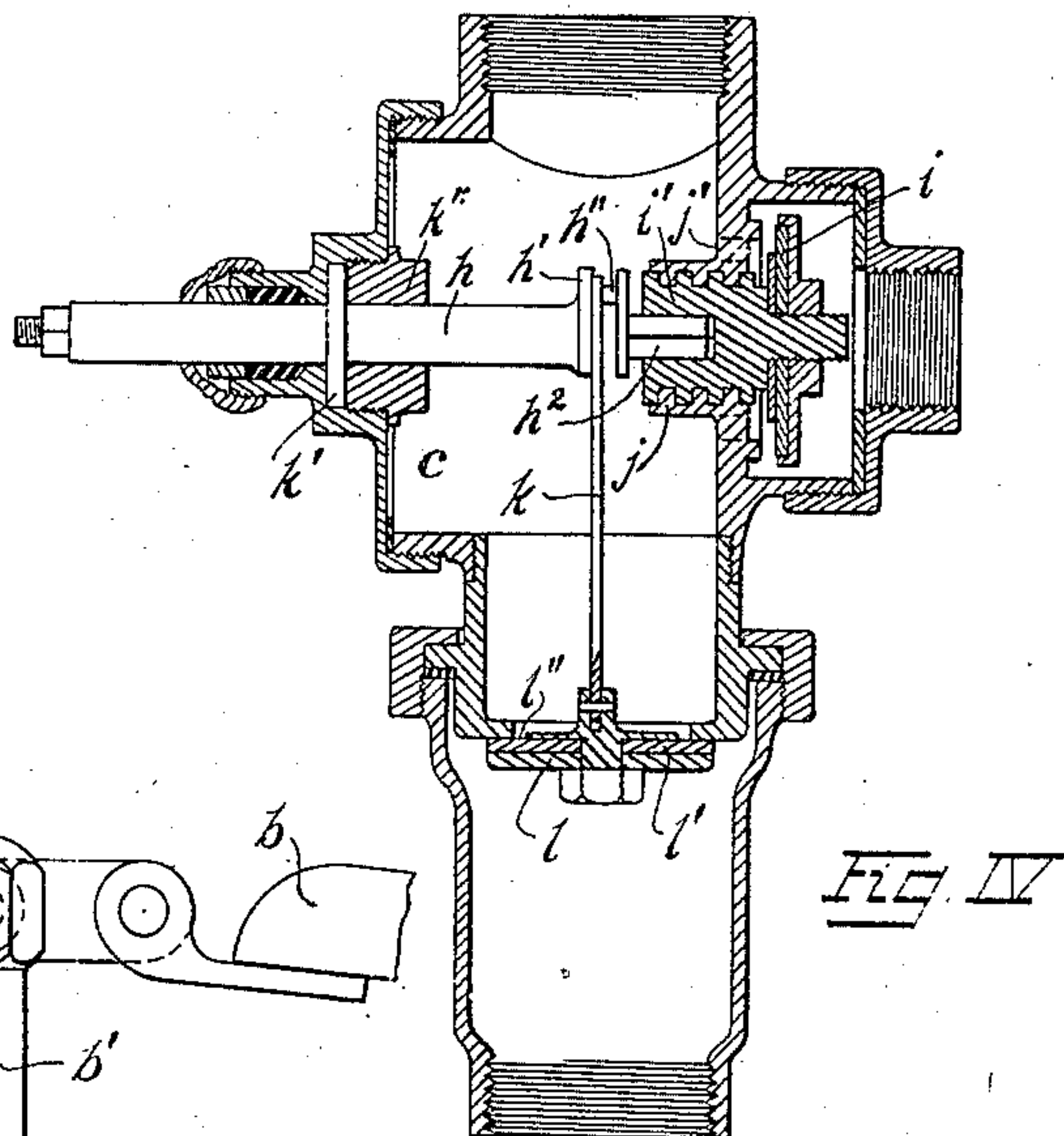
