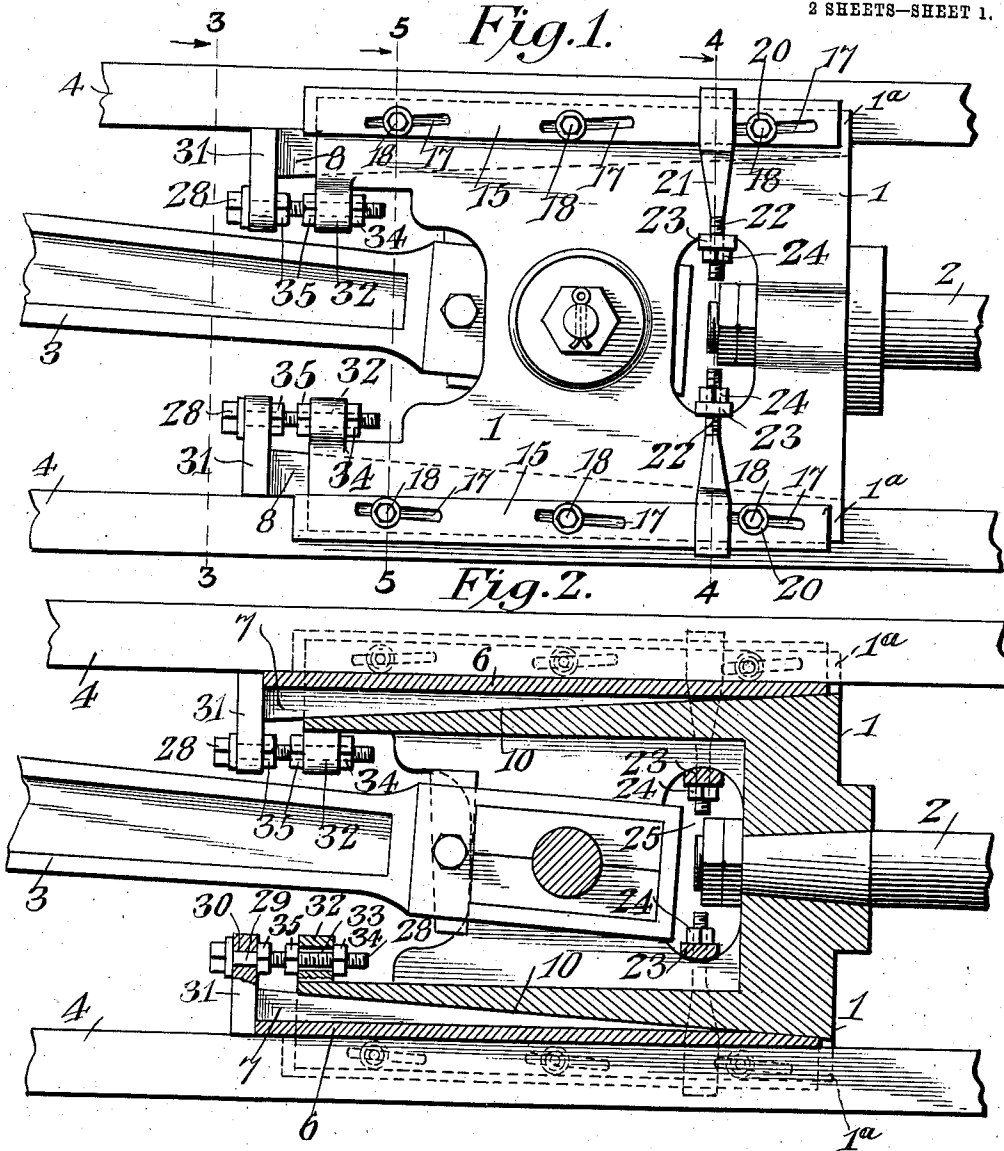


M. D. JOYNER.
CROSS HEAD.
APPLICATION FILED JUNE 17, 1911.

1,037,633.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 3.

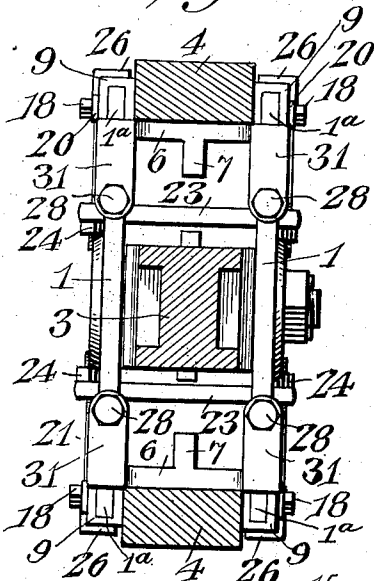


Fig. 4.

