(No Model.) 3 Sheets—Sheet 1.

H. P. NORTON.

BASKET STRAINER FOR BILGE WATER.

No. 414,240. Patented Nov. 5, 1889.

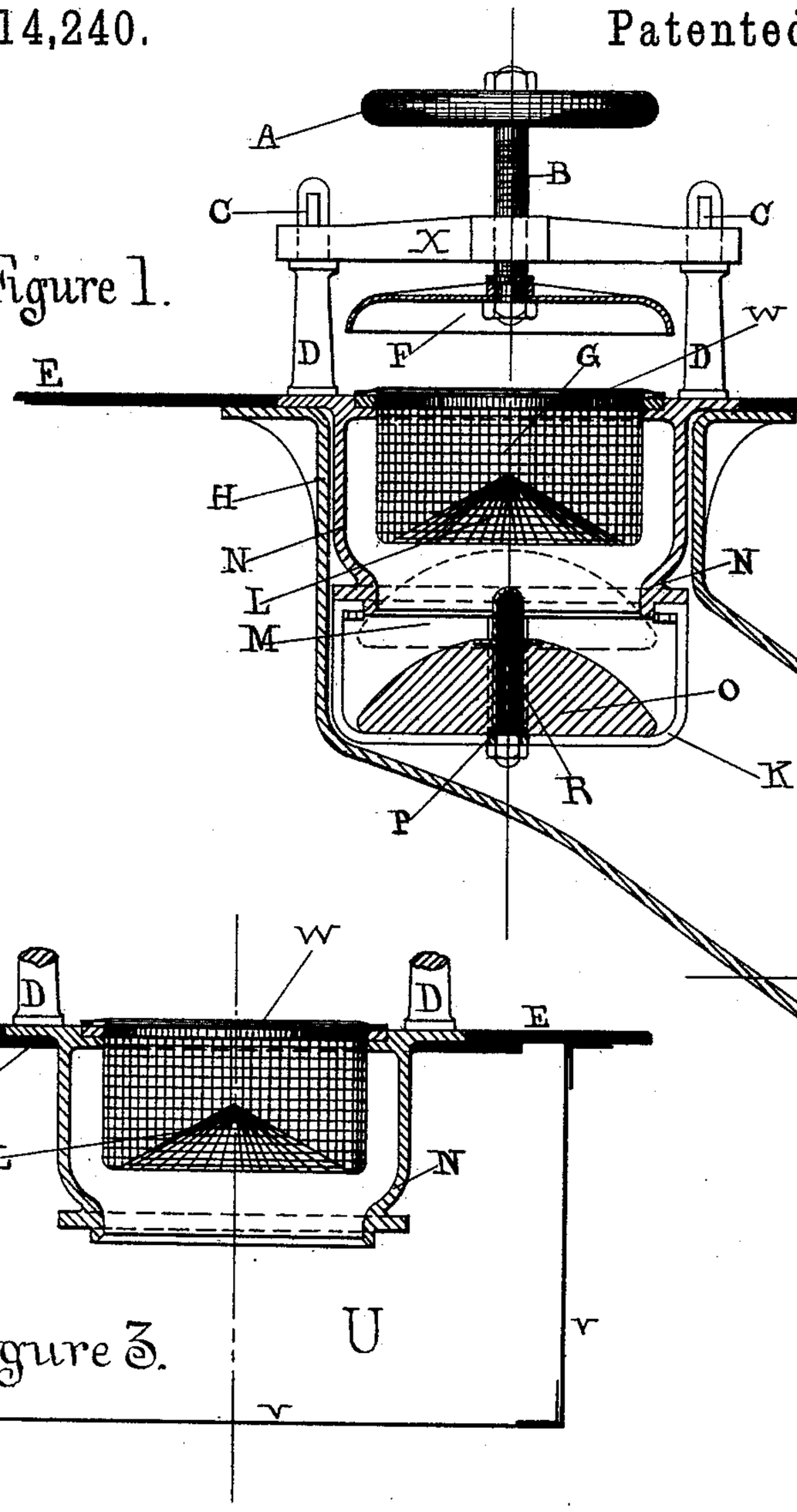


Figure 1.

