Dec. 7, 1937. R. M. WILLIS 2,101,523

TOILET FIXTURE

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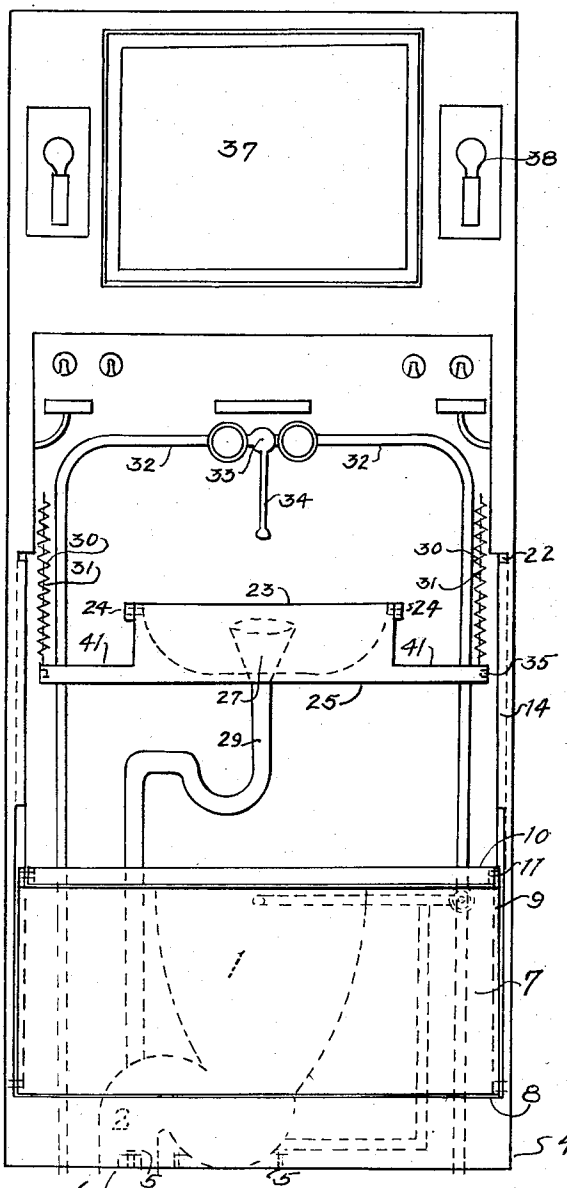


