

TWO-STAGE FLUSHING DEVICE FOR A TOILET TANK

BACKGROUND OF THE INVENTION

This invention relates to a two stage flushing device for a toilet tank, particularly to one structured in such a way that two different water volume may be accurately flushed out respectively by means of a main flush lid and an auxiliary flush lid respectively handled by two different flush buttons.

A known conventional two stage flushing device for a toilet tank is shown in Fig. 1, includes two trip levers A0, B0 connected respectively with a chain to two outlet lids A, B closing two different outlets A2, B2. Then two different water volume may be flushed out of the two outlets A2, B2 by handling two different flush handles independently. However, the known conventional two stage flushing device for a toilet tank has disadvantages of a large dimensions of occupying not a small space in the toilet tank, and too many components to result in high cost and much time in assemblage.

SUMMARY OF THE INVENTION

This invention has been devised to offer a two stage flushing device for a toilet tank, possible to accurately flush out one large volume and one small volume separately by means of a main flush lid and an auxiliary flush lid.

One feature of the invention is an overflow tube shaped as an inverted T, utilizing a smaller tubular portion of the overflow tube to prevent the auxiliary flush lid from failed opening and closing.

Another feature of the invention is the main flush lid and the auxiliary flush lid, with the body of the main outlet lid fixed with the overflow by means of a shaft pivotally connected to the overflow tube, the body of the auxiliary flush lid connected pivotally to the main outlet lid.

Another feature of the invention is the main and the auxiliary flush lid connected to two relative trip levers respectively with two chains, and pushed by one of the two different flush buttons for pulling up the main or the auxiliary flush lid.

One more feature of the invention is an auxiliary float is pivotally attached with an outlet seat so as to hooking the main outlet lid for water to flow out smoothly during flowing of a large water volume.

BRIEF DESCRIPTION OF DRAWINGS

This invention will be better understood by referring to the accompanying drawings, wherein:

Figure 1 is a perspective view of a known conventional two-stage flushing device for a toilet tank;

Figure 2 is a perspective view of a two stage

flushing device for a toilet tank in the present invention;

Figure 3 is an exploded perspective view of the two stage flushing device for a toilet tank in the present invention;

Figure 4 is a side view of the toilet tank in the present invention, showing water not flushed out;

Figure 5 is a side view of the toilet tank in the present invention, showing a small water volume being flushed out;

Figure 6 is a side view of the toilet tank in the present invention, showing a large water volume being flushed out;

Figure 7 is a side view of the toilet tank of a second embodiment of a two stage flushing device for a toilet tank in the present invention;

Figure 8 is a perspective view of the toilet tank of a third embodiment of a two stage flushing device for a toilet tank in the present invention; and,

Figure 9 is a perspective view of the toilet tank of a fourth embodiment of a two stage flushing device for a toilet tank in the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A first preferred embodiment of a two stage flushing device for a toilet tank in the present inven-

tion, as shown in Fig. 2, is contained in a toilet tank 1, including an outlet seat 2, an overflow tube 3, an inlet valve 4, a float 40, flush buttons 50, 51, a main flush lid 6, an auxiliary flush lid 7, and an auxiliary float 8 as main components.

The outlet seat 2 is fixed on an inner bottom of the toilet tank 1.

The overflow tube 3 is provided vertically in the intermediate portion in the toilet tank 1, having an outer recess 30 formed in a lower end, and two pivots 31 at two sides for pivotally connecting the main flush lid 6.

The inlet valve 4 is provided to close an upper mouth of an inlet tube vertically provided in the left side of the toilet tank 1. A float 40 is connected to the inlet valve with a float rod.

The flush buttons 50, 51 are provided at an outer front side of the toilet tank 1, respectively connected to two trip levers 500, 510 horizontally located in the toilet tank 1. Further, the trip levers 500, 501 are respectively connected to the main flush lid 6 and the auxiliary flush lid 7 with chains 501, 511.

The main flush lid 6 has a lid body 60, a central hole 600 formed in the lid body 60, two parallel arms 601 extending out of a left side of the flush body 60

and pivotally connected to the two pivots 31 of the overflow tube 3, and a hook surface 603 formed to extend out of right side of the lid body 60 for hooking with a recess of an auxiliary float (as shown in Fig. 6) during water flushing out.

The auxiliary flush lid 7 is provided to close up the main flush lid 6, having a lid body 70, two parallel arms 700 extending from the left side of the lid body 70, closing on the center hole 600 of the main flush lid 6 with a gasket 71 sandwiched between. The two parallel arms 700 are pivotally connected to two pivots 602 formed on an inner side of each of two parallel arms 601 of the main flush lid 6. Then the main and the auxiliary flush lid 6 and 7 separately open and close, but when the main flush lid 6 is opened and closed, the auxiliary flush lid 7 moves together with the main flush lid 6. In order to smooth movement of the auxiliary flush lid 7, the overflow tube 3 is shaped as an inverted T shape.

