

UNITED STATES PATENT OFFICE.

ALBERT FISCHBACH, OF TONOPAH, NEVADA.

REAMER.

No. 916,134.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT FISCHBACH, a citizen of the United States, and a resident of Tonopah, in the county of Nye and State of Nevada, have invented a new and Improved Reamer, of which the following is a full, clear, and exact description.

This invention relates to reamers and more particularly to devices of this kind for reaming out the wrist or knuckle pin holes of locomotive cross heads and side rods.

More specifically, the invention relates to a reamer having a cutter, a member controlling the cutter, and a second member adapted to engage a fixed support such as a cross head or side rod, and controlling the first member and having a roller bearing engagement therewith, the first member having an adjustable nut for forcing the second member against the support, so that as the reaming operation progresses the members can from time to time be adjusted.

An object of the invention is to provide a simple, strong and durable reamer which is inexpensive to manufacture, the cutter of which can be mounted upon an ordinary reamer spindle and employed in the usual manner, and which can be used for reaming out the wrist pin holes of locomotive cross heads or side rods, without taking down the cross heads or side rods.

A further object of the invention is to provide a device of the class described having a tapered cutter, means for operating the cutter from the side remote from that from which the cutter is inserted, having simple means for adjusting the cutter as the reaming operation progresses, and which is easily operable.

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 a part of this specification, in which similar characters of reference indicate corresponding parts and in which—

Figure 1 is a longitudinal section on the line 1—1 of Fig. 2, showing the reamer in use; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; Fig. 3 is an end view showing the cutter, and the spindle upon which the cutter is mounted; and Fig. 4 is an end elevation showing a nut which serves for the adjustment of the reamer when in operation.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood that while the reamer is particularly useful for reaming out the wrist pin holes of locomotive cross heads, side rods and the like, it can also be advantageously employed for other purposes to which ordinary reamers are adapted. The cutter, as is customary, is tapered and can be mounted upon an operating spindle so that it can be inserted in the hole and the spindle operated from the same side at which the cutter was inserted. I provide means however, for operating the cutter from the opposite side from that at which it was inserted, and at the same time, means for tightly holding the cutter in the opening, so that the reaming operation can be rapidly carried out. The holding means are adjustable so that as the hole is reamed out the cutter can be drawn farther into the same. A member is positioned adjacent to the edge of the opening and has a roller bearing which engages a ring adjustably carried upon the spindle of the cutter, as will appear more clearly hereinafter.

Referring more particularly to the drawings, I provide a tapered cutter 10, fashioned from any suitable material and having a longitudinal bore 11. Near one end of the cutter, the bore has lateral extensions 12, which constitute key-ways or sockets to receive suitably formed keys or lugs 14 of the spindle 15 upon which the cutter is carried. The bore 11 is preferably tapered and the spindle has of course, a correspondingly formed part which fits into the bore. At the end, the spindle has a head 16 engaging at the end of the cutter.

The spindle has a threaded portion 17, beyond which is a square or other end 18, adapted to be held by a wrench or other means for operating the reamer. A cap 19, having a central opening 20 through which the spindle projects is arranged upon the spindle. The cap has a laterally-disposed rim which engages a fixed support A. The fixed support consists of the body in which the opening to be reamed out is located. The cap 19 has an annular extension 21, which is threaded upon the opposite sides and which carries suitably threaded rings 22 and 23, at the inside and outside thereof. These rings are curved at the outer edges and project beyond the extension 21, to form a ball race in which is mounted a series of ball

or roller bearings 24. The rim of the cap forms a recess into which the cutter can move when the device is operated.

A ring or washer 25, is loosely arranged upon the portion 17 of the spindle, and has an annular groove 26 adapted to engage the balls or washers 24. A nut 27, of angular cross section and having a suitably threaded opening, is mounted upon the threaded portion 17 and controls the ring 25. By means of the nut 27, the cap 19 can be forced against the support A, and the cutter drawn firmly into the opening to be reamed out. The pressure of the cap 19 against the support A prevents the cap from rotating, as its engagement with the ring 25 is a roller bearing one. Consequently, the spindle 15 can be easily rotated to ream out the opening. The threaded part 17 of the spindle has a longitudinal slot 32, which receives a projection 33 of the ring 25, and prevents the relative rotation of the parts as the spindle is rotated.

Preferably, the cutter 10 has teeth or cutting edges 10^a, which extend longitudinally thereof. It will be understood that the particular form of the cutter constitutes no ele-

ment of my invention, but may be varied to suit individual preference or special conditions. Furthermore, the material from which my device is fashioned may be of any suitable kind adapted to the purpose.

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

A reamer comprising a rotatable spindle having a threaded portion, a cutter carried by said spindle and constrained to rotate therewith, a cap member having a spindle-receiving opening therethrough and a laterally disposed abutment adapted to engage a fixed support, a threaded member carried upon the threaded portion of said spindle and adapted to engage the cap member, said cap member abutment forming a recess adapted to receive said cutter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT FISCHBACH.

Witnesses:

WM. DONALD,
F. O'CONNOR.