

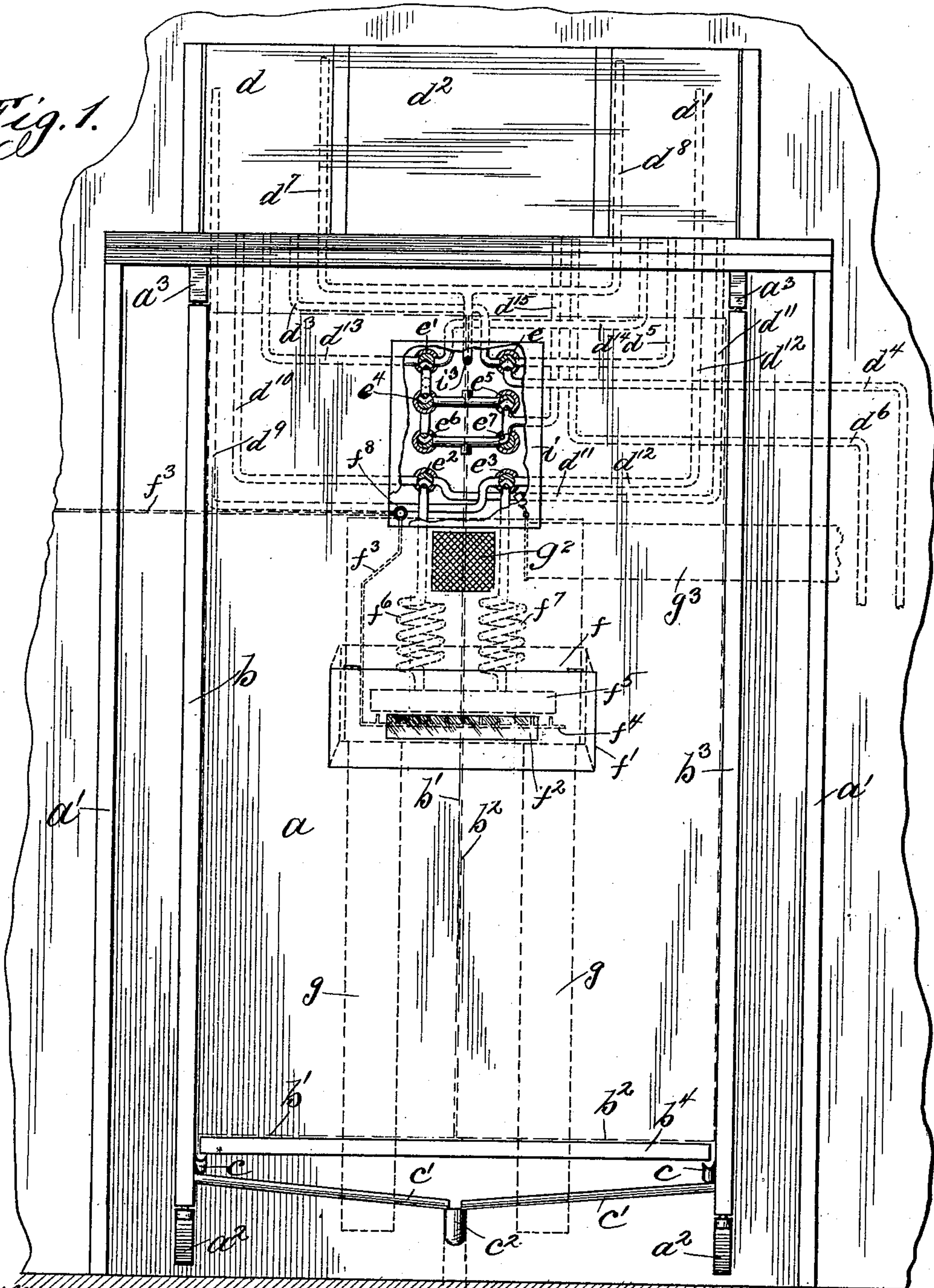
B. D. KNICKERBOCKER.
FOLDING BATH CABINET.

(Application filed June 29, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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2 Sheets—Sheet 2.

