

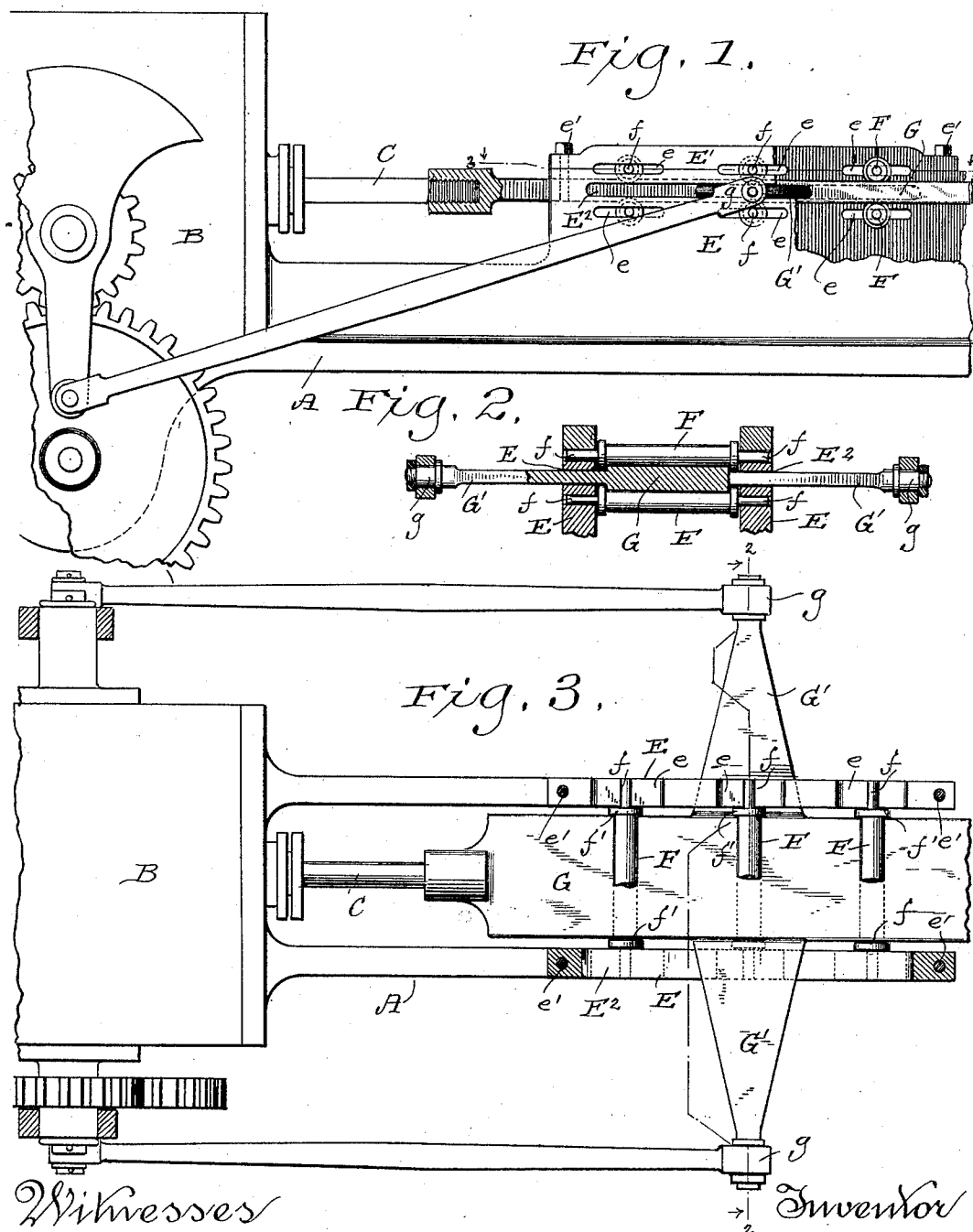
(No Model.)

2 Sheets—Sheet 1.

L. A. LE MIEUX.
CROSS HEAD FOR STEAM ENGINES.

No. 465,671.

Patented Dec. 22, 1891.



Witnesses
Geo. W. Loring.
John B. Miles.

Inventor
Lucius A. Le Mieux
By H. G. Underwood
Attorneys

(No Model.)

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Fig. 5.

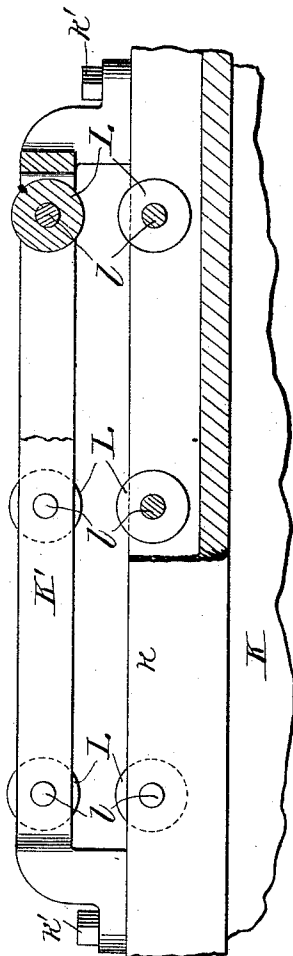
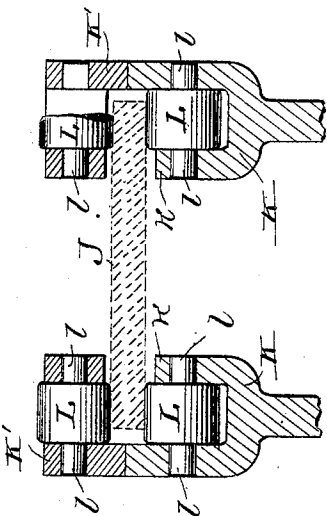


Fig. 4.



