

E. F. WARREN.

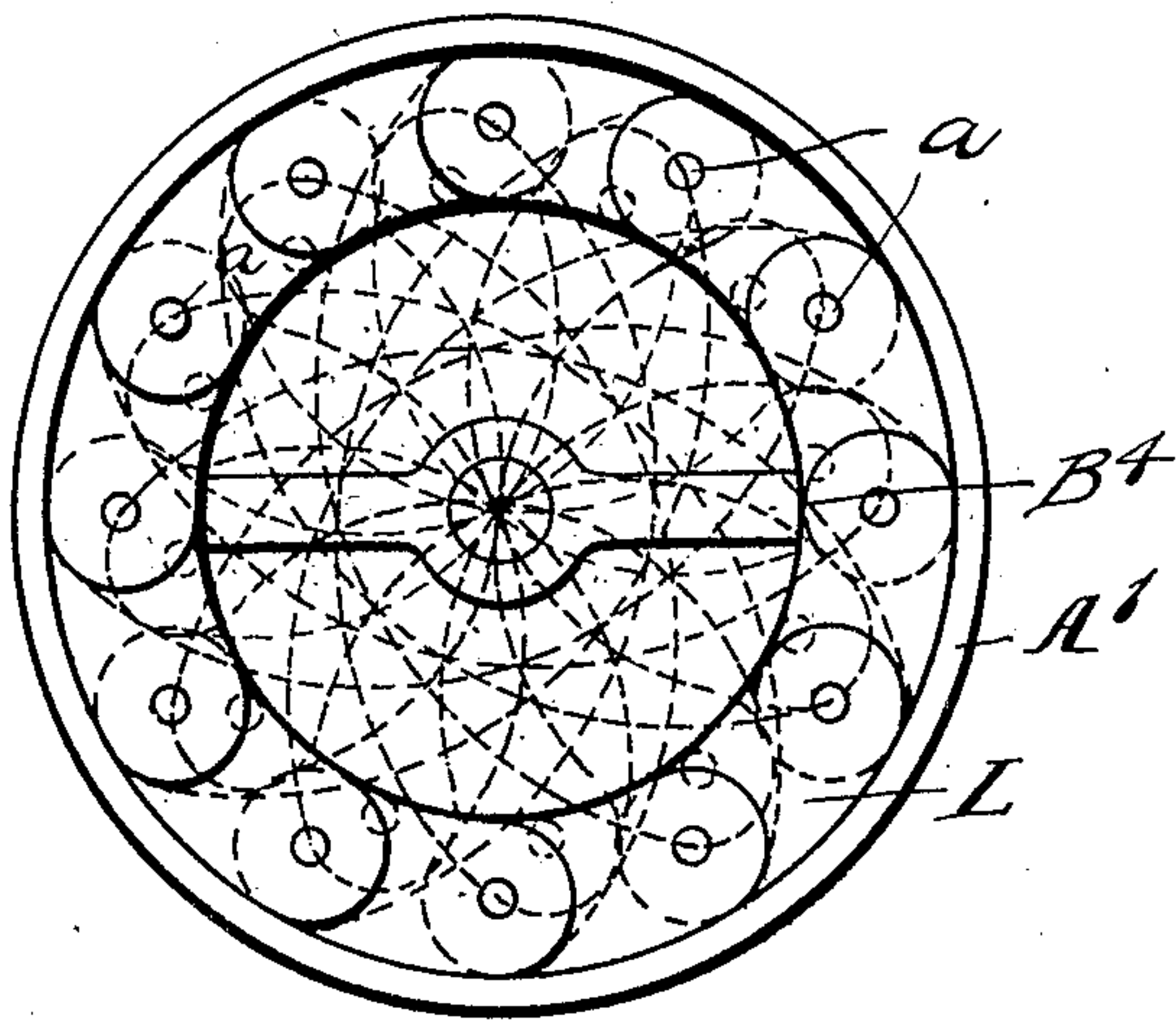
