J. S. SCANLIN.

CROSSHEAD FOR LOCOMOTIVES.

APPLICATION FILED MAR. 13, 1919.

1,354,781.

Patented Oct. 5, 1920.

2 SHEETS—SHEET 1.

Fig. 1

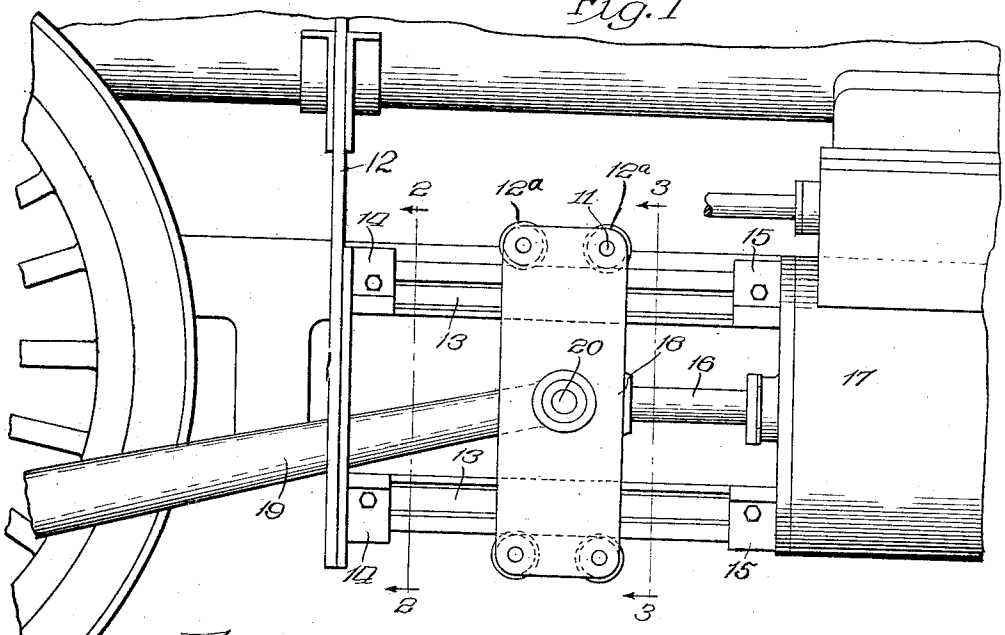


Fig. 2

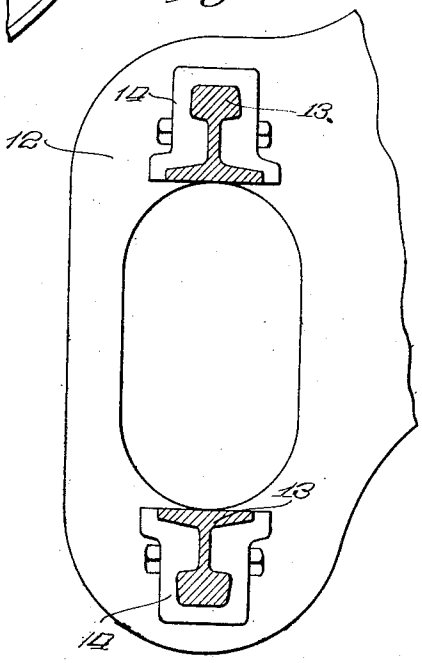
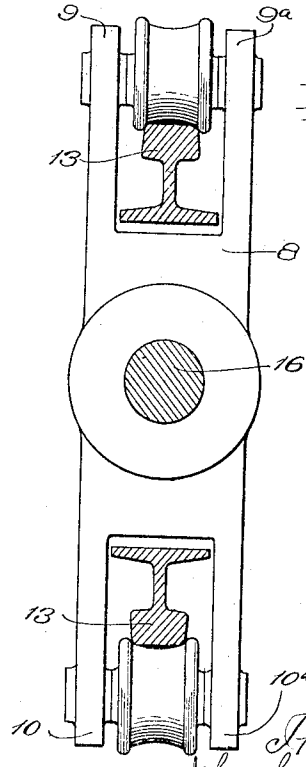


