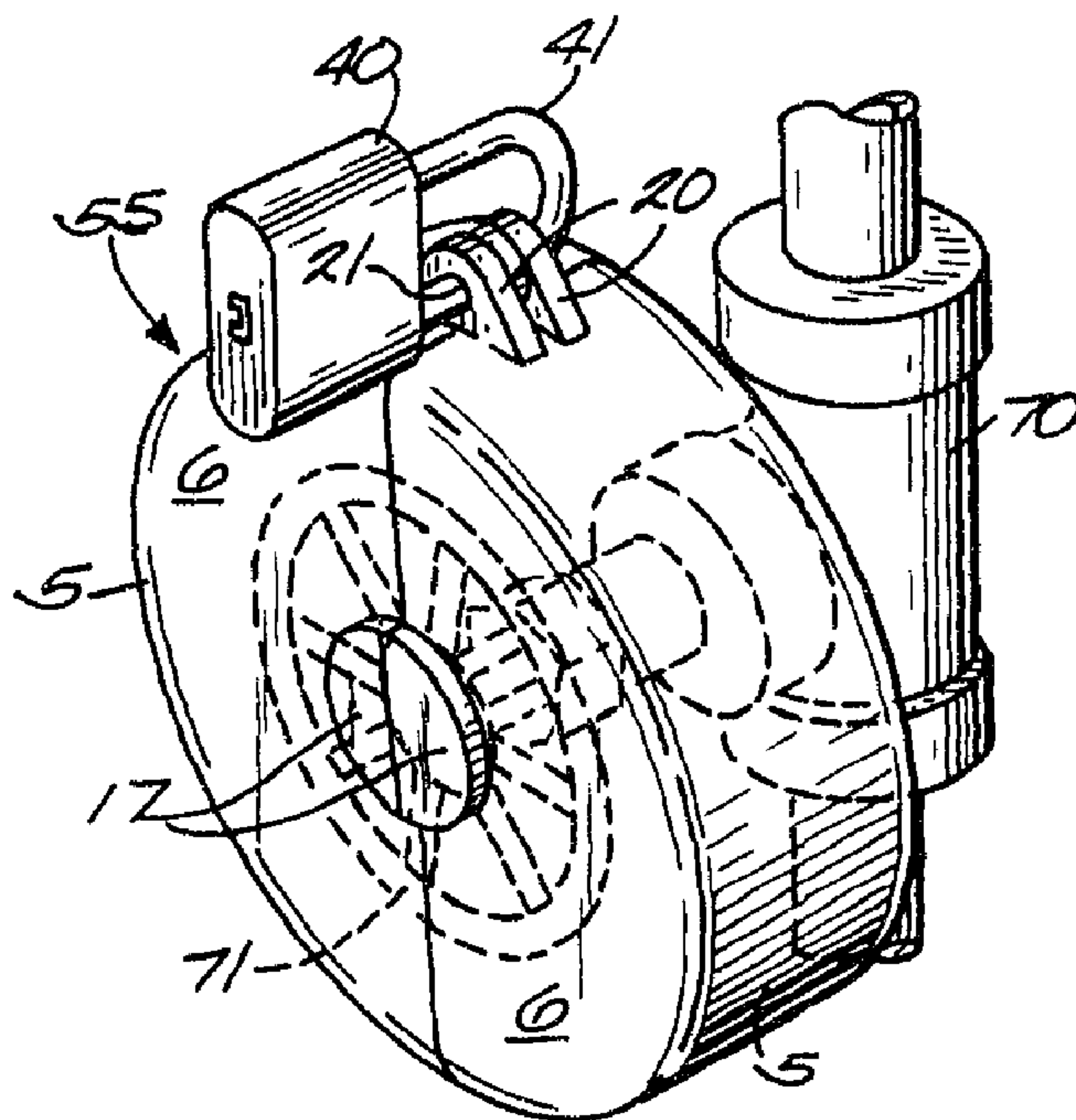




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(54) **PROTECTION POUR CLE DE SOUPAPE**
(54) **HANDLE ENCLOSURE FOR VALVES**



(57) An enclosure (55) for a valve handle (71) formed of two enclosure-halves (5) of identical structure hinged together to form a clamshell enclosure for the handle of the valve.

