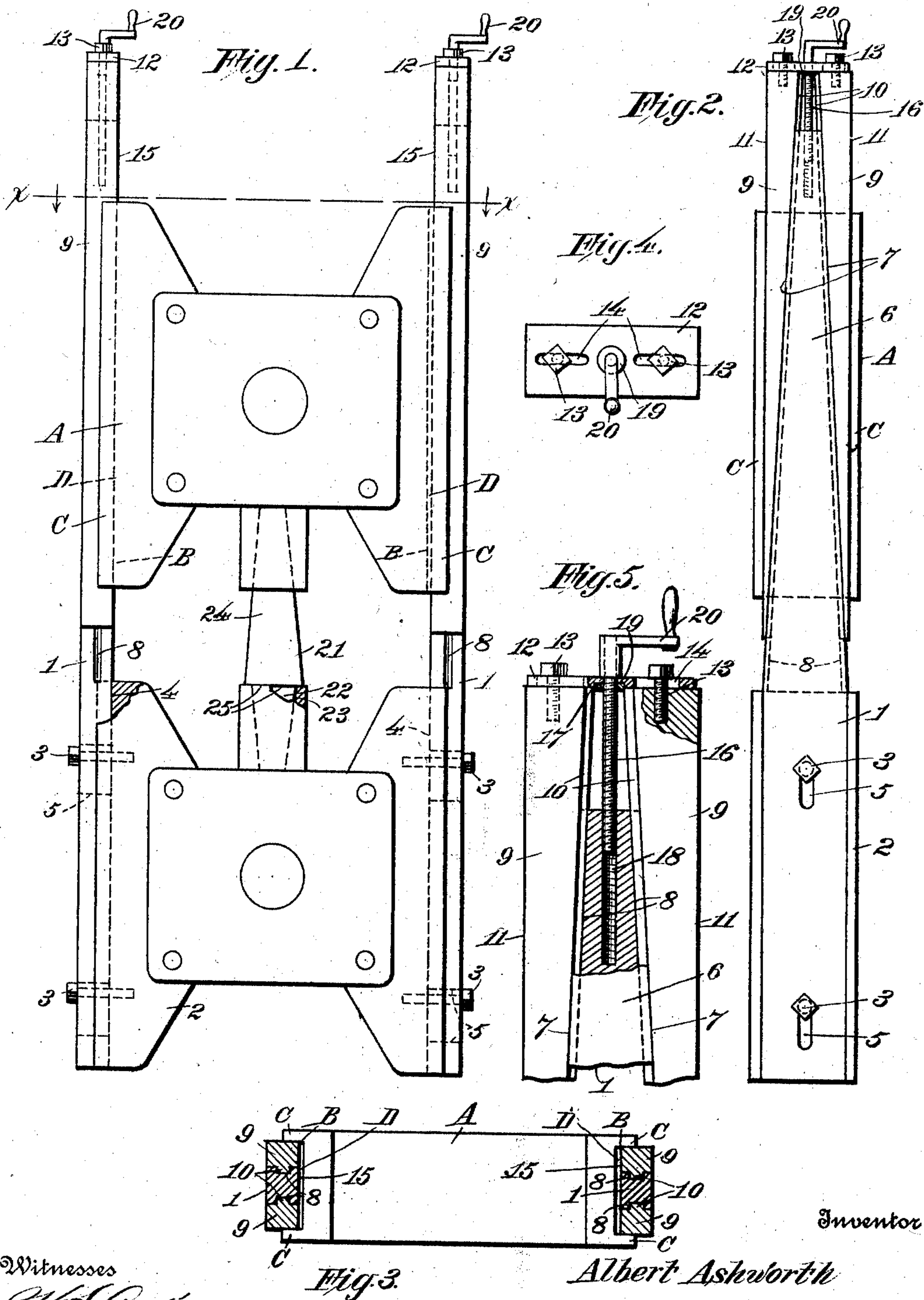


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 DEVICE FOR REMETALING CROSS HEADS.  
 APPLICATION FILED MAY 27, 1910.