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4

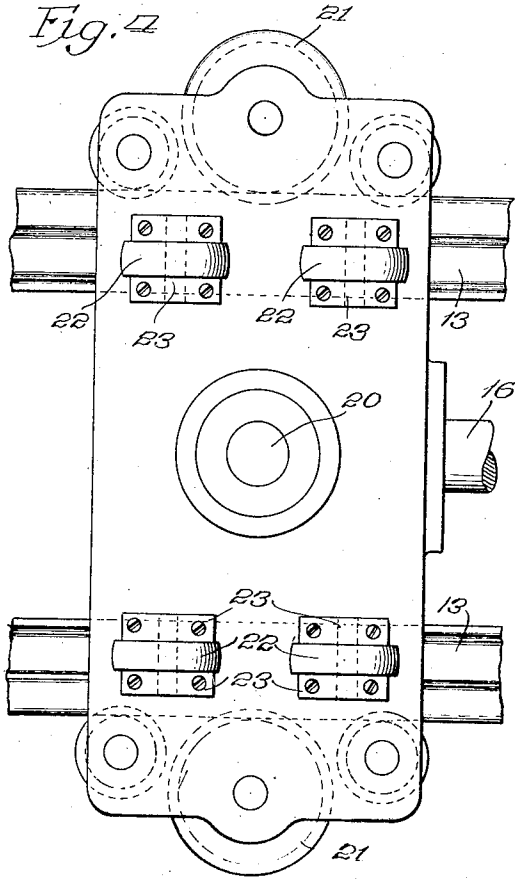


Fig. 5

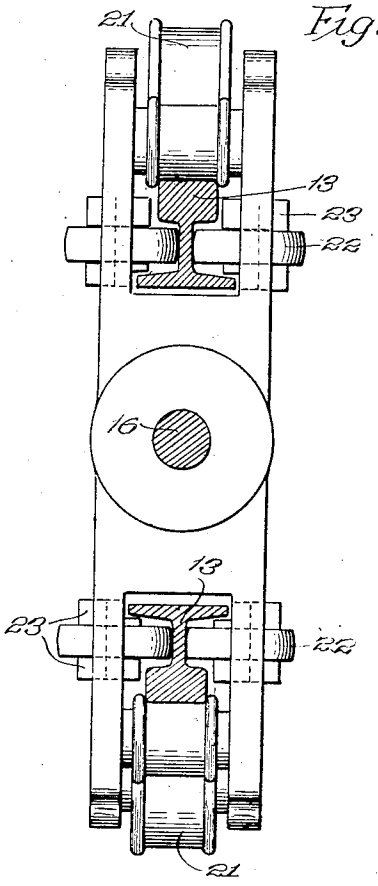


Fig. 6

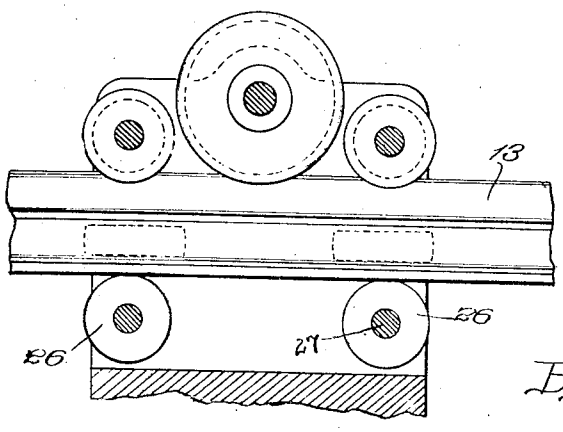
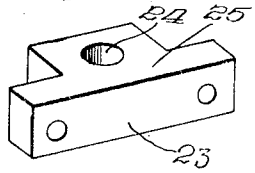


Fig. 7



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UNITED STATES PATENT OFFICE.

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CROSSHEAD FOR LOCOMOTIVES.

1,354,781. Specification of Letters Patent. Patented Oct. 5, 1920.

Application filed March 13, 1919. Serial No. 282,342.

To all whom it may concern:

Be it known that I, JOHN S. SCANLIN, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented new and useful Improvements in Crossheads for Locomotives, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in cross heads for locomotives, and has for its object the production of a device by means of which the greater part of the friction ordinarily found in cross-heads is eliminated.

