

(No Model.)

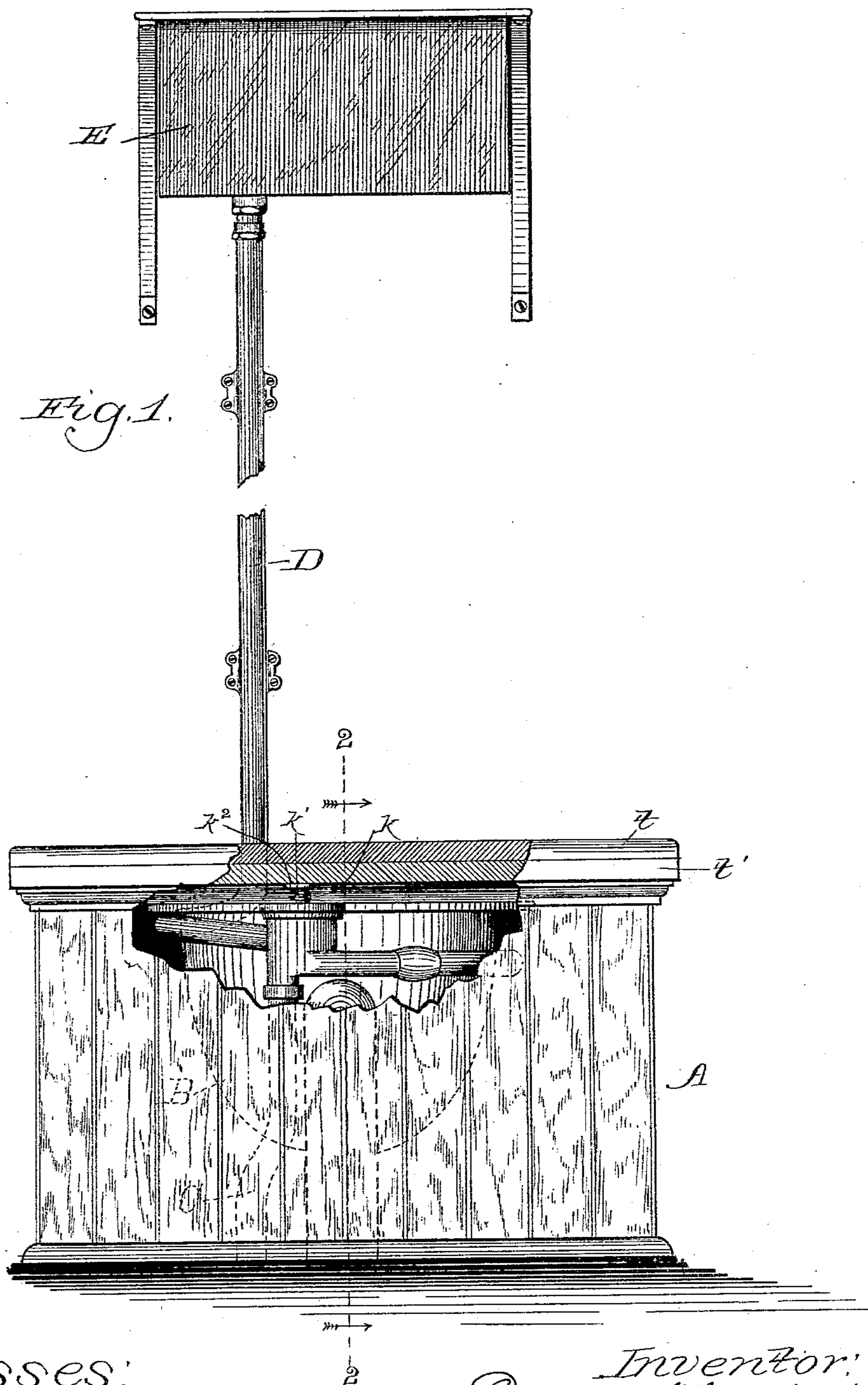
3 Sheets—Sheet 1.

D. WHITEFORD.

WATER CLOSET.

No. 318,842.

