

No. 626,261.

Patented June 6, 1899.

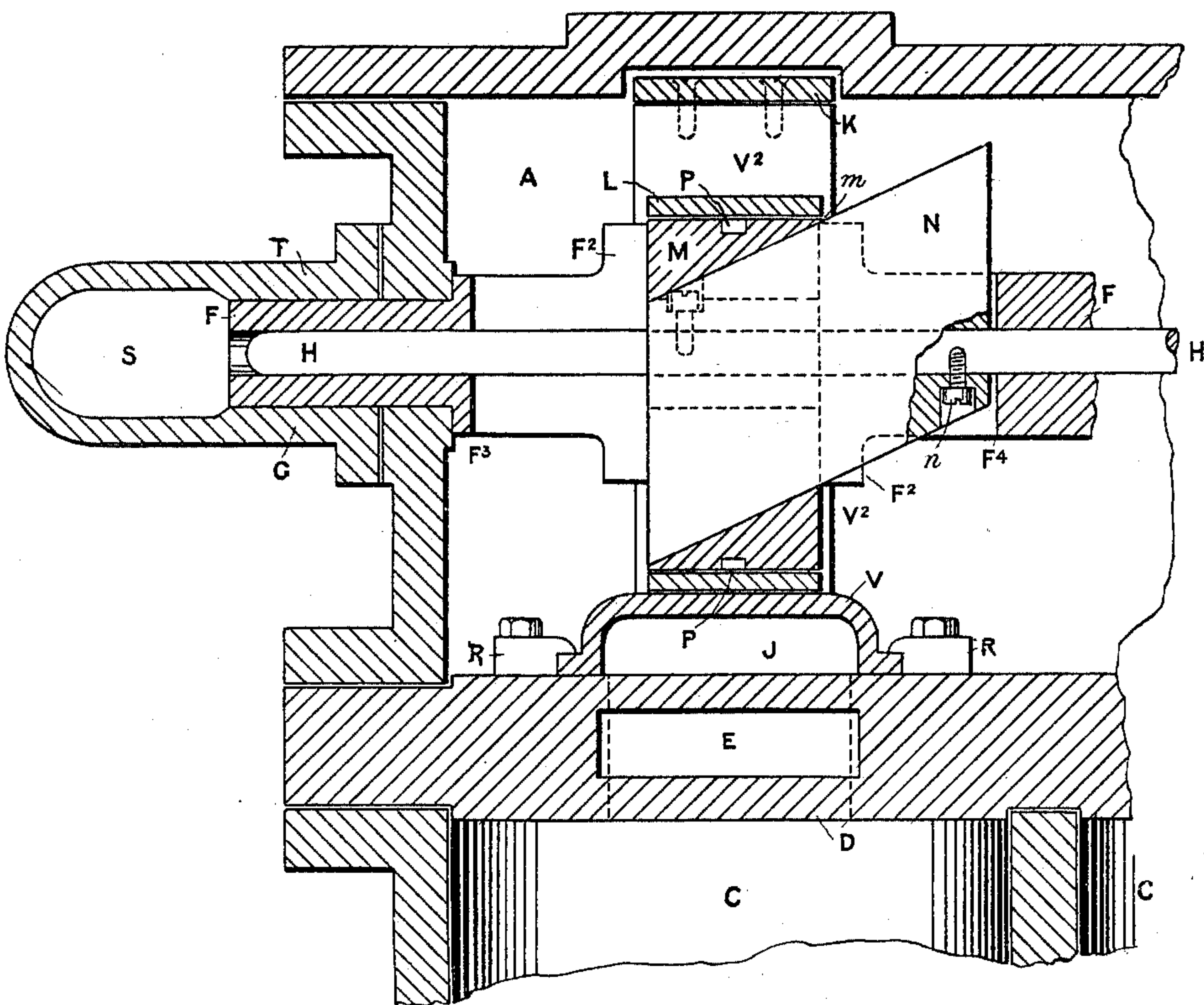
S. W. WILKINSON.
VALVE GEAR FOR SLIDE VALVES.