967,153.

Patented Aug. 16, 1910.



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# UNITED STATES PATENT OFFICE.

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DEVICE FOR REMETALING CROSS-HEADS.

967,153.

Specification of Letters Patent.

Patented Aug. 16, 1910.

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*To all whom it may concern:*

Be it known that I, ALBERT ASHWORTH, a citizen of the United States, residing at Chattanooga, county of Hamilton, and State of Tennessee, have invented certain new and useful Improvements in Devices for Remetaling Cross-Heads, of which the following is a specification.

My invention relates to the remetaling of engine cross-heads, and particularly to improved devices to be used in remetaling the same.

The object of my invention is to provide improved means for remetaling cross-heads which shall lessen the cost, time and labor incident thereto, and whereby the cross-head shall be ready to be replaced in position for use as soon as the metal is cool.

A further object of my invention is to provide a device for the purpose mentioned which shall be of simple construction and easy to operate.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a device adapted to be arranged in the guide ways or grooves in the cross-head and adjustable in width to fit snugly therein, at a short distance from the inner face on the bottom of the groove, whereby the molten metal may be poured between the same, leaving the bearing surface of the metal smooth and in proper condition for the cross-head to be replaced on its guides without necessitating planing the same.

My invention further consists in a pair of devices as above mentioned rigidly spaced apart and connected at one end whereby both grooves of the cross-head may be remetaled and their surfaces finished at the proper and exact distances apart to fit the guides.

My invention further consists in a pair of devices and spacing member as mentioned in combination with means for properly centering the cross-head to be metaled between the same.

My invention further consists in various details of construction and arrangements of parts all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily under-

stood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a side elevation of a device embodying my invention in its preferred form and illustrating a cross-head in position to be remetaled, Fig. 2 is a side elevation of the same, Fig. 3 is a horizontal section on the line  $x-x$  of Fig. 1, Fig. 4 is a top plan view of one of the adjustable devices, and Fig. 5 is a detail side view of the upper end of the device illustrated upon an enlarged scale and partially in section.

In carrying out my invention I provide a pair of parallel bars rigidly connected at one end. The opposite ends of the bars are adjustable in width and are provided with means whereby the adjustment may be readily made.

Referring now to the drawings 1—1 indicate the parallel bars and 2 a member interposed between the ends thereof at one end and to which they are secured. In practice I prefer that the member 2 be a cross-head to which the bars 1 are secured by bolts 3. The cross-head 2 may be an old or discarded one provided the faces 4 at the bottom of the grooves or guide ways are finished parallel and at the exact distance apart that the corresponding faces on the cross-heads to be finished are to be. The bars 1 are longitudinally slotted as at 5 to receive the bolts 3 for a purpose which will appear hereinafter.

The upper portions of the bars 1, that is the portions projecting beyond the member 2 are tapered as at 6 and the inclined or converging edges 7 thereof are grooved longitudinally as at 8, said grooves extending preferably the entire length of the tapered portion 6. Slidably mounted on the edges 7 are a pair of members 9 which are tapered in the opposite direction from the taper of the bars 1 and their inner faces or edges are provided with tongues 10 which fit in the grooves 8. The taper of the portion 6 and that of the members 9 are equal so that the outer edges 11 of the members 9 lie parallel at all times. It is obvious that the distance between the edges 11 may be nicely regulated by adjusting the relative positions of the members 9 on the member 1.

The upper or broad ends of the members



9 are connected by a plate 12 and a pair of bolts 13 extending through the plate into said members. A plate 12 is provided with longitudinal slots 14 to receive the bolts 13 to permit movement of the members 9 toward or from each other. The members 1 and 9 are preferably of the same thickness, but it is important that the inner faces 15 lie in the same plane.

10 An adjusting screw 16 extends through a centrally disposed perforation 17 in the plate 12 and is threaded into the upper end of the bar 1, said bar being provided with a threaded bore 18 for this purpose.

