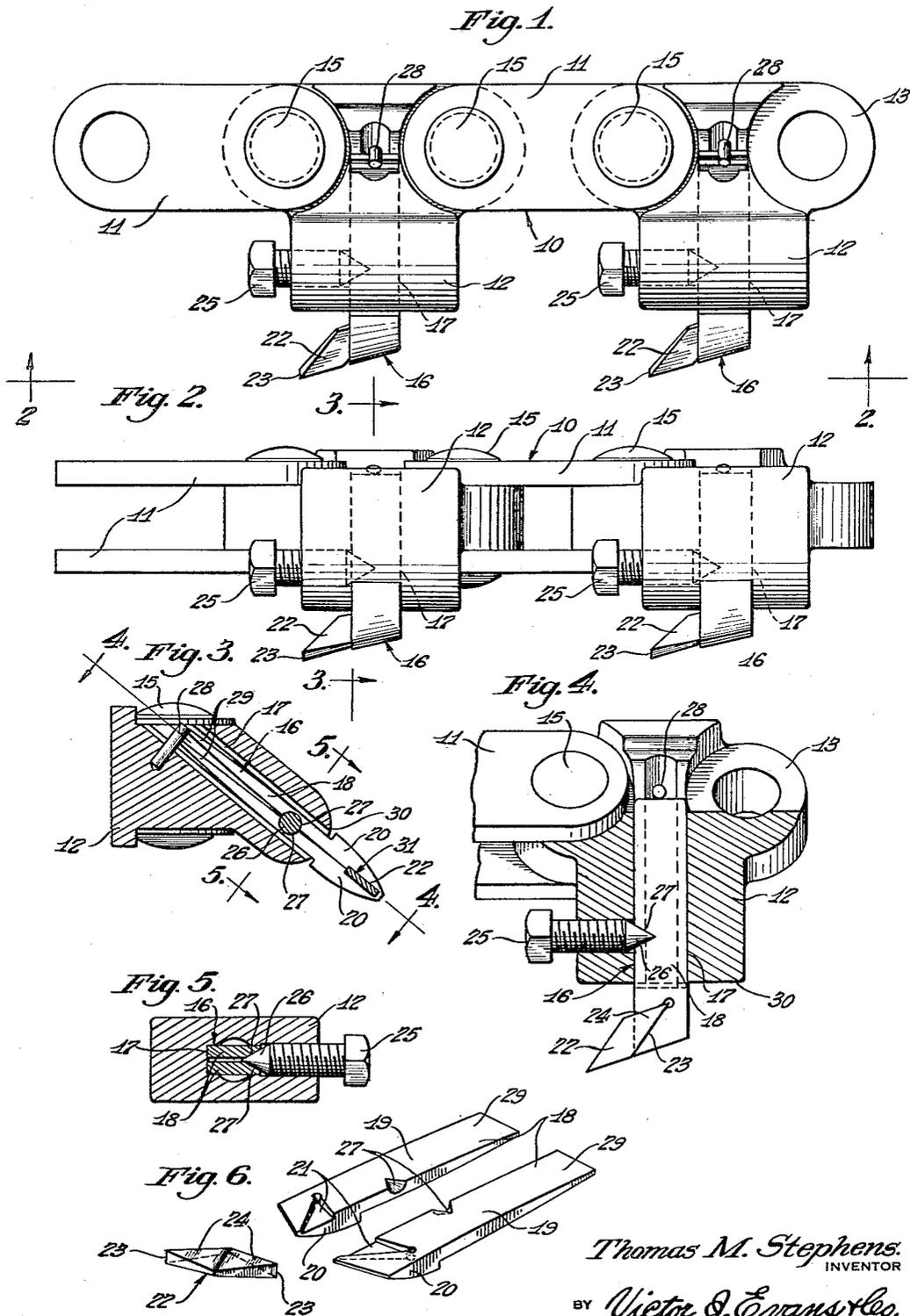


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T. M. STEPHENS
CUTTER BIT AND CHUCK

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CUTTER BIT AND CHUCK

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This invention relates to certain novel improvements in a cutter bit and chuck, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical to manufacture.

It is an object of this invention to provide an improved cutter bit and chuck for coal mining machines.

It is an other object of the invention to provide an improved reversible or double-edged cutter bit and an improved chuck for detachably mounting the bit upon the chain of a coal mining machine chain in such a manner that when one cutting edge of the bit becomes dull, worn or otherwise unfit for further use the bit may be quickly and easily reversed and replaced in the chuck.

Another object of the invention is to provide an improved cutter bit chuck for detachably mounting the cutter bit on the chain of a coal mining machine.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a fragmentary side elevational view of a mining machine chain showing the invention attached thereto;

Fig. 2 is a plan view on line 2—2 in Fig. 1;

Fig. 3 is a sectional view on line 3—3 in Fig. 2;

Fig. 4 is a sectional view on line 4—4 in Fig. 3;

Fig. 5 is a sectional view on line 5—5 in Fig. 3; and

Fig. 6 is a perspective view of the bit and chuck.