(Application filed Dec. 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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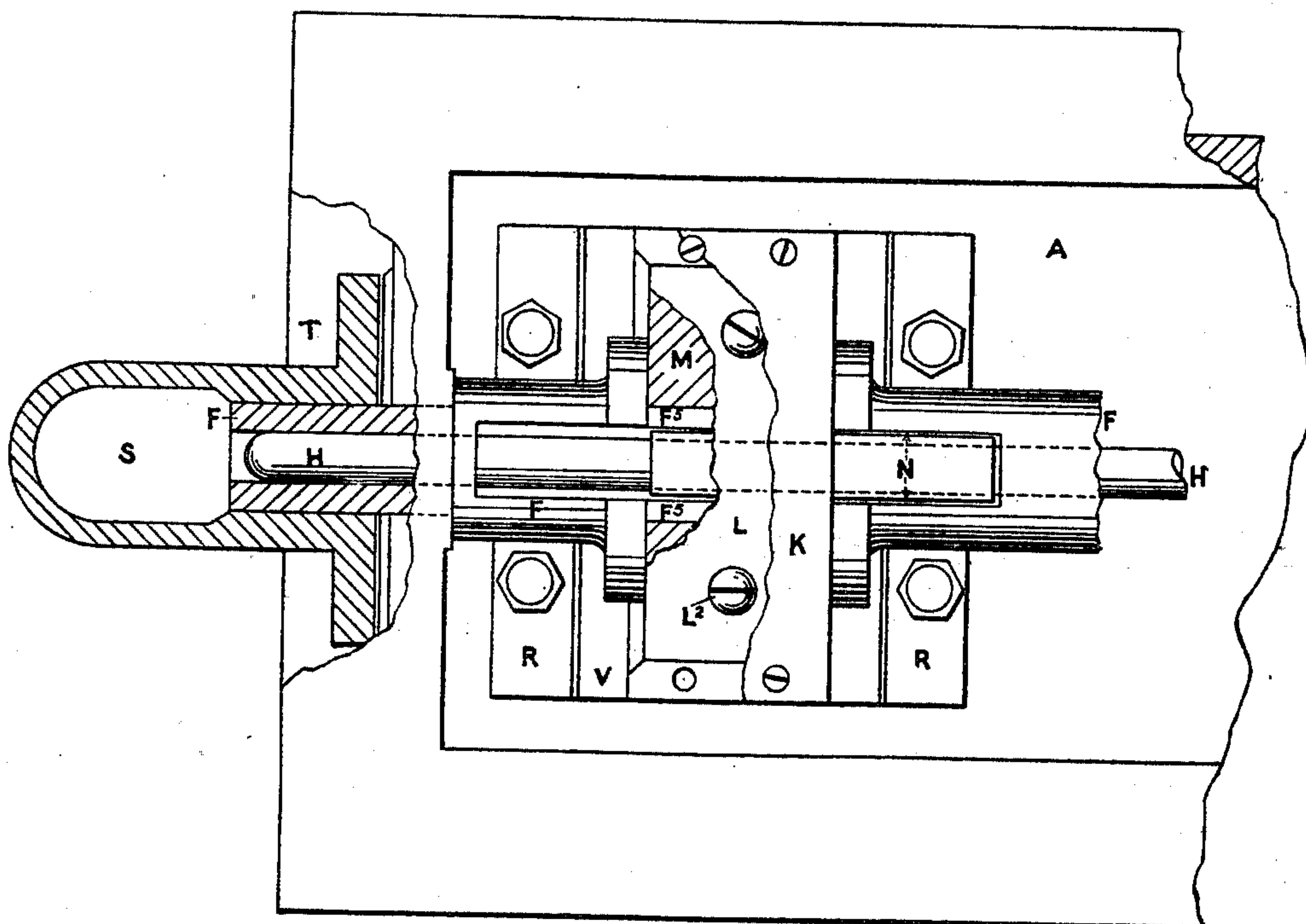
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3 Sheets—Sheet 2.

