

(No Model.)

F. H. CHURCH.
BOAT.

No. 551,363.

Patented Dec. 17, 1895.

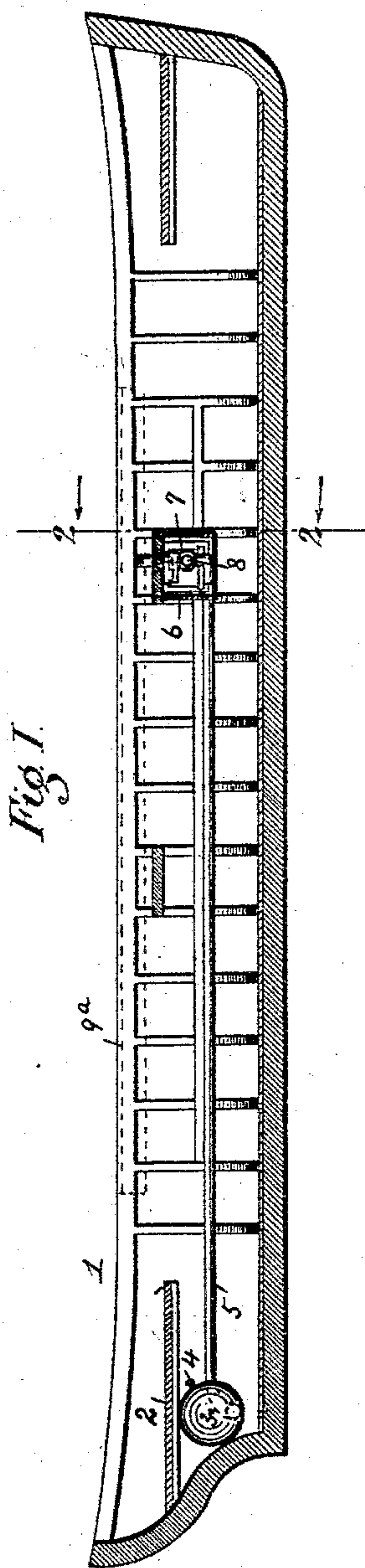


Fig. I.

