

No. 613,846.

Patented Nov. 8, 1898.

J. J. PHELAN.
WATER CLOSET.

(Application filed Nov. 17, 1896.)

(No Model.)

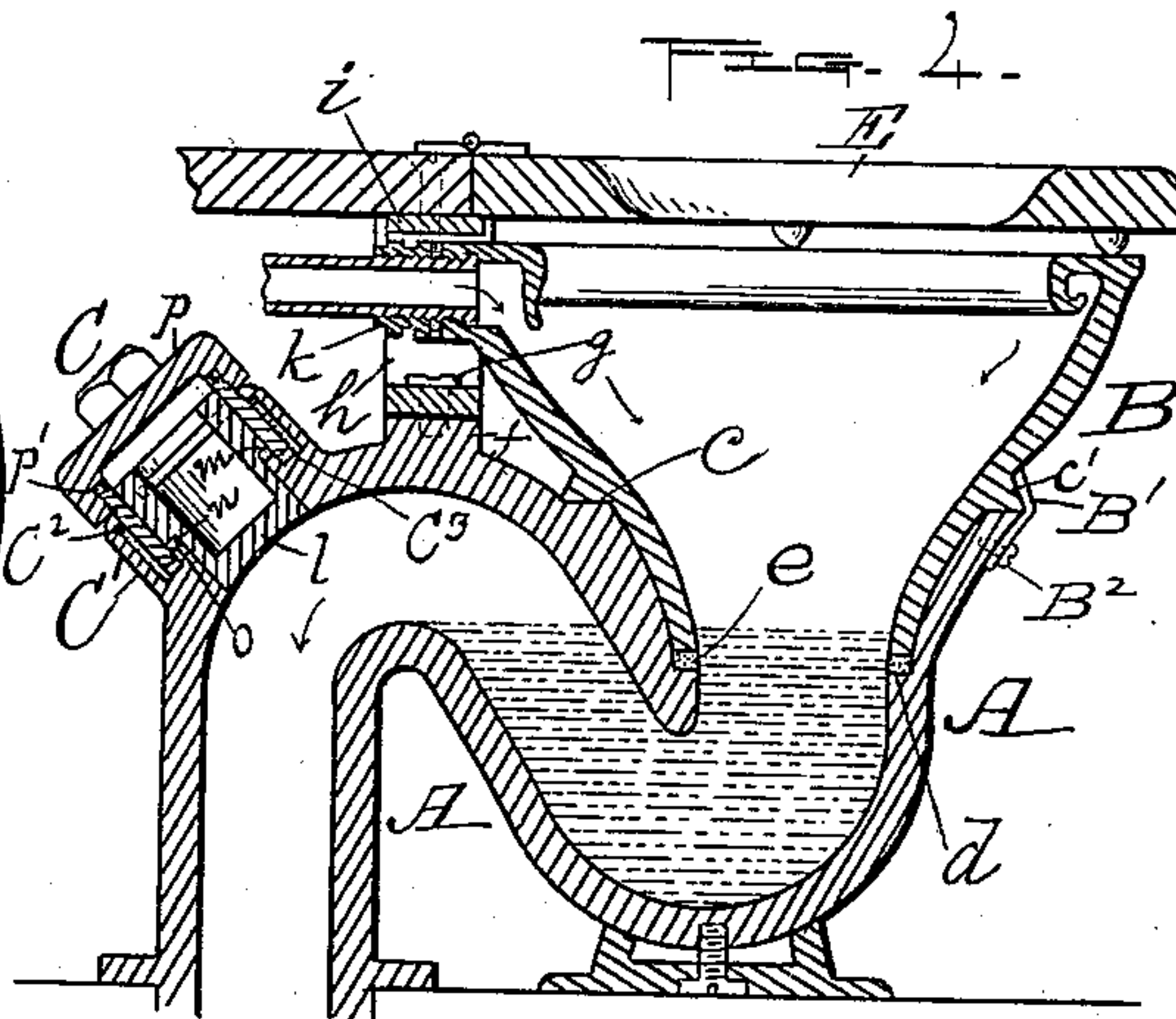
