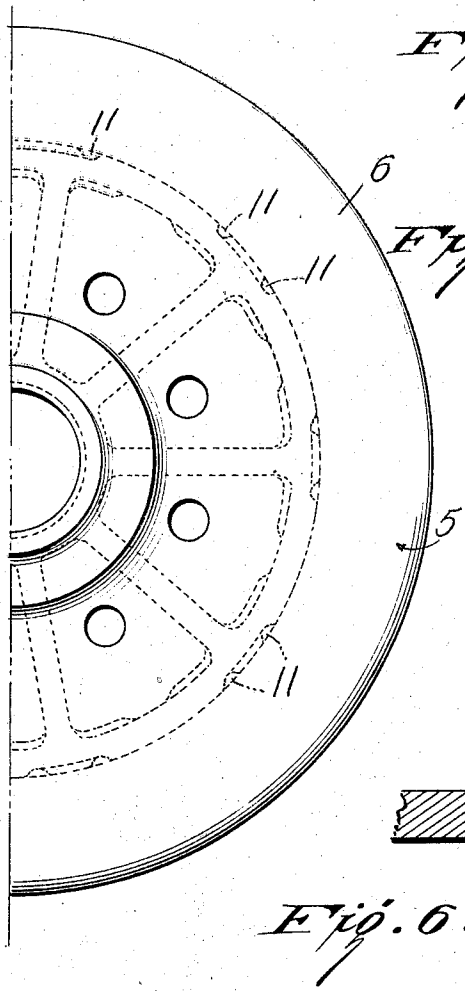


Fig. 4.

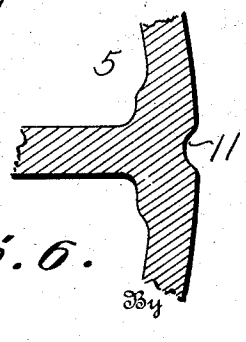


Fig. 6.

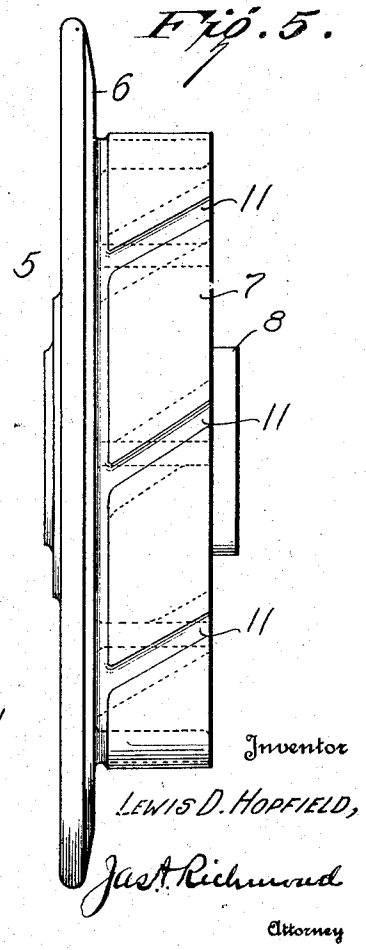


Fig. 5.

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Patented June 14, 1927. 1,632,602

UNITED STATES PATENT OFFICE.

LEWIS D. HOPFIELD, OF NATOMA, CALIFORNIA, ASSIGNOR TO TAYLOR-WHARTON IRON & STEEL COMPANY, OF HIGH BRIDGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

DREDGE TUMBLER.

Application filed November 29, 1926. Serial No. 151,577.

The invention relates to dredging apparatus and more particularly to the lower tumblers for guiding the endless chain of buckets in the operation of the dredge. For many years the practice largely has been to construct tumblers of manganese steel owing to the superior shock and wear-resisting qualities of that metal. But manganese steel has the peculiarity of peening, stretching or flowing in service and tumblers sometimes fail because of splitting of the tumbler heads due either to the tread breaking loose from the spokes or the spokes breaking away from the hubs, the action being not unlike the cold rolling of the metal while held upon a mandrel.

Hence, it is the object of the invention to prevent such failures by so constructing the tumbler that while normally resistant it, nevertheless, is responsive to pressure to the extent that it will absorb the usual peening and stretching and so preclude the setting up of breaking strains or stresses.

In achieving this object, I preferably provide a sectional tumbler consisting of mated tumbler heads cast as units embodying hub, tread and end flange elements, the tread being interrupted transversely so as to absorb and thus nullify peening or stretching.

The nature, characteristic features and scope of the invention will more readily be understood from the following description taken in connection with the accompanying drawings, wherein

Figure 1 is an end view of a tumbler embodying my invention.

Fig. 2 is a side view of the same.

Fig. 3 is a longitudinal sectional view.

Fig. 4 is an end view of a modified type of tumbler head.

Fig. 5 is a side view of the same.

Fig. 6 is a sectional detail of the modification.

The sectional tumbler embodies a pair of tumbler heads 5 whereof each is integrally constituted of a head or flange element 6, a tread wall 7 and a hub or shaft-receiving element 8, the tread wall and hub being joined by spokes of which some, indicated at 9, are of general Y form. Over the latter spokes the tread wall is interrupted by open slots or gaps 10 whose office it is to prevent concentrated peening, flowing or stretching of the metal and to accommodate or absorb any peening or stretching that may occur. And the Y spokes serve to bridge the voids or spaces 10 in the tread. It will be understood, however, that while the Y spokes are my preference, the invention may be availed of with other forms of spokes.

It likewise will be manifest that the provision for dispersing and absorbing peening and stretching is capable of considerable variation. For example, instead of open slots or gaps, I may provide in the tread wall grooves or pockets 11 spanning the spoked areas at an angle as shown in Figs. 4 and 5, and in the detail, Fig. 6.

The tumbler sections may be secured with relation to each other by through bolts 12.

Having described my invention, I claim—

1. A tumbler comprising tumbler heads having integral tread and hub elements joined by spokes some of which are of Y form, the tread being interrupted in the region of the latter to provide pockets for absorbing peening and stretching.

2. A tumbler comprising tumbler sections including tread and hub elements integrally joined by spokes, the tread elements having means to absorb peening and stretching, and the arrangement being such that said means are bridged by spokes.

3. A tumbler, including tumbler heads constructed of manganese steel and having integrally joined tread and hub elements, the tread elements having helically disposed slots, whereby, although normally resistant, they are responsive to pressure to absorb cold flow and thus preclude conditions tending to breaking strains.

In testimony whereof I affix my signature.

LEWIS D. HOPFIELD.