Patented May 26, 1885.



Witnesses:
Chas. E. Gaylord.
Mason Bross.

Mason Bros.

Inventor:
David Whiteford,
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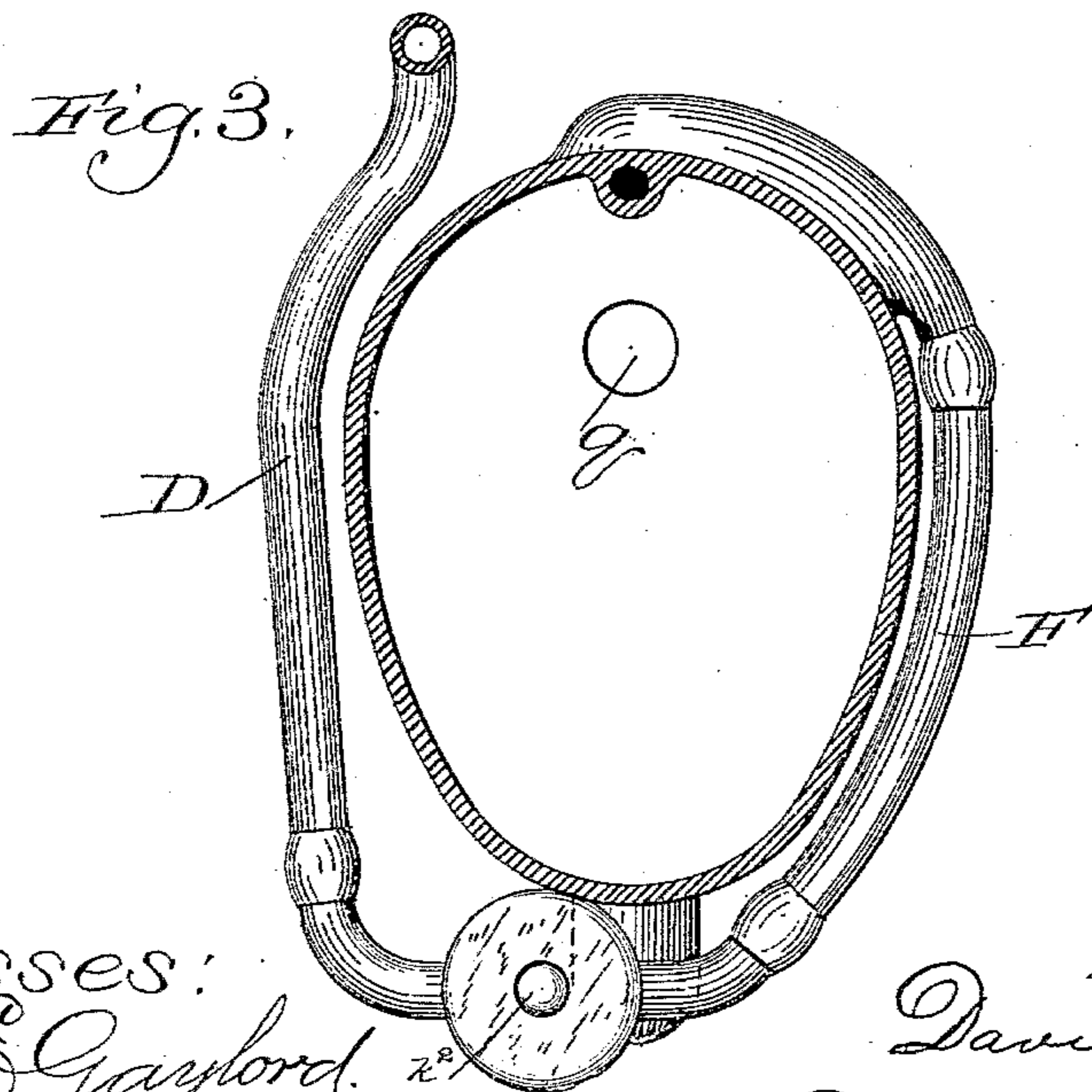
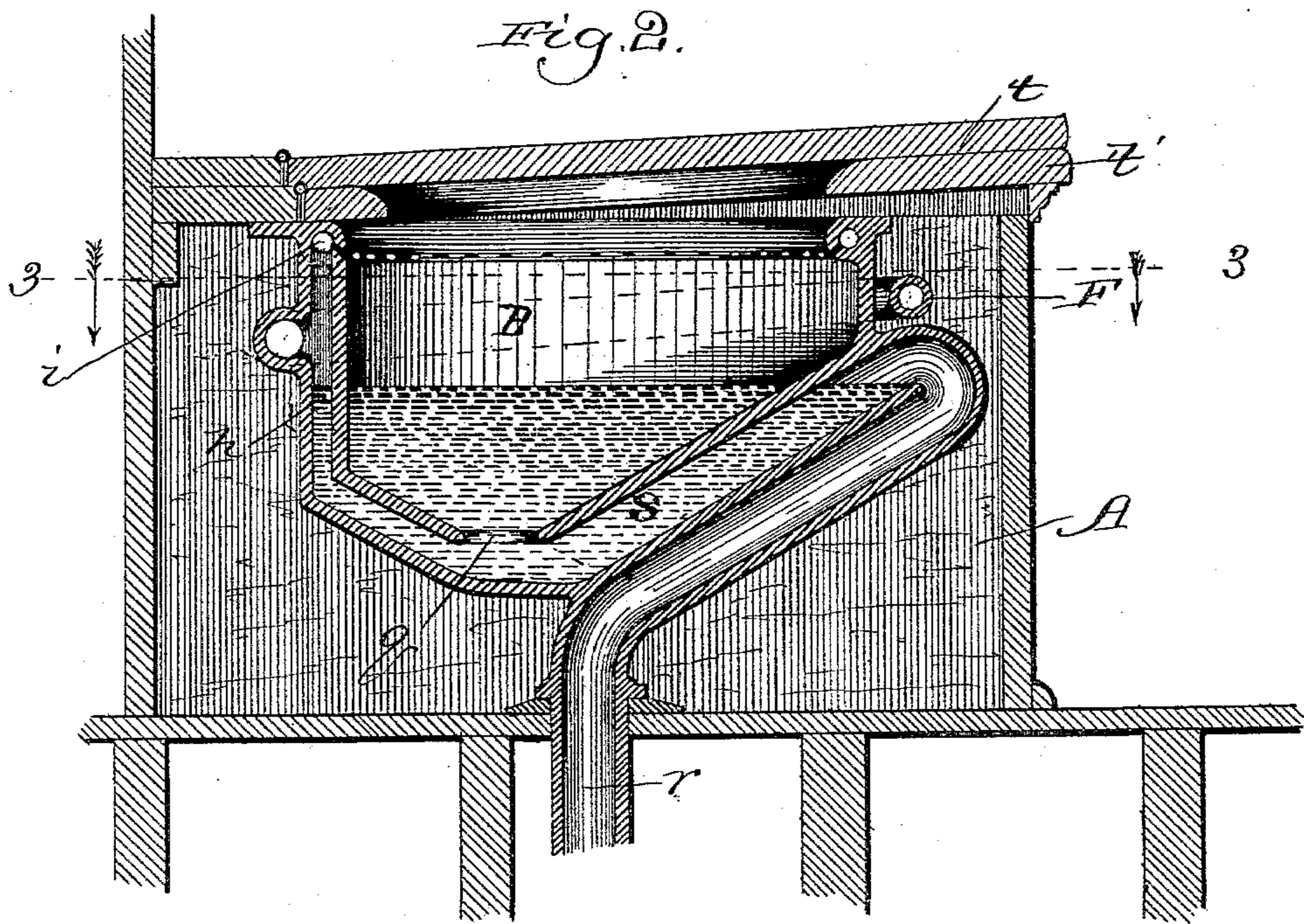
