

No. 626,152.

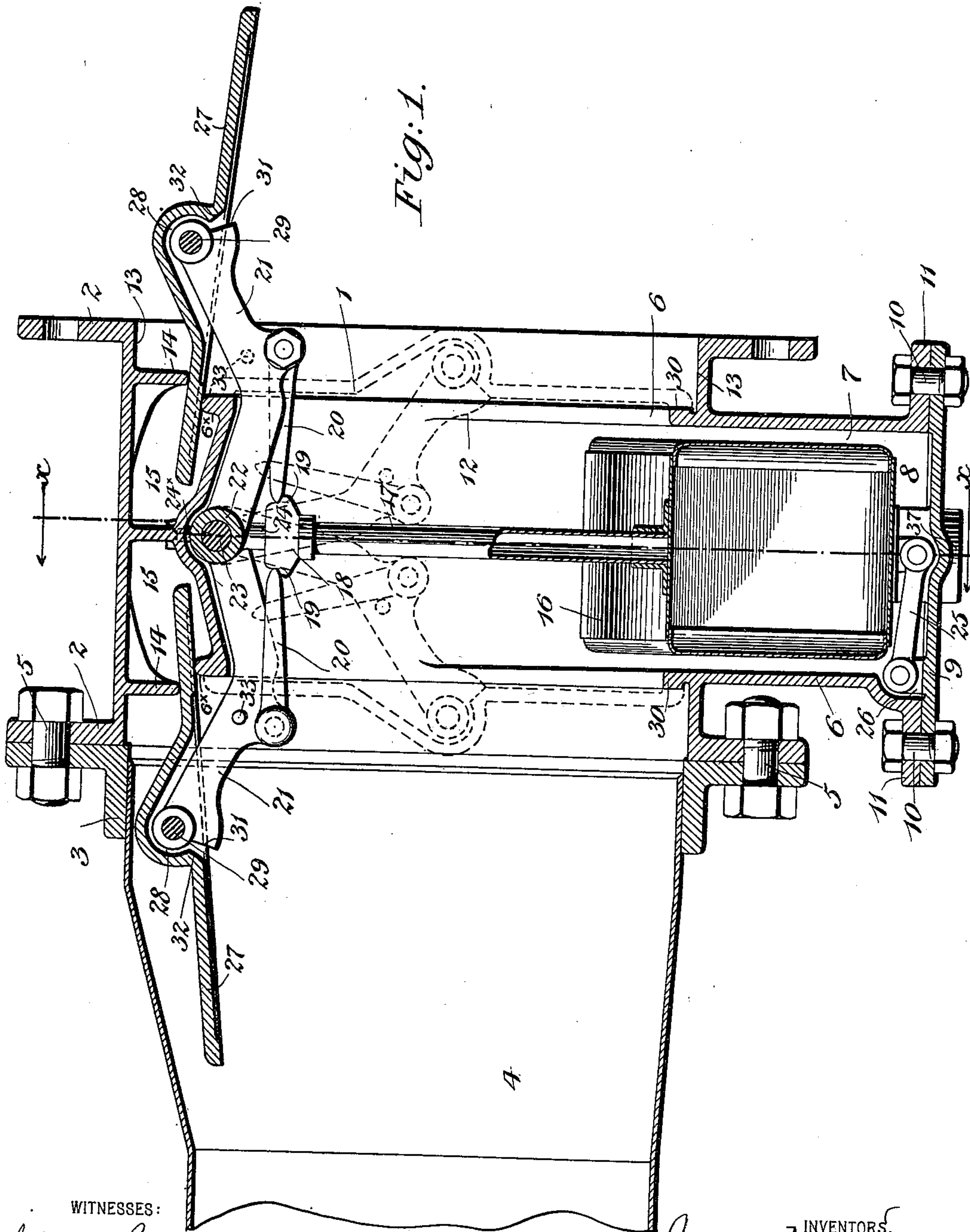
Patented May 30, 1899.

G. M. EATON & C. F. BAILEY.  
SHIP'S VENTILATOR.

(Application filed Sept. 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

John A. Rennie  
L. Howville.

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George M. Eaton  
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by Diedersheim & Fairbank

ATTORNEYS.