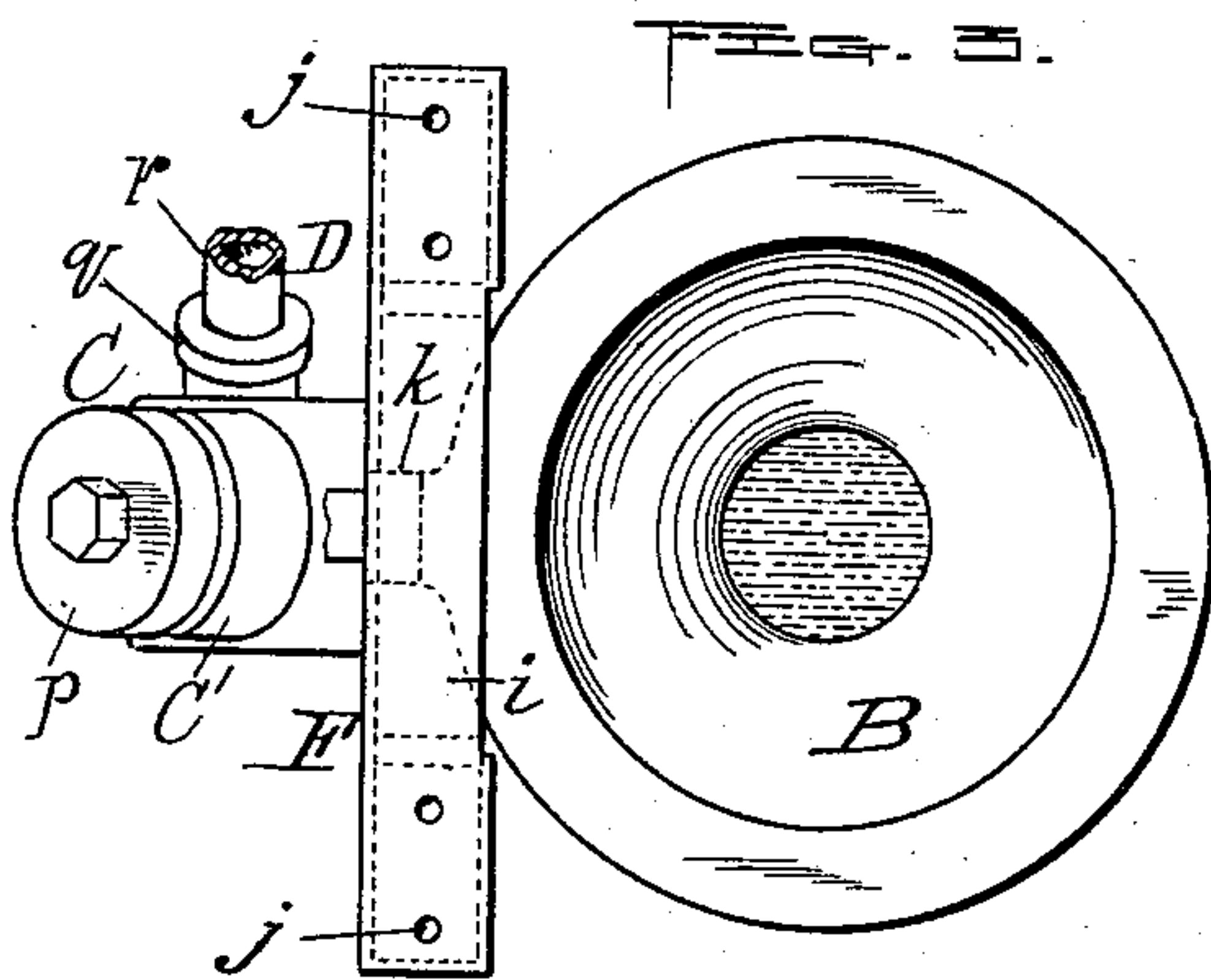