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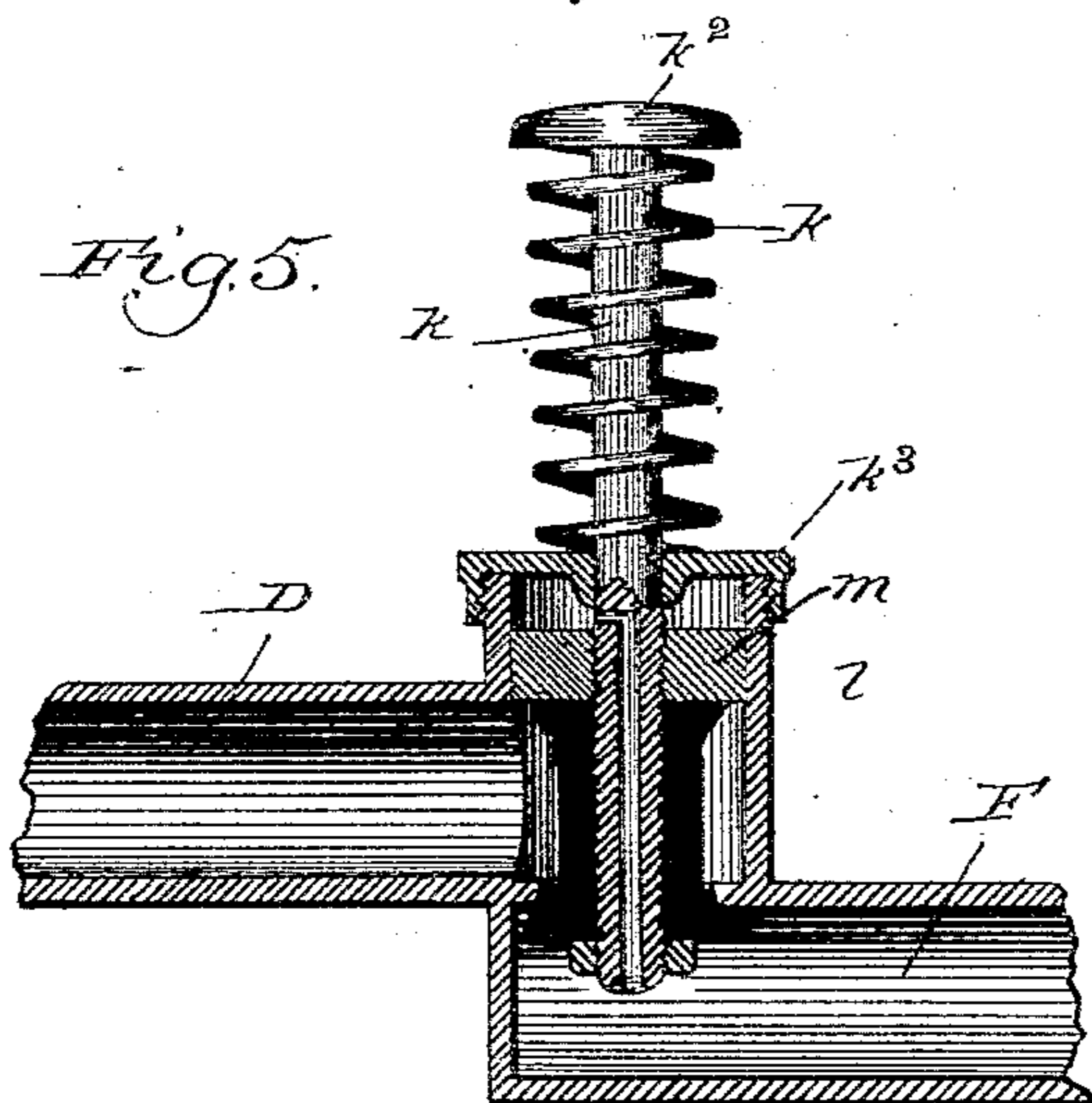