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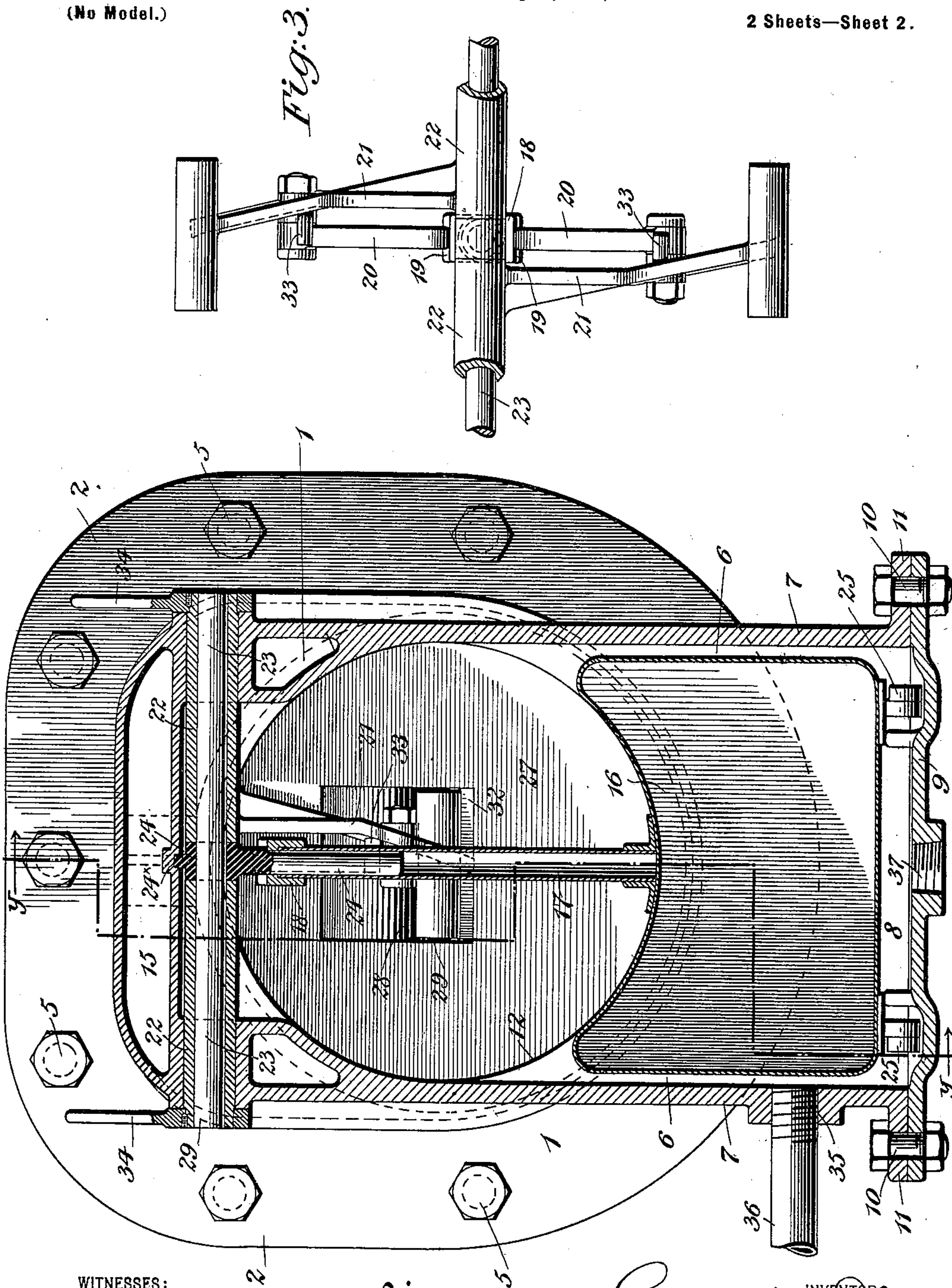
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WITNESSES:  
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Fig. 2.

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# UNITED STATES PATENT OFFICE.

GEORGE M. EATON, OF SAN FRANCISCO, CALIFORNIA, AND CHARLES F. BAILEY, OF HAMPTON, VIRGINIA.

