(No Model.)

J. YORKE.

MEANS FOR PREVENTION OF FOULING OF SHIPS' BOTTOMS.

No. 541,451. Patented June 18, 1895.

Fig. 1.

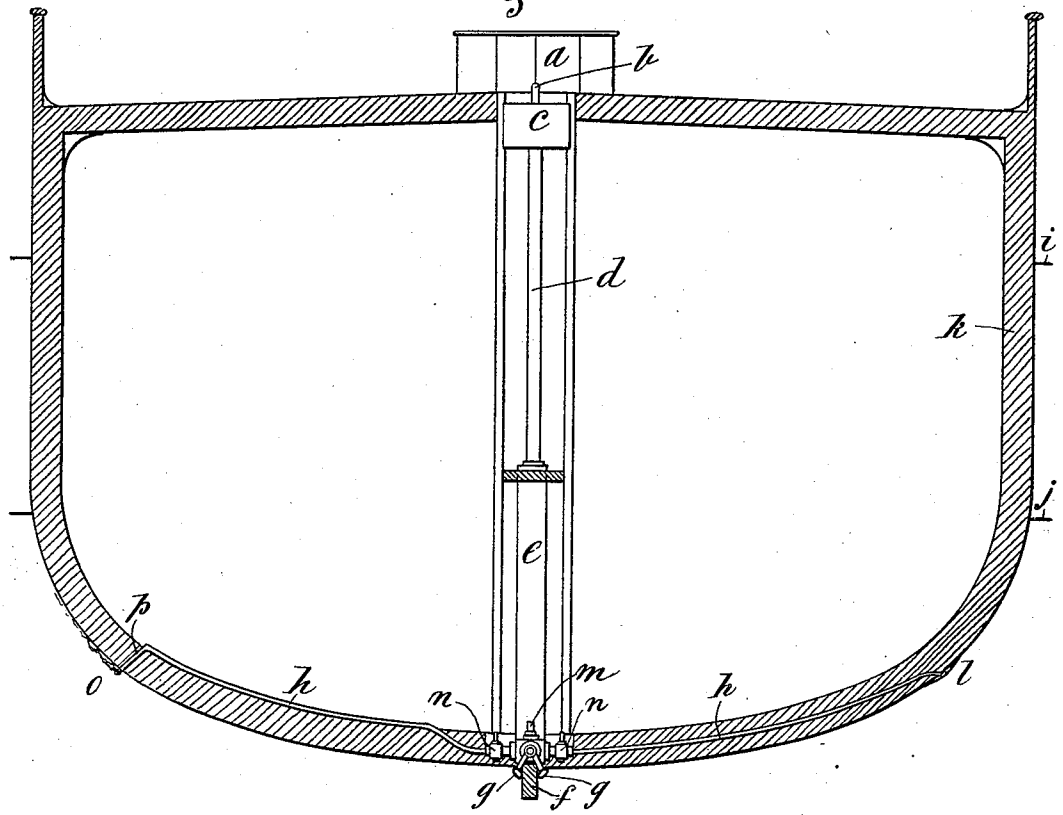
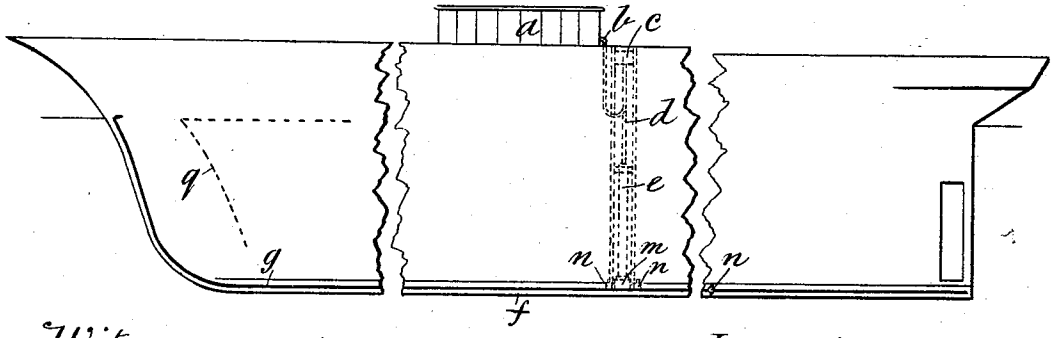


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES YORKE, OF GLASGOW, SCOTLAND.