The auxiliary float 8 is provided to force the main flush lid 6 move down with its weight to close up the outlet hole 20 of the outlet seat 2, after the main flush lid 6 is pulled up for flushing water out, with no water left in the toilet tank for the auxiliary float to float up. Thus, closing up the main flush lid 6 on the outlet hole 20 is accomplished without fail.

Further, in order to make the auxiliary flush lid 7 work to flush a small volume of water, an additional small float 512 is connected in the intermediate portion of the chain 511 so that the auxiliary flush lid 7 may close up the main flush lid 6 when the water level in the toilet tank moves just down the small float 512.

A second preferred embodiment of a two stage flushing device for a toilet tank is shown in Fig. 7, having the same structure as the first one except push flush button 11 instead of the flush buttons 50, 51 in the first one.

A third preferred embodiment of a two stage flushing device for a toilet tank is shown in Fig. 8, having the same structure as the first one except flush buttons 120, 121 located at a right side instead of the flush buttons 50, 51 in the first one.

A fourth preferred embodiment of a two stage flushing device for a toilet tank is shown in Fig. 9, having the same structure as the first one except flush buttons 120, 121 located at a left side instead of the flush buttons 50, 51 in the first one.

While the preferred embodiments of the invention have been described above, it will be recognized and understood that various modifications may be made therein and the appended claims are intended to cover all such modifications which may fall within the spirit and scope of the invention.



CLAIMS

1. A two stage flushing device for a toilet tank comprising an outlet seat fixed on an inner bottom of a toilet tank, an overflow tube vertically provided beside said outlet seat, an inlet valve connected pivotally to a float, two flush buttons provided on an outer front side of said toilet tank for flushing two different volume of water, a different trip lever pivotally connected to each said flush button, a main flush lid connected to one of said trip levers, an auxiliary flush lid connected to the other of said trip levers; characterized by said main flush lid having a lid body bored with a center hole, and a gasket, said auxiliary flush lid closing on said center hole of said main flush lid with a gasket sandwiched between, two parallel arms extending from the left side of said main flush lid and connected pivotally to two pivots formed at two sides of a lower end of said overflow tube so that said main flush lid may move up and down for opening and closing the outlet hole of said outlet seat, two parallel arms extending from the left side of said auxiliary flush lid and pivotally connected to two pivots formed in an inner side of each said parallel arm of said main flush lid so that said auxiliary flush lid may open and close said center hole of said main flush lid; and,



said main flush lid having a hook surface formed on a right side to hook with a recess of an auxiliary float pivotally connected to said outlet seat, said hook surface hooking said recess of said auxiliary float when said main flush lid is pulled up for flushing water, said auxiliary float naturally falling down and pressing down with its own weight said main flush lid after the water in said toilet tank flows out totally and said auxiliary float loses its buoyancy, effecting flushing function and closing said outlet hole accurately.

ABSTRACT

TWO-STAGE FLUSHING DEVICE FOR A TOILET TANK

A two stage flushing device for a toilet tank includes two flush buttons for separately operating a main flush lid for flushing a large volume of water and an auxiliary flush lid for flushing a small volume of water. The two flush buttons are connected to two trip levers connected with chains to the main and the auxiliary flush lid. An auxiliary float is further provided to be connected pivotally to an outlet seat beside the main flush lid, for hooking the main flush lid during the main flush lid pulled to open an outlet hole, and naturally falls down to press down the main flush lid to surely close up the outlet hole after water in the toilet tank is flushed out totally.