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Abstract of the Disclosure

An enclosure (55) for a valve handle (71) formed of two enclosure-halves (5) of identical structure hinged together to form a clamshell enclosure for the handle of the valve.

HANDLE ENCLOSURE FOR VALVES

The present invention relates to the field of devices which are intended to preclude unauthorized operation of a valve; more specifically, the present invention relates to an enclosure for a valve handle intended to prevent operation of the valve until the enclosure is removed at the time further actuation is desired.

10 The present invention provides an enclosure for a handle of a valve said enclosure having first and second enclosure-halves, each enclosure-half being formed as a hollow semicircular shell having a top wall, bottom wall spaced from the top wall, and a side wall between the periphery of the top and bottom walls to provide a closed curved side and an open straight side, each enclosure-half also including a semicircular aperture located centrally of the bottom wall along the open straight side of the enclosure-half, and means at one end for forming a hinge structure and means at an opposite end for forming a structure for receiving a hasp of a lock; characterized in that each enclosure-half includes a
20 removable element located centrally on the top wall along the open side of each enclosure-half, wherein said removable element is connected to said enclosure-half by a thinned portion, said removable element being removable from each enclosure-half to provide an opening along the top wall of the enclosure for passage of a valve stem extending beyond the handle of a valve.

The invention is described below in full and complete detail to enable its practice by those of ordinary skill in the art by reference to the following drawings.

Fig. 1 is an exploded perspective view illustrating an enclosure for a valve handle of the present invention.

Fig. 2 is a perspective view of the enclosure of Fig. 1 showing the two elements joined together.

Fig. 3 is a plan view illustrating the bottom wall of the enclosure.

Fig. 4 is a plan view of the open side of each element of the enclosure.

Fig. 5 is a side view, with portions broken away, illustrating the enclosure installed about the handle of a valve of the type having a valve stem that extends through the handle.

Fig. 6 is a perspective view illustrating the enclosure of the invention enclosing the handle of a second type of valve construction.

Figs. 1-4 illustrate the two enclosure-halves 5,5 of a valve handle enclosure of the present invention. The enclosure-halves 5,5 are both of exactly the same construction, each of them having all of the same structural elements so that the description of one is equally applicable to the other.

Each enclosure-half 5 consists of a semicircular top wall 6, a semicircular bottom wall 7 spaced from the top wall, and a side wall 8 that connects the top wall and bottom wall about their outer curved perimeter. This provides an enclosure-half comprising a hollow shell having a closed semicircular side formed by side wall 8 and an open side 9 along the straight diametral edges 10 and 11 of the top wall 6 and bottom wall 7, respectively.

A semicircular opening 15 is defined in bottom wall 7, centered along edge 11 of the bottom wall. The openings 15 of the two enclosure-halves 5,5 will combine to form a circular opening that surrounds a valve stem when the two halves are joined together as described later in this specification.

A semicircular knockout element 17 is formed along top wall 6, centered along edge 10 of the top wall. As best seen in Fig. 4, knockout element 17 is offset from the plane of top wall 6 and connected to the top wall by a thin web 18 extending around the edge of element 17. The knockout elements 17 of the enclosure-halves 5,5 can be removed from each enclosure-half to form a circular opening in the top wall for the purpose described later in this specification. The knockout elements also can be defined by a groove in the top wall to be coplanar with the top wall, and can be offset above (as illustrated) or below the plane of the top wall.

A single panel 20 extends from side wall 8 of each enclosure-half 5 along one end of open side 9 thereof. Panel 20 includes a central aperture 21. Panel 20 is located along the centerline (between top wall 6 and bottom wall 7) of side wall 8. At the opposite end of open side 9, two spaced panels 20 extend from side wall 8. The two panels 20 at this end of the open side each have an aperture 21, the two apertures being aligned with each other. The two panels 20 are spaced apart a distance equal to or slightly greater than the thickness of the single panel 20 at the opposite end of the side wall 8, and are located equidistant from the centerline of side wall 8. As best seen in Fig. 3, the panels 20 each have a portion that extends beyond edges 10 and 11 of the top wall and bottom wall and the apertures 21 that are formed in the panels 20 are centered along the edges

10 and 11 of the top and bottom walls of each enclosure-half 5.