FIG. 1

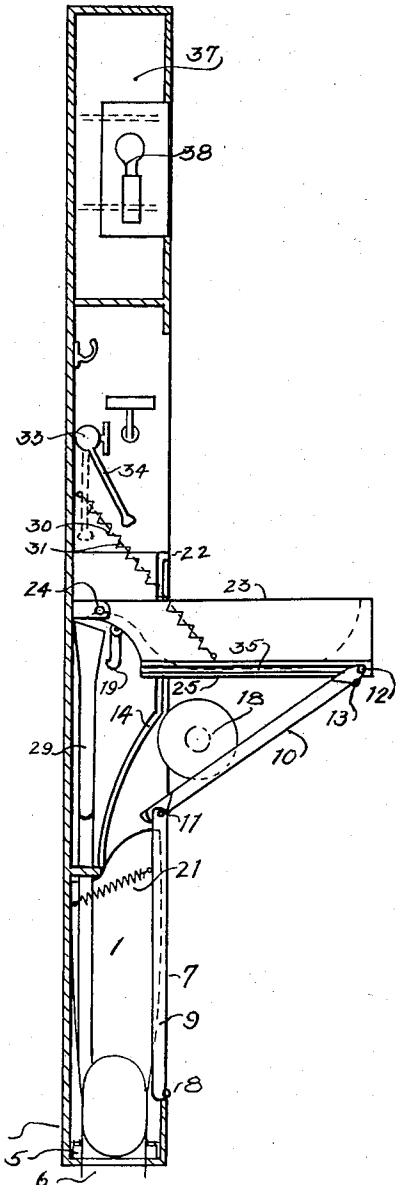


FIG. 2

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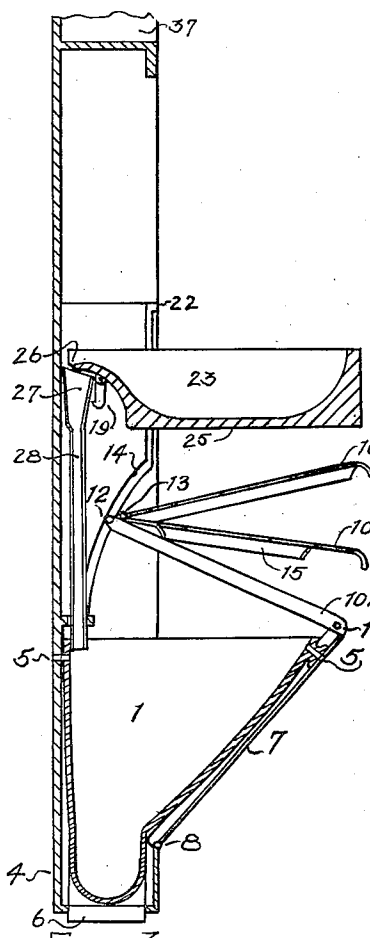


FIG. 3

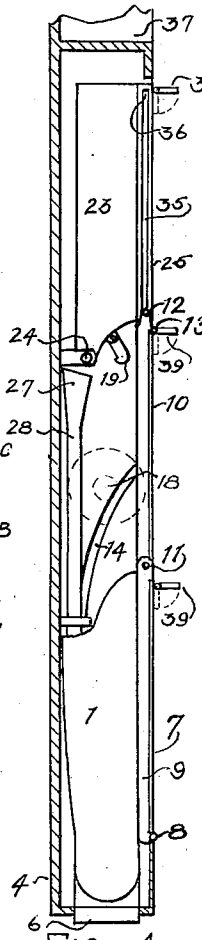


FIG. 4

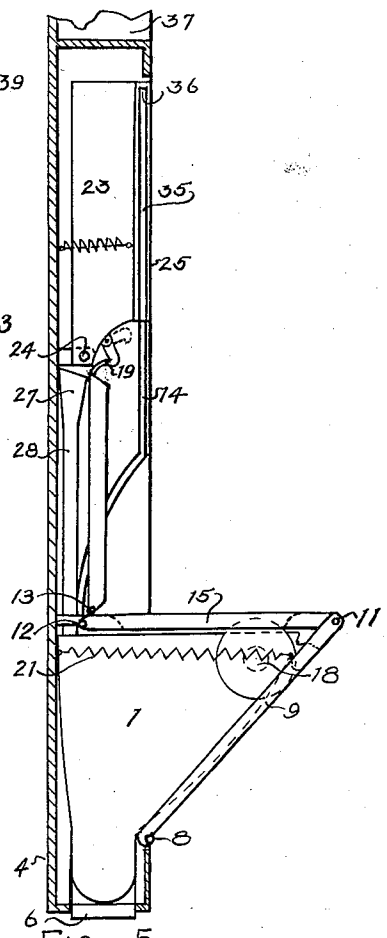


FIG. 5

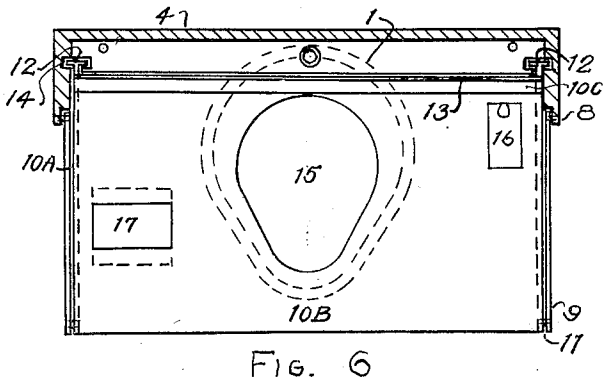
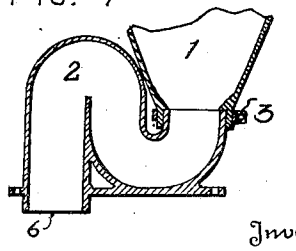


FIG. 6

FIG. 7



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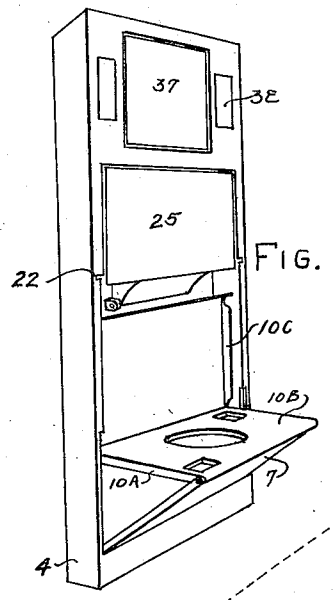


