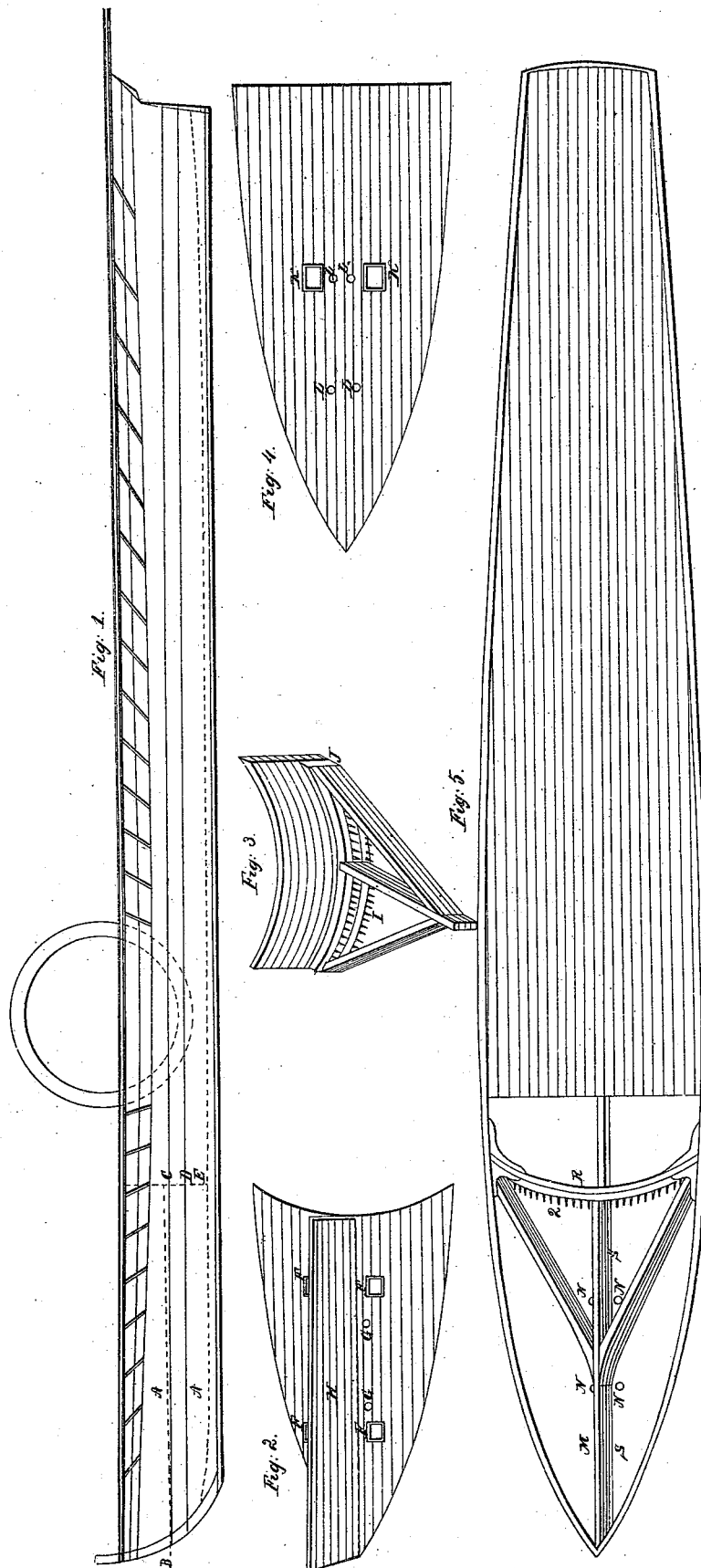


H. D. Forbes.
Building.

N^o 2,954.

Patented Feb. 16, 1849.



UNITED STATES PATENT OFFICE.

HORACE D. FORBES, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANNER OF CONSTRUCTING STEAM AND OTHER BOATS TO PREVENT THEM FROM SINKING WHEN THEY COME IN COLLISION WITH SNAGS, SAWYERS, &c.

Specification forming part of Letters Patent No. 2,954, dated February 16, 1843.

To all whom it may concern:

Be it known that I, HORACE D. FORBES, of the city, county, and State of New York, have invented a new and improved mode of preventing the sinking of steamboats and other boats which usually transport merchandise passengers when said steamboats or other boats come in collision with snags, sawyers, ice, or other objects; and I do hereby declare that the following is a full and exact description.