FIGURE 2

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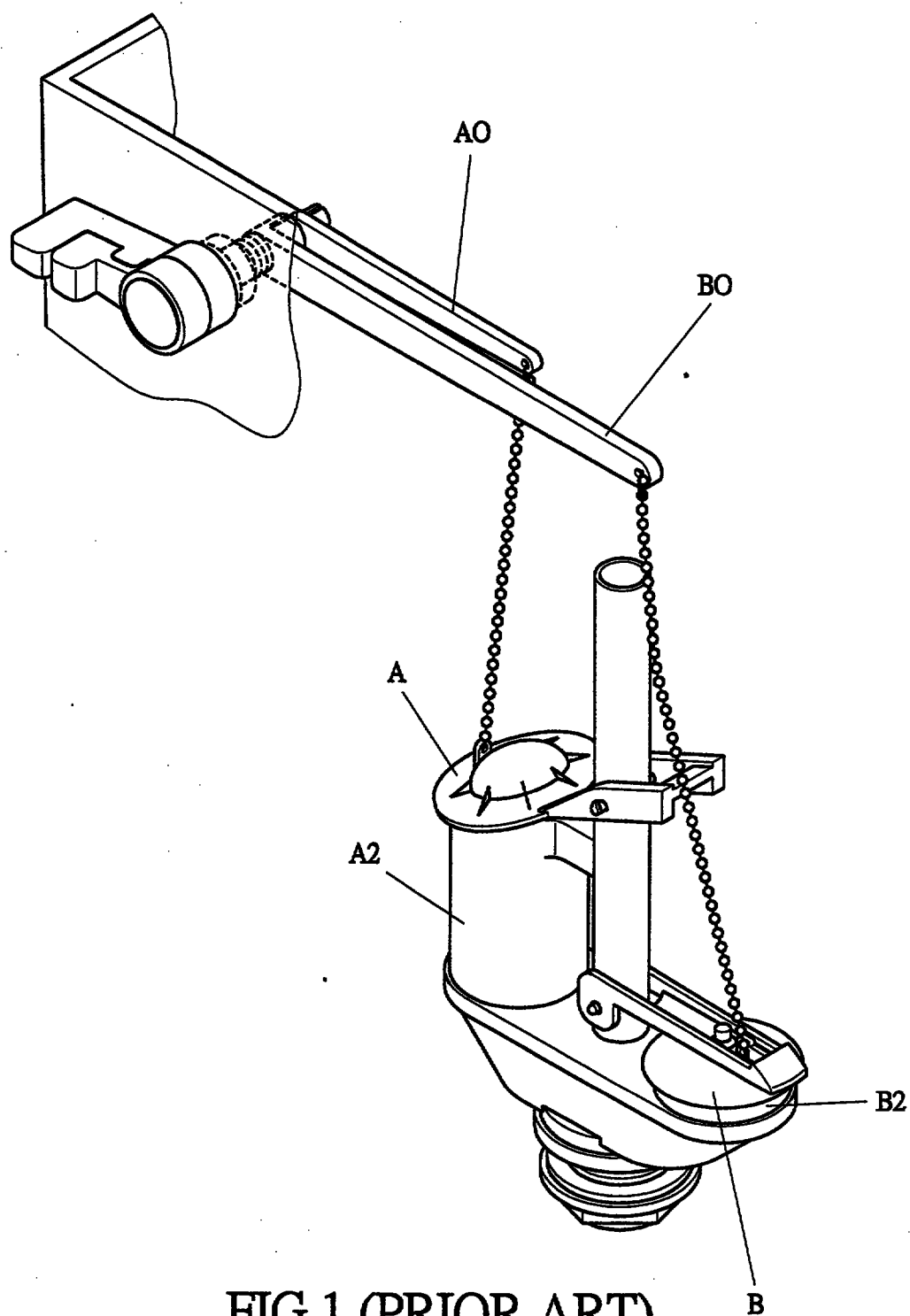


FIG 1 (PRIOR ART)

