

No. 863,778.

PATENTED AUG. 20, 1907.

R. A. BROOKS.
WATER CLOSET.

APPLICATION FILED AUG. 3, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

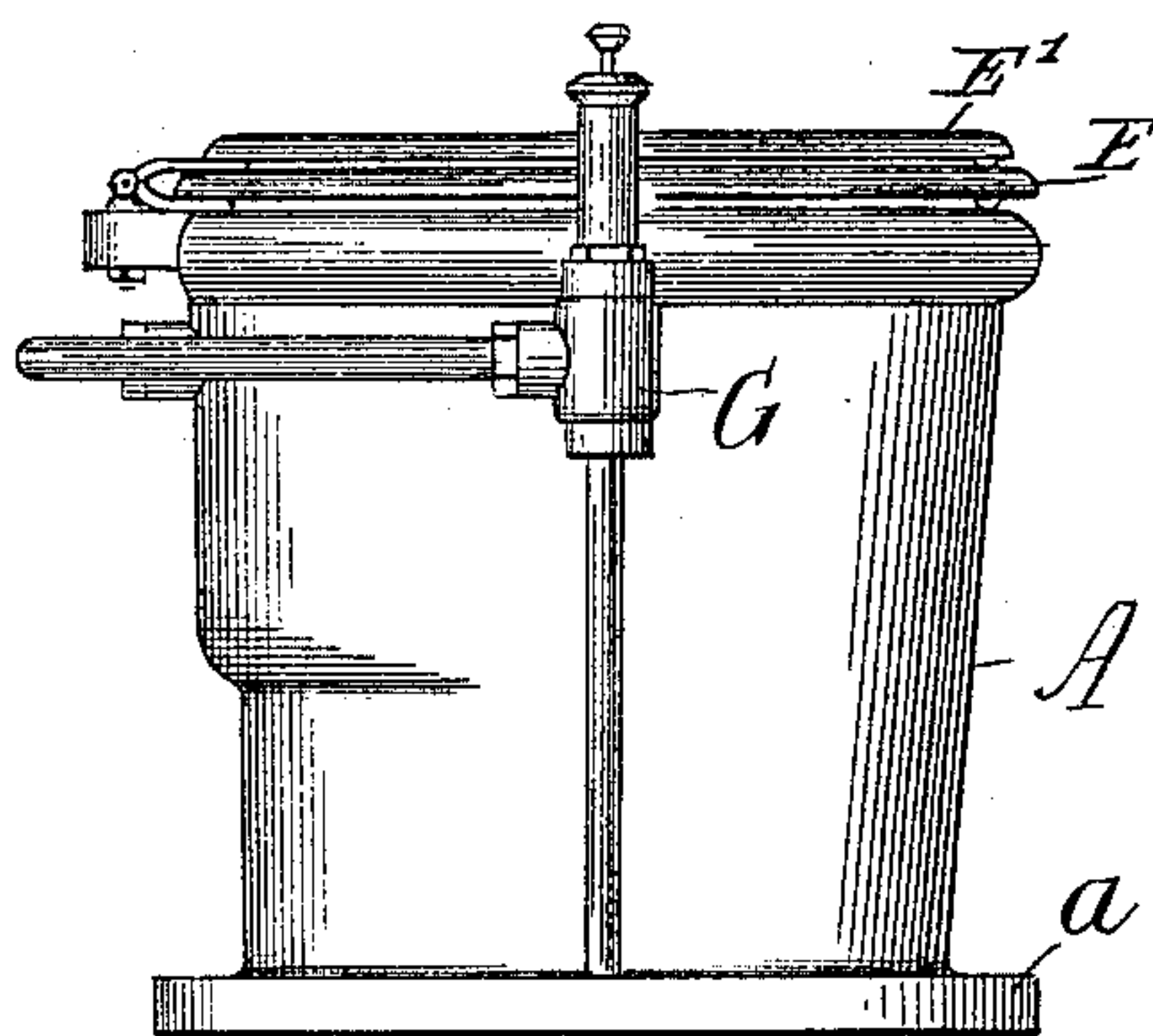


Fig. 2.

