Dec. 19, 1939. H. I. STILLER 2,183,897

TOILET CABINET

Original Filed Oct. 16, 1936 2 Sheets-Sheet 1

FIG. 1.

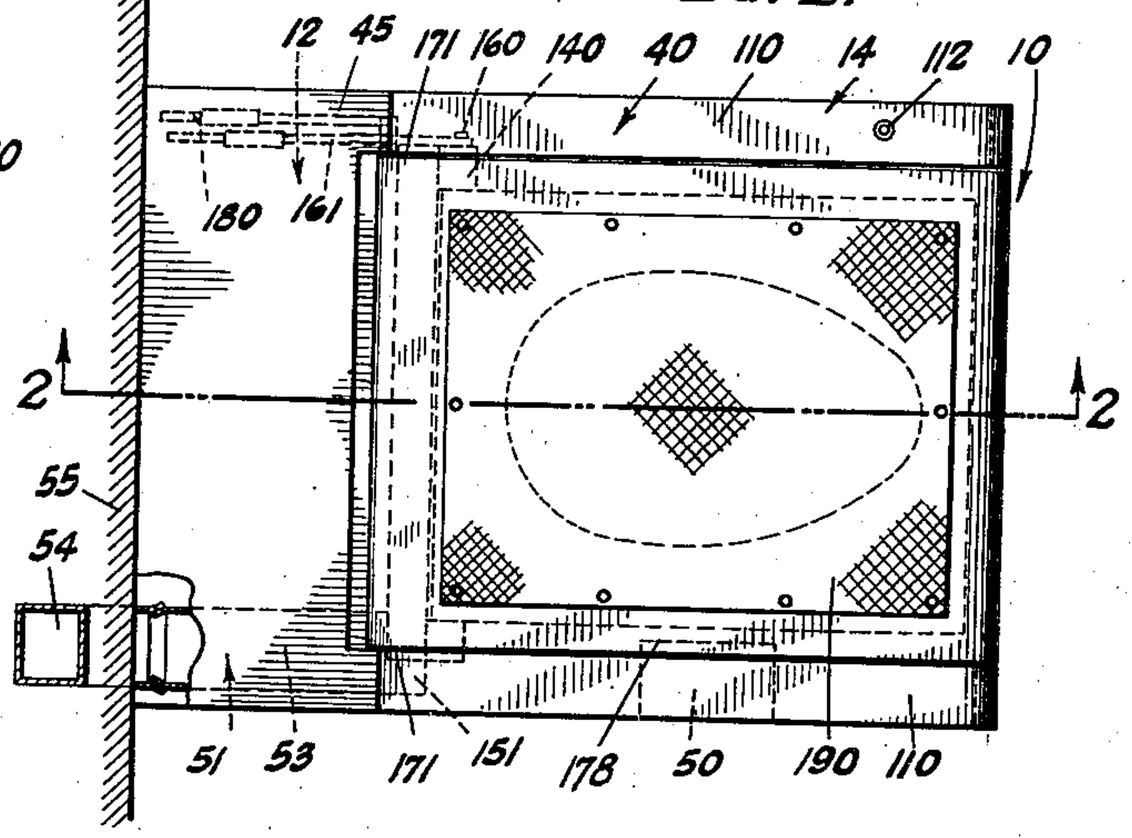

FIG. 2.