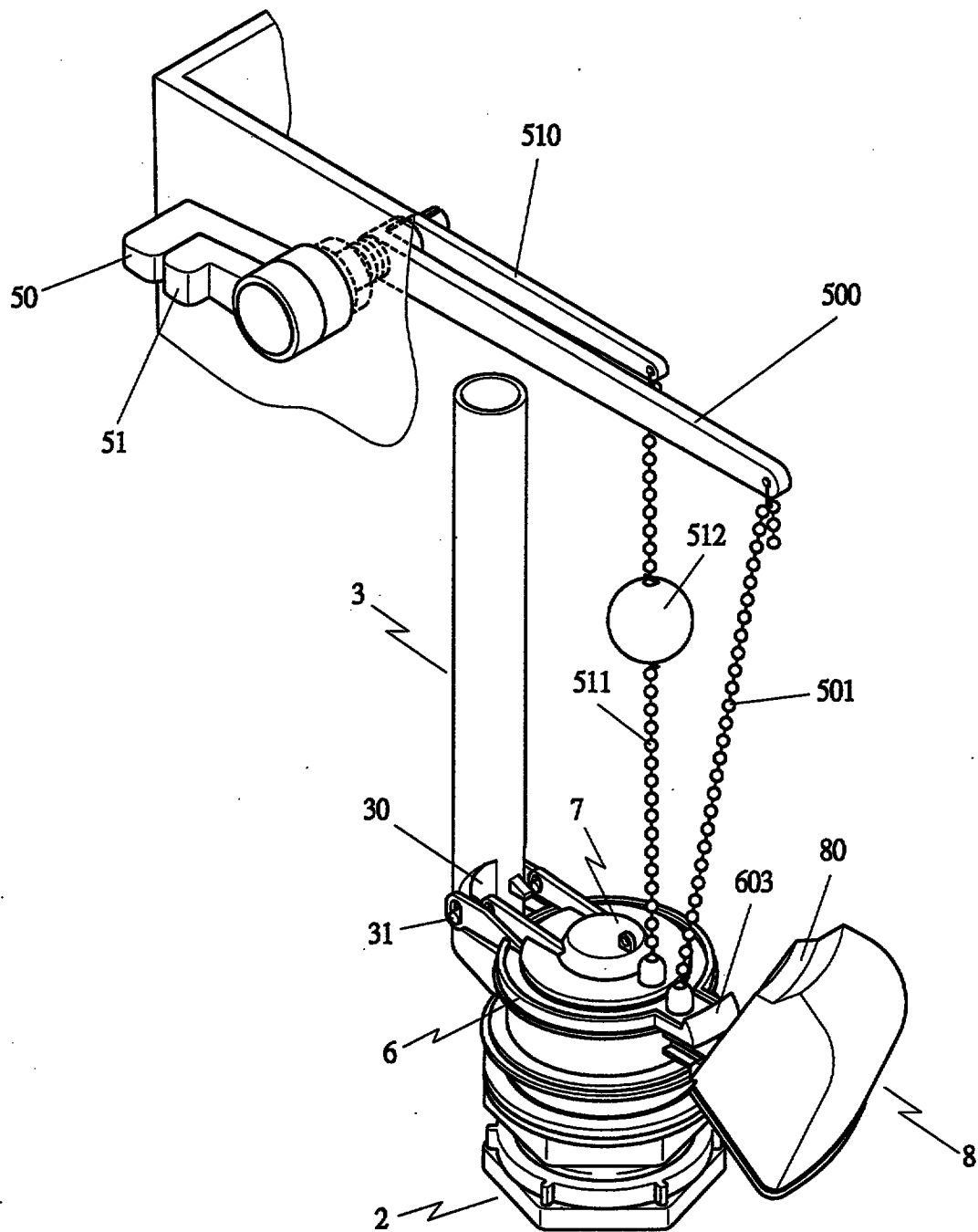


FIG 2

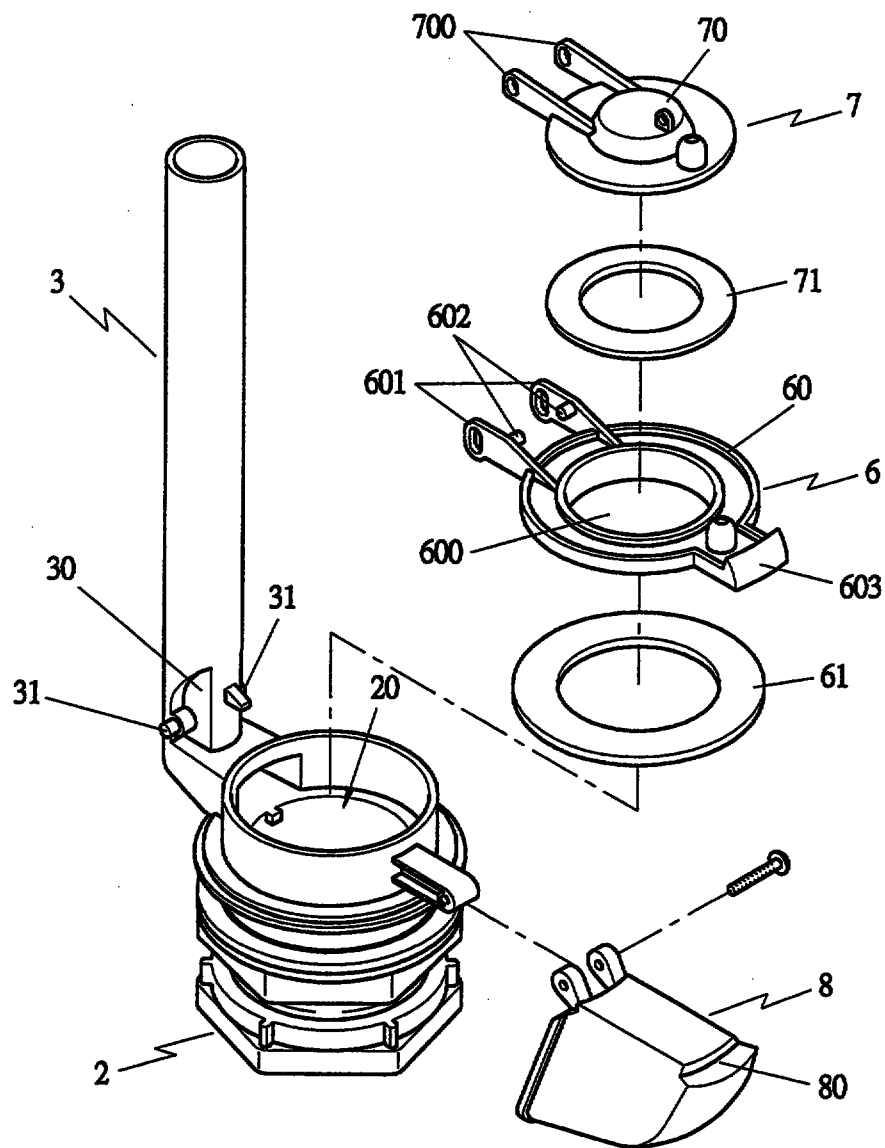


FIG 3

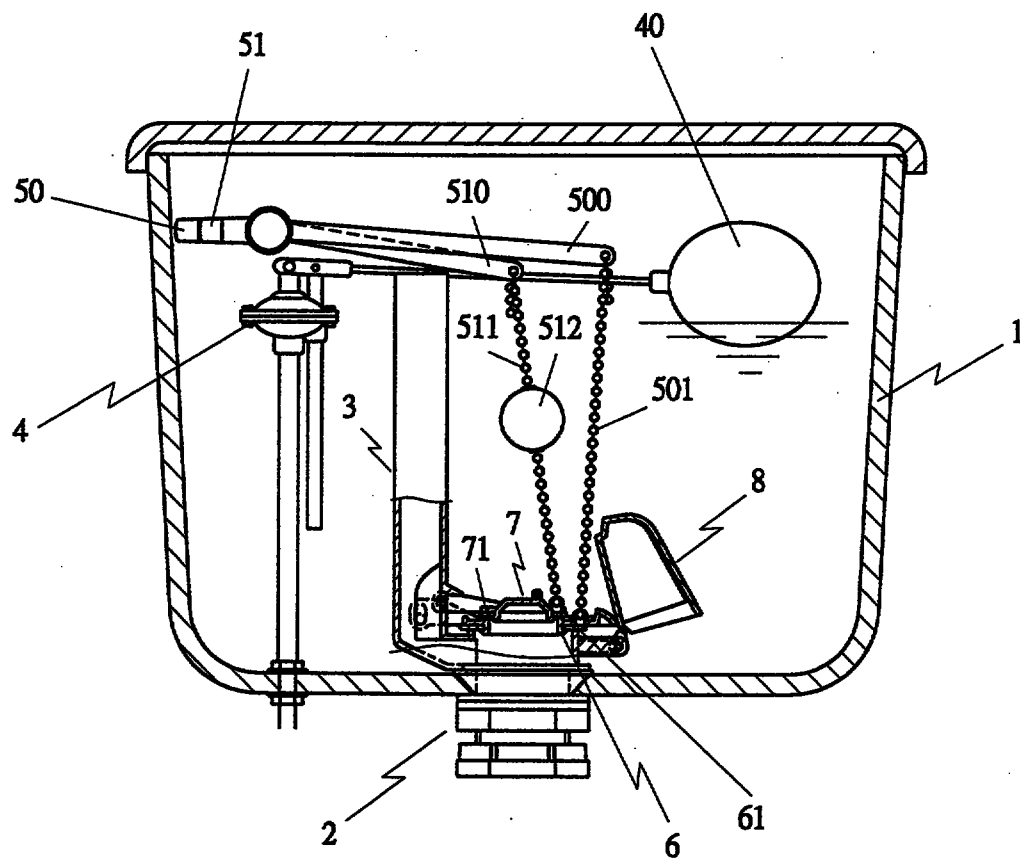


