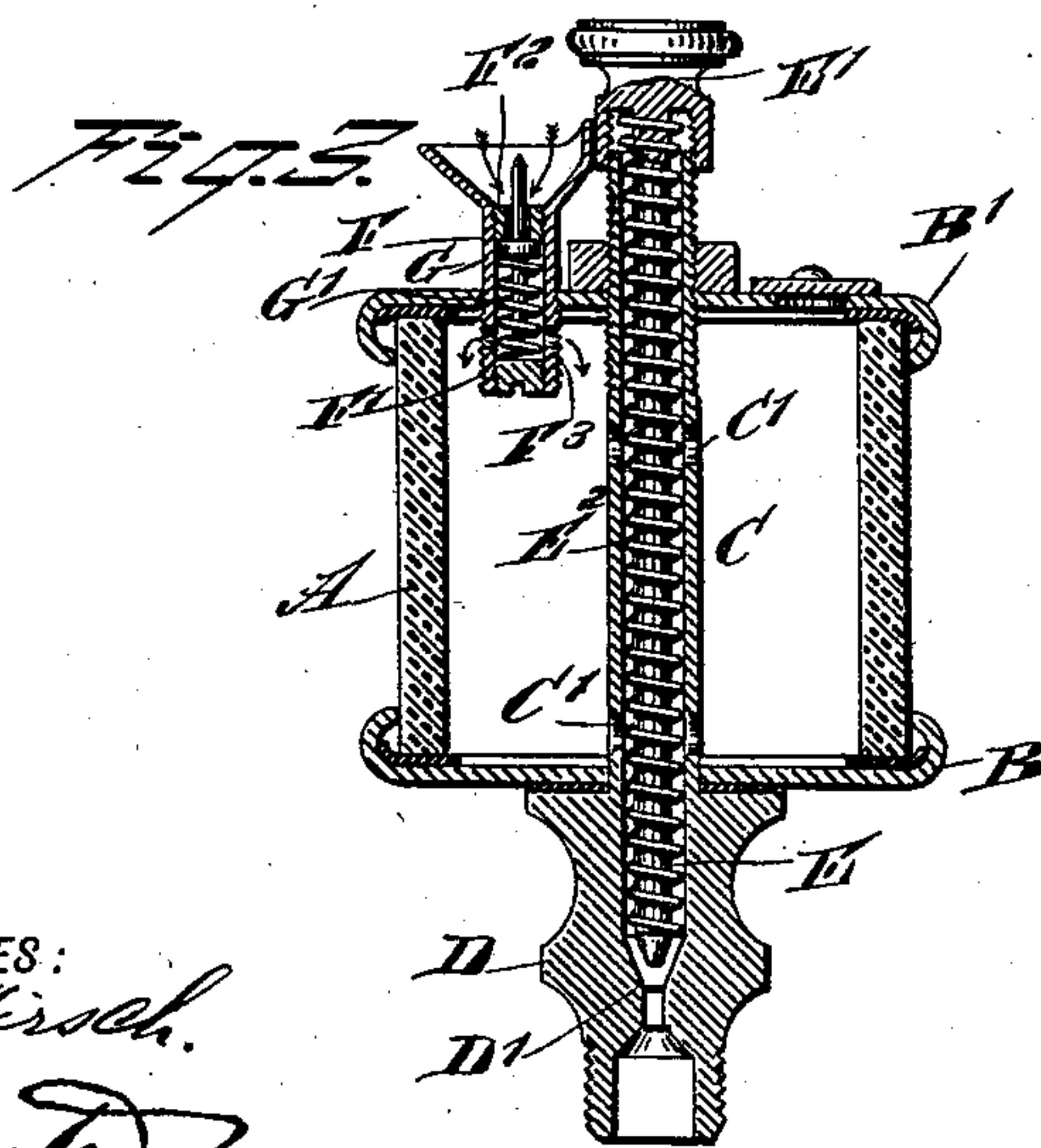