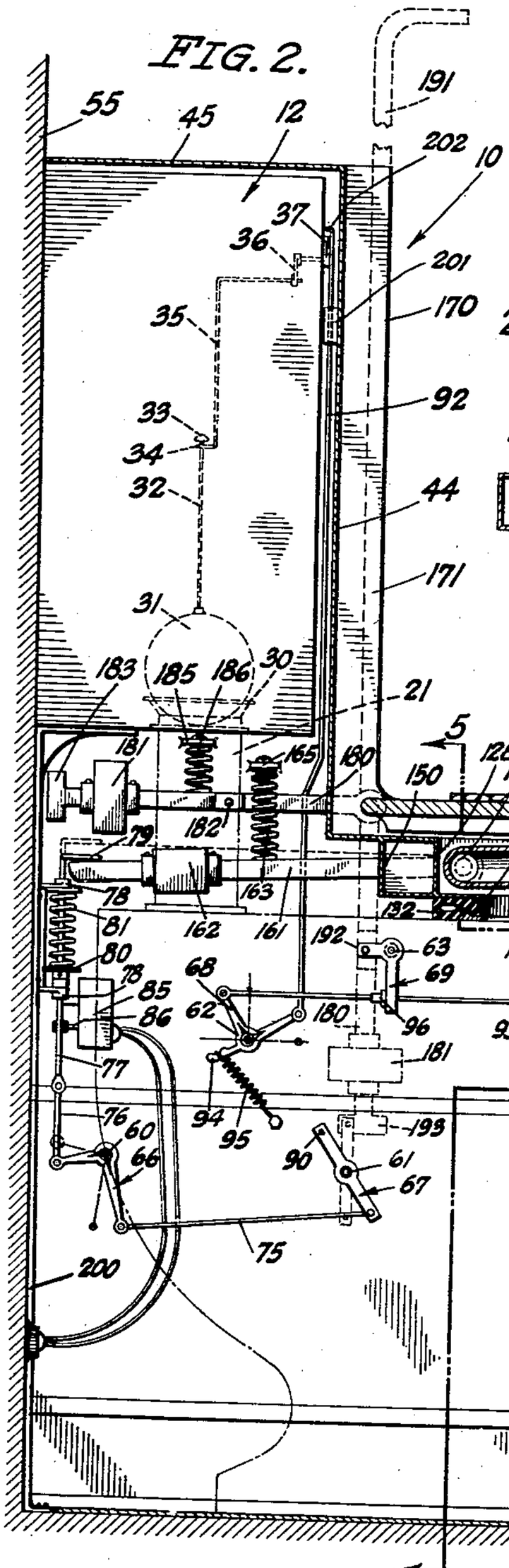

FIG. 3.

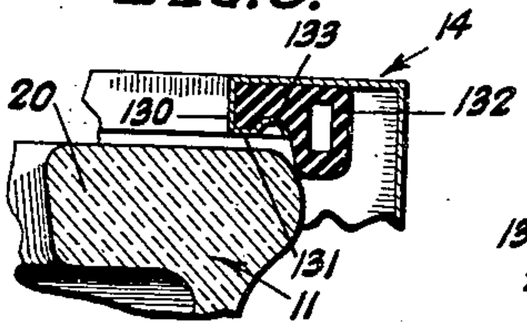

FIG. 4.

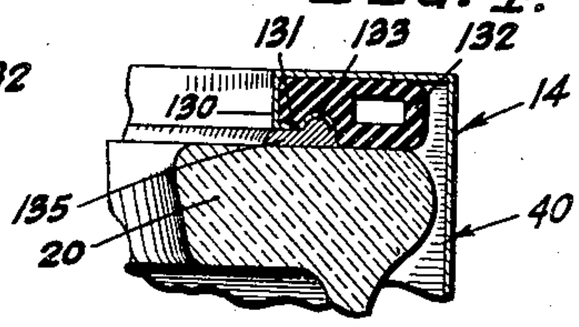

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FIG. 5.