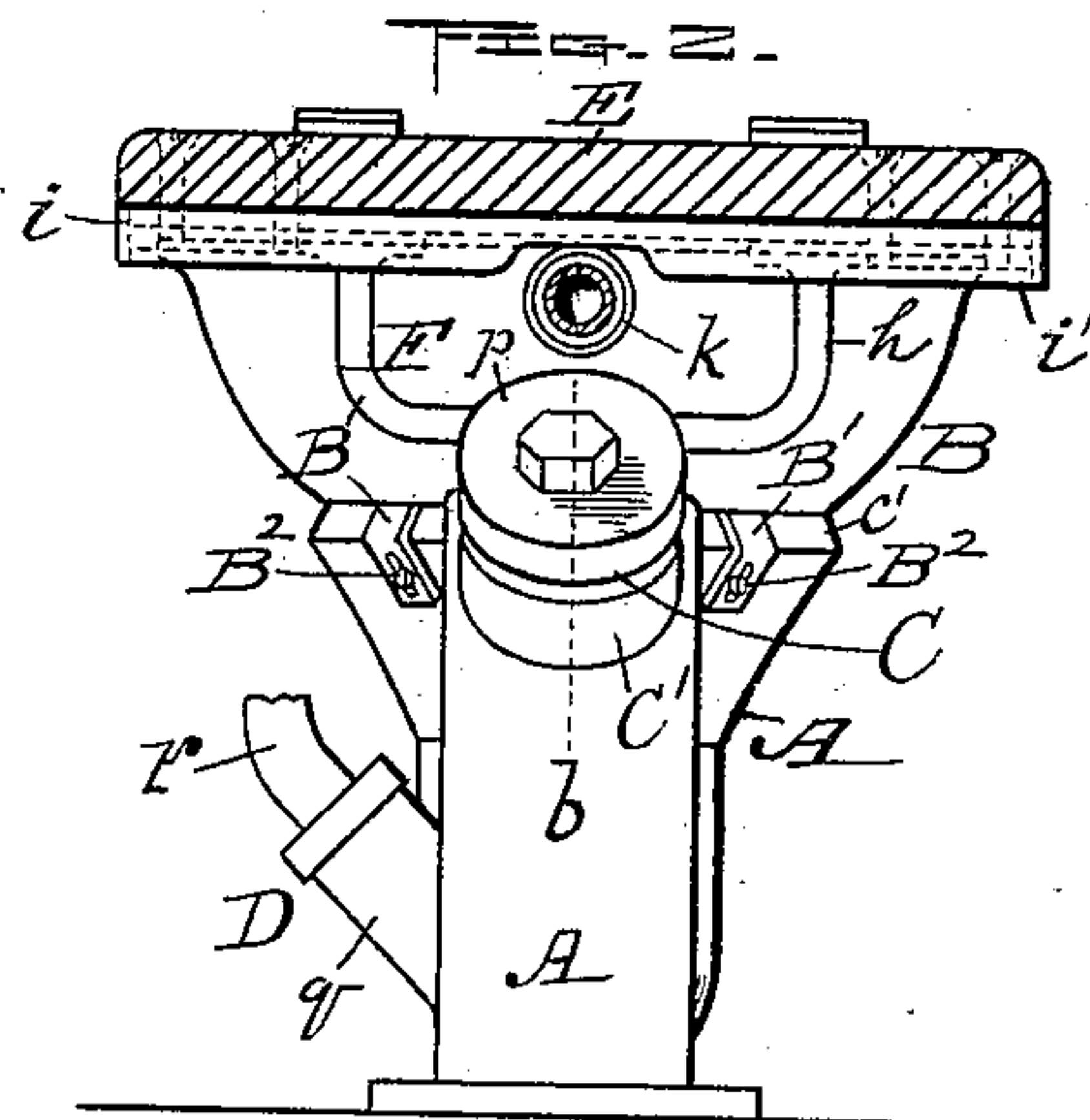
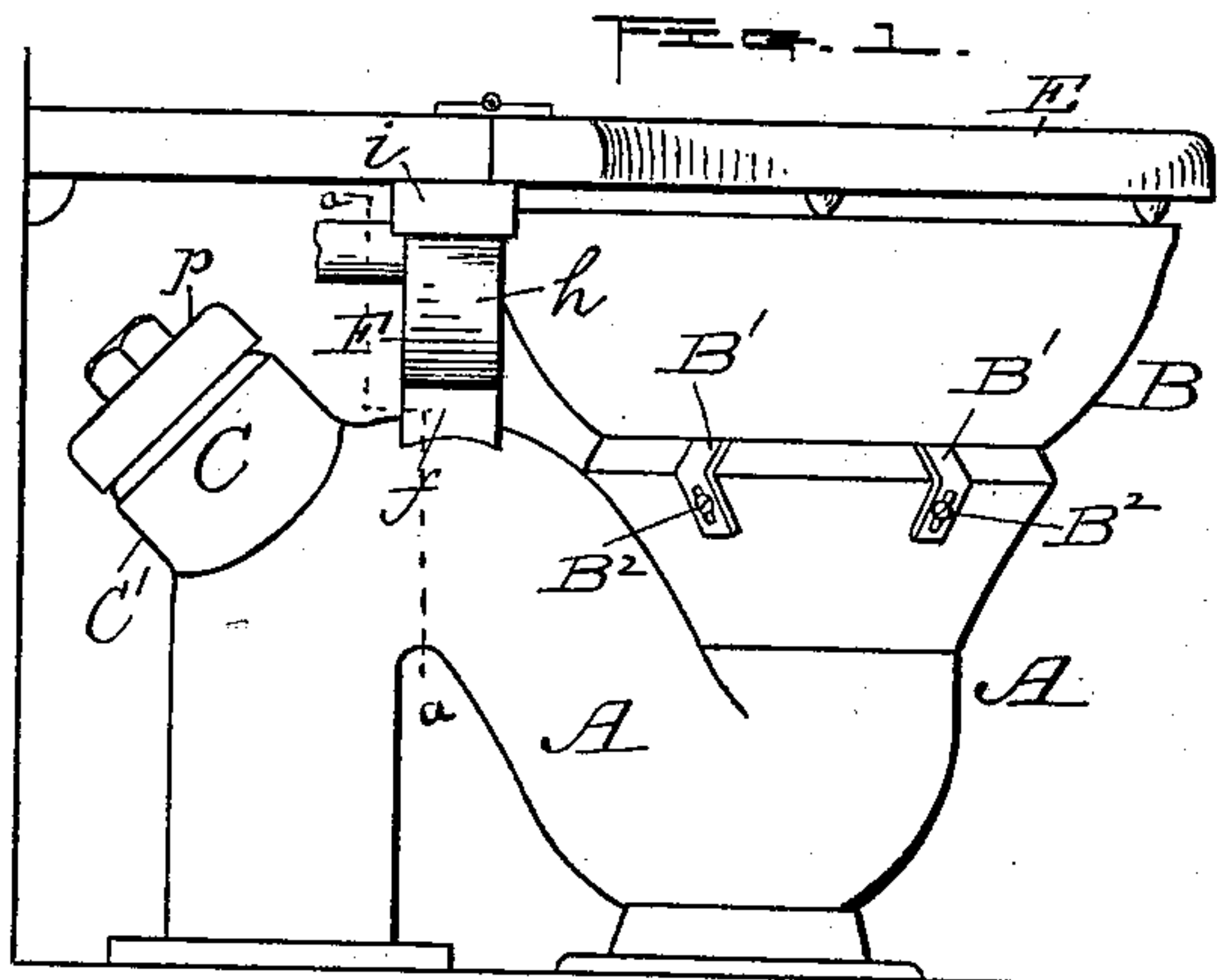


