

No. 661,766.

Patented Nov. 13, 1900.

C. J. MELLIN.
PISTON VALVE.

(Application filed Nov. 7, 1899.)

(No Model.)

Fig. 1.

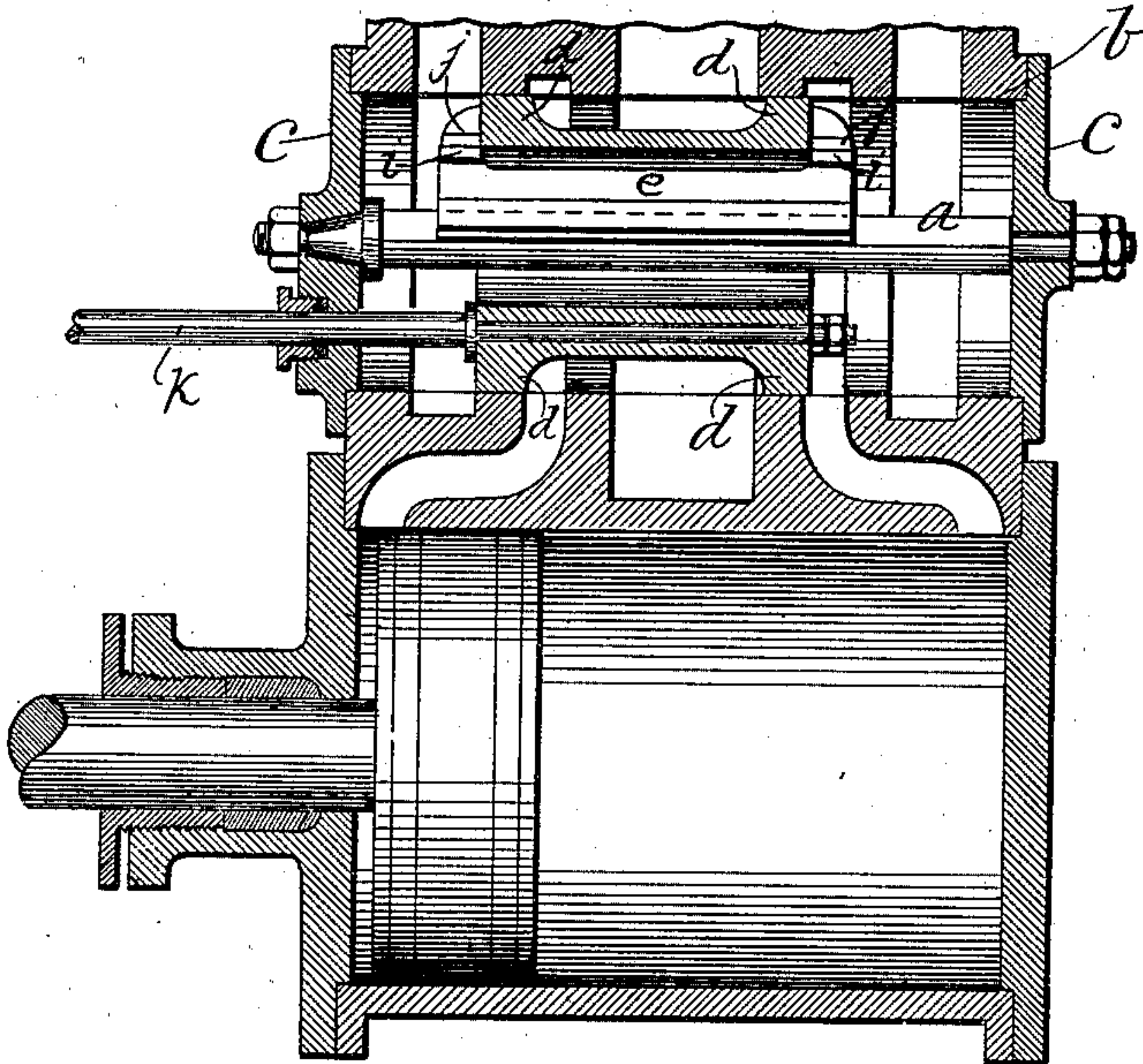


Fig. 2.

