

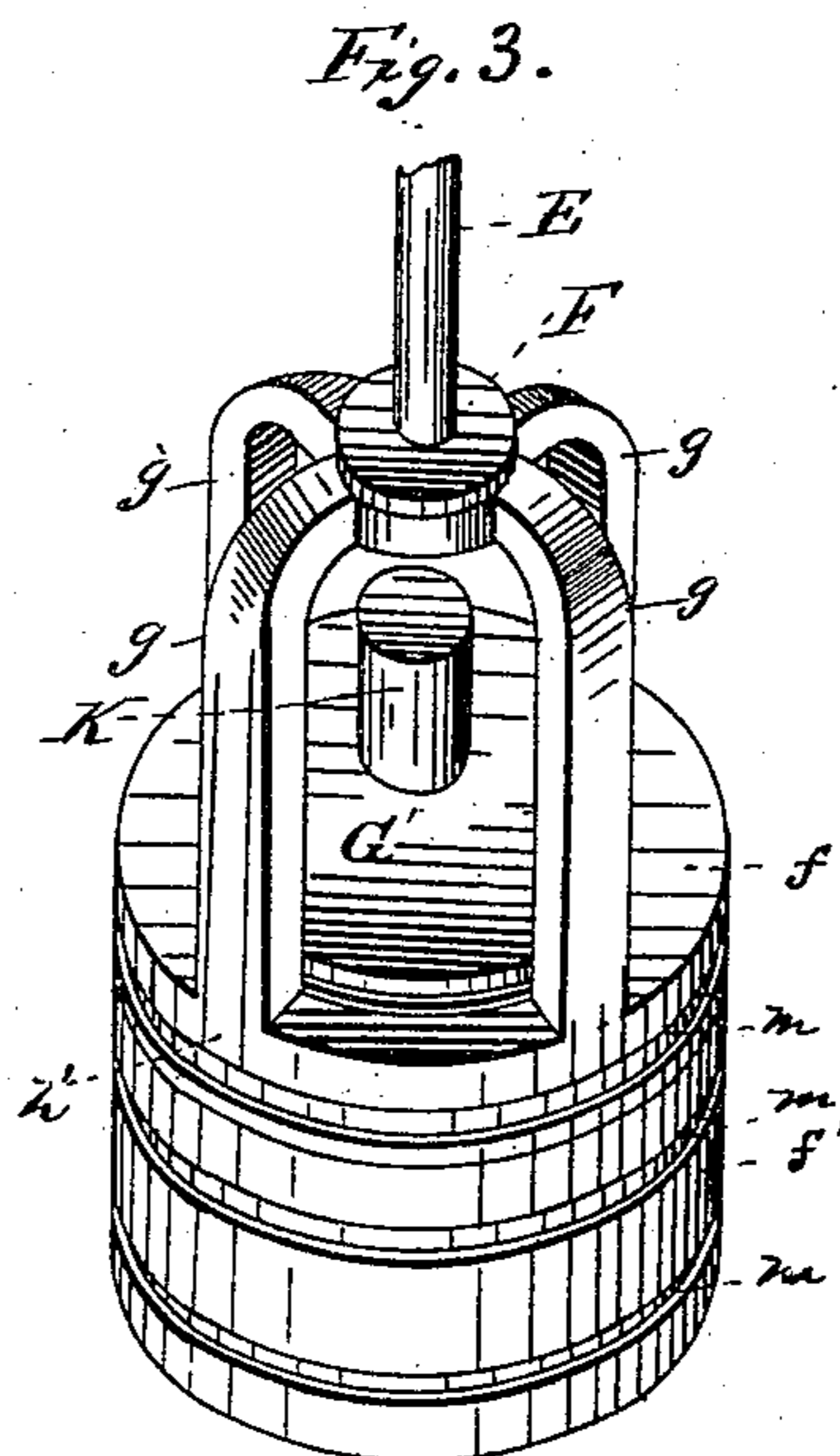
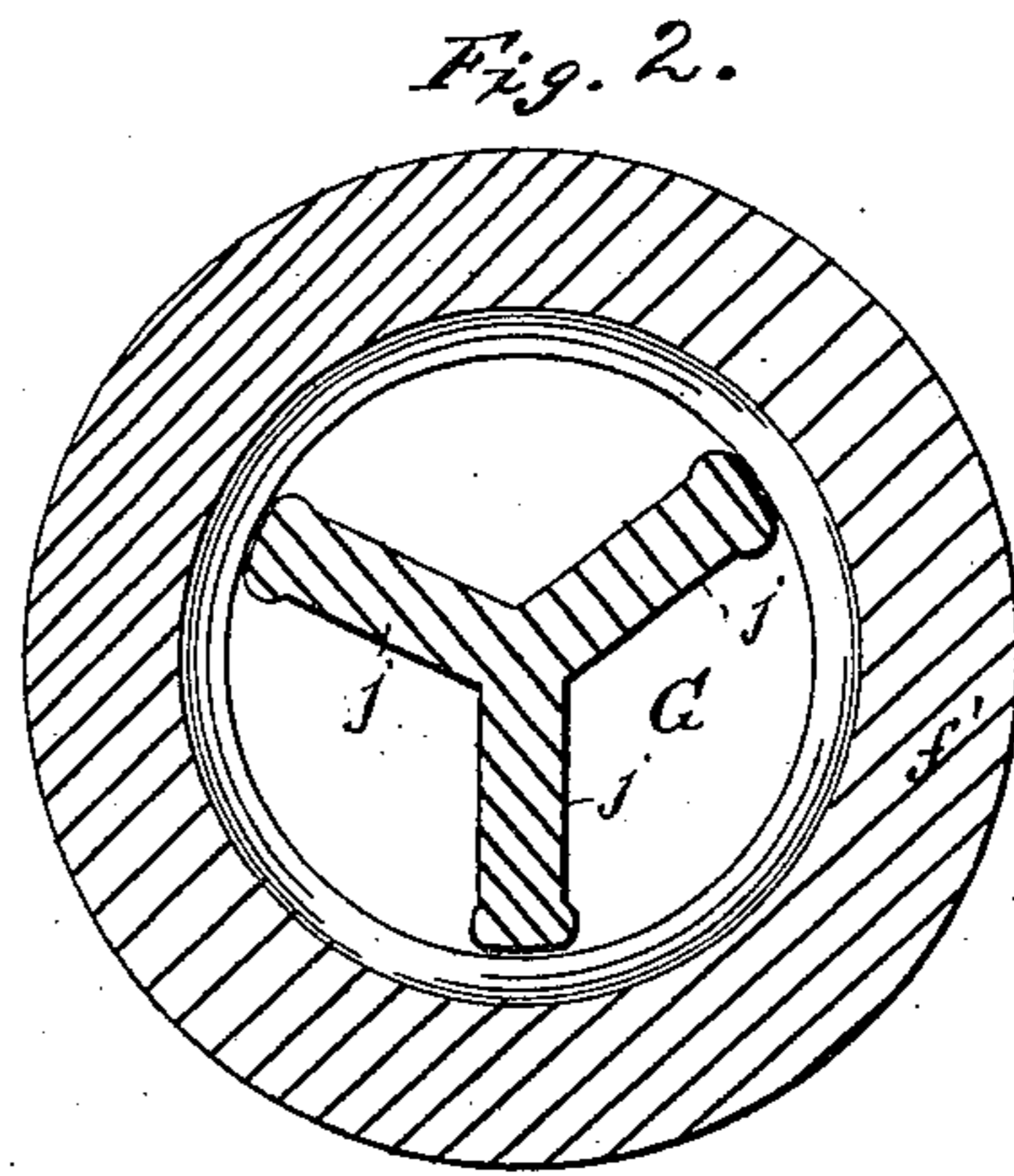