FIG. 5.

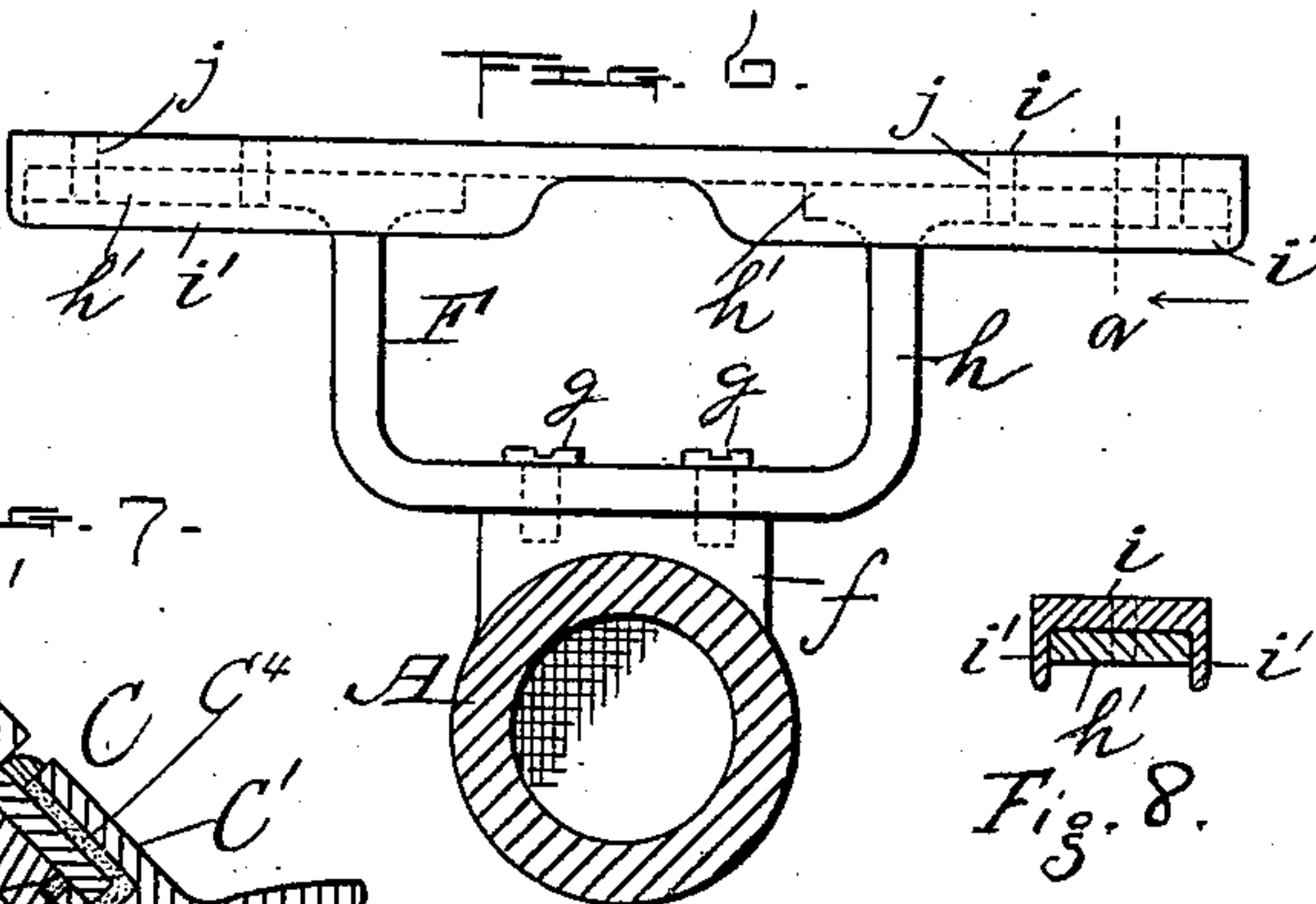
