

WILLIAM W. EASTMAN &amp; WILLIAM H. H. MORRIS.

## Improvement in Gudgeons for Shafts.

119,017.

Patented Sep. 19, 1871.

Fig. 1.

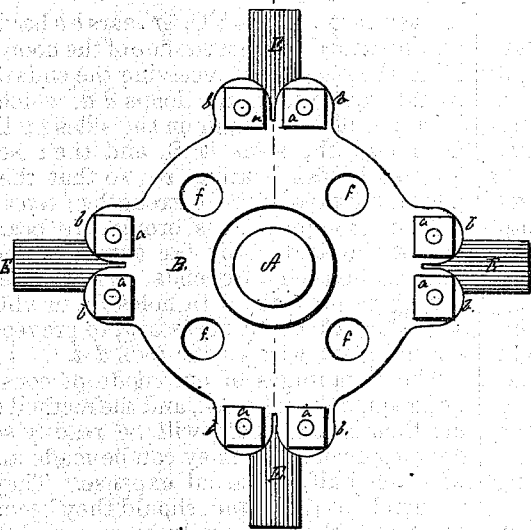


Fig. 2.

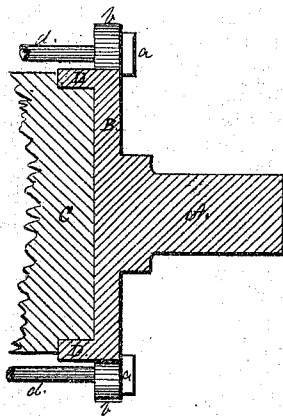
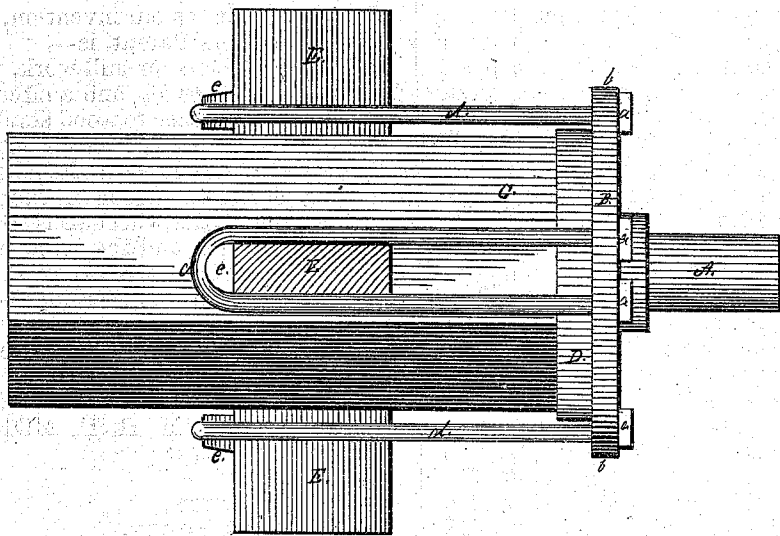


Fig. 3.



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# UNITED STATES PATENT OFFICE.

WILLIAM W. EASTMAN, OF MEADVILLE, AND WILLIAM H. H. MORRIS, OF  
FAIRFIELD, PENNSYLVANIA.

## IMPROVEMENT IN GUDGEONS FOR SHAFTS.

Specification forming part of Letters Patent No. 119,017, dated September 19, 1871.

*To all whom it may concern:*

Be it known that we, WILLIAM W. EASTMAN, of Meadville, and WILLIAM H. H. MORRIS, of Fairfield, in the counties of Crawford and Adams and State of Pennsylvania, have invented a certain new and useful Improvement in the Method of Securing Iron Gudgeons to Wood Shafts for Water-Wheels and other purposes; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents an end view of our invention, showing the face and screw-nuts. Fig. 2 shows a section through the cap, with the gudgeon on it and the end of a broken off shaft. Fig. 3 is a view of a longitudinal section of a water-wheel shaft with the arms in, showing the loop-bars and gudgeon, and the manner of securing the gudgeon firmly onto the end of the shaft.

The object and nature of our invention is to secure the gudgeons onto the ends of shafts for overshot and breast water-wheels, and wood-shafts requiring gudgeons for other purposes, in the most efficient, cheap, and durable manner; and our invention consists in making a cap and flange on the gudgeon to cover the end of the wood shaft and secure it there by loop-bars and screw-nuts.

To enable others to make and use our invention we will describe it more in detail, referring to the drawing and the letters thereon.

Instead of making wings on the gudgeon to cut in and fit, and secure by strong wrought-iron bands or hoops driven on over the wings and end of the wood shaft, as has been the usual mode of securing gudgeons, we make our improved gudgeons for mill work of cast metal, the arbor or bearing A being cast centrally with a cap-plate, B, which covers the entire end of the wood shaft C, and is provided with a circular flange, D, forming a hoop and cap on the end of the shaft. The plate B is also provided with as many pairs of ears or projections *b b* as there are arms E E

framed into the shaft C, the ears *b b* having holes cast or drilled in them outside of the hoop or flange D for the purpose of receiving the ends of bars of round iron formed into loops *d d*, which extend back parallel with and on the sides of the shaft C around the arms E E, and their semicircular metal block bearings *e e*, so that the loops *d d* form stirrups of great strength of tension when the gudgeon-plate B is brought to bear on the end of the shaft C by the action of the screw-nuts *a a* on their outer ends. The gudgeon-plate B may be provided with holes *f f*, in which to insert pins or bolts, if necessary, to prevent it from straining sidewise on the rods *d d*.

The advantages of our mode of constructing gudgeons for mill-work, and the method of securing them to the shaft, will be readily seen and duly appreciated. They can be made and fitted with one-half the usual expense. They can be always kept tight, and, should they become worn or broken, they can easily be removed and new ones put in their place without disarranging any other part of the mill-work.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. Iron gudgeons for mill-work, provided with a cap-plate, B, ears *b b*, and a circular flange, D, for fastening the same to wood shafts, in the manner and for the purposes herein set forth.

2. In combination with the above-described plate and flanged gudgeon A, the loop bars *d d* which surround the wheel-arms E E, the metal block bearings *e e*, and the screw-nuts *a a* for securing iron gudgeons to wood shafts for mill-work, substantially as herein shown and described.

In testimony whereof we hereunto subscribe our names.

WILLIAM W. EASTMAN.  
WM. H. H. MORRIS.

Witnesses:

THOS. RODDY,  
WILLIAM RODDY.