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PULLEY FOR DISK CRUSHERS.

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1,247,302.

Patented Nov. 20, 1917.

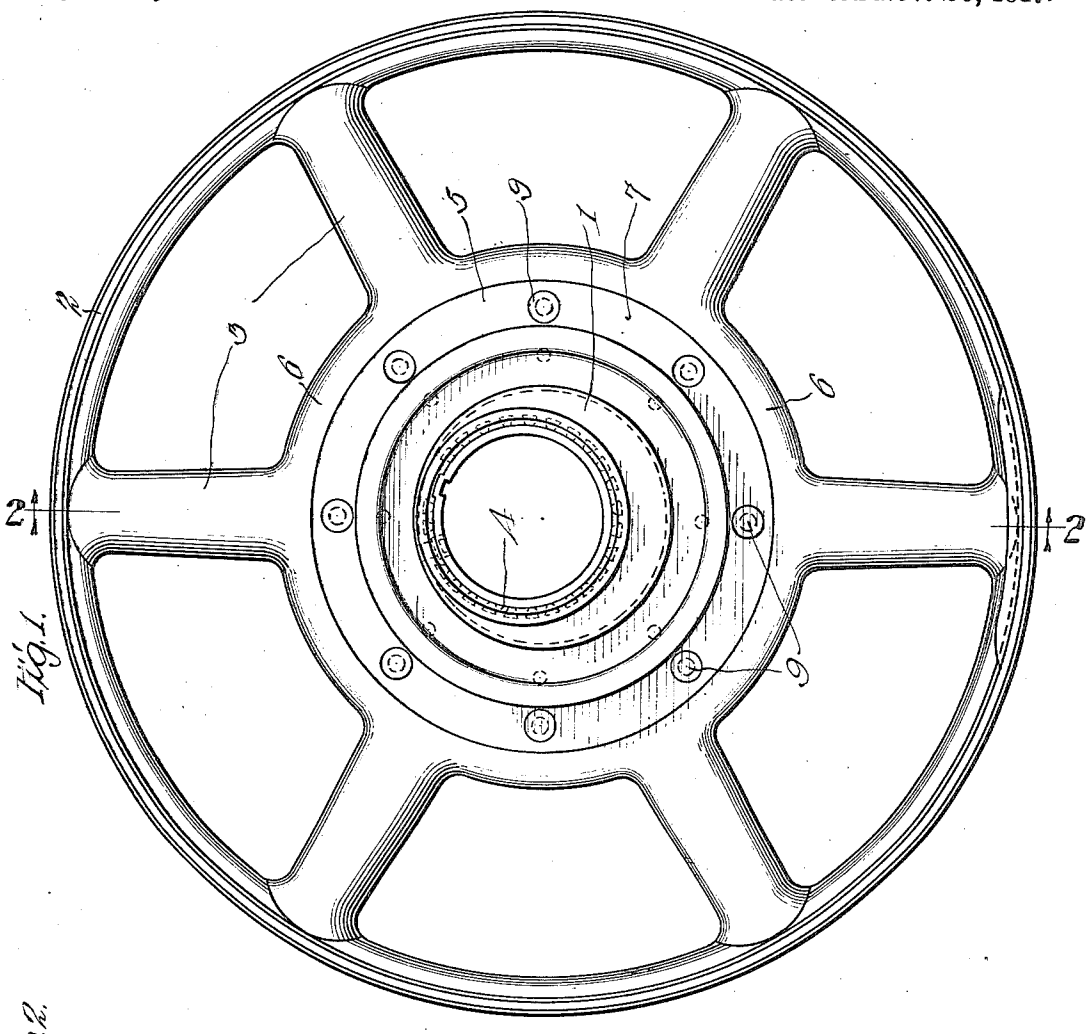


Fig. 1.