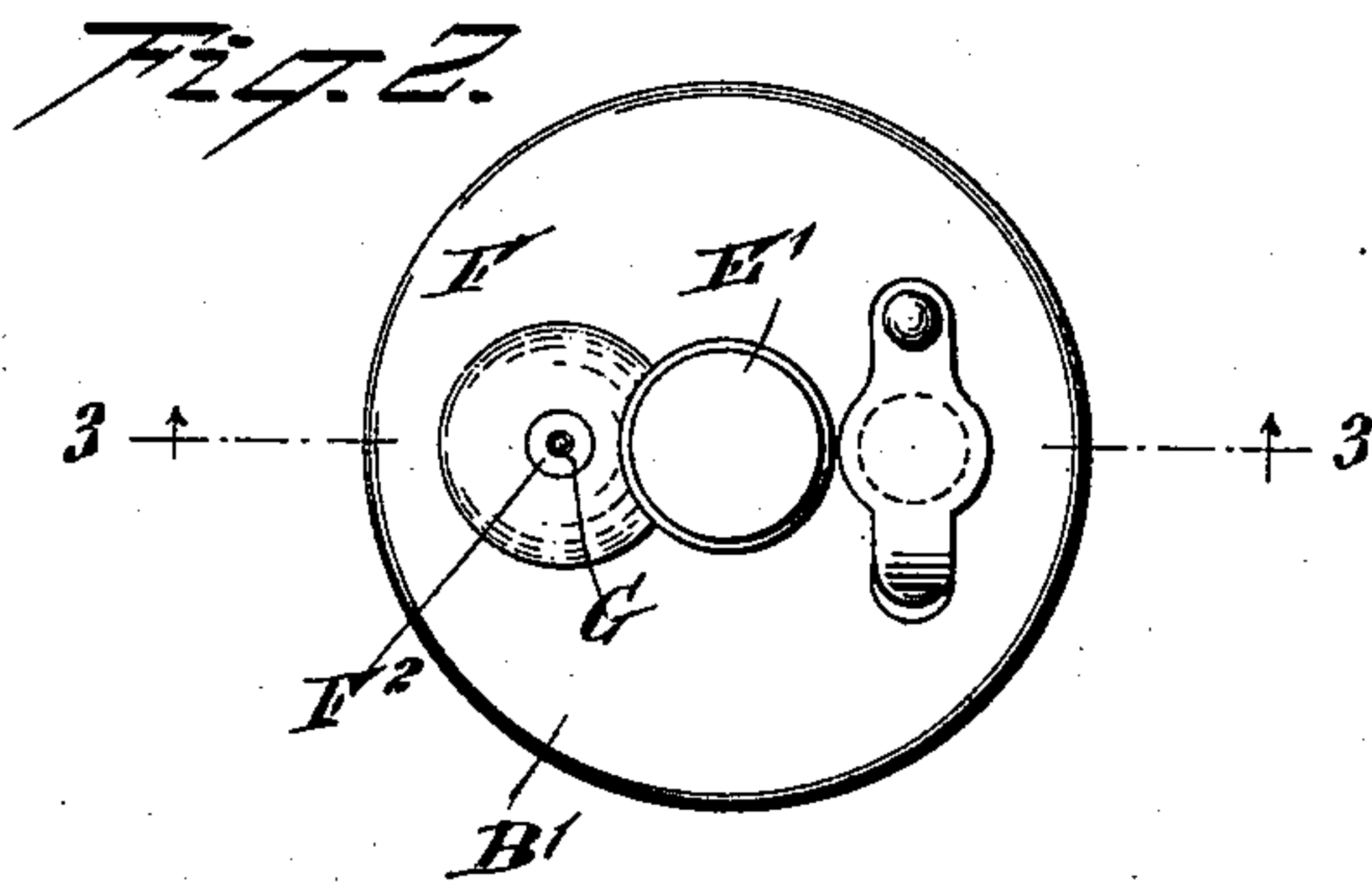