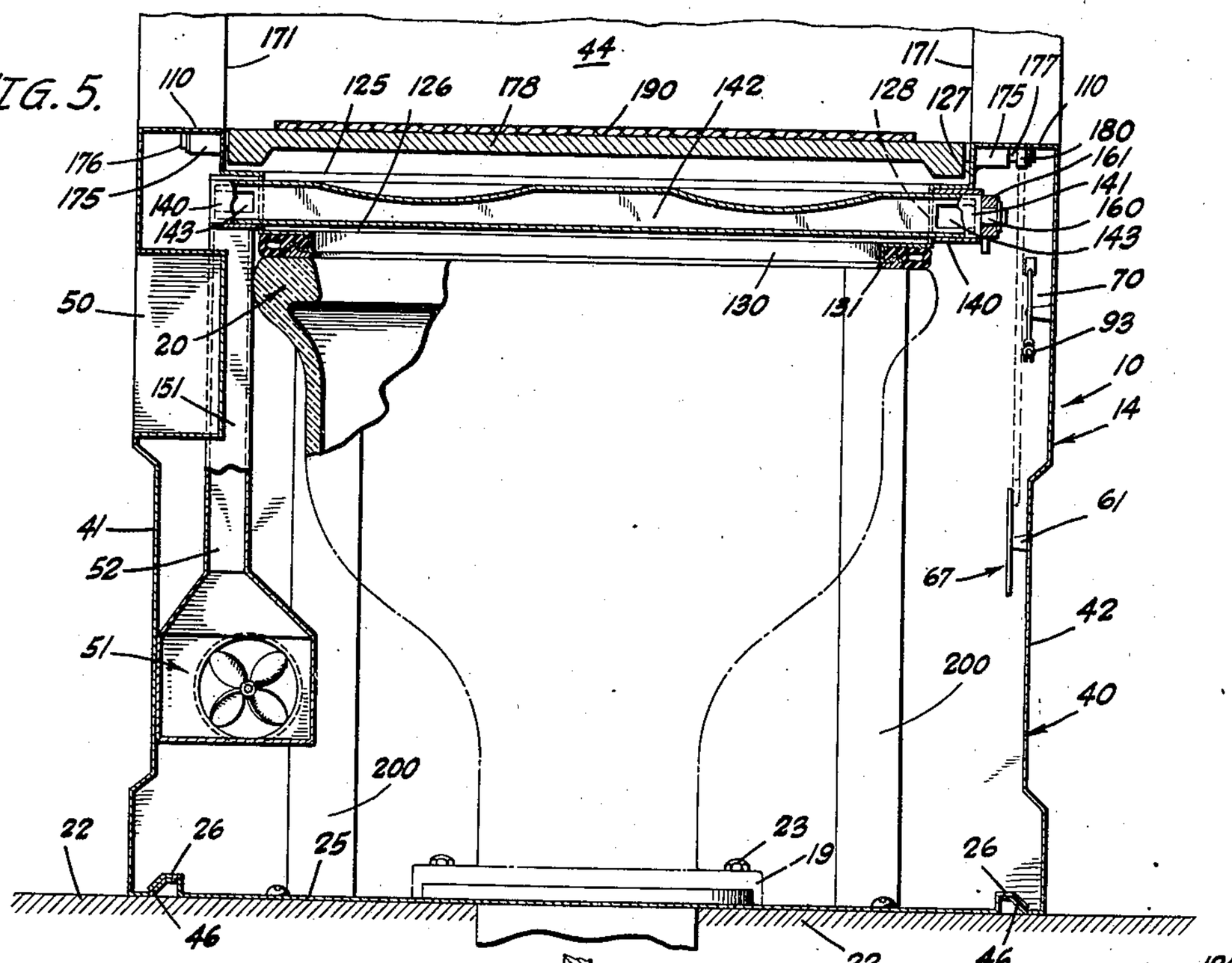

FIG. 6.