## SHIP'S VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 626,152, dated May 30, 1899.

Application filed September 7, 1898. Serial No. 690,406. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE M. EATON, residing in the city and county of San Francisco, State of California, and CHARLES F. BAILEY, residing at Hampton, in the county of Elizabeth City, State of Virginia, citizens of the United States, have invented a new and useful Improvement in Valves, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention relates to an improved construction of an automatic valve primarily designed for use in connection with ventilation-pipes for ships, the same being generally used where said pipes penetrate water-tight bulkheads, casings, or the decks of the vessel, or at such other place or places where it is essential under all conditions to prevent the passage therethrough of water or other liquids; and the object of the present invention is to provide in a simple, compact, and inexpensive manner a valve for this purpose which while in its set or open position admits of the free passage of air, gases, or vapors, but will be acted upon by any water or liquids entering therein to automatically close itself, means being also provided upon the exterior of the valve whereby the same may be readily reset or opened exteriorly by hand.

A further object is to provide means whereby a plurality or multiplicity of valves connected together, but located at distances apart and at various places within the vessel, may be simultaneously closed whenever it is found desirable or expedient.

The invention also consists of a valve comprising a shell or casing having suitably-arranged valve-seats therein, valve-disks or valves proper adapted to engage said valve-seats when closed, and means for keeping said valve-disks normally open and for automatically releasing and closing the same and for holding said valve-disks to their seats when the valve is in its normal position or when temporarily inclined in any direction.

It further consists of the novel features of construction and arrangement of parts, all as will be hereinafter fully described, and particularly pointed out in the claims.

Figure 1 represents a vertical longitudinal

section of a valve embodying our invention in open position, the section being taken on the irregular line *y y* of Fig. 2. Fig. 2 represents a transverse section thereof, taken on line *x x*, Fig. 1, showing one of the valve-disks closed. Fig. 3 represents a detail plan view of the valve retaining and operating mechanism.

Similar letters and figures of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a suitable shell or casing of cylindrical or other form and provided at each end with an external flange 2, perforated at intervals to register or align with corresponding openings formed in a flanged collar 3, within which latter the ends of the ventilation or other pipe sections 4 are secured, suitable fastening devices 5 being employed for assembling said shell or casing and the pipe-sections 4 together.

The lower portion of the shell or casing 1 is provided with the depending walls 6, which latter are extended upwardly and downwardly, whereby the valve-seat 30 is formed, which in the present instance is of annular shape, having the opening 12 therethrough, the downwardly-extending portion of said walls 6, in combination with the opposite walls 7, forming the well or chamber 8, the bottom of which is closed by the plate 9, which is secured to the flange 11 by means of the bolts or other fastening devices 10.

The opening through the body of the valve may be circular, if desired, as indicated at 12, and the upper portion 13 of the casing has depending therefrom the wall 14, within which are formed the upper chambers 15.

16 designates a float normally located within the well 8 and having a tube 17 rising therefrom, said tube having secured upon its upper portion the head 18, which is provided with the oppositely-located shoulders 19; which are engaged by the extremities of the toggles 20 when the valve is in open position, as indicated in Fig. 1, said toggles and head thus forming a tripping mechanism.

21 designates links to which the toggles 20 are attached, said links being a part of or secured to the sleeves 22, which are mounted



upon the shaft 23, the latter having suitable bearings in the upper portion of the valve-casing.

Between the inner adjacent ends of the sleeves 22 a space is left for the reception of a rod 24, the upper portion of which has an opening therein to receive the rod or shaft 23, while the lower end of said rod 24 enters the upper extremity of the tube 17, and is further provided with a projection 24<sup>x</sup>, which enters an opening in the casing, as shown, and thus serves to guide the latter and its attached float 16 in its vertical movement and prevent any excessive strain or undue friction through the pitching or rolling of the vessel.

Arms 25 are provided under the float 16 at each end thereof, the same being pivoted to supports 26, projecting from the bottom of the plate 9, and the opposite ends of said arms are pivotally connected to the bottom of the float 16, thus serving as an additional guide to the vertical movement of the float, as well as serving to prevent any shaking or lateral displacement thereof for the reasons hereinbefore assigned.

27 designates two oppositely-disposed plates or valve-disks, each being provided with a recess or pocket 28, adapted to receive therein the outer free ends of the links 21, wherein they are held by the pivots 29, as shown in Fig. 1, it being observed that the said recesses or pockets are made sufficiently loose to permit the valve-disks to freely rock upon their pivots in order that their faces may closely abut against the valve-seats 30, formed upon the adjacent outer faces of the openings 12, and be securely held against the valve-seat 30 by reason of the relative arrangements of the links 21, valve-disk 27, and the supporting-shaft 23, and the sleeves 22.