At the widest part of the boat I build a bulk-head (strong and water-tight) from the bottom to the deck, and either directly across or at a curve from the bulk-head I build, to extend to the bow of the boat, what I term the "safety-chambers." These, it will be seen by reference to the drawings, are two—an upper and a lower one. The lower one is divided into four apartments formed by one partition running through the center on top of the keelson from the bulk-head to the bow, and by a partition each side of that partition, which form fenders to facilitate the glancing of snags outward. Four hatchways open through the deck of the safety-chamber into the four separate apartments. Projecting from the lower part of the bulk-head, but inside the chamber, are one or more rows of metal teeth 1 2 in the drawings, and three or more inches long, so that if a snag will not glance outward it may be prevented from getting under the bottom of the boat in rear of the safety-chamber by being pierced by the teeth, and thus held uprooted or thrown over. The deck of this safety-chamber, when the boat is loaded, is never to be below the surface of the water, so in case of striking a snag, unless the snag is above the surface, it cannot pierce the said deck. It is intended this lower safety-chamber shall be permanently filled with empty vessels, water-tight casks or tanks, or with any other material of light specific gravity, so in case it be pierced the buoyancy of the boat may be diminished as little as possible that she may be easily extricated. The upper safety-chamber is formed by running a water-tight partition lengthwise above the deck of the lower chamber from the bulk-head to the bow of the boat, the deck of the boat serving as a deck or top to the safety-chamber. The necessary hatchways are to open from the deck of the boat into this up-

perchamber. One or more pumps, depending on the number of apartments, may be placed in the safety-chambers for the purpose of clearing the water therefrom in case of leakage. The lower safety-chamber may be one entire room or filled with many water-tight apartments, which apartments may serve as buoyants in case of damage by collision; or the said lower safety-chamber, being one entire room, or but little contracted by partitions, may not be permanently filled with buoyants, but may be filled each trip or voyage with merchandise of small value and of light specific gravity. The upper chamber is intended for freight or merchandise; but this may be permanently filled with buoyants, if desired. If it be desired to use but the lower safety-chamber, it is not absolutely necessary that the bulk-head be built any higher than will be required to give the said chamber its proper depth, which, as before stated, must be so that the deck thereof, when the boat is loaded, will be as high or higher than the surface of the water. The partition in the upper chamber running from the bulk-head to the bow is not indispensable, but desirable in case it should by any possibility happen that a snag should penetrate through the deck of the lower safety-chamber. The partitions in the lower safety-chamber to facilitate the glancing of snags are also not indispensable, for it is probable that the resistance offered by the breaking in of the chamber and the materials therein will be great enough to stop the boat before the snag comes in contact with either of the fenders. These two fenders or side partitions, if desired, may be left quite open, so if the water gets into any other part of the chamber it can pass freely. In such case the number of hatchways and pumps required will be diminished. The metal teeth may not be absolutely necessary, as the snag may stop or glance outward before it gets in their vicinity. In every case all parts of the safety-chamber must be of strong materials, firmly built, and kept water-tight, and all openings or hatchways, except those leading from the deck of the boat into the upper chamber must be closed in a secure manner when not in use.

Boats using my safety-chamber should draw rather more water forward than astern or load on an even keel, so if they strike it will be at the safety-chamber.

It is intended to be understood that the keelson is above the ceiling, and that the safety-chambers are timbered and planked under the ceiling, as is usual for steamboats.

It will be well in building or altering boats to fasten the butts of the outside plank, which will be under water, so some of them be bolted against the aforesaid bulk-head, so in case they are forced off the safety-chamber these can easily be replaced.

Boats may be built or rebuilt to use my safety-chambers or cut off and lengthened for that purpose, or the chamber may be added on to the bow end of the boat, and the lower one may extend, if desired, somewhat beyond the bows and sides; but I deem the one herein described decidedly the best mode of constructing the safety-chamber.

In the drawings, Plate No. 1 is a side view of the boat. A A shows where the two safety-chambers are inside. B shows the deck of the lower safety-chamber or the bottom of the upper chamber. C shows the water-line of the boat when laden. D shows the water-line of the boat when unladen. E shows the widest part of the boat and where the bulk-head is inside.

Plate No. 2 is a top view of the deck of the lower safety-chamber with the partition of the upper safety-chamber attached. F F F F are

hatchways. G G are pumps. H is a partition of the upper safety-chamber.

Plate No. 3 is a front view of bulk-head and teeth. I represents metal teeth. J is a foundation of bulk-head, to be built very strong.

Plate No. 4 is a top view and forward part of the deck of the boat or top of the upper safety-chamber. K K are hatchways. L L are pumps.

Plate No. 5 is an inside view of the lower safety-chamber. M is a partition through the chamber. N N N N are pumps. P P are side partitions or fenders. Q are metal teeth. R is the bulk-head. S S represent the keelson.

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

1. The upper and lower safety-chamber, combined and arranged as herein set forth.

2. The rows of metal teeth placed in front of the lower part of the bulk-head, for the purpose herein described.

3. The fenders P on each side of the keelson, constructed and arranged as above specified, in combination with the lower safety-chamber.

New York, January 28, 1843.

HORACE D. FORBES.

Witnesses:

FRANCIS J. LIPPITT,
LEWIS HURST.