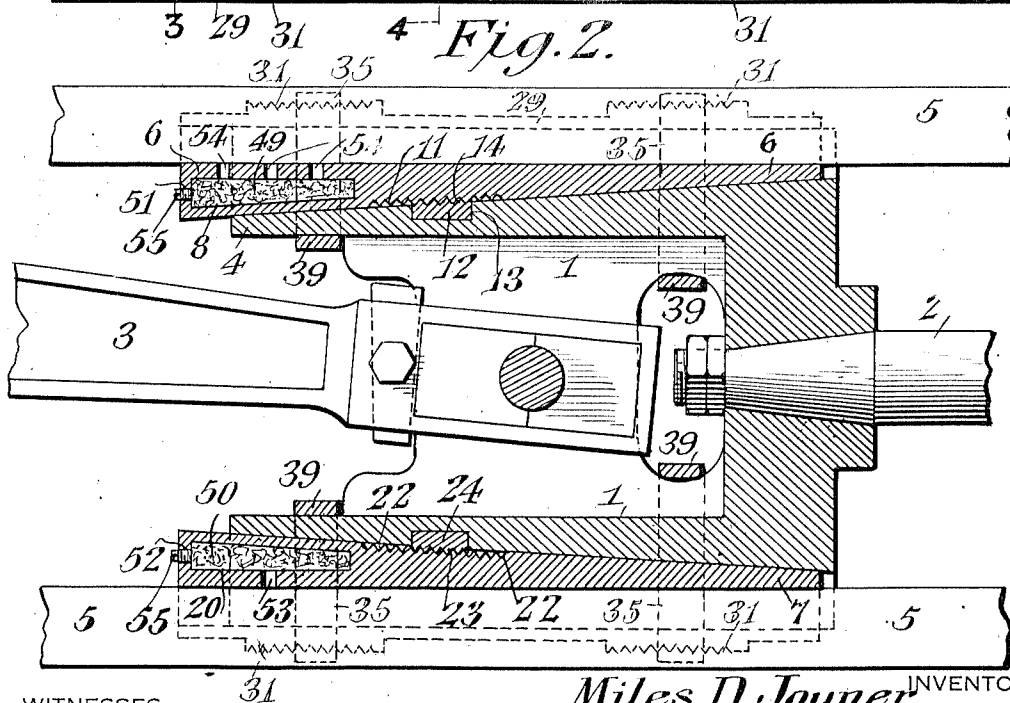
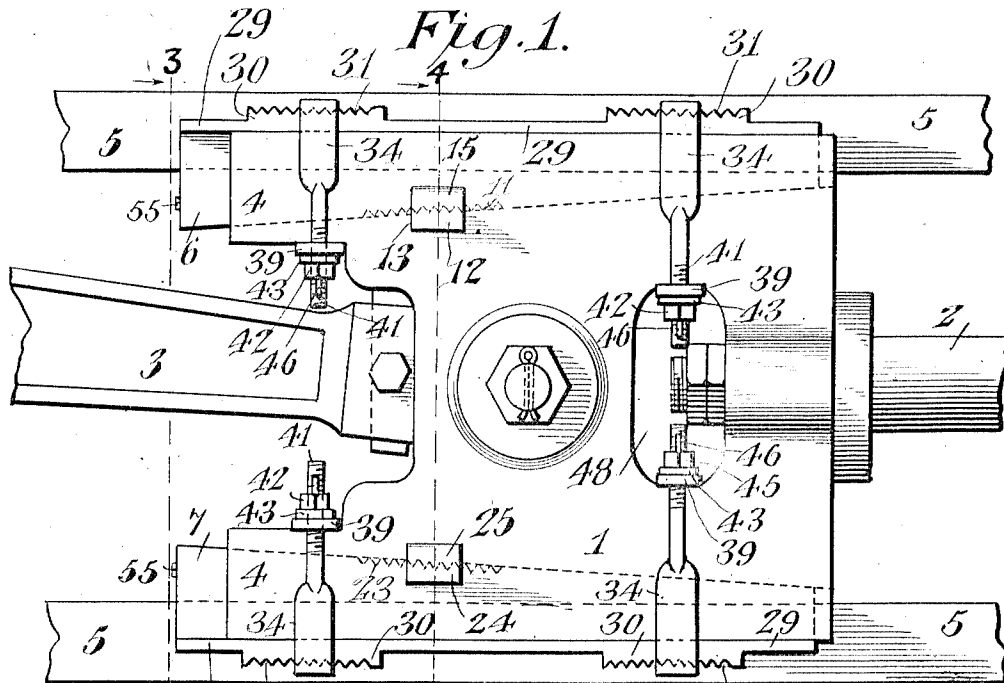


1,061,179.

Patented May 6, 1913.

2 SHEETS—SHEET 1.



WITNESSES
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Fig. 11.