In the drawing, which illustrates a preferred and practical embodiment of the invention, a fragment of a coal mining machine chain, such as the chains used on long wall machines, is illustrated generally at 10 and includes links 11. Each of the links 11 includes a chuck-holding element 12 on each

side which is an ear 13 for the reception of the studs 15 by which the chuck-holding elements 12 are pivotally connected in the chain 10. In each of the chuck-holding elements 12 there is a bore or socket 17 for the reception of my improved split cutter bit chuck which is generally indicated at 16 and which includes two similar bit-clamping jaws 18.

Each of the chuck jaws 18 includes a tapered stem 19 and a bit-clamping head 20 and in each of the heads 20 there is a slot 21. These slots 21 cooperate with each other, when the jaws 18 are in the bore or socket 17, to provide a socket 31 for the reception of the cutter bit 22 which has two similar cutting heads 24 each having a cutting edge 23 whereby either head 24 of the bit may be disposed in the socket 31.

Carried by the chuck-holding element 12 is an adjustable member or set screw 25 which has a tapered head 26 that is penetrable into a correspondingly tapered recess 27 formed in the stems 19 of the chuck bit-clamping jaws 18.

A limit pin 28 in the chuck-holding element 12 restricts projection of the chuck jaws 18 into the bore or socket 17 in the chuck-holding element 12.

By reference to Figs. 3 and 6 it will be noted that the chuck jaws 18 are tapered from end to end so that the head 20 of each chuck jaw 18 is thicker than the heel portion 29 of each of said chuck jaws 18 whereby when the screw 25 is adjusted to force the head 26 thereof into the recess 27 the chuck jaws 18 will be pivoted about the end 30 of the chuck-holding element 12 as a fulcrum, thereby spreading the heels 29 of the chuck jaws 18 apart and forcing the heads 20 thereof together to clamp the head 24 of the bit 22 in the socket 21 between the heads 20 of the chuck jaws 18.

By retracting the screw 25 so as to withdraw the head 26 thereof out of the recess 27 the heads 20 of the chuck jaws 18 may be spread apart to withdraw the head 24 of bit 22 from the socket 31 whereby the head 24 of the bit 22 having a used or dull edge 23 may be removed from the socket 21 and

the other head 24 of the bit having a sharp edge 23 may be inserted into the socket 21 and clamped therein by again adjusting the screw 25 to force the head 26 thereof into the recess 27.

5 While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

10 Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

15 1. In a mining machine, a chuck holder having a socket formed therein, a chuck including a pair of bit-clamping jaws disposed in said socket and each including a substantially flat stem tapered from end to end, each of said jaws including a clamping head at the thicker end of the corresponding stem, each of said heads having a slot extending thereinto from one edge thereof, said slots extending transversely of the long axes of said jaws and providing a socket, each of said stems having a recess provided therein between its ends, a cutter bit including a portion receivable in said second-named socket, and an adjustable member carried by said holder having a portion penetrable into said recesses to wedge said stems apart at their thinner ends and fulcrum the latter against the wall of the first-named socket to force said heads into clamping engagement with said bit portion.

20 2. In a mining machine, a chuck holder having a socket formed therein, a chuck including a pair of bit-clamping jaws disposed in said socket and each including a substantially flat stem tapered from end to end, each of said jaws including a clamping head at the thicker end of the corresponding stem,

each of said heads having a slot formed therein and said slots providing a socket, each of said stems having a recess provided therein between its ends, a cutter bit including a portion receivable in said second-named socket, and an adjustable member carried by said holder having a portion penetrable into said recesses to wedge said stems apart at their thinner ends and fulcrum the latter against the wall of the first-named socket to force said heads into clamping engagement with said bit portion.

3. In a mining machine, a chuck holder having a socket formed therein, a chuck including a pair of bit-clamping jaws disposed in said socket and each including a substantially flat stem tapered from end to end, each of said jaws including a clamping head at the thicker end of the corresponding stem, each of said stems having a recess provided therein between its ends, a cutter bit including a portion disposable between said heads, and an adjustable member carried by said holder having a portion penetrable into said recesses to wedge said stems apart at their thinner ends and fulcrum the latter against the wall of said socket to force said heads into clamping engagement with said bit portion.

4. In a mining machine, a chuck holder having a socket formed therein, a chuck including a pair of bit-clamping jaws disposed in said socket and each including a substantially flat stem tapered from end to end, each of said jaws including a clamping head at the thicker end of the corresponding stem, a cutter bit including a portion disposable between said heads, and an adjustable member carried by said holder between the ends of said stems having a portion penetrable between said stems to wedge said stems apart at their thinner ends and fulcrum the latter against the wall of said socket to force said heads into clamping engagement with said bit portion.

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