Fig 2



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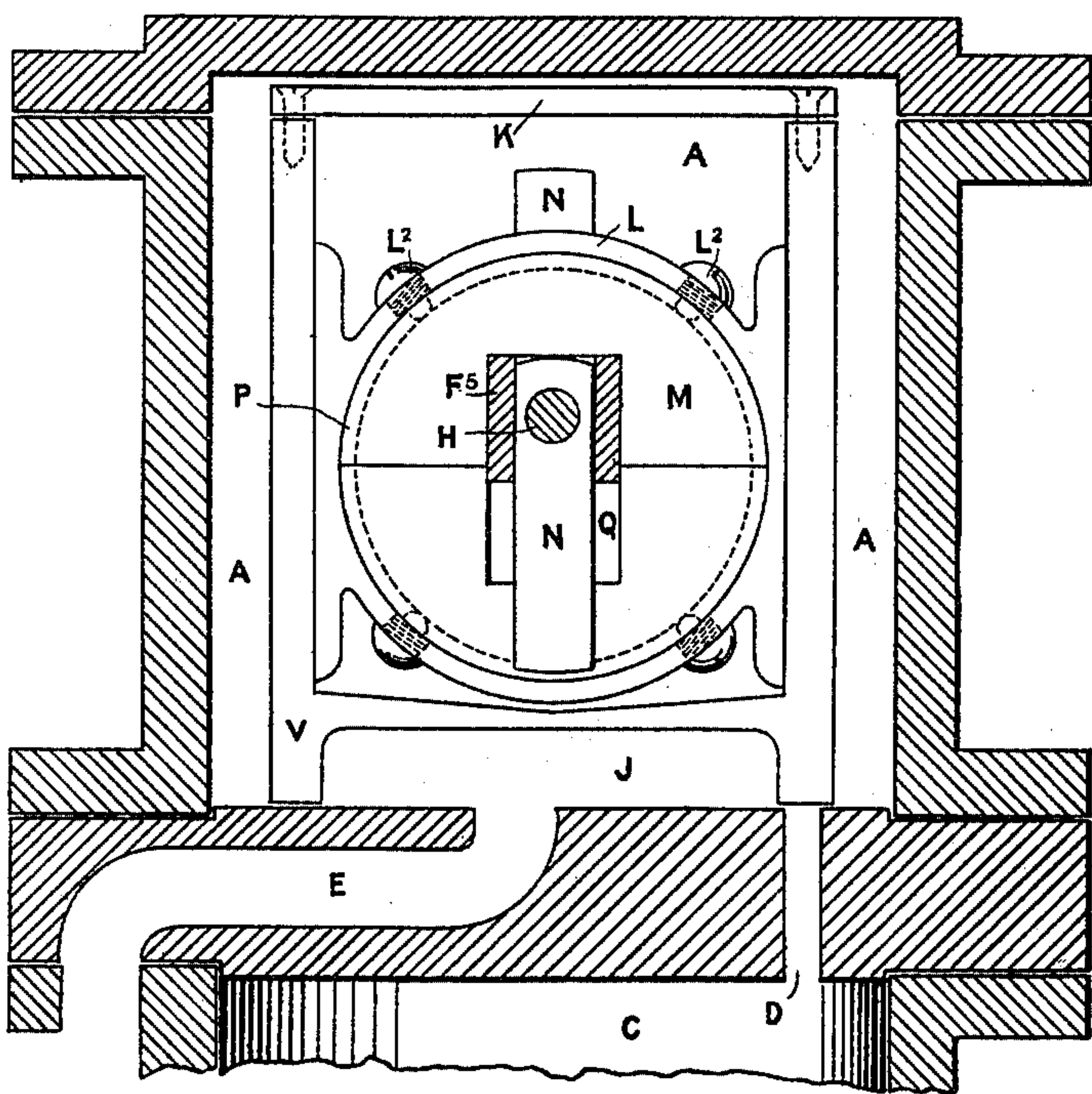
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3 Sheets—Sheet 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

SYDNEY WILLIAM WILKINSON, OF SHEFFIELD, ENGLAND.

VALVE-GEAR FOR SLIDE-VALVES.

SPECIFICATION forming part of Letters Patent No. 626,261, dated June 6, 1899.

Application filed December 24, 1898. Serial No. 700,210. (No model.)

To all whom it may concern:

Be it known that I, SYDNEY WILLIAM WILKINSON, a subject of the Queen of Great Britain and Ireland, residing at Crookes Place, city of Sheffield, county of York, England, have invented an Improvement in Valve-Gear for Slide-Valves, of which the following is a specification.

The object of this invention is to simplify the valve-gear of slide-valves of steam-engines and especially the valve-motion of three-cylinder engines for vehicles, launches, and the like.