It will be observed that when the valve is open, as shown in Fig. 1, a portion of each of the valve-disks 27 will be in the chambers or pockets 15, their upper faces bearing against the depending ribs 14, while their lower faces will rest upon the upper outer edge 6<sup>x</sup> of the vertical walls 6, in which position they are firmly held against rattling or cattering, due to the unsteady motion of the vessel or to the rapid passage of air therethrough.

The outer ends of the links 21 are each provided with a lug 31, adapted to bear against a shoulder 32, formed upon the adjacent edge of each of the recesses or pockets 28, when the valve-disks are moving to close or open the valve, thus preventing a too rapid movement in the descent thereof, and serving also to steady said valve-disks while being raised to open the valve, causing the same to be properly and accurately guided between the ribs 14 and the upper extremity 6<sup>x</sup> of the vertical walls 6, as will be apparent.

33 designates laterally-projecting pins or studs arranged upon the links 21, above the toggles, with which the latter engage when the valve-disks 27 are closed, said pins form-

ing stops, and thus serving to limit the backward movement of the toggles, as well as to throw them over the dead-center of their pivotal points when the valve-disks are being raised, and thus insure the engagement of the outer ends thereof with the shoulders 19 of the block or collar 18 when the valve-disks 27 are adjusted or set to open the valve.

34 designates levers attached to the outer projecting ends of the sleeves 22, by means of which the valve-disks C' may be raised to the position shown in Fig. 1. Said levers may be both placed on the same side of the valve by rigidly securing the shaft 23 to one of the sleeves 22 and placing the lever on the opposite extremity of the shaft 23, outside of the said sleeve 22.

35 designates a threaded opening in the wall of the well 8, which receives a pipe 36, connected with a conveniently-located manifold, (not shown,) from which may lead other pipes connecting with a plurality of valves arranged in different parts of the vessel, it being evident that the said manifold can be connected to the fire-main or to some other convenient source of water-supply, thus enabling one or more valves to be closed by introducing water thereto whenever it shall be found desirable or expedient.

The operation is as follows: The valve-disks 27 having been raised to the position shown in Fig. 1, it is evident that the passage of air, gas, or other vapor will be free and unobstructed, and will remain so until such time as the well 8 shall begin to fill with water or other liquid, which latter will act to raise the float 16 and its adjuncts, thus causing the collar 18 to rise until the shoulders 19 thereof have carried the ends of the toggles 20 to a point beyond the dead-center of their pivots and so release the arms 21 and allow the valve-disks 27 to fall upon their respective seats, as shown in dotted lines in Fig. 1. A suitable outlet 37 is provided in the well, through which the water therein may be drawn off, a plug or other device (not shown) being adapted to close said outlet. The links 21 and the sleeves 22 need not necessarily be carried on a single shaft. Each may be on independent shafts whose axes are not in the same plane, in which case the rod 24 may be omitted, the upper end of the tube 17 being guided by a dependent projection or guide formed in the upper part of the casing or chamber 15 or by pivoted links similar to 25. The tube 17 may be either a tube or a rod—preferably a tube to lighten the construction, of circular or other cross-sections.

We desire to call special attention to the fact that when the bottom cover 9 of our valve is disconnected all the internal mechanism or adjuncts attached thereto drop out without necessitating any further disconnecting, said internal mechanism attached to said cover being thus removed without disconnecting or dismantling any other parts of the



valve or necessitating the removal of any other bolts and pins, since the rod 24 is simply slipped into the tube 17.

It will be understood that the valve-disks or valves proper may be of any desired shape or contour without departing from the spirit of our invention.

It is obvious that many other modifications may be made of our present invention—such, for instance, as dispensing with the shouldered collar or block 18 and arranging the ends of the toggles 20 to abut directly against each other—and we therefore reserve to ourselves the right to make these and all such other changes and alterations as fall within the spirit and scope of our invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a valve of the character named, a shell or casing, having valve-seats therein, valves adapted to rest upon said seats when closed, means consisting of toggles and their adjuncts located intermediate of said valves for retaining the latter normally in unseated position and means for automatically closing or seating said valves.