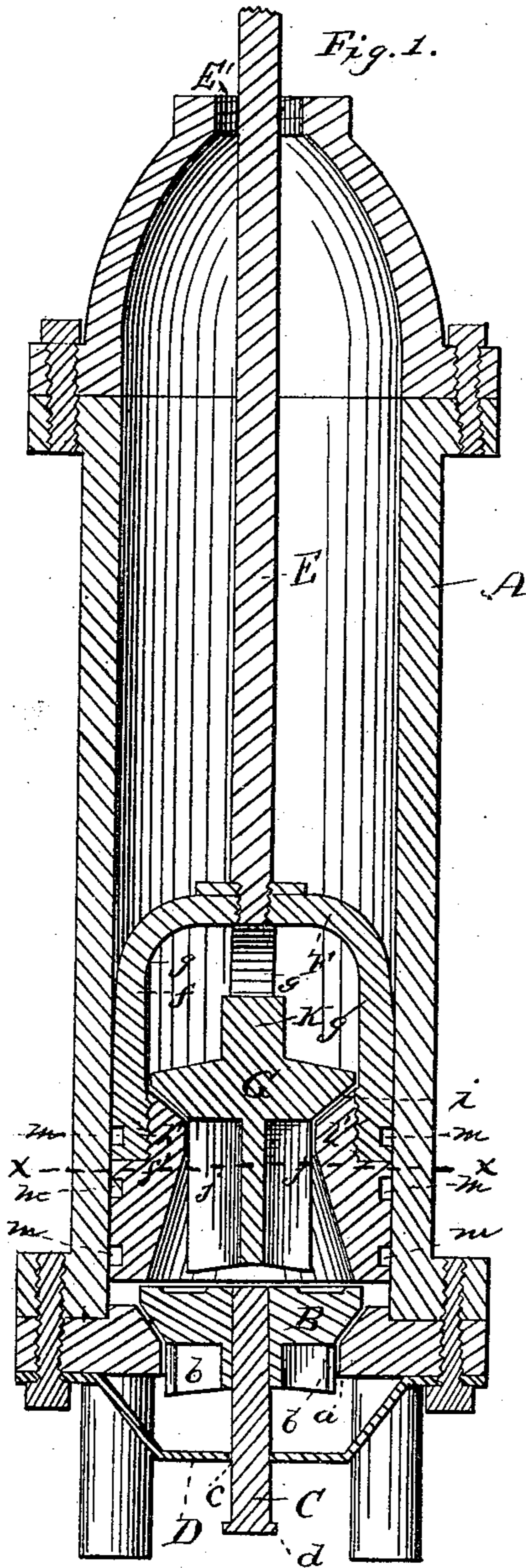
(No Model.)