FIG. 8

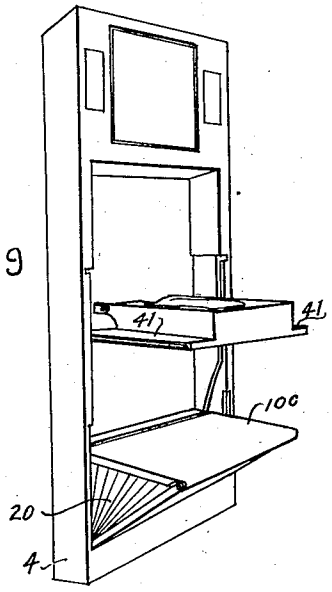


FIG. 9

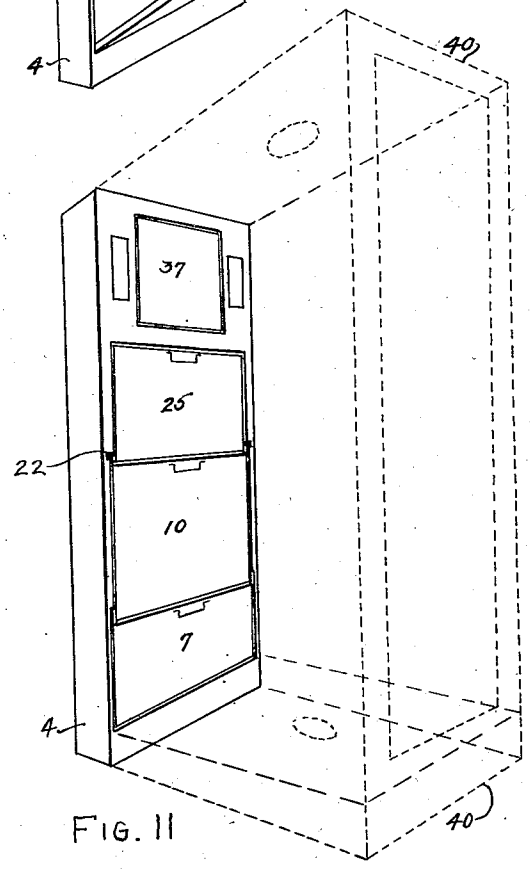


FIG. 11

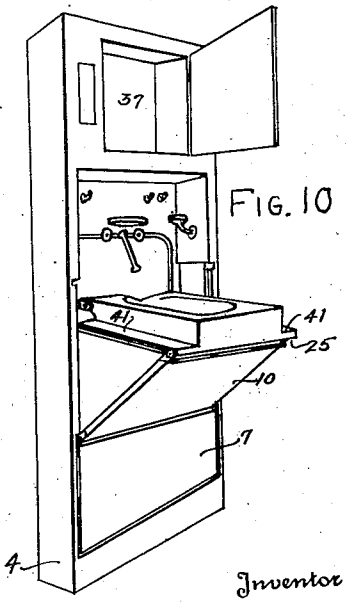


FIG. 10

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Patented Dec. 7, 1937

2,101,523

UNITED STATES PATENT OFFICE

2,101,523

TOILET FIXTURE

Richard M. Willis, Mobile, Ala.

Application December 9, 1935, Serial No. 53,654

5 Claims. (Cl. 4—169)

My invention relates broadly to toilet fixtures and more specifically to a collapsible water closet and a cabinet structure therefor to permit its practical utilization.

The principal object of my invention is to provide complete, compact and self-contained unitary toilet facilities whose space requirement, due to its unique and original features is materially less than any other toilet fixtures offering equivalent advantages now known, and whose installation in unitary form can be effected with a minimum of preparatory expense and bother.

Satisfaction of the modern demand for increased toilet facilities in both private and public places is largely hindered by the expense entailed in providing the space required for their installation and use. That, from the standpoints of both structural economy and convenience, it is desirable to simplify and condense much of the standard functional domestic equipment is well evinced by a study of the recent art of kitchen and bathroom fixture design. Patent Office files disclose numerous variations of arrangements of toilet appurtenances intended ostensibly to conserve space, although in most known cases these arrangements involve mere substitution of position instead of actual reduction of bulk displacement of any of the fixtures.