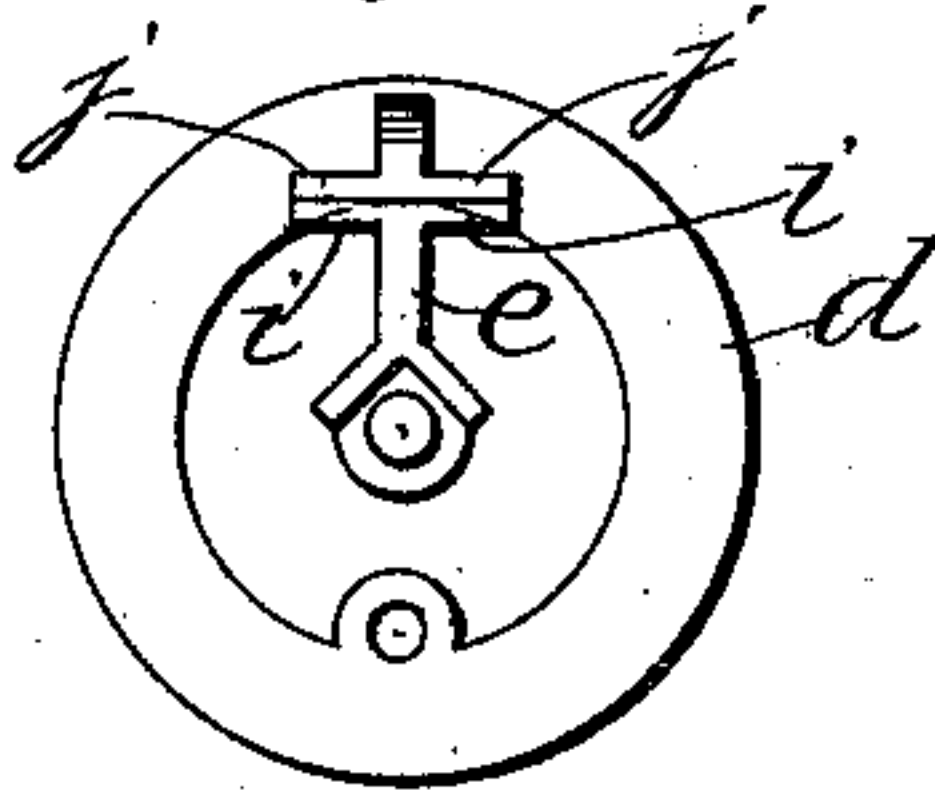


Fig. 3.