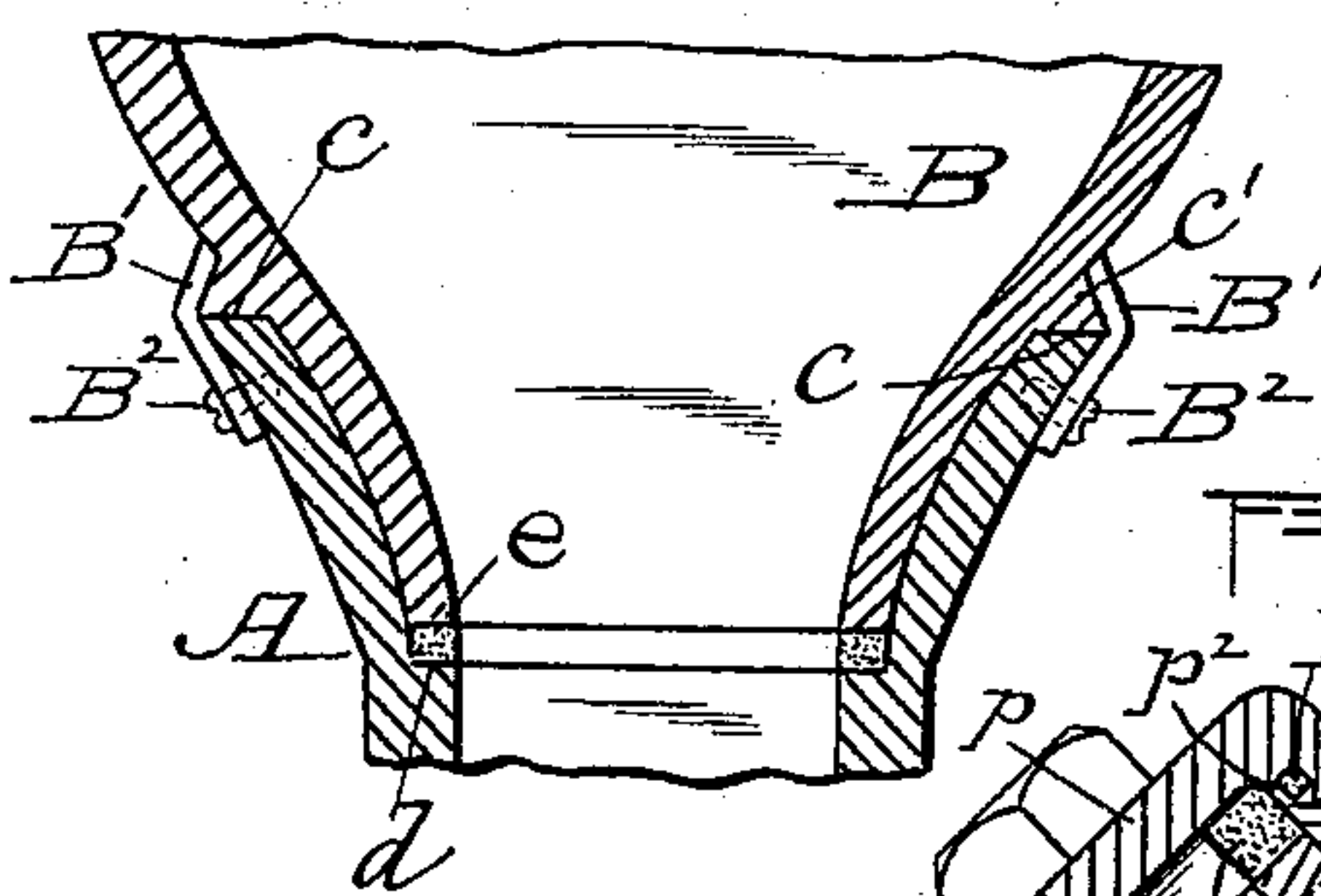
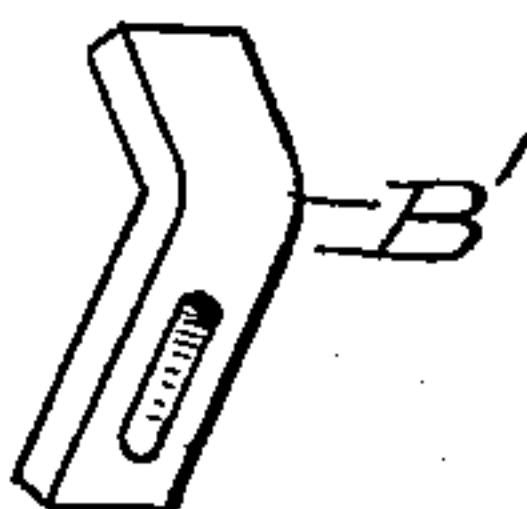