5 The end surface 25 of top wall 6 along the open side of enclosure-half 5 is formed with a slot 26 recessed therein on one side of knockout element 17 and a tab 27 on the opposite side of knockout element 17 that projects from end wall 25. Similarly, end wall 28 of bottom wall 7 includes a slot 29 recessed therein along one side of opening 15 and a tab 30 that projects from end wall 28 on 10 the opposite side of opening 15. Recesses 26 and 29 are aligned with each other, and tabs 27 and 30 are aligned with each other.

The enclosure-halves 5,5 are molded of suitable plastic material so that each of their component 15 elements, walls 6, 7, 8, knockout elements 17, panels 20 and tabs 27 and 30, are formed as integral elements of a one piece unit along with apertures 15 and slots 26 and 29. Suitable plastics include, for example, polyethylenes such as medium and high density 20 polyethylene, polypropylenes and nylons, although other resins can be employed. The plastic selected for the enclosure-halves should be capable of withstanding a suitable range of ambient temperatures and exhibit chemical resistance appropriate for valves located in 25 various environments, both indoors and outdoors. The enclosure-halves can be formed by injection molding, and one of the useful advantages of the enclosure-half construction shown in the drawings is that they can be made with relatively inexpensive molds and the molds can

be easily parted. The enclosure-halves can be made in several sizes, each intended to be used with a range of valve handle sizes. Thus, for example, enclosure-halves 5 with an interior space of 2.5 inches to 8.5 inches in diameter and about 1 to 2 inches high can be made that will enable enclosing the handles of most sizes of valves.

Two enclosure-halves 5,5 are joined together in order to form an enclosure 55 of the present invention, as illustrated in perspective in Fig. 2 and plan view in Fig. 3. This is accomplished by interleaving the single panel 20 at one end of one enclosure-half 5 between the two spaced panels 20 at the opposite end of the other enclosure-half 5 so that apertures 21 extending through the interleaved three panels will be aligned with one another, following which a hinge pin 40 is inserted between the three aligned apertures 21 so as to join the two enclosure-halves together. The hinge pin 40 preferably is a rivet construction so as to provide a tamperproof hinge connection between the two enclosure-halves. Also, however, other type of hinge pin constructions can be employed. After being joined by a hinge pin in this fashion, it will be noted from Fig. 3 that the tabs 27 and 30 extending from end walls 10 and 11 of one enclosure-half 5 are received in the slots 26 and 29 of the other enclosure-half that are registered with the tabs when the two enclosure-halves are closed. This arrangement serves to impart additional structural rigidity to the enclosure 55. As also shown in Fig. 3,

which is a plan view of the bottom of enclosure 55, the
semicircular openings 15 in each enclosure-half 5 combine
to form a circular opening that will extend about a valve
stem as described later in this specification. Turning
5 to Fig. 2, the knockout elements 17 of each enclosure-
half 5 form a centrally located circular knockout member.
The knockout elements 17 each can be separated from the
enclosure-halves 5,5 either manually or with a tool such
as a pair of pliers when it is desired to include an
10 opening along the top wall of enclosure 55. At the side
of enclosure 55 opposite from the panels 20 joined
together by hinge pin 40, the single panel 20 of one
enclosure-half is interleaved between the two spaced
panels 20 of the other enclosure-half, and the openings
15 21 of the three panels 20 are aligned with one another so
as to receive the hasp of a lock.

