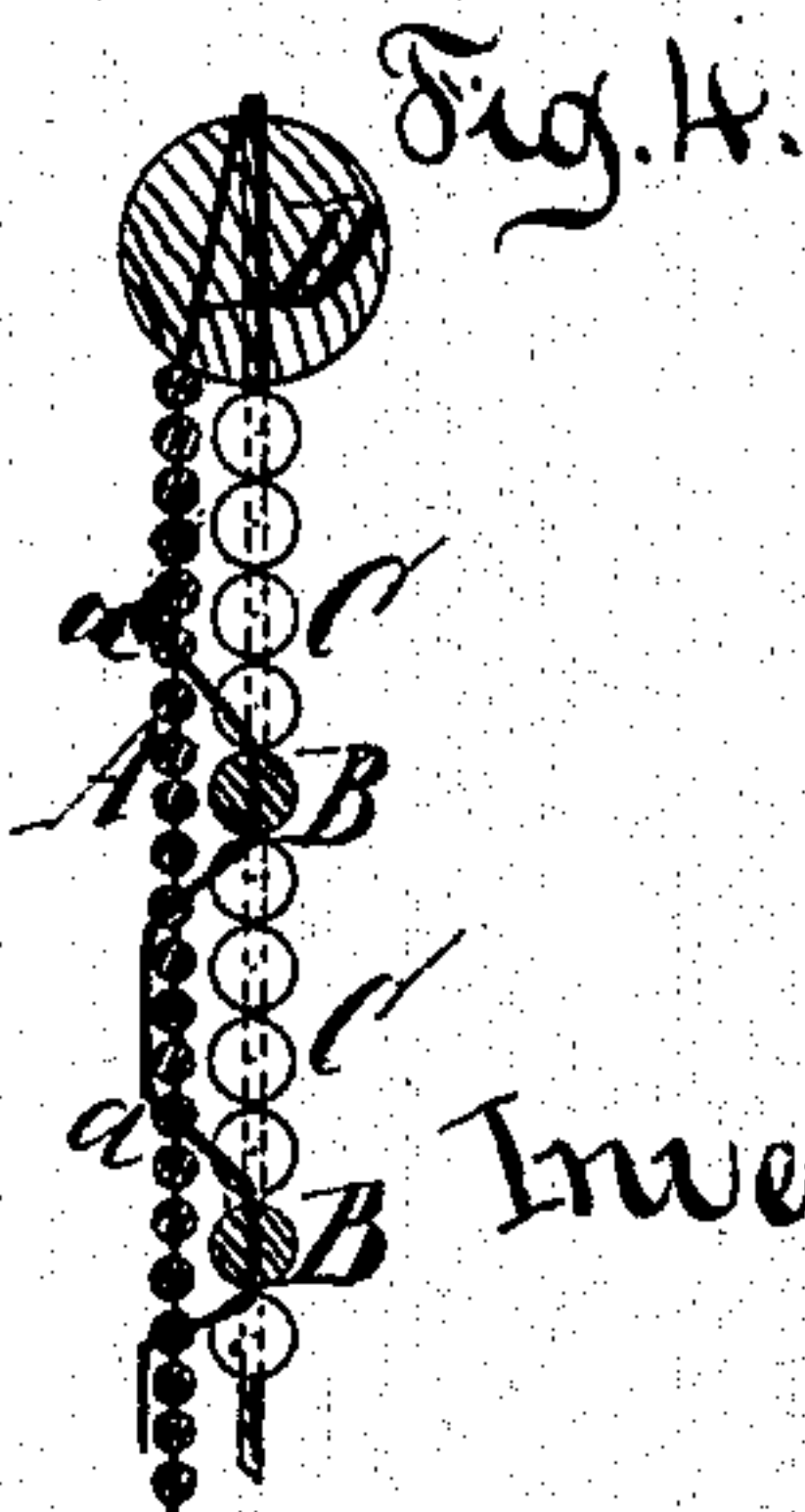
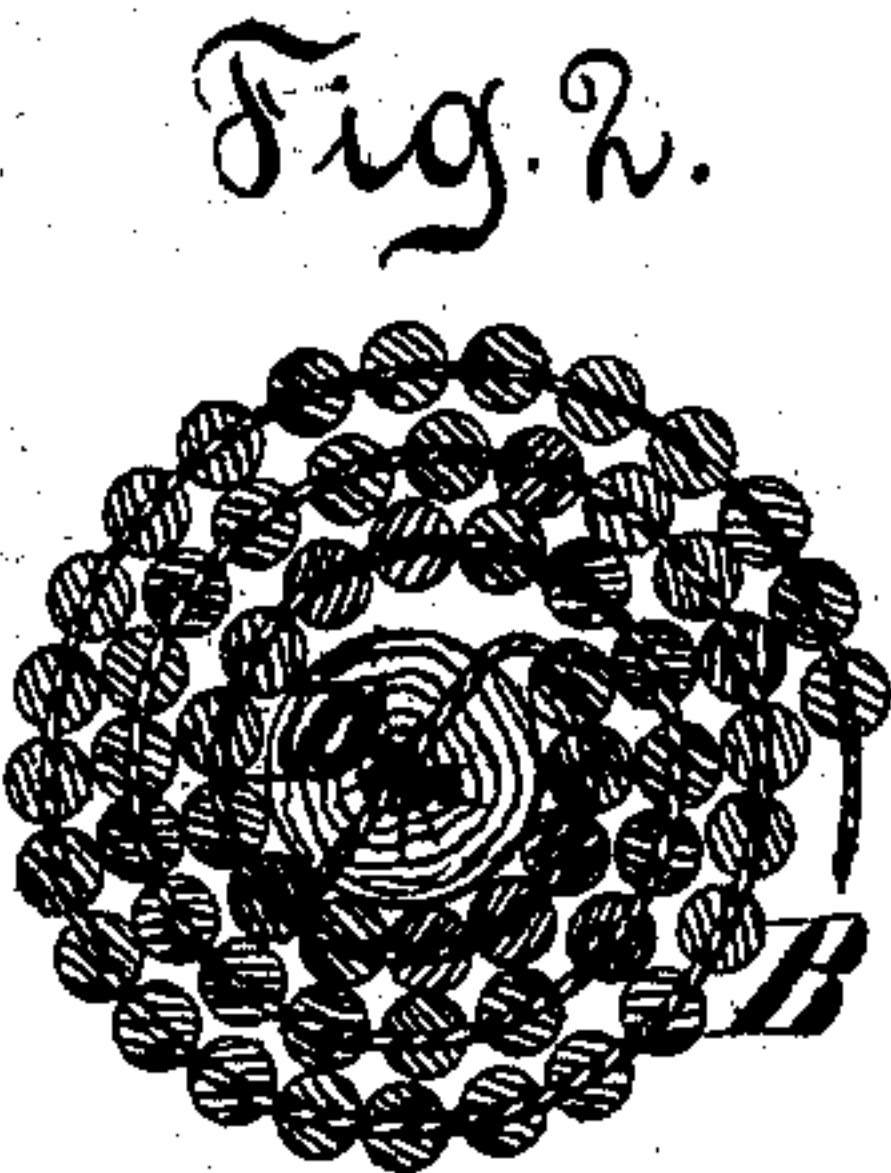