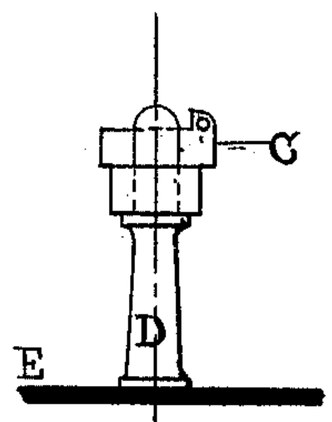
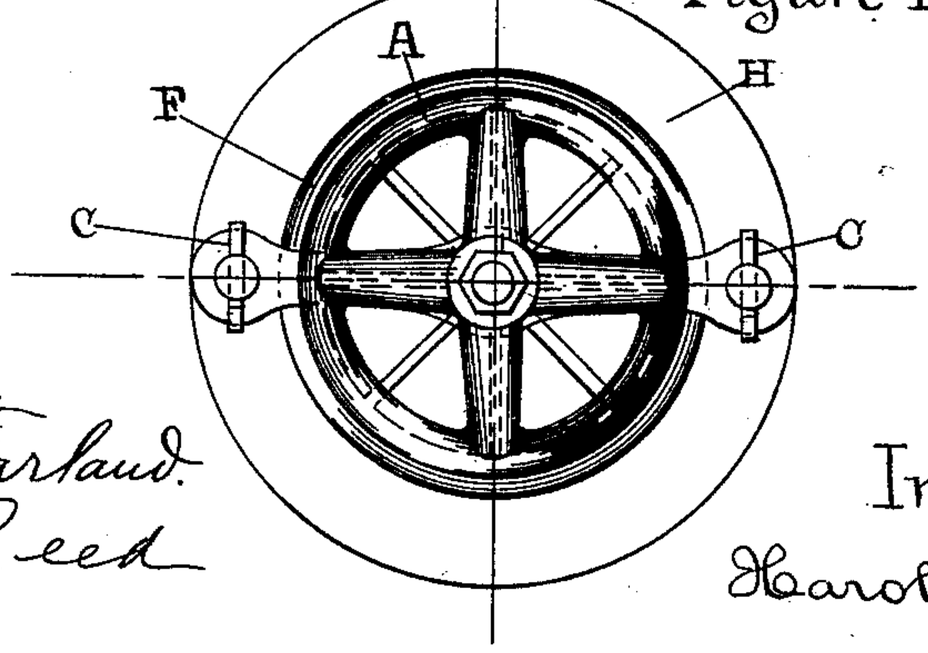


Figure 2.

Figure 3.

Figure 4.



Witnesses.
Walter M. McFarland.
Louis J. Reed

Inventor.
Harold P. Norton

(No Model.) 3 Sheets—Sheet 2.

H. P. NORTON.

BASKET STRAINER FOR BILGE WATER.

No. 414,240. Patented Nov. 5, 1889.