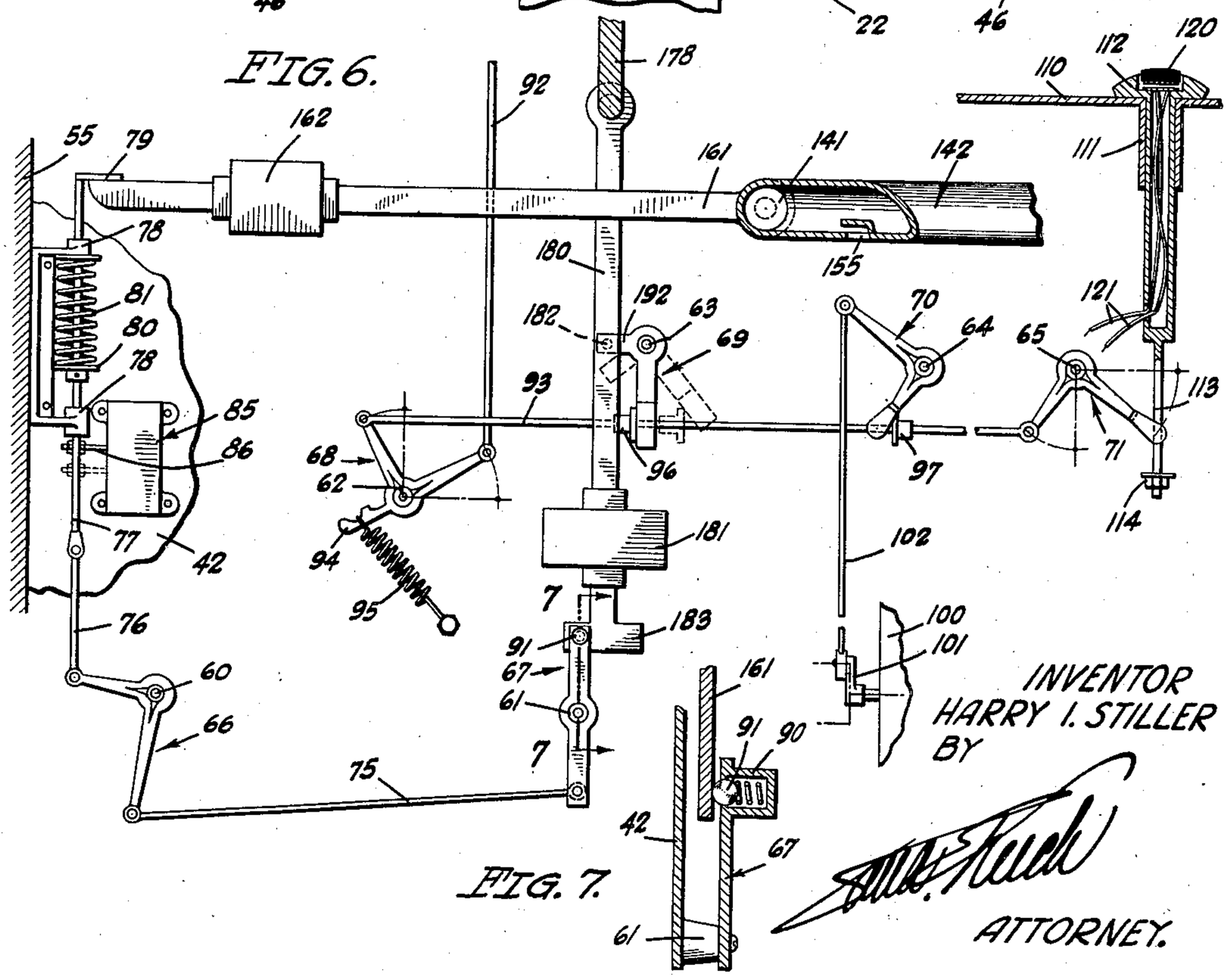

FIG. 7.

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TOILET CABINET

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Application October 16, 1936, Serial No. 105,918
Renewed May 12, 1939

10 Claims. (Cl. 4—10)

My invention relates to the art of bathroom fixtures and particularly to toilets.

It is an object of my invention to effectively disguise a toilet bowl and flush tank so that these will have the appearance of an article of furniture.

For effecting this disguise it is a further object of my invention to provide a housing which is applicable to a toilet bowl so as to give the appearance of an article of furniture.

A further object of my invention is to provide means for automatically ventilating a toilet when this is in use.

A still further object of my invention is to provide a means for automatically closing a seat cover for a toilet seat following use of the toilet so that this cover will be at all times closed when the toilet is not in use.

Yet another object of my invention is to provide a housing for disguising a toilet, which housing may be installed by being slid into place over a toilet bowl and which when so installed makes a liquid tight fit with the rim of said bowl.

Yet another object of my invention is to provide a power means for actuating the flush tank or valve of a toilet.

The manner of accomplishing the foregoing objects, as well as further objects and advantages, will be made manifest in the following description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of a preferred embodiment of my invention.

Fig. 2 is a longitudinal sectional view taken on the line 2—2 of Fig. 1 with a large portion of the toilet bowl broken away to illustrate the operating mechanism of the invention.

Fig. 3 is a still further enlarged fragmentary view illustrating the packing ring of my invention just as the housing is being slid into a position over a toilet bowl and before the front portion of this packing ring comes over the rim of said bowl.

Fig. 4 is a view similar to Fig. 3 and illustrates a front portion of the packing ring of my invention at the completion of the assembly of the housing on the bowl.