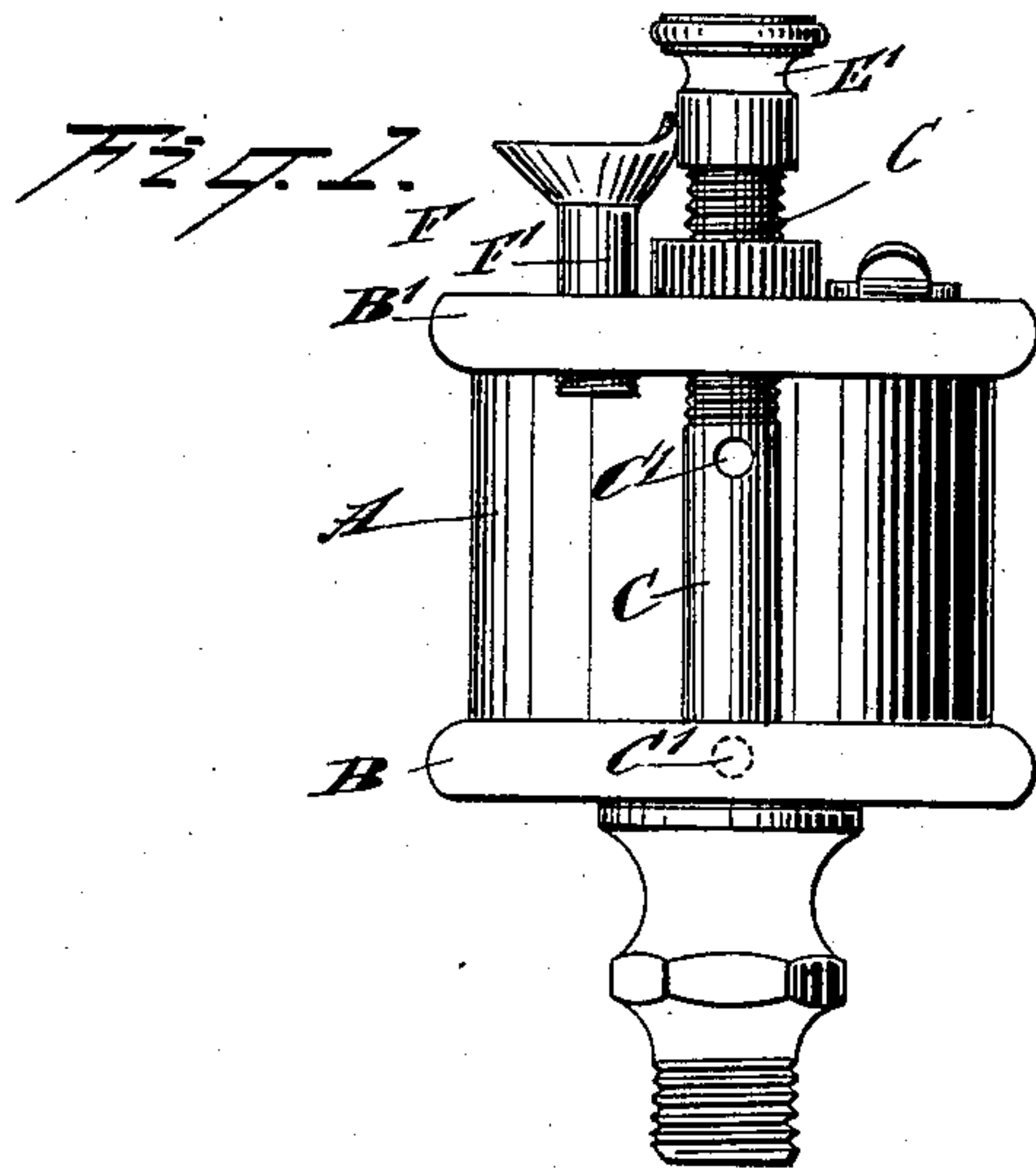