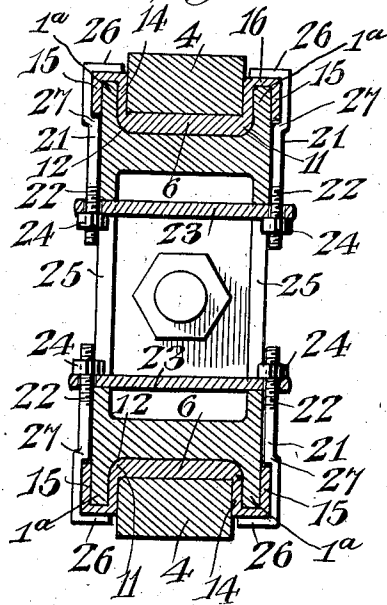


Fig. 5.

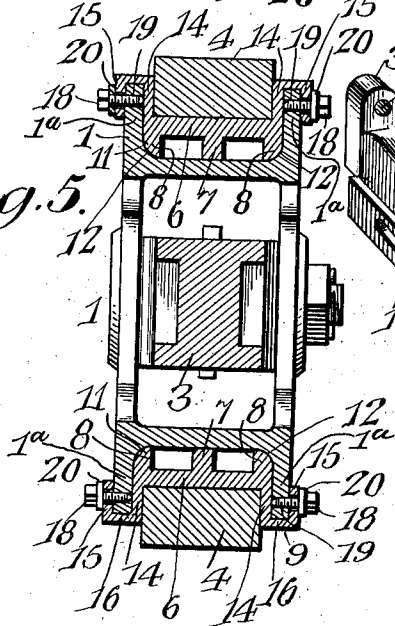
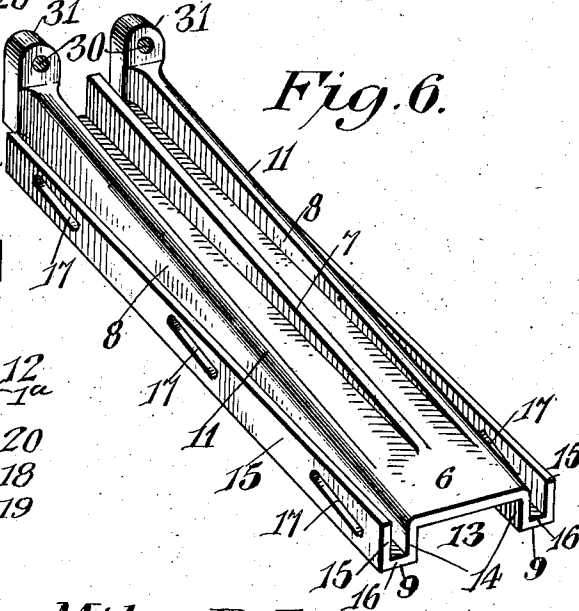


Fig. 6.



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UNITED STATES PATENT OFFICE.

MILES D. JOYNER, OF SAVANNAH, GEORGIA.

CROSS-HEAD.

1,037,633.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed June 17, 1911. Serial No. 633,855.

To all whom it may concern:

Be it known that I, MILES D. JOYNER, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Cross-Head, of which the following is a specification.

The invention relates to improvements in cross heads.

10 The object of the present invention is to improve the construction of cross heads, and to provide a simple, efficient and comparatively inexpensive cross head, equipped with longitudinally adjustable gibs, designed for use on any cross head having two-bar guides, and capable of ready adjustment to take up the wear and to maintain proper slidable contact with the guides.

15 A further object of the invention is to provide a cross head, equipped with gibs of this character adapted to be securely fastened to the cross head and to afford practically the strength of a solid cross head, and capable of ready removal for tinning, rebabbiting, or other purpose without disconnecting either the main rod or the piston from the cross head.

20 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

25 In the drawings:—Figure 1 is a side elevation of a cross head, constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is a similar view on the line 4—4 of Fig. 1. Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 1. Fig. 6 is a detail perspective view of one of the gibs.