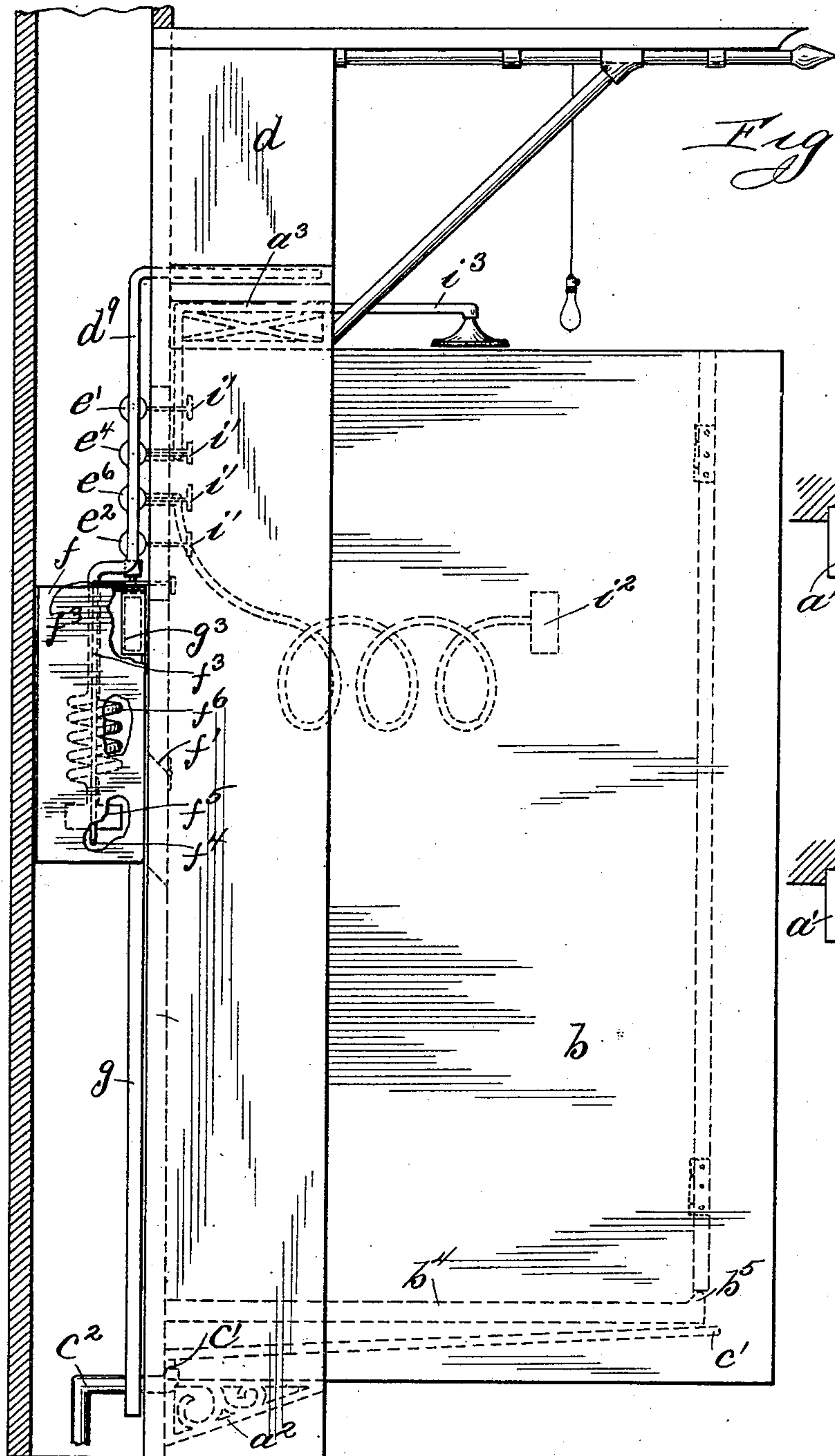


Fig. 2.

