

No. 753,308.

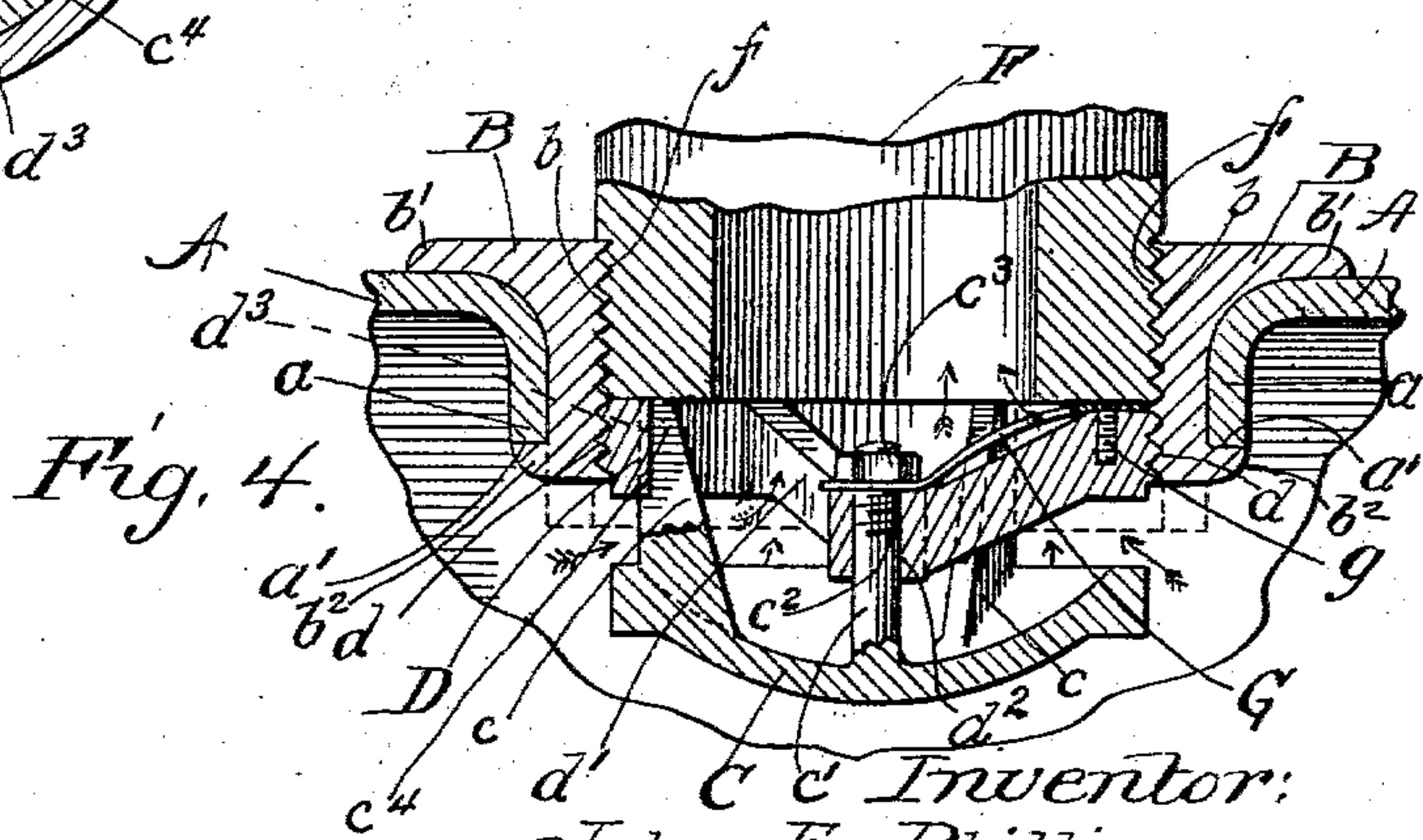
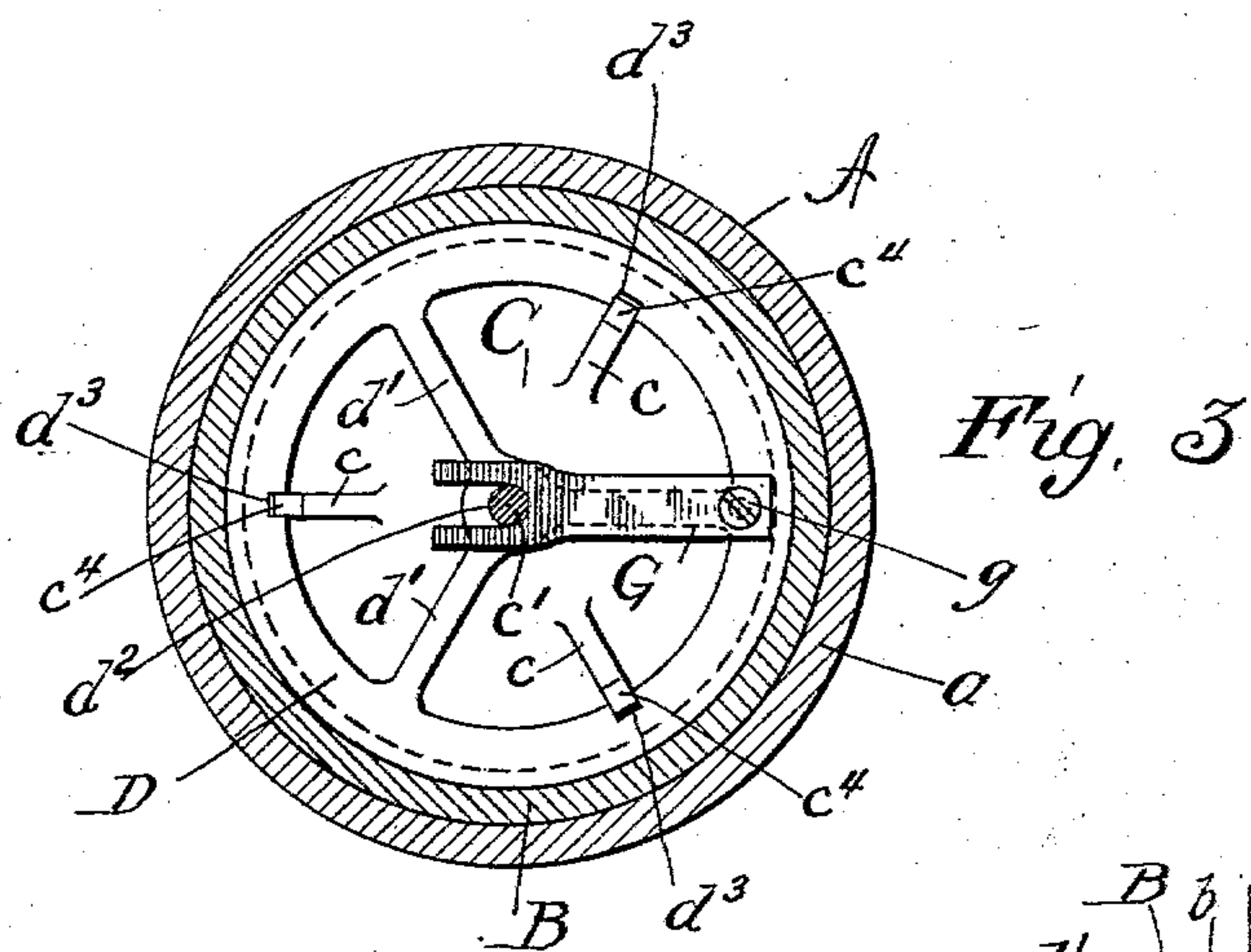
