C. E. GEE.

PISTON.

APPLICATION FILED JULY 22, 1908.

994,454.

Patented June 6, 1911.

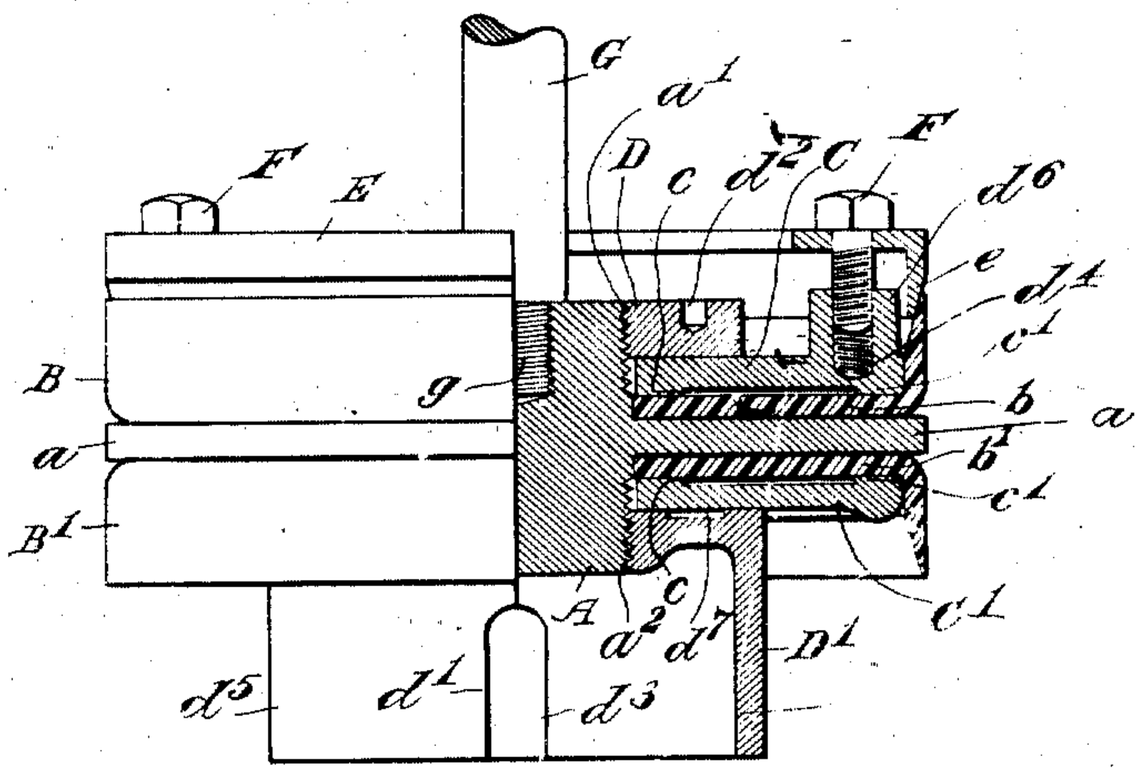

Fig. 1.

