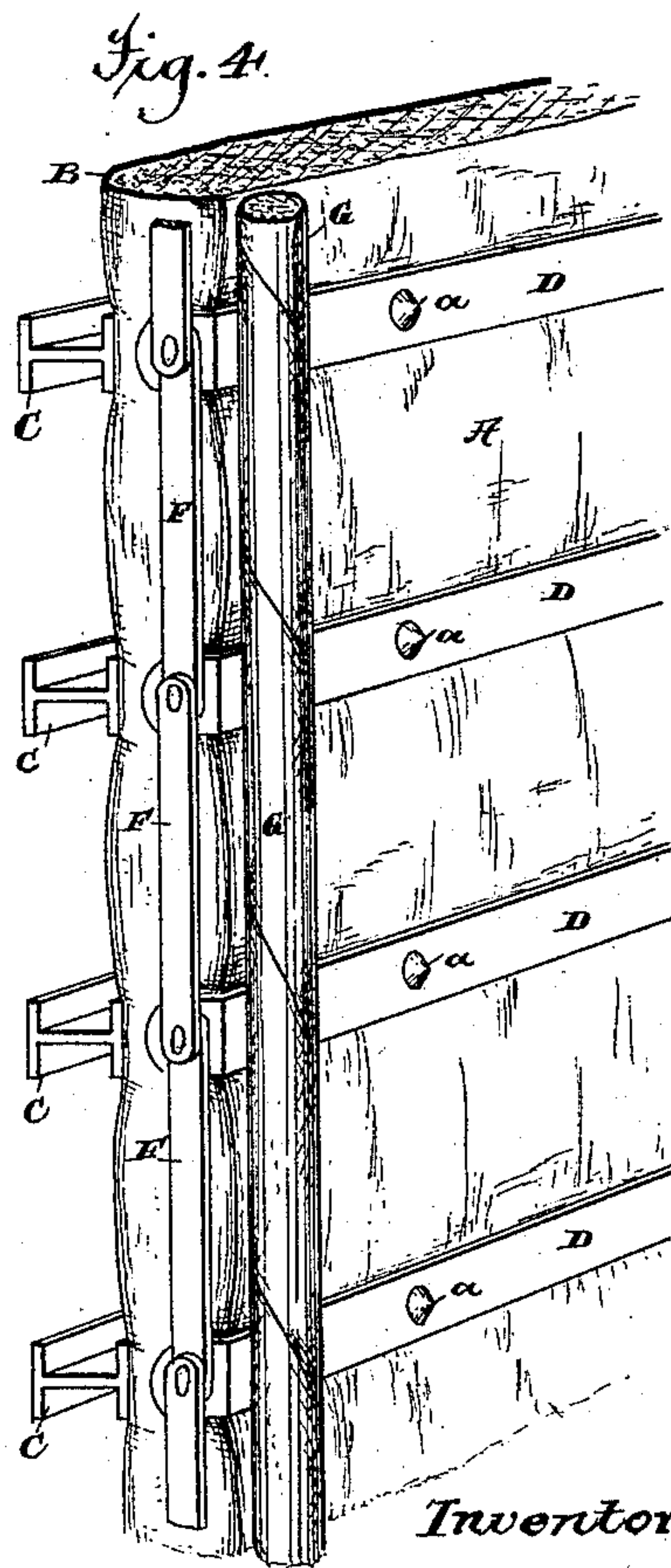
