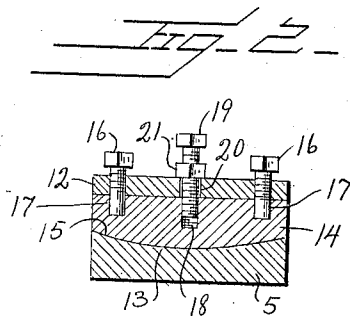
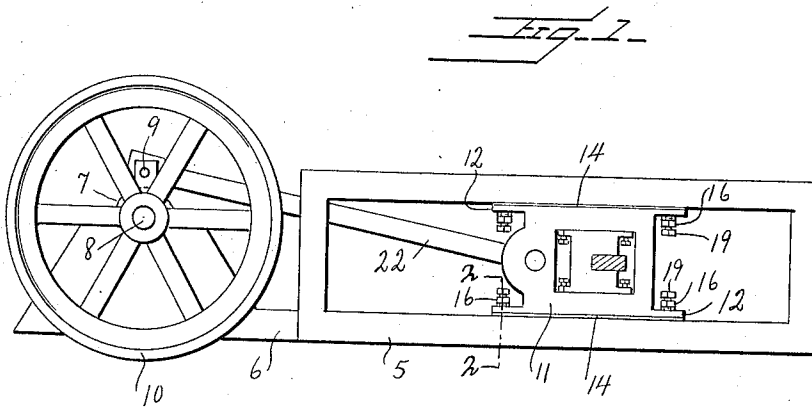


J. E. SUSSEX.  
CROSSHEAD, GUIDE FOR ENGINES,  
APPLICATION FILED AUG. 5, 1918.

1,310,512.

Patented July 22, 1919.



Inventor

J. E. Sussex

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# UNITED STATES PATENT OFFICE.

JAMES E. SUSSEX, OF HOPE, NORTH DAKOTA.

CROSSHEAD-GUIDE FOR ENGINES.

1,310,512.

Specification of Letters Patent.

Patented July 22, 1919.

Original application filed March 23, 1918, Serial No. 224,272. Divided and this application filed August 5, 1918. Serial No. 248,313.

*To all whom it may concern:*

Be it known that I, JAMES E. SUSSEX, a citizen of the United States, residing at Hope, in the county of Steele and State of North Dakota, have invented certain new and useful Improvements in Crosshead-Guides for Engines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved cross head guide for engines, and constitutes a division of the subject matter disclosed in my prior application for patent, Serial No. 224,272, filed March 23, 1918.

It is the primary object of the present invention to provide an improved mounting of the cross head in the guide frame so as to insure its free and unrestricted reciprocating movement.

It is also a more particular object of the invention to provide an improved mounting of the cross head particularly designed for use in connection with heavy duty engines, together with means for compensating for wear between the cross head and its guide frame so that lost motion in the operation of the engine and undue vibration of the parts will be obviated.

And it is a further general object of the invention to provide a device for the above purpose which is relatively simple in its construction, as well as strong and durable, and which can be manufactured and applied to the ordinary reciprocating engine at relatively small cost.

With the above and other objects in view, the invention consists in the improved combination, construction and relative arrangement of the several parts as will be hereinafter more fully described, subsequently claimed and illustrated in the accompanying drawing in which similar reference characters designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a side elevation illustrating one embodiment of my improved cross head mounting; and

Fig. 2 is an enlarged transverse section taken on the line 2—2 of Fig. 1.

Referring in detail to the drawing, 5 designates a guide frame which is rigidly anchored or fixed to a suitable base and is provided at one of its ends with a longitudinal extension 6 having suitable bearings 7 in which the power shaft 8 is journaled. This

shaft is centrally formed with a crank 9 and upon the ends of said shaft, wheels 10 are fixed. With one of these wheels a suitable driving belt may be engaged, while the other serves as a fly wheel. Between the upper and lower parallel longitudinal portions of the frame 5, the sliding cross head 11 is arranged. This cross head at its opposite ends and at the upper and lower sides thereof, is provided with longitudinal arms or extensions 12. The faces of the frame bars which are opposed to the longitudinal upper and lower faces of the cross head, are concave, as shown at 13, and between the frame bars and the cross head, the longitudinally extending wear plates or shims 14 are interposed, each of said plates having a convex face 15 concentrically related to the concave face 13 of the frame bar. In the projecting arms 12 of the cross head adjacent the longitudinal edges thereof, the adjusting screws 16 are threaded, said screws engaging in the sockets 17 formed in the plane face of the wear plate 14. Each wear plate is also provided in its opposite ends with a centrally located threaded socket or recess 18 to receive the threaded shank of a bolt 19 which is loosely engaged through an opening 20 in the arm 12 of the cross head. A lock nut, indicated at 21, also has threaded engagement upon the bolt 19. When it is necessary to compensate for wear upon the contacting faces 13 and 15 of the cross head and the wear plates, so that vertical movement or vibration of the cross head in its frame may be obviated, the lock nuts 21 are first adjusted upon the bolts 19 out of contact with the arms 12, and the screws 16 are then adjusted to move the wear plates and dispose their convex faces 15 in close sliding contact with the concave faces 13 of the cross head frame. In such adjustment, the bolts 19 move freely through the openings 20 in the arms 12. The lock nuts 21 are then adjusted on the bolts into binding engagement with said arms, whereby the wear plates are retained in their adjusted positions.

The engine cylinders may be mounted and arranged and operatively connected to the cross head in the manner disclosed in my prior application hereinbefore referred to, or in any other preferred manner. The cross head is operatively connected by means of the rod 22 to the crank 9 of the power shaft in the usual manner.

From the foregoing description, taken in connection with the accompanying drawing, the construction, manner of operation and several advantages of my invention will be clearly and fully understood. The mounting and adjusting means for the cross head as above described, is particularly desirable for use in connection with engines employed for the propulsion of tractors or other heavy farm machinery, though it will be understood that the device may likewise be utilized in connection with stationary engines, such as those commonly employed for the operation of threshing machines, saw mills, and the like. By the provision of my improved wear compensating means, undue vibration of the cross head in its frame is obviated, but without in any appreciable degree retarding the free, reciprocating or sliding movement of the cross head. Thus, the general durability and serviceability of the engine in practical operation will be greatly enhanced. It will also be appreciated that in view of the very simple construction of the invention, the device can be produced at relatively small manufacturing cost.

While I have herein shown and described the preferred construction and arrangement

of the several parts, it is to be understood that the device is susceptible of considerable modification therein and I, accordingly, reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:—

In an engine, a frame having parallel longitudinal bars, a cross head arranged between said longitudinal bars, wear plates interposed between the cross heads and the longitudinal bars, each end portion of the wear plates being provided with a series of substantially transversely alined sockets, an intermediate socket of each series being internally threaded, bolts in engagement with the threaded sockets of the wear plates and extending through the cross head, lock nuts engaged with said bolts and coacting with the cross head, and adjacent screws threaded in the cross heads and extending within the remaining sockets of the wear plates.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JAMES E. SUSSEX.

Witnesses:

L. E. MILLER,  
JOHN LYNN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."