Fig. III

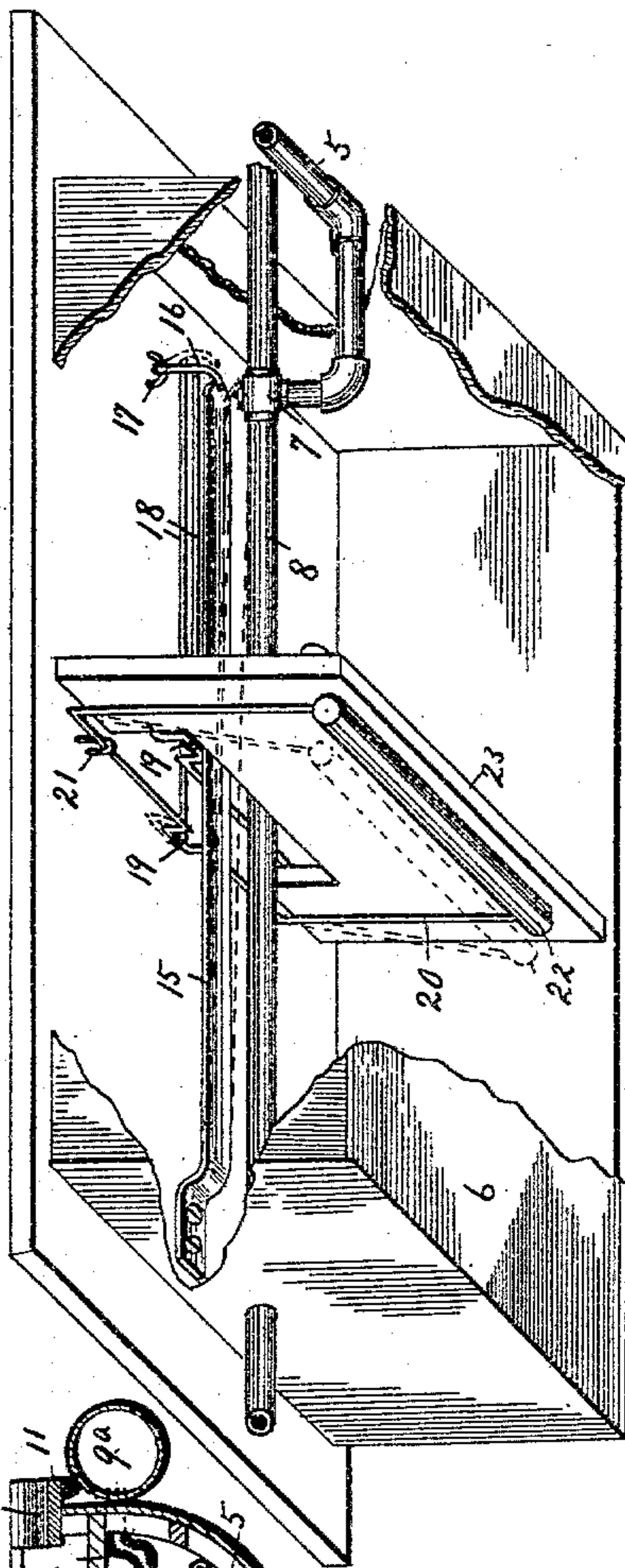


Fig. II

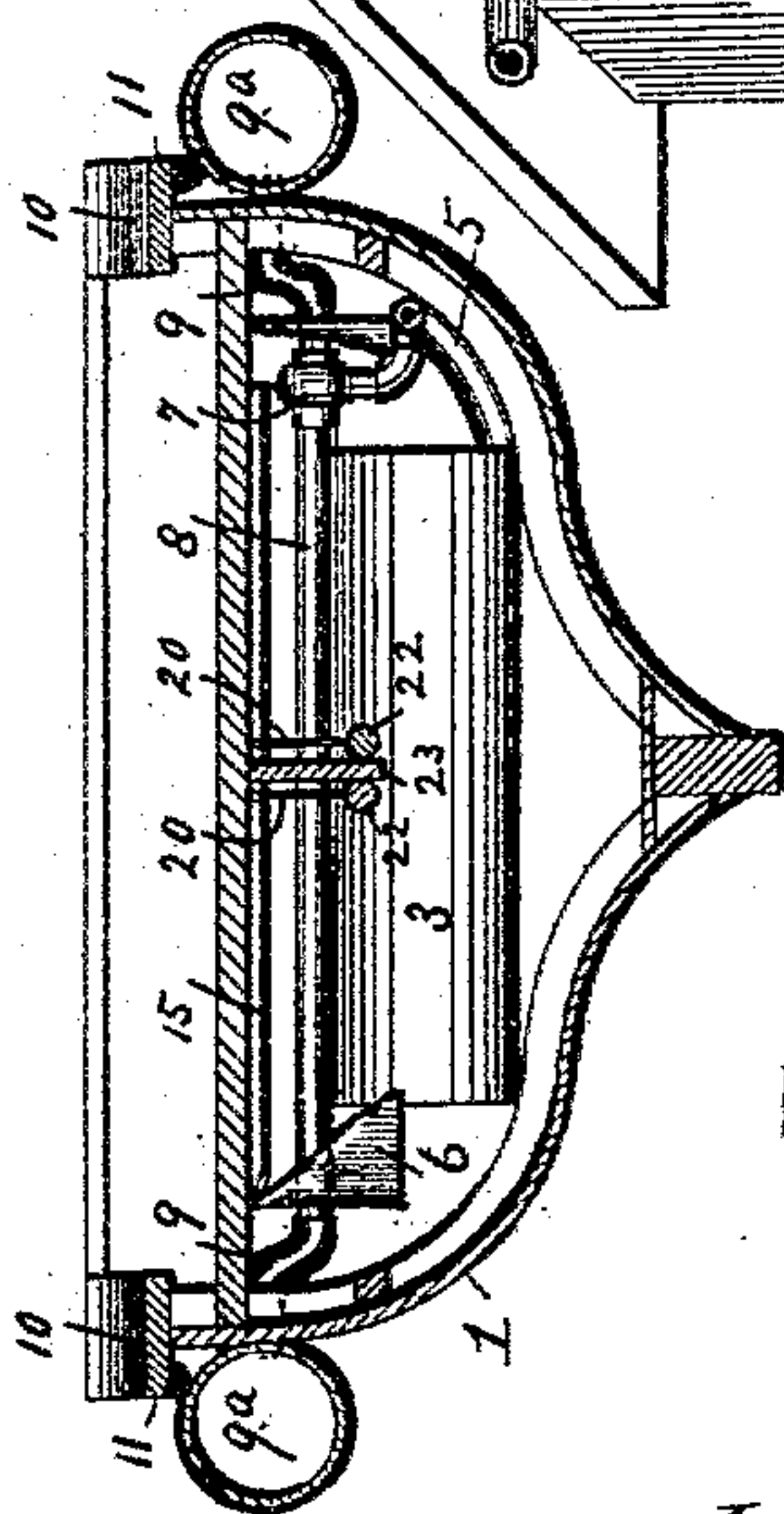
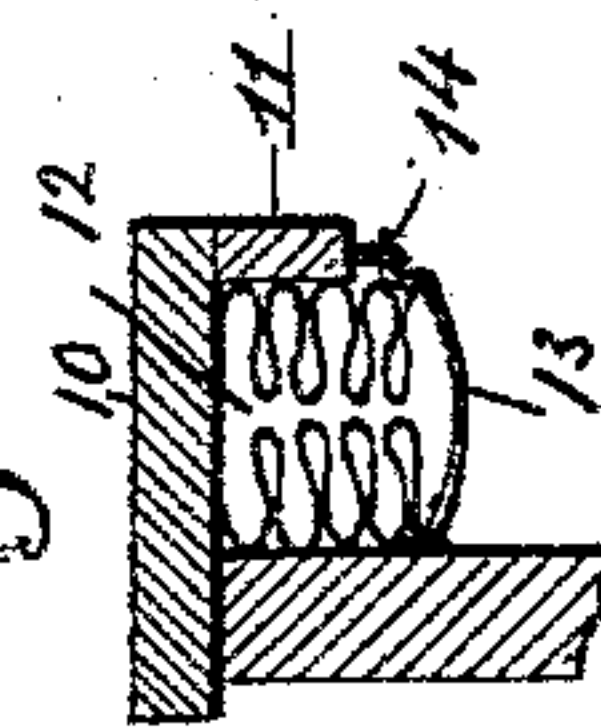


Fig. IV.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANCIS H. CHURCH, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO JOHN R. KIRBY, OF SAME PLACE.

BOAT.

SPECIFICATION forming part of Letters Patent No. 551,363, dated December 17, 1895.

Application filed August 30, 1895. Serial No. 561,055. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. CHURCH, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Boats, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a device for use on small pleasure-boats to prevent same from capsizing; and it consists of the novel arrangement and combination of parts herein described, and pointed out in the claims.

Referring to the drawings which illustrate the invention, Figure I represents a longitudinal section of a boat provided with my improvement. Fig. II represents a cross-section of the same taken on line 2 2 of Fig. I. Fig. III represents a broken detail perspective view of box containing the automatic releasing mechanism. Fig. IV represents a detailed cross-section showing one of the air-sacks folded beneath the gunwale of the boat.