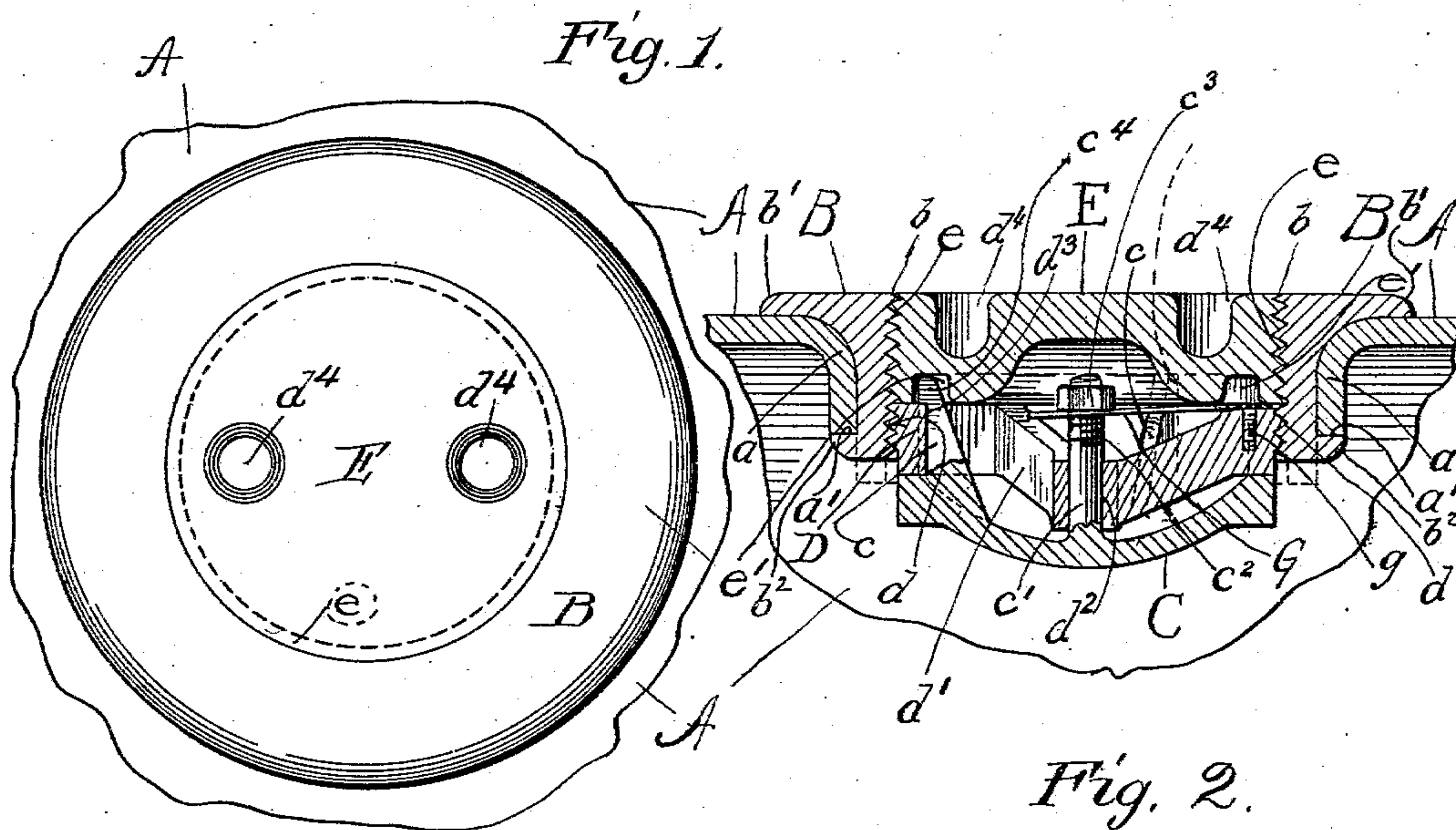
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J. E. PHILLIPS.

