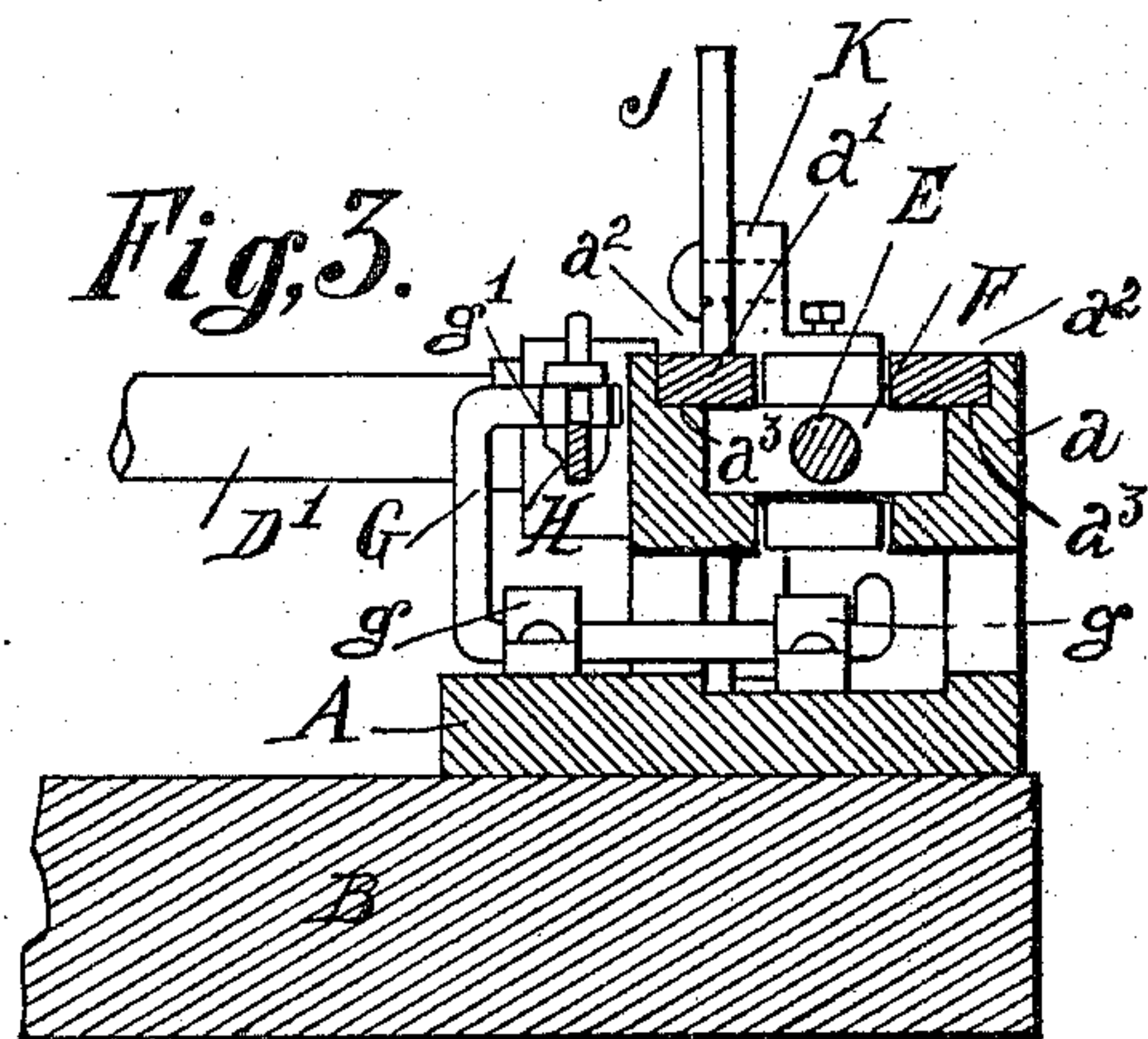