A further object is the production of a device in which only a small quantity of lubricant is required.

A further object is the production of a device of simple and efficient construction and one that can be cheaply constructed and not liable to disarrangement of parts.

These and such other objects as may hereinafter appear are attained by my device, embodiments of which are illustrated in the accompanying drawings in which—

Figure 1 represents a side elevation of my device in position on a portion of a locomotive.

Fig. 2 represents a sectional view on the line 2—2 of Fig. 1, looking in the direction indicated by the arrows.

Fig. 3 represents a sectional view on the line 3—3 of Fig. 1, looking in the direction indicated by the arrows.

Fig. 4 represents a large side view of a modified form of my device.

Fig. 5 represents a sectional view on the line 5—5 of Fig. 4 looking in the direction indicated by the arrows.

Fig. 6 represents a side elevation of a portion of Fig. 5.

Fig. 7 represents a perspective view of one of the roller supports.

Like numerals of reference indicate like parts in the several figures of the drawing.

Referring now to the drawings, my improved cross head comprises a main casing, 8, having upper yoke members 9, 9^a, and lower yoke members 10, 10^a. Roller bearings 11, are mounted in both the upper and lower yokes; carrying rollers 12^a mounted close to the outer extremity of the head 8. The frame 12, is secured to the locomotive body and cylinder, and guides 13, preferably formed from railroad rail, are bolted to supporting castings 14 and 15; the castings 14 being secured to the end of the frame 12 and the castings 15 being secured to the cylinder head. While I have provided railroad rails for guiding rails, of course any other form of guide can be substituted but I find that the rails give very satisfactory results, cheap and easily procurable and will sustain great strain.

The piston rod 16, of the cylinder 17, is secured at its outer end to the cross head at 18, and the connecting rod 19, is pivotally mounted on the bearing 20, in the center of the cross head.

In Fig. 4, *et seq.*, I have illustrated other forms of my device. In Fig. 4 I show in addition to the two small rollers in dotted lines, a large roller 21, adapted to travel on the guide rails with two pairs of side rollers 22. These rollers are mounted on bearings 23 fitting within an opening 24, in a casting, secured to the side of the cross head frame. These rollers fit within the flange and base of the rail guide as shown in Fig. 5 and prevent any lateral motion of the cross head. In Fig. 6, I have shown an additional set of rollers 26, mounted on bearings 27, and positioned within the frame below the rail. Of course it is understood that I do not limit myself to any one of these forms but conditions under which the engine is used may make one form more efficient than another, but in any event, the use of roller bearings in place of slide bearings is the essential element of my invention and by the use of this, I provide a very efficient structure without necessitating the use of lubricant to any great extent and also provide one which operates with a minimum of friction. This is a very important feature as all danger of hot bearings is prevented and the life of the cross head indefinitely extended.

Of course it is understood that the diameter of the rollers is made to correspond with the length of travel on the guides. That is, provision is made so that the rollers will at least travel one or more times

throughout their entire periphery at each stroke thus insuring even wear on the face of the rollers.

I claim—

1. In a locomotive in combination with a pair of rigid guides, a cross head mounted to travel on said guides, a connecting rod and piston rod pivotally secured to the center of said cross head, a plurality of rollers pivotally mounted within said cross head, said rollers being adapted to travel on the outer faces of said guides.

2. In a locomotive in combination with a pair of rigid guides, a cross head mounted to travel on said guides, a connecting rod and piston rod pivotally secured to the center of said cross head, sets of horizontally and vertically disposed rollers, the cross head and a horizontally disposed set of said rollers being adapted to travel on the outer faces of said guides and a vertically disposed set of said rollers adapted to travel on the sides of said guides.

3. In a locomotive in combination with a pair of rigid guides whose cross section is similar to that of a railroad rail, a cross head mounted to travel on said guides, a connecting rod and piston rod pivotally secured to the center of said cross head, a horizontally disposed set of said rollers being adapted to travel on the outer faces of said guides and a vertically disposed set of said rollers adapted to travel on the sides of said guides.

In witness whereof I have hereunto subscribed my name.

JOHN S. SCANLIN.