VALVED BUNG FOR BARRELS OR SIMILAR RECEPTACLES.

APPLICATION FILED JAN. 28, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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VALVED BUNG FOR BARRELS OR SIMILAR RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 753,308, dated March 1, 1904.

Application filed January 28, 1903. Serial No. 140,923. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PHILLIPS, a citizen of the United States, residing in the city of Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Valved Bungs for Barrels or Similar Receptacles, of which the following is a specification.

My invention relates to valved bungs for metallic barrels, casks, kegs, tuns, and similar receptacles. Its object is to provide efficient and commercially practical means of comparatively slight cost to manufacture for reinforcing bung-holes, means for closing bung-holes, and a pressure-controlled bung-hole valve.

Referring to the accompanying drawings, wherein like reference-letters indicate the same or corresponding parts, Figure 1 is a fragmentary plan view. Figs. 2 and 4 are fragmentary sectional views, partly shown in elevation; and Fig. 3 is in part a cross-sectional and in part a plan view of certain of the parts shown in Figs. 2 and 4.

In the drawings, A is a metallic barrel, cask, or other receptacle; B, an interiorly-threaded bushing; C, a bung-hole slide-valve; c, guide members forming a part of or secured to the valve C; c', a pin secured to or forming a part of said valve and preferably provided with screw-threads c², adapted to engage or to be engaged by a suitable nut c³; D, a substantially annular valve-seat member provided with exterior screw-threads d, adapted to engage the screw-threads b on the interior of the bushing B; d', spoke-like arms secured to or forming a part of the member D and preferably connected one to another at their point of juncture; d², an aperture or hole adapted to receive the pin c'; d³, guide slots, channels, or grooves in the interior face of the member D, adapted to receive the guide members c; E, a plug or bung provided with screw-threads e, adapted to engage or to be engaged by the threads b; e', an annular groove in the lower face of the plug adapted to receive the ends c⁴ of the members c when the valve C is in closed position and the plug in place substantially as shown in Fig. 2; F, a spigot or cock of any suitable type provided

with screw-threads f, adapted to engage or to be engaged by the threads b; G, a leaf-spring adapted to exert a pressure upon the valve C to close the same and preferably secured by a rivet or other suitable means g to the valve-seat member D.