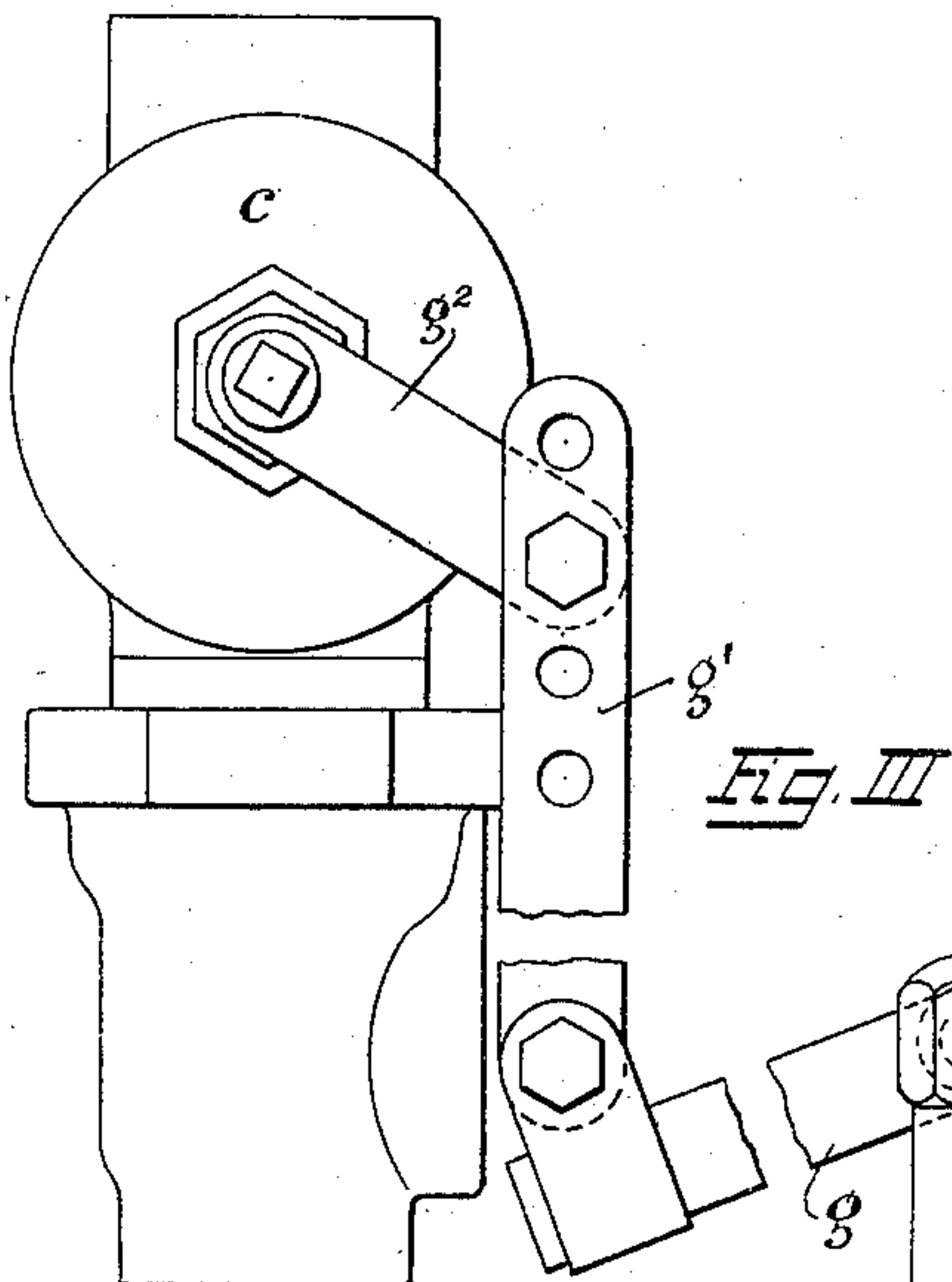
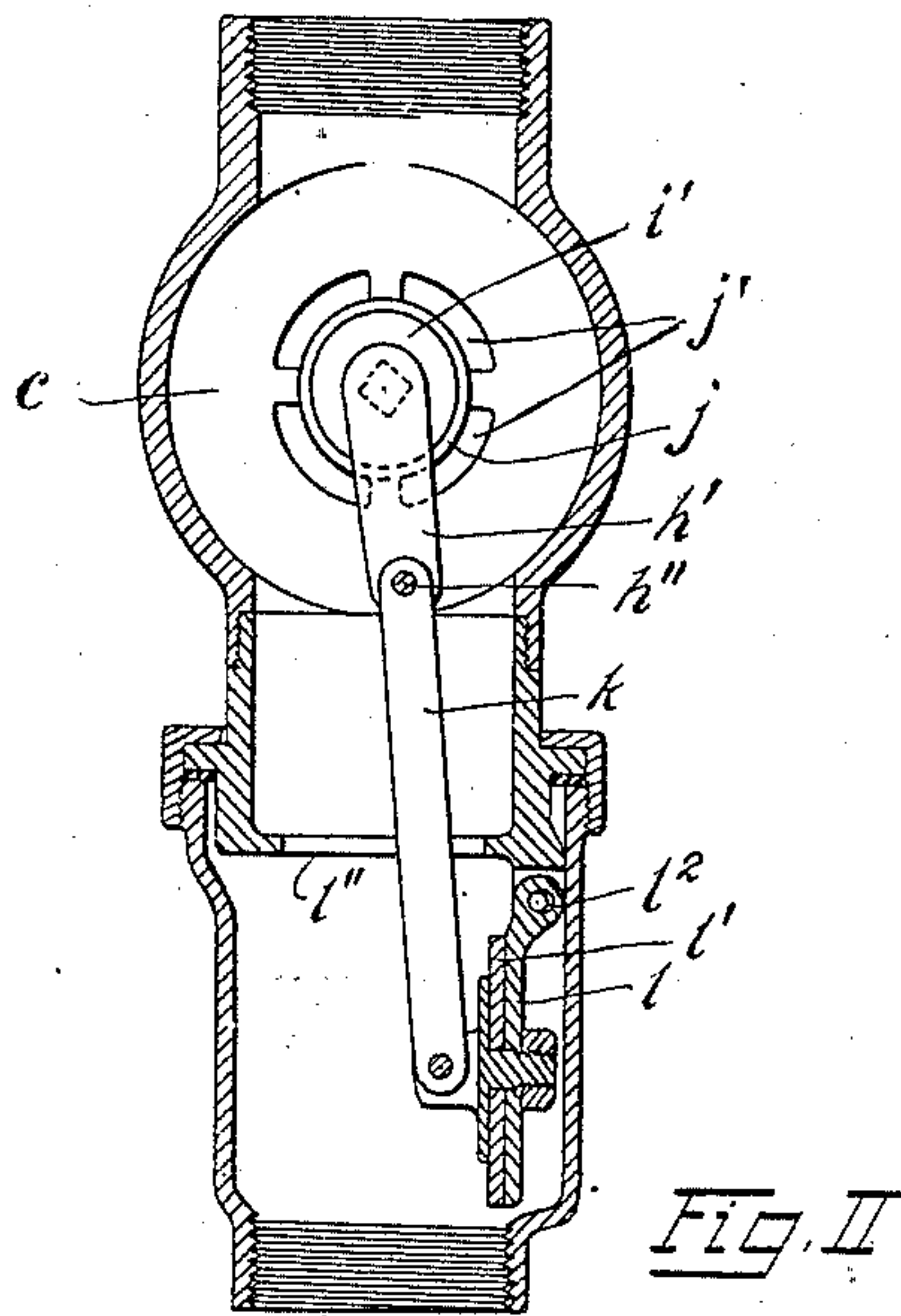