MEANS FOR PREVENTION OF FOULING OF SHIPS' BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 541,451, dated June 18, 1895.

Application filed September 17, 1894. Serial No. 523,308. (No model.) Patented in England March 14, 1894, No. 5,298.

To all whom it may concern:

Be it known that I, JAMES YORKE, gentleman, a subject of the Queen of Great Britain, residing at 7 Park Quadrant, Glasgow, in the county of Lanark, Scotland, have invented new and useful improvements in prevention of fouling of outside skin or bottoms of vessels from growths by sea-water and by same means to accelerate speed of vessels through the water, (for which I have obtained a patent in Great Britain, No. 5,298, bearing date March 14, 1894,) of which the following is a specification.

My invention relates to the preservation of ships' or vessels' bottoms from fouling and also for accelerating speed of vessels through the water by lubricating with oil the outside skin of vessels submerged by their draft in water. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a transverse section of a vessel fitted with the apparatus. Fig. 2 is a side elevation. Parts of Fig. 2 are broken off for convenience.

For these objects, viz., the antifouling of vessels' bottoms, and increased speed by reduced friction, I fix or bolt on either side of keel *f* of vessel *k* a run of perforated pipe *g* of steel, iron, or other suitable metal or substance from stern post to water line at stern (outside) as in Fig. 2, the perforated small holes being close to outside skin or sheathing so that the oil may exude thereon. These pipes *g* are fed from supply pipes *d* and *e* connected to special tanks *a* and *c* placed most convenient for gravitation or for forced pressure graduated. For vessels of a larger class it may seem fit and advantageous to have a line of jets for oil at or near the bilge which may be had by a similar perforated pipe *l* as *g* at keel connected by conductor *h*, or a line of perforations made through plates of vessels' sheathing as at *o*, connected by small branch pipes from supply pipes *h* and *p*, the extreme end of small branch pipes having a steel jet similar to a gas burner tapped into plates. This method would be suitable for flat bottom vessels without keels and having two lines of perforated holes on either side of keels on or from stem to stern. The holes in perforated pipes *g* will vary in the distances apart according to size of hole, quality of oil and position in ship. Those forward being principally for speed will be much closer than those amidships which may be used discriminately for speed. Those aft with the others will be used occasionally when the vessel is at rest for antifouling purposes.

In the accompanying drawings the tanks and disposition of pipes conveying the oil to the outer skin of vessel from the said tanks *a* and *c* shown as placed on deck and sufficiently high for supply by gravitation but if inconvenient on deck may be placed below with a forced pressure applied. Instead of one tank several may be used if preferred. Mineral oil is necessary for antifouling.

A large tank *a* is fixed on deck divided into small compartments but communicating with each other, for holding oil, which may be paraffin or other cheap mineral oil drained from thence by hose pipe *b* to small ball-cock cistern *c* from which *d* is a conductor pipe, and may be telescoped when necessary into *e*. At bottom is a stop-cock valve *m* and branch stop-cocks *n* leading to pipes at keel *g* and also to the bilge supplies *h*. The hose *b* may be connected to *d* from the tank *a* if extra pressure is required at any time.

The foregoing description for lubricating the hull of vessels or any modification of doing so may be varied in many ways whereby the oil is laid or exuded on the outer skin of vessels so that the pressure of the sea water and motion of vessel spreads the oil on the surface of sheathing submerged.

If preferable the perforated holes in plates or perforated holes in pipes, and the aforesaid plates or pipes may be placed near the stem as indicated by dotted lines *q*, or in, or on, any other part of a vessel, wherever it may appear that the holes for oil jets may be used most advantageously.

It will be understood that the foregoing is given by way of illustration, and that the shapes, materials and proportions of the parts may be varied in many ways within the scope of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is—

In a vessel, the combination with the elevated cisterns, the supply pipes connected therewith, and the stop cock located in the

lower part of the hull, of the perforated pipes running along the outside of the hull at each side of the keel and connected with said stop cock, the branch stop cocks, connected with said stop cock, the branch supply pipes connected therewith and extending through opposite sides of the hull, and the perforated pipes located outside the hull and running along the sides thereof with which said branch pipes are connected, substantially as described.

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