The essence of my invention is expressed in the water closet, the bowl of which is flexible and collapsible, and provision of co-operating means permitting it to be folded or collapsed to a materially lessened displacement for the purposes of convenience and concealment, and availment of the thus regained space for other uses.

Through the employment of my invention in one of its several expressions it becomes possible to combine all of the equipment essential to a bathroom in adequately useful and attractive form in a compartment occupying less than eight square feet of floor space, or by elimination of the shower bath feature, to combine the other usual toilet fixtures and accessories in a unitary arrangement which, when closed, will require only about one and one-half square feet of floor space, which is less than is required usually for the water closet alone. The advantages to be realized from its application to new or old bedchambers or other places where toilet facilities are required will readily be seen.

With these and other objects in view as will appear as the description proceeds, the invention comprises the various novel features of construction, combination and arrangement of parts as will be more fully described herewith and set forth in the appended claims.

Referring to the drawings:

Figure 1 is a front elevation and Figure 2 a side sectional elevation of a cabinet combining my invention in one arrangement with other toilet elements.

Figures 3, 4 and 5 are sectional side views of a portion of Figures 1 and 2.

Figure 6 is a sectional plan view of a portion of Figure 5 above the closet seat.

Figure 7 is a view in section of a water seal trap, part of a closet bowl and clamp means for joining the trap and bowl.

Figures 8 to 11 are approximate perspective views of the cabinet Figure 1 in various positions of adjustment.

Similar characters of reference are used in all cases to denote like parts throughout the drawings and the description.

Referring more particularly to the drawings, my invention is: a water closet bowl 1 made of rubber or any other material or materials suitable to its purposes, of a form appropriate to its proper functional use when in the open or distended position as in Figs. 1, 3, 5 and 6, but capable of being collapsed or compressed at will into a substantially flattened condition as in Figs. 2 and 4. In the form illustrated, the seal trap 2 of the closet is shown as constructed sidewise or at right angles to the longitudinal plan axis of the functional shape of the bowl, as in Figs. 1 and 7, thus reducing the plan length of the closet as compared with the usual type of construction; this trap 2 may be made integrally with the bowl 1 of the same material and suitably reinforced to preserve its shape if necessary, or it may be made of metal or other rigid material and have the flexible bowl portion attached to it as by a clamp 3 in Fig. 7.

There being nothing in the nature of this invention to restrict the actual form of the closet or its mode of flushing, its application to several of well known existing types is contemplated, according as the usage purposes may vary; for instance, the bowl may be of the style in which the water for flushing is introduced through a hollow rim, or the flushing water may be introduced into the bowl by means over the top of the bowl or through its wall, and made to perform its usual functions without prejudice to the collapsible features.

Since a closet bowl of sufficient flexibility to meet the requirements contemplated in this invention would alone be impractible for use I

have combined with it mechanical means of support, operation and concealment as follows:

The water closet is installed within a shallow cabinet 4, suitably secured therein as by bolts 5, Figs. 1, 2 and 3, and having flushing means, not shown, and a discharge outlet 6 through the cabinet directed downward as shown, or to the side or rear.

While in the preferred form the flushing is controlled by one of many well-known types of pressure flushing valves, if desired a gravity flushing tank may be incorporated within the cabinet above the closet and connected therewith in the usual manner.

To effect the folding operation of the closet the cabinet 4 is provided with a closure comprising two panel members, member 7 being hinged to the cabinet 4 at or near the bottom at a point 8 and having the upper front portion of the closet bowl attached to it as by one of the bolts 5, Fig. 3, and also having top extensions of its side frames 9 to which the panel member 10 is pivotally attached by bolts, as at 11, said members 7 and 10 when in their closed position fitting the sides of the cabinet and forming a substantially flush closure for its lower portion as shown in Figs. 4 and 11.

The panel member 10, which is the seat assembly for the closet, comprises three main parts, as shown in Figures 3 and 6: the seat frames 10A attached pivotally to the member 7 at 11 and terminating in T-shaped lugs 12; the seat, 10B, of sheet metal, superimposed upon 10A and hinged thereto at 13, the outer edges of the seat being approximately in alignment with the seat frames 10A; the seat cover 10C, being likewise hinged to 10A and to 10B at 13, of sheet metal formed to cover and conceal the seat, and by reason of compression of its sides upon the seat frames 10A when closed holding the entire seat assembly 10 together in such manner that for certain purposes described following, the seat assembly will function as one single element. The outer terminals of the lugs 12 are guided and retained within grooves 14 in the side walls of the cabinet 4 in such manner that when said lugs 12 repose in the bottom extremities of the grooves 14 the seat member 10 is in a substantially horizontal position and supported so by the lugs 12 and the panel member 7.

