

(No Model.)

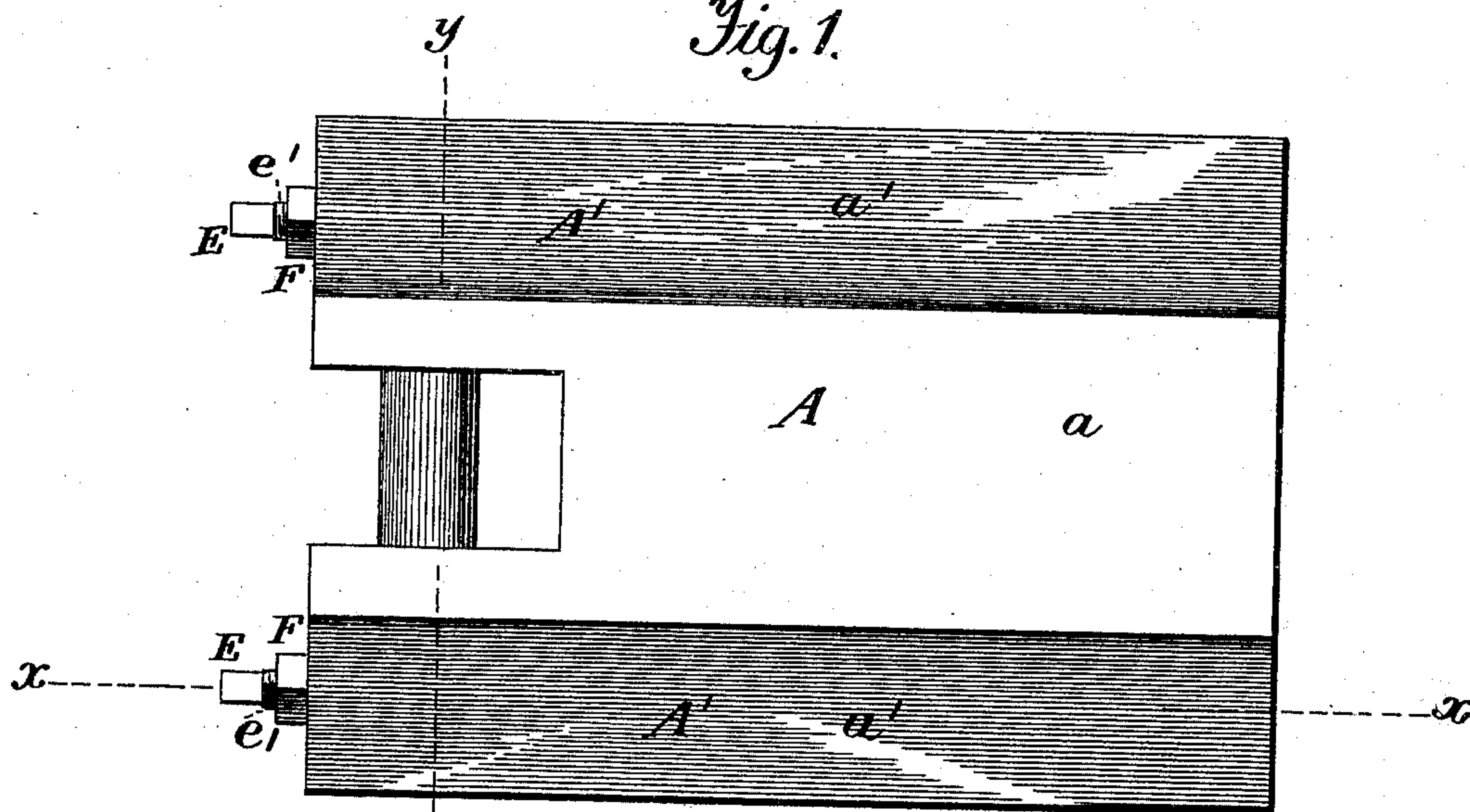
J. A. STILES.

LOCOMOTIVE STEAM ENGINE CROSS HEAD.