N. H. BORGFELDT.  
Life-Rafts

No. 146,426.

Patented Jan. 13, 1874.



Witnesses.  
Ernst Bilhuber  
Henry J. J. J.

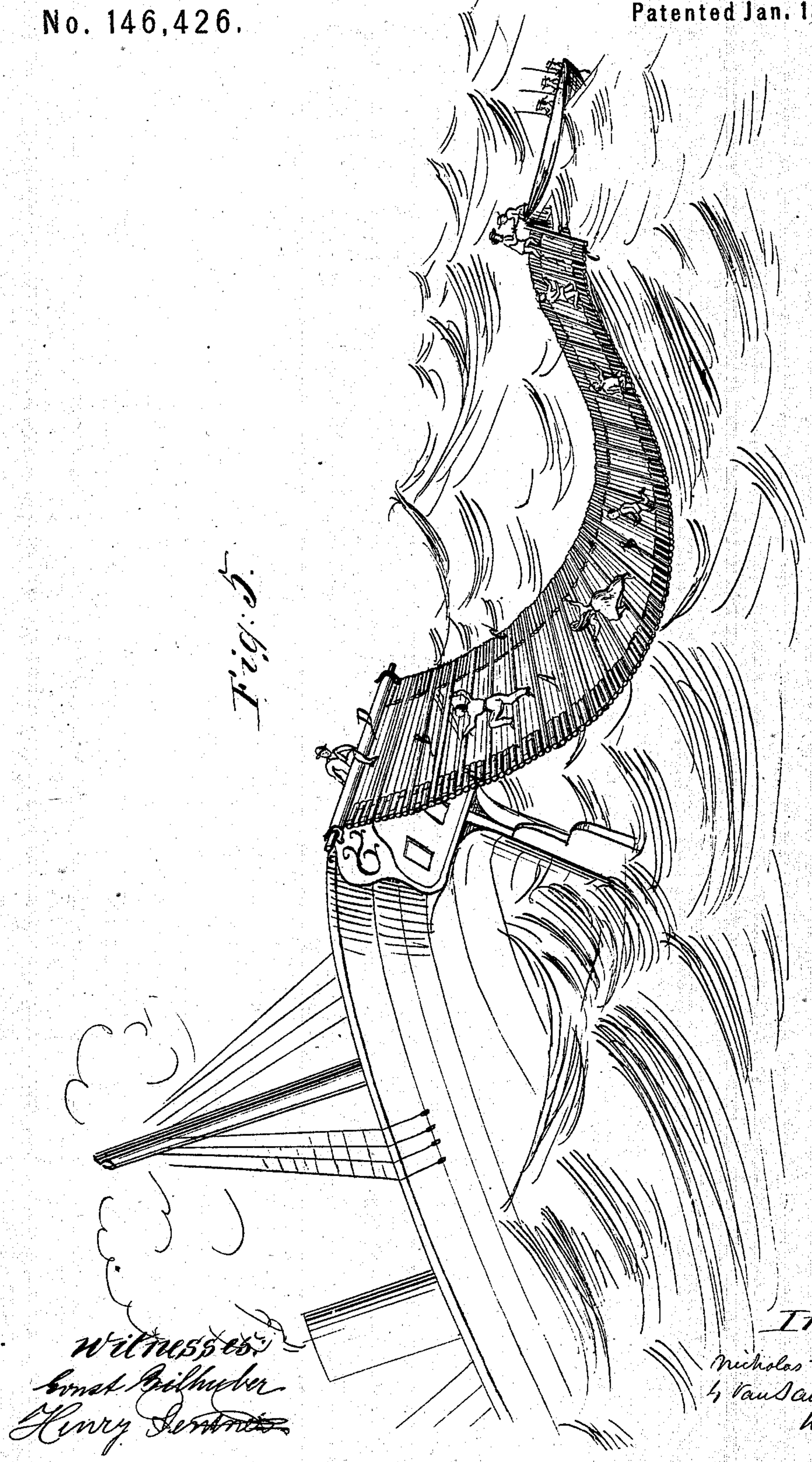
Inventor.  
Nicholas H. Borgfeldt  
by Vausant & Hauff  
his attys.