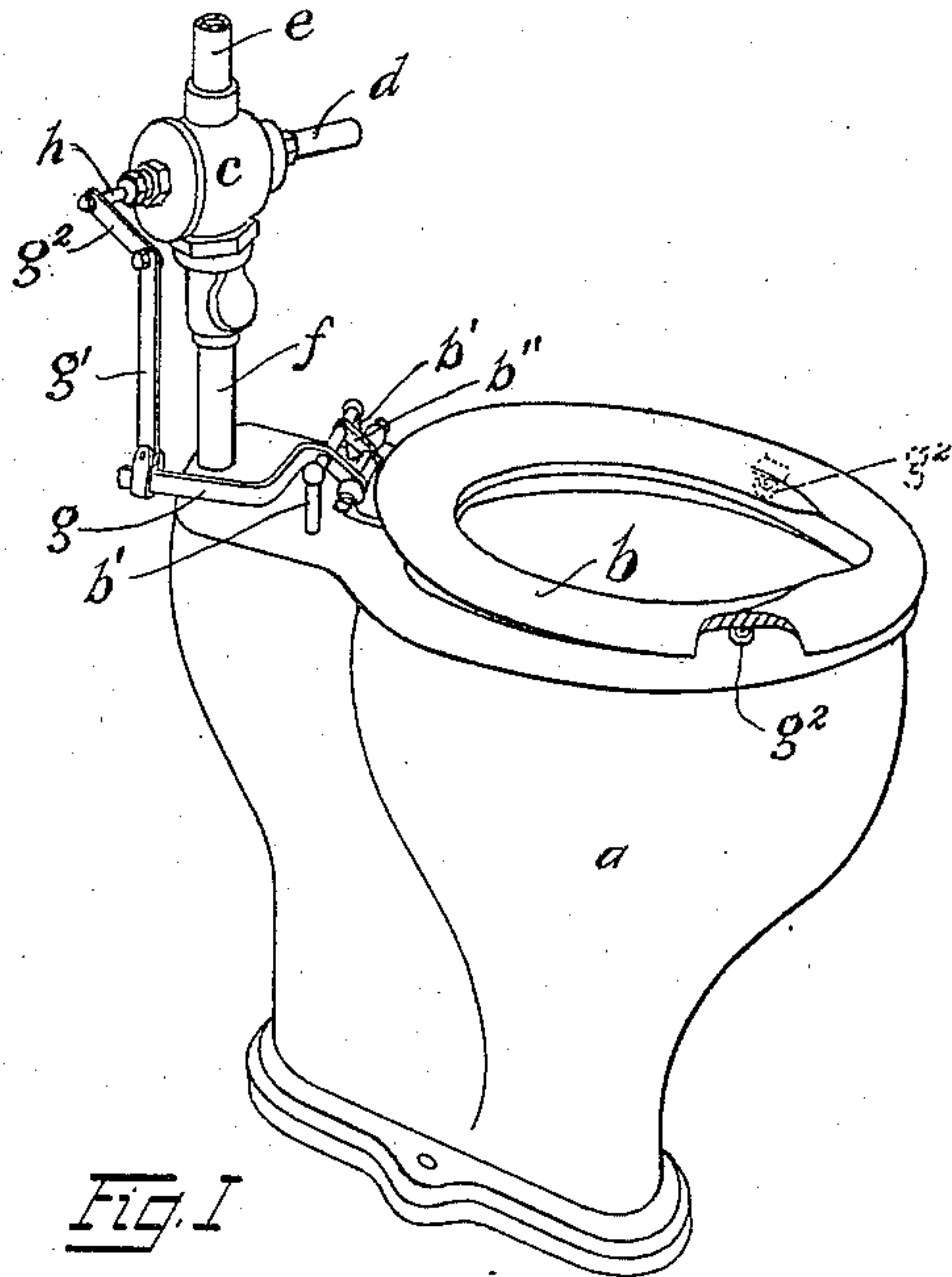