Fig. 5 illustrates a rising stem type of valve 60
that includes a valve body 61 having an internal flowway
(not shown), a yoke structure 62 attached to the valve
20 body, a threaded valve stem 63 that can be moved up and
down through the yoke structure, and a handwheel 64
secured to the upper end of yoke structure 62 which is
rotated manually to raise and lower valve stem 63 to
open, close and throttle the valve. It can be seen that
25 valve 60 is the type of valve that includes a valve stem
which extends beyond the handwheel, or round handle, 64.
Pipe 65 is connected to one end of valve body 61 and pipe
66 to the other end so that the valve can be used to
control the flow of fluid through pipes 65 and 66.

Fig. 5 also illustrates enclosure 55 installed on valve 60 so as to prevent unauthorized access to handwheel 64 of the valve. Enclosure 55 is inserted about handwheel 64 of valve 60 by hinging the two enclosure-halves 5,5 open about hinge pin 40. Knockout elements 17 are removed from the top wall 6 from each enclosure-half. Enclosure 55 is then closed with the single panel 20 along one side of one enclosure-half interleaved with the two spaced panels 20 of the other enclosure-half along the side of the enclosure opposite from hinge pin 40. In this condition, the apertures 15 of the two enclosure-halves form a circular aperture that surrounds yoke structure 62 of valve 60. Removal of the knockout elements 17 from the top wall of each enclosure-half forms an opening 19 located centrally of the top of enclosure 55 that surrounds the portion of valve stem 63 which extends above handwheel 64 of the valve. The hasp 41 of a lock 42 is inserted through the aligned openings 21 of the three panels 20 along one side of the enclosure 55, following which the hasp is locked to preclude unauthorized removal of enclosure 55. The enclosure 55 according to the present invention thereby provides for restricting persons from actuating the valve 60 except when authorized. It should be noted that the handwheel 64 can be in an open position, closed position or a throttled position between open and closed when enclosure 55 is placed about the handwheel and locked, to thereby maintain the valve in the position selected by the operator until a change is authorized.

Enclosure 55 also can be used with a valve having a handle in which the valve stem does not extend beyond the handle. This is illustrated in Fig. 6 by valve 70 having a round handle 71 secured to a valve stem. With this type of installation, the knockout elements 17 of the two enclosure-halves 5 are left in position on the top wall of each of the two enclosure-halves. This provides an enclosure 55 with a continuous top wall that covers the outermost surface of handle 71. As described above, valve 70 can be open, closed or throttled between open and closed when enclosure 55 is positioned about handle 71 and locked.

In the foregoing description, it can be seen that the present invention provides a clamshell type of enclosure suitable for enclosing and restricting access to the handle of a valve. The valve may be a gate valve, a ball valve or any suitable type. The new enclosure is formed of two molded plastic enclosure-halves that are of identical construction. This results in an enclosure for a valve handle which is effective for its intended purpose and yet which can be molded of plastic with reduced tooling and molding costs as compared to other plastic valve guards meant for the same purpose. This also has a beneficial effect of reducing the parts inventory required by a manufacturer of the enclosures. The provision of the knockout element structure on each enclosure-half as described above lends additional utility to the device of the present invention in that it is capable of being used with several types of valves,

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i.e. valves with a valve stem that extends beyond the
handle and valves having a handle attached to the end of
a valve stem. This is beneficial to the end user in that
a single enclosure structure can accommodate both styles
5 of valves, thereby reducing the end user's inventory
requirements and providing additional flexibility of use.

The foregoing detailed description is made by
reference to a specific embodiment of a valve handle
enclosure according to the present invention as an
10 illustrative, not limiting disclosure and it is
anticipated that those of ordinary skill in the art will
be able to devise modifications to the described
embodiment that will remain within the true spirit and
scope of the present invention.