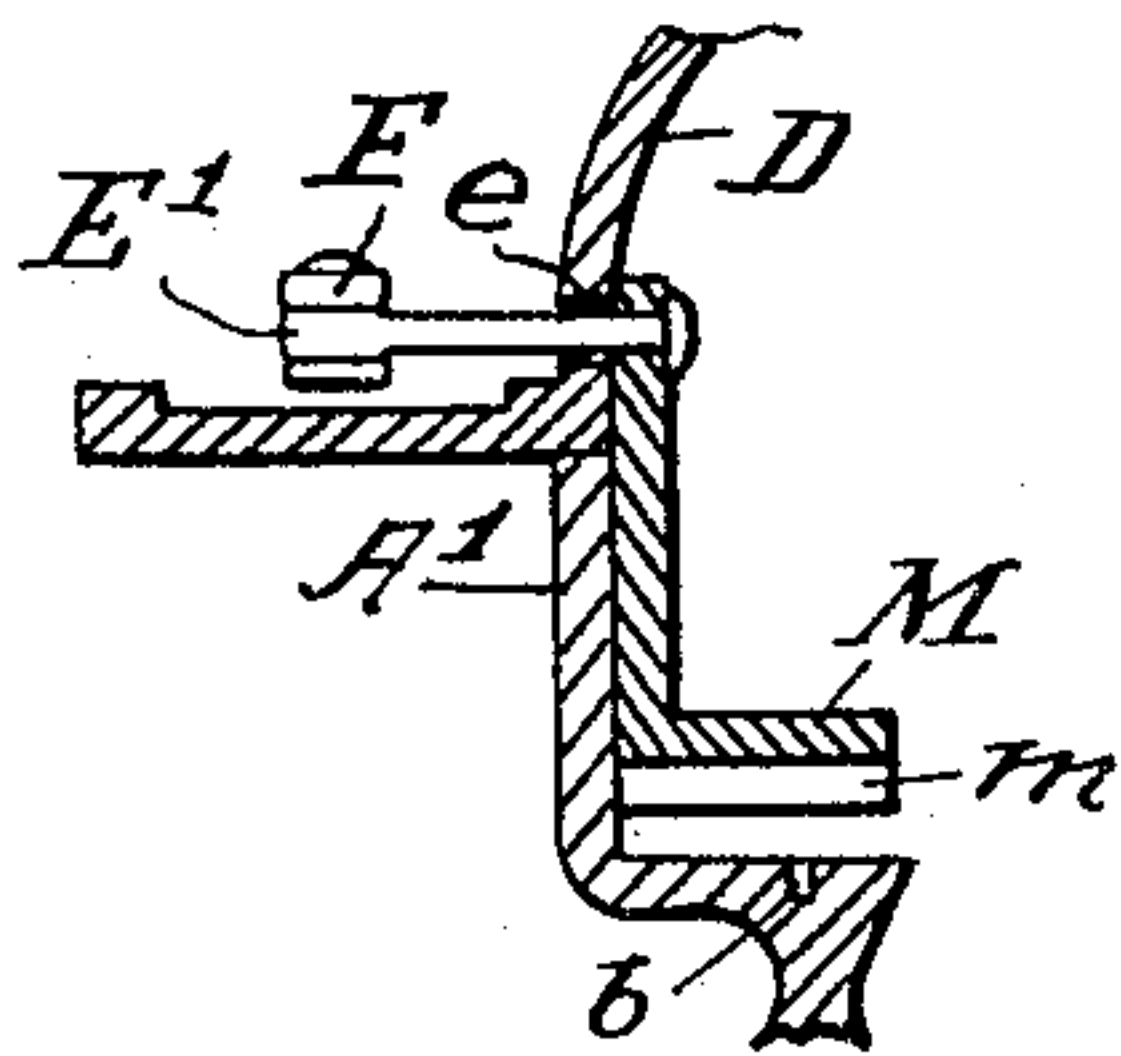