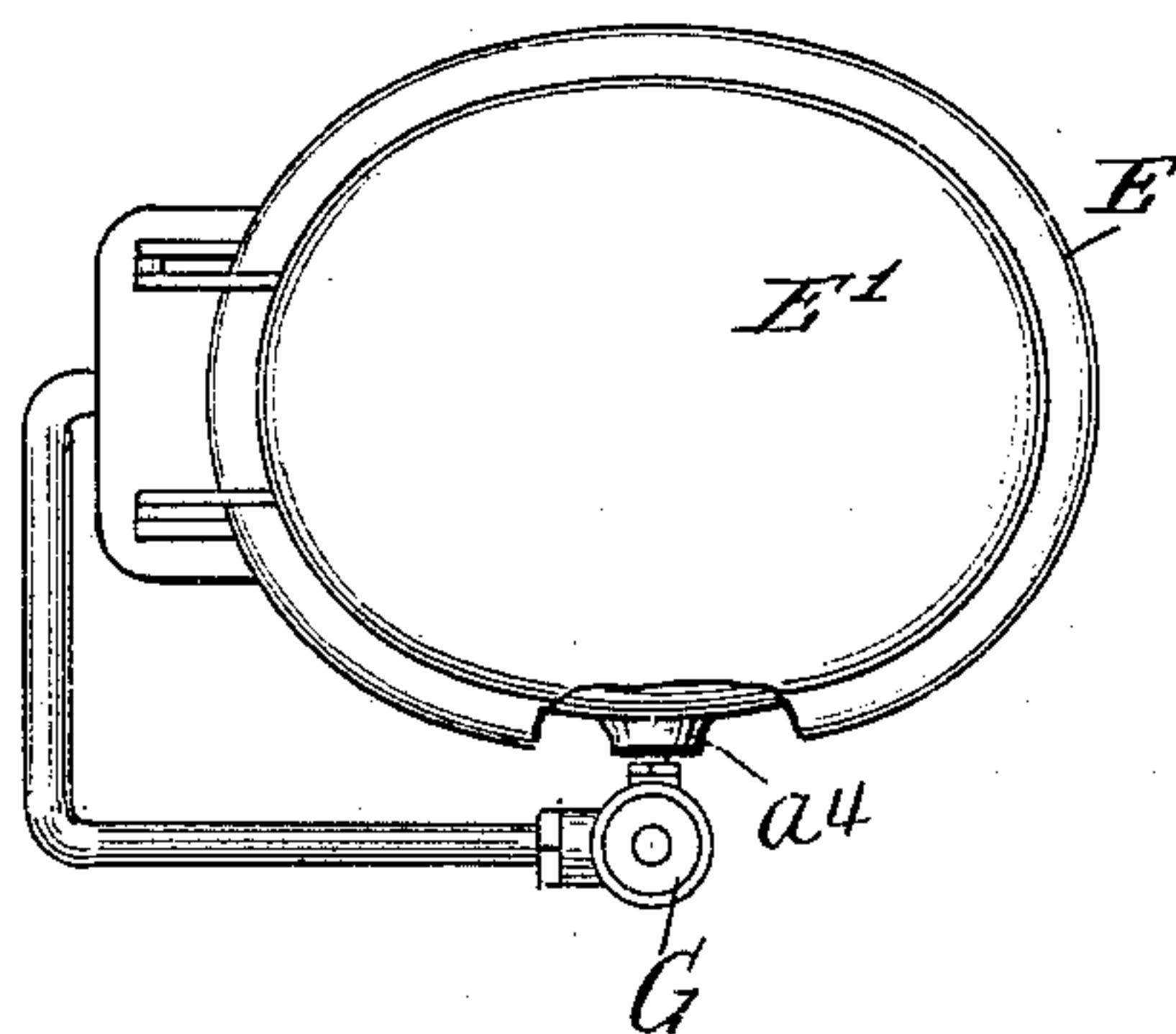


Fig. 3.