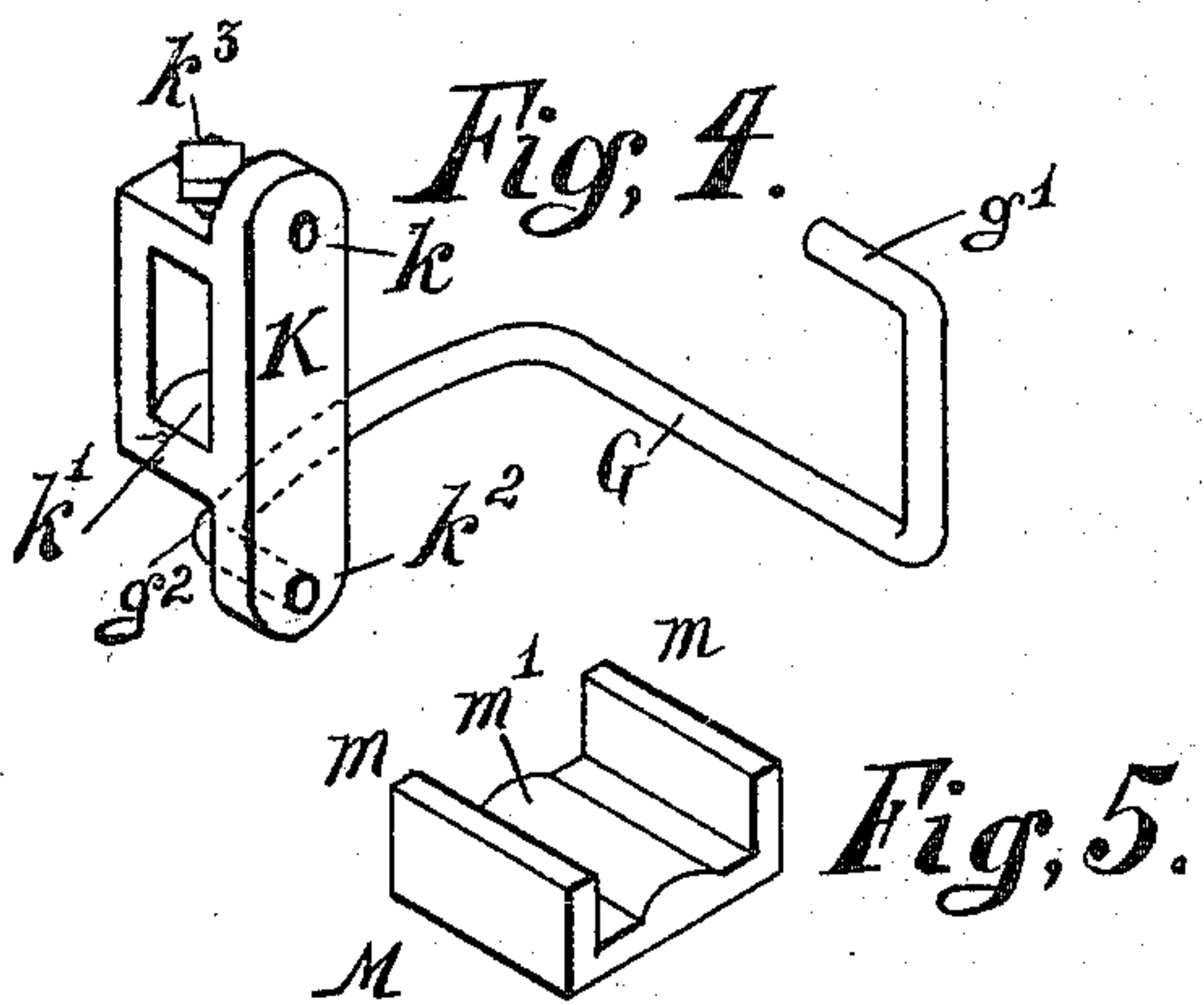
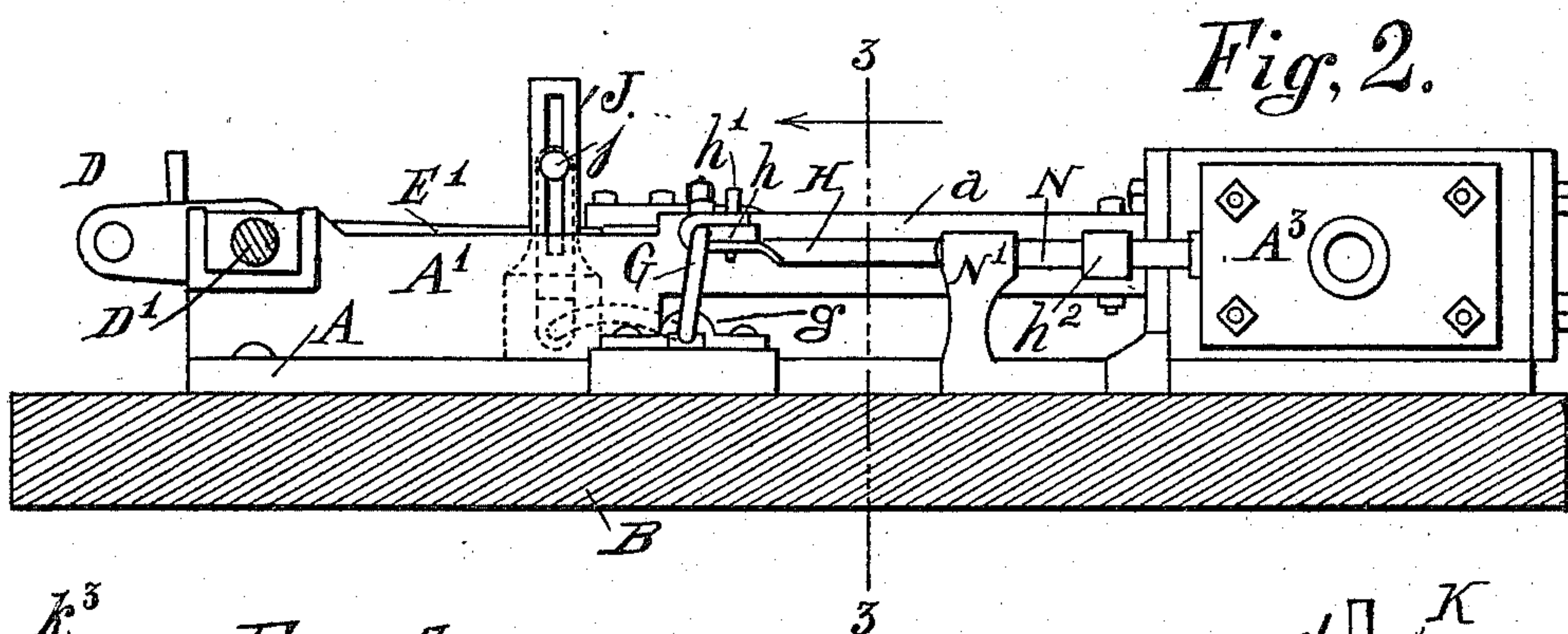