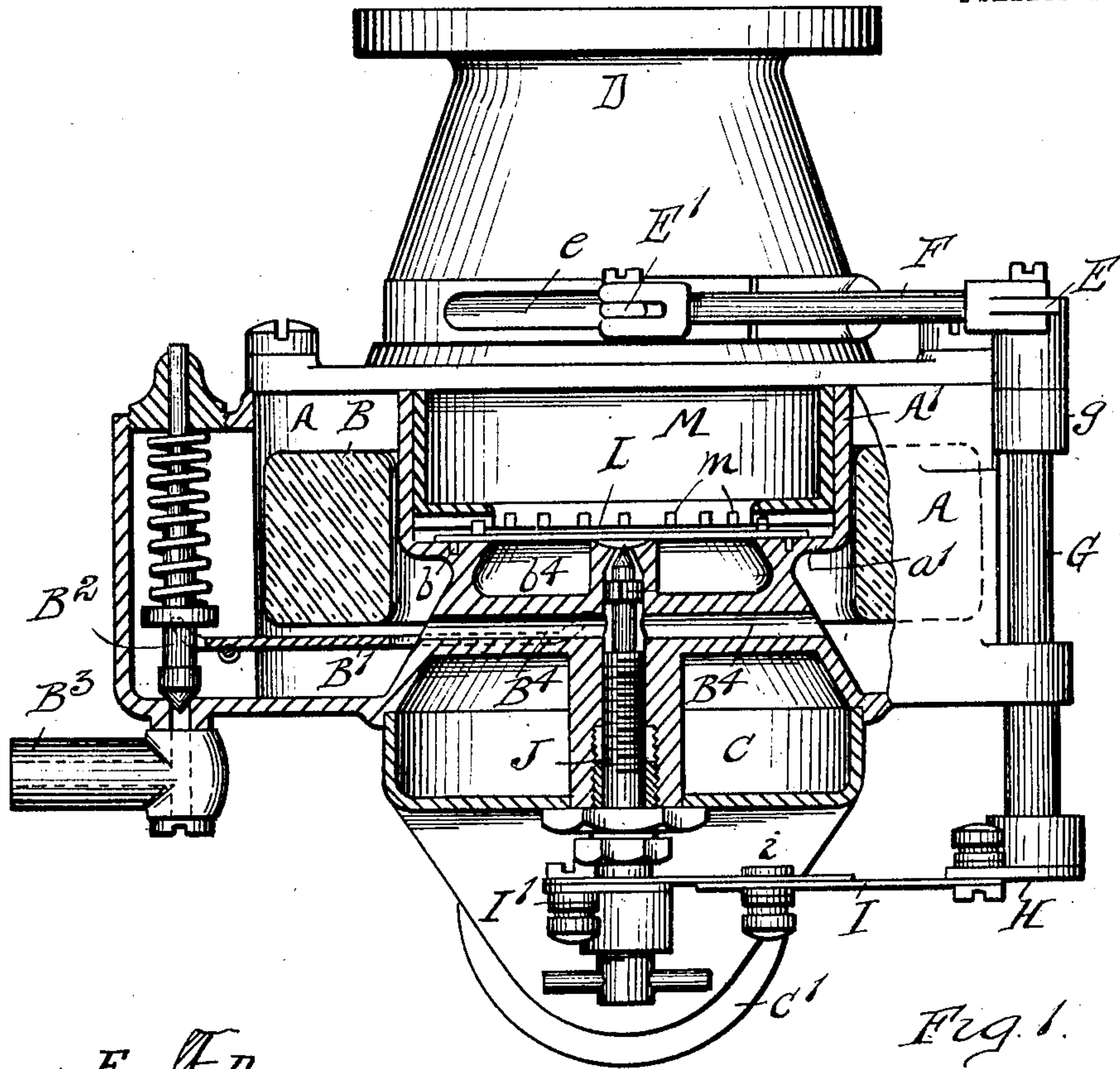
CARBURETER.