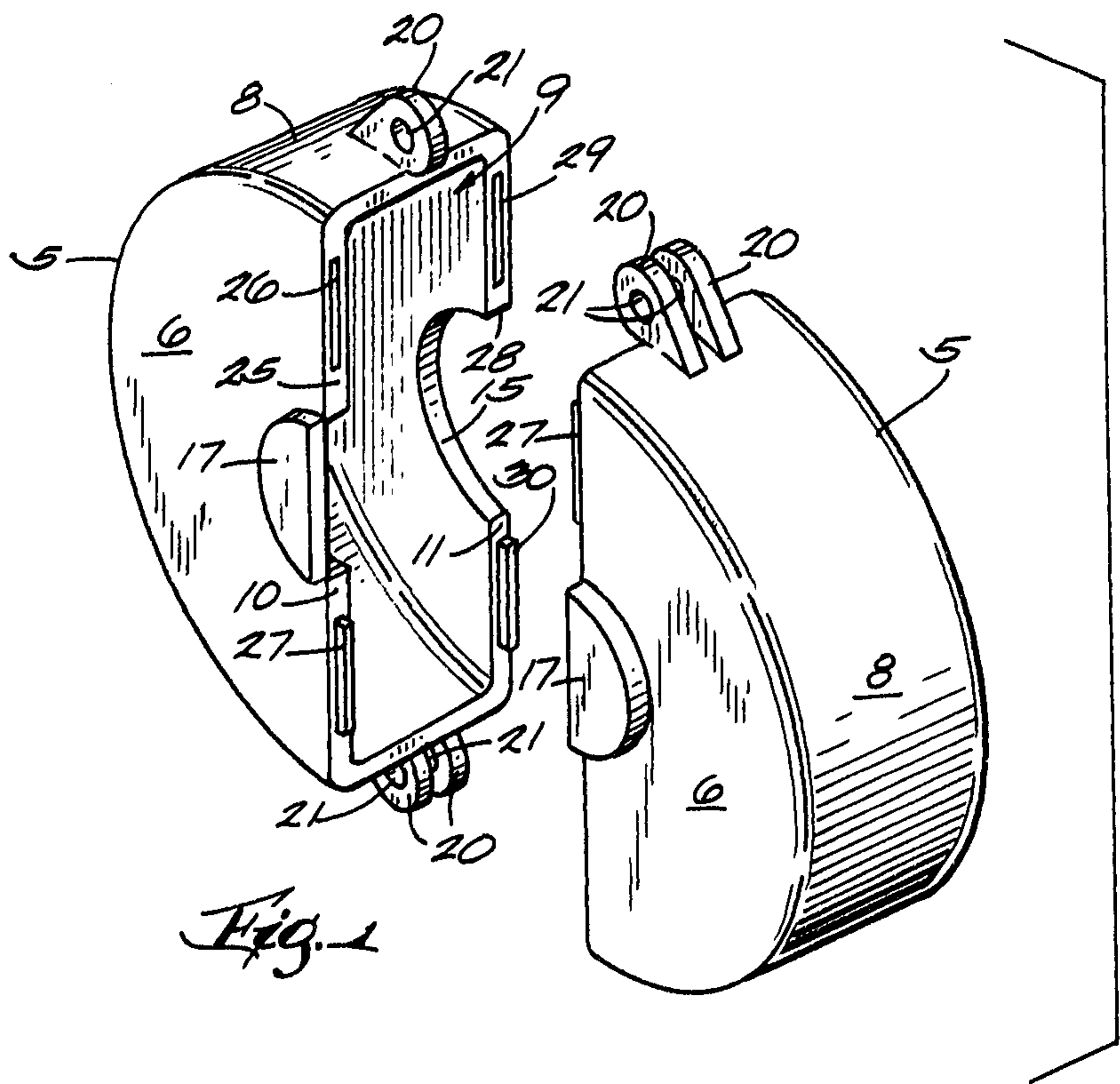
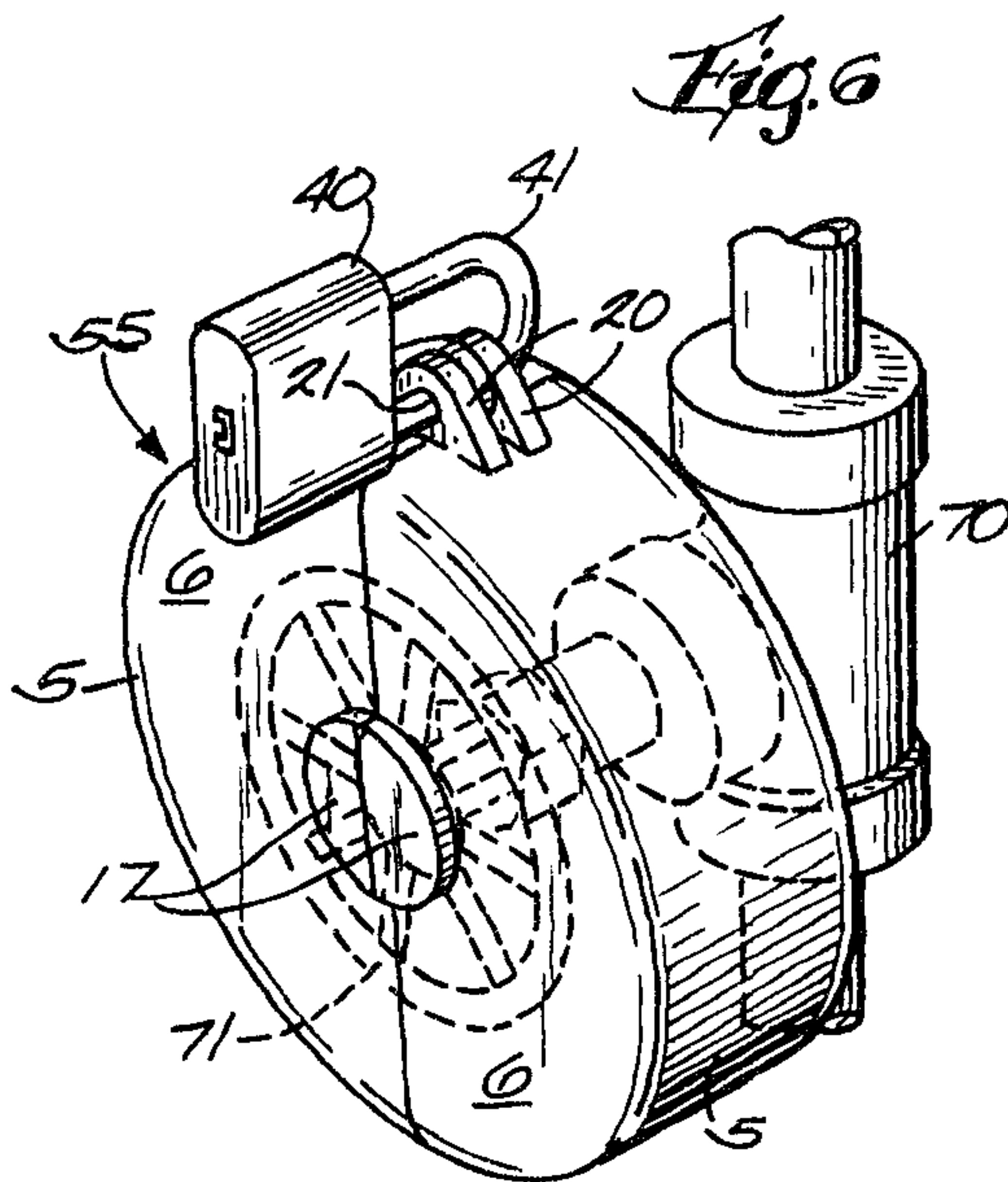
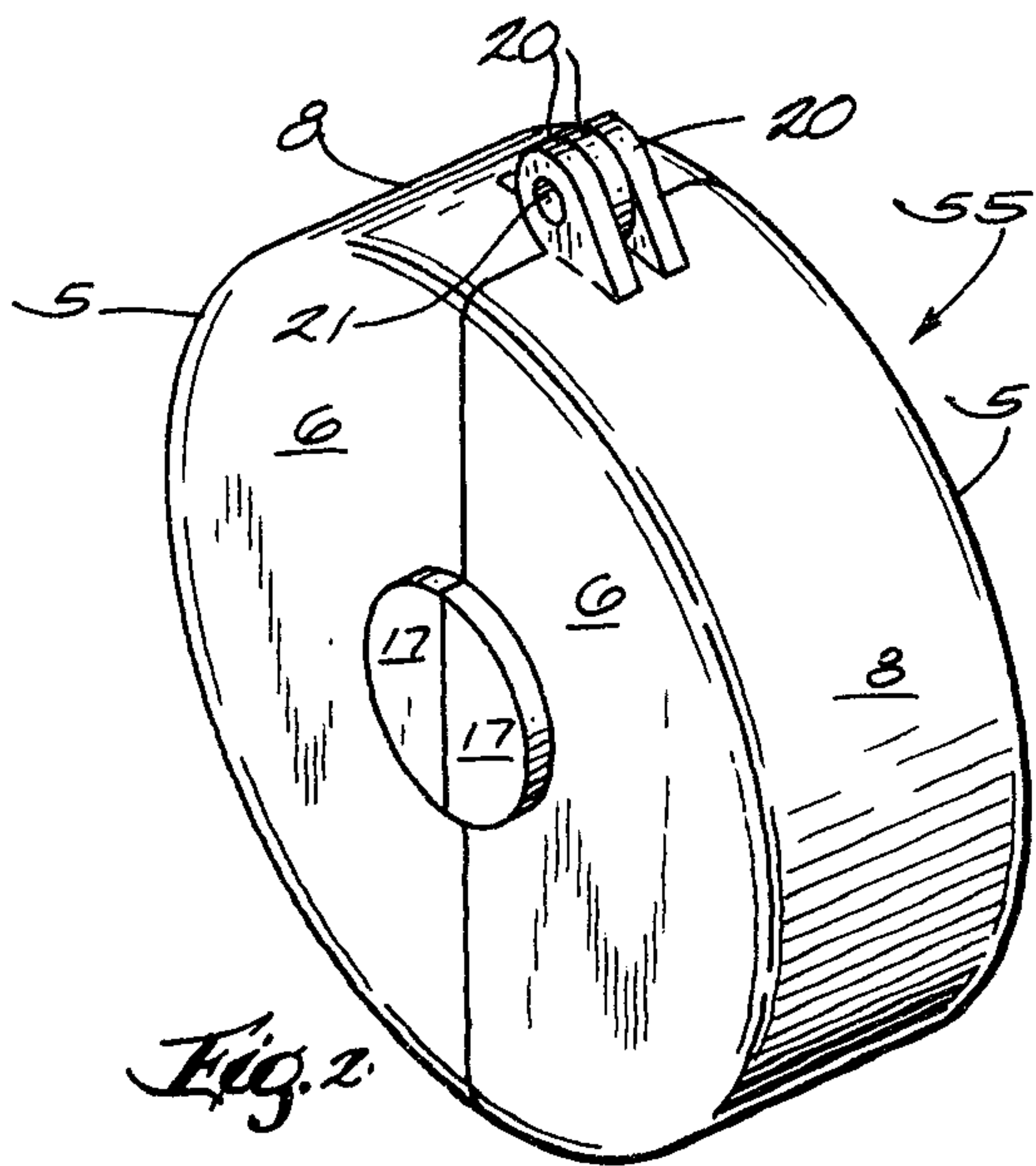
THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. An enclosure for a handle of a valve said enclosure having first and second enclosure-halves, each enclosure-half being formed as a hollow semicircular shell having a top wall, bottom wall spaced from the top wall, and a side wall between the periphery of the top and bottom walls to provide a closed curved side and an open straight side, each enclosure-half also including a semicircular aperture located centrally of the bottom wall along the open straight side of the enclosure-half, and means at one end for forming a hinge structure and means at an opposite end for forming a structure for receiving a hasp of a lock; characterized in that each enclosure-half includes a removable element located centrally on the top wall along the open side of each enclosure-half, wherein said removable element is connected to said enclosure-half by a thinned portion, said removable element being removable from each enclosure-half to provide an opening along the top wall of the enclosure for passage of a valve stem extending beyond the handle of a valve.