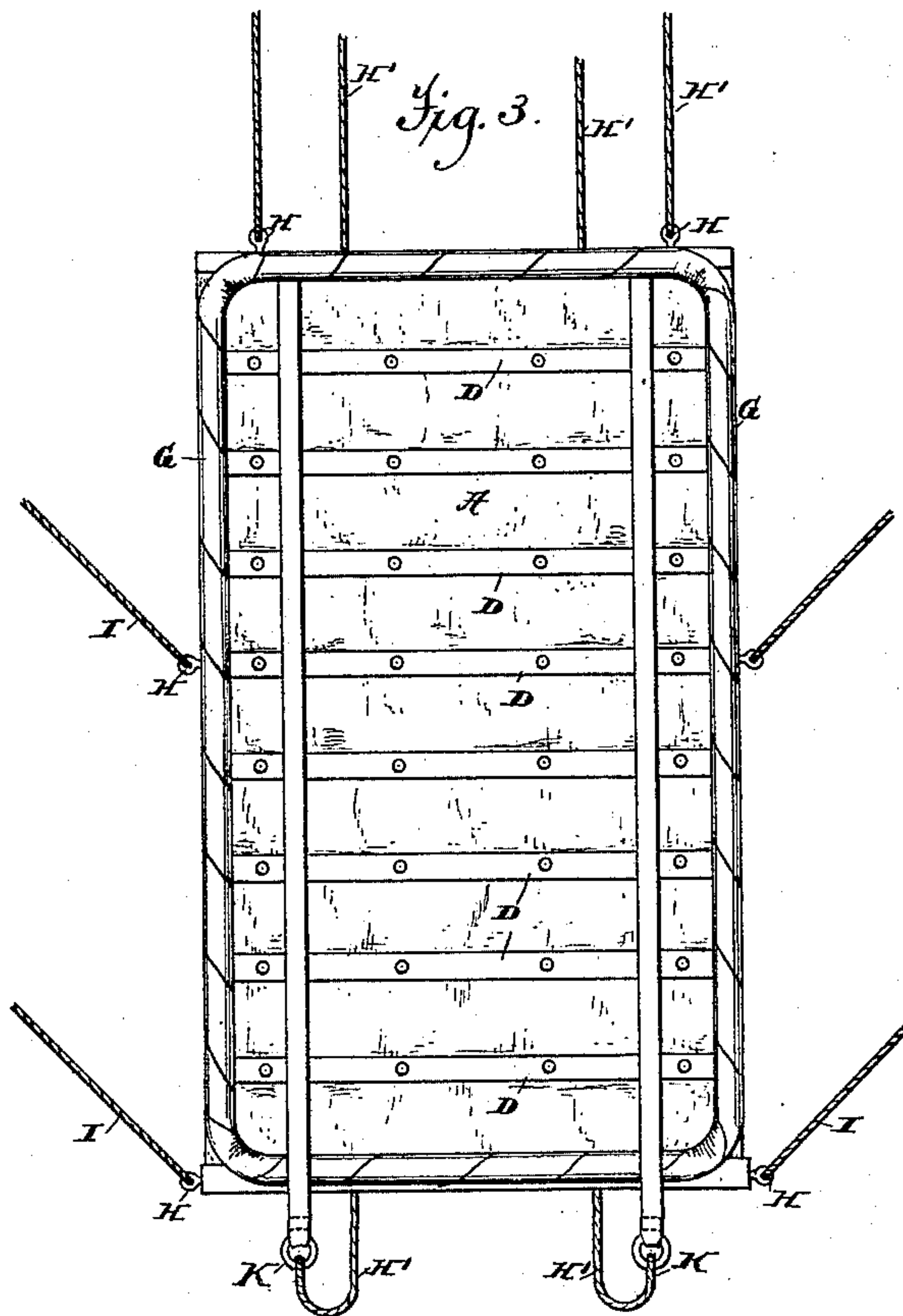
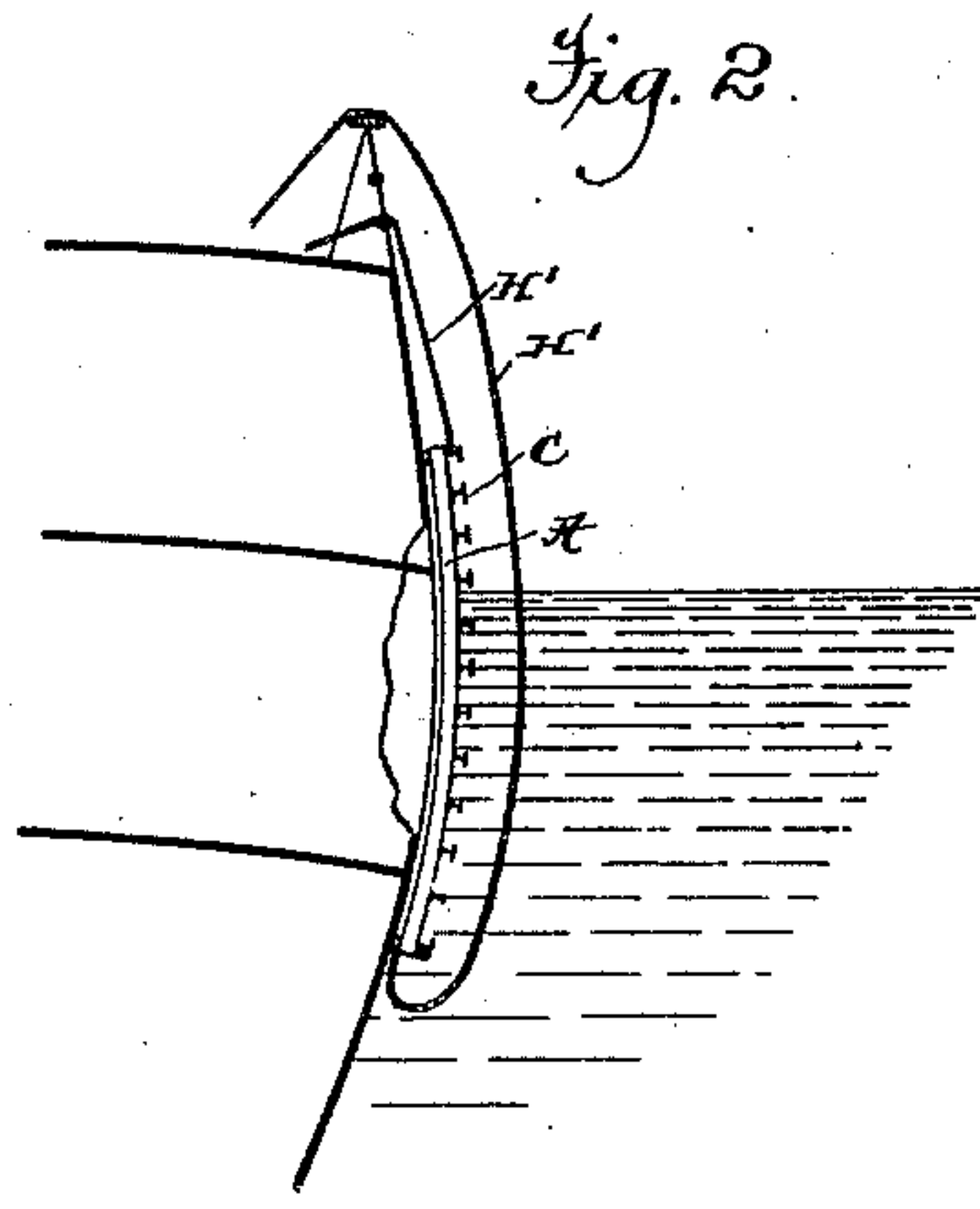