FIG 4

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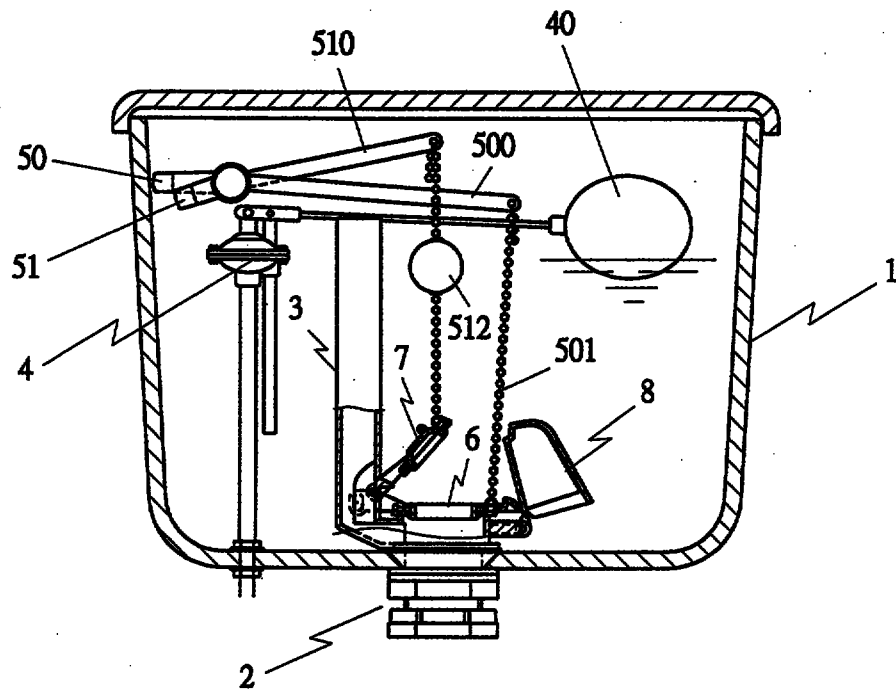