Witnesses
Geo. W. Young.
John C. Miles.

Inventor
Lucius A. Le Mieux
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

LUCIUS A. LE MIEUX, OF SEYMOUR, WISCONSIN.

CROSS-HEAD FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 465,671, dated December 22, 1891.

Application filed April 3, 1891. Serial No. 387,549. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS A. LE MIEUX, a citizen of the United States, and a resident of Seymour, in the county of Outagamie, and in the State of Wisconsin, have invented certain new and useful Improvements in Cross-Heads for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to certain new and useful improvements in cross-heads for steam-engines, and has for its object the provision of an improved form of cross-head which shall move very freely in the guides and with the smallest possible amount of friction.

The invention consists in the matters hereinafter described, and pointed out in the claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of an engine provided with my improved form of cross-head. Fig. 2 is a cross-section of the cross-head on line 2 2 of Fig. 3. Fig. 3 is a top plan view of the engine shown in Fig. 1. Fig. 4 is a cross-sectional view illustrating another form of my improved cross-head. Fig. 5 is a side elevation, partly in section, of the same.

In said drawings, A indicates the engine-frame of any desired or familiar construction; B, the cylinder, and C the piston-rod.

In the form of device illustrated in Figs. 1, 2, and 3 the engine-frame A is provided with upwardly-extending walls E E, extending lengthwise of the said frame upon both sides of the piston-rod C. These longitudinal walls E E are provided with horizontal slots e e, and anti-friction rollers F F are located between the said walls E E, said rollers being provided with trunnions f f, which engage the slots e e, as shown in Figs. 1, 2, and 3 of the drawings. The cross-head is in this form of construction formed from a long flat piece of metal G, rigidly secured to the outer end of the piston-rod and resting horizontally between the upper and lower rows of rollers F F. These rollers are located at a suitable distance apart to permit the flat cross-head G to lie between them, as shown, both the upper and lower rollers being engaged with the said cross-head. The slots e e are of a sufficient length to permit

the trunnions f f to have a rolling movement therein, so long as the rollers F F are rotated by their engagement with the surfaces of the cross-head. Flanges f' f' are provided upon the ends of the rollers F F, said flanges being arranged to engage the edges of the flat cross-head G, so as to prevent any lateral play thereof. By this construction it will be seen that the longitudinal movement of the cross-head is attended with very little friction, inasmuch as the rollers F F have a rolling engagement with both the cross-head and the slots in the frame of the engine.

In the form of construction shown in Figs. 4 and 5 another form of my improved cross-head is illustrated, in which upwardly-extending flanges K K are provided upon the opposite sides of the engine-frame, said flanges being provided with longitudinal slots k k in their inner surfaces, and with rollers L L, journaled in bearings l l in said flanges. In this form of construction the cross-head is made from a long flat piece of metal, as in the first form of construction described, said cross-head being arranged between the upper and lower rollers L L.

For convenience of construction the guides are made of upper and lower sections, each carrying one set of the rollers, and the upper one of said sections being made removable. As shown in Figs. 1, 2, and 3, the upper sections of the guides E' E' are secured in position upon the lower parts E E by means of bolts e' e', the lower parts E E being further provided with slots E² E², through which arms G' G' extend from the cross-head, said arms being provided at their outer extremities with suitable connections g g, by means of which the valve governing the admission and exhaust of steam is operated. In the form of construction shown in Figs. 4 and 5 the upper part K' of each of the guides is removably secured upon the lower portion K by means of bolts k' k', so that in case it becomes necessary to remove the cross-head said upper part K' may be readily unfastened and the cross-head lifted out.

It will be seen that by my improvements I am enabled to construct a cross-head which moves very freely within its guides and with the very least possible amount of friction, the

wear upon the moving parts being thereby reduced to a minimum and the engine being rendered very durable. I would have it understood, also, that numerous modifications may be made in the construction and arrangement of the parts without departure from my original invention, and I therefore do not desire to limit myself to the exact form or forms shown in the drawings.

10 Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is--

1. The combination, with the cylinder and piston of a steam-engine, of a cross-head comprising a flat elongated bar operatively connected with said piston, and anti-friction rollers journaled upon the frame of the engine and arranged to bear upon opposite surfaces of said cross-head, substantially as described.

20 2. The combination, with the frame, cylinder, and piston of a steam-engine, of a cross-head comprising a flat elongated bar operatively connected with said piston, flanges upon the frame of the engine projecting upwardly upon opposite sides of the said cross-

head, and anti-friction rollers journaled in said flanges and arranged to bear upon the upper and lower surfaces of said cross-head, substantially as described.

3. The combination, with the frame, cylinder, and piston of a steam-engine, of a cross-head comprising a flat elongated bar operatively connected with said piston, flanges projecting upwardly from the frame of the engine upon opposite sides of said cross-head and provided with horizontal slots, and anti-friction rollers provided with trunnions having a rolling engagement with said slots and arranged to bear against the upper and lower surfaces of said cross-head, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

LUCIUS A. LE MIEUX.

Witnesses:

H. G. UNDERWOOD,
JOHN E. WILES.