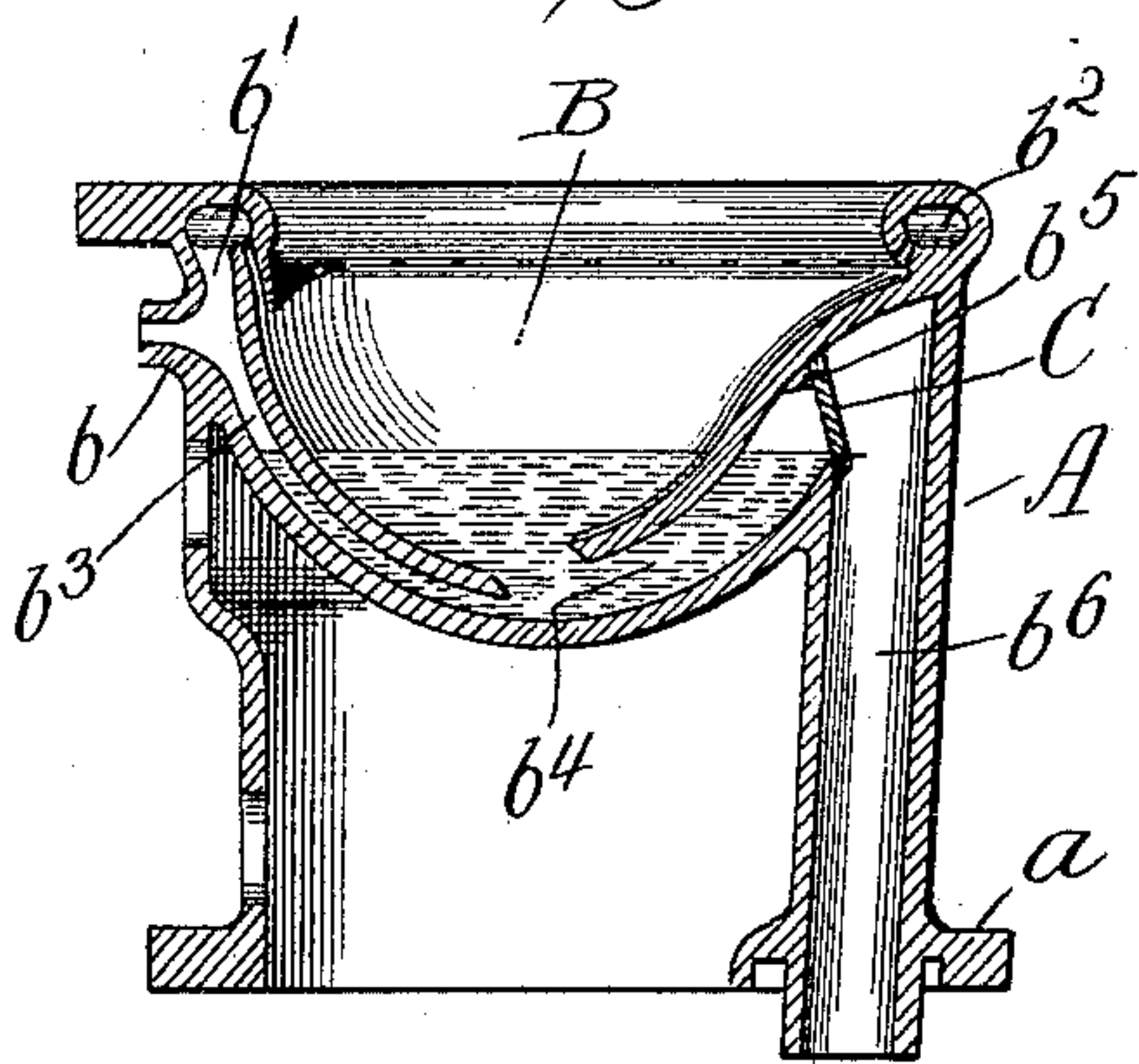
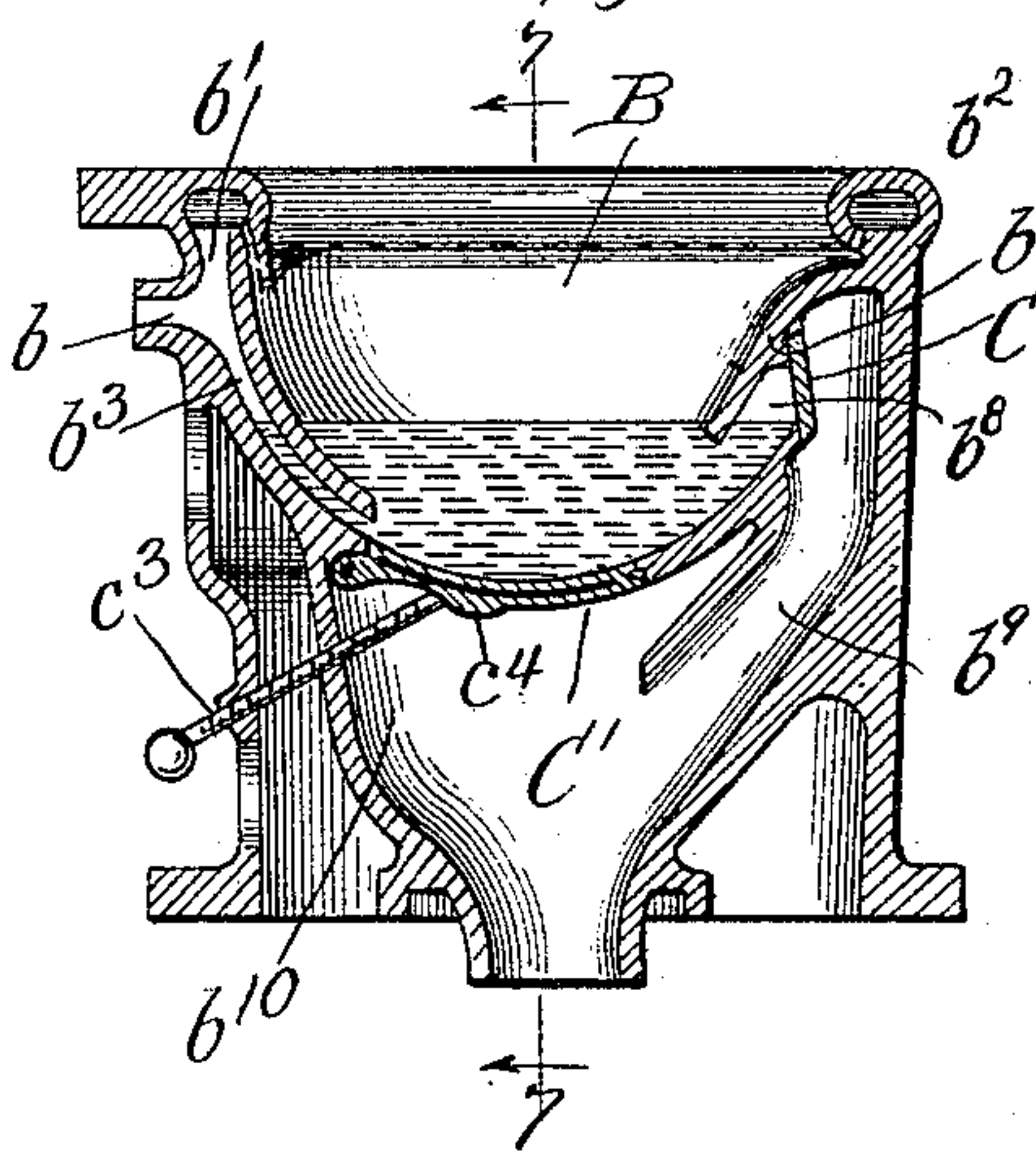


Fig. 4.