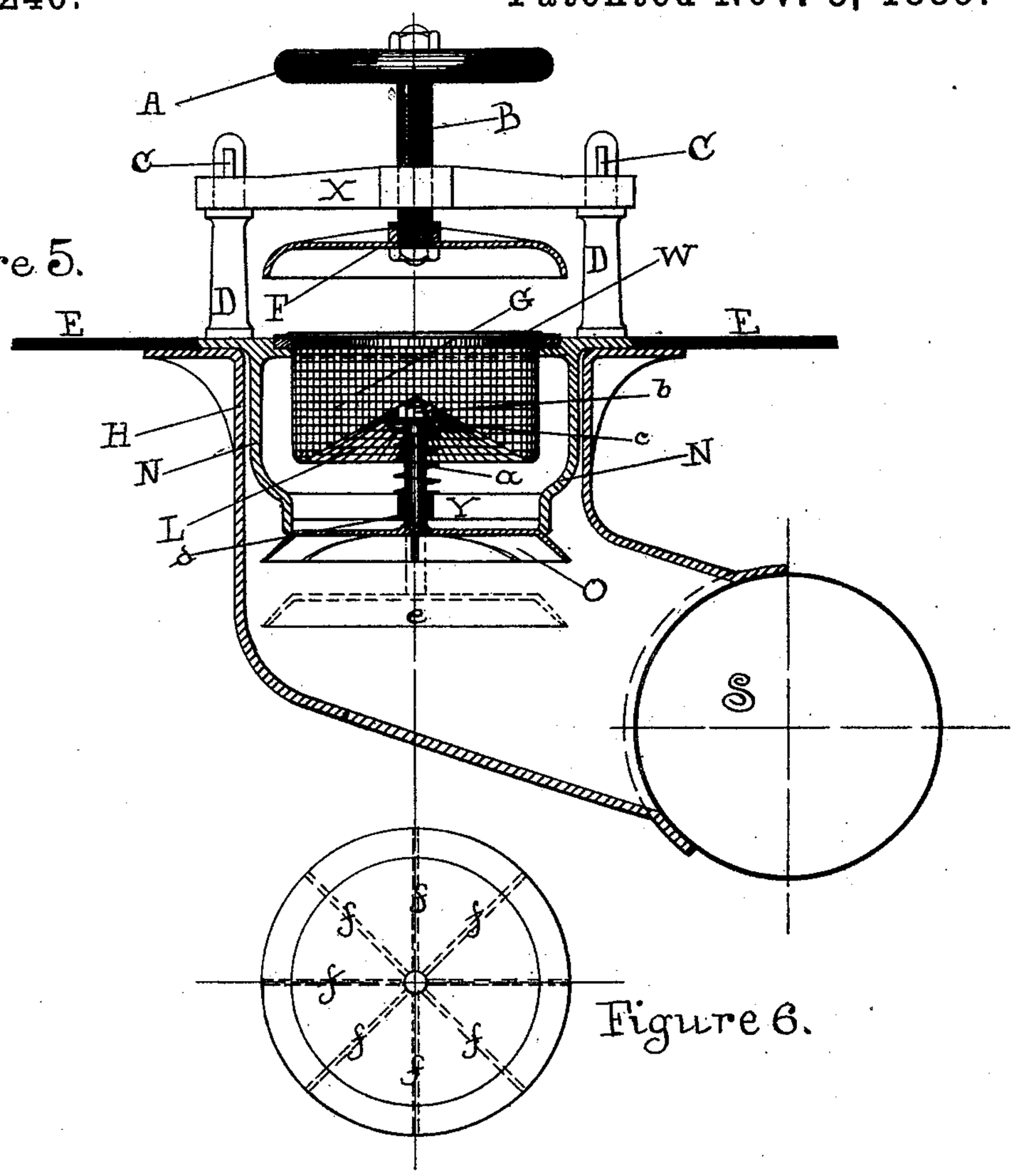


Figure 5.

Figure 6.

