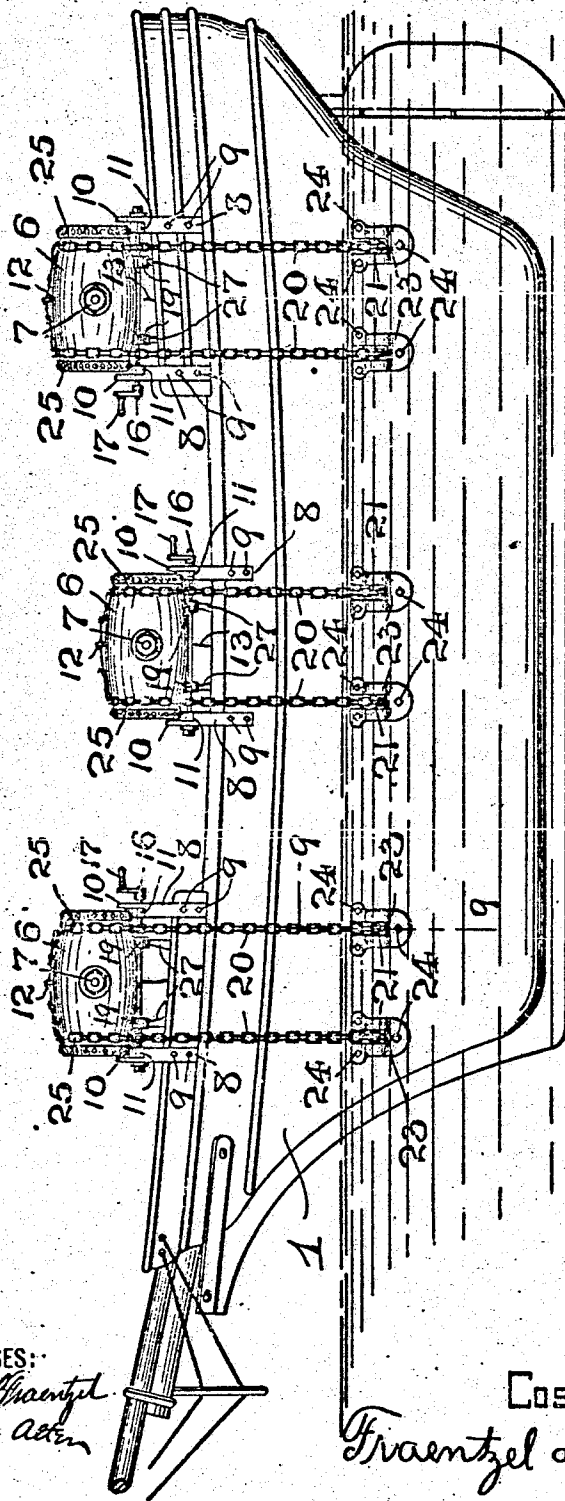


C. FUGAZZI.
SAFETY APPLIANCE FOR SHIPS.
APPLICATION FILED JAN. 6, 1910.

972,180.

Patented Oct. 11, 1910.

5 SHEETS-SHEET 1.



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5 SHEETS-SHEET 2.

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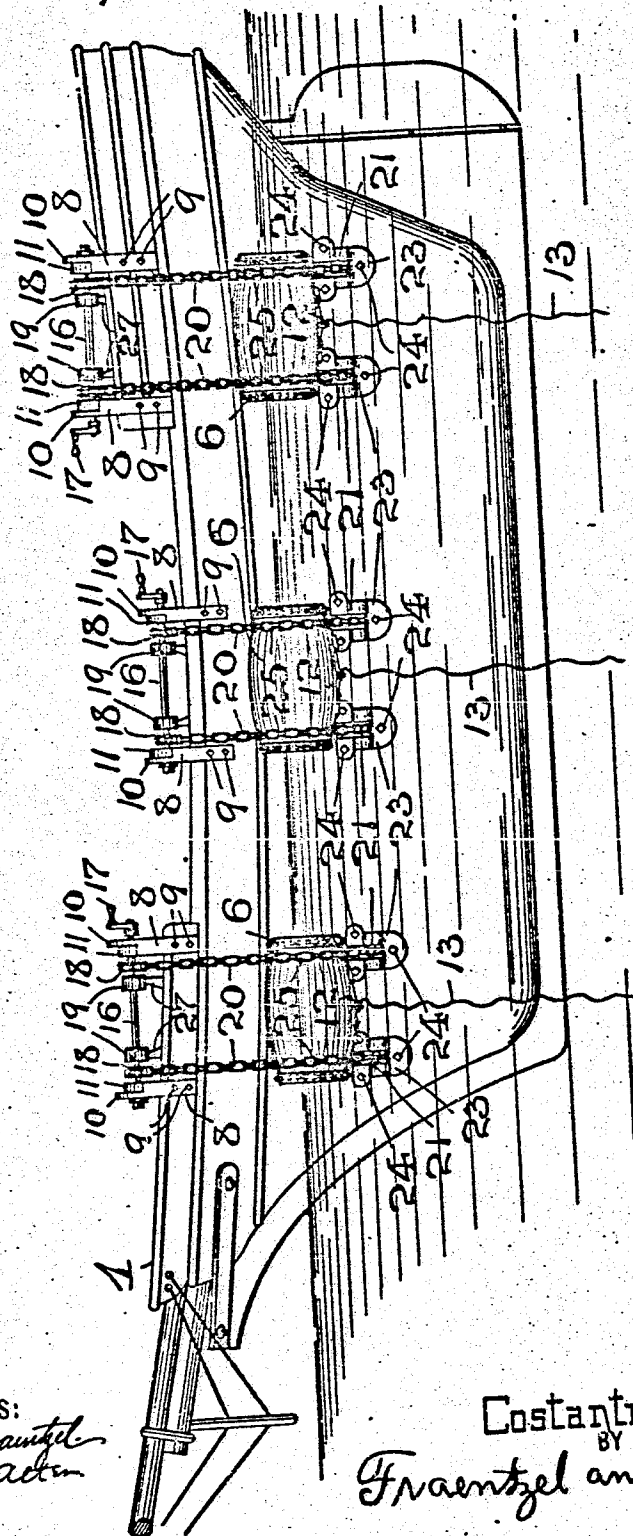