The closet having been now brought into its functional position wherein the flexible bowl is distended, the seat cover 10C may be raised as in Figs. 5 and 8 disclosing for use the seat 10B which is provided with a central opening 15 directly above the closet bowl, an opening 16 through which the handle of the flushing means may be operated, and an opening 17 through which toilet paper may be withdrawn from its container 18 attached to the under side of the seat. The seat itself may be raised to a vertical, disclosing the closet bowl still in distended position for use as a urinal, or for gaining access to the various appurtenances which are housed in the lower portion of the cabinet. The seat cover 10C and also the seat 10B may be retained in their raised positions by latching means as the hook 19 attached to a member of the cabinet. A folding, fan-shaped segment of suitable flexible material 20, Fig. 9, may be interpolated into the openings revealed between members 7 and 10 in this position to conceal the lower inner portion of the cabinet, and which folds thereinto when member 10 is closed.

In further operation, in bringing the members 7 and 10 into their closed position, being aided thereby by coiled springs 21 acting upon the member 7, the outer terminals of the lugs 12 of the member 10 travel upward and are retained within the grooves 14 until reaching their uppermost point, where the grooves terminate in exit openings 22 and relinquish their forward restraint upon the member 10.

Above the closet is a wash basin 23, attached pivotally to the cabinet at 24 and made compositely with a third panel member 25 which when placed into a closed position, Figs. 4 and 11, becomes a part with the members 7 and 10 in forming a substantially flush front closure for a portion of the cabinet 4. Coiled springs 30 attached to the cabinet and to member 25 aid in raising and restraining the member 25 in its closed position, and chains 31 reposing within and utilizing the same attachment means as the springs 30 support the basin member when in its horizontal position and not otherwise supported.

The basin 23 is formed with a pouring lip 26, Fig. 3, at its posterior edge which, when the basin is tilted from its useful position, Figs. 4, 5, 8 and 11, will spill the liquid contents thereof into a receiving funnel 27 from which they are wasted either directly into the closet bowl through a pipe 28, Fig. 3, 4, and 5, or separately trapped and led away to the sewer as by the pipe 29 in Figs. 1 and 2.

The surplus width of the panel member 25 overhanging the basin on either side provides shelf space 41 for toilet accessories when the basin is in use, and the space allowed between these shelf surfaces and the interior walls of the cabinet when the member 25 is closed is equipped with fittings to accommodate such minor toilet accessories as towels, wash cloths, tumblers, etc., as suggested in Figs. 1 and 2. Hot and cold water 32 serving a mixing faucet 33 with a spout 34 which can be swung from a position above the basin to one directly above the funnel 27 provide water for the basin and for other needful purposes. The basin partially houses the faucet assembly when closed.

As will have been observed from the description thus far, the closet unit of the cabinet may be opened and closed independently of the basin unit while the latter is closed, and the basin may be brought into its functional position while the closet unit is extended as in Figs. 1, 8 and 9. An additional feature of my invention resides in an interacting relation between members 25 and 10 to allow the basin to be brought into its functional position while the closet element remains closed, which is explained as follows:

The method of attachment of the seat member 10 to the member 7 at point 11 permits the seat member 10 to revolve within the extensions of the side frames 9 of member 7 from its horizontal position through an arc greater than 180 degrees, the curved profile of the front edge of the seat moving above and adjacent to the top edge of the member 7, Figs. 1, 2 and 5, substantially maintaining a closed joining along the length of their coincidence.

The bottom edge of the basin member 25 when closed is sufficiently lower than the exit openings 22 of the grooves 14, as shown in Figs. 8 and 11, that when the basin member 25 is in its closed position, and members 7 and 10 are moved from an open to a closed position bringing the outer extensions of the T-shaped lugs 12 to the exit openings 22 of the grooves 14, the inner extensions of the T-shaped lugs 12 are brought into

engagement with grooves **35** provided upon the side edges of the member **25**. The three closure members **7**, **10** and **25** are now closed. Upon opening the member **25**, the member **10** swings outwardly from its top, being guided and restrained by the engagement of the inner extensions of its T-shaped lugs **12** with the said grooves **35** until the lugs reaching the end of the grooves at **36** stop and hold the basin at its horizontal position, supplementing the chains **31** in this function.