30 Like numerals of reference designate corresponding parts in all the figures of the drawings.

35 In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a locomotive cross head, connected to the piston rod 2 and the connecting rod 3 in the usual manner, and

provided at its top and bottom with spaced projecting walls 1^a between which are arranged the upper and lower guides 4 of a two-bar guide. The cross head is equipped at the top and bottom with longitudinal gibs, each consisting of a plate or body portion 6, provided at its inner face with central and side longitudinal ribs 7 and 8, and having longitudinal caps 9, located at the outer bearing face and constituting the sides of the gibs. The longitudinal ribs are tapered to form a wedge-shaped body portion, and they are spaced apart and arranged, as shown, to secure a light, strong gib of great strength and durability, but the body portion may be made solid, if desired. The tapered longitudinal ribs 7 and 8 fit against the inclined faces 10 of the cross head, and the side ribs 8 are rounded at the outer edge 11 to fit the curved surfaces 12 of the cross head.

40 The longitudinal sides or side caps 9 are spaced apart to form a longitudinal groove or way 13 to fit the upper and lower guides 4, and the faces of the groove or way 13 are designed to be lined with Babbitt metal, or other suitable anti-friction metal in the usual manner. The longitudinal caps 9 are composed of inner and outer parallel vertical flanges 14 and 15, and a connecting flange or portion 16. The inner flange 14 is imperforate and fits against the inner face of the wall 1^a of the cross head. The outer connecting flange or portion 16 fits against the outer edge of the wall 1^a, and the outer flange 15 is arranged on the outer face of the said wall 1^a and is provided with inclined slots 17, adapted to receive clamping bolts or screws 18, which engage threaded perforations 19 in the side walls 1^a of the cross head. By this construction, the gibs are firmly and securely clamped to the cross head without piercing the inner walls 14, which carry the Babbitt metal, or other anti-friction lining. Washers 20 are preferably interposed between the heads of the clamping bolts or screws and the outer flanges 17. The inclination of the slots 17 permit a longitudinal adjustment of the gibs without requiring any adjustment or change of position of the clamping screws. A series of clamping screws or bolts is provided for each of the side flanges 17, but additional clamps may also be employed for further securing the gibs to the cross head. These clamps consist of approximately L-

shaped straps 21, arranged in pairs and located at opposite sides of the cross head and having inner threaded shanks or portions 22, which are connected by a transverse clip plate 23, secured to the threaded ends of the straps by nuts 24. The transverse clip plates 23 extend through the cross head opening 25, and are provided at their terminals with perforations through which the threaded inner ends of the straps pass. The straps are provided at their outer ends with inwardly extending engaging portions 26, and they are angularly bent at the longitudinal edges of the flanges 15 to form shoulders 27, and to arrange the inner portions of the straps contiguous to the side faces of the cross head. The transverse connecting or clip plates 23 bear against the cross head at the opposite ends of the opening 25, and when the nuts 24 are tightened, the engaging outer portions of the straps are drawn tightly in engagement with the longitudinal caps of the gibs. When the clamping bolts and the clamps are employed, there is no liability of the gibs becoming accidentally disconnected from the cross head. The fastening means for securing the gibs to the cross head may be readily loosened to permit an adjustment of the gibs, and also to enable the same to be readily removed from the cross head for tinning, re-babbiting, or any other purpose, and the removal of the gibs may be effected without disconnecting either the piston or the connecting rod from the cross head.

The longitudinal adjustment of the gibs is preferably effected by means of adjusting screws 28, consisting of common bolts, provided adjacent to their heads with smooth portions 29, which are arranged in perforations 30 of vertical lugs 31 of the cross head. The gibs are also provided with vertical lugs 32, having elongated openings 33 for the reception of the adjusting screws, which are equipped with nuts 34 and 35. The elongated openings 33 of the lugs 32 provide sufficient space for the adjusting screws to prevent the latter from interfering with the adjustment of the gibs. The lugs 31 are arranged at the back end of the cross head, and the lugs 32 of the gibs are located at the back end thereof, and are formed integral with the side ribs 11, as clearly illustrated in Fig. 6 of the drawings. In the embodiment of the invention shown in the drawings, the gibs are tapered forwardly, but they may be tapered rearwardly, and the lugs and the adjusting screws may be located at any other desired point, where there is sufficient space or clearance. The adjusting screws are simply provided to secure an accurate adjustment of the gibs. After the gibs have been adjusted and secured, there is no strain on the adjusting screws, which are not employed as a securing means for

fastening the gibs to the cross head. The nuts 34 are located at opposite sides of the lug 32, and the nut 35 is arranged at the lug 31 to cooperate with the head of the screw in clamping the said lug 31. The nuts by clamping the lugs prevent any vibration of the adjusting screws. By constructing the adjusting means in this manner, the openings of the lugs are smooth, and common bolts and nuts may be employed as adjusting screws, and the construction of the cross head is thereby cheapened.

