

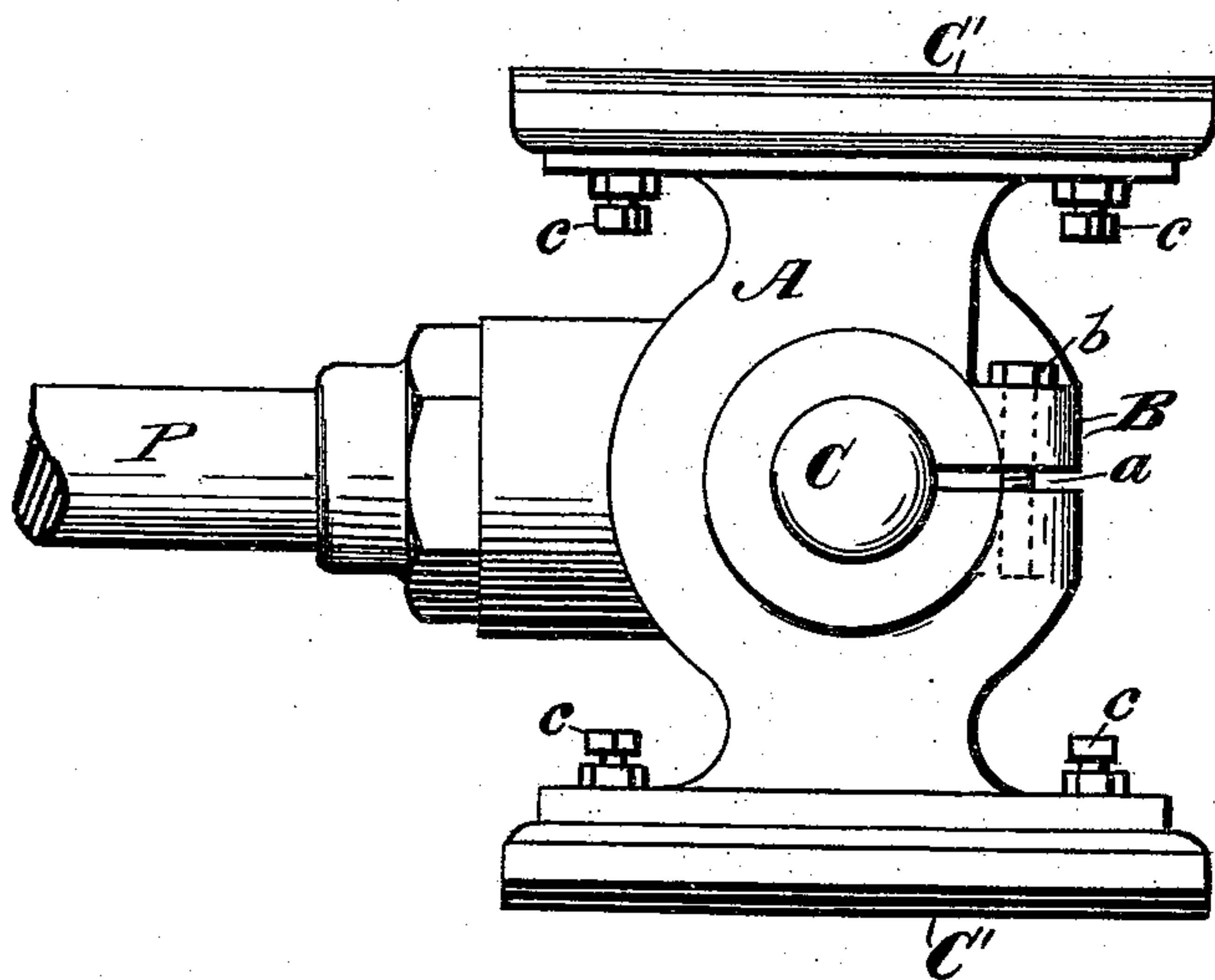
(No Model.)