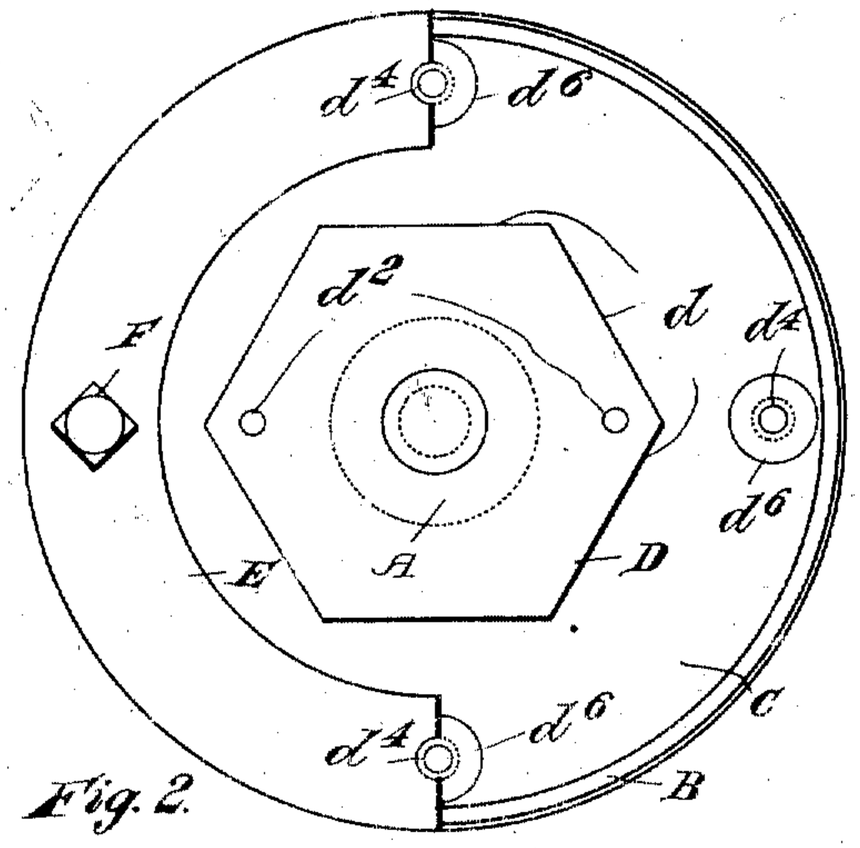

Fig. 2.

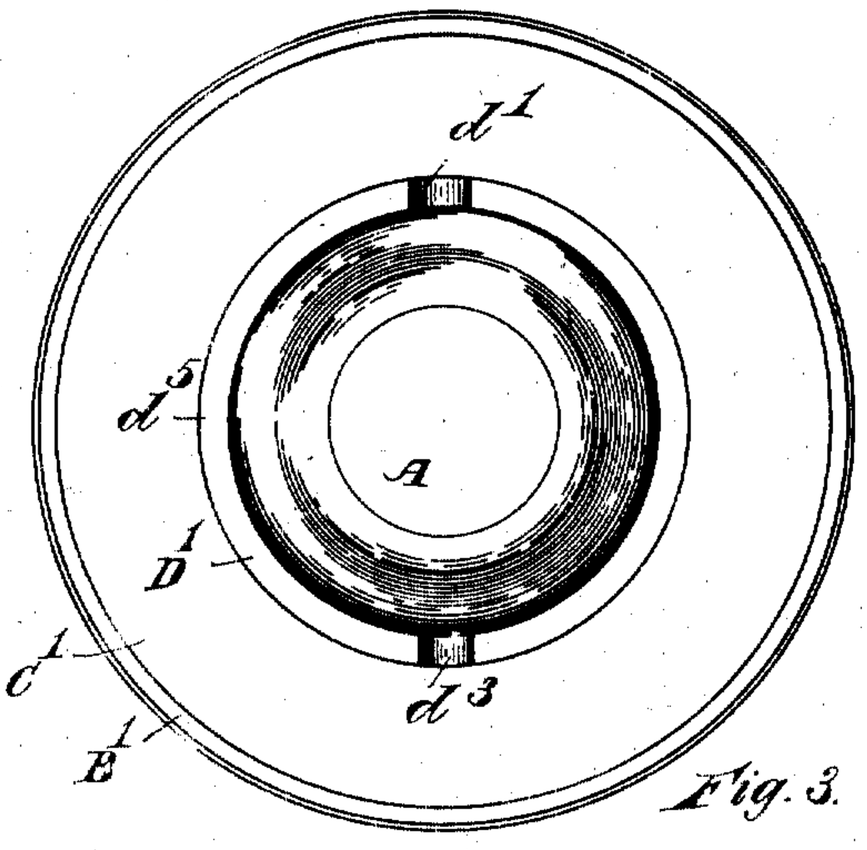

Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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PISTON.