Witnesses:

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Ray White

Inventor

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2 SHEETS—SHEET 2.

Fig. 5.

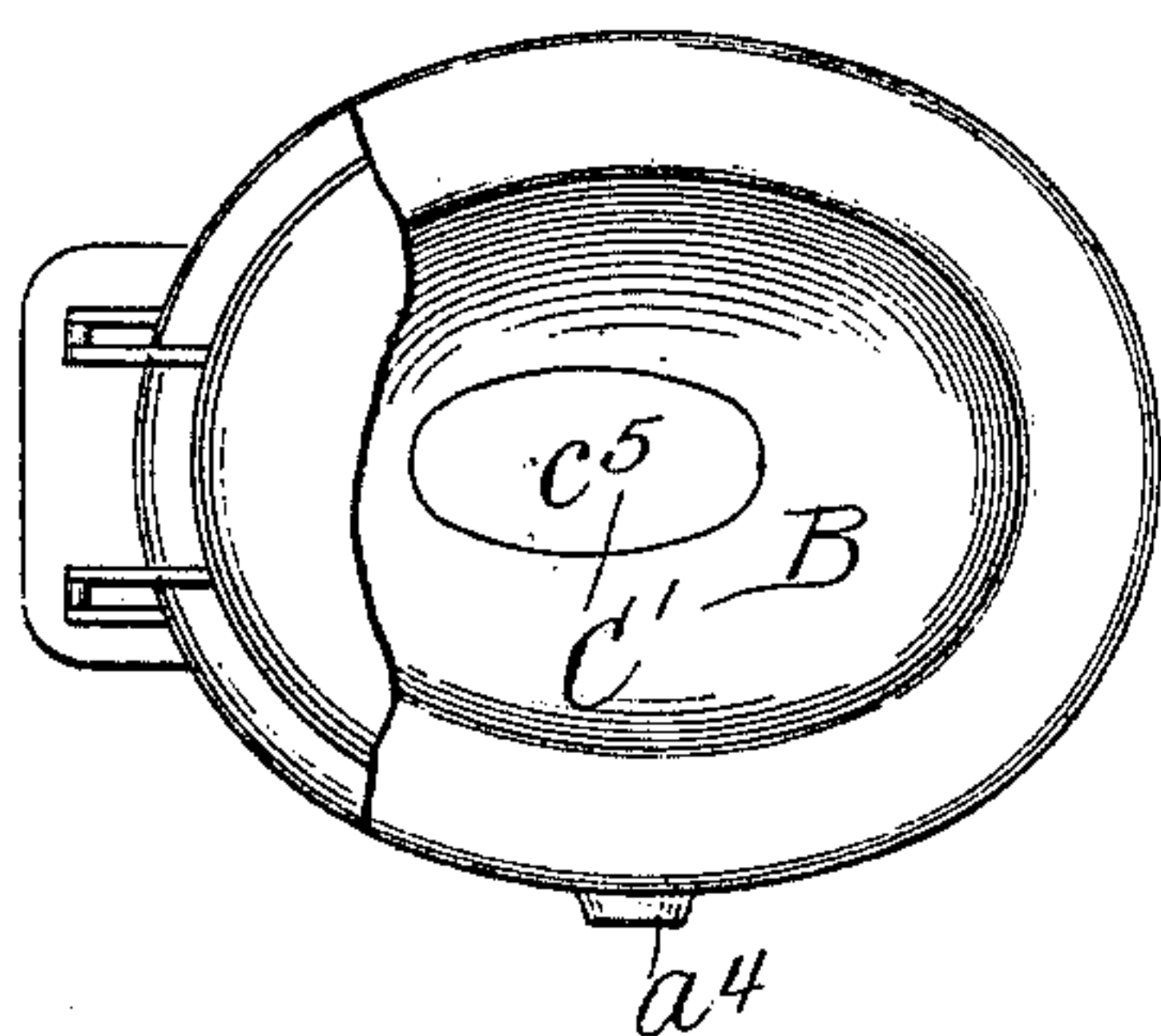


Fig. 6.