J. B. STANWOOD.  
CROSS HEAD.

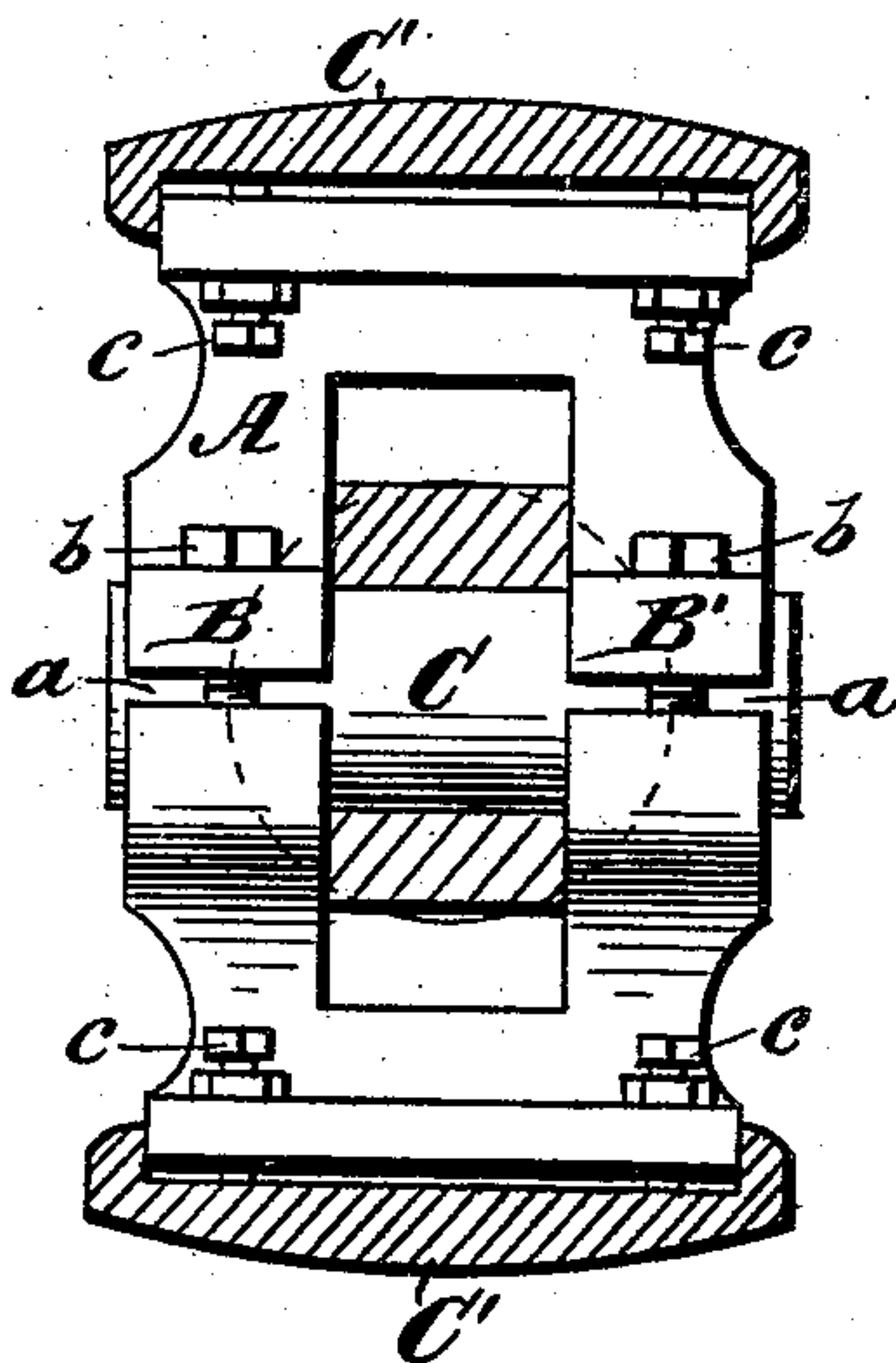
No. 487,895.

Patented Dec. 13, 1892.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
*Robert Emmett*  
*William Gaskin*

*Inventor:*  
*James B. Stanwood.*  
*By* *W. H. Hovea*  
*Atty.*

# UNITED STATES PATENT OFFICE.

JAMES B. STANWOOD, OF CINCINNATI, OHIO.

## CROSS-HEAD.

SPECIFICATION forming part of Letters Patent No. 487,895, dated December 13, 1892.