2. A valve, comprising a shell or casing having an upwardly-extending valve-seat therein, a pivoted valve-disk adapted to rest upon said seat when closed, toggles located in proximity to said seat for keeping said valve-disk normally unseated and means for automatically releasing and seating said valve-disk upon any accumulation of liquid in said casing.

3. A valve, consisting of a shell or casing having oppositely-disposed valve-seats therein, valve-disks pivotally supported and adapted to contact with said seats when closed, a float located in said shell or casing and having a head adapted to move in unison therewith and means common to said disks and head, whereby said disks are held in open position.

4. In a valve, a casing having oppositely-disposed parallel valve-seats arranged therein, plates or valve-disks suitably supported and adapted to contact with said seats when closed, a float located in a well within said casing, a head movable in unison with said float, links on which said valve-disks are mounted and connections common to said links and head for holding said valve-disks in open position.

5. In a valve of the character named, a casing having an upwardly-extending valve-seat therein, a valve-disk adapted to rest upon said seat when closed, a float, a head supported upon said float, links upon which said disk is mounted, connections common to said links and head whereby said disk is held in open position, a chamber or pocket in the upper portion of said casing in which the upper portion of said disk is received when in open position and means for holding said disk in position when open.

6. In a valve of the character named, a casing having a passage therethrough, oppositely-disposed upright valve-seats therein, plates or valve-disks adapted to seat thereupon, a float contained in a well located in the lower portion of said casing, a tube extending upwardly from said float, a shaft located in the upper portion of said casing, a rod depending from said shaft and entering said tube, whereby said float is guided, a head mounted on said tube and tripping devices common to said valve-disks and head, whereby said disks become closed or seated, in the event of any accumulation of liquid within said well.

7. In a valve, a casing, a well in the lower portion thereof, valve-seats on either side of said well facing in opposite directions, a float located in said well and having a tube extending upwardly therefrom, links attached to said float, a removable cap secured to the lower portion of said casing, said links being pivotally attached to said cap, a head or collar on said tube, shoulders on said head, links pivotally supported and carrying valve-disks, the upper extremity of said disks being held between suitable projections when said valves are in open position, whereby rattling is prevented, and means for adjusting said valves from the exterior of said casing.

8. In a valve, a casing, a well in the lower portion thereof, valve-seats on either side of said well facing in opposite directions, a float located in said well and having a tube extending upwardly therefrom, a shaft mounted on the upper portion of said casing, a rod supported from said shaft and entering said tube, a head on the latter provided with shoulders, toggles engaging said shoulders, links attached to said toggles, said links being mounted on said shaft, valves mounted on the outer extremity of said links, shoulders common to said valves and links, chambers located in the upper portion of the valve-casing in which the upper extremities of said valves enter when said valves are in open position and means for preventing rattling of said valves when open.

9. In a valve, a casing, a well in the lower portion thereof, valve-seats on either side of said well facing in opposite directions, a float located in said well, and having a tube extending upwardly therefrom, a shaft in the upper portion of said casing, a rod mounted on said shaft and extending into said tube whereby said float is guided in its movement, a head mounted on said tube and provided with shoulders, links mounted on said shaft and provided with toggles, the ends of which latter are adapted to engage said shoulders, valves on said links, stops on the latter for limiting the movement of said toggles, when the valves are closed, the latter having shoulders common thereto and to said links, chambers located in the upper portion of the casing into which the upper extremities of the valve-disks enter, when the same are open,



projections 14 and 6<sup>x</sup> between which said valves are held when in open position, whereby they are prevented from rattling, a removable plate for the lower portion of the  
5 valve-casing, arms or links common to said float and plate, and means for closing said valve by the injection of a liquid into the lower portion of the casing thereof.

10 10. In a valve, the combination of a casing, a well in the lower portion thereof, valve-seats facing in opposite directions located above said well, valves mounted upon links movably supported, shoulders common to said links and valves, chambers into which the  
15 upper extremities of said valve-disks enter, when the same are in open position, toggles attached to said links, pins on the latter adapted to limit the movement of said toggles, when the valves are closed, a float located in the

lower portion of said well and having a tube 20 extending upwardly therefrom, a shaft mounted in the upper portion of the valve-casing, a rod supported from said shaft and entering said tube, said shaft having a projection adapted to enter an opening in the casing, 25 means for actuating said valves from the exterior and means for effecting the closing of said valves by the admission of a liquid to the interior of said casing.

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