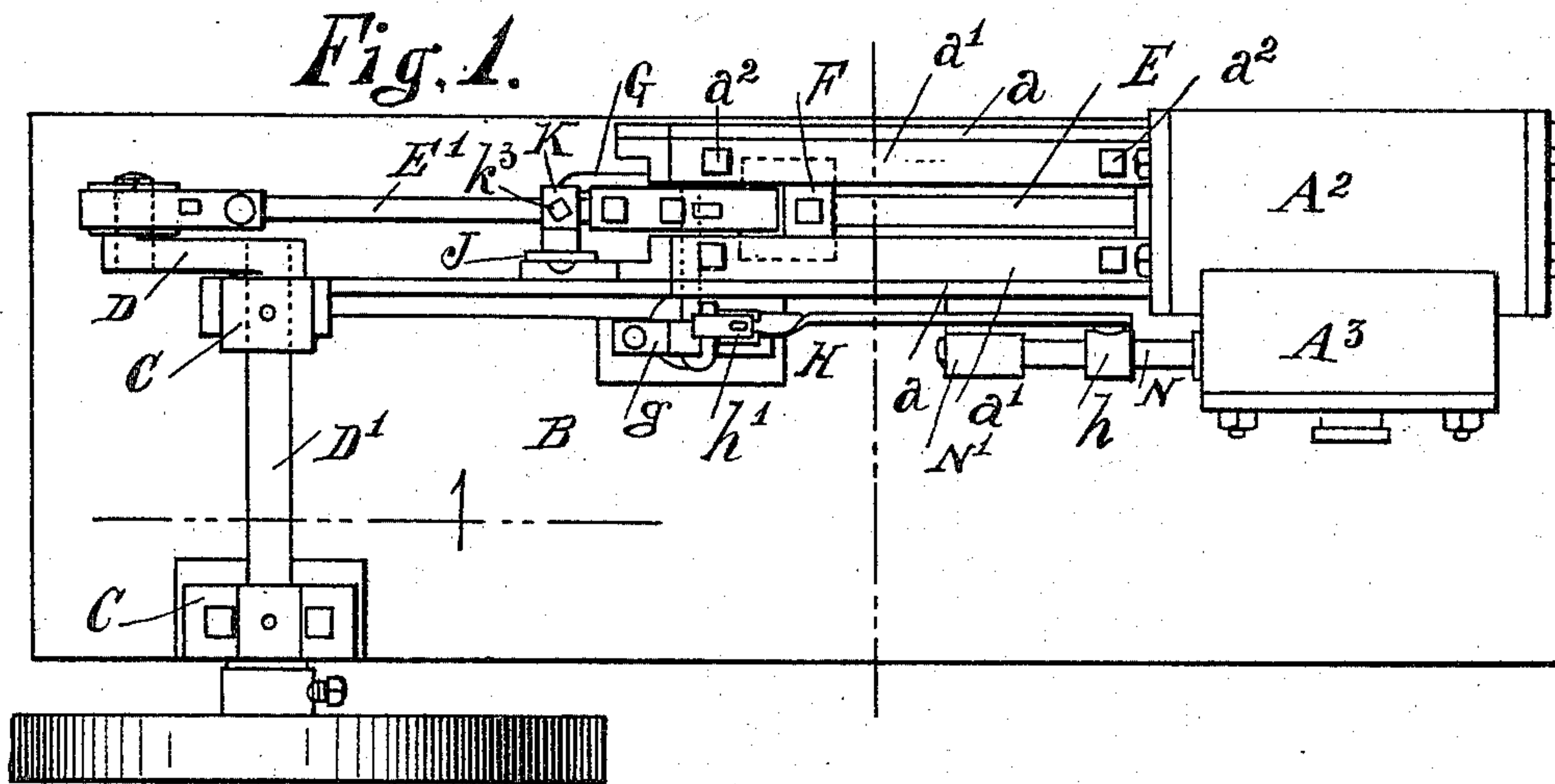