Fig. 2

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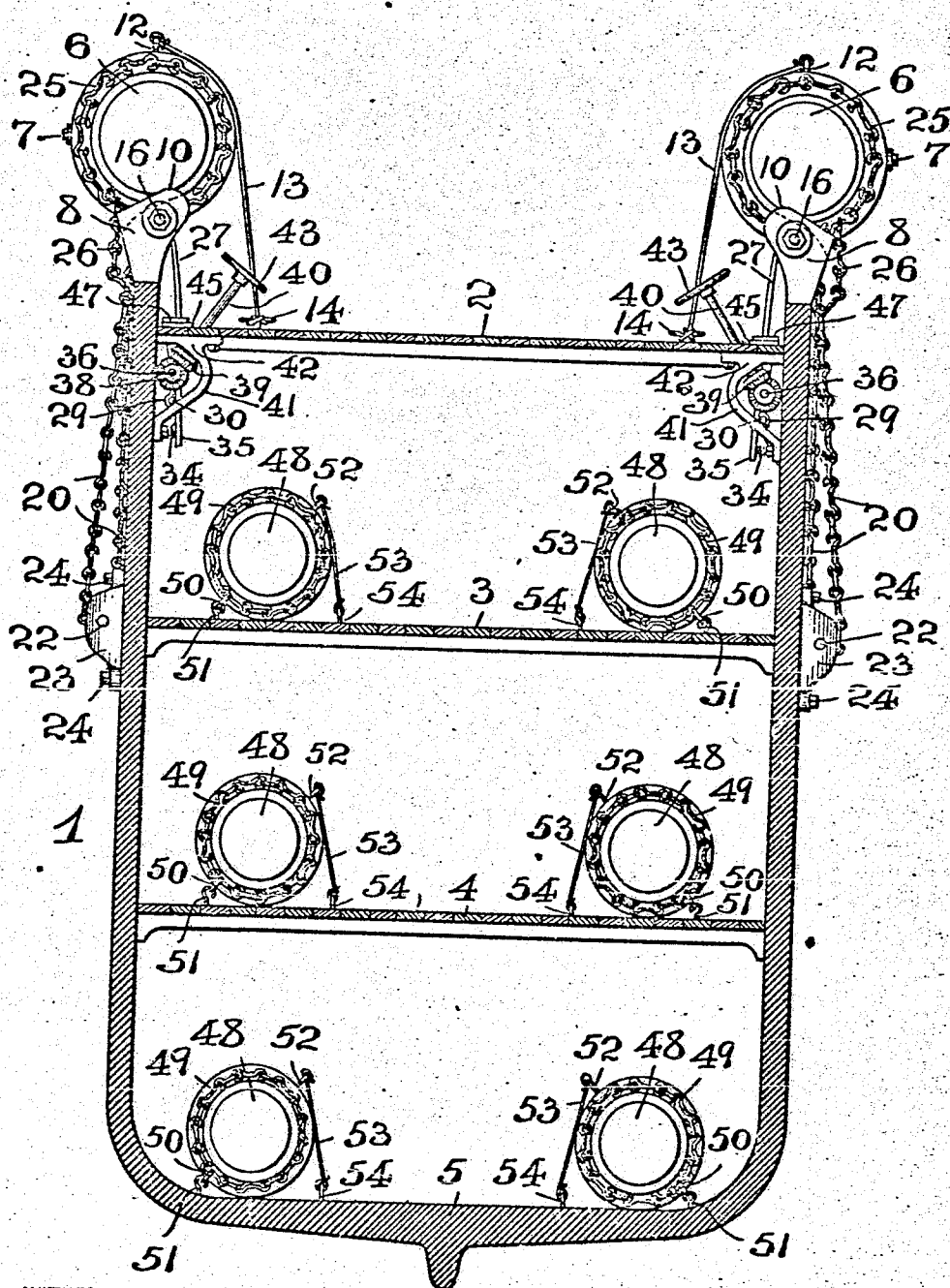
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5 SHEETS—SHEET 3.