FIG 5

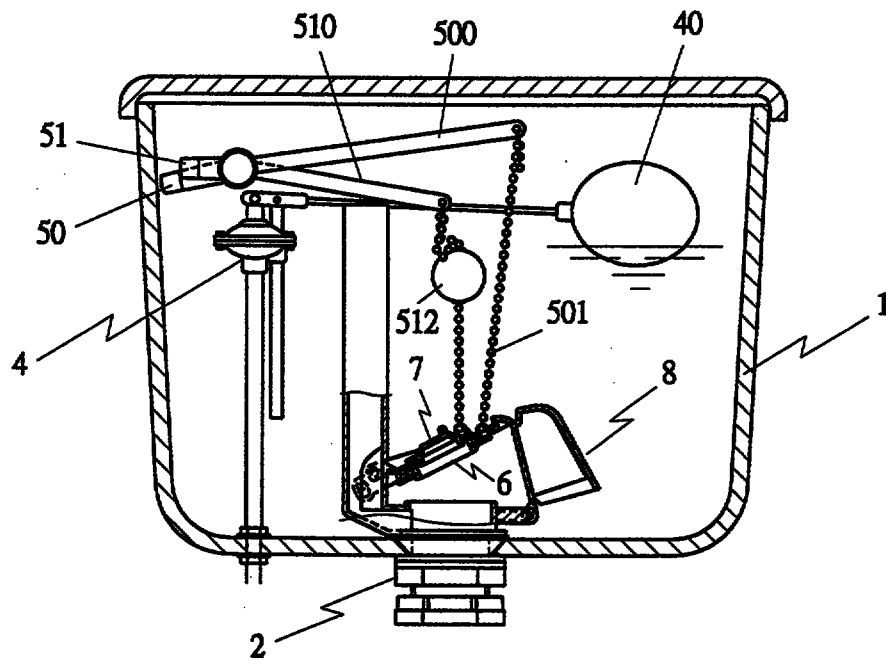


FIG 6

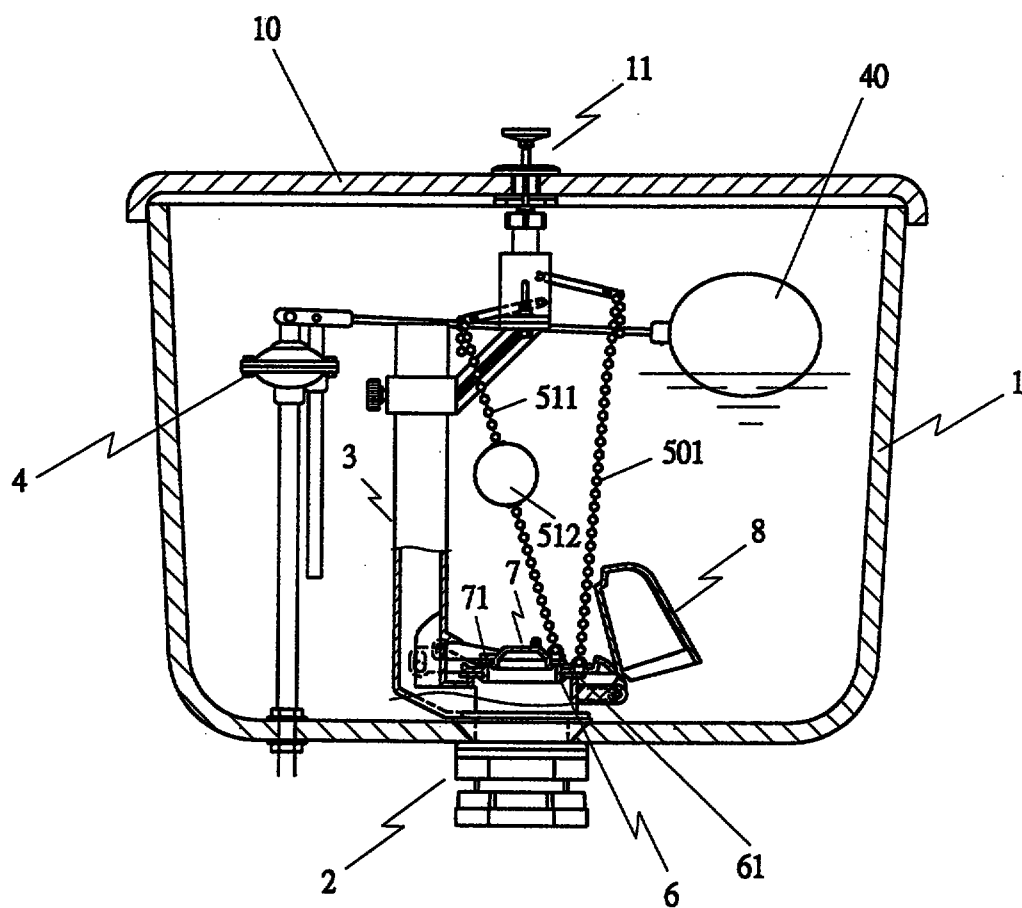