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WATER CLOSET VALVE.
APPLICATION FILED JULY 22, 1909.

966,407.

Patented Aug. 2, 1910.



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UNITED STATES PATENT OFFICE.

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WATER-CLOSET VALVE.

966,407.

Specification of Letters Patent.

Patented Aug. 2, 1910.

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To all whom it may concern:

Be it known that I, BOYD THOMAS BEARDSLEY, a citizen of the United States of America, and a resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Water-Closet Valves, of which the following is a specification.

My invention relates to improvements in water closets, and has for its object the improvement of the valve mechanism and automatic actuating means therefor. Said valve mechanism is of the general type employing two co-acting valves alternatively opened or closed, and controlling respectively, the service-pipe and the flushing-connection; these valves, as herein disclosed, being positively connected for such alternative actuation. It is highly desirable in such devices that the parts shall be so constructed as to be extremely simple and positive in operation and avoid the liability of their getting out of order, or of being tampered with. Another important feature is that the flushing valve should open almost instantly and afford as much clearance as possible for the flow of the water from the tank, while an appliance of this class, requiring the use of springs, is objectionable, because of the further complication involved. Again, the automatic actuating means for the valve preferably should be self-contained, and avoid the necessity for a wall connection.

Bearing the foregoing features in mind, I have devised improved mechanism for avoiding these objections and attaining certain advantages which will be better understood upon considering the accompanying description and drawings, wherein:—

Figure I is a perspective view showing a water closet bowl, an associated valve mechanism and actuating seat; all constructed in accordance with my present improvement. Fig. II is a vertical sectional view of the valve mechanism itself. Fig. III is an enlarged view of said valve mechanism associated with details of the actuating mechanism; and Fig. IV is a vertical sectional view taken at right angles to the section of Fig. II.

Throughout the several figures of the drawings, I have indicated similar parts by

the same character of reference, in order that any confusion may be avoided.

Referring first to Fig. I, the relation of the several parts will be readily gathered, wherein the porcelain bowl *a* pivotally supports the seat *b* rearwardly thereof; the latter being rearwardly connected with the valve *c* through suitable link mechanism, which presently will be described. At *d* and *e* respectively are shown the terminals of the service pipe and of the tank connection, while *f* is the ordinary flushing connection for the bowl. The tank, which is not shown, it will be understood, is of the pressure-type, wherein the water is forced in from below, preferably against a head consisting either of a suitable float, or a body of air, for example, until the pressure is practically equal to that of the service mains. It will be observed that the seat *b* is rearwardly pivoted between uprights *b'* by means of a link *b''* and the forward extremity of the valve-actuating lever *g*. Said seat may be forwardly provided with rubber-faced rollers *g²*, bearing upon the top of the porcelain bowl; more readily permitting a slight forward and back sliding motion, necessitated by the link connection shown. Lever *g* is connected by means of the link *g'*, and lever arm *g²*, with the valve stem *h*, and is adapted to give the same approximately one quarter turn when the seat is rearwardly depressed by the weight of the user.