Assuming the parts shown in Fig. 2 to be in the position therein illustrated and the barrel to contain fluid under sufficient pressure to hold the valve C in closed position firmly seated against the valve-seat member D, to permit the escape of any desired quantity of the fluid from the barrel the plug D must first be removed from the bushing B, which is effected by screwing said plug out of said bushing. Any suitable means may be provided to enable the manipulator to screw said plug from or into said bushing; but I prefer to provide the plug with holes d⁴, into which pins or lugs on a suitable wrench may be inserted. Said holes when employed may be of any suitable size, number, and form. It will be understood, however, that any suitable means may be employed to remove or to facilitate the removal of the plug from the bushing or to secure the same properly therein. Assuming the plug E to be removed from the bushing, a portion or substantially the whole of the fluid under pressure within the barrel may be removed by unseating the valve C, thus establishing communication between the inside of the barrel and the atmosphere or a suitable pipe or receptacle. To open the valve C, it is but necessary for the operator to inwardly press against the pin c' or against the end c⁴ of one or more of the guide members c with sufficient force to overcome the pressure within the barrel. When this pressure is overcome, the valve will be moved backward until its further movement in that direction is prevented by the nut c³ coming into contact with the members d' at or substantially at their point of juncture. When said valve and the parts carried by it are backwardly moved, as described, they will assume substantially the position shown in Fig. 4, whereupon the fluid will pass, by reason of the pressure within the barrel, between the valve and the valve-seat and escape through the bung-hole. This method of opening the valve may be employed where the nature

of the fluid or quasi fluid will so warrant. Where, however, the fluid is under pressure, which pressure it is desired to maintain so far as possible, I prefer to employ means which, when in proper connection with the valve, will hold it in open position and itself control the discharge of the fluid from the barrel. In Fig. 2 I have illustrated a portion of a cock F, which cock is capable of accomplishing this desired result. When said cock is screwed into the bushing a sufficient distance, it will come into contact with the ends c^4 of the guide members c , and upon being farther screwed into the bushing will inwardly press against said members, thereby causing the valve C to be moved backward into open position. In the drawings only a portion of the cock is shown, as it will be understood that any suitable cock closing or opening means, as a wheel or handle and a turn or lift valve, may be employed to control the discharge of fluid proceeding from the receptacle. When the fluid within the barrel is under sufficient pressure, said pressure will cause the valve to close if the pressure exerted by the operator to open the valve be discontinued or if the cock or plug E be sufficiently unscrewed to permit of the valve being moved outwardly by pressure or by gravity until it shall firmly bear against its seat. Where the fluid is not under pressure any suitable mechanical pressure means, as a spring, may be employed to hold the valve normally seated—for example, the spring G. When the fluid within the barrel is under pressure or is of a nature, as is gas, to itself exert a pressure and the spring G is employed, it will at once be seen that the combined pressure of the spring and of the pressure within the barrel will effect a seating of the valve C, when said valve is free to move to its seat.

In constructing the receptacle a certain opening is first made in the head or other part of the receptacle at the point where the bushing is to be located. The diameter of this opening is smaller than that of the finished bung-hole, and the bung-hole proper is subsequently formed by pressing the edges of the original opening downward into the receptacle, so as to form the circumferentially-continuous flange a , which is of one piece with the head of the receptacle. By preference said flange is substantially cylindrical—that is to say, extends substantially at right angles to the adjacent portion of the receptacle. The bushing B conforms to the receptacle at the bung-hole and has an annular flange b' , which makes contact with and rests upon the outer surface of the receptacle around said bung-hole, said bushing therefore constituting a centrally-apertured cap closely fitting into the bung-hole. The depth of the bushing is greater than the depth of flange a , and in securing the bushing in position the inner extremity thereof (shown in dotted lines, Figs. 2 and 4) is beaded over or set back, as shown in full lines and marked b^2 in

