

D. C. BERRY.
CROSS HEAD.

APPLICATION FILED MAR. 23, 1903.

NO MODEL.

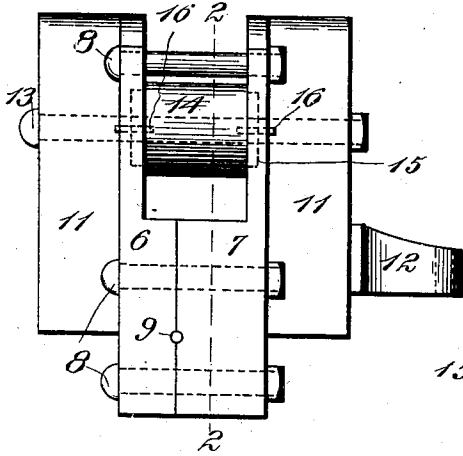


Fig. 1.

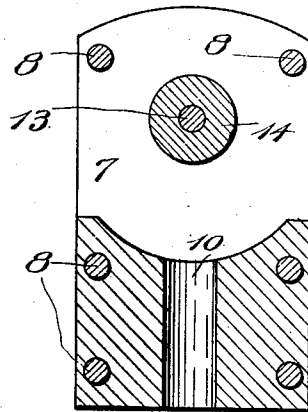


Fig. 2.

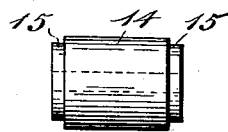


Fig. 5.

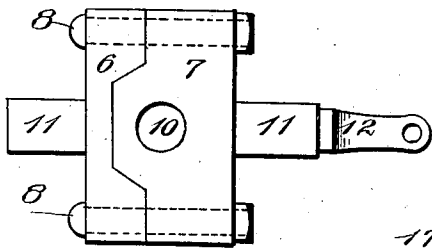


Fig. 4.

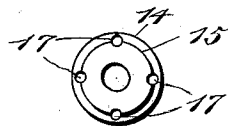


Fig. 6.

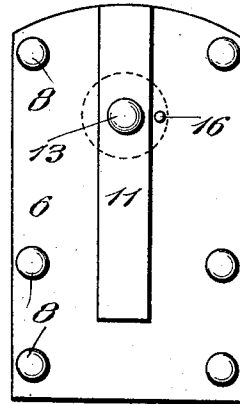


Fig. 3.

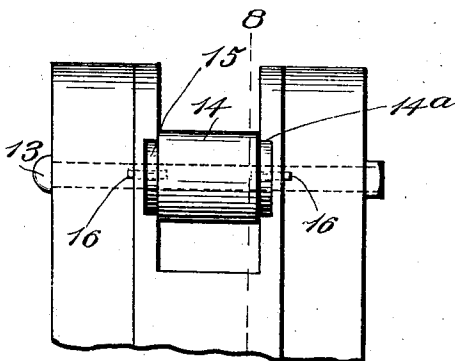


Fig. 7.

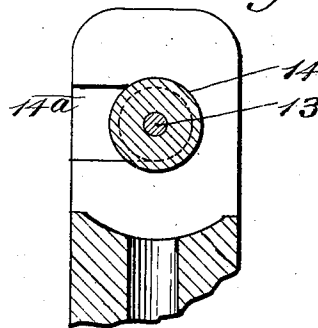


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

DAVID C. BERRY, OF SAXONBURG, PENNSYLVANIA.

CROSS-HEAD.

SPECIFICATION forming part of Letters Patent No. 738,975, dated September 15, 1903.

Application filed March 23, 1903. Serial No. 149,030. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. BERRY, a citizen of the United States, residing at Saxonburg, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Cross-Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to cross-heads of engines, and the particular object is to form the wrist-pin of the cross-head with a bolt and sleeve, so that when the wrist-pin wears the whole cross-head will not have to be thrown away, but a new wrist-pin can be inserted. The construction shown by my invention also permits the bearing-sleeve of the wrist-pin to be turned when it becomes worn on one side, whereby it becomes as good as new.

A further object of the invention is to generally improve the construction of cross-heads.

With these and other objects in view the invention is hereinafter described, and is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved cross-head. Fig. 2 is a longitudinal section thereof on the line 2 2 of Fig. 1. Fig. 3 is a side elevation thereof. Fig. 4 is a rear end view thereof. Figs. 5 and 6 are respectively side and end views of the bearing-sleeve of the wrist-pin. Fig. 7 is a fragmentary plan view of a modification showing the invention applied to a solid cross-head, and Fig. 8 is a section on the line 8 8 of Fig. 7.

Referring specifically to the drawings, the cross-head is shown as having two parts 6 and 7, joined by cross-bolts 8 and keys 9. The part 7 is bored, as at 10, to receive the end of the piston-rod. The blocks 11 project from said parts of the cross-head to slide in the guides, and one of the blocks carries the pump-arm 12. The wrist-pin is formed by a long bolt 13, which extends through the blocks and the side plates of the cross-head and a

bearing-sleeve 14 on said bolt between the cheek-plates. This bearing-sleeve is reduced and stepped into the cheek-plates, as indicated at 15, to give greater strength. The sleeve fits nicely over the bolt, but may be turned thereon to present a new wearing-surface to the connecting-rod. A quarter-turn presents a new bearing-surface and effects this object. To prevent the turn of the sleeve after the parts are connected up, pins 16 are inserted through the cheek-plates into holes 17 in the sleeve. There are four of these holes, as shown in Fig. 6, giving four adjustments. When the sleeve is worn out, it can be removed by taking out the bolt 13 and a new sleeve substituted. This lengthens the life of the cross-head and saves the purchase of a new cross-head every time the wrist-pin wears out.

The construction shown is adapted to a cross-head formed of separable parts; but the invention may be applied to a solid cross-head by boring the blocks and cheek-plates thereof for the bolt 13 and placing the sleeve 14 on the bolt, as indicated in Fig. 7. In this case the cheek-plates are grooved from the top down to the wrist, as indicated at 14^a, to let in the reduced portion 15 of the sleeve.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a cross-head, of side plates, a removable wrist-pin extending through the side plates, and a bearing-sleeve on the pin between the plates.

2. The combination with the side plates and wrist-pin of a cross-head, of a bearing-sleeve which may be turned thereon, and a pin engaging the sleeve and the side plate, to hold the sleeve as adjusted.

3. The combination in a cross-head, of separable side plates, a removable bolt extending through the plates, and a bearing-sleeve on the bolt between the plates, the ends of the sleeve being let into the plates.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID C. BERRY.

Witnesses:

J. E. MUDER, Jr.,
W. C. HEGINBOTHAM.