Fig. 5 is a transverse fragmentary sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is an enlarged diagrammatic view of the operating mechanism of my invention for the purpose of illustrating the function of this mechanism.

Fig. 7 is an enlarged detail sectional view taken on the line 7—7 of Fig. 6.

I shall now refer specifically to the drawings in which I have shown a disguised toilet 10 comprising a preferred embodiment of my invention, this toilet including a toilet bowl 11, a flush tank 12 and a disguising cabinet 14. The toilet bowl 11 is preferably a siphon-jet, elongated-bowl type having a base 19 and a rim 20 and a flush pipe 21 which connects with the bottom of the flush tank 12. The bowl 11 is secured to a floor 22 by bolts 23 passing through the base 19. Trapped between the base 19 and the floor 22 is a housing mounting plate 25 having inverted channel tracks 26 along opposite side edges (see Fig. 5).

The flush tank 12 is of the ordinary type having a valve seat 30 surrounding the upper end of the flush pipe 21, this seat being adapted to be engaged by a float valve ball 31 having a stem 32, the upper end of which has a head 33. The stem 32 is surrounded by an eye 34 on the lower end of a lever 35 which is connected to a bell crank 36 having an outer arm 37.

The housing 14 of my invention includes a porcelain enameled sheet steel shell 40 which is shaped substantially like a chair and covers the bowl 11 and flush tank 12. It is to be understood that the shell 40 may be of various designs, the form in which it is shown herein being purely illustrative. The shell 40 has side walls 41 and 42, a front wall 43, a rear upper portion 44 which encloses the flush tank 12, and a top plate 45.

The lower edge of each of the side walls 41 and 42 is provided with an inwardly and upwardly bent track 46, these being adapted to fit inside of and unite with the inverted channels 26 to hold the housing 14 downwardly. The side wall 41 is provided with a cavity 50 for holding paper. also supported on this wall is a motor fan unit 51 which has an inlet pipe 52 and an exhaust pipe 53 the latter leading to an ordinary ventilating flue 54 which is a part of a building wall 55.

The wall 42 has provided thereon a series of studs providing lever bases 60, 61, 62, 63, 64 and 65. Pivotally mounted on these lever bases respectively are bell crank 66, lever 67 and bell cranks 68, 69, 70 and 71. Lower arms of the bell crank 66 and lever 67 are connected by a link 75. The upper arms of bell crank 66 are connected by a pitman 76 to the lower end of a rod 77 slidably mounted in brackets 78 which has a foot 79 bent from its upper end. Provided on rod 77 is a collar 80 and a spring 81 between the collar 80 and upper bracket 78 to normally force the rod 77 downwardly.

Also mounted on the side plate 42 is an electric control switch 85 controlling the motor fan unit

51, this switch having an arm 86 which is connected to the rod 77 so that when this arm is disposed in its full-line position shown in Fig. 2, the switch 85 is off.

On the upper end of the lever 67 is a detent 90 which urges a ball 91 in the direction of the side wall 42 (see Fig. 7).

The arm 37 of the flush tank operating bell crank 36 is connected by a vertical rod 92 with a right-hand arm of the bell crank 68, whereas an upper arm of this bell crank connects with a horizontal rod 93 the opposite end of which is pivotally connected with the leftward arm of bell crank 71. The bell crank 68 is provided with a spring arm 94 to which a spring 95 is connected to normally maintain bell crank 68, rod 92, rod 93 and bell crank 71 in the positions in which these are shown in full lines in Fig. 2. Lower arms of the bell cranks 69 and 70 are bifurcated, straddle the rod 93, and are adapted to be engaged by collars 96 and 97 provided on this rod.

Also mounted on the wall 42 is an electric motor 100 having an internal gear connection (not shown) with a crank 101 which is connected by a link 102 with the upper arm of the bell crank 70.