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

1. The combination with a cross head, having at each side top and bottom projecting side walls, of tapered longitudinal gibs adjustably arranged at the top and bottom of the cross head and fitting against the same between the side walls thereof and provided at opposite sides with longitudinal caps fitted on the outer longitudinal edges of the projecting side walls of the cross head, and means for securing the said caps to the cross head.

2. The combination with a cross head having at each side top and bottom projecting side walls, of tapered gibs arranged at the top and bottom of the cross head and fitting against the same between the side walls thereof and provided at opposite sides with longitudinal caps fitted on the walls of the cross head and composed of inner and outer walls and connecting portions, the inner walls being imperforate, and fastening means piercing the outer walls of the caps and securing the gibs to the cross head.

3. The combination with a cross head having at each side top and bottom projecting side walls, of tapered gibs arranged at the top and bottom of the cross head and fitting against the same between the side walls thereof and provided at opposite sides with longitudinal caps fitted on the walls of the cross head and composed of inner and outer walls and connecting portions, the inner walls being imperforate, and the outer walls being provided with inclined slots, and clamping screws operating in the slots and securing the gibs to the cross head.

4. The combination with a cross head having projecting side walls, of tapered longitudinal gibs adjustably arranged at the top and bottom of the cross head and provided at opposite sides with longitudinal caps fitted on the outer longitudinal edges of the projecting side walls of the cross head, and clamps for securing the gibs in the cross head, said clamps comprising approximately L-shaped straps engaging the caps of the gibs and having inner threaded ends, a transverse plate extending across the cross head and having perforations receiv-

ing the threaded ends of the straps, and nuts arranged on the threaded ends of the straps and engaging the transverse plate.

5 The combination with a cross head
5 having at each side spaced top and bottom
projecting side walls and provided with
lugs having smooth openings, tapered longi-
tudinal gibs adjustably arranged at the top
10 and bottom of the cross head and fitting
against the same between the side walls
thereof and provided at opposite sides with
longitudinal caps fitted on the outer longi-
tudinal edges of the projecting side walls of
15 the cross head, said gibs being also provided
with projecting lugs arranged opposite the
lugs of the cross head and having smooth
openings, adjusting screws extending
through the openings of the lugs, and nuts
20 arranged on the adjusting screws and en-
gaging the lugs.

6. The combination with a cross head
provided at the top and bottom with spaced
projecting side walls, of longitudinal gibs
consisting of plates provided with spaced
25 longitudinally disposed tapered ribs fitting
against the cross head between the side walls
thereof, and side caps projecting in the op-
posite direction from the ribs and fitted on
the cross head at opposite sides thereof, and
30 means for securing the caps to the cross
head.

7. The combination with a cross head
having at each side spaced top and bottom
projecting side walls and provided with lugs
35 having smooth openings, tapered longitudi-
nal gibs adjustably arranged at the top and

bottom of the cross head and consisting of a
plate or body portion having spaced longi-
tudinal ribs fitting against the cross head
between the side walls thereof and provided 40
with integral projecting lugs located oppo-
site the lugs of the cross head, said gibs be-
ing also provided with longitudinal caps
fitted on the outer longitudinal edges of the
projecting side walls of the cross head, and 45
adjusting screws connecting the lugs of the
gibs with the lugs of the cross head.

8. The combination with a cross head pro-
vided at the top and bottom with spaced
projecting side walls and having top and 50
bottom lugs, longitudinal gibs adjustably
arranged at the top and bottom of the cross
head and consisting of a plate or body hav-
ing spaced longitudinally disposed tapered
ribs fitting against the cross head between 55
the side walls thereof and provided with in-
tegral projecting lugs located opposite the
lugs of the cross head, said gibs being also
provided with integral side caps approxi-
mately U-shaped in cross section and ex- 60
tending in the opposite direction from the
ribs and arranged on the projecting side
walls of the cross head and fitting against
the same at the inner and outer faces and
longitudinal edges of the same. 65

In testimony, that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

MILES D. JOYNER.

Witnesses:

JOHN H. SIGGERS,
EDITH L. BROWN.