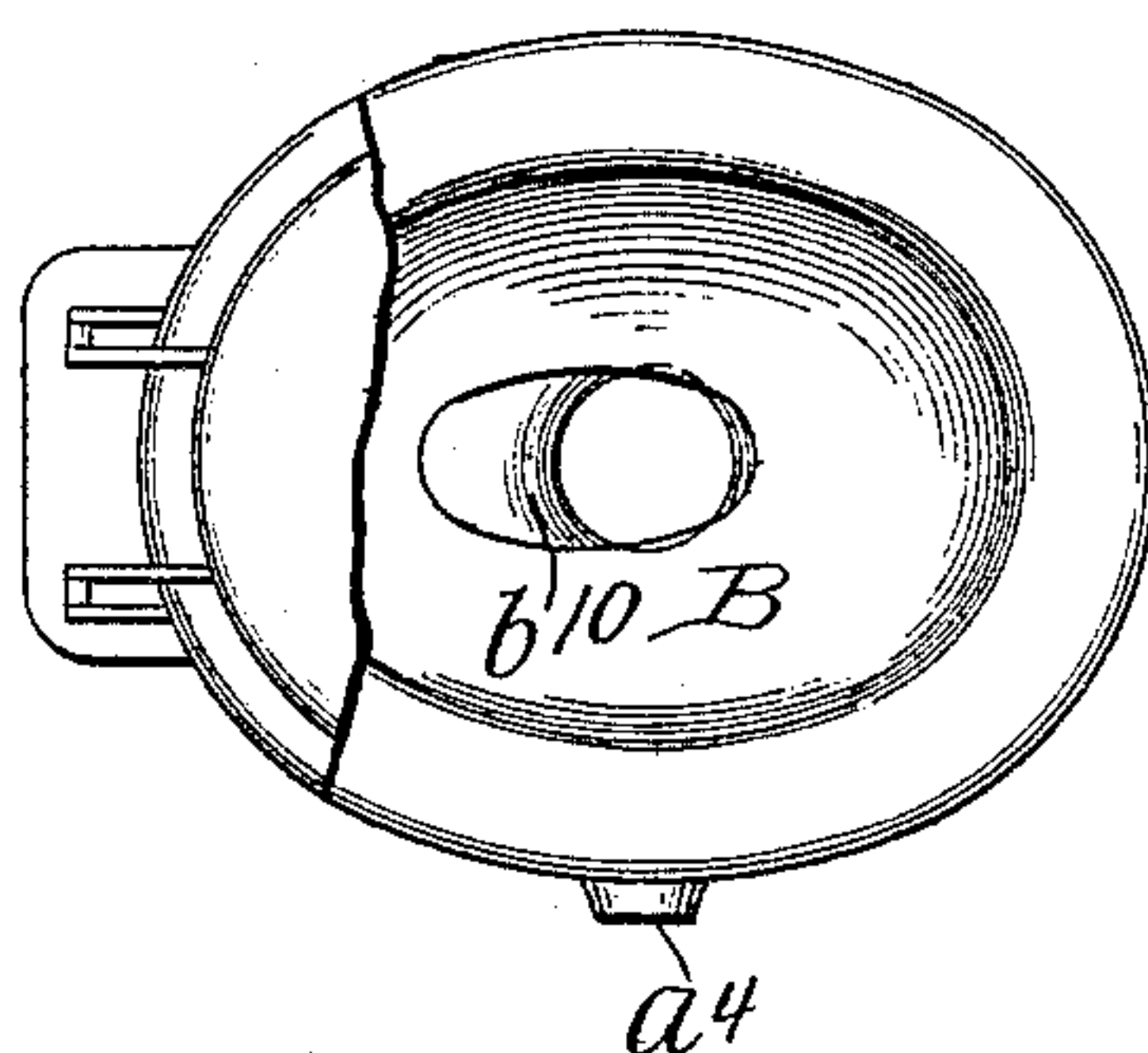


Fig. 7.