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2 SHEETS—SHEET 2.

Fig. 3.

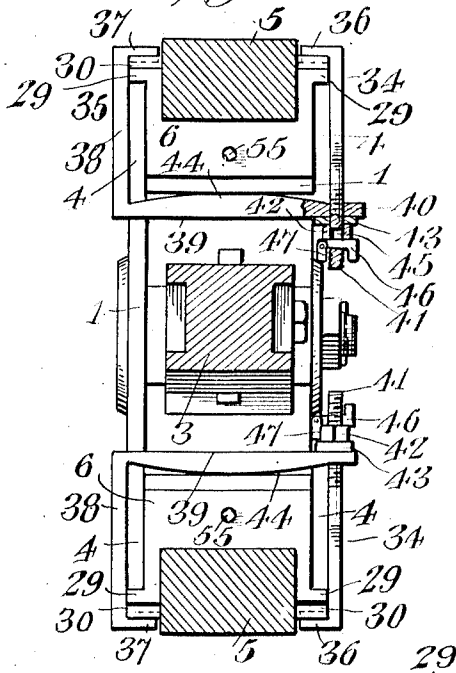


Fig. 4.

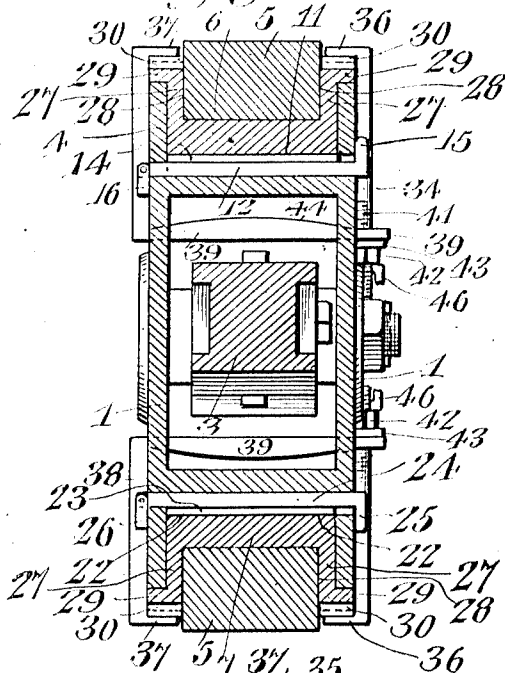


Fig. 5.

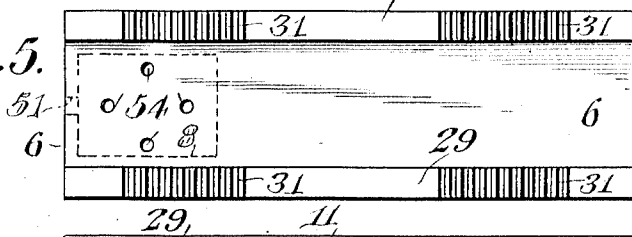


Fig. 6.

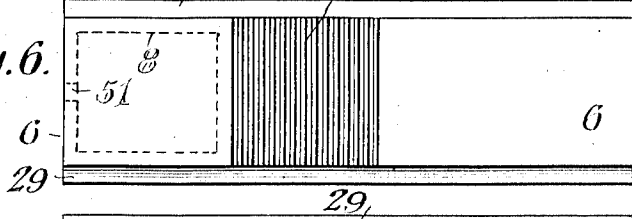


Fig. 7.

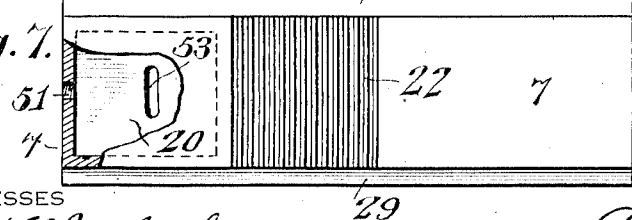


Fig. 8.

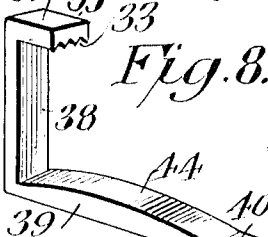


Fig. 9.

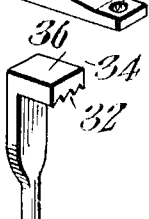
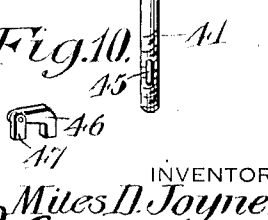


Fig. 10.



WITNESSES

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UNITED STATES PATENT OFFICE.

MILES D. JOYNER, OF SAVANNAH, GEORGIA.

CROSS-HEAD.

1,061,179.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed May 7, 1912. Serial No. 695,749.

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.