APPLICATION FILED JULY 22, 1908.

926,039.

Patented June 22, 1909.

2 SHEETS—SHEET 1.



Witnesses

Clarence E. Day  
M. Belles

Fig. 3. Edward F. Warren

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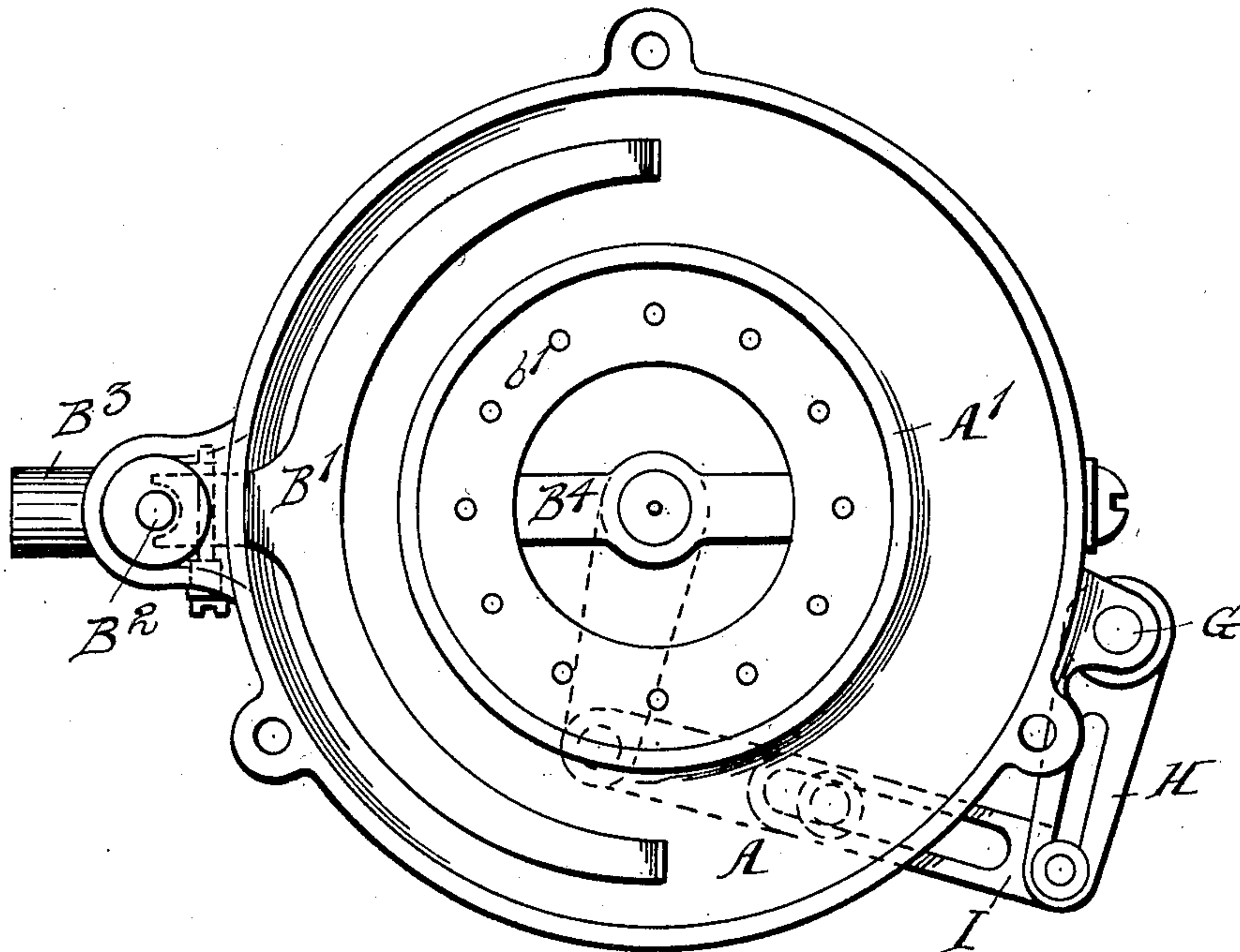


Fig. 2.

