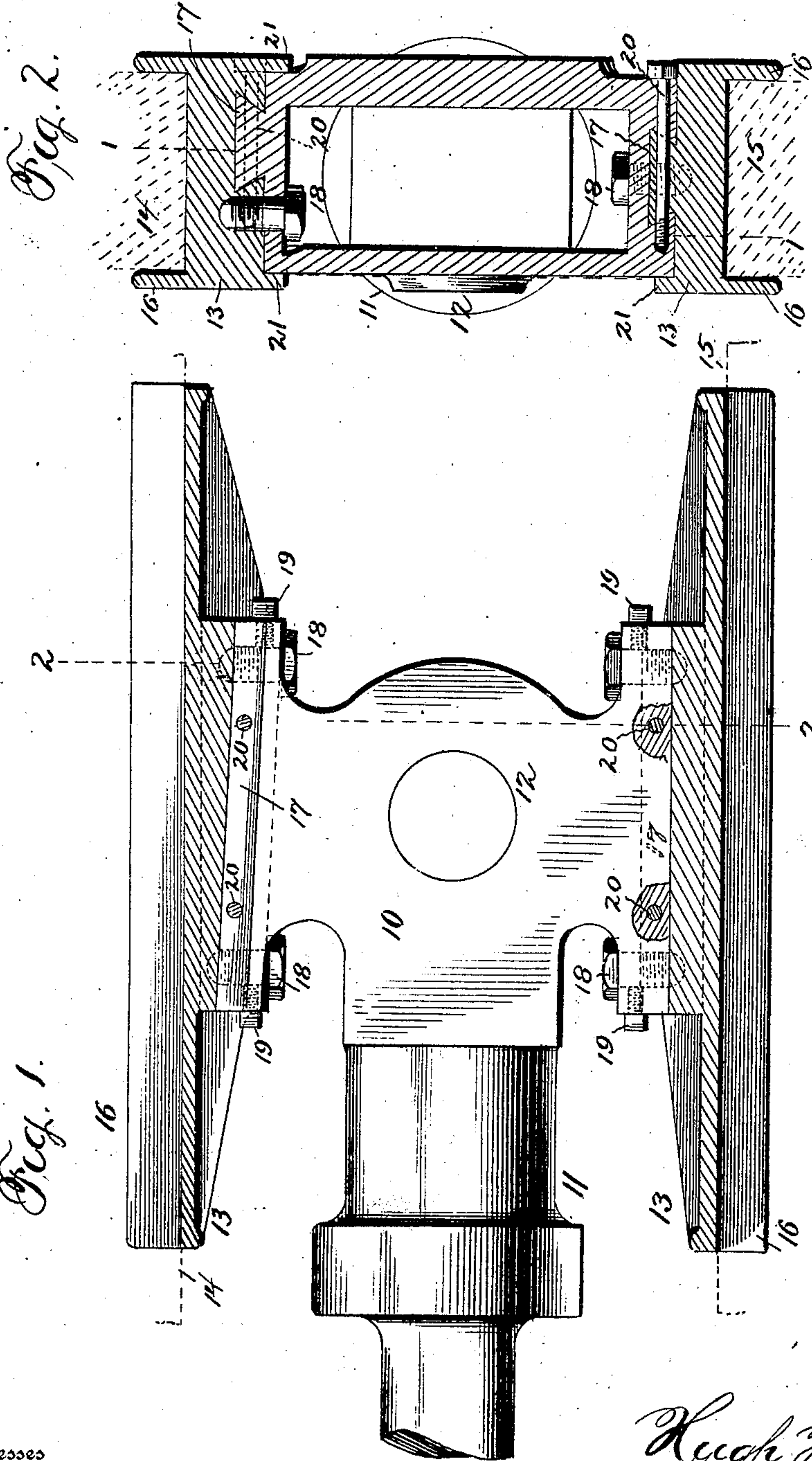


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PATENTED AUG. 18, 1908.

H. H. WALCK.
CROSS HEAD FOR LOCOMOTIVES.

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Witnesses
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HUGH H. WALCK, OF CHAMBERSBURG, PENNSYLVANIA.

CROSS-HEAD FOR LOCOMOTIVES.

No. 896,339.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed April 7, 1908. Serial No. 425,734.

To all whom it may concern:

Be it known that I, HUGH H. WALCK, a citizen of the United States, residing at Chambersburg, in the county of Franklin and State of Pennsylvania, having invented certain new and useful Improvements in Cross-Heads for Locomotives, do hereby declare that the following is a full, clear, and exact description thereof.

10 Reference being had to the accompanying drawings, Figure 1 is a longitudinal section with parts in elevation, of a locomotive cross head embodying my invention; and Fig. 2 a cross section on the line 2—2 of Fig. 1.

15 With cross heads constructed as in use on locomotives prior to my invention, it is impossible to remove a cross head from its guides without dismantling the guides, and if it becomes necessary when the engine is out on the road to remove a cross head, it is necessary to return the engine to the shops to enable it to be done.

The object of my invention is to provide a construction of cross head for locomotives 25 which can be removed from and replaced in position between the guides, without any disturbance of the guides at all, so as to simplify these operations and to make it feasible to perform them wherever the engine may be, and as well as to produce a cross head of as few parts as is possible with consistent strength and solidity or rigidity enough to stand, without loosening, the violent vibrations to which the parts of a locomotive are 30 subjected, and for the attainment of my objects, my invention consists in the cross head for locomotives constructed substantially as hereinafter specified and claimed.

