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N. C. YORGENSEN-GUNDHOLM.  
PROTECTOR FOR VESSELS IN CASE OF COLLISION.  
APPLICATION FILED MAY 3, 1906.

