CUTTER HEAD FOR COAL CUTTING MACHINES

FIG. 1

FIG. 2

INVENTOR:

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ATTORNEY
To all whom it may concern:

Be it known that I, THOMAS E. PRAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Cutter Heads for Coal-Cutting Machines, of which the following is a specification.

This invention relates to improvements in cutter heads for coal cutting machines of the cutter chain type and has for its object to provide an improved construction of the cutter heads used on the machines of the class described.

The invention may best be understood by reference to the accompanying drawings, in which

Figure 1 is a top plan view of a cutter head constructed in accordance with my invention.

Fig. 2 is a cross-section of the cutter head taken on line 2—2 of Fig. 1.

Cutter heads of the type illustrated are secured to the outer end of the cutter bar about which the chain is guided. In the embodiment illustrated, the cutter head comprises top and bottom plates 1 and 2 spaced apart at their lateral margins to form a groove 3 to accommodate a cutter chain (not shown). In the form shown the cutter head is provided with a pair of oppositely disposed gibs or retaining strips 4, 4, secured to the inner margins of said plates, and adapted to receive laterally extending lugs on the sides of a cutter chain.

A bearing ring 5 formed of relatively hard material adapted to resist wear is mounted between the top and bottom plates and is preferably arranged to fit about an annular shoulder 1a projecting downwardly from the top plate, and a similarly shaped annular shoulder 2a extending upwardly from the bottom plate. The bearing ring 5 is preferably provided with a plurality of notches 6, 6, formed equidistantly about one face thereof. A series of stops such as pins 7, 7, project from one of the plates such as the bottom plate 2 and register with the notches 6, 6. In the form shown, three sets of notches and pins are shown. The arrangement is such that the position of the bearing ring may be changed by removing one of the plates, and rotating the ring into a new position so as to present a new wearing face to the cutter chain.

Means are provided for securing the top and bottom plates together which comprises a plurality of bolts 8, 8, passing through inwardly extending bosses 9, 9, formed in the top and bottom plates immediately adjacent the annular shoulders 1a and 2a against which the bearing engages. In the drawings, three such bolts 8 are shown, each having a head 10, shank 11 and a nut 12. The bolt heads 10 and nuts 12 are preferably countersunk as shown, to provide a minimum thickness of the cutter bar. The construction just described forms a compartment on the interior of the bearing ring suitable for containing oil for lubrication of said ring. Access to the compartment may be had through suitable taps 13, 13, formed in the plates and provided with threaded plugs 14, 14. Oil grooves 15, 15, may be provided in the plates 1 and 2 to conduct oil from the compartment to the bearing ring as desired, although in practice the ring may be fitted so loosely over the shoulders 1a and 2a that a sufficient supply of oil will find its way to the outer surface of the bearing ring and thence directly to the cutter chain (not shown) movable about said ring.

By means of the construction just described, a simple and durable form of cutter head is provided. The bolts which secure the plates together are located close to the margins of the cutter head which form the groove in which the cutter chain is guided, so as to afford a maximum resistance to resist the vertical stresses caused by twisting of the cutter chain which tends to spread the plates apart while in operation.

Although I have shown and described one form in which my invention may be embodied, it will be understood that many other means may be employed for accomplishing the same results, without departing from the spirit and scope of my invention. I do not therefore wish to be understood as limiting myself to the specific construction or use illustrated herein excepting as specifically limited in the appended claims.

I claim as my invention:

1. A cutter head for mining machines comprising a top plate and bottom plate, a bearing ring adapted to provide direct bearing for a cutter chain and circumferentially adjustable between said plates, and a plurality of bolts extending through said...
plates within and adjacent said bearing ring to secure said plates together.

2. A cutter head for mining machines comprising a top plate and bottom plate each having annular shoulders formed on the inside faces thereof, a bearing ring adapted to provide direct bearing for a cutter chain and circumferentially adjustable about said shoulders, and means securing said plates together.

3. A cutter head for mining machines comprising a top plate and a bottom plate, each having annular shoulders on the inside faces thereof, a bearing ring fitting about said shoulders, and forming an oil compartment between said plates, adapted to provide direct bearing for a cutter chain and means securing said plates together, means affording access to said oil compartment through one of said plates, and means affording communication between said compartment and the outer periphery of said bearing ring, substantially as described.

4. A cutter head for mining machines comprising a top plate and bottom plate each having annular shoulders formed on the inside faces thereof, a plurality of countersunk bosses spaced about said shoulders, a bearing ring adapted to provide direct bearing for a cutter chain and circumferentially adjustable about said shoulders and bosses, and a plurality of widely spaced bolts extending through said bosses to secure said plates together.

Signed at Chicago, in the county of Cook and State of Illinois, this thirty-first day of October, 1921.

THOMAS E. PRAY.