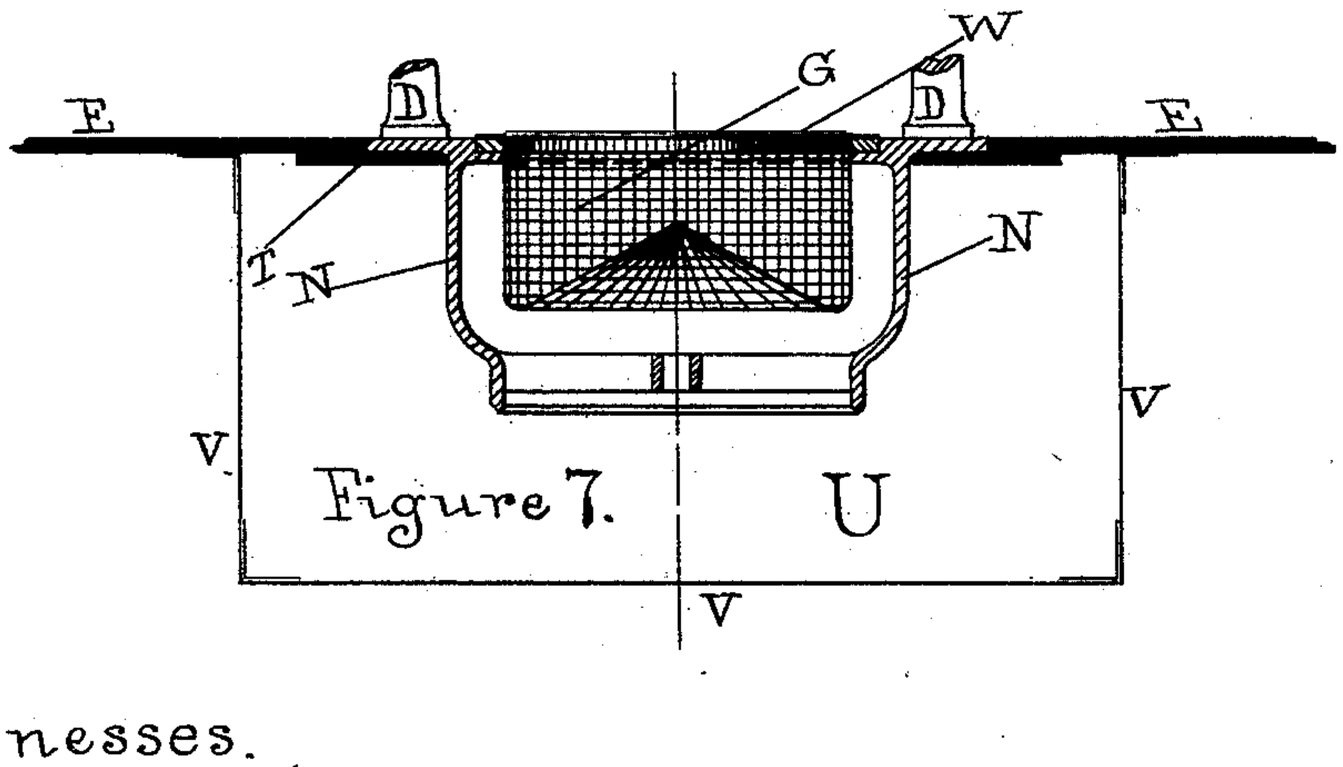


Figure 7.

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(No Model.) 3 Sheets—Sheet 3.

H. P. NORTON.

BASKET STRAINER FOR BILGE WATER.

No. 414,240. Patented Nov. 5, 1889.

Figure 8.