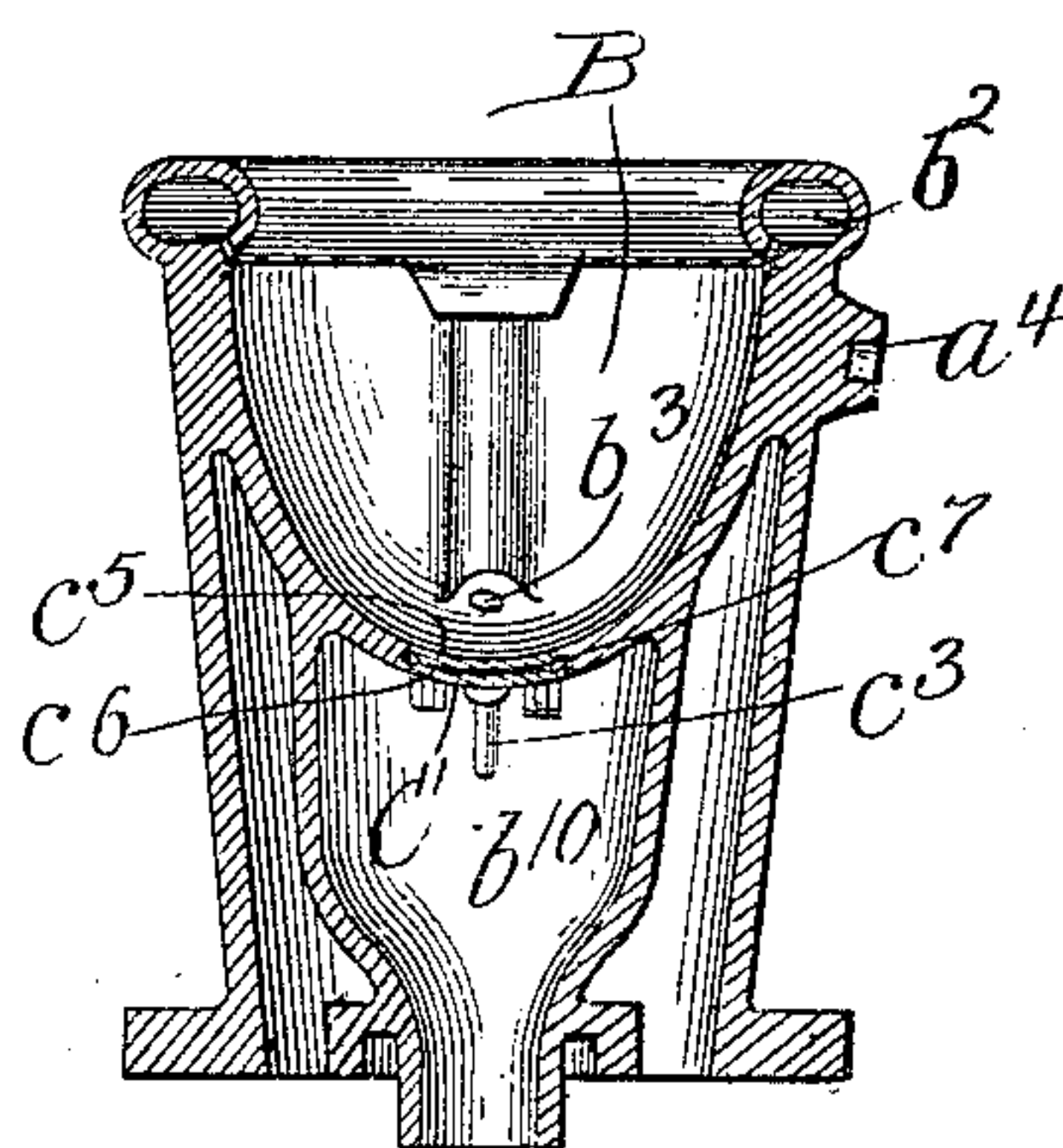


Fig. 8.

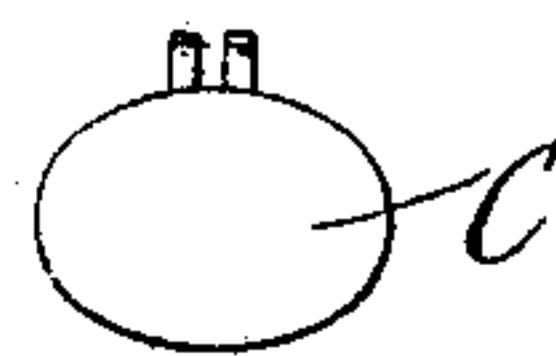
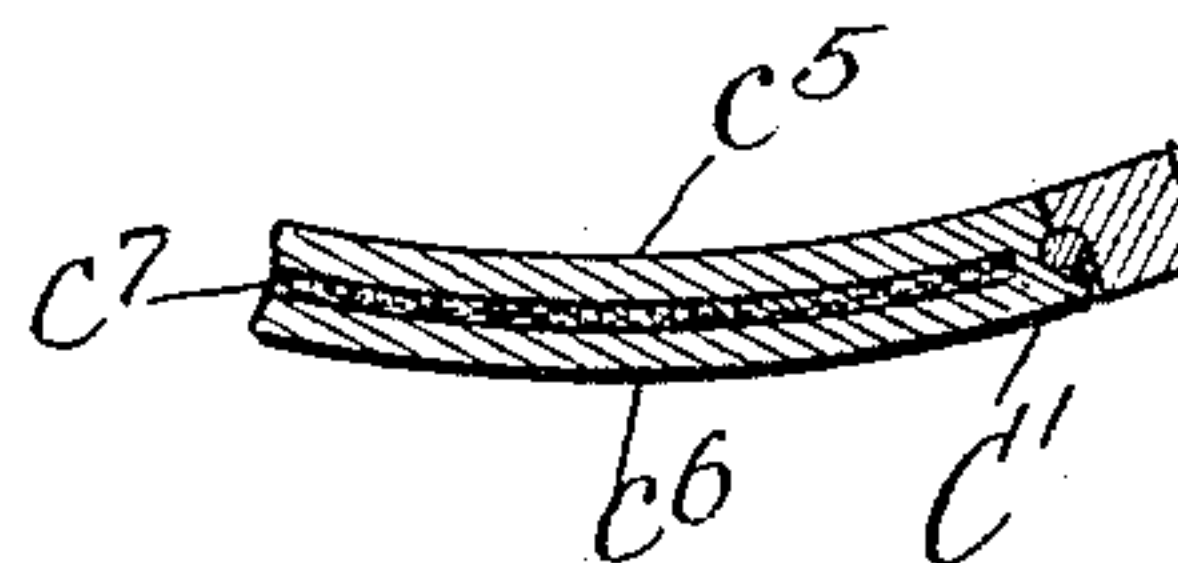


Fig. 9.



Witnesses.

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UNITED STATES PATENT OFFICE.

ROBERT A. BROOKS, OF CHICAGO, ILLINOIS.

WATER-CLOSET.

No. 863,778.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed August 3, 1905. Serial No. 272,473.

To all whom it may concern:

Be it known that I, ROBERT A. BROOKS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, 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 of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Heretofore devices of this class have been known as siphon jet, or as wash down closets. Both kind are expensive owing to the tortuous passage or water way leading to the waste or soil pipe. Furthermore owing to the construction of said water way or discharge pipe the same is likely to be stopped up, when this happens great difficulty is experienced in cleaning the same and frequently it is even necessary to take up the closet for that purpose. Furthermore in many of the water closets for Pullman and other cars heretofore constructed the discharge passage decreases in size from the pan to the outlet and often becomes clogged by persons throwing into the pan articles too large to pass from the outlet thereby choking the passage. In others a metallic pan is provided in the bottom of the closet which though intended to contain water rarely does so and in consequence soon becomes foul.