Apart from certain pins and screws or 40 bolts, my cross head consists of but three parts, the head or body 10 having at one side a socket 11 for reception of and attachment of the end of a piston rod, and a transverse bearing 12 for the connecting rod wrist pin, 45 and two shoes 13, one to engage the upper guide 14 and one to engage the lower guide 15, each shoe having as usual on opposite sides the vertical integral flanges 16 to overlap the respective sides of the guides to prevent lateral or sidewise movement of the shoe in either direction. The abutting surfaces of each shoe and the head or body 10 are plane surfaces, and they are provided with a connection of interlocking form, consisting of a longitudinally extending dovetail 55 rib 17 on one part, and a similar longitudinally

extending groove on the other part, this form of connection between the head or body and the shoes being employed by me to rigidly hold the shoes from vertical movement. In 60 the case of the lower shoe, the rib is on the shoe, and the groove is in the head or body 10, and preferably the rib and groove are located centrally in a crosswise direction, while in the case of the upper shoe, the groove is in 65 the shoe and the rib is on the head or body 10, and the rib and groove are located to one side of the center, and preferably towards the outer side of the cross head. By reason of the dove-tail connection between the head 70 or body and the shoes, the shoes are applied and removed by being moved longitudinally, and the length of the shoes is such that they may be moved far enough when in position between the guides to clear the head or body 75 10 and so admit of the passage of the shoes either outward from between the guides, or inward between them. Preferably, the abutting surfaces of the upper shoe and the head or body 10 incline downward in order to fa- 80 cilitate the application and removal of the shoe to the head or body 10 when in position beneath the guides, for, as will be evident by reason of such inclination, the engaging or contacting surfaces of the upper shoe and its 85 guide will be in contact for but a short time when the shoe is moved longitudinally to slide it on or off the head or body 10, and thus I avoid the friction during the whole time of application of the shoe to or its re- 90 moval from the head or body which would exist were the abutting surfaces of the upper shoe and the head or body parallel with the under side of the upper side.

To hold or connect the shoes to the head or 95 body, so that there will be no longitudinal movement of the parts with reference to each other, I employ for each shoe two screws or bolts 18, which pass vertically through the head or body into the shoes and secure each 100 of said screws by means of a lock screw 19, and I also use for each shoe a pair of horizontally extending screws or bolts 20 that pass through alining holes in the head or body 10, and in the shoes, and preferably these screws 105 or bolts extend through the dove-tail ribs. In order to still further add to the rigidity or stiffness of the cross head, each shoe has on opposite sides vertical flanges 21 which overlap the sides of the head or body 10. 110

It will be evident that by my construction, the work of removal and replacement of the

shoes and the entire cross head can be effected without any disturbance whatever of the guides, and these operations can be performed very readily and very expeditiously, 5 since they involve the simple manipulation of a few screws or bolts, and the endwise or longitudinal movement of the shoes relative to the head or body to separate these three parts, all which may then be readily passed 10 between the guides, for, as will be understood, the vertical thickness or dimension of the head or body 10 is less than the space between the guides. When the head or body is to be removed, it is, of course, necessary to 15 unpin it from the connecting rod, and disconnect it from the piston rod. It will also be evident that when the parts of my cross head are assembled; a strong, rigid structure is produced, capable of successfully withstanding 20 the severe strains which are inevitable on a locomotive.

The central location of the dove-tail connection at the lower part of the cross head is to secure an equal or uniform distribution of 25 weight upon the lower shoe, for as will be understood it sustains the weight, and to give the lower shoe extra strength for this purpose, the dove-tail rib is formed on the shoe, whereas to reduce the weight of the upper shoe which is handled more frequently, 30 and to add strength to the cross head body, the groove is formed in the upper shoe and the rib on the cross head body, and the location of the dove-tail connection 35 with the upper shoe at one side is to render access to the parts more convenient or easy.

What I claim is—

1. A cross head for locomotives comprising a head or body, upper and lower shoes, a 40 dove-tail rib and groove connection between the head or body and each shoe extending longitudinally of the cross head, and attaching screws or bolts for the shoes and head.
2. A cross head for locomotives comprising

a head or body, upper and lower shoes, a 45 dove-tail rib and groove connection between the head or body and each shoe extending longitudinally of the cross head, and attaching screws or bolts, some of which pass vertically through the parts and some horizon- 50 tally through the parts.

3. A cross head for locomotives comprising a head or body, upper and lower shoes, a dove-tail rib and groove connection between 55 the head or body and each shoe extending longitudinally of the cross head, attaching screws or bolts, some of which pass vertically through the parts and some horizontally through the parts, and locking devices en- 60 gaging the vertical screws or bolts.

4. A cross head for locomotives comprising a head or body, upper and lower shoes, and a dove-tail rib and groove connection between 65 the head or body and each shoe, the upper shoe being provided with the rib-engaging groove and the lower shoe being provided with the rib.

5. A cross head for locomotives, comprising a head or body, upper and lower shoes, a 70 dovetail rib and groove connection between the head or body and each shoe, horizontal bolts or screws passing through the shoes and through the ribs, and vertical bolts or screws passing through the body and into the shoes.

6. A cross head for locomotives, comprising 75 a head or body, upper and lower shoes, a dovetail rib and groove connection between the rib or body and each shoe, the abutting surfaces of one of the shoes and the head or body being inclined lengthwise of the cross 80 head.

In testimony that I claim the foregoing I have hereunto set my hand.

HUGH H. WALCK

Witnesses:

LOREN A. CULP,
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