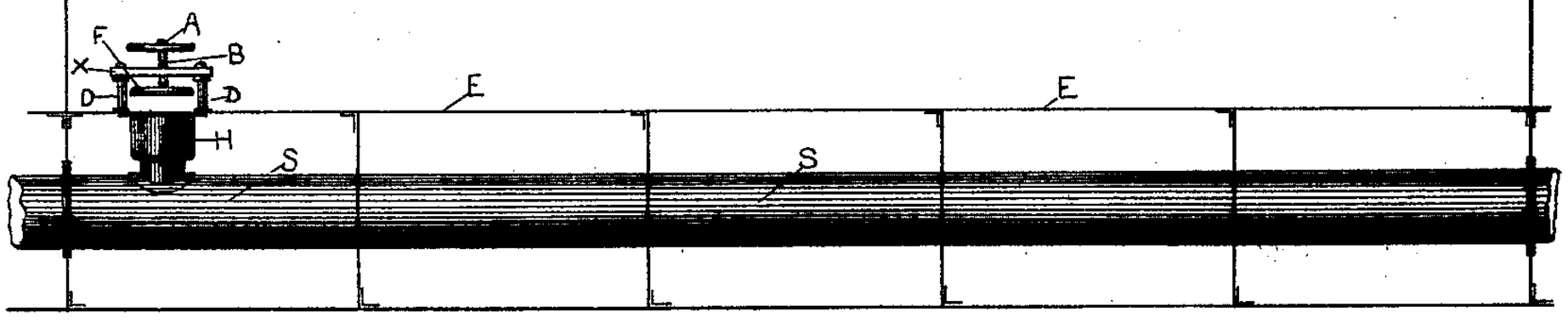
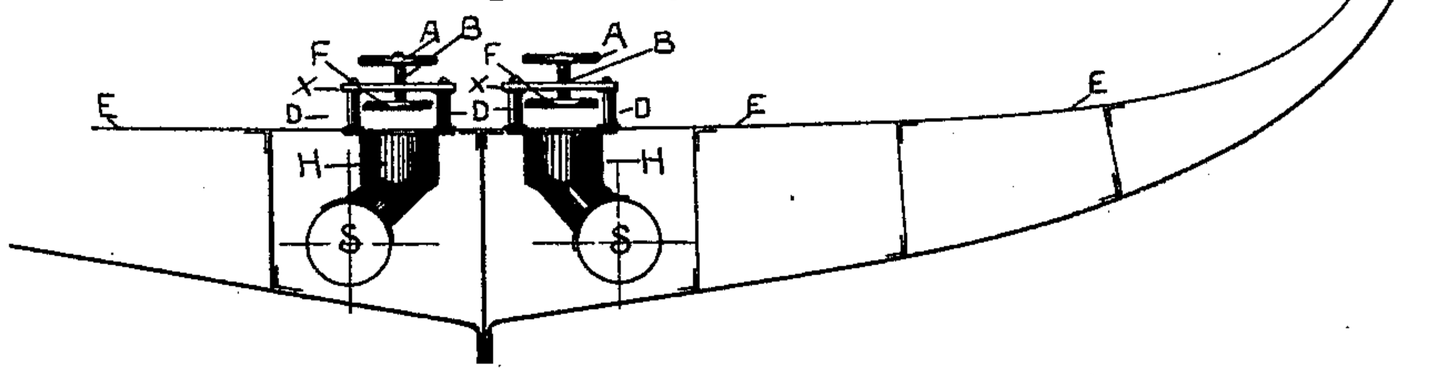


Figure 9.



Witnesses.
Louis J. Reed
W. M. McFarland.

Inventor,
Harold P. Norton,

UNITED STATES PATENT OFFICE.

HAROLD P. NORTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

BASKET STRAINER FOR BILGE-WATER.

SPECIFICATION forming part of Letters Patent No. 414,240, dated November 5, 1889.

Application filed March 19, 1889. Serial No. 303,886. (No model.)

To all whom it may concern:

Be it known that I, HAROLD P. NORTON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Combined Bilge-Water Non-Return Drain-Valve and Basket Strainer, of which the following is a specification.

My invention relates to improvements in non-return drain-valves for drawing water from the inner skin or decks of vessels, or any other surfaces where water may collect, and where it may be desired to provide a drain-valve for the free escape of water, which will prevent the return of water through the drain-pipe and valve.

The objects of my improvements are, first, to provide a constant and free escape for the water; second, to provide a strainer, to be used in combination with a non-return valve, which will allow all the water to be drained off and which will not easily become stopped up; third, to provide a strainer, to be used in combination with a non-return valve, which may be easily and quickly removed, cleaned, and replaced under all circumstances; fourth, to afford facilities for easily and quickly examining, overhauling, and repairing the non-return valve. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical cross-section of a combined basket strainer and floating non-return drain-valve, showing the drain-pipe. Fig. 2 is an elevation of one of the standards for supporting the cross-bar shown in Fig. 1, the elevation being at right angles to Fig. 1, and showing the keys which secure the cross-bar in position. Fig. 3 is a vertical cross-section through a cistern, showing the manner of fitting the casing of a combined basket strainer and floating non-return valve. Fig. 4 is a plan of the combined basket strainer and non-return valve. Fig. 5 is a vertical cross-section of a combined basket strainer and metallic non-return valve and drain-pipe. Fig. 6 is a plan of a metallic non-return valve. Fig. 7 is a vertical cross-section through a cistern, showing the manner of fitting the casing of a combined basket strainer and metallic non-return valve. Fig. 8 is a vertical fore-and-aft section of a vessel, showing the combined basket strainer and non-return valve fitted to drain the water from the upper surface of the inner skin and deliver it into the drain-pipe placed between the inner and outer skins. Fig. 9 is a vertical cross-section of a vessel, showing the combined basket strainer and non-return valves fitted to drain the water from the upper surface of the inner skin and deliver it into the drain-pipe placed between the inner and outer skins.