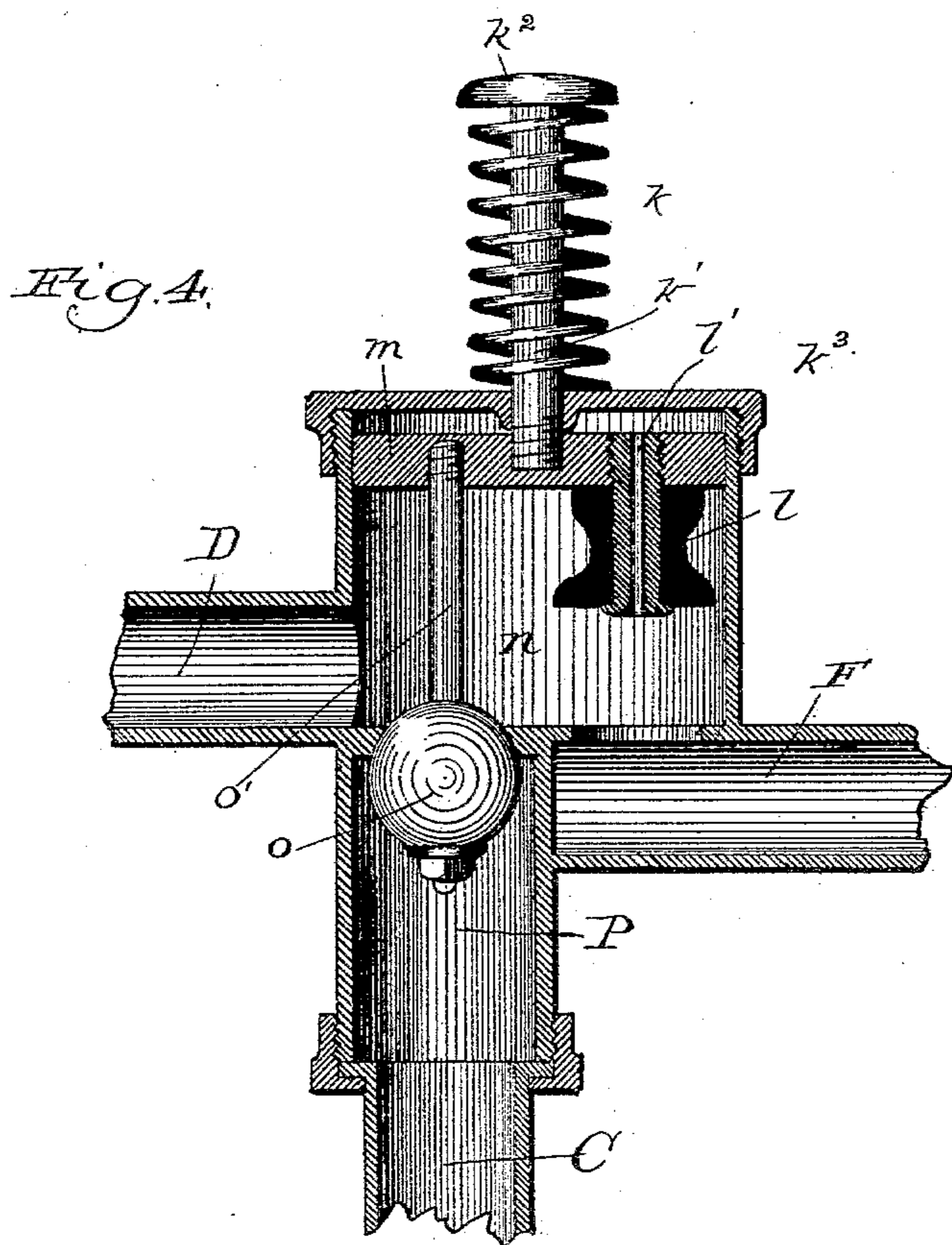
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UNITED STATES PATENT OFFICE.