In constructing my invention I use a small pleasure-boat 1, having the usual stern-seat 2, beneath which I locate a compressed-air cylinder 3, provided with a nipple 4, by which connection is made between the cylinder and an air-pump when the former is to receive its supply of air. Connected with one end of the air-cylinder is a pipe 5, which follows one side of the boat to a point between its bow and central portion, where it bends at right angles and passes through one end of the box 6, which extends across the boat. After extending within the box a slight distance pipe 5 is bent upwardly and connected with a three-way spring-valve 7, which is connected with a cross-pipe 8 that extends through the opposite ends of box 6.

9 indicates flexible pipe connection, the inner ends of which are secured to the opposite ends of pipe 8. Their outer ends are turned upwardly and pass out through the sides of the boat at a point above the water-line and are secured to the air-sacks 9^a, which extend along near the gunwales almost the entire length of the boat. These air-sacks consist of flexible material and are folded when not in use beneath the projecting gunwales 10, having side strips 11, which form recesses 12

for receiving the air-sacks when folded. The sacks are held within said recesses by metallic strap 13, hinged to the sides of the boat. Their outer ends are secured by spring-clasps 14, secured to the under sides of strips 11. Said clasps are arranged so as to release the straps when the sacks are inflated, and thus permit them to drop down near the water-line.

Valve 7 is automatically operated by mechanism consisting of a flat spring 15, one end of which is secured to the under side of the top of box 6. Its opposite end is supported above the valve-stem by a hook 16, secured by means of a staple 17 to the under portion of the side of the box, which also acts as a seat. Resting against one side of said hook are horizontal rods 18, the opposite ends of which are secured to the crank portions 19 of U-shaped hangers 20, which are also supported by staples 21 to the under side of the top of box 6. Hangers 20 carry at their lower ends cylindrical weights 22, the whole forming pendulums, and are separated by a vertical partition 23, which divides box 6 into two compartments. A portion of the upper part of said partition is cut out to permit the free operation of flat spring 15 and one of rods 18, portions of which are located in the two compartments.

Normally the air-sacks are folded compactly within the recesses provided for that purpose; but should the boat be accidentally tilted by its occupant to a dangerous side position the pendulum upon that side, by remaining in a vertical position, through force of gravity draws the rod connected with its crank portion against the hook, causing it to release the end of the flat spring, which acts upon the valve and permits the compressed air to escape from its cylinder through the pipes and into the air-sacks, which are thereby forced from said recesses to the position shown in Fig. II. The great buoyancy thus provided by the air-sacks on each side of boat immediately equalizes same and prevents its capsizing, making it a valuable feature for all small pleasure-boats.

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

1. In combination with a boat, a compressed air cylinder located therein, a pipe leading from said cylinder, a valve connected to said pipe, a cross pipe extending from each side of the valve out through the opposite ends of the box in which they are located, flexible connections between the ends of said pipe, and air sacks arranged along the sides of the boat, substantially as, and for the purpose set forth.

2. In combination with a boat, a compressed air cylinder located therein, flexible air sacks arranged along the sides of the boat, pipe connections between said cylinder and air sacks, a valve connected to said pipes, a spring for operating said valve, together with means for automatically releasing said spring, substantially as and for the purpose set forth.

3. In combination with a boat, a compressed air cylinder located therein, flexible air sacks arranged along the sides of the boat, pipe connections between said air cylinder and air sacks, a valve connected to said pipes, a flat

spring for operating said valve, a hook for supporting one end of said spring above the valve stem, rods for releasing the hook from the spring, hangers having crank portions thereon to which the rods are secured, weights, which are secured to the hangers in order to maintain same in a vertical position, and a partition which separates said hangers and permits but one hanger to operate its rod at one time.

4. The combination with a boat, of a compressed air chamber, two flexible air sacks, suitable pipes connecting same, a valve in said pipes operated by a spring, said spring being automatically released by a pendulum connected therewith.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS H. CHURCH.

Witnesses:

THOMAS JONES,
F. G. FISCHER.