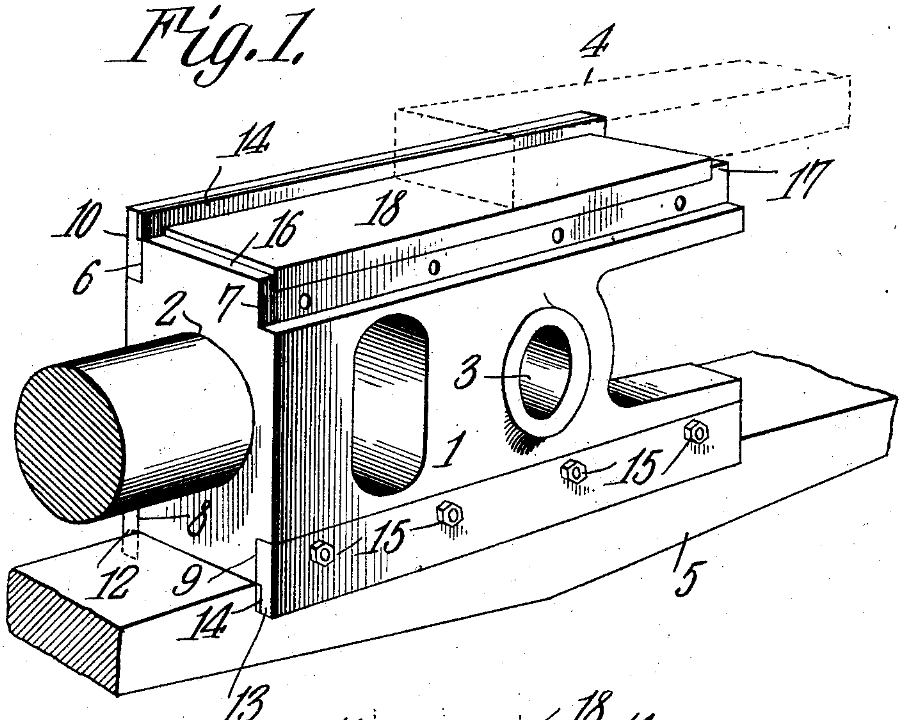
No. 866,655. PATENTED SEPT. 24, 1907.

E. T. JAMES & G. W. WEBB.

CROSS HEAD.

APPLICATION FILED MAY 6, 1907.

Fig. 1.



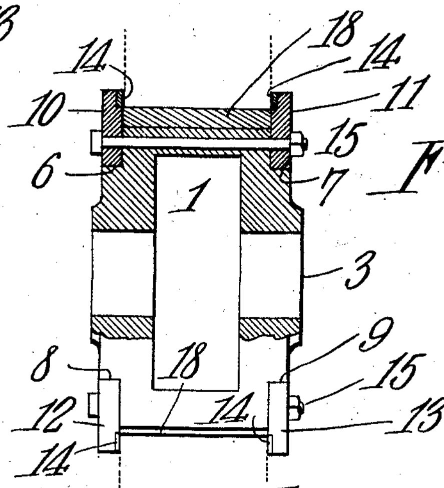


Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD T. JAMES AND GEORGE W. WEBB, OF CHARLOTTE, NORTH CAROLINA.

CROSS-HEAD.

No. 866,655. Specification of Letters Patent. Patented Sept. 24, 1907.

Application filed May 6, 1907. Serial No. 372,144.

To all whom it may concern:

Be it known that we, EDWARD T. JAMES and GEORGE W. WEBB, citizens of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented a new and useful Cross-Head for Reciprocating Engines, of which the following is a specification.

This invention relates to improvements in cross heads which serve to guide the outer ends of the piston rods of engines of the reciprocating type, and is especially applicable to cross heads of the locomotive type, and it has for its object to provide improved means for compensating for the wear between the cross head and its guides, whereby the wear compensating mediums are held in coöperative relation with the cross head without the necessity of applying screws or bolts to them, and they are capable of being applied and removed without the necessity of removing the cross head from the guides, the compensating mediums being so locked in place that they cannot loosen nor become displaced.

To these and other ends, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be hereinafter more fully described and pointed out particularly in the claims appended hereto.