(No Model.)

P. MUNDT.  
VALVE GEAR FOR ENGINES.

No. 573,100.

Patented Dec. 15, 1896.



Inventor.  
Paul, Mundt,

Witnesses.  
Wm H. Deutsch.  
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# UNITED STATES PATENT OFFICE.

PAUL MUNDT, OF BROADWELL, ILLINOIS.

## VALVE-GEAR FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 573,100, dated December 15, 1896.

Application filed July 27, 1896. Serial No. 600,733. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL MUNDT, a citizen of the United States, residing at Broadwell, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Valve-Gear for Steam-Engines, of which the following is such a full, clear, and exact description as will enable those skilled in the art to which it appertains to make and use my said invention.

The purposes of my invention are to provide mechanism of novel and improved form adapted to operate the slide-valve of the engine, and to provide an engine-frame so constructed and arranged that said valve-actuating device may be supported thereon in suitable position to be connected with the connecting-rod of the engine, and to provide simple and effective means whereby the valve-actuating device may be adjustably connected with the connecting-rod of the engine.

With these ends in view my invention consists in certain novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described and specifically claimed.

Referring to the drawings, Figure 1 is a top plan view of the complete mechanism. Fig. 2 is a vertical longitudinal section on the line 2 of Fig. 1. Fig. 3 is an enlarged vertical transverse section on the line 3 of Fig. 2. Fig. 4 is an enlarged detached perspective view of the link-block and link forming part of the connection between the connecting-rod and the valve-rod of the engine. Fig. 5 is an enlarged detached perspective view of the adjusting-block which fits inside of the link-block and on top of the connecting-rod.

Similar letters of reference designate like parts in all of the views.