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Fig. 3

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5 SHEETS-SHEET 4.

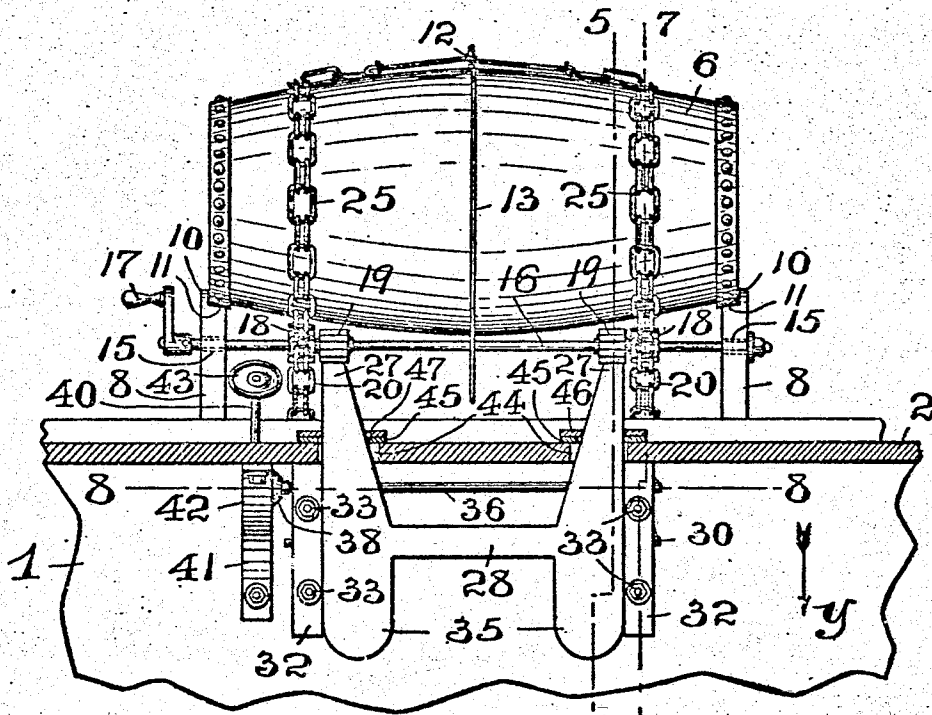


Fig. 4

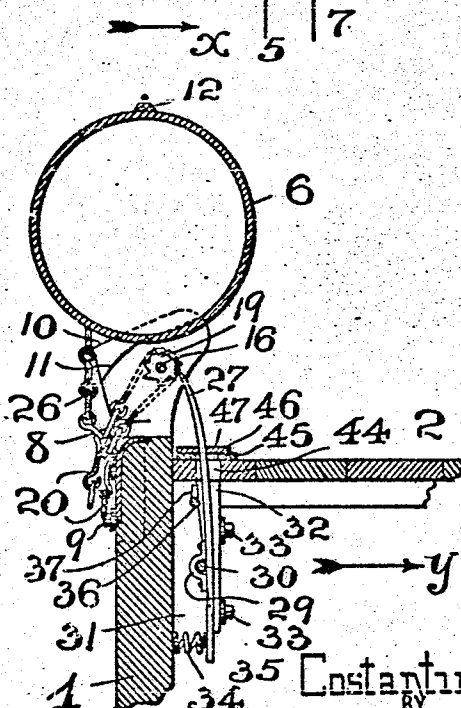


Fig. 5

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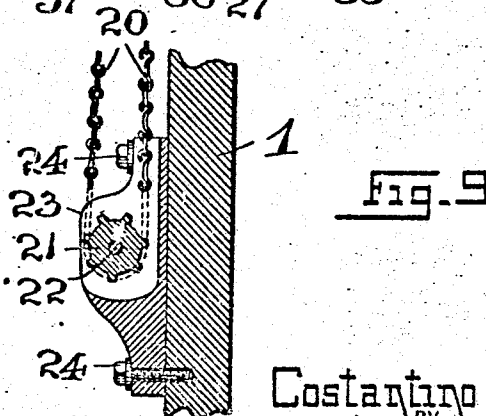
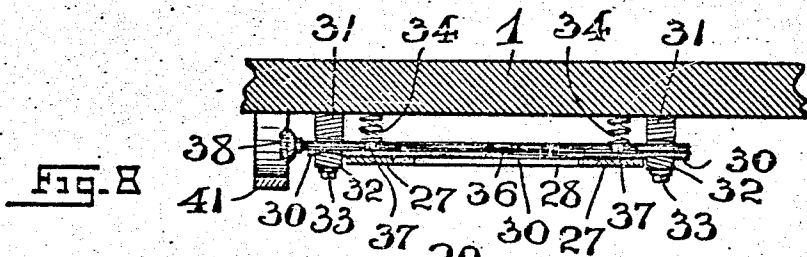
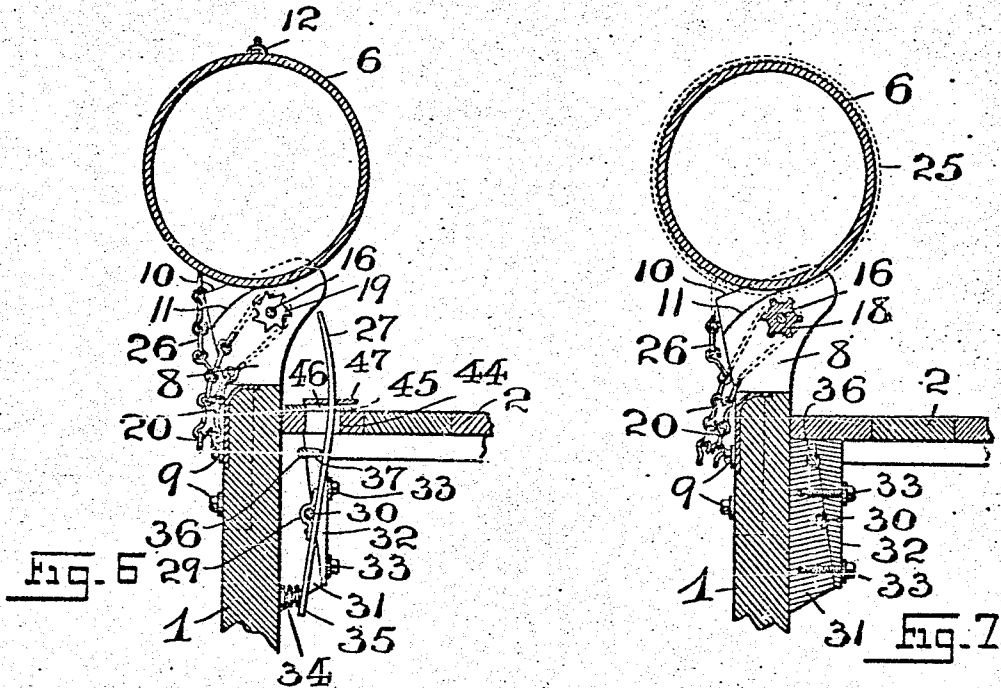
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Patented Oct. 11, 1910.

5 SHEETS-SHEET 5.



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UNITED STATES PATENT OFFICE.

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SAFETY APPLIANCE FOR SHIPS.

972,180.

Specification of Letters Patent. Patented Oct. 11, 1910.

Application filed January 6, 1910. Serial No. 536,755.

To all whom it may concern:

Be it known that I, COSTANTINO FUGAZZI, a subject of the King of Italy, residing at West Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Safety Appliances for Ships, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention has reference, generally, to safety devices for ships; and, the present invention relates, more particularly to the application of suitably constructed pneumatic safety appliances which are secured and are variously placed upon the deck of and within the body or hold of the ship, so that the said pneumatic safety appliances, in case the ship is rendered helpless so as to be brought into a sinking condition, will act as buoys, and will absolutely prevent the loss of the ship and life due to sinking.

The present invention has for its principal object to provide a novel and simple safety-appliance which can be readily carried upon any ship, and which in the case of a disastrous collision, or other cause which has placed the ship in a sinking condition, can immediately be brought into use, either by manual operation or automatically, the pneumatic safety-appliance serving to buoy up the sinking ship, and keeping the same afloat.

The invention has for its further object to provide a novel and simply constructed safety-appliance, in the form of an air-filled cask, barrel, or other suitable holder, and an easily operated mechanism whereby the air-receiver and holder can be quickly lowered over the side of the ship, any number of such air-receivers and holders being adapted to be placed upon each side of the ship, so as to properly buoy the ship and keep her afloat.

Other objects of this invention not at this time more particularly enumerated will be clearly understood from the following detailed description of the said invention.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a side view of the hull or body