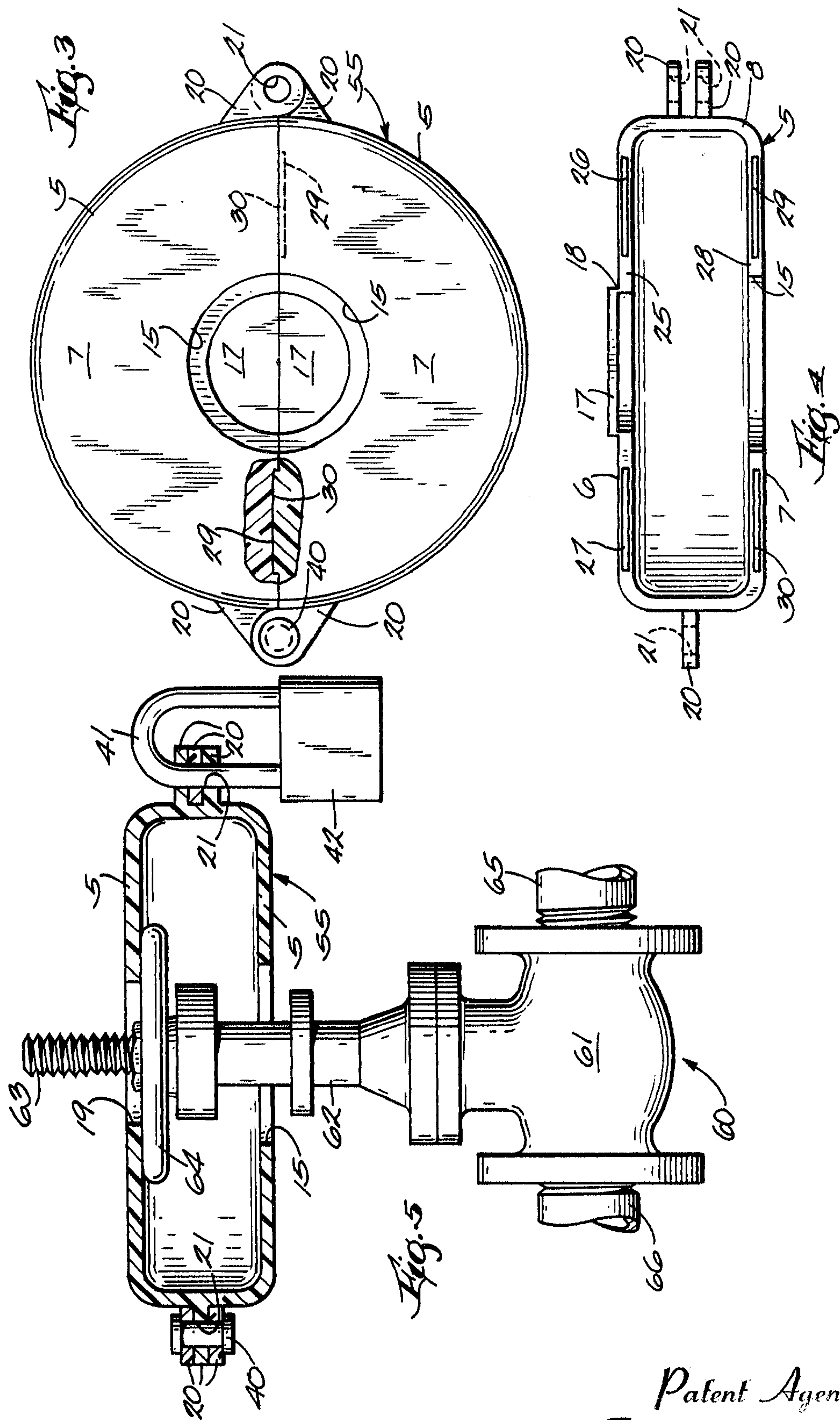
2. An enclosure according to claim 1 further characterized in that said removable element of the enclosure-halves is an element offset from the plane of the top wall and connected to the top wall by said thinned portion which further comprises a separable web.

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