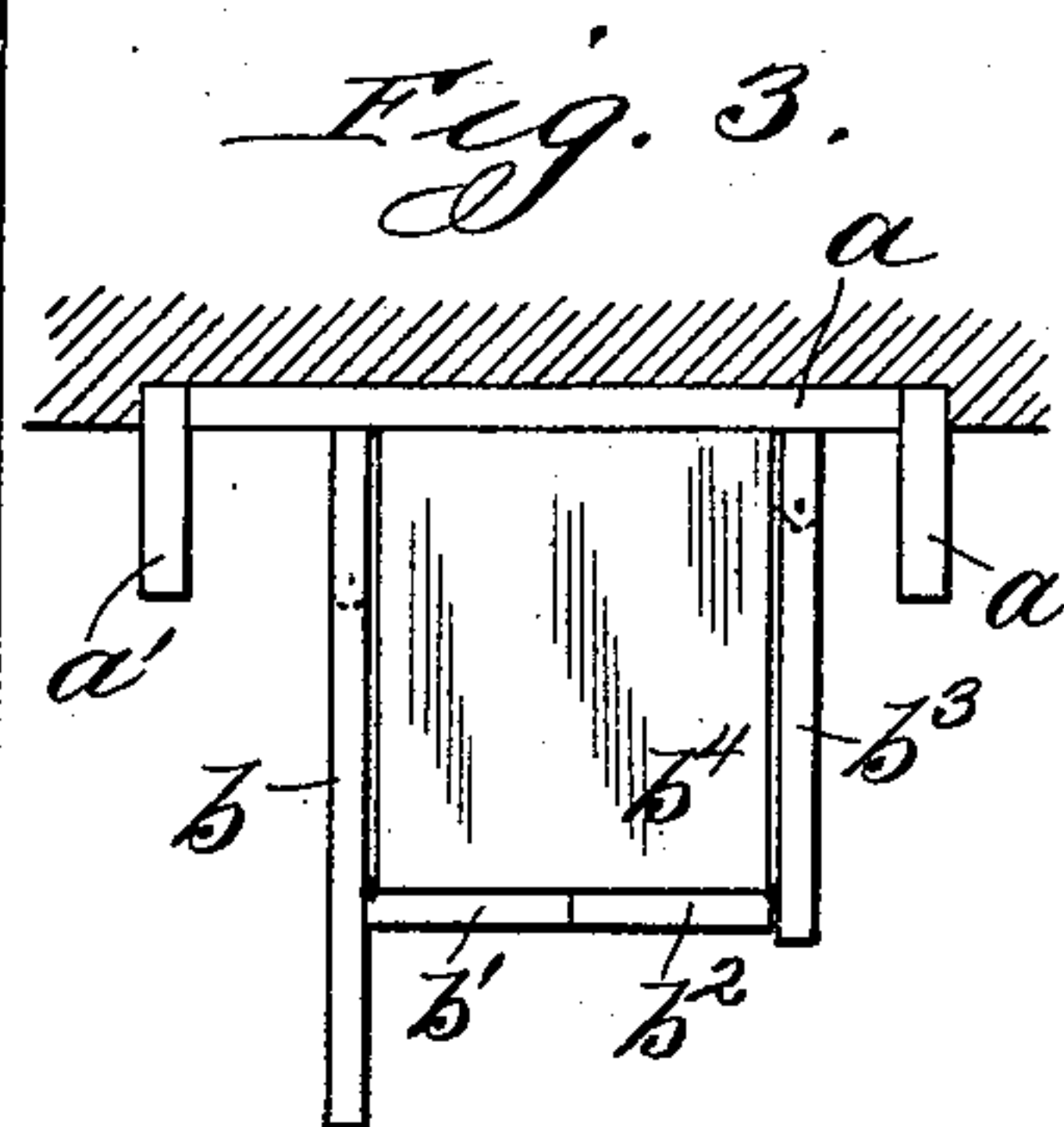


Fig. 3.