In the accompanying drawings:—Figure 1 is a perspective view of a locomotive cross head constructed in accordance with my present invention. Fig. 2 is an end elevation of the cross head shown in Fig. 1, a portion thereof being shown in section.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

This invention is capable of being applied to cross heads of various types, it being shown in the present embodiment of the invention as applied to a locomotive cross head comprising a body portion 1 having a socket 2 at one end to receive the piston rod, and being open at its opposite end and adapted to receive the forward end of the connecting rod, a transverse bearing 3 being provided to receive the wrist pin. In the present instance, the cross head is approximately rectangular in cross section, the upper and lower sides of the cross head fitting between the guides 4 and 5. In the four corners of the cross head are formed a set of recesses 6, 7, 8 and 9 to receive the locking strips 10, 11, 12 and 13, the upper and lower pairs of locking strips being spaced a distance equivalent to the width of their coöperating guides, and serving to prevent relative lateral movement between the cross head and the guides. In order to provide an efficient wearing surface between the locking strips and the guides, it is preferable to provide them each with a lining 14 of a suitable anti-friction metal. These locking strips are firmly secured in coöperative relation with the cross head by means of bolts 15 which extend transversely through the cross head at a distance inwardly from the top and bottom and coöperate at their ends with the respective locking strips to clamp them firmly within their respective recesses.

At the opposite ends of the top and bottom surfaces for the cross head are formed a pair of shoulders 16 and 17 extending transversely of the cross head and forming a substantially rectangular seat for a removable wear plate 18 which may be composed of brass or other suitable material, the plate being of a length equivalent to the distance between the shoulders 16 and 17 and of a width equivalent to the distance between the proximate faces of the corresponding pair of locking strips, the plates being of a thickness sufficient to form a sliding fit between the cross head and the guides.

The wear plates are preferably applied while the cross head is in operative position between the guides, one of the locking strips at each side of the cross head being unbolted and removed, thereby uncovering the seat for the plate, and the latter may be inserted between the cross head and the adjacent guide by a movement transversely of the cross head, and when the strips are replaced and bolted, the plates will be positively locked in a direction laterally of the cross head by means of the locking strips, while the shoulders coöperating with the ends of the plates serve to move the plates along with the cross head and prevent disengagement in a longitudinal direction, and of course the guides at the top and bottom of the cross head serve to retain the plates in their respective seats.

A cross head constructed in accordance with the present embodiment of the invention is particularly adapted for use on locomotives and other engines, as it provides means whereby the "brasses" or other devices employed to compensate for the wear between the cross head and guides may be readily removed and replaced, these compensating devices being so mounted, in the present instance, that they are positively retained in operative position without the necessity of providing separate bolts or screws which are liable to loosen and thereby permit displacement or loss of the compensating devices.

What is claimed is:—

1. A cross head having a pair of oppositely arranged wear plate seats formed in the top and bottom and open at the sides thereof, and shoulders extending transversely and spaced longitudinally of the cross head and adapted to prevent longitudinal movement of the wear plates relatively to the cross head and devices arranged at the sides of the latter for removably securing the said plates in their respective seats.

2. A cross head having a pair of transversely extending seats at the top and bottom thereof and open at opposite sides of the cross head, shoulders arranged at the ends of each seat, a wear plate fitted into each seat and coöperating with the said shoulders to prevent relative longitudinal movement between each wear plate and the cross head, and pairs of independently removable locking strips secured to the opposite sides of the cross head and serving

to prevent relative transverse movement of their respective wear plates.

3. A cross head having a pair of parallel transversely extending shoulders formed at the opposite ends thereof and providing a seat extending transversely of the cross head and open at the opposite sides thereof, and recesses extending longitudinally of the cross head and in line with the said seat, a wear plate fitted in the seat between said shoulders, locking strips removably fitted in said recesses and coöperating with the lateral edges of the wear plate, and bolts extending through the cross head in a direction transversely thereof, and coöperating with the locking strips for retaining them in coöperative relation.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

EDWARD T. JAMES.
GEO. W. WEBB.

Witnesses:
H. G. BYRD,
W. H. MCMANAWAY.