said figures, to engage the innermost extremity a' of said flange a . It will be readily understood that this beading over or setting back of the inner extremity of the bushing operates to draw the bushing down firmly in position upon the exterior surface of the receptacle at the bung-hole, and consequently insures a hermetic sealing of the bushing to the receptacle. The flange a is under compression between the upwardly-straining upper surface of beading b^2 and the downwardly-straining lower surface of the flange b' . The bushing is extended to form a permanent part of the receptacle and greatly strengthens and stiffens the parts thereof adjacent to the bung-hole. After the bushing has thus been secured within the bung-hole proper the valve and valve-seat may be assembled in proper position, substantially as shown in Figs. 2 and 4, by first securing the valve to the seat by inserting the pin c' within the hole d^4 and the guide members c within the grooves d^3 and then screwing the nut c^3 upon the pin and thereafter screwing the valve-seat member carrying the valve into the bushing. When it is desired to fill a barrel equipped with the valve, said valve may be held open in any suitable manner and the barrel-filling material introduced through the bung-hole. When said barrel is to be filled by pressure means of sufficient strength to open the valve and to hold it open, no other means need be employed to unseat the valve and hold it in open position. When the spring G is omitted, if the barrel be in proper position and not under internal pressure sufficient to hold the valve closed the valve will be open by gravity; so, too, when the material with which it is desired to fill the barrel is of sufficient weight to overcome the frictional resistance offered by said valve or the pressure exerted upon the valve to keep it closed. Hence it will be seen I have provided a valve which may be opened manually, by gravity, or by pressure means and which may be closed either by spring or fluid pressure means, or both.

It is obvious that instead of employing a cock which when screwed into the bushing will come into contact with the guide members c upon the valve said cock may bear against the pin c' or nut c^3 or that an additional member may be employed against which said cock will bear, said member in turn bearing in any suitable manner against said valve or a projection or projections thereon. It is further obvious that there may be as many arms d' as preferred and that where two or more are employed and convergently disposed they need not meet; that instead of employing said arms any suitable means may be employed to limit the distance traveled by the valve C in being opened and to retain said valve when opened in such position that it may be moved into closed position; that instead of the pin c^2 and nut c^3 any suitable stop means may be employed to limit the movement of the valve C;

that, if desired, the groove e' may be omitted; that any suitable form or type of spring may be employed to accomplish the purpose of the spring G or that said spring may be omitted; that there may be as many guide members c as desired, that instead of a portion of the spigot projecting into the bung-hole or the hole within the bushing and against the valve C or a projection or projections thereon a suitable pipe or tube or other suitable hollow member may be employed to effect the same ends, and that this pipe may or may not be controlled by a spigot or valve, as preferred; and it is still further obvious that the number, size, and form of the various parts of my device and the location of certain of said parts may be greatly varied without departing from the principle of the invention.

Although ordinarily the entire receptacle will be made of metal, I do not wish to be limited to a receptacle so constructed. So far as my invention is concerned it is essential only that the portion surrounding the bung-hole be made of metal. For example, if the bung-hole be located in the head of the receptacle the head only may be of metal, and the sides thereof may under certain circumstances be of wood, wood-pulp, or other material.

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

1. The combination of a receptacle having a metallic bung-hole, the edges whereof are turned in to form a flange, and a one-piece metal bushing having an annular flange adapted to rest upon the exterior surface of the receptacle around the bung-hole, and said bushing being beaded over upon the innermost extremity of said receptacle-flange whereby said receptacle-flange is retained between two opposing annular surfaces of said bushing for the purpose described.

2. The combination, with the remaining parts of the receptacle, of a metal flange forming an integral part of the receptacle and extending thereinto to form a bung-hole; a metal bushing fitted into said bung-hole and having a flange resting upon the exterior surface of the receptacle around the bung-hole and said bushing being beaded over the innermost extremity of said receptacle-flange whereby the receptacle is held between opposing surfaces of said bushing.

3. The combination of a receptacle having a metallic bung-hole, the edges whereof are turned in to form a flange; a one-piece metal bushing having an annular flange adapted to rest upon the exterior surface of the receptacle around the bung-hole and said bushing being beaded over upon the innermost extremity of said receptacle-flange whereby said receptacle-flange is retained between two opposing annular surfaces of said bushing; and a slide-valve controlling the hole in said bushing.

4. In combination, a receptacle, the bung-hole portion whereof is of metal; a bung-hole in said receptacle, a bushing secured within said bung-hole and reinforcing the wall thereof; a valve-seat member secured within said bushing at the lower portion thereof, said valve-seat member being provided with grooves; a slide-valve movable in and seating upon said valve-seat member; guide members formed on said slide-valve and guided by the grooves in said valve-seat member; said guide members extending above the top of the valve-seat member when said valve is seated; and a spigot, one end of which is adapted to be inserted into the bung-hole for engaging the guide members on said valve to open said valve; and means for closing said valve.

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