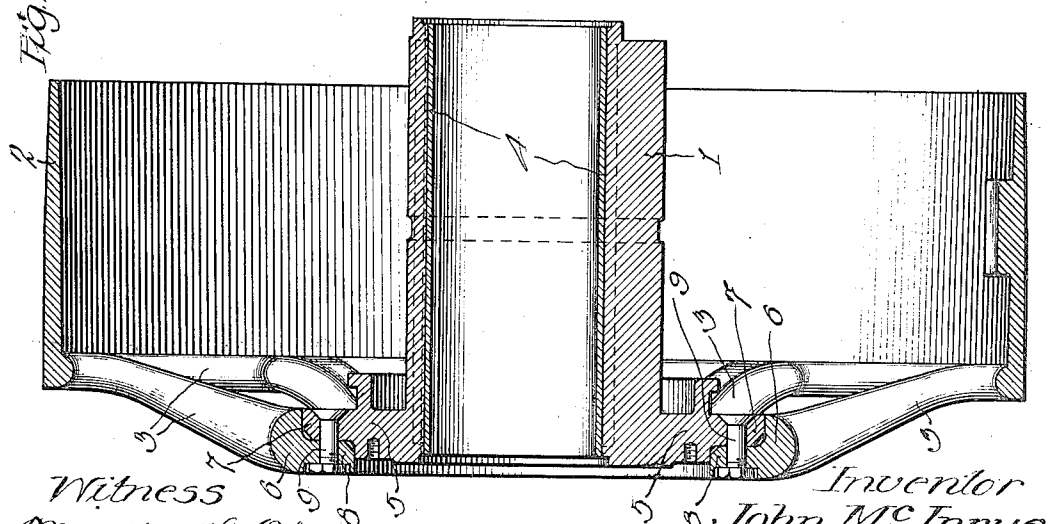


Fig. 2.

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UNITED STATES PATENT OFFICE.

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PULLEY FOR DISK CRUSHERS.

1,247,302. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed August 2, 1915. Serial No. 43,172.

To all whom it may concern:

Be it known that I, JOHN McINRUE, a citizen of the United States, and a resident of Chicago Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pulleys for Disk Crushers, of which the following is a specification.

This invention relates to driving pulleys particularly designed and adapted for imparting oscillating movement to the shafts of disk crushers of the general type shown and described in United States Letters Patent No. 1,072,193, dated September 2, 1913, and which are known to the trade as Symons disk crushers.

Ore crushers of the type to which my invention particularly relates are very large, heavy machines and, in use, are subjected to very severe stresses not infrequently resulting in breaking driven parts thereof. Also, being designed for crushing ore, said crushers are often installed in remote, inaccessible places which either requires that extra parts be carried in stock, or that the crusher and perhaps the entire plant shall be shut down until repair parts can be ordered from the factory and shipped to the place where desired for use. The first expedient involves a considerable investment in repair parts and from the second, long delays may occur in filling the order for and in shipping the parts desired, during all of which the machine will necessarily be shut down and, possibly, even the entire mill.

Also, in the case of driving pulleys to which the present invention particularly relates, it is necessary to rebabbitt the shaft bearing at intervals. The large size and weight of driving pulleys of this type renders this a difficult and expensive piece of work, particularly when performed in the field, where necessary tools and appliances for doing the work are not available. Also, as in the case of a breakdown, this involves shutting the crusher down, unless a duplicate part is carried in stock.

I propose to overcome and remedy the foregoing and kindred objections and difficulties by making the eccentric driving pulleys of the type to which my invention relates, in sections, comprising an inner hub-section and an outer rim-section, which are detachably connected by bolts or in other suitable manner.

The outer, rim-section being less massive than the hub-section, is more liable to be broken, so that, excepting in exceptional cases, it will only be necessary to carry in stock an extra outer rim-section in order to repair any break which is liable to occur in the driving pulley. Or, in case it becomes necessary to rebabbitt the shaft bearing in the eccentric driving pulley, this can be effected with comparative ease and despatch by disconnecting the rim-section from the hub-section, thus providing a relatively small and light part which can be handled very easily and quickly in the babbitting operation. Or, in a mill which comprises several disk crushers of the type referred to, almost any possible contingency can be guarded against by carrying in stock both a rim-section and a hub-section. Thus, in case either section breaks on any machine, a repair part will be at hand to replace it, and by keeping the extra or stock hub-section always rebabbitted and ready for use, when it becomes necessary to rebabbitt a shaft bearing of any of said machines it is merely necessary to remove the worn hub-section and substitute therefor the extra hub-section which has already been rebabbitted.