DAVID WHITEFORD, OF CHICAGO, ILLINOIS.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 318,842, dated May 26, 1885.

Application filed January 14, 1885. (No model.)

To all whom it may concern:

Be it known that I, DAVID WHITEFORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Water-Closets; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of water-closets in which the flushing of the bowl is effected automatically from the seat on removing the pressure thereon. It is my object to provide a valve mechanism which shall be operated by pressure upon the seat to admit from the supply-pipe during the continuance of such pressure water into the tank or reservoir commonly connected with a water-closet to fill the tank, which valve mechanism shall at the same time shut off objectionable direct communication of the closet with the water-supply, and also communication thereof with the tank during the continuance of such pressure, the removal of which pressure will cause to be shut off the water-supply to the tank and permit the water therein to enter and flush the closet-bowl, thus emptying the reservoir, which remains empty until pressure is again exerted upon the seat, thereby avoiding a permanent water-supply in the tank and pipes leading therefrom, which would be liable to freeze within the latter during cold weather.

My invention consists in the construction and combination of parts forming my improvement, all as hereinafter particularly set forth.

Referring to the drawings, Figure 1 is a front elevation of a water-closet containing my improvements and having a portion broken away to display details; Fig. 2, a vertical section of the same, taken on the line 2 2 of Fig. 1, and viewed in the direction of the arrow-heads; Fig. 3, a horizontal section taken on the line 3 3 of Fig. 2, viewed in the direction of the arrow-heads, and representing a plan view of the bowl with a portion of the means for flushing it; Fig. 4, a vertical section of the valve mechanism operated from the closet-seat to admit water from the water-supply pipe to the tank and close communication with the bowl, and to open communication between the bowl and tank and close that be-

tween the tank and water-supply pipe; and Fig. 5 a sectional view representing a modification of the valve mechanism.

A is the box, provided with the usual hinged cover, *t*, and hinged seat *t'*, and containing a soil receptacle or bowl, B.

Accurate description of the construction of the bowl B is omitted from the present application, as I intend that it shall form the subject of a future application for a patent.

C, Fig. 4, is a water-supply pipe leading to a valve-chamber, *p*, containing a ball-valve, *o*, having its seat in the upper end of the chamber *p*, which communicates with a valve-chamber, *n*, containing the plunger *m*, to which the stem *o'* of the valve *o* is secured, and which carries a valve, *l*, having a vertical opening, *l'*, through it on its under side, and is supported by a helical spring, *k*, confined between stops in the form of a knob, *k'*, upon the upper extremity of a vertical rod, *k''*, secured at its lower extremity to the plunger *m* and the perforated cup *k'''*, forming the cover of the valve-chamber *n*, and through which the rod *k'* passes.

D, Figs. 4 and 5, is a pipe leading from one side of the valve-chamber *n* to the tank E, properly located; and F is a pipe, preferably of the same diameter as the pipe D, which communicates toward one extremity with the lower side of the valve-chamber *n*. The rod *k'* and surrounding spring *k* and valve mechanism below these parts are directly underneath the forward portion of the hinged seat *t'*, and the pipe F leads obliquely around the bowl B, and communicates at the rear of the latter with the flushing-rim *i*, of common construction, and with a curved passage, *h*, formed in the rear side of the bowl and communicating with the traps. (Shown in Fig. 2.) The combined diameters of the passage *h* and flushing-rim *i* are preferably equal to the diameter of the pipe F, to permit from the latter an ample supply of water to both. Pressure upon the seat *t'* in using the closet will force the plunger *m* downward, and with it the valve *l* upon its seat; closing communication of the valve-chamber *n* with the bowl B, and will remove the valve *o* from its seat, permitting water from the supply-pipe C to enter the reservoir

E by way of the valve-chambers *p* and *n* and pipe D, permitting it, if the pressure is exerted for a sufficiently long time, and if the tank is provided with a vent, to become completely
 5 filled, or, if the tank is air-tight, to such an extent as the compression of air within it will allow. On the removal of the pressure upon the seat *t'* the recoil of the spring *k* will raise the valve *l* from its seat and the valve *o* to its
 10 seat, against which the last-named valve will be firmly packed by the pressure of water from underneath, thus completely closing communication between the closet and water-supply, and the contents of the tank E will empty
 15 into the bowl, flushing the latter, and by the force of its pressure carrying the soil over the trap *s* into the waste-pipe *r*, and, owing to the construction of the trap, sufficient water will remain within the bowl to afford an effective
 20 water-seal for the usual purpose of preventing the rise into the apartment of sewer-gas and foul air.