Application filed May 25, 1891. Serial No. 394,080. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. STANWOOD, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Cross-Heads, of which the following is a specification.

My invention relates to the construction of cross-heads of the type which slide between guides above and below the same and in which the wrist-pin is held firmly seated in the cross-head, having reference particularly to the mode of inserting and retaining the cross-pin or wrist upon which the pitman is pivoted, its object being to obtain a cheaper and better construction than has been common in former practice.

In steam-engine construction wherein the translation of reciprocating lineal motion into rotary motion is to be provided for the cross-head pin becomes one of the important connections, inasmuch as the full force of the steam driving-pressure and the full resistance of the compression at the end of the piston-stroke are delivered at this point. It is necessarily a separate part fitted into the cross-head, because it is to be turned to exact cylindrical form at the portion occupied by the pitman, which operation could not be performed while in or attached to the cross-head. In order, therefore, to insure an exact contact-fit, it has been customary to turn the ends of the pin to conical form and fit them in correspondingly-bored apertures in the jaws of the cross-head, in order thereby to obtain a tightly-wedged fit in each. This, as may readily be seen, involves considerable expense, very close workmanship, and even then the fit is not easy to obtain, besides which the wedging of the pin in its socket makes it very difficult to remove. In my improvement the pin is made cylindrical throughout and the holding-apertures are likewise bored to a size permitting an easy or even a loose fit around the pin, and each jaw of the cross-head is then slit in the axial plane of the pin from the pin-apertures forward and outward between and parallel to the plane of the guides and provided with set-bolts, by which the pin-openings are contracted, and the metal thus clamped around the pin at each side of the pitman-opening. A fastening is thus produced which is easily and inexpensively con-

structed, which holds the pin with absolute firmness and rigidity, and yet permits the pin to be easily removed or turned to new radial relations with the pitman. Adjustable facing-plates above and below are provided, which when loosened permit the jaw portions to spring apart and release the wrist-pin when the clamping-bolts are unscrewed and are re-set to accurate sliding relations with the guides when the parts are again clamped together.

Mechanism embodying my improvement is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a common type of Corliss cross-head to which my improvement is applied, and Fig. 2 a sectional front elevation of the same.

Referring now to the drawings, A designates the cross-head, which is the forward terminal of the piston-rod P. As commonly constructed it possesses two forwardly-projecting jaws B B, between and in which is secured the pin or wrist C, which is a separately-turned piece inserted in apertures suitably bored in the jaws. Constructed according to my improvement the jaws B B' are slit in the plane of the axis of the pin C forward and outward, as at *a*, and provided with set-nuts *b b'*, respectively, passing through the upper part of each jaw and threaded into the lower part, as indicated, for the purpose of forcing the two portions of the jaw toward each other against the natural elastic resistance of the metal, thereby clamping the pin firmly in its place. The arrangement of the plane of slit in the line of thrust of the piston is important, as the slitting of the jaws does not therefore materially weaken the structure, since the reciprocatory stresses of compression and tension are distributed equally in both halves of each jaw and do not tend to wear or loosen the clamping-bolt. Since in clamping the parts of the jaw together the contact-faces of the cross-head would be thrown slightly out of parallelism, I employ adjustable sliding faces C', governed by set-nuts *c*, constructed and operating in the usual manner.

The advantages of the construction are that an absolutely tight and rigid fit is assured without resort to difficult or expensive workmanship, while at the same time the ut-



most facility is afforded for removing the pin or turning the same to new angles to present new wearing-surfaces to the pitman.

I claim as my invention and desire to secure  
5 by Letters Patent of the United States—

A cross-head constructed in one piece with upper and lower bearings, a vertical slot between for the reception of the pitman, horizontal apertures outward through the side  
10 cheeks for the wrist-pin, corresponding horizontal slits forward through said cheeks in the axial plane of and opening into the wrist-pin apertures, in combination with set-bolts

passing through the upper and threaded into the lower half of the cheeks through the  
15 plane of slit and with adjustable sliding plates covering the upper and lower bearings of the cross-head, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing  
20 witnesses.

JAMES B. STANWOOD.

Witnesses:

L. M. HOSEA,  
E. HOSEA.