FIG 7

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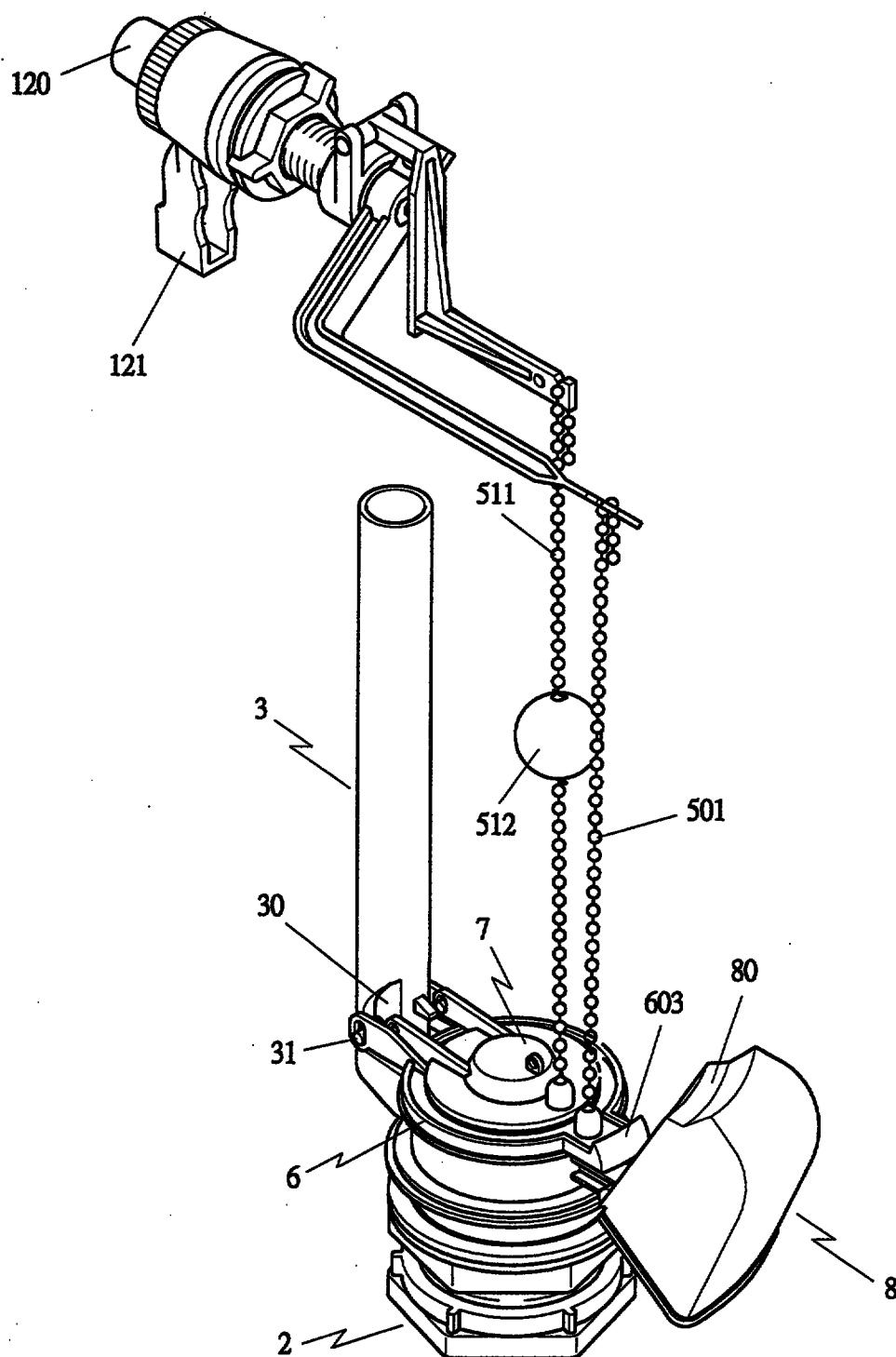