The drain-pipe shown in Figs. 8 and 9 extends the length of the double bottom, in vessels so fitted, and discharges at its after end into a cistern or tank, such as is shown in Fig. 3. There are one or two non-return valves and basket strainers placed in each water-tight compartment. After the water reaches the tank or cistern at the after end of the drain-pipe it is pumped out of the vessel by a bilge or compartment pump.

Similar letters refer to similar parts throughout the several views.

When used to drain water into a pipe, the valve has an outer casing, forming a passage for the water to reach the drain-pipe; but when used to drain water into a cistern this outer casing is omitted and the water falls from the valve directly into the cistern.

Fig. 1 shows a basket strainer combined with a floating non-return valve and discharging the water into a drain-pipe. H is an outer casing securely riveted to the inner skin E and drain-pipe S, and forming a passage-way for the water to reach the drain-pipe S. The outer casing has a recess on its upper surface for the flange on the valve-casing N. N is the valve-casing, made with a flange fitting into the recess in the outer casing and secured in position by bolts. The upper surface of the valve-casing N has a recess for the rim of the basket strainer G, and at the bottom supports K, for supporting the non-return valve. The bottom of the inner casing is also finished accurately, so as to make a valve-seat for the non-return valve when it is closed. O is the floating non-return valve, which in its normal position rests upon the supports K, and is guided by the central pin P, secured to the supports K. There is a hole in the center of the valve O, fitted with a composition bushing R, which fits loosely on the guide-pin P. G is the bas-

ket strainer, made with a flat or dished bottom and with a projecting rim fitting into the recess in the upper surface of the valve-casing N, and fitted with a handle W. The upper surface of the valve-casing and the rim of the basket strainer are made so as to be flush with the surface to be drained. D are standards screwed or bolted to the casing N, and forming supports for the cross-bar X. The cross-bar X is secured to the standards by the keys C. (See Figs. 1 and 2.) S is the drain-pipe. F is a valve for permanently closing the opening leading to the non-return valve by means of the screw B and hand-wheel A.

Fig. 3 shows the manner of fitting the combined basket strainer and floating non-return valve to drain water into a tank or cistern. Only the valve-casing N is shown in position, as all the other parts are identical with those shown in Fig. 1. The outer casing H (shown in Fig. 1) is replaced by the cistern, and the water has free escape into it as soon as it passes the valve. T is a ring riveted to the under surface of the inner skin and forming a recess for the flange on the valve-casing *n*. All the other parts are the same as already described in Figs. 1 and 2.

The basket strainer is held in position by its weight, and has its bottom dished or coned, so as to throw the dirt which may be collected to the lower part and keep the center clear for the passage of water.

When it is necessary to remove the basket strainer for cleaning or renewal, the keys C are withdrawn and the cross-bar X, with the hand-wheel A, screw B, and valve F, lifted out of the way, when the basket strainer may be reached.

The operation of the combined basket strainer and floating non-return valve is as follows: The water first falls into the strainer, which collects all the dirt, &c. After passing through the baskets it falls upon the top of the valve and escapes into the drain-pipe or cistern. Should the basket become stopped up, it can be readily removed, as already explained, cleaned, and replaced, or a new one may be placed in position. When from any cause the water in the drain-pipe or cistern rises so that it would flow back through the strainer, the non-return valve O floats up against its seat in the bottom of the valve-casing N and closes the opening. As soon as the water is pumped out of the cistern or drain-pipe the valve falls down to its normal position on the supports K.