The object of this invention is to provide a closet of a new type which for convenience may be called an ejecting closet and adaptable for general use, including railway car use.

It is also an object of this invention to provide a water closet having a pan or bowl adapted to normally contain an after-fill of water sufficient to afford perfect sanitation and which is also constructed so that the discharge of any articles will be insured through the outlet which is small enough to pass from the pan into the discharge pipe.

A further object of the invention is to provide a closet in which the back draft caused by sewer gas or on trains created by the motion of the car is entirely obviated.

It is a further object of the invention to afford a closet having all the advantages and none of the disadvantages of the siphon jet and wash down closets heretofore constructed and one that is cheap, durable and sanitary and which though not likely to get out of order is capable of almost instantaneous repair in that event.

It is a further object of the invention to so construct the closet for car use that should the water supply fail the same can be quickly arranged to facilitate discharge therefrom without the use of water if desired.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a side elevation of a de-

vice embodying my invention. Fig. 2 is a fragmentary top plan view of the same. Fig. 3 is a central vertical section showing a form of closet convenient for house use. Fig. 4 is a similar view showing a slight modification for car or public building use. Fig. 5 is a fragmentary top plan view showing the bottom section in place. Fig. 6 is a similar view with the bottom section removed. Fig. 7 is a central transverse section of the same. Fig. 8 is a face view of the gate valve. Fig. 9 is a fragmentary detail of the bottom section.

As shown in the drawings: A represents a casing or bowl of the usual or any preferred construction and material, provided at its base with an outwardly directed, peripheral flange *a* through which the fixture is bolted or otherwise secured to the floor. Said casing is also provided in its rear wall with a plurality of apertures which afford a free circulation of air in the casing. In the upper part of said casing as shown formed integrally therewith is the pan or bowl B, provided at its rear with an apertured boss *b*, affording a connection for the supply pipe. Said boss *b* opens into a passage *b'* in the rear wall of the bowl which leads upwardly to a peripheral channel *b''* in the margin or rim of the pan, and delivers the flushing fluid, through a plurality of apertures therein, to the entire inner surface of the pan. A restricted passage *b'''*, of a smaller cross sectional area than the inlet leads downwardly beneath the pan to near the outlet orifice opening from the bottom and is directed centrally thereof. The margins of said outlet orifice are inclined downwardly and forwardly to afford least resistance to the flow from the pan.

A discharge passage *b''''* is provided in the bottom of the pan B beneath the ledge or front wall *b'''''* thereof and leads upwardly and forwardly from the pan outlet opening to a point sufficiently high to insure a considerable quantity of water remaining in the pan or bowl after each flushing operation to afford an after-fill. Said passage is of greater cross sectional area than said pan outlet and gradually increases in size towards its upper end at which point it opens into a downwardly directed discharge pipe *b''''''* of greater cross sectional area than the passage *b''''*, and also gradually increases in size and leads downwardly from the upper end of said passage without any short bends or curves, and opens to the atmosphere if used for cars, or communicates with the soil pipe if used in buildings.

Inasmuch as the afterfill of water extends into and fills the passage *b''''* leading from the bowl beneath the ledge or wall *b'''''*, a perfect water seal for the fixture is afforded, and of course the fixture can be vented to the atmosphere if desired. Usually also the passage *b''''* is valved, to afford a simple gate valve, the closure C of which is hinged at its upper margin upon a pintle attached to the ledge *b'''''* and the lower margin of said closure engages normally against the lower wall of said passage and completely closes it from the sewer side, yet

opens from the inner side by the ejecting flow of the water in flushing.

In the construction shown in Figs. 4 to 9 inclusive and more particularly intended for car or public building use the bowl B is provided with an inlet b and passage affording a jet as before described, but the ledge b^7 is much shorter than the ledge b^5 thereby affording a larger outlet orifice from the bowl and a shorter passage b^8 leading to the pipe b^9 which opens to the atmosphere or to the soil pipe. The valve closure C as before described affords a complete closure against sewer gas and also against backward drafts due to the motion of the car. In this construction also inasmuch as the water supply is sometimes exhausted the discharge pipe b^9 leads inwardly and downwardly to near the middle of the closet and the center of the pan is provided with an oval aperture opening into a large downwardly extending passage b^{10} , the walls of which at the top are integral with the under side of the pan and at the bottom open into the discharge pipe, affording a straight bottom discharge if desired. Fitted in said tapered bottom and hinged at the rear side of the passage is a concave plate C' of metal or any suitable material provided with a suitable gasket on its edge which affords a tight but downwardly opening bottom for the pan. Said bottom plate C' is held in closed position by means of a threaded thrust rod C^3 which extends obliquely upward through the wall of the closet and bears against the under side of said plate which is provided with a boss c^4 on its under side for engagement with said rod. Retraction of said rod permits said plate to swing downwardly as shown in Fig. 6.

The bowl may be provided with any preferred seat and cover E and E' which may be secured thereon in any preferred or convenient manner.

As shown water is supplied to the closet through a suitable flushing valve G positioned conveniently at the side of the closet and secured to a boss a^4 integral with the side of the closet and near its top.