of a ship, said view showing in elevation an arrangement of pneumatic safety-appliances, and mechanism for lowering the same, the devices and parts illustrating one embodiment of the principles of the present invention. Fig. 2 is a similar view of the devices and parts shown in said Fig. 1, the ship being represented in a sinking condition, and the pneumatic safety-appliance having been lowered, and shown floating in the manner of air-filled buoys upon the sea, so as to prevent the ship from sinking entirely and becoming a total loss, as well as preventing or at least minimizing the loss of life. Fig. 3 is a transverse vertical section, made on an enlarged scale, of the hull of a ship, said view illustrating in connection therewith, and in end elevation, one arrangement of a number of the safety-appliances and means for releasing the same, to bring the several air-receivers and holders into their floating positions, both without and within the ship. Fig. 4 is an enlarged detail view, said view showing a portion of the hull of the ship, with a part of its deck being represented in vertical section, and said view showing furthermore in elevation, one of the upper-deck safety-appliances, in the form of an air-filled receptacle, tank, barrel or cask, and the mechanism for retaining said safety-appliance in its normally inoperative position, and also for lowering the safety-appliance upon the outer side of the hull or body of the vessel. Fig. 5 is a transverse vertical section of the parts shown in their normal initial positions, said section being taken on line 5—5 in said Fig. 4, looking in the direction of the arrow *x*; and Fig. 6 is a similar sectional representation taken on the same line, but showing the mechanism released to bring the air-filled receptacle, tank, barrel, or cask into its lowered position. Fig. 7 is a transverse vertical section taken on line 7—7 in Fig. 4, looking in the direction of the arrow *x*; Fig. 8 is a horizontal detail sectional representation taken on line 8—8 in said Fig. 4; and Fig. 9 is a detail vertical section taken on line 9—9 in Fig. 1.

Similar characters of reference are employed in all of the above described views, to indicate corresponding parts.

Referring now to the various figures of the drawings, the reference-character 1 indicates the hull of any suitably constructed ship or sailing vessel, 2 is the "upper" deck;

3 and 4 are "between"-decks, and 5 indicates the bottom of the vessel.

The novel safety-appliances which are to be used with the ship are in the form of 5 pneumatic floats, of which there may be any desired number, and which may be suitably disposed upon the upper deck and provided with mechanism to lower the floats down the outer sides of the ship; or, the said safety- 10 devices may also be placed within the body of the ship, between the various "between"-decks and in the several holds of the ship, or such two arrangements of the safety-devices may be combined, substantially as illus- 15 trated more particularly in Fig. 3 of the drawings, and as will be presently more fully described.

Referring now more particularly to the safety devices which are placed upon the 20 upper deck or outer portion of the ship, and which are to be lowered down the sides of the vessel, the reference-character 6 indicates a suitably constructed and suitably formed receptacle which is adapted to be filled with 25 air, said vessel being preferably made from sheet-metal, and in the conventional form of a cask or barrel. It will be understood, however, that the said air-filled safety appliances may be of the usual casks or barrels 30 of wood, being made of such strength so as to be useful for the purposes for which they are intended. Any number of such air-filled safety-appliances or receptacles 6 may be placed upon either side of the ship, each receptacle 6 being formed with a suitable 35 opening for the admission of the air, and forcing it, preferably, under pressure to the air-receiving receptacle, said opening being tightly sealed by means of any suitably constructed sealing or closing device 7. 40

Each cylindrical or cask-shaped receptacle 6 rests, in its normal initial position, upon suitable supporting members or elements 8, which are suitably secured by 45 means of bolts 9, or other suitable fastening means, to the upper portions of the sides of the ship, substantially as shown. Each supporting member or element 8 is provided upon its upper edge-portion with an up- 50 wardly projecting rib 10, and an off-set 11, which respectively provide ways and guides for the proper support of an air-filled safety-appliance or receptacle 6 between two of the supporting members or elements 8, 55 substantially as shown in Figs. 1 and 4 of the drawings. As will be seen from an inspection of Figs. 5, 6, and 7 of the drawings, the said ways 11 incline downwardly toward the outer side of the ship, so that the air- 60 filled receptacle, when permitted to roll, will move in a direction toward and down the outer side of the ship, in the manner and for the purposes to be presently more fully described. In order to retain each air-

filled receptacle in its normally inoperative 65 position upon said ways 11, so as to prevent it from rolling off into the sea, there is suitably fastened to each receptacle 6, preferably by means of a suitably formed fasten- 70 ing means, as 12, the one end-portion of a flexible connection 13, such as a light chain, rope or cable, which extends over a portion of the receptacle, substantially as shown in Figs. 3 and 4 of the drawings, and has its 75 opposite end-portion detachably fastened to a cleat 14, or other suitable fastening device, which is secured upon the upper deck or other suitable part of the ship, as will be 80 clearly evident. Pulling normally against the holding or retaining action of each flexible connection or tightening means 13 is the tendency of the cylindrical or cask-shaped receptacle 6 to roll off the inclined ways 11 85 into the sea, and should such flexible connections 13 be disconnected from the respective fastening devices 14, the said air-filled receptacles 6 can be easily and quickly lowered 90 down the sides of the ship, so as to serve as floats, as indicated in Fig. 2 of the drawings, which are sufficient to prevent the ship from sinking, in case of serious damage 95 to the vessel which would be caused by a collision with another ship, or the running upon dangerous reefs, and the like.