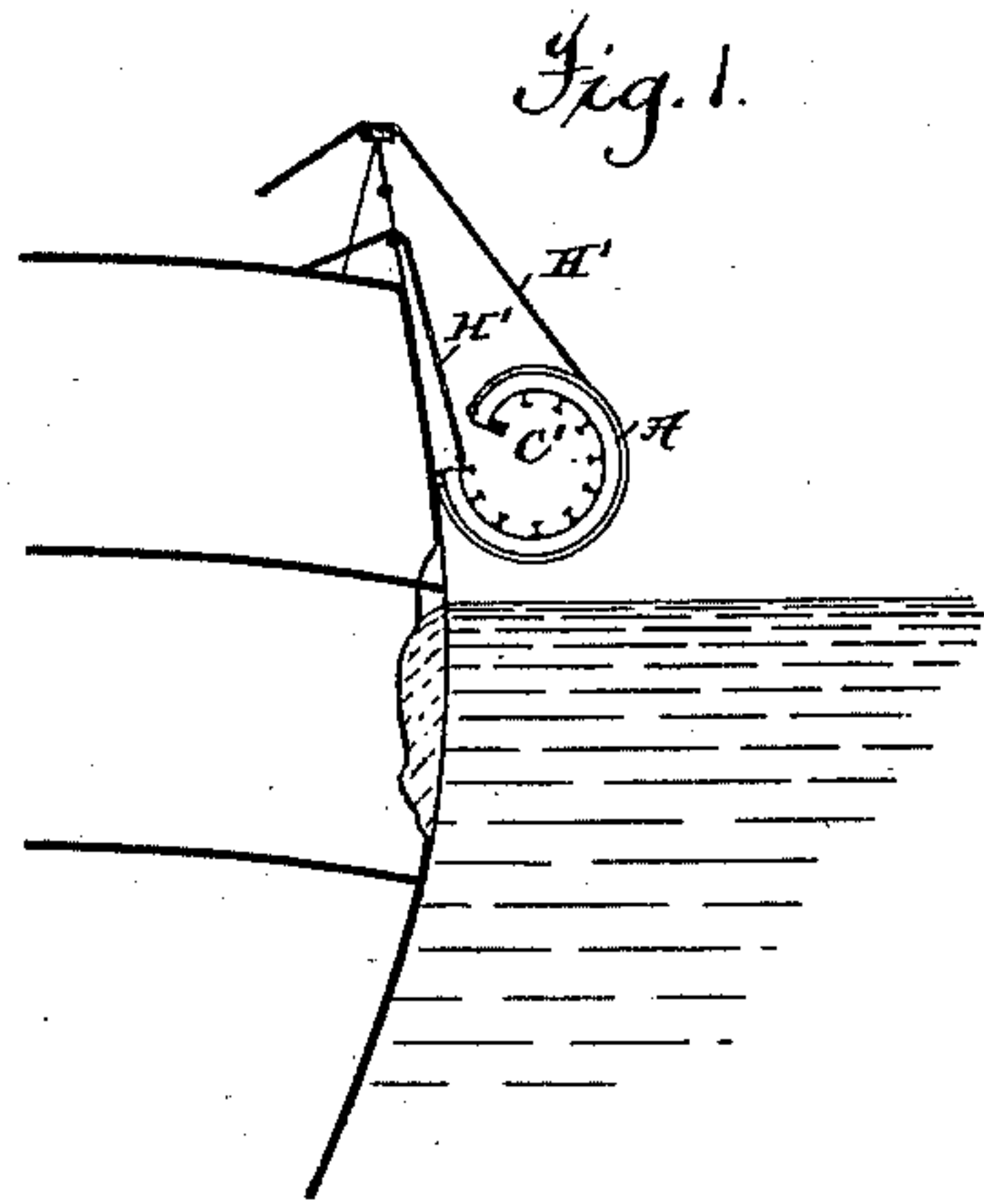