The object of the present invention is to improve the construction of cross heads, more especially the construction of the adjustable gibs, shown and described in an application filed by me June 17, 1911, Serial Number 633,855, and to provide simple and efficient means of inexpensive construction, capable of securely fastening the gibs in their adjustment.

It is also the object of the invention to provide gibs of this character having means for lubricating the upper and lower guides, and adapted to hold a quantity of the lubricant so as to maintain the guides in a lubricated condition for a considerable length of time.

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.

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 a transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1. Fig. 5 is a plan view of the upper gib. Fig. 6 is a reverse plan view of the same. Fig. 7 is a plan view of the lower gib, a portion being broken away to show the lubricant chamber. Fig. 8 is a detail perspective view of one of the members of the clamp. Fig. 9 is a similar view of the other member of the clamp. Fig. 10 is a detail perspective view of the key for locking the nut of the clamp. Fig. 11 is a detail view of one of the transverse keys.

Like numerals of reference designate cor-

responding parts in all the figures of the drawings.

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 of the locomotive in the usual manner, and provided at its top and bottom with spaced projecting walls 4 between which are arranged upper and lower guides 5 of a two-bar guide. The cross head is equipped at the top and bottom with gibs 6 and 7, tapered longitudinally and arranged in the spaces between the side walls 4 and fitting against the inner faces thereof. The upper gib 6 consists of a plate or body portion, having a hollow rear portion to form a lubricant chamber 8 and provided with an inclined lower face, which fits against the top of the cross head between the side walls thereof. The lower inclined face is provided at a point in advance of the hollow rear portion with transverse teeth 11, extending entirely across the gib and forming intervening notches and adapted to be engaged by an upper transverse key 12, fitting in an upper transverse opening or way 13 and provided with ribs or teeth 14, extending longitudinally of the key 12 and being of a length to extend across the cross head and fitting between and engaging the adjacent teeth 11 of the upper gib 6. The teeth of the gib and the key are tapered or wedge-shaped, and the transverse opening or way 13 extends through the side walls 4 at the top of the cross head and grooves the face of the same between the said walls 4. The transverse key 12 is provided at the front or outer end with an integral upwardly projecting lug or head 15 and is equipped at the other end with a hinged gravity latch 16, adapted to hang in a vertical position to retain the key in the transverse opening or way 13 of the cross head. The latch piece is provided at its upper edge with spaced eyes 17, located at opposite sides of an eye 18 of the key and is connected with the latter by a pintle 19, which passes through the said eyes. The latch piece is adapted to be swung upward to a horizontal position in the plane of the key 12 to permit the latter to be withdrawn for adjusting the gib.

The bottom gib, which also has a hollow rear portion to form a lubricant chamber, is provided with an inclined upper face

having teeth 22 forming intervening notches and located in advance of the hollow rear portion of the gib. The teeth 22, which are tapered or wedge-shaped in cross section, are engaged by transversely tapered ribs or teeth 23 of a transverse key 24, constructed in a similar manner to the key 12 and having a head or lug 25 extending downwardly at the outer or front face of the cross head. The ribs or teeth 23 extend across the space between the lower side walls 4 of the cross head and engage the ribs or teeth 21 of the bottom gib. The transverse key is equipped at its inner end with a gravity latch plate or piece 26, hinged to the inner end of the key and normally extending downwardly therefrom to retain the key in place and adapted to be swung upwardly to a horizontal position to permit the withdrawal of the key. The upper and lower transverse keys have a lateral taper to arrange the ribs or teeth in an inclined plane to correspond with the inclination of the inclined faces of the upper and lower gibs and the transverse teeth or ribs of the same.

The upper and lower gibs are provided at opposite sides with longitudinal flanges 27, forming longitudinal grooves or ways 28 to receive the upper and lower guides 5, and the faces of the grooves or ways 28 are designed to be lined with bronze, brass, tin or other suitable anti-friction material. The side flanges 27, which are L-shaped in cross section, fit against the inner faces and longitudinal edges of the side walls 4, and they are provided at the outwardly extending laterally disposed portions 29 with enlargements 30, having notches 31 forming tapering teeth 32 and 33 of relatively adjustable members 34 and 35 of the clamps, which firmly secure the upper and lower gibs in their adjustment. The clamps are arranged in pairs at the front and rear portions of the cross head, and the members 34 and 35 of the clamps are provided at their engaging portions with inwardly extending jaws 36 and 37, which are equipped with the said teeth 32 and 33. The member 34 constitutes one side of the clamp, and the other member 35 consists of a vertical side 38, provided at the top with the said jaw 37 and connected at its bottom with a transverse bar 39, formed integral with the side and extending across the cross head and provided with an opening 40 through which passes the member 34. The member 34, which is preferably located at the front or outer side of the cross head, has a reduced threaded inner portion 41 and receives a nut 42 for adjusting the clamp, a washer 43 being preferably interposed between the nut and the end of the transverse bar 39. The inner bearing face 44 of the transverse bar is convex and is curved from one end of the bar to the other to form a fulcrum for