The top plate 45 has upper side marginal portions 110 in one of which is provided an opening for receiving a stem 111 of a manual flusher operating button 112. The stem 111 is hollow and has a rod 113 which is straddled by a righthand bifurcated arm of bell crank 71 (see Fig. 6). The lower end of the rod 113 has a nut 114 for engaging this bifurcated arm of bell crank 71 so as to rotate this bell crank when the button 112 is lifted further than the distance intervening between this nut and the bell crank. Mounted in the manual button 112 is an electric contact button 120 from which wires 121 lead downwardly through the stem 111 and out at the lower end thereof, these wires being connected in the circuit of the motor 100 to so control the latter that each time the button 120 is pressed the motor 100 is energized just a sufficient length of time to cause a single rotation of the crank 101. Between the marginal portion 110 of the housing top plate 45 this plate is terraced by successive bending of the metal thereof to provide shelves 125 and 126, these shelves and the marginal portions 110 being connected by vertical walls 127 and 128. The inner edge of the shelf 126 surrounds an opening which is substantially the same shape and superimposed over the opening within the rim 20 of the bowl 11. Extending downwardly from this shelf is a wall 130, the lower edge of this wall having a back turned flange 131 which retains in place an endless rubber gasket 132, the latter having a hollow flexible bead 133.

When installing the housing 14 on the bowl 11 and flush tank 12, the plate 25 is installed in place between the bowl base 19 and the floor 22 as shown in Fig. 5 and the housing is positioned on the floor 22 with the tracks 46 aligned with the inverted channels 26. The housing 14 is now slid towards the bowl 11 and flush tank 12 so as to entirely cover these. When this takes place the bead 133 of the rubber packing 132 flexes to adapt itself to the upper face of the rim 20 of the bowl 11 as shown in Figs. 2 and 4. The space between the flange 131 and the rim 20 of the bowl is now sealed with a plastic cement 135 so as to make a permanent double liquid-tight seal between the housing 14 and the bowl 11.

Journalled in suitable bearings 140 provided in the walls 128 are hollow trunnions 141 of a hollow toilet seat 142. The space inside the seat 142 connects with the interior of the trunnions 141 and the latter are provided with ports 143 which connect through ports in the bearings 140 with a manifold conduit 150 which connects with a pipe 151 leading to the intake end of the motor fan unit 51. The seat 142 is provided with a series of openings 155. The exposed ends of the hollow trunnions 141 are closed and a pin 160 extends axially from one of these trunnions to which pin is rigidly fixed a counter balance arm 161. This arm 161 extends rearwardly underneath the foot 79 of the switch rod 77 and carries a counterweight 162. A suitable spring 163 is supported to extend downwardly from a lug 165 provided on the housing shell 40 and yieldingly resists upward swinging of the arm 161 so as to normally suspend the seat 142 in the full line position in which it is shown in Fig. 2.

The upper portion 44 of the shell 40 has a vertical recess 170 extending from the shelf 125 to its upper end, this recess providing vertical opposed walls 171 which lie in the same planes as the walls 127 and provide upward continuations of the latter.

Provided in the walls 171 where these join with the walls 127 (see Fig. 5) are bearings 175 in which trunnions 176 and 177, provided at the rear corners of a seat cover 178, are pivotally mounted. The trunnion 177 has rigidly mounted thereon a counterbalance arm 180, this arm carrying a counterbalance 181 and a spring ball detent 182, and having a friction head 183 at its end. Suspended from a lug 185 on the wall 42 is a coil spring 186 which is adapted to engage the arm 180 to cushion the return of the seat cover 178 to its downwardmost position in which it is shown in full lines in Fig. 2. While the seat cover 178 may have a smooth finish it is preferred to equip this cover with a fabric upholstery 190 as suggested in Figs. 1, 2 and 5.

Operation

As set forth hereinabove, one of the important objects of this invention is to disguise the toilet bowl 11 and flush tank 12 so that when so disguised these give the appearance of an article of furniture. When the disguised toilet 10 is not in use it at all times appears as shown in Figs. 1, 2 and 5. In other words, the cover 178 is closed. Therefore, whenever it is desired to use this toilet the cover 178 must be manually opened into its broken line position 191 as shown in Fig. 2. This swings the arm 180 downwardly to bring the detent 182 beneath the upper arm 192 of bell crank 69. This also brings the friction head 183 of the arm 180 into its downwardmost position as indicated by broken lines 193. The friction set up between the spring detent 182 and the arm 192 retains the seat cover 178 in open position.