(No Model.)

W. E. TILLINGHAST.
OIL CUP.

No. 592,179.

Patented Oct. 19, 1897.



WITNESSES:

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WALLACE ELMER TILLINGHAST, OF EAST GREENWICH, RHODE ISLAND.

OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 592,179, dated October 19, 1897.

Application filed October 10, 1896. Serial No. 608,445. (No model.)

To all whom it may concern:

Be it known that I, WALLACE ELMER TILLINGHAST, of East Greenwich, in the county of Kent and State of Rhode Island, have invented a new and Improved Air-Valve for Oil-Cups, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved vent or auxiliary valve for oil-cups which is especially applicable to that class of oil-cups designed for use on crank-pins and other rapidly-moving parts of machinery, and which is arranged to insure a steady flow of oil to the part to be lubricated without danger of forming a vacuum in the cup to retard the flow of oil.

My invention consists of a valve having a casing which is formed with a flared or bell-shaped mouth, the specific construction and arrangement of the same being first described, and then particularly pointed out in the claim.

Reference is to be had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of an oil-cup with my improvement applied. Fig. 2 is a plan view of the same, and Fig. 3 is a sectional side elevation of the same on the line 3 3 of Fig. 2.

The oil-cup shown in the different figures and to which I preferably apply my improved auxiliary valve is provided with the usual cylinder A, held between the upper and lower heads B' and B, fitted on a central tubular stem C, secured at its lower end on the base D, by which the cup is fastened to the part to be lubricated. This stem C is formed with the usual openings C' for the lubricant to pass from the cylinder A into the said stem and to and through a valve-seat D', formed in the base D, to then pass to the part to be lubricated, the amount of oil passing through the valve-seat D' being regulated by the usual needle-valve E, held in the tubular stem C and adjustable by a nut E', screwing on the upper outer end of the stem. A spring E² presses on the needle-valve E to hold the same in an open position. On the upper head B' of this oil-cup is placed my improved vent or air-valve F, adapted to open automatically and positively in an inward direction, so that no vacuum whatever can form within the

cup when the oil flows therefrom, and consequently a steady flow of the lubricant to the part to be lubricated is insured. This valve F is provided with a casing F', having a portion bell-shaped, the peculiar advantage of this shape of casing being hereinafter set forth. The casing F' has its end below the bell-shaped portion screwed or otherwise fastened in the head B', and it will thus be seen that it can be easily applied to any oil-cup of this character, so as to extend partly into the cylinder A and partly outside of the cup, as best seen in Fig. 3. In the casing, adjacent the bell-shaped portion and just below the same, is secured the valve-seat F², normally closed by a valve G, seated on the lower face of the valve-seat and held to its seat by the spring G', encircling the spindle of the valve, said spindle being loosely received in an opening in the valve-seat, and extending up into the bell-shaped portion of the casing to within a short distance of the top of the casing. Lateral ports F³ establish communication between the casing and the interior of the cylinder A.

It will be observed that a very important and advantageous part of my invention is the large bell-shaped upper part of the valve-casing, for when an oil-cup employing my device is placed on the crank-pin of an engine making rapid revolutions said bell-shaped portion of the valve-casing acts as a funnel on the upstroke by reason of its large area and concentrates the air at the opening in the valve-seat, thus forcing the air to unseat the valve and giving to the valve the positive properties of a pump, by which the air is not merely admitted to the interior of the cylinder A, but forced therein. When the crank-pin passes the center and starts in the downward direction, the valve closes by the action of the spring, the large area of the bell-shaped casing being no longer forced against the air. Hence in my device one is not dependent entirely upon the vacuum within the cylinder A to unseat the valve and admit air, but my valve, as has been shown, is positive in its action and effectually insures a constant flow of oil to the part to be lubricated. Further, it will be noted that the stem or spindle of the valve extends up into the bell-shaped portion, so that while it is protected from ac-

cidental disturbance, a finger can be easily inserted in the casing to depress the stem against the action of the spring whenever it is desired to manually unseat the valve, and, 5 further, the stem of the valve is loosely received in the valve-seat, so that the air can get around the stem and is concentrated directly upon the valve to unseat the same.

Having thus described my invention, what 10 I claim as new, and desire to secure by Letters Patent, is—

The combination with an oil-cup for rapidly-moving parts of machinery and provided with the cylinder, inlet and outlet openings 15 for the oil, the stem, and upper and lower heads; of the herein-described air-valve, provided with a casing inserted in an opening in the upper head extending partly within

and partly without the cylinder and provided with lateral ports opening into the cylinder, 20 a valve-seat in said casing, a valve on said valve-seat and arranged to open inwardly, and a spring in said casing below the valve and normally holding said valve upon its seat, the said valve-casing being formed above 25 the valve-seat with an open flared or bell-shaped mouth into which the stem of the valve is extended, whereby the valve-casing acts as a funnel and collects and concentrates the air directly upon the valve to unseat the 30 same when the cup is moving upwardly, as and for the purpose set forth.

WALLACE ELMER TILLINGHAST.

Witnesses:

EVA J. T. CONGDON,
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