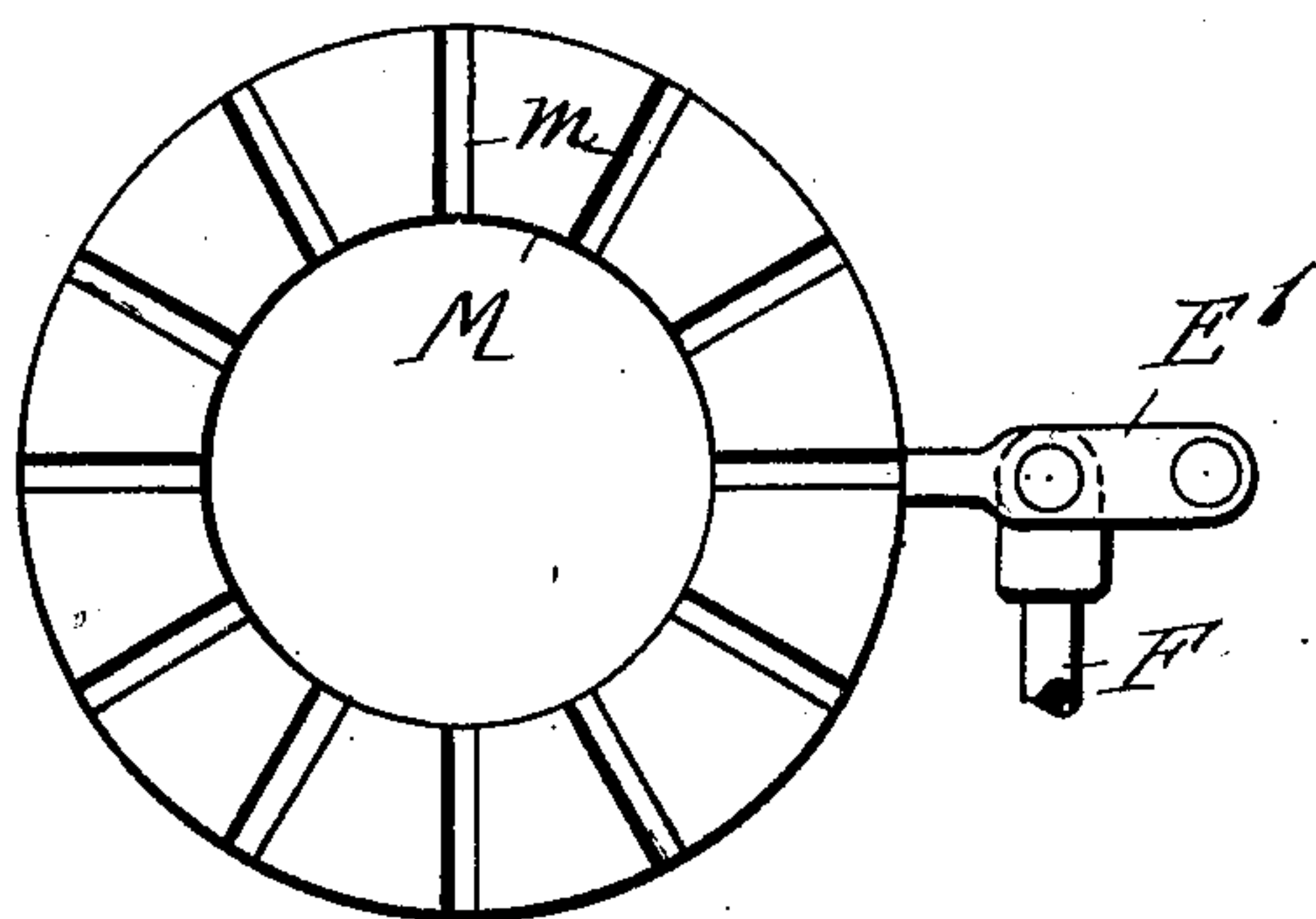


Fig. 4.