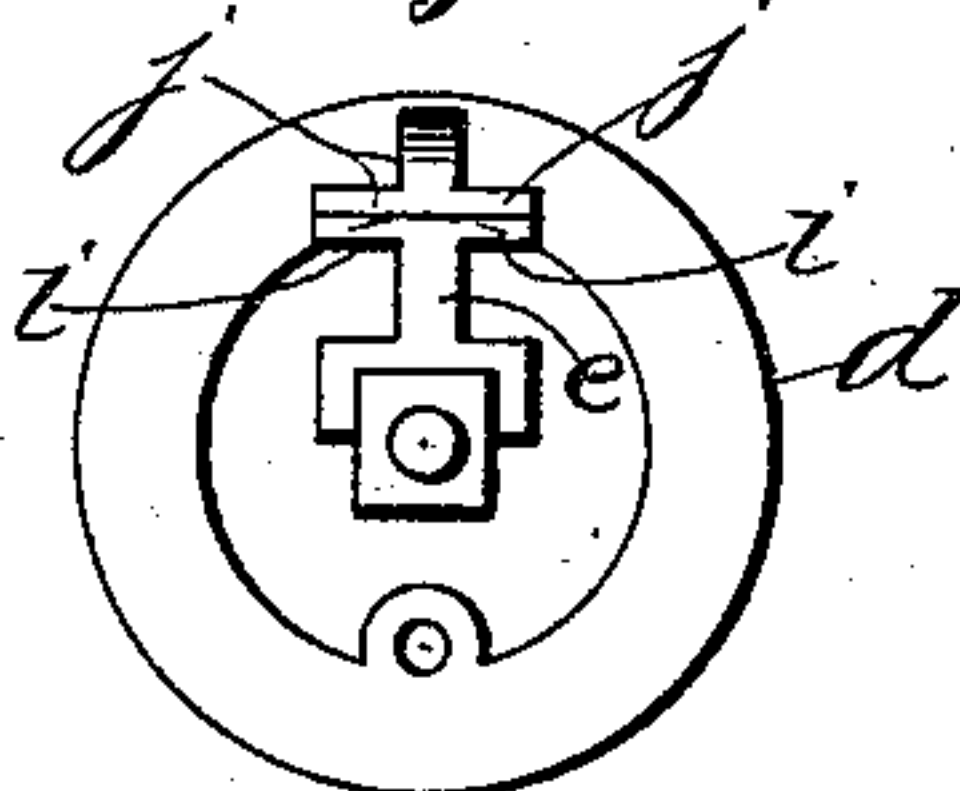


Fig. 4.