Fig. 8.

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UNITED STATES PATENT OFFICE.

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WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 613,846, dated November 8, 1898.

Application filed November 17, 1896. Serial No. 612,409. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. PHELAN, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Water-Closets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a side view of a water-closet embodying my improvements. Fig. 2 is a rear view thereof with its wood seat shown in section. Fig. 3 is a plan of the closet with the wood seat removed. Fig. 4 is a central vertical longitudinal section through the closet and its wood seat. Fig. 5 is a vertical section, upon an enlarged scale, of part of the closet hopper and bowl, also the clamps for fasteningsaid parts together. All the following figures are also upon the same enlarged scale. Fig. 6 is a vertical transverse section through the crown of the closet-trap and a back view of the seat-support, said figure also showing a transverse section on line *a* of said seat-support. Fig. 7 is an enlarged view of a portion of the sectional view shown in Fig. 4, taken on line *b*, Fig. 2; and Fig. 8 is a transverse section on line *a*, Fig. 7.

The object of my invention is to provide a water-closet of simple, strong, and durable construction and which shall present a smooth unbroken surface between one part and another throughout the length of its waterway without any recesses or indentations to become foul in use. It is designed more especially for use in hospitals and similar institutions, but is equally applicable for other places.

Said invention consists of certain improvements in the construction of the hopper and bowl, the seat-support, and the trap clean-out of a water-closet, as will be hereinafter more fully set forth.

To enable others skilled in the art to which my said invention appertains to better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

Referring to the drawings, A represents the combined hopper and trap, B the bowl, C and D the "clean-out" and vent, respectively,

thereof, E the wood seat, and F the seat-support, of the water-closet.

My improvement in the hopper and bowl construction consists in making said parts so that the outside of the bottom of the bowl will fit the inner surface of the hopper, as is shown in Figs. 4 and 5, with a shoulder *c* on the bowl resting on the upper edge of the hopper and the bottom end of said bowl against a shoulder *d* on the hopper, with a rubber gasket, leather, or other suitable packing *e* interposed between them, as is also shown in said Figs. 4 and 5. As is well known, the customary way has been to place the packing between the upper end of the hopper and the shoulder on the bowl and the lower end of said bowl made smaller than the hopper, thus leaving an annular space or chamber between the lower end of the bowl and inside of the hopper, where dirt and foul matter constantly collect and renders the closet offensive unless frequently cleaned out at said point. By my method of forming the seal at the bottom of the bowl, as shown and described, nothing can enter between the outside of the bowl and the hopper, and consequently the above objection is entirely obviated, and a smooth clean surface is provided at said bowl and hopper connection.

In practice the hopper and bowl are clamped together with several metal angle-clamps *B'* of the proper shape to fit the surfaces of said hopper and bowl and secured by screws *B''*, passed through slots in the clamps and into the hopper, said slots being oblong in shape to admit of the adjustment of the clamps.

My improvement in the seat-support consists in attaching the same to the crown of the trap in the following manner: A bearing or seat *f* is formed upon or secured to the crown of the trap provided with vertical screw-holes, and to said bearing or seat is secured by bolts *g g* a frame *h*, made substantially U-shaped, with two horizontal oppositely-projecting arms *h' h'* at its upper end, said frame extending up and supported on top of its arms, and a removable metal plate *i* to receive the wooden hinged seat E, which is fastened thereto by suitable screws, the frame *h* and bed-plate *i* being provided with vertical screw-holes *j* for the purpose. It will

at once be apparent that a seat thus supported is rendered very firm and substantial, and directly over the coupling *k*, where the flush-pipe connects with the bowl, as is shown in the drawings, said coupling is protected from injury.

It is preferable in practice to make the bed-plate *i* with downwardly-projecting flanges *i'* around the edges thereof, projecting down over the edges of the horizontal arms *h'* of frame *h*; but as it is not an essential feature I do not limit myself thereto.

The trap clean-out *C* is constructed as follows: Inside of the hub *C'* of said clean-out is arranged a collar *C²*, of brass or other non-corrosive material, which is calked into the hub against an internal shoulder *C³*, formed on said hub with melted lead and oakum, as is shown at *C⁴* in the drawings. Said collar is externally threaded at its outer end to receive the screw-cap *p*, and at the outer extremity thereof is formed an external annular recess, forming a shoulder for an elastic packing *p'* to fit against, between the same and screw-cap *p*, a thin portion *p²* at the inner edge of the collar extending nearly or quite to the inside of the screw-cap when the latter is fitted in place.

The object of the above-described construction is to produce a water-tight seal between the clean-out and its screw-cap, so that the threaded portion over which said cap fits may not become corroded and rendered difficult to turn, as would be the case were the capscrewed onto a threaded portion on the iron hub and the joint between the cap and hub not made absolutely water-tight, as is commonly the case. Another advantage of said construction is that owing to the outer end of the collar coming against the inside of the cap when it is screwed on it prevents the packing *p'* from being "squashed" or flattened out. In fitting the parts said packing is made a little large, so that when the cap is screwed down a tight connection may be secured, while the pressure thereon is controlled, as aforesaid.