As shown, each pair of supporting mem- 95 bers or elements 8 is made with a bearing-portion 15, indicated in dotted outline in Fig. 4 of the drawings, and rotatably mounted in the said bearing-portions 15 is a rod 16, provided at one end with a crank or 100 operating lever, as 17. Suitably secured upon the said shaft or rod 16 are a pair of sprocket-wheels 18, and also a pair of ratchet-wheels 19. In operative engagement 105 with the teeth or sprockets of said sprocket-wheel 18 are the links of sprocket-chains or other suitable flexible connections 20, said chains or connections extending down- 110 wardly upon the outer sides of the ship and extending around and being in operative engagement with suitable sprocket-wheels 21. These sprocket-wheels 21 are secured upon 115 spindles 22, each of which is mounted in a bearing-plate, as 23. Any suitable number of these bearing-plates 23 are secured upon 120 each side of the ship, by means of bolts or screws 24, or other suitable fastening means, at points upon the sides of the hull which are sufficiently low, so that when the ship is in a sinking condition and the air-filled receptacles have been lowered, in the manner 125 to be presently set forth, the said lowered receptacles will reach the level of the sea and produce a floating condition of the ship.

Each air-filled receptacle 6, in order to be 125 properly lowered, is encircled, at the proper places, by suitable flexible connections or chains, as 25, each connection or chain 25

having an extending end-portion or piece 26, which end-portions are suitably secured to the said previously mentioned sprocket-chains or flexible connections 20, substantially as shown in the several figures of the drawings.

Normally in engagement with said previously mentioned ratchet-wheels 19 are spring-dogs or pawls, as 27, which are made in the form of long arms or members which extend in downward directions upon the inner side-portions of the ship, and are preferably connected by a bar or other suitable portion 28. Each spring-dog or pawl 27 has a suitably formed bearing 29, by means of which the said spring-dogs or pawls are oscillatorily mounted upon and move with a rod 30 which has its end-portions suitably mounted between blocks 31 and 32, or other fastening and supporting means, secured in place upon the inner faces of the sides of the ship by means of bolts or screws 33. That the upper free ends of said spring-dogs or pawls 27 are normally brought into operative engagement with the teeth of said ratchet-wheels 19, suitably constructed springs, as 34, are securely arranged against displacement between the lower end-portions 35 of said spring-dogs or pawls and the inner faces of the sides of the ship, the tendency of these springs normally being to move said lower end-portions 35 in the direction of the arrow *y* in Fig. 5 of the drawings, and the engaging portions of said spring-dogs or pawls in engagement with said ratchet-wheels 19, as will be clearly evident. When it is desired to lower the said air-filled receptacles, the flexible connections 13 are loosened from said fastening devices 14, and the rods or shafts 16 are made to revolve in their respective bearing-portions by operating the cranks or levers 17. The rotary movements of the sprocket-wheels 18, thus produced, will cause corresponding and proper movements of the sprocket-chains or flexible connections 20, and the air-filled receptacles 6 being flexibly connected with said chains or connections 20 by means of the end-portions or pieces 26 of the chains or connections 25, they will be caused to roll off the ways 11 of said supporting members or elements 8, and then moved downwardly upon the outer sides of the vessel, until brought either partially or wholly beneath the surface of the sea, upon which they will float, as will be clearly evident, and will be caused to hug the outer sides of the ship, so as to act in the manner of independent floats or buoys which will positively prevent the ship from sinking. The engaging actions of the spring-dogs or pawls with the ratchet-wheels 19 is such, that after the sprocket-chains or connections and the air-filled safety-devices 6 have been lowered, they will

be positively retained in their lowered positions against any upward movements, until said spring-dogs or pawls are released from their engagement with the ratchet-wheels 19 when it is desired to again raise the said air-filled receptacles 6 to their former positions upon the supporting members or elements 8, after the ship has been again floated, or for partially raising said receptacles 6, so as to bring them into their properly adjusted floating and buoying relations to the sides of the damaged ship and the level of the sea. This dog or pawl-releasing mechanism consists, essentially, in a rod 36, the end-portions of which are rotatably mounted between said blocks 31 and 32, or other fastening or supporting means, the said rod 36 having suitably connected therewith suitably formed actuating lugs, as 37, which can be rotated against the backs of said spring-dogs or pawls 27, so as to disengage them from their engagement with the ratchet-wheels 19, whereby, by turning the cranks or levers of the rods or shafts 16 in the opposite directions, said rods or shafts are oppositely revolved, and the said air-filled receptacles 6 by means of the intermediately placed sprocket-chains or flexible connections 20 are suitably raised, as will be clearly evident. In order to revolve the said rod or shaft 36, the latter has mounted thereon, upon one of its end-portions, a miter or bevel-gear 38 which meshes with a miter or bevel-gear 39 mounted upon a spindle 40, substantially in the manner represented in Fig. 3 of the drawings. This spindle is rotatably mounted in a bearing-portion 42 which is suitably secured to or forms a part of a suitably constructed bracket or bearing-member 41, suitably secured by means of bolts or screws to the inner surface-portions of the ship, substantially as illustrated. Each spindle 40 extends upwardly through and above the upper deck 2, and upon its free end it is provided with a hand-wheel 43, or other suitably constructed means for operating the spindle.