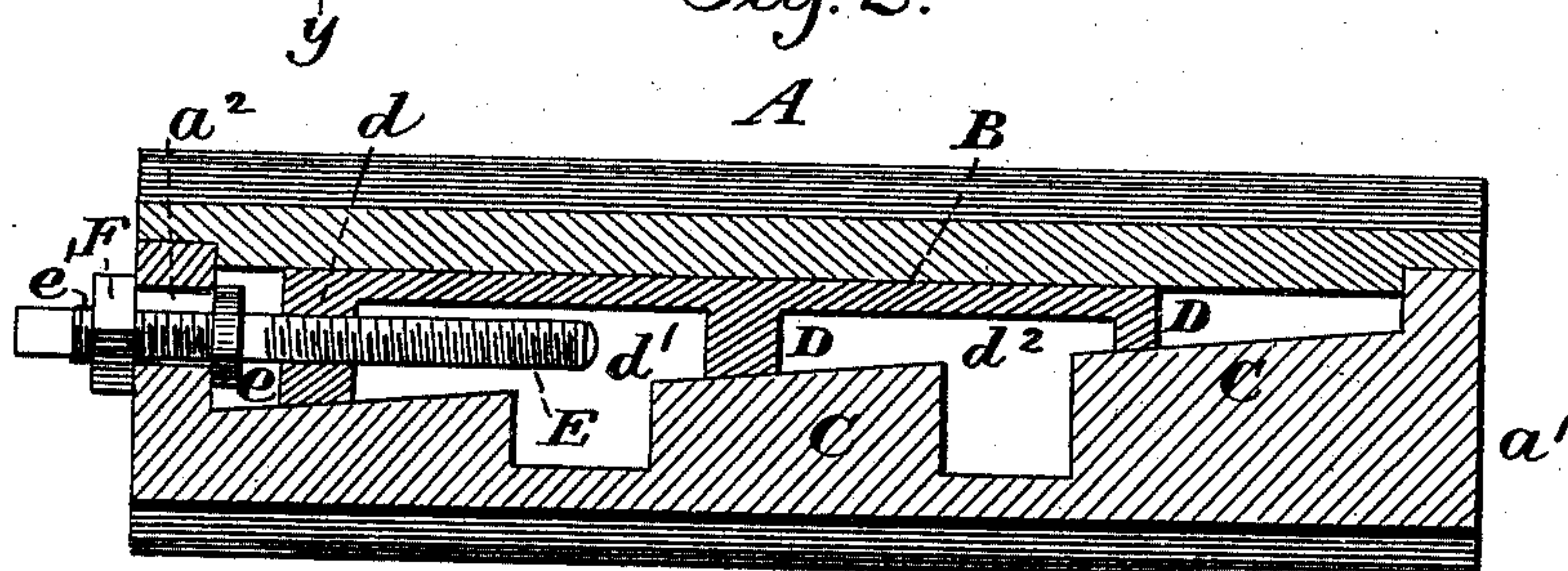
No. 416,966.

Patented Dec. 10, 1889.

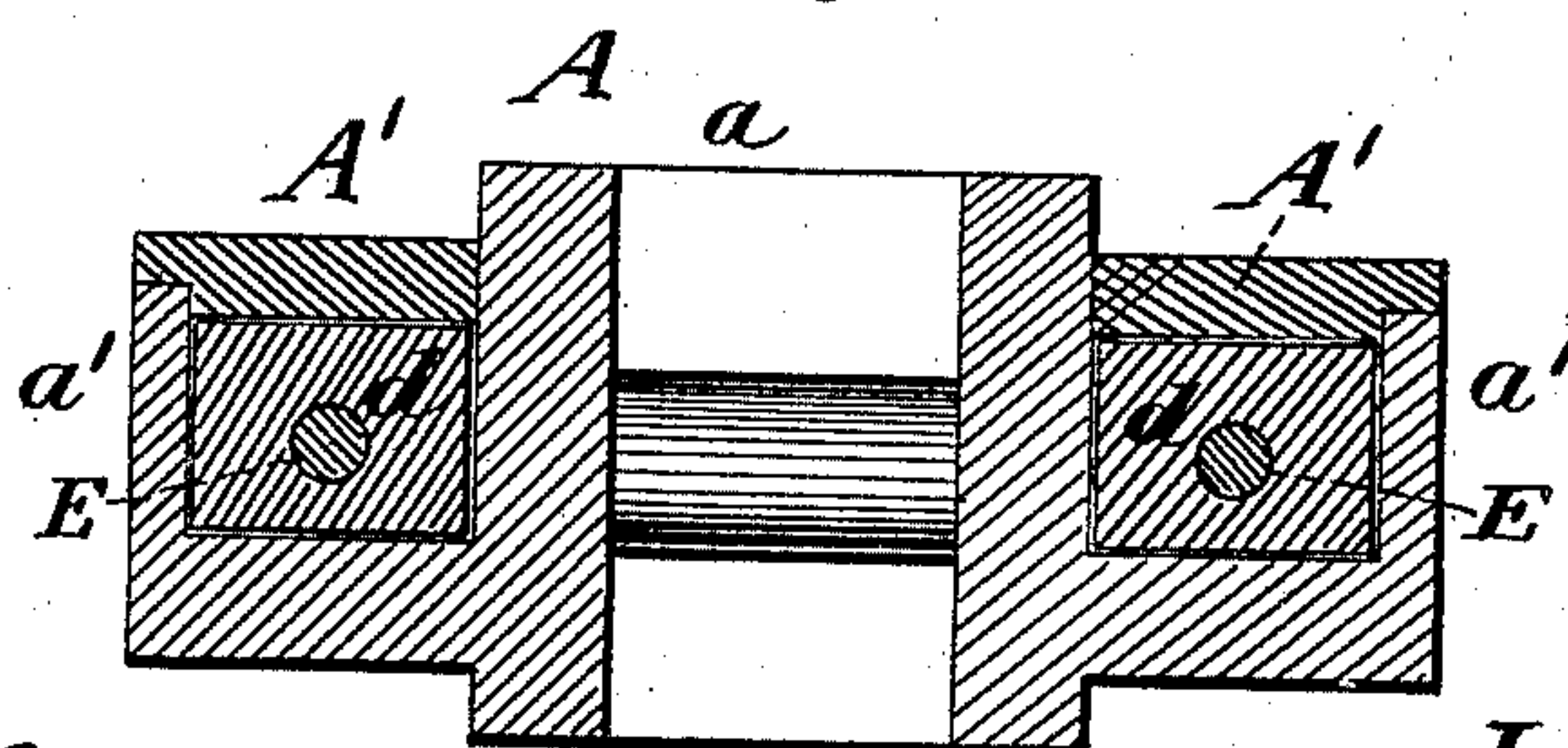
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