The invention is illustrated in the annexed sheets of drawings.

Figure 1 is part of the steam-chest with the slide-valve and means for regulating and reversing; Fig. 2, a plan of same with portions removed to show the parts underneath; Fig. 3, an end view of steam-chest and valve with the end plate removed to show interior.

In the application of my invention to the slide-valves of a three-cylinder engine, for example, in which steam is admitted to the back of the pistons only, the front or lower end of the cylinder being open, the steam-chest A is situated above the cylinders C, and below the cylinders I support the crank-shaft, to which the piston-rods are connected in the usual manner.

The steam-ports D and the exhaust-ports E communicate with the upper end of the cylinders and are operated by the slide-valve V, which is chambered at J, its sides V² being carried upward and connected at the top by a cross-bar K. It slides between the two guide-plates R.

Within the sides of the valve is fitted a slide-block L, which is carried by and encircles a cam M, upon which it is held by means of screws L², passing through it and entering a grooved path P, made in the periphery of the cam, or into a ring fitted into such path.

The cam is preferably made in halves for convenience of construction, and centrally through the cam I make an oblique slot *m* to receive a correspondingly-shaped adjusting plate or key N, which is firmly secured upon a sliding spindle H by screws *n*.

Through the steam-chest A is passed a tubular revolving shaft F, supported in bear-

ings G at each end, and longitudinally through the center hole of this shaft is passed the spindle H, which carries the inclined adjusting-keys N.

Through the valve-shaft F and its collars F², extending from F³ to F⁴, a slot is cut to permit the lateral movement of the inclined key N, which can be traversed to the right or left, as desired, by moving the spindle H within the tubular shaft F.

The movement of the key N from the position shown in Fig. 1 toward the position indicated in dotted lines will raise or alter the position of the cam M and also the travel of the valve, thus enabling the "cut-off" to be adjusted to any desired amount, or by moving it past the center position the revolutions of the crank-shaft can be at once reversed.

The central part of the oblique slot through the cam is enlarged to an oblong rectangular form at Q to permit the passage of two short bar-shaped pieces, (marked F⁵ in Figs. 2 and 3,) which form part of the shaft F, between the collars F². This part of the opening is made of sufficient length to permit the required adjusting movement of the cam.

The above-described arrangement of the valve, slide-block, cam, and inclined key is repeated for each cylinder; but the three sets of valves are all operated by one shaft F and spindle H, which are made long enough for the purpose.

The end plate T of the steam-chest A is made with a chamber S to receive and inclose the end of the spindle H when it is moved to the end of its travel. The opposite end plate (not shown) is made with a gland or stuffing-box, through which the end of the shaft F projects, and is rotated at the same speed as the crank-shaft by means of an intermediate vertical shaft and bevel-wheels fixed upon both the crank-shaft and the valve-shaft. The said end plate can be removed to enable the shaft F, spindle H, and the cam and slide-block to be drawn out for inspection or repairs. The spindle H also projects from the end of the shaft F and is arranged to be moved to and fro, as before described, either by a hand-lever or other connection, or it may be connected with the governors and regulated by them automatically,

and in any case the engine can be instantly stopped by moving the key N to its central position.

5 The method of accomplishing the movement of the valve-spindle H and adjustment of the valves does not form part of my invention, as it may be effected in various ways.

My invention is simple and effective, is very compact, and is not liable to get out of
10 order.

Having now described my invention, what I wish to claim and protect by Letters Patent is—

15 1. The mechanism for imparting movement to a slide-valve of a steam-engine, and for starting, stopping, reversing, and regulating the “cut-off” consisting of a tubular slotted shaft F, an inclined key N, held within the slot, and secured to a sliding central spindle

H, a cam M, through which the key N, can 20 move, and a slide-block L, encircling the cam M, and engaging with the valve as hereinbefore described and set forth.

2. As part of an arrangement of mechanism for operating the slide-valve of a steam- 25 engine, a cam M, having a central oblique opening *m*, the throw of the cam being varied by means of an inclined plate N, fitting into the said oblique opening, and secured to a spindle H, capable of being moved longitudi- 30 nally, as hereinbefore described and set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

SYDNEY WILLIAM WILKINSON.

Witnesses:

ROBT. F. DRURY,
ENSOR. D. DRURY.