(No Model.)

C. H. S. SCHULTZ.  
LEAK STOPPER FOR SHIPS, &c.

No. 387,200.

Patented July 31, 1888.



Attest:  
Geo. H. Graham,  
J. P. Storm.

Inventor:  
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per Behrens & Cady,  
Atty's.



# UNITED STATES PATENT OFFICE.

CHARLES HENRY SAMUEL SCHULTZ, OF STETTIN, GERMANY, ASSIGNOR TO  
THE AMERICAN PATENT RIGHTS CORPORATION, (LIMITED,) OF PHILA-  
DELPHIA, PENNSYLVANIA.

## LEAK-STOPPER FOR SHIPS, &c.

SPECIFICATION forming part of Letters Patent No. 387,200, dated July 31, 1888.

Application filed November 12, 1886. Serial No. 218,677. (No model.) Patented in France December 16, 1886, No. 178,016; in Belgium September 15, 1886, No. 74,344; in Italy September 30, 1886, No. 20,457; in England October 12, 1886, and in Germany October 27, 1886.

*To all whom it may concern:*

Be it known that I, CHARLES HENRY SAMUEL SCHULTZ, a subject of the Emperor of Germany, residing in Stettin, Germany, have invented a new and useful Improvement in Collision-Aprons, (for which I have obtained patents in no country so far, although I have made applications for Letters Patent in quite a number of countries,) of which the following is a specification.

This invention relates to improvements in leak-stoppers for covering holes made in vessels by collision or otherwise.

My invention consists in the combination of parts hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a view of the device secured to the ship's side and ready to be unrolled. Fig. 2 is a similar view showing the apron unrolled and covering the opening. Fig. 3 is an inside view of the apron unrolled, with its securing-ropes; and Fig. 4 is a view of a portion of the apron, showing the parts enlarged.