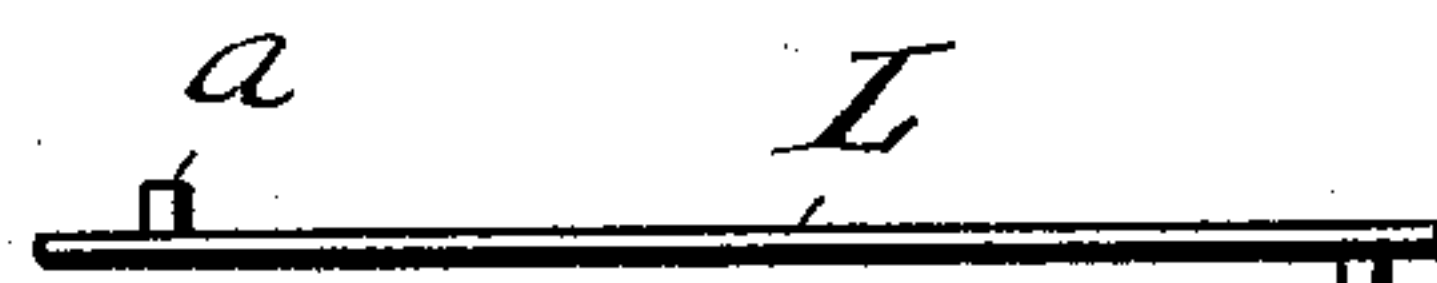
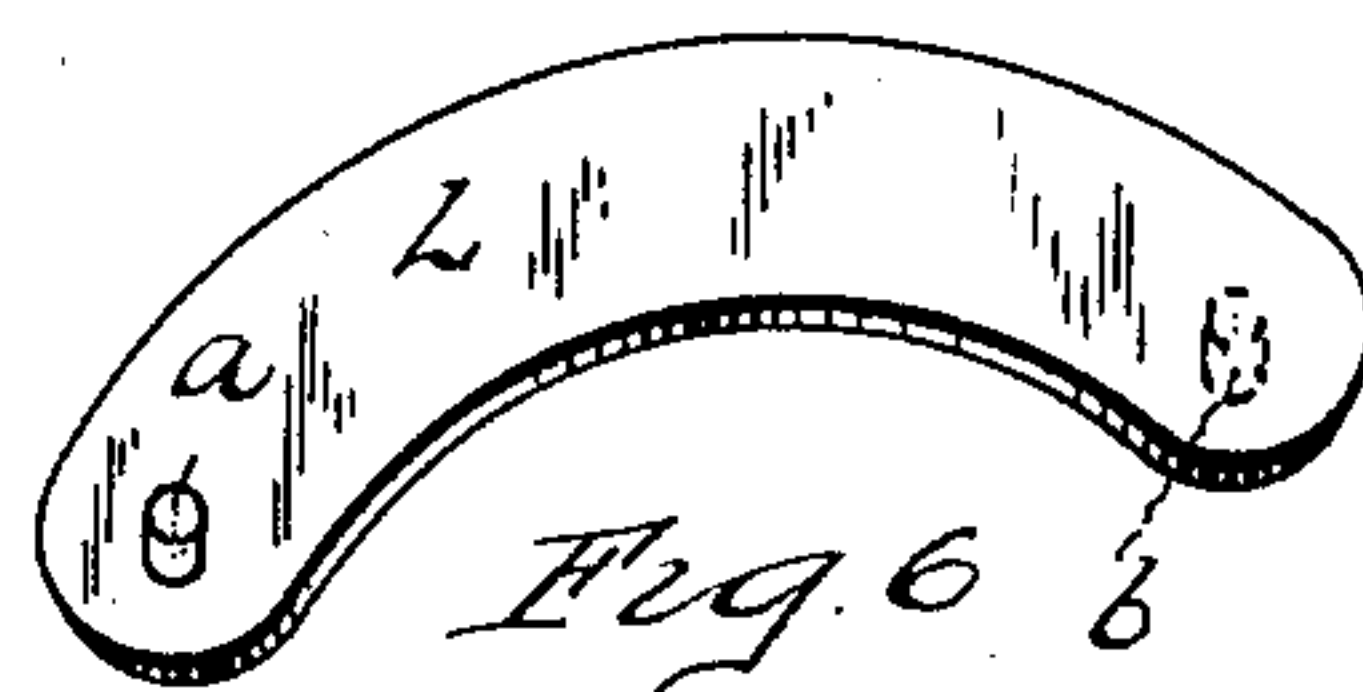


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD F. WARREN, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO MAURICE E GARRETT, OF WAYNE COUNTY, MICHIGAN.

## CARBURETER.

No. 926,039.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed July 22, 1908. Serial No. 444,720.

*To all whom it may concern:*

Be it known that I, EDWARD F. WARREN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Carbureters, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to carbureters for gas engines, and consists in the improvements hereinafter described and pointed out in the claim.

In the accompanying drawings: Figure 1, is an elevation of the carbureter, partly in section, embodying my invention. Fig. 2, is a plan view of the same, the upper part of the casing being removed and the leaves of the air valves also being taken out. Fig. 3, is a plan view of the receptacle in which the leaves of the air valve are pivoted, the actuator M, being removed. Fig. 4, is a plan view of the actuator of the leaves of the air valve, inverted. Fig. 5, is an edge view of one of the leaves. Fig. 6, is a perspective view of the same. Fig. 7 is a detailed sectional view of a part of the annulus M and the actuating mechanism therefor.

A, is an annular casing inclosing a reservoir for gasoline.

B, is an annular float in the reservoir A.

B<sup>1</sup> is a pivoted arm actuated by the float A.

B<sup>2</sup>, is a valve actuated by the lever arm B<sup>1</sup>, to admit gasoline into the reservoir A, up to a certain level from the supply pipe B<sup>3</sup>, but adapted to close the passage-way and prevent further passage of gasoline after the same has reached a certain level in the reservoir.

B<sup>4</sup>, are supply pipes leading from the reservoir A, into the nozzle b<sup>4</sup>, through which the gasoline is supplied to the air being taken into the engine.

C, is the pipe through which the air passes to the carbureter.