In this manner only a comparatively very small investment is necessary in repair parts and practically no time is lost on account of delays for rebabbitting the shaft bearings of the hub-sections.

To effect the foregoing and other objects, my invention comprises the various features and details of construction hereinafter described and claimed.

In the accompanying drawing, in which my invention is fully illustrated,

Figure 1 is a side view of an eccentric driving pulley embodying my invention; and

Fig. 2 is a sectional view thereof on the line 2—2 of Fig. 1.

In the drawings, for purposes of concrete illustration, I have shown my invention embodied in an eccentric driving pulley for a Symons disk crusher, of the general type shown and described in said Letters Patent No. 1,072,193, to which reference is made for a description of the general con-

struction and operation thereof, which may be helpful to a clear understanding of the present invention.

Referring now to the drawing, 1 designates the hub of the pulley and 2 the rim thereof connected to said hub by spokes 3.

The hub 1 is adapted to be rotatably mounted in a suitable bearing formed in the machine frame, not shown, the outer surface of said hub being finished to fit said bearing; and formed in said hub, eccentric to the bearing on the outer surface thereof, is a bearing for the oscillating shaft of the crusher, likewise not shown, said shaft bearing being provided with a usual Babbitt lining 4.

To effect the various objects of the invention, as hereinbefore stated, and also for convenience and economy in finishing said pulley, said pulley is preferably made in separate inner and outer sections, the inner section comprising the hub 1 and the outer section the rim 2 and spokes 3.

As shown, said inner and outer sections are connected in the following manner:— Formed on the hub 1 is a flange 5 and cast integral with the spokes 3 and connecting the inner ends thereof is a ring 6, said hub and ring being provided, respectively, with corresponding shouldered male and female bearings, the opposed shoulders of said bearings forming overlapping webs 7 and 8 which are rigidly connected by bolts 9 or other suitable connecting means.

With the described construction, by making the hub-sections 1 and the rim-sections 2 interchangeable—that is of such uniform dimensions that any hub-section may be used with any rim-section—it is obvious that, in case either a hub-section or a rim-section breaks, instead of scrapping the entire pulley, as heretofore, said pulley may be expeditiously renewed at relatively small cost, as compared with the cost of an entire new pulley, by merely providing a new section to replace the broken section. Also, the hub-section being much more massive and correspondingly stronger than the rim-section, it is obvious that the rim-section will break more easily than the hub-section, so that, by carrying an extra rim-section in stock, most breaks which are liable to occur can be repaired very quickly and at small expense, both actual and in loss of time due to shutting down the plant.

Also, when it becomes necessary to rebabbitt the eccentric shaft bearing in the hub 1, this operation is very much simplified and cheapened, both in labor and loss of time, through detaching the outer rim-section 2, thereby very greatly reducing the size and the weight of the part which it will be necessary to handle, to rebabbitt the hub.

Also, where a mill includes in its equipment several disk crushers of this type, which are of the same size, it is obvious that practically all loss of time due to shut downs on account of repairs can be avoided by always carrying in stock an extra hub-section and an extra rim-section in condition for use, the investment in repairs being very slight as compared with the cost of the several crushers thus protected.

I claim:—

An eccentric driving pulley for a disk crusher of the type described, consisting of separate hub and rim sections, said hub section being provided on its outer surface with a bearing adapted to be mounted in a suitable bearing in the machine frame and with an eccentric bearing adapted to receive the oscillating shaft of the crusher and comprising an outwardly projecting flange, and said rim section comprising spokes and a ring connected to the inner ends thereof, the flange on said hub and the ring connected to the spokes of the rim section being provided with interlocking shouldered bearings; and securing means inserted through the overlapping members of said shoulders, substantially as described.

In testimony that I claim the foregoing as my invention, I affix my signature in the presence of two subscribing witnesses this 24 day of July, A. D. 1915.

JOHN McINRUE.

Witnesses:
W. B. EASTON,
W. V. BAYLES.