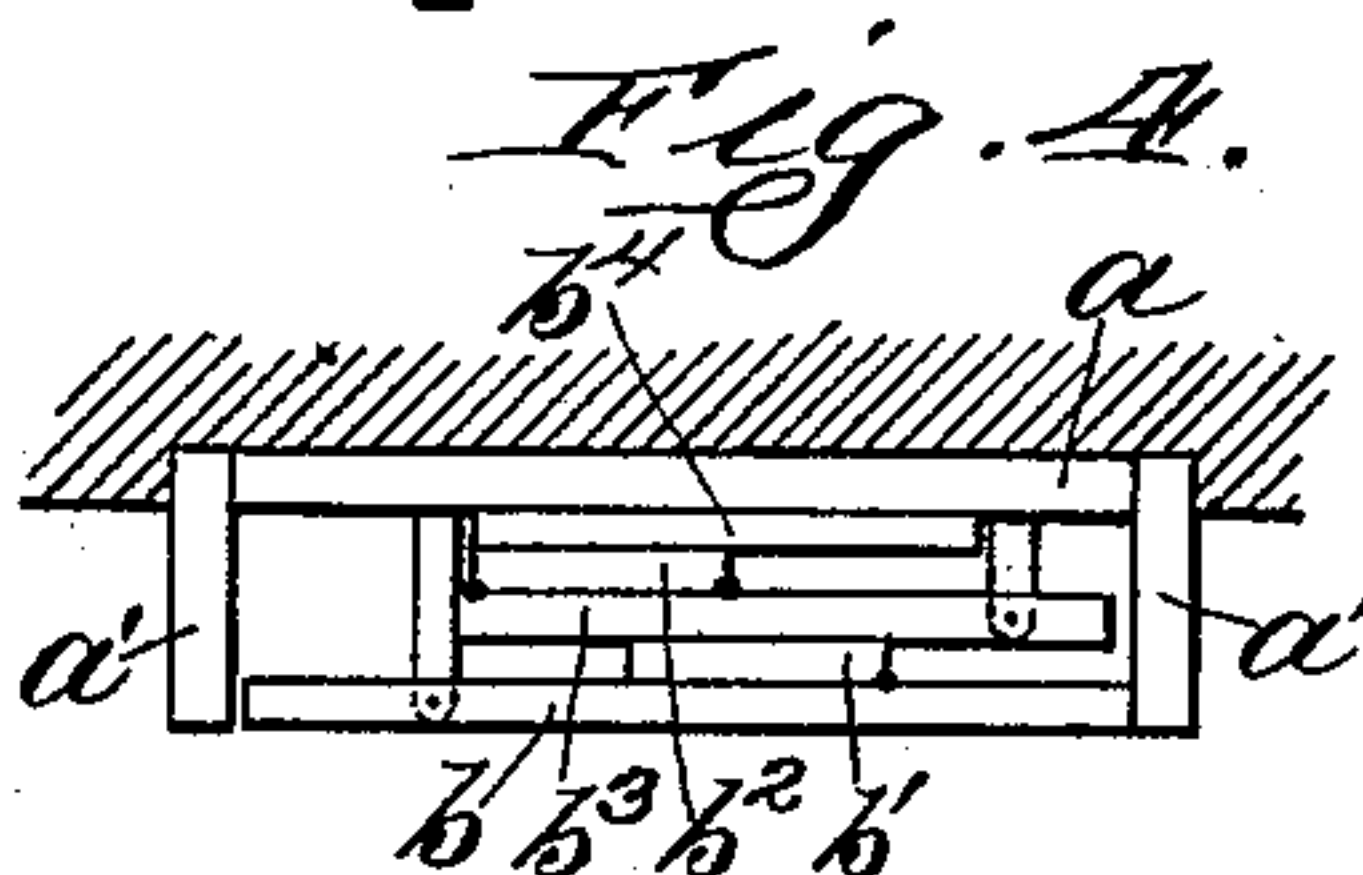


Fig. 4.

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UNITED STATES PATENT OFFICE.

BURTON D. KNICKERBOCKER, OF CHICAGO, ILLINOIS.

FOLDING BATH-CABINET.

SPECIFICATION forming part of Letters Patent No. 706,069, dated August 5, 1902.