C<sup>1</sup>, is the mouth of the passage C, opening to the outer air. The passage C, leads through the opening inclosed by the annular reservoir A, and at the center of this opening is located the supply nozzle b<sup>4</sup>.

A<sup>1</sup>, indicates the vertical portion of the inner wall of the annular reservoir A, and

a<sup>1</sup>, is an annular ledge extending horizontally inward from the lower portion of the wall A<sup>1</sup>. In the horizontal ledge a<sup>1</sup>, there are formed a circular series of cylindrical apertures b<sup>1</sup> (Fig. 2).

L, indicates thin sheets or strips of metal formed in the shape of the arcs of circles, as shown in Figs. 3 and 6, and forming leaves of the air valve. Each of the leaves L, is provided with a pintle b, which extends downward into one of the cylindrical apertures b<sup>1</sup>, and each of said leaves is provided at its end opposite to that at which the pintle b, is located with a second pintle a, which extends vertically upward.

M, is an annulus having a vertical and a horizontal wall. The annulus M, fits within and is adapted to rotate against the portion A<sup>1</sup>, of the inner wall of the annular reservoir A, its horizontal portion coming just above the horizontal portion a<sup>1</sup>.

m, are radial slots cut in the lower face of the horizontal portion of the annulus M. A pintle a, from a leaf L, extends up into each of the slots m. The leaves L, with their actuator M, so arranged and constructed constitute an iris valve.

D, is a cap for the casing A, to which the induction pipe to the engine is secured. The cap D, holds the annulus M, in position, as shown in Fig. 1, but permits it to be rotated.

e, is a slot in the cap D, and E<sup>1</sup>, is an arm extending from the annulus M, through the slot e.

F, is a connecting rod pivoted to the outer end of the arm E<sup>1</sup>, and to the free end of an arm E, upon the upper end or vertical rod G, which is pivoted in lugs g, upon the reservoir A.

H, is an arm upon the lower end of the rod G, and I, is a connecting rod secured at one end to the outer end of the arm H, and at the other end to an arm I<sup>1</sup>, which extends from the shaft of a needle valve J adapted to control the opening through the nozzle b<sup>4</sup>.

The operation of the above described device is as follows: The float B, actuating the lever arm B<sup>1</sup>, and valve B<sup>2</sup>, keeps the level of the gasoline in the reservoir A, constant and the suction of the engine drawing the air through the passage C, and the opening through the center of the reservoir A, sprays the gasoline and carburets the passing air. When the annulus M, is turned by means of



the lever arm  $E^1$ , or some convenient means for actuating the same, the sides of the slots  $m$ , act upon the pintles  $a$ , turning the leaves  $L$ , about the pintles  $b$ , and gradually closing or opening, as the case may be, the passage-way through the center of the annular reservoir  $A$ ; by this construction the leaves  $L$ , are all actuated at once and the opening inclosed by said leaves is enlarged or contracted as a circular aperture or approximately circular. It is circular when it is at its farthest open position, and it is circular when the leaves are turned so as to nearly close the passage-way. When the annulus  $M$ , is turned the rod  $G$ , is rotated and the needle valve thereby actuated to open or close the passage-way for gasoline in proportion to the opening of the passage-way for air. The initial position of the arm  $I^1$  may be regulated by the slip joint  $i$ .

What I claim is:

In a carbureter, the combination of an annular gasoline reservoir, having a vertical portion  $A^1$  of its inner wall and an annular

ledge  $a^1$  around its inner wall, said wall and ledge surrounding a central opening, leaves  $L$  pivoted on said ledge, a nozzle  $b^1$  having its delivery end located adjacent to the center of said opening, a needle valve in said nozzle, an annulus  $M$  having a vertical and a horizontal wall, the vertical wall of said annulus fitting against and within the vertical wall  $A^1$  and its horizontal wall lying over and adjacent to said leaves and adapted to actuate the same, a shaft  $G$  pivoted in bearings on the outside of said annular reservoir, a lever on one end of said shaft connected and adapted to actuate the annulus  $M$ , and a lever arm on the other end of said shaft connected with and adapted to actuate the needle, of said needle valve, substantially as and for the purpose described.

In testimony whereof, I sign this specification in the presence of two witnesses.

EDWARD F. WARREN.

Witnesses:

NETTIE V. BEILES,  
ELLIOTT J. STODDARD.