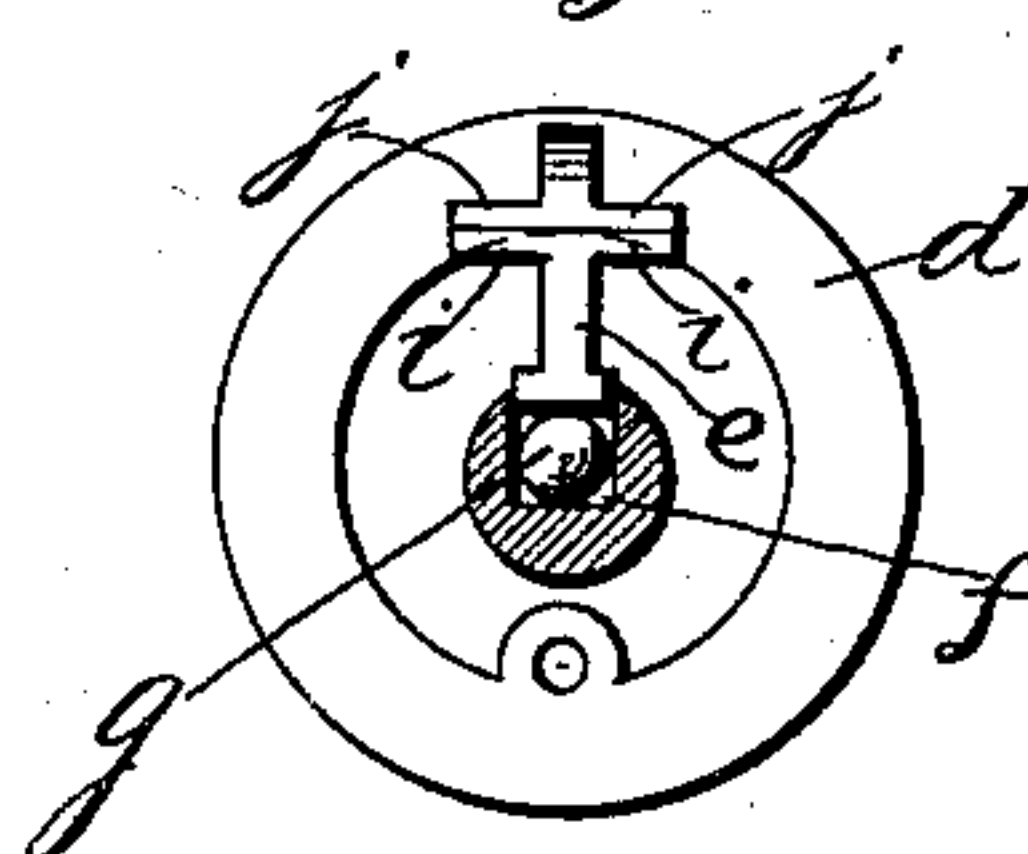
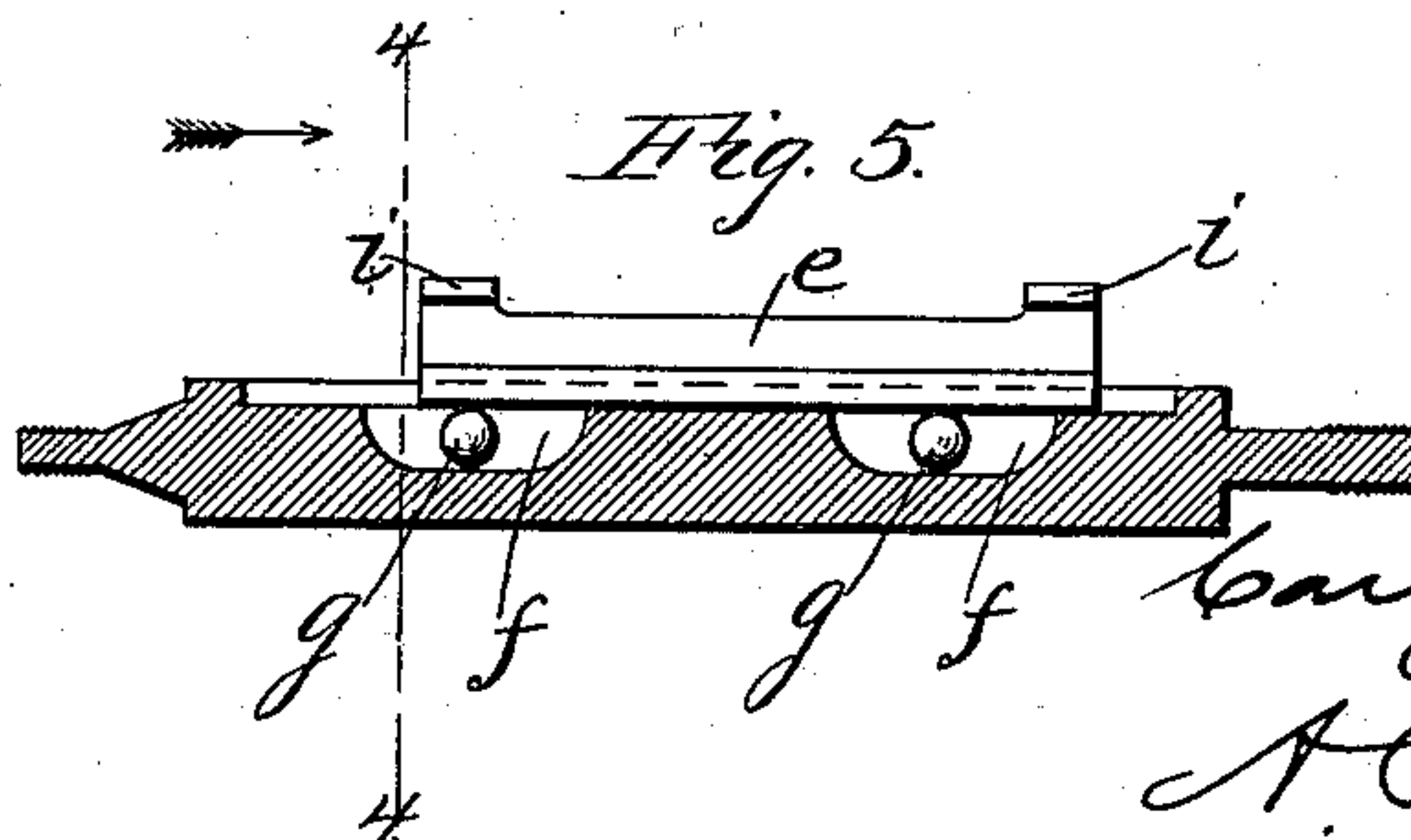


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

CARL J. MELLIN, OF RICHMOND, VIRGINIA.