The operation of my device is as follows: In flushing no siphon as such is formed, instead the rush of water from the passage b^3 , carries the waste matter and contents of the closet out of the discharge where it falls by gravity. The ejection being caused principally by the force of the jet from the passage b^3 which causes a strong central current of flow through the large passage b^4 at its center completely emptying the pan while the flow from the rim passage b^2 washes it completely and aids in providing the after-fill which affords a water seal preventing the passage of gas, or if used in cars preventing drafts of air. Should, however, inward pressure exist, the valve at the outer end of the passage b^4 closes with the pressure. Inasmuch as the discharge passage is of greater cross sectional area than the outlet orifice in the pan and constantly increases in size to the atmosphere or to the soil pipe it is evident that any article which can pass through the outlet orifice must be discharged from the fixture.

In the construction shown in Figs. 4 to 7 inclusive the discharge passage b^8 is smaller than the pipe b^9 and consequently any article which can pass from the pan will be discharged, and should the water supply fail the false bottom C' can be quickly opened and the closet act by gravity. As shown said false bottom C' consists of metal plates c^5 — c^6 rigidly secured together by riveting

or any suitable means and between which is secured a layer of mineral wool c^7 or other thermally insulating material to prevent freezing. The ejection as shown is greatly facilitated by one or more jets from the rim channel b^2 one of which is positioned directly at the rear of the closet and is of such size as to start the ejection of water and soil from the pan simultaneously with the action of the jet from the passage b^3 . In this way quick ejection with small expenditure of water is insured.

The closets are adapted for general use in buildings or in railway cars or elsewhere if desired, and many details of proportion, arrangement and construction may be varied without departing from the principles of my invention. I therefore do not purpose limiting this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. In a water closet a pan provided with an outlet orifice in the bottom thereof, having greater length than breadth, a closure therefor and means adapted to adjust said closure to permanently close said orifice or to permanently open the same. 85
2. In a water closet, a pan provided with an outlet passage gradually increasing in size to its outer end, means affording an ejecting jet into the pan, an orifice in the bottom of said pan having a long and a short diameter, an adjustable closure therefor and means for securing said closure in any adjustment. 90
3. In a device of the class described a casing having approximately straight side walls provided with vent apertures therethrough, a pan in the upper portion of said casing, an outlet orifice in the bottom of said pan having its margins slanting downwardly and forwardly, a perforated rim on the top of said pan, an inlet passage opening upwardly therein, a passage leading downwardly from the inlet passage and opening beneath said orifice, a discharge passage leading upwardly from said orifice and increasing in size towards its upper end, a discharge pipe extending downwardly therefrom and having greater cross sectional area than said passage, a closure pivoted at the upper end of said discharge passage adapted to close the same after the period of flushing and a normally closed orifice in said pan adapted to discharge the contents of the same independently of the aforesaid discharge passage. 95 100 105 110
4. In a device of the class described the combination with a pan of an inlet passage opening therein having its lower end restricted, a discharge passage leading from said pan and gradually increasing in size to its upper end, a pipe connected with said discharge passage, said pan having an orifice in the bottom thereof having a long and short diameter and opening into said pipe, a closure hinged to the bottom of said pan adapted to close the orifice, means in said closure preventing freezing of the contents of said pan and means for normally holding said closure in closed position. 115 120
5. In a device of the class described the combination with a casing of a pan in the upper portion thereof having a forwardly directed outlet orifice, a discharge passage leading upwardly therefrom and gradually increasing in size towards its upper end, a swinging valve at the upper end of said passage adapted to close the same with inward pressure, a discharge pipe leading therefrom, a bottom plate hinged to said pan and adapted to form part of the bottom thereof, and a thrust rod having threaded engagement in the walls of the casing and bearing at its upper end against said plate. 125 130
6. The combination with a casing having approximately vertical side walls provided with a threaded aperture therethrough, of a pan in the upper portion of said casing having an outlet in the bottom thereof of greater length than breadth, a bottom plate hinged to said pan and adapted when closed to form a part of the bottom thereof, a thrust rod secured in said threaded aperture and engaged at its upper end against said plate and means affording 135 140

an independent discharge from said pan when said bottom plate is closed.

7. In a device of the class described the combination with a casing of a pan therein, an outlet orifice in said
5 pan, a discharge passage leading upwardly from said orifice and increasing in size from its bottom to its top, a swinging valve hinged at the upper end of said passage and adapted to close the same, a discharge pipe leading downwardly therefrom, a swinging bottom in said pan
10 and a thrust rod having threaded engagement in the casing and adapted to hold said bottom in closed position.

8. The combination with a bowl provided with an inlet passage and an outlet passage and having an orifice in the bottom thereof, of a closure hinged beneath the bowl to
15 close said orifice, said orifice shaped to permit the closure to pass therethrough in assembling and a rod threaded

through the fixture adapted to permanently hold said closure seated or to permanently hold the closure unseated.

9. A one piece water closet comprising a casing of a pan therein, a plurality of passages for discharging the con- 20 tents of said pan, a valve closure adapted to close one of said passages against back pressure, the other passage having an opening thereinto of greater length than breadth, a closure hinged beneath said opening and adapted to close the same from beneath and means adapted to 25 normally hold said closure in closed position.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ROBERT A. BROOKS.

Witnesses:

W. W. WITHEMBURY,

WM. C. SMITH.