In sitting on seat 142 this is now depressed about its trunnions 141 to its broken line position 195 (see Fig. 2). This swinging of seat 142 causes the rear end of the counterbalance arm 161 to lift the foot 79 of the rod 77 thus actuating the switch arm 86 by lifting this upward thereby energizing the motor fan unit 51 and causing air to be drawn inwardly in the holes 155 of the seat 142 and exhausted, after passing through the fan unit 51, into the flue 54.

It is also seen that when the person using the toilet 10 arises from the seat 142 the action of the springs 163 and 81 swings the arm 161 downwardly into the full line position in which it is shown in Fig. 2 and also forces the rod 77 down-

wardly to throw out the switch 85 thus shutting off the motor fan unit 51.

When a person sits on the seat 142 so as to lift on the rod 77 this also rotates the bell crank 66 and the lever 67 into their dotted line positions shown in Fig. 2, thus shifting the ball detent 91 which is on the lever 67 into a position where it contacts the friction head 183 of the seat cover arm 180, the latter presumably now being in its broken line position 193. Thus as long as a person remains seated on the seat 142 the seat cover 178 will remain in its uppermost broken line position 191.

When it is desired to flush the toilet bowl 11 this may be done either manually or electrically. To do this manually the manual flush button 112 is seized in the fingers and lifted until the washer and nut 114 engages the bifurcated arm of the bell crank 17 straddling the rod 113. The button 112 is then further lifted to rock the bell crank 71 and shift the rod 93 to the right. This rocks the bell crank 68 and pulls down on the rod 92 so as to operate the flush tank 12 by lifting the hollow ball valve 31 from its seat 30. At the same time the rod 93 swings the bell crank 69 into the broken line position indicated for this in Figs. 2 and 6 so that the upper arm 192 thereof is shifted out of contact with the ball detent 182. This frees the seat cover 178 from the friction between the arm 192 and the detent 182 which formerly tended to retain the seat cover in its uppermost position 191. If, when flushing the toilet, a person is still seated upon the seat 142 the seat cover 178 will be freed from the friction between bell crank arm 192 and detent 182 but the seat cover will remain subject to the friction between lever 67 and friction head 183 as shown in full lines in Fig. 6.

It is also seen that once the cover 178 is swung open into its broken line position 191 it will thereafter be automatically closed only if the toilet is flushed. Furthermore, this automatic closing of the cover 178 will occur following the flushing of the toilet only when the person sitting on the seat 142 arises therefrom.

The manual toilet flushing button 112 is only intended for emergency use as the normal method of flushing the toilet is by means of the electric responsive power unit 100. Whenever it is desired to do so, this power unit is set in motion by depressing the electric button 120 which, through the conductors 121, causes the power unit 100 to rotate the crank 101 a single revolution thereby rocking the bell crank 70 against the collar 97 which shifts the rod 93 towards the right so as to produce the same results as above described as following the manual lifting of the button 112.

As will be seen in the foregoing description and the accompanying drawings I have provided a toilet cabinet which may be made up in any desired design so as to constitute a beautiful article of furniture which may be either white or in any of the tints at the present time popular in bathroom fixtures.

It is also clear that I have provided a sanitary and practical toilet fixture which is of a stream lined style so as to eliminate irregularities in the exposed surfaces thereof, making this easy to clean as well as very pleasing in appearance.

Another advantage of my invention lies in the fact that the toilet is not only disguised by the invention but that the cover, the front portion of which extends downwardly in front of the seat, is automatically returned to covering position to perfect such disguise following the use of the toilet. It is thus seen to be unnecessary for any particular attention to be paid to replacing the cover of my invention in closed position so as to restore the complete disguise effected thereby following the use of the toilet.

Another advantage of my invention is that all the mechanism thereof is concealed yet readily accessible should it require attention.