JAMES A. STILES, OF ST. JOHN'S, MICHIGAN.

## LOCOMOTIVE STEAM-ENGINE CROSS-HEAD.

SPECIFICATION forming part of Letters Patent No. 416,966, dated December 10, 1889.

Application filed June 28, 1889. Serial No. 315,947. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. STILES, a citizen of the United States, residing at St. John's, in the county of Clinton and State of Michigan, have invented certain new and useful Improvements in Locomotive Steam-Engine Cross-Heads; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to a locomotive cross-head with four-way bars and adjusting parts independent of each other, so that the cross-head can be kept perfectly horizontal.

Figure 1 of the drawings is a plan view; Fig. 2, a vertical longitudinal section on dotted line  $xx$  of Fig. 1; and Fig. 3, a vertical cross-section on dotted line  $yy$  of Fig. 1.

In the drawings, A represents the cross-head with the main body  $a$ , and on each side thereof a tenon  $a'$ , which slides in a corresponding way of the engine-frame. These tenons  $a'$  are provided each with one movable face-piece  $A'$ , are hollow, and contain on the inside a fixed inclined piece C, against which are forced the correspondingly-inclined pieces D, to raise the pieces  $A'$ . I am aware that, broadly, this idea is not new, wedges having been long used to take up wear on the working-faces; but what I have done will now be described. I make the movable piece D with

the cross-flange  $d$ , having the desired forward and upward incline to correspond with that on the fixed inclined piece C, leaving an open space  $d'$ , in which may travel the screw E, which is tapped in the flange  $d$ , so as to carry the half-wedge D forward or back, the latter being solid from the space  $d'$  to the end, or cut out at  $d^2$ , to make it lighter. The screw is provided with a collar  $e$  and an end thread  $e'$ , on which works the nut F, while between the nut and collar it is swiveled in a vertical slot  $a^2$  of the tenon  $a'$ , so that the screw may rise with the half-wedge D, and the wearing-piece B may keep its working-face horizontal. It will be perceived that each side is independent, that the half-wedges and adjusting-screws do not extend out beyond the body  $a$ , and also that the screw is tapped into the wedge.

What I claim as new, and desire to protect by Letters Patent, is—

A locomotive cross-head having movable slide-faces  $A'$ , hollow tenons  $a'$ , containing half-wedges C D, of which one is adjustable on the other, and a screw E, tapped into the movable wedge, said tenons  $a'$  being vertically slotted at  $a^2$ , whereby the screw will rise with the movable wedge and an even adjustment always be secured.

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

JAMES A. STILES.

Witnesses:

CHARLES F. BISHOP,  
GEORGE F. CROSS.