In cases of collision on the ocean, aprons of canvas or of canvas and rubber or of canvas and wire-netting have been used, and found in many cases to be ineffectual in stopping the leak, as such aprons have been drawn through the opening by the tremendous pressure or suction of the water before they could be secured in place. In constructing my device I first preferably make the apron like a mattress, so that it will not only be very thick and strong, but also will become weighted by being soaked with the sea-water, so as to aid it in sinking. The mattress is preferably weighted at its lower edge, and is strengthened and braced by I-bars on the outside and by plain steel bars on the inside, the latter also adding to the weight for sinking the apron. The mattress is further strengthened by pivoted side bars, which allow it to be rolled up, and also prevent it from buckling. The outside and edges of the mattress are protected by a water-proof covering, and the inside face has a bead adjacent to its edge, which is pressed firmly against the ship's side by the water, thus pre-

venting the entrance of water between the mattress and the ship's side.

Referring to the drawings, A indicates the apron, which may be of any desired shape. In the present instance it is shown square. The body of the apron preferably consists of a thick mattress stuffed with some suitable material which will absorb water and become heavy. Its inside face is formed of some stout material not water-proof, so that the water can pass through into the stuffing. It may, however, be made of a thick canvas, which will absorb water and is water-proof on one side. Being constructed like a mattress, the apron will not only be stout, but will also afford a yielding surface on the inside to bear against and accommodate itself to the projecting and ragged edges of the broken plates of the ship's side about the opening.

The outside and edges of the mattress A are covered with any suitable water-proof canvas or other covering, B, and I-beams C are placed across the outside and bolted by bolts *a* and nuts to steel bars D, which extend across the inside. The I-bars act as a strong brace for the mattress against the tremendous pressure of the water, besides assisting by their weight in quickly sinking it, so as to cover the hole. The rapid sinking of the mattress is further facilitated by a heavy iron bar, E, attached to the lower edge of the mattress. The latter is prevented from bulging on the inside by the bars D, united to the beams C, and is strengthened and protected against buckling by the bars F, pivoted to each other, so as to be rolled up and unrolled. These, in addition to bars D, also aid in sinking the apron. The projection or bead G, adjacent to the inside edge of the mattress, serves by pressing against the side of the vessel to render the apron water-tight.

The apron when not in use is rolled up and located in some convenient part of the ship—say about midships—so as to be readily accessible, and when required for use is carried to the ship's side above the opening, and is secured by its upper end in any suitable way to the ship's side.



In the present case the upper and lower ends of the mattress are shown as provided with eyebolts H, rings K, and ropes H', which are secured to any convenient part of the ship.

5 Ropes I, attached to the sides of the apron, are passed around the bow or stern, or both, and dropped so as to be hauled up under the vessel and draw the apron against the hole, and, being secured, hold the apron in place.

10 When the apron is rolled up, the I-beams are on the inside of the roll.

The operation of the device is as follows: When a collision has taken place, the rolled-up apron is carried to the side of the vessel above the break and is secured at its upper end. It is then let go over the side, the I-beams and the other bars causing it to unroll and sink rapidly. The mattress entering the water becomes soaked therewith, and this, together

15 with the weight of the bars, quickly sinks it, and then the pressure of the water forces it toward and holds it over the hole. The side lines I having been passed around the bow or stern, or both, are dropped so as to pass under

20 the vessel, and are then hauled taut on the opposite side from the leak and secured, thus holding the apron in place. The leak is thus effectually stopped, and the vessel may be brought into port.

I am aware of United States Patents No. 30 312,613 to J. B. Corey, No. 349,719 to D. Jarves, No. 351,971 to J. F. Frisbie, and No. 353,718 to J. H. L. Tuck, and to the inventions therein shown I lay no claim.

Having described my invention, what I 35 claim, and desire to secure by Letters Patent, is—

1. A leak-stopper for vessels, consisting of a mattress water-proof on the outside face to prevent the entrance of water from without, 40 and porous on the inside, so that when used it will be quickly soaked with water, and thus weighted assist in sinking, substantially as described.

2. A leak-stopper for vessels, consisting of a 45 mattress water-proof on the outside face to prevent the entrance of water from without, and porous on the inside, so that when used it will be quickly soaked with water, and thus weighted assisted in sinking, the inside face 50 being provided with a bead at its edges, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

CHARLES HENRY SAMUEL SCHULTZ.

Witnesses:

JULIUS DITTMER,  
PAUL FENKE.