As shown more particularly in Figs. 4, 5 and 6 of the drawings, the said spring-dogs or pawls herein-above mentioned extend into and through, and are movably arranged in openings 44 with which the upper deck 2 is provided, said openings 44 being bounded by metal plates 45, suitably secured upon the deck, and each plate 45 having an opening 46 which corresponds to and registers with the opening 44 in the deck. In order to close the said registering openings 44 and 46, and still not interfere with the movement of the spring-dog or pawl in said opening, I have affixed to the said spring-dog or pawl a plate, as 47, which slides back and forth upon the said plate 45, during the movement of the spring-dog or pawl,

and at no time moves entirely off said opening 46, as will be clearly evident. This plate 47, therefore, serves as a closing means which prevents dirt and water passing through the openings 44 and 46.

Referring now to Fig. 3 of the drawings, it will be seen, that an arrangement of air-filled safety-appliances may also be provided between decks, these devices being in the form of cylindrical or cask-shaped air-receiving receptacles or containers 48 which are disposed in suitable places upon the decks 3 and 4, and upon the bottom 5 of the ship. These receptacles 48 are of the same general construction of the receptacles 6 herein-above described, and said receptacles are encircled by suitable flexible connections or chains, as 49, and links 50, or auxiliary flexible connections, are suitably connected with said chains 49 and with suitable eye-bolts 51, or other fastening devices, substantially as shown in said Fig. 3. Each receptacle 48 is provided with a hook or eye, as 52, or other suitable fastening device, to which is attached one end of a flexible connection 53, such as rope, having its opposite end-portion secured to a cleat 54, or other suitable fastening means, suitably secured to said decks 3 and 4, or the bottom 5.

In case the ship is in a sinking condition, the flexible connections 53 can be readily detached from the fastening devices 54, by cutting or otherwise disconnecting the ropes, so that the air-filled receptacles will with any water rising in the hold of the ship assume a floating and buoying condition, acting as auxiliary safety-appliances to the air-containers 6 which are arranged to be lowered down the outer sides of the ship, in the manner herein-above described.

From the foregoing description of the present invention it will be clearly evident that I have provided a novel, simply constructed, and readily operated mechanism admirably adapted for use as a safety-appliance which acts in the manner of a float or floats so as to maintain a ship which has become damaged and is taking in water in a perfectly floating condition.

I am aware that changes may be made in the general arrangements and combinations of the various devices and parts, as well as in the details of the construction of the same, without departing from the scope of the present invention as set forth in the foregoing specification, and as defined in the claims which are appended thereto. Hence, I do not limit my invention to the exact arrangements and combinations of the various devices and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts.

I claim:—

1. In a ship, the combination with a portion of the body of the ship, of a safety-appliance comprising an air-containing receptacle adapted to serve as a float or buoy, means for supporting said air-containing receptacle upon a portion of the upper and outer part of the ship, and mechanism for lowering said air-containing receptacle over the side of the ship, comprising sprocket-wheels, sprocket-chains passing over said sprocket-wheels, and flexible connections between said air-containing receptacles and said chains.

2. In a ship, the combination with a portion of the body of the ship, of a safety-appliance comprising an air-containing receptacle adapted to serve as a float or body, means for supporting said air-containing receptacle upon a portion of the upper and outer part of the ship, and mechanism for lowering said air-containing receptacle over the side of the ship, comprising sprocket-wheels, sprocket-chains passing over said sprocket-wheels, and flexible connections between said air-containing receptacles and said chains, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

3. In a ship, the combination with a portion of the body of the ship, of a safety-appliance comprising an air-containing receptacle adapted to serve as a float or buoy, means for supporting said air-containing receptacle upon a portion of the upper and outer part of the ship, and mechanism for lowering said air-containing receptacle over the side of the ship, comprising sprocket-wheels, sprocket-chains passing over said sprocket-wheels, and flexible connections between said air-containing receptacles and said chains, a pair of ratchet-wheels and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

4. In a ship, the combination with a means of support, of an air-containing receptacle normally resting upon said support, inclined ways connected with said support, said ways inclining toward the sea-side of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, substantially as and for the purposes set forth.

5. In a ship, the combination with a means of support, of an air-containing receptacle

normally resting upon said support, inclined ways connected with said support, said ways inclining toward the sea-side of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

6. In a ship, the combination with a means of support, of an air-containing receptacle normally resting upon said support, inclined ways connected with said support, said ways inclining toward the sea-side of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft, and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, a pair of ratchet-wheels mounted upon said shaft, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

7. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea-side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways between the guide-flanges of said supports, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, substantially as and for the purposes set forth.

8. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea-side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a shaft connected with said receptacle support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other

flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

9. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, a pair of ratchet-wheels mounted upon said shaft, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

10. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a flexible connection fastened at one end to said air-containing receptacle and detachably fastened at its other end to a part of the structure of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, substantially as and for the purposes set forth.

11. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a flexible connection fastened at one end to said air-containing receptacle and detachably fastened at its other end to a part of the structure of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connec-

tions passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

12. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a flexible connection fastened at one end to said air-containing receptacle and detachably fastened at its other end to a part of the structure of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered.