994,454. Specification of Letters Patent. **Patented June 6, 1911.**

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To all whom it may concern:

Be it known that I, CHARLES E. GEE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Pistons, of which the following is a specification.

This invention relates to pistons particularly for pumps for gasolene and similar light volatile liquids, more especially measuring force pumps for such liquids or pumps which deliver a definite amount of oil at a single stroke.

The general object of said invention is to prevent the gasolene or similar liquid from rising above the piston.

In the accompanying drawing, Figure 1 is a front elevation of a piston embodying my improvement partly in vertical central section, the front quadrant at the right being omitted; Fig. 2 a plan or top view of said piston; Fig. 3 a plan of the bottom of the same.

The body of the piston is a hub A, provided with a concentric circular flange *a*. Against this flange *a* above and below the same are arranged cup-leathers B B^1 of usual form and inverted with respect to each other. The flat portion *b* b^1 of each cup leather is compressed between the flange *a* of the piston body and a washer C C^1, these washers being alike in the respect that each is provided with two annular ribs *c* c^1 arranged on the surface of the washers next the cup-leathers, these ribs being to prevent the gasolene from passing between the flat portions of the cup-leathers and said washers, it being much easier to get a perfect compression of the leather by means of these ribs than if the attempt were made to compress the entire flat portions of the cup-leathers by corresponding flat surfaces of the washers. The washers are crowded against the cup-leathers by means of nuts D D^1 which engage external screw-threads a^1 a^2 on the hub A above and below the flange *a*, said nut D being represented as provided with a plurality of flat sides *d*, to which a wrench may be applied and also with holes d^2 to receive the tines of a spanner or forked wrench and either a wrench or a spanner may be used to turn said nut D.

The nut D^1 is represented as provided with two vertical notches or slots d^1 d^3 in a cylindrical extension d^5 which reaches below the hub A to receive a bar by which the nut may be turned against the under surface of the lower washer C^1. The lower nut D^1 is provided with an annular groove d^7 at the top, concentric with said nut to give two annular bearing surfaces against the washer G^1, so that the nut and washer will be more likely to fit each other than if their contacting surfaces were larger. The downward extension d^5 is intended to pass outside of the inlet valve of the pump cylinder and to prevent the piston from striking said valve. In some cases the nut D^1 might be like the nut D in all respects.

The upper cup-leather is represented as pressed outward to fit the inner wall of the pump-barrel or cylinder by an expanding ring E, said ring being provided with a downwardly extending flange *e* beveled at its lower edge and entering the top of the upper cup-leather. The expanding ring is drawn down into the cup-leather by means of screw-bolts F which enter threaded holes d^4 in bosses d^6, cast or otherwise formed in one with the washer C, so that by turning these bolts F the desired expansion of the cup-leather will be secured. If desired the lower cup-leather may be expanded by similar means.

It will be understood that the flange *a* is intended to fit accurately the pump-barrel or cylinder, but it is almost impossible to make a metallic piston fit a metallic cylinder so closely as to prevent gasolene from passing by the piston and therefore I use the cup-leathers and particularly the means of expanding the upper cup-leather.

Although I have used the terms upper and lower with reference to cup-leathers and washers, it is because pumps of the kind for which this piston is designed are usually arranged in a vertical position, but of course this invention is equally adapted to a pump having a horizontal position.

The piston rod G is secured to the piston in any usual manner and is here represented as screwed into said piston at *g*.

I claim as my invention:

The combination of a piston having an externally screw-threaded hub and having a flange concentric with said hub, a cup-leather, a washer provided with concentric annular ribs arranged in contact with the flat-portion of said cup-leather, and a nut turning on said hub against said washer and having a concentric annular groove arranged in the surface of said nut in contact with said washer.

In witness whereof, I have affixed my signature in presence of two witnesses.

CHARLES E. GEE.

Witnesses:

ALBERT M. MOORE,

LUDGER A. NICOL.