the clamp, whereby the pressure exerted by the two sides or members is equalized, and a constant uniform pressure maintained on each side of the gibs. The member 34 is provided at its reduced inner portion with a slot 45, adapted to receive a key 46 provided at one end with an integral head and having a pivoted gravity latch 47 at its other end for retaining the key in the slot of the member 34 of the clamp. The transverse bars of the rear clamps extend through the space above and below the connecting rod 3, and the transverse bars of the front clamps pass through the cross head opening 48. The vertical side portion 38 of the clamp is arranged at one of the side faces of the cross head, and the member 34 is located at the other side of the cross head. The jaws 36 and 37 of the clamps extend inwardly at the enlargements 30 of the gibs and engage with the teeth thereof. The clamps exert sufficient pressure to securely hold the gibs against the cross heads and cooperate with the transverse keys 12 and 24 for positively locking the gibs in their longitudinal adjustment.

The lubricant chambers 8 and 20 are designed to be packed with absorbent material 49 and 50, and suitable filling openings 51 and 52 are located at the rear ends of the gibs. The lower gib is provided at the bottom of its lubricant chamber 20 with a transverse slot 53 through which the lubricant feeds to the lower guide 5. The upper gib is provided in the top wall of its lubricant chamber with a plurality of perforations 54 through which the lubricant through the movement of the cross head is caused to feed to the upper guide. The oil holes are normally closed by screw plugs 55, but any other suitable closure may, of course, be employed.

What is claimed is:—

1. The combination with a cross head having projecting side walls, of a tapered longitudinal gib adjustably arranged between the side walls and provided with side flanges fitting against the said side walls and having serrations or teeth, and a clamp composed of two sides provided at their outer ends with inwardly extending jaws having teeth for engaging those of the gib, a transverse bar fulcrumed on the cross head and formed integral with one of said sides of the clamp and having an opening receiving the other side, and means for adjustably connecting such side of the clamp with the transverse bar.

2. The combination with a cross head having projecting side walls, of a tapered longitudinal gib arranged between the side walls and provided at opposite sides with longitudinal flanges approximately L-shaped in cross section to fit against the inner faces and longitudinal edges of the said walls and

provided with enlargements having teeth, and a clamp composed of two sides provided with jaws having teeth engaging those of the enlargements, and a transverse bar extending across the cross head and connected with the said sides.

3. The combination with a cross head having projecting side walls, of a tapered longitudinal gib adjustably arranged between the side walls, and a clamp composed of spaced sides provided at their outer ends with inwardly extending jaws engaging the gibs at opposite sides thereof, and a transverse bar formed integral with one of the sides of the clamp and adjustably connected with the other side of the clamp, said transverse bar being provided with a substantially convex bearing face forming a fulcrum for equalizing the pressure exerted by the jaws.

4. The combination with a cross head having projecting side walls, of a tapered longitudinal gib adjustably arranged between the side walls, and a clamp composed of sides provided at their outer ends with jaws for engaging the gib, one of the sides of the clamp having its inner portion threaded and provided with a slot, and a transverse bar formed integral with the other side of the clamp and provided with an opening receiving the said threaded portion, a nut engaging the threaded portion, and a key extending through the slot of the threaded portion and provided at one end with a head and having a pivoted gravity latch at the other end for retaining the key in the slot.

5. The combination with a cross head having projecting side walls, of a tapered longitudinal gib arranged between the side walls and provided at its inner face with a longitudinal series of teeth, a transverse key extending through the cross head and provided with means for engaging the teeth,

and clamping means for holding the gib against the cross head and in engagement with the key.

6. The combination with a cross head having projecting side walls, of a tapered longitudinal gib arranged between the side walls and provided at its inner face with a longitudinal series of teeth, and a transverse key extending across the cross head and provided with a series of ribs extending longitudinally of the key and engaging the teeth of the gib.

7. The combination with a cross head having projecting side walls, of a tapered longitudinal gib adjustably arranged between the side walls and provided with a longitudinal series of teeth, and a transverse key extending through the cross head and provided with means for engaging the teeth of the gib and having a head at one end and provided at the other end with a gravity latch hinged to the key and extending downwardly from the same.

8. The combination with a cross head, and upper and lower guides, of tapered longitudinal gibs fitted between the cross head and the guides and presenting inclined faces to the cross head and having hollow rear portions forming upper and lower lubricant chambers, the upper gib being provided at the top with an outlet leading from the upper lubricant chamber to the upper guide and the lower gib having a bottom outlet leading from the lower lubricant chamber to the lower guide.

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

MILES D. JOYNER.

Witnesses:

W. E. GUNARD,
J. EDWARD WAY.