15 19 indicates a collar on the screw 16 which bears against the upper face of the plate 12 and 20 indicates means on the upper end of the screw, such as a crank, for turning the same. By turning the crank 20 to the right the members 1 and 9 are moved longitudinally with relation to each other resulting in a spread of the members and corresponding widening of the device.

20 21 indicates a mandrel for centering the cross-head A, which is to be remetaled, with relation to the bars 1. This comprises a conical portion 22 adapted to fit in a recess 23 in the member 2, which recess when a cross-head is used comprises a socket for the end of the piston rod, and an oppositely extending conical portion 24 adapted to extend within the similar portion of the cross-head A. The portion 24 is longer than the portion 23, thereby being greater in diameter at the base and forming a shoulder 25 which rests upon the upper end of the member 2.

25 In using the device the mandrel 21 is placed in position on the member 2 and the cross-head A placed on the mandrel as shown in Fig. 1 with the upwardly extending adjustable portion of the bars 1 within the guide ways B. The cranks 20 are then turned until the members 1 and 9 are tightly wedged between the flanges C. In wedging the members in position the members 9 move downwardly on the portion 6 of the member 1. However should the lower ends of the members 9 come in contact with the member 2 before the device is sufficiently tight the member 1 will be raised until the desired result is accomplished, the slots 5 permitting the upward movement thereof. After the device is tightened or clamped in position the lower ends of the mold cavities are closed with a small portion of stiff clay and the molten metal is poured into the apertures between the members 1 and 9 and the bottom of the guide ways B. As the inner faces of the members 1 and 9 are in the same plane the face of the metal will be perfectly smooth without planing and as the two members 1 are parallel the cross-head A will be ready to replace in the engine as soon as the metal is cool.

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

1. In a device of the class described, a pair of parallel bars, a member rigidly connecting said bars at one end and means for adjusting the width of the other ends of the bars, substantially as described. 70

2. In a device of the class described, a pair of parallel bars, a member rigidly connecting said bars at one end, the other ends of said bars being tapered, a member slidably mounted on the tapered end of each of said bars and means for adjusting said slidably mounted member to vary the width of said bars, substantially as described. 80

3. In a device of the class described, a pair of parallel bars, a member rigidly connecting said bars at one end, the other ends of said bars being tapered, a pair of tapered members slidably mounted on the tapered ends of said bars and having parallel outer edges, and means for moving said members longitudinally on said bars to vary the distance between said outer edges, substantially as described. 90

4. In a device of the class described, a pair of parallel bars, a member connecting said bars at one end, the other ends of said bars being tapered, a pair of tapered members slidably mounted upon the tapered portion of each of said bars and having parallel outer edges, a plate extending across the outer ends of said tapered members and provided with longitudinally disposed slots, bolts extending through said slots into said members and an adjusting screw extending through said plate into the end of the bar, substantially as described. 100

5. In a device of the class described, a pair of parallel bars, a member connecting said bars at one end, the other ends of said bars being tapered, a pair of tapered members slidably mounted upon the tapered portion of each of said bars, means for adjusting said tapered members on said bars, and a mandrel comprising a double conical member, and said connecting member being provided with a socket to receive one end of said mandrel, substantially as described. 105

6. In a device of the class described, a cross-head, in combination with a pair of bars secured at one end in the guide ways of said cross-head respectively, said bars being longitudinally slotted and bolts extending through said slots into said cross-head, the opposite ends of said bars being tapered, a pair of tapered members slidably mounted on the tapered ends of said bars and means for adjusting said tapered members longitudinally on said bars, substantially as described. 115 120 125

7. In a device of the class described, a pair of parallel bars, a member connecting



said bars at one end, the opposite ends of said bars being tapered, a pair of tapered members slidably mounted upon the tapered ends of said bars, tongue and groove connections between said members and the adjacent edges of said bars and extending longitudinally of the same, the inner faces of said members being flush with the inner faces of said bars, and means for adjusting

said members longitudinally on said bars, 10 substantially as described.

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

ALBERT ASHWORTH.

Witnesses:

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R. M. McNABB.