It is to be noted that the flush tank 12 is supported on brackets 200 which extend down to and rest upon the floor 22. This assures that the flush tank 12 when installed will be disposed at the proper height to cooperate with the rest of the device 10. The rod 92 is guided by a bearing 201 secured upon the inner face of the upper portion 44 of the shell 40. Provided on the upper end of the rod 92 is a finger 202 which extends over the flush tank operating lever 37 at the proper height to engage and depress this lever when the rod 92 is pulled downwardly in the operation of the flush tank operating mechanism. One of the principal advantages of having the brackets 200 reach entirely down to the floor 22 is that this automatically fixes the height at which the flush tank 12 is supported when installed so that when the housing 14 is slid rearwardly into place the operating lever 37 on the flush tank 12 is properly related to the finger 202 to be actuated by the latter as aforesaid.

While I have shown and described my device as equipped with flush tank 12 it is to be understood that a flush valve may be substituted in place of this flush tank without departing from the spirit of the invention or the scope of the appended claims. The flush valves in most common use if substituted for the flush tank 12 would occupy the same space as the drawings show to be occupied by the lower half of the flush tank 12. Where a flush valve is thus substituted for the flush tank 12 the upper portion 44 of the housing shell is lower in height so as to just snugly house the flush valve.

What I claim is:

1. In a toilet bowl and flush means cabinet, the combination of: a housing in the shape of a seat with a back said housing having a lower portion for covering said bowl and a portion extending upwardly from the rear of said lower portion to cover said flush means; means forming a liquid tight seal between said housing and the rim of said bowl; and means adjacent the floor for holding said housing downwardly in place over said bowl and flush means.

2. In a toilet cabinet, the combination of: a housing in the shape of a seat for covering said toilet; guide means adapted to be secured to the floor; and means on said housing and cooperating with said guide means to permit said housing to be slid into place over said toilet with said cooperating means extending under said guide means.

3. In a toilet cabinet, the combination of: a housing in the shape of a chain for covering said toilet; guide means adapted to be secured to the floor; means on said housing and cooperating with said guide means to permit said housing to be slid into place over said toilet with said cooperating means extending under said guide means, said housing having an opening adapted to overlie said toilet when said housing is in place; and means forming a liquid tight seal between said housing and the rim of said toilet when said housing is in place.

4. In a toilet bowl cabinet, the combination of:

a housing in the shape of a seat for covering said bowl; means adjacent to the floor and secured thereto for holding said housing downwardly in place over said bowl when said housing is slid horizontally into place over said bowl; a toilet seat and cover hingedly mounted on said housing; and flush means operating means provided on said housing along side said seat.

5. In a toilet bowl cabinet, the combination of: a housing for covering said bowl, said housing having an opening substantially conforming to the rim of said bowl; packing retention means provided on said housing about said opening; a ring of packing supported by said retention means about said opening, said packing ring forming a seal between said housing and said rim of said bowl when said housing is properly positioned over said bowl; and means provided on said floor and adapted to engage said housing when the latter is moved into said position over said bowl to retain said bowl in said position.

6. In a toilet bowl cabinet, the combination of: a housing for covering the front and sides of said bowl, said housing having an upper opening substantially conforming to the rim of said bowl; a ring of packing material provided on said housing about said opening, said packing ring forming a seal between said housing and said rim of said bowl, when said housing is properly positioned over said bowl; and means for securing said housing in such position.

7. A combination as in claim 6 in which the seal between said packing material and said rim is in a substantially horizontal plane.

8. A combination as in claim 6 in which the contact between said packing material and said rim is in a substantially horizontal plane, and in which said means for holding said housing in place comprises interlocking guide means on the floor and on said housing which interlocks to hold said housing down with said packing pressed against the rim of said bowl as said housing is slid horizontally into place over said bowl.

9. In a cabinet for a toilet bowl having a flushing means, the combination of: a housing for covering a plurality of sides of said bowl; means for holding said housing in properly covering relation with said bowl; and flushing means operating means provided on said housing adjacent the front end of said bowl.

10. In a cabinet for enclosing a toilet bowl mounted on the floor of a building, the combination of: a housing for covering the front and sides of said bowl and extending down to said floor, said housing having an upper opening substantially conforming to the rim of said bowl; a ring of packing material provided on said housing about said opening and adapted to make a liquid tight seal with said rim when pressed tightly downward thereagainst; and means for securing said housing to said floor, said means holding said housing downwardly to hold said packing material in sealing engagement with said rim.

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