The main frame and the cylinder of the engine are preferably of cast-iron, and the base A, the side pieces A', the cylinder A<sup>2</sup>, the steam-chest A<sup>3</sup>, and the cross-head guides *a* are cast in one piece and are supported on any suitable foundation B. The crank D is secured to the crank-shaft D', which turns in suitable bearings C. The piston-rod E is connected with the crank D by means of the con-

necting-rod E' and the cross-head F in the usual well-known manner.

I will now describe the peculiar construction of the cross-head guide.

The upper part of each of the cross-head guides *a* is recessed to a depth sufficient to accommodate the cross-head F and the upper guide-plate *a'*. The plates *a'* are secured to the guides *a* by means of bolts *a*<sup>2</sup>, which pass through the holes in the plates *a'* and screw into the ledges *a*<sup>3</sup> on the cross-head guides.

The link G is supported and oscillates in boxes *g* on the base A. The upper end *g'* of the link G fits in a box *h* on the outer end of the bar H. The valve-rod N slides in standards N', and the bar H is connected with the valve-rod by means of a collar *h*<sup>2</sup>. A key *h'* serves to adjust one-half of the box *h* in the end of the rod H. The lower end *g*<sup>2</sup> of the link G fits loosely in a hole *k*<sup>2</sup> in the block K. A vertical slotted standard J is secured to the main frame. A bolt *j* passes through the slot in the standard J and screws into the hole *k* and serves to connect the block K with the standard J in such manner that when the block is raised or lowered the bolt *j* will slide in the slot in the standard. The block K has a central transverse opening *k'*, through which the connecting-rod E' passes. The lower surface of the opening *k'* is convex, as shown in Fig. 4, in order to permit rocking movement of the block K on the connecting-rod.

The adjusting-block M fits loosely in the transverse opening *k'* of the block K. The block M has vertical side walls *m*, which, when the block is in position in the transverse opening *k'*, abut against the sides of the block K, above the opening *k'*, and serve to prevent displacement of the block M. Midway between the side walls of the block M is a convex surface *m'*. When the block M is in position in the opening in the block K, the flat surface of the block M contacts with the upper surface of the connecting-rod E', and the screw *k*<sup>3</sup>, which screws into a hole in the top of the block K, bears on the convex surface *m'*. When the blocks K and M are properly adjusted relative to the connecting-rod E', the connecting-rod slides through the transverse opening *k'* and under the block



M, and as the rod E' reciprocates the block M rocks on the lower end of the bolt  $k^3$ , so as to prevent binding of the connecting-rod in the opening, and the screw  $k^3$  may be so adjusted  
 5 as to take up lost motion or wear of the parts.

It will be seen that by means of the connection described the reciprocating movement of the connecting-rod E' raises and lowers and oscillates the block K, so as to im-  
 10 part a rocking movement to the rod G, which in turn imparts a reciprocating movement to the rod H and the connected valve-rod N.

The operation of the mechanism is obvious from the description.

15 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A valve-actuating device for steam-engines, consisting of a block sliding vertically  
 20 on a standard secured to the bed-plate and having a transverse opening through which the connecting-rod of the engine slides, and a rocking link connected with said block and with the valve-rod of the engine, substan-  
 25 tially as set forth.

2. In a steam-engine the combination of a main frame, a cylinder, a piston-rod working in said cylinder, a steam-chest, a valve-rod

working in said steam-chest, a rotatable crank-shaft and crank, a connecting-rod con- 30  
 necting said crank with said piston-rod, a slotted standard secured to the main frame, a block K fitting on the connecting-rod and slidably connected with said standard and a rocking link G connected with said block and 35  
 with said valve-rod, as set forth.

3. In a steam-engine the combination of a main frame, a slotted standard secured there-  
 to, a reciprocating connecting-rod, a block K having a transverse opening  $k'$  through which 40  
 the connecting-rod passes and slidably connected with said standard, a block M fitting in the transverse opening in the block J and having a convex surface, a screw  $k^3$  in the 45  
 block K bearing on the convex surface of the block M, a rocking link G connected with the block K and a rod H connecting said rocking link with the valve-rod, as set forth.

In witness whereof I have hereunto sub-  
 scribed my name, in the presence of two wit- 50  
 nesses, at Lincoln, Illinois, this 24th day of July, 1896.

PAUL MUNDT.

Witnesses:

JOHN H. SIEB,  
 HENRY ISENBERG.