Figs. 1, 2, 8, 9, 10 and 11 show the cabinet complete with a mirrored medicine cabinet **37** having lights **38** which may be recessed behind glass panes; handles for operating the basin and closet units are indicated at **39**, Fig. 4. Means, such as screws at suitable points, for securing the cabinet **4** in its upright position against the wall or floor where installed are contemplated but not shown in the drawings.

Fig. 11 indicates in dotted lines a compartment **40** of which the unitary cabinet **4**, completely closed, forms one wall. This compartment when provided suitably with a shower head connected with supply pipes and valves, and a floor with drainage means for the shower bath water, and further provided with a suitable closure in the form of either a curtain or a door or both for an entrance opening which may be in either side or the end of the compartment, and additional openings for ventilating purposes and for entrance and egress of the necessary service connections, constitutes not only an adequate bathing space of comparatively unobstructed inner surfaces when the cabinet is closed but also a place of privacy when use is being made of the other toilet conveniences included in the cabinet.

It will be seen from the foregoing description how, by combining my collapsible closet invention with sundry other toilet units, I achieve my contemplated intention of providing in a totally new and original form toilet facilities which may be cheaply manufactured and transported and easily installed as cabinet units comprising, either: the water closet alone, or in combination with a basin, or with a basin and medicine cabinet, or with a basin, medicine cabinet and shower bath all contained in a compartment of the utmost compactness, which in either of their completed forms may be incorporated with the structural elements of a building or else set up as an article of furniture in a bed-chamber or other place as desired, where their use in any of their various forms is readily available or their presence inconspicuous when not in use.

It will be understood that the showing of the above invention is very diagrammatic and that it is capable of many refinements which will readily occur to those skilled in the art; the particular form of the various elements involved is not essential, as it is obvious that variations could be used without departing from the spirit of the invention. I intend, therefore, to be limited only by the scope of the appended claims.

I claim:

1. A water closet, the bowl portion being of flexible material and collapsible, having a seat, flushing means and a liquid seal sanitary trap with discharge means.

2. A water closet of flexible construction with means to enable its normal functional use in one position and its conversion therefrom to a collapsed or partially collapsed form of reduced cubic displacement while maintaining its liquid seal.

3. A device of the character described including in combination a cabinet within which the closet is secured and from which it is partially distendable for functional use, a wash basin foldably disposable within the cabinet and usable independently of the said closet, supply and waste means for both closet and basin and closure means for the whole.

4. In combination with a water closet having a collapsible bowl with flushing and discharge means, a cabinet within which said closet is foldable and to which it is suitably attached; a closure therefor comprising a panel member hinged to the cabinet at or near the bottom, a second member consisting of a seat frame, a seat and a seat cover operating substantially as one single element pivotally attached to the top of the first and movable through restrictive means so that in one position the flexible closet is distended and the seat held securely above it in approximately horizontal position, the seat cover or the seat and seat cover being from this position pivotable upward by their front edges to an approximately vertical position and secured, or with the seat frame, seat and seat cover acting as a single element, by a joint movement both closure members being movable into a vertical state, closing the cabinet and simultaneously compressing the flexible closet into the confines of the cabinet; a third closure member pivotally attached to the cabinet and having a wash basin either integral with or attached thereto with supply and waste means and means for sustaining said basin in a position for use; when closed, the exterior of this member forming substantially a surface continuation of the previously described first and second members; the closet and basin being independently operable or through interacting means so related that when the first and second members are closed, upon opening the third member the said second member is caused to assume the position and function of a secondary support therefor; a portion of the cabinet being used for a medicine cabinet with a separate mirrored closure and provided with electric lights; the cabinet being provided with suitable ventilating means; the cabinet, when closed, presenting a substantially unbroken plane front surface.

5. A cabinet toilet structure embodying a collapsible water closet, a pivotable wash basin, supply and discharge means for both, internal provision for minor toilet accessories, and a mirrored medicine cabinet with lighting means, all as described forming one interior wall of a compartment equipped with a shower bath having supply and drainage means and an entrance opening therefor provided with a suitable closure, the shower compartment when not in use for bathing purposes providing a private place for occupancy while use is being made of the other toilet facilities embodied therein.

RICHARD M. WILLIS.