As shown in Fig. III, the link *g'*, may be adjustably connected with the valve by means of several openings provided at its end for the connecting bolt. By reason of the rearward connection of the seat, as herein disclosed, it will be appreciated that the valve cannot be tampered with or caused to act by pressing upon the forward edge of the seat, and the leverage is so short rearwardly, that considerable weight must be rested upon the seat, in order to bring the valve mechanism into operation. By this means, the apparatus is freed from unnecessary and mischievous use.

Referring more particularly to Figs. II and IV, the details of my improved valve mechanism may now be explained. At the right of Fig. IV is shown the service valve *i* in its closed position. This is controlled by

the attached screw i' rotatable through approximately one quarter turn in the threaded casing j , wherein openings j' afford connection to the interior of the valve. The valve stem h has a crank arm h' and connecting pin h'' ; said valve stem terminating in the squared portion h^2 , normally seated within a corresponding recess interiorly of the screw i' , for the purpose of actuating the service valve. Link k connects the pin h'' with the butterfly valve l . This is provided with a suitable packing face l' , adapted to engage the valve seat l'' ; said valve being pivoted at its slotted connection l^2 for the purpose of permitting the flushing valve to be tightly closed when the service valve is opened for charging or filling the tank under pressure.

The operation of my improved water closet will readily be understood. Normally the service valve i is closed, and the flushing valve is open, as shown in the drawings, but upon placing the water closet in service, the weight of the user will rearwardly depress the seat and raise the valve stem to turn one quarter around. This simultaneously draws the flushing valve to its seat, and by rotation of the screw i' , the service valve i is caused to open, whereupon water will flow from the service pipe through the tank supply pipe and fill the tank under pressure. Immediately the weight of the user is withdrawn from the seat, the water pressure upon the valve l will cause it to drop to the position shown in Fig. II, thereby causing the service valve to seat itself and freely opening the flushing connection for the discharge of the water contained in the tank. Since the closing of the service valve is effected during the time that substantially equal pressure exists upon either side thereof, there will be no pounding under such circumstances, but immediately the contents of the tank has been discharged, the force of the service pressure is exerted against the closed valve i and maintains the members in their normal relation shown. All this is accomplished without the use of springs, and by means of extremely simple valve parts. The maximum clearance is afforded for the flushing of the closet bowl, and the device is self contained, whereby the disadvantages alluded to in the first part of this specification are avoided. The particular apparatus herein disclosed, moreover, affords numerous practical advantages, both in manufacture and use, although I do not consider my invention as being strictly con-

finied thereto, and accordingly claim and desire to secure by Letters Patent, the following:—

1. In valve mechanism of the class described, the combination with a service valve, of associated screw mechanism controlling the position thereof, a pivoted valve associated with the former and adapted alternatively to be opened or closed, and means positively connecting said screw mechanism and pivoted valve, whereby they may be concurrently actuated, substantially as set forth.

2. In a water closet valve, the combination with an automatically actuated valve stem, of a service valve and screw mechanism normally actuating the same to its closed position, a pivoted flushing valve, and means positively connecting said flushing valve and said screw mechanism, whereby the respective valves may alternatively be opened and closed, substantially as set forth.

3. In a water closet valve, the combination with a rotatable valve stem, of a service valve positioned adjacent to the end thereof, interposed screw mechanism for actuating the same, a crank arm upon said valve stem, a butterfly valve alternatively opened with respect to the first mentioned valve, and operative means positively connecting said butterfly valve with the crank arm, substantially as set forth.

4. In a flushing valve-mechanism, the combination with a supply-inlet and a flushing-outlet, of a supply-valve governing the former, screw-mechanism for actuating the same, a hinged valve positioned beneath the flushing-outlet, and means positively connecting the valve-parts, whereby the same are alternatively actuated and the water passing the flushing valve acts to close the supply-valve, substantially as set forth.

5. In a valve mechanism of the class described, the combination with a service valve, of a butterfly flushing valve hinged from below, and operative means positively connecting said valves for alternative actuation, whereby the release of the butterfly valve aids in the closing of the supply or service valve by the combined flushing and service pressures, substantially as set forth.

Signed at Cleveland, Ohio, this 19th day of July, 1909.

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Witnesses:

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