Application filed June 29, 1899. Serial No. 722,227. (No model.)

To all whom it may concern:

Be it known that I, BURTON D. KNICKERBOCKER, 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 a certain new and useful Improvement in Folding Bath-Cabinets, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a folding bath-cabinet, my object being to provide an improved form of cabinet having hinged and folding plates, whereby the cabinet when in use forms an inclosure provided with the conveniences and comforts of a modern bath-room and when not in use can be folded into compact form against the wall of the house.

In accordance with my invention in the preferred form I have provided a back plate secured to the studding of the wall of a house, side plates hinged thereto, swinging doors attached to the side plates to form the front when in use, and a bottom plate adapted to rest upon the forward end of the eaves, said eaves being arranged to form a continuous water-passage from the front to the rear of the cabinet. To provide for the folding movement of the cabinet, special hinges are used to support the side plates and to allow the requisite amount of swing to make a compact body of the different parts. Hot and cold water tanks connected with a water-supply are placed in the wall above the back plate and connected with the interior of the cabinet by means of faucets mounted upon a faucet-plate. The tanks are connected with the wall by a series of pipes so arranged that hot and cold water can be drawn through the faucets or shower-bath attachment, as desired. In the fire-box, which opens into the interior, any desirable means—such as oil, gas, or electricity—is provided for heating the pipe-coils and lighting the interior, the surplus heat being utilized in warming the cold air which passes up through passages from the base of the cabinet. When the cold air has been heated, it is allowed to enter the interior through the register or to pass off into the air.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a front view in elevation with the swinging doors removed. Fig. 2 is a side view in elevation. Fig. 3 is a plan view of the open cabinet. Fig. 4 is a plan view of the closed cabinet.

Like letters refer to like parts in the several figures.

Composed, preferably, of wood and adapted to be mounted upon or against the inner wall of a house is a back plate *a*, firmly secured thereto and having attached at each end the short arms *a'* *a'*. Secured upon a portion of the back plate by the hinges *a*² *a*³ is the side plate *b*, adapted to be pivoted upon the hinges to allow the plate *b* to cover the other portions of the cabinet and form a front thereto when the cabinet is closed and to which is hinged the plate *b'*, forming one half of the front of the cabinet when open and adapted to swing in and out when in use. The plate *b*², having the same swinging movement as plate *b'* and forming one half of the front of the cabinet, is hinged to side plate *b*³, said plate being hinged to the back plate *a* to allow the required folding movement. Near the base of the back plate is hinged the bottom plate *b*⁴, adapted to be in a vertical position when the cabinet is closed and to rest its forward end when the cabinet is open upon the eaves *c* *c*, said eaves being attached to the inner wall of the side plates in an inclined position, allowing the water used in the bath to flow into them, from which it passes into the eaves *c'* *c'*, similarly attached to the back plate, and from the eaves *c'* *c'* the water flows into the drain-pipe *c*². The elevation *b*⁵ under the swinging doors *b'* *b*² checks the flow of water forward. Within the wall and preferably above the back plate are hot-water tanks *d* *d'* and the cold-water tank *d*², connected with an outside water source, whereby they may be filled, tank *d* being connected by pipe *d*³, three-way valve *e*, and pipe *d*⁴, tank *d'* by pipe *d*⁵, three-way valve *e*, and pipe *d*⁴, and tank *d*² by pipe *d*⁶. When the hot-water tanks *d* and *d'* are full, the water is carried off by the overflow-pipes *d*⁷ *d*⁸ to the cabinet. To heat the water in tanks *d* *d'*, a fire-box *f* is provided, having a hinged door *f'* opening into the inte-

rior and carrying the glass f^2 , which admits the light from the flame into the open cabinet. The pipe f^3 , upon which is mounted the button f^8 , connects some outside gas source with the burners f^1 , the flame from said burners playing upon the hot-water back f^5 , placed beneath the pipe-coils $f^6 f^7$, which are connected by pipes through three-way valves with the tanks d and d' . To provide the proper circulation of air and to utilize the surplus heat in the fire-box, cold-air passages g are constructed from the fire-box to the bottom of the cabinet and mounted upon the rear of the cabinet and preferably within the wall of the house, whereby cold air can pass to the fire-box, where it is heated and carried into the cabinet through the register g^2 ; but if hot air is not desired it may be allowed to escape through the passage g^3 into the air.