FIG 8

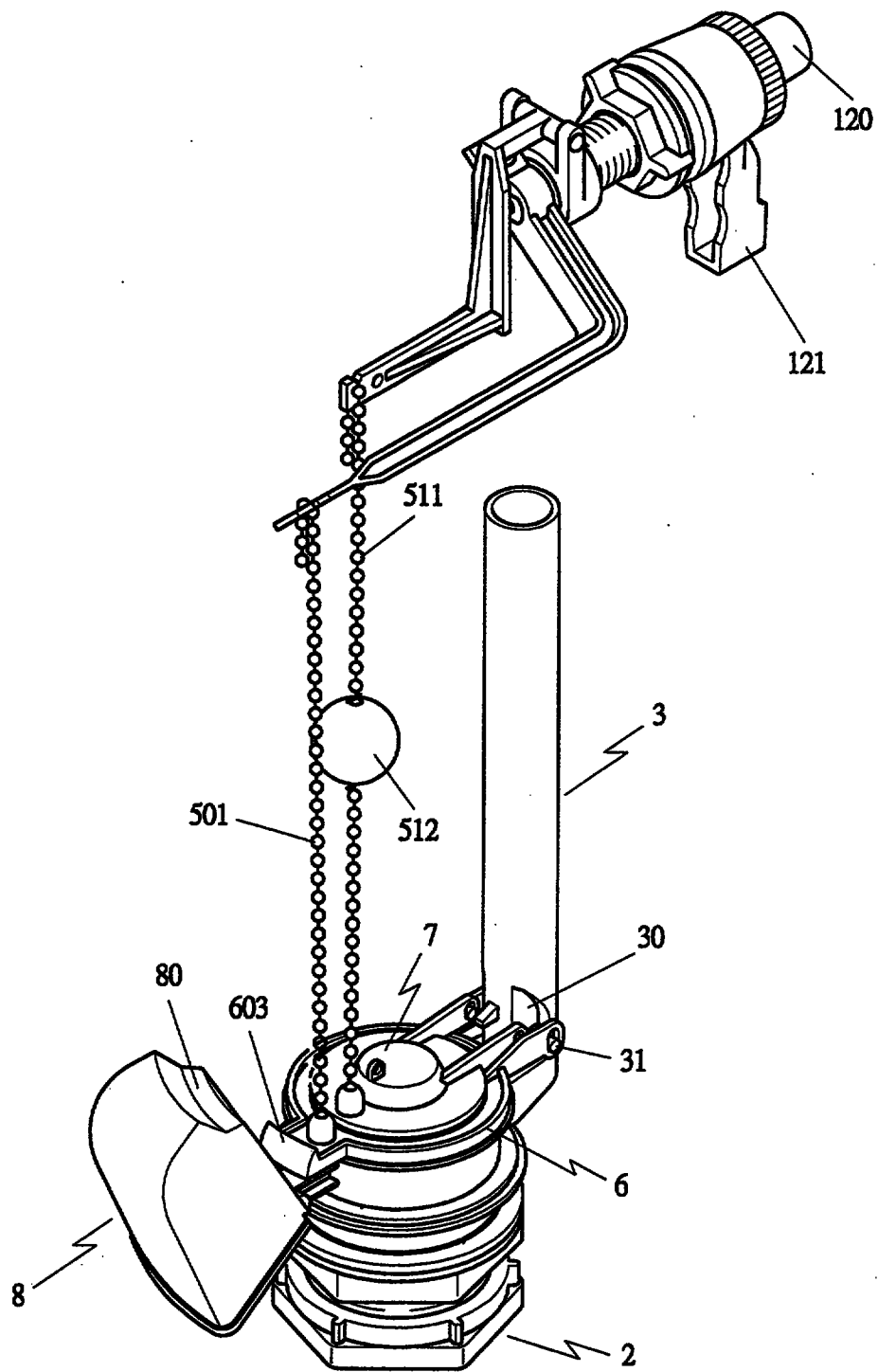


FIG 9