C. J. CURTIS & J. E. CAINE.

LIFTING PUMP.

No. 292,105.

Patented Jan. 15, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

CYRUS JEROME CURTIS AND JAMES E. CAINE, OF LOGAN CITY, UTAH TERRITORY; SAID CAINE ASSIGNOR TO SAID CURTIS.

LIFTING-PUMP.

SPECIFICATION forming part of Letters Patent No. 292,105, dated January 15, 1884.

Application filed March 31, 1883. (No model.)

To all whom it may concern:

Be it known that we, CYRUS J. CURTIS and JAMES E. CAINE, citizens of the United States, residing at Logan city, in the county of Cache and Territory of Utah, have invented a new and useful Lifting-Pump, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to pumps, and more especially to that class which have a lifting action; and it consists in certain improvements in the construction of the same, as will be hereinafter fully set forth, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of a pump equipped with our improvements. Fig. 2 represents a sectional view of the plunger on the line *xx*, Fig. 1, but on an enlarged scale. Fig. 3 represents a perspective view of the same.

The same letters refer to corresponding parts in all the figures.

Referring to the drawings, A designates the pump-barrel, having cast thereon a suitable base and legs for its support in the well. Said barrel is provided with an inlet-passage, *a*, and around said passage the valve-seat is beveled, to conform to the outer surface of a check-valve, B, working in said passage. Connected to the bottom of said valve is a rod, C, working in an opening, *c*, in the angular cross-plate D, and provided with a head, *d*, fitting over said opening, and serving to limit the upward movement of the check-valve. Guide plates or rods *b* are secured to or formed with the said valve B, and these plates serve to guide the valve to the proper position in its upward and downward movements.

E is a sucker-rod attached to the upper part of plunger F, and working in a passage, *E'*, at the top of barrel A. The said plunger is formed in two parts, *ff'*, the upper part, *f*, being constructed of a series of arms, *g*, secured to a ring or annulus, *h'*, which is internally screw-threaded, to receive the screw-threaded end of part *f'*. A valve, G, works in an opening, *i*, of said part *f'*, and is pro-

vided with guide plates or rods *j* on its under side, serving to guide the valve G when the latter is moving either upward or downward. As shown in Fig. 2, the guide plates or rods *j* are joined together at their inner ends, and then project downward through the passage *i* of part *f'*, as shown in Fig. 1. The construction of guide plates or rods *b* is the same. An extension, K, of the said valve permits the latter to rise only a certain short distance from its valve-seat. The arms of the upper part of plunger F prevent the displacement of the valve G when the latter is pushed upward, and they also serve as guides for the said valve. Grooves *m* are formed in the circumference of both the upper and lower parts of the plunger, and a water-packing is thus formed, thereby obviating the objections to ordinary piston-packing. The top of the pump-barrel is removable, as will be seen.

The pump may be of any size required, and the plunger may be reciprocated by hand, steam, or other power, as desired.

The operation of our pump is obvious. On the upstroke of the plunger, water enters the pump-barrel through the valve B, and on the downstroke water enters the plunger through the valve G, permitting that part of the barrel above said valve to become filled with water. As the plunger begins to ascend, the valve G closes and the water is forced out through a suitable discharge-spout. We do not confine ourselves to any particular arrangement of spout, so we have omitted this from the drawings, preferring to leave it to the option and discretion of the maker.

Our improvements are applicable to both single and double acting pumps.

Having described our invention, what we claim is—

In a pump, the combination, with the pump-barrel, of the plunger F, formed in two parts, *ff'*, the upper part, *f*, being formed of a series of arms, *g*, secured to a ring or annulus, *h'*, and the lower part, *f'*, being screw-threaded to receive the ring or annulus, and having an opening, *i*, in which a valve, G, works, said valve being provided with guide plates

or rods *j*, which are connected together at their inner ends and project downward through the passage *i*, and an extension, *K*, of said valve, which serves to limit the upward movements of the valve, substantially as shown and described.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures in presence of two witnesses.

CYRUS JEROME CURTIS.
JAMES E. CAINE.

Witnesses:

J. T. HAMMOND,
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