13. In a ship, the combination with a portion of the body of the ship, of a safety-appliance comprising an air-containing receptacle adapted to serve as a float or buoy, means for supporting said air-containing receptacle upon a portion of the upper and outer part of the ship, and mechanism for lowering said air-containing receptacle over the side of the ship, comprising sprocket-wheels, sprocket-chains passing over said sprocket-wheels, and flexible connections between said air-containing receptacles and said chains, a pair of ratchet-wheels, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, and means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, and means for actuating said rod, so as to move said lugs into engagement with said spring-dogs.

14. In a ship, the combination with a means of support, of an air-containing receptacle normally resting upon said support, inclined ways connected with said support, said ways inclining toward the sea side of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft, and upon the side of the ship, flexible

connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, a pair of ratchet-wheels mounted upon said shaft, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, and means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, and means for actuating said rod, so as to move said lugs into engagement with said spring-dogs.

15. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea-side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a shaft connected with said receptacle support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, and means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, and means for actuating said rod, so as to move said lugs into engagement with said spring-dogs.

16. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said support, a flexible connection fastened at one end to said air-containing receptacle and detachably fastened at its other end to a part of the structure of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, and means for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, and means for

releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, and means for actuating said rod, so as to move said lugs into engagement with said spring-dogs.

17. In a ship, the combination with a portion of the body of the ship, of a safety-appliance of a rising air-containing receptacle adapted to serve as a float or buoy, means for supporting said air-containing receptacle upon a portion of the upper and outer part of the ship, and mechanism for lowering said air-containing receptacle over the side of the ship, comprising sprocket-wheels, and sprocket-chains passing over said sprocket-wheels, and flexible connections between said air-containing receptacles and said chains, a pair of ratchet-wheels, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, a bevel gear upon said rod, a bracket provided with a bearing-portion, said bracket being secured to the structure of the ship, a spindle mounted in said bearing-portion, a bevel-gear upon said spindle, said bevel-gear being in mesh with said first-mentioned bevel-gear, and a hand-wheel mounted upon said spindle, substantially as and for the purposes set forth.

18. In a ship, the combination with a means of support, of an air-containing receptacle normally resting upon said support, inclined ways connected with said support, said ways inclining toward the sea-side of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft, and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, a pair of ratchet-wheels mounted upon said shaft, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, a bevel-gear upon said rod, a bracket provided with a bearing-portion, said bracket being secured to the structure of

the ship, a spindle mounted in said bearing-portion, a bevel-gear upon said spindle, said bevel-gear being in mesh with said first-mentioned bevel gear, and a hand-wheel mounted upon said spindle, substantially as and for the purposes set forth.

19. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, a pair of ratchet-wheels mounted upon said shaft, and spring-dogs in engagement with said ratchet-wheels for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, means for releasing said spring-dogs from engagement with said ratchet-wheels, consisting of an oscillatorily mounted rod, lugs extending from said rod adapted to be brought in engagement with said spring-dogs, a bevel-gear upon said rod, a bracket provided with a bearing-portion, said bracket being secured to the structure of the ship, a spindle mounted in said bearing-portion, a bevel-gear upon said spindle, said bevel-gear being in mesh with said first-mentioned bevel-gear, and a hand-wheel mounted upon said spindle, substantially as and for the purposes set forth.

20. In a ship, the combination with a pair of supports, a guide-flange and a supporting way forming part of each support, said ways being inclined toward the sea side of the ship, a cask-shaped air-containing receptacle movably disposed upon said inclined ways and between the guide-flanges of said supports, a flexible connection fastened at one end to said air-containing receptacle and detachably fastened at its other end to a part of the structure of the ship, a shaft connected with said receptacle-support, means connected with said shaft for revolving the same, flexible connection-carrying devices mounted upon said shaft and upon the side of the ship, flexible connections passing over said devices, and other flexible connections between said first-mentioned flexible connections and said air-containing receptacle, ratchet-wheels upon said shaft, and spring-dogs for securing all of said parts in their fixed positions when the said air-containing receptacle has been lowered, means for releasing said spring-dogs from engage-

ment with said ratchet-wheels, consisting of
an oscillatorily mounted rod, lugs extending
from said rod adapted to be brought in en-
gagement with said spring-dogs, a bevel gear
5 upon said rod, a bracket provided with a
bearing-portion, said bracket being secured
to the structure of the ship, a spindle mount-
ed in said bearing-portion, a bevel-gear upon
said spindle, said bevel-gear being in mesh
10 with said first-mentioned bevel-gear, and a

hand-wheel mounted upon said spindle, sub-
stantially as and for the purposes set forth.

In testimony, that I claim the invention
set forth above I have hereunto set my hand
this twenty-ninth day of December, 1909. 15

COSTANTINO FUGAZZI.

Witnesses:

JOSEPH M. BAKER,
A. A. FUGAZZI.