The faucet-board i , located upon the back plate, carries the handles $i' i'$, which actuate the valves controlling the admission of the water into the rubber bath-brush i^2 and the shower-bath attachment or spray i^3 . Instead of employing a spray and bath-brush, as illustrated, any other devices for directing the water may be employed, as desired.

To illustrate the use of the invention, I will assume that the cabinet is in the closed position, as shown in Fig. 4, and that a person desires to use it. To open the cabinet, the side plate b , which forms the front thereto when closed, is swung upon the pivoted hinges until it assumes the position as shown in Fig. 3. The swinging gate b' being released assumes a position at right angles to the plate b . Plate b^3 is now swung to form the other side of the cabinet, the swinging door b^2 forming the other half of the cabinet-front, and the bottom plate b^4 is placed in position, its forward end resting upon a portion of the eaves $c c$. Thus a complete inclosure is formed, as shown in Fig. 3. To heat the water in tanks d and d' (assuming that they are full) and warm and light the interior of the cabinet, the button f^8 is turned, allowing the gas to pass to the jets f^4 , which are lighted upon opening the door of the fire-box. The flame is then allowed to play upon the hot-water back f^5 , which starts the water circulating between the hot-water back and the tanks d and d' . In circulating between the tank d and the water-back the water may find circuit from the tank into pipe d^{10} , through three-way valve e^2 , pipe-coils f^6 , hot-water back f^5 , pipe-coils f^7 , three-way valve e^3 , pipe d^9 , into the tank, from which it can be drawn through pipe d^{13} , three-way valve e' , valves e^4 or e^6 , to the spray or brush, as desired. The water circulating between tank d' and the hot-water back passes into pipe d^{11} through three-way valve e^2 , pipe-coils f^6 , hot-water back f^5 , coils f^7 , three-way valve e^3 , pipe d^{12} , into tank d' , from which it passes into pipe d^{14} through three-way valve e , valve e^4 or e^6 , to the spray or brush, as desired. The pipe d^{15} carries the cold water from tank d^2 through valves $e^5 e^7$

to the spray or brush, as desired. When it is desired to direct cold water through the spray i^3 , the valve e^5 is opened, and when hot water is desired the valve e^4 is opened and the hot water is drawn from tank d or d' , according as valve e' connects pipe d^{13} or d^{14} with valve e^4 . Likewise cold water is admitted to brush i^2 through valve e^7 , while hot water is admitted through valve e^6 , and the hot water is drawn from tank d or d' , according as valve e' is turned into one position or the other. By opening both the hot and cold water valves the temperature of the water may be regulated. The cold air passing up through the cold-air passages into the fire-box is heated and passes into the cabinet through the register or is allowed to pass off into the atmosphere, as desired. Thus the cabinet having the necessary water, air, and light is used and then folded into the position as shown in Fig. 4 by swinging the bottom plate into the vertical position, folding the swinging door b^2 so that its inner surface rests against the inner surface of plate b^3 . Swinging door b' rests in a similar manner against plate b , which is swung into position and forms an even front to the whole structure.

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

1. In a bath-cabinet, the combination with a stationary back plate, of hinged bottom, side, and front plates adapted to be folded into compact form against said back plate when not in use and to be opened when in use to form an inclosure having a bottom, side plates, and swinging doors, a drain-pipe carried by said stationary back plate, and eaves or troughs secured to the back and side plates and communicating with said drain-pipe for carrying the water from the surfaces of the bottom, back, side and front plates, substantially as described.

2. In a bath-cabinet, the combination with a back plate, of hinged bottom, side and front plates, a drain-pipe mounted upon said back plate and a series of communicating troughs mounted upon said side and back plates below the edges of said bottom plate and communicating with said drain-pipe, the front edge of said bottom plate being adapted to rest upon the troughs secured to the said side plates, substantially as described.