PISTON-VALVE.

SPECIFICATION forming part of Letters Patent No. 661,766, dated November 13, 1900.

Application filed November 7, 1899. Serial No. 736,199. (No model.)

To all whom it may concern:

Be it known that I, CARL J. MELLIN, a citizen of the United States of America, and a resident of Richmond, county of Henrico and State of Virginia, have invented certain new and useful Improvements in Piston-Valves, of which the following is a specification.

My invention consists of a bearing for horizontal or inclined piston-valves to relieve the under side of the valve from the greater wear to which it is subject than the rest, due to the weight of the valve, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of a steam-cylinder and a piston-valve constructed in accordance with my invention. Fig. 2 is partly an end view and partly a cross-section of the valve and a cross-section of the slideway-bearing. Fig. 3 is an end view of the valve and cross-section of the slideway-bearing, the latter being in a different form. Fig. 4 is a transverse section of the valve and slideway-bearing, the latter being provided with antifriction-rolls; and Fig. 5 is a longitudinal section of the slideway-bearing and side elevation of the bearing-slide by which the valve rests on the slideway.

It is well known that horizontal and inclined piston-valves wear out of the true circle both in the valve and the case or seat and have to be frequently refitted and provided with new packing, or new valves have to be provided when packing-rings are not used. I have therefore provided means to prevent such wear by a special bearing whereon the weight of the valve is mainly carried, which bearing may be contrived in various ways; but as herein represented for a valve having a hollow center consists of a bar *a*, mounted centrally in the valve-case *b* and supported at the ends in the heads *c* of the case, said bar extending through the hollow center of the valve *d*. The upper side of this bar is suitably fitted for a slideway for a bearing-slide *e*, inserted in the hollow space and attached to the valve over the bar, so as to bear on said slideway and mainly or wholly support

the weight of the valve, and thus relieve the under side of the valve from undue wear. The bearing-surfaces of the bar and slide-bearing may be of any approved form, as the inverted-V shape represented in Fig. 2 or flat form of Figs. 3 and 4, and antifriction-rolls *f* and rolls *g* may be provided in the bearing-bars, as in Fig. 1, or in the bearing-slide. In this example of the invention the bearing-slide *e* has flanges *i* at the ends, by which it is bolted to corresponding flanges *j* of the ends of the valves; but the means of connection may be varied at the will of the constructor. In case it may be necessary to take up any slack due to wear of the bearing-slide packing-liners may be inserted between the connecting-flanges of the bearing-piece and valve. While the bearing is in this case represented in the center of the valve, it may be located higher or lower; but it should be in the central vertical plane of the valve. The valve-stem *k* is connected to the valve below the bearing, which is the preferable arrangement.

The invention is applicable to any piston-valve without regard to the arrangements for the distribution of the steam.

I am aware that a flat slide-valve has been connected at each side with a plate crossing over a stationary slideway and bearing on the upper side of said slideway, as in Patent No. 115,706, of June 6, 1871, as a means of applying antifriction-rollers for carrying an unbalanced valve working on a flat valve-face and subject to steam-pressure, but not in the least measure wearing slack and leaking steam, as a piston-valve does, and I do not claim such a device, my invention being intended for and only applicable to balanced piston-valves working in cylindrical cases and lying in horizontal or inclined planes, so as to wear by the effect of their weight and cause slack at the upper side, and the essential feature of my invention is the contrivance whereby the valve is maintained centrally in the cylindrical valve-case, and slack at the upper side is prevented by preventing wear of the under side.

What I claim as my invention is—

The combination with a horizontal or inclined cylindrical piston-valve having a hollow center, and a cylindrical valve-case, of a
5 bearing-slideway extending through said valve and having fixed supports for its ends, and a bearing-slide carried by said valve and working on said slideway to relieve the un-

der side of said valve of wear and maintain said valve centrally in the case of the valve. 10

Signed by me at Richmond, Virginia, this 20th day of October, 1899.

CARL J. MELLIN.

Witnesses:

A. P. THAYER,
C. SEDGWICK.