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# UNITED STATES PATENT OFFICE.

NICHOLAS H. BORGFELDT, OF NEW YORK, N. Y.

## IMPROVEMENT IN LIFE-RAFTS.

Specification forming part of Letters Patent No. **146,426**, dated January 13, 1874; application filed December 26, 1873.

*To all whom it may concern:*

Be it known that I, NICHOLAS H. BORGFELDT, of the city, county, and State of New York, have invented a new and useful Improvement in Life-Rafts; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of my life-raft when the same is ready for use. Fig. 2 is a transverse section of the same when rolled up, in the plane *x x*, Fig. 1. Fig. 3 is a similar section of the same when unrolled, in the plane *y y*, Fig. 1. Fig. 4 is a similar section of the same in the plane *x x*, Fig. 1. Fig. 5 is a perspective view of the same.

Similar letters indicate corresponding parts.

This invention relates to a life-raft which is composed of two sets of hinged floats, which are connected by traverses, with a flexible apron secured to the traverses between said floats, in such a manner that when the raft is not to be used it can be rolled up and stowed away in a comparatively small space, and when the raft is to be used it can be readily unrolled and thrown overboard, when it is capable of supporting a large number of persons. When the raft is lowered and secured at one end to the side or stern of a vessel, the traverses serve as steps on which the passengers and the crew of said vessel can readily descend. When the raft is in the water, the traverses afford a good hold for the persons occupying the flexible apron.

In the drawing, the letter A designates an apron, which may be made of a series of round bars of wood fastened together by ropes, or which may be made of a strong canvas or any other suitable flexible material. This apron is of considerable length, and of any convenient width, and it is secured by means of ropes *a* to traverses B, which extend beyond the apron on both sides, and the ends of which are secured to floats C. These floats are so arranged that they are flexible and capable of accommodating themselves to the motion of the water, and they may be constructed either of pieces of cork fastened between strips of wood or of hollow cylinders filled with cork shavings, or of canvas bags, or in any other suitable manner which will produce the de-

sired effect. The traverses B and floats C are connected by ropes, so that the entire structure is rendered flexible and capable of accommodating itself to the motions of the waves, and said traverses are at convenient distances apart, and in such positions that persons sitting or standing on the apron A, when the same floats in the water, can readily grasp one of the traverses, and thereby retain their position on the raft, even if the sea should go high. The connecting-ropes of the apron A and of the floats C are secured at one end to a roller, D, which is provided with gudgeons, that may have bearings provided for them in the stern or side of a vessel. By turning the roller in the proper direction, the entire raft is wound up thereon, so that it occupies comparatively little room, and that the same can be readily unwound ready for use. If desired, however, the roller D can be dispensed with, and the raft can be wound up on itself, and fastened to the stern of the vessel simply by ropes, and when the raft is suspended from the stern of the vessel, as shown in Fig. 5, the traverses B serve as steps to enable persons to descend with safety upon that portion of the raft which floats in the water. When all have descended, or if the vessel begins to sink, the ropes are cut or the roller D is cast loose, and the raft will float on the water with a large number of persons for a long time. The apron A, which supports the passengers of the raft, is depressed beneath the floats C and traverses B, so that said passengers can take a firm hold of the traverses, and that they are not liable to be washed away by waves passing over the raft.

It will be readily seen from the above description that my raft will afford safety for all the passengers and for the crew of a vessel in case of an accident which compels them to leave the vessel at a short notice.

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

A life-raft composed of two or more sets of hinged floats, which are connected by traverses, and of one or more aprons suspended from said traverses or floats, substantially in the manner herein shown and described.

NICHOLAS H. BORGFELDT.

Witnesses:

W. HAUFF,

CHAS. WAHLERS.