The floating valve may be made of thin metal and fitted with cork floats, or it may be made of wood. When made of wood, it should be prepared to prevent decay.

Fig. 5 shows the basket strainer combined with a metallic non-return valve and discharging the water into a drain-pipe. H is the outer casing, securely riveted to the inner skin E and drain-pipe S and forming a passage-way for the water to reach the drain-pipe S. There is a recess on its upper surface for the flange on the valve-casing N. N is the valve-casing, which is securely bolted to the outer casing H and has a recess on its upper face for the projecting rim of the strainer G, and at the bottom a seat for the non-return valve O and cross-bars Y, forming a central guide for the pin *d*. The non-return valve O and pin *d* are made in one casting. The edge of the valve is flared and made so as to make a tight joint with the seat in the bottom of the valve-casing N.

The non-return valve is made very thin and well ribbed, as shown at *f*, Fig. 6. The guide-pin *d* passes through the guide-hole in the cross-bars Y, and is fitted with a washer *c*, spiral spring, and adjusting-nut *b*, so that it is held against its seat in the valve-casing N. The tension of the spiral spring is regulated by the adjusting-nut *b* so that it is just sufficient to overcome the weight of the non-return valve and hold it up against its seat in the valve-casing N. The basket strainer G, standards D, cross-bar X, keys C, valve F, hand-wheel A, and screw B are made the same as already described.

Fig. 7 shows the combined basket strainer and metallic non-return valve as fitted to drain water into a tank or cistern. The outer casing H is replaced by the cistern, and the water has a free escape as soon as it passes the cistern. The valve-casing N has its upper flange secured to the ring T, the same as in Fig. 3. Only the valve-casing N is shown in Fig. 7, because all the other details are the same as in Fig. 5.

The operation of the combined basket strainer and metallic non-return valve is as follows: The normal position of the valve is closed, being held in that position by the spiral spring. The water falls into the basket, which collects the dirt and allows the water to pass. From the basket the water goes to the non-return valve and collects on top of the valve until its weight causes the valve to open and allow the water to escape from the top of the valve. When this has taken place, the spring closes the valve. If the basket becomes full of dirt, it can be readily removed and cleaned, as already explained, and replaced, or a new one put in position. When from any cause the water in the cistern or drain-pipe rises so that it would flow up through the drain-valve were it open, it is prevented from doing so, because the non-return valve is shut, and any pressure of water on its under side will only tend to close it more securely, and if it should be open any rush of water from the lower side would force the valve up against its seat on account of the shape of the valve.

By removing the basket strainer the metallic non-return valve can be examined and cleaned and the tension of the spiral spring adjusted or a new spring fitted.

The metallic non-return valve may be renewed, as already described, by removing the bolts securing the casing N in position and

lifting the casing and valve out. As already described, the opening leading to the valve may be permanently closed by the valve F, screw B, and hand-wheel A.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the inner skin of a vessel, a basket strainer hung to said inner skin, having its top flush therewith, and a non-return valve, substantially as set forth.

2. In combination with the inner skin of a vessel, a basket strainer supported in a suitable casing with its top flush with the said inner skin, and a non-return valve having its seat in the lower portion of said casing, substantially as set forth.

3. In a vessel having an inner and an outer skin, a removable casing hung to said inner skin and flush with the surface thereof, and a basket strainer located in said casing, in combination with a spring-actuated metallic non-return valve having its seat in said casing and below said strainer, substantially as set forth.

4. In a vessel having an inner and an outer skin and a drain-pipe located between said skins, and an opening connecting the inner skin with the drain-pipe, the combination of a removable casing fitting into said opening, said casing having flanges upon which it is supported and which lie flush with the upper surface of the inner skin, a basket strainer provided with a dished or conical bottom, and a metallic non-return valve with its seat located in said casing and below said strainer and retained in a closed position by an adjustable spring just sufficient to support the weight of said valve, substantially as set forth.

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

HAROLD P. NORTON.

Witnesses:
WALTER M. MCFARLAND,
LOUIS T. REED.