The opening provided through the valve *l* serves as an outlet for any water which may
 25 force its way above the plunger *m*, and which might, if allowed to remain, freeze and interfere with the operation of the device, and it provides an outlet for air, which, if confined, would prevent proper operation of the valves.

30 It will be seen from the foregoing that the tank E only contains water when it is required to flush the bowl, and is at other times empty, whereby, as hereinbefore stated, "freezing of the pipes" leading therefrom and consequent bursting are avoided, and that communication between the closet and supply-pipe C, from which the water it contains may com-
 35 mingle with that which is drawn to be used for other purposes, is effectually prevented.

40 The modification shown in Fig. 5 represents a device, included in my present invention, to be used where the water-supply is other than that produced by pressure from a city main. It shows the valve *l* as being operated by pressure upon it to open communication between the bowl and flushing-supply, which communication is normally closed by
 45 the tension of the spring *k*. In this modified form of the device the valve *o* and its chamber, having no function to perform, may be
 50 omitted.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a water-closet, the combination, with
 55 a reservoir, E, and bowl, of a valve-chamber, *n*, connected with the reservoir and bowl, a plunger, *m*, within the valve-chamber carrying a rod, *k'*, projecting upward through the top of the valve-chamber, a spring, *k*, supporting the plunger and confined between
 60 suitable stops, a valve, *l*, projecting downward from the plunger, a valve-chamber, *p*, communicating with a water-supply and leading into the valve-chamber *n*, and a valve, *o*,
 65 within the valve-chamber *p* and connected with

the plunger *m*, to be maintained normally against its seat by the spring *k*, which maintains the valve *l* normally away from its seat, the whole being constructed and arranged to operate substantially as described.

2. In a water-closet, the combination, with
 70 a reservoir, E, and bowl, of a valve-chamber, *n*, connected with the said reservoir and bowl, a plunger, *m*, within the said valve-chamber carrying a rod, *k'*, projecting upward through
 75 the top of the said valve-chamber, a spring, *k*, supporting the said plunger and confined between suitable stops, a valve, *l*, provided with a vertical opening, *l'*, and projecting
 80 downward from the lower side of the said plunger, a valve-chamber, *p*, communicating with a water-supply and leading into the said valve-chamber *n*, and a valve, *o*, within the said
 85 valve-chamber *p* and connected with the said plunger *m*, to be maintained normally against its seat by the spring *k*, which maintains the valve *l* normally away from its seat, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

3. A water-closet comprising, in combination, a reservoir, E, valve-chamber *n*, underneath the forward end of the hinged seat
 90 *t'* of the said water-closet and communicating with the said reservoir, a plunger, *m*, within the said valve-chamber carrying a rod, *k'*, projecting upward through the top of the
 95 said chamber to afford contact of its upper extremity with the lower surface of the said seat, a spring, *k*, confined between suitable stops to support the said plunger and afford an elastic
 100 resistance against pressure exerted upon the said rod, a valve, *l*, projecting downward from the lower side of the said plunger and provided with a channel, *l'*, extending vertically through it, a valve-chamber, *p*, communicating at one end with the valve-chamber
 105 *n*, and at its opposite end with the water-supply, a valve, *o*, within the chamber *p* and connected with the said plunger *m*, to be maintained normally against its seat by the
 110 pressure of water underneath it and by the spring *k*, which maintains the valve *l* normally away from its seat, a bowl, B, behind the valve-chamber *n*, and below the forward end of the seat *t'*, and communicating from its
 115 rear side by means of a conduit, F, with the said valve-chamber *n*, and provided with a flushing-rim, *i*, a trap, *s*, communicating with the said outlet-opening in the bowl B, and a rear channel, *h*, leading from the said flush-
 120 ing-rim into the said trap, the diameters of the said channel *h* and flushing-rim *i* being substantially equal to the diameter of the conduit F, the whole being constructed and arranged to operate substantially as described.

DAVID WHITEFORD.

In presence of—

EDWARD THORPE,
 MASON BROSS.