Another improvement in the clean-out consists in employing a core or plug *l*, which fits therein, as is shown in Figs. 2 and 7, said core or plug being provided with an external annular shoulder *m*, which fits against a suitable packing *n*, resting on an annular shoulder or projection *o*, formed on the inside of the hub of the clean-out. The inner end of said core or plug is concave in form to correspond to the curved shape of the inside of the trap, so that when it is fitted therein, as is shown in the drawings, a smooth unbroken surface is produced instead of the usual recess or opening in the trap at said point.

When it is desired to clean the trap, it is simply necessary to remove the usual screw-cap *p* and withdraw the core or plug and then replace it again after said cleaning operation. It will therefore be seen that I accomplish a very desirable result—viz., the closing of the usual opening from the trap

at the clean-out and thus obtain a smooth inner surface, precluding all possibility of "fouling." Said clean-out may be readily and conveniently opened to reach the interior of the trap to clean the same.

It is not deemed necessary in practice to hold the core or plug at its outer end from longitudinal motion; but, if desired, an elastic packing *p³* or other suitable means may be employed for said purpose between said core or plug and the screw-cap *p*, as is shown in Fig. 7.

My improvement in the trap-vent consists in combining with the trap and its vent-pipe a *Y* branch, located between the crown of said trap and its connection with the said pipe and made integral with and pointing upward at an acute angle from said trap, as is shown in Figs. 2 and 3 of the drawings, and to which *Y* branch the vent-pipe is adapted to be fastened. I am of course aware that a *Y* branch in piping is a very old feature; but I am not aware that a *Y* branch has heretofore been employed on a water-closet trap for the purpose of effecting a connection between said trap and its vent to bring the opening or passage in the *Y* branch and said vent pointing upward at an acute angle from the opening or passage in the trap, as herein set forth. The advantage thereof is that in flushing the closet the water and other contents are less apt to spatter or be thrown up into the vent-pipe connection than by the usual construction, and therefore removes in a large measure the liability of said vent becoming clogged or closed and also renders the same more clean and less offensive from the lodgment of impure matter therein.

The vent *D* is preferably located on the side of the trap and consists of the *Y* branch *q*, formed on said trap, and the usual vent-pipe *r*, which is connected therewith and serves as what is commonly termed the "back air-vent" of the closet for ventilating the bowl thereof.

My improved closet has been designed, as previously stated, more especially for use in hospitals and similar institutions and has already been adopted in one of our largest public insane-asylums; but it is equally applicable for all places where other water-closets are used. The clean-out *C* and vent *D*, it will be understood, may of course be arranged to come at any desired points on the trap other than those shown in making the same.

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

1. In a water-closet, the combination with the crown of the trap having the rigid bearing or seat thereon, to receive and support frame *h*, of said frame *h*, made substantially *U* shape, with two horizontal, oppositely-projecting arms, *h'*, *h'*, at its upper end, horizontal bed-plate *i*, and seat *E*, said bed-plate preferably having flanges *i'* projecting down over the edges of arms *h'* *h'* and secured on

top of said arms, and the seat in turn being fastened on top of the bed-plate, substantially as and for the purpose set forth.

2. In a water-closet, the combination of the
5 usual hub and screw-cap, the "clean-out"
(the hub having an internal annular shoulder *o* thereon) with the removable core or plug
l adapted to fit in said hub, and having an
external, annular shoulder *m* thereon corre-
10 sponding to the shoulder *o*, also having its
inner end formed to correspond to the shape
of the inside surface of the trap, and the pack-
ing *n*, interposed between said shoulders *m*
and *o*, substantially as and for the purpose
15 set forth.

3. In a water-closet, the trap A, having the
"clean-out" hub C' thereon, the threaded
collar C² calked into said hub of the trap and
having an external, annular recess in the side

of its outer extremity, the hub C' also having 20
a shoulder *o* inside of the inner face of the
collar C², the screw-cap *p* adapted to fit over
the end of said collar, and the packing *p'* in-
terposed between said collar and screw-cap,
in combination with the removable core or 25
plug *l* adapted to fit in the hub C' and collar
C², and having an external annular shoulder
m thereon corresponding to the shoulder *o* on
the hub, also having its inner end of substan-
tially the same shape as the inner face of the 30
trap, and the packing *n* interposed between
said shoulders *m* and *o*, substantially as and
for the purpose set forth.

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Witnesses:

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