3. In a bath-cabinet, the combination with a back plate and hinged bottom, side and front plates, said bottom plate being provided with an upwardly-projecting ridge at the forward edge, rearwardly-inclined troughs mounted upon said side plates beneath the side edges of said bottom plate, and adapted to swing with said side plates, a drain mounted upon said back plate, and inclined troughs mounted upon said back plate communicating with the troughs on said side plates and with said drain, whereby the water from the surfaces of said bottom, back, side and front plates is carried

off through said drain, substantially as described.

4. In a bath-cabinet, the combination with a back plate and hinged bottom, side and front plates, of a fire-box or heating-chamber mounted upon said back plate, a cold-air duct carried upon said back plate and communicating with said heating-chamber and a hot-air outlet opening into the space included within the side and front plates of said cabinet, substantially as described.

5. In a bath-cabinet, the combination with a back plate and hinged bottom, side and front plates, of a fire-box or heating-chamber, mounted upon said back plate, a cold-air duct carried upon said back plate and communicating with said heating-chamber, a hot-air outlet extending from said chamber to the interior of said cabinet, and a hot-air outlet extending from said chamber to the exterior of said cabinet and provided with a valve or damper, substantially as described.

6. A folding bath-cabinet comprising a back plate secured to the wall of the room in which the cabinet is placed, a heating-coil carried upon said back plate, a hot and cold water tank, mounted at the upper end of said back plate, suitable pipes between the coil and tanks, a shower-bath attachment extending forward from the back plate and suitable connections from said tank and heating-coil to said attachment, bottom and side plates hinged to said back plate and adapted to fold up into compact form, said side plates being hinged at some distance from the side edges of said plate, one of said side plates being adapted to fold outside the other plates and to form the entire unbroken front of the cabinet when closed, and members *a'* at the side edges of the back plate to form the sides of the closed cabinet, substantially as described.

7. In a bath-cabinet, the combination with the back plate and the hinged bottom, side and front plates, of a heating-coil mounted upon said back plate, means to heat said coil, a pair of hot-water tanks carried at the upper end of said back plate, suitable pipes extending between said heating-coil and each of said tanks, and valves whereby either of said tanks may be connected with the heating-coil, substantially as described.

8. In a bath-cabinet, the combination with a back plate and hinged bottom, side and front plates, of a heating-chamber mounted upon said back plate and provided with suit-

able inlet and outlet air-passages, a heating-coil mounted within said heating-chamber, a hot-water tank mounted upon said back plate and suitable pipes and valves between said hot-water tank and said heating-coil, substantially as described.

9. In a bath-cabinet, the combination with a back plate and hinged bottom, side and front plates, of a heating-coil mounted on said back plate, a hot-water tank and a cold-water tank mounted upon said back plate at the upper end thereof and connected with said coil, a suitable valve between the hot-water tank and the heating-coil, a water-supply exit mounted upon said back plate, pipes extending between the same and said tanks, and a pair of valves, one for controlling the flow of water from the hot-water tank and the other for controlling the flow of water from the cold-water tank, substantially as described.

10. In a bath-cabinet, the combination with a back plate, and hinged bottom, side and front plates, of a heating-coil mounted on said back plate, a cold-water tank and a pair of hot-water tanks mounted upon said back plate and connected with said coil, suitable valves between the hot-water tanks and the heating-coil, a water-supply exit mounted upon said back plate, a valve for connecting one or the other of said hot-water tanks to supply water to said supply-exit, and a pair of valves, one for controlling the supply of water from the cold-water tank, and the other for controlling the supply of water from the hot-water tank, substantially as described.

11. In a bath-cabinet, the combination with a back, of hinged bottom, side and front plates, a heating-coil mounted upon the back and a heating-chamber therefor, a hot and a cold water tank at the upper end of the cabinet, pipes extending from said tanks to the coil and to the cabinet, a faucet-board carried by the back, and a plurality of faucets mounted on said board and controlling the flow of water through said pipes, substantially as described.

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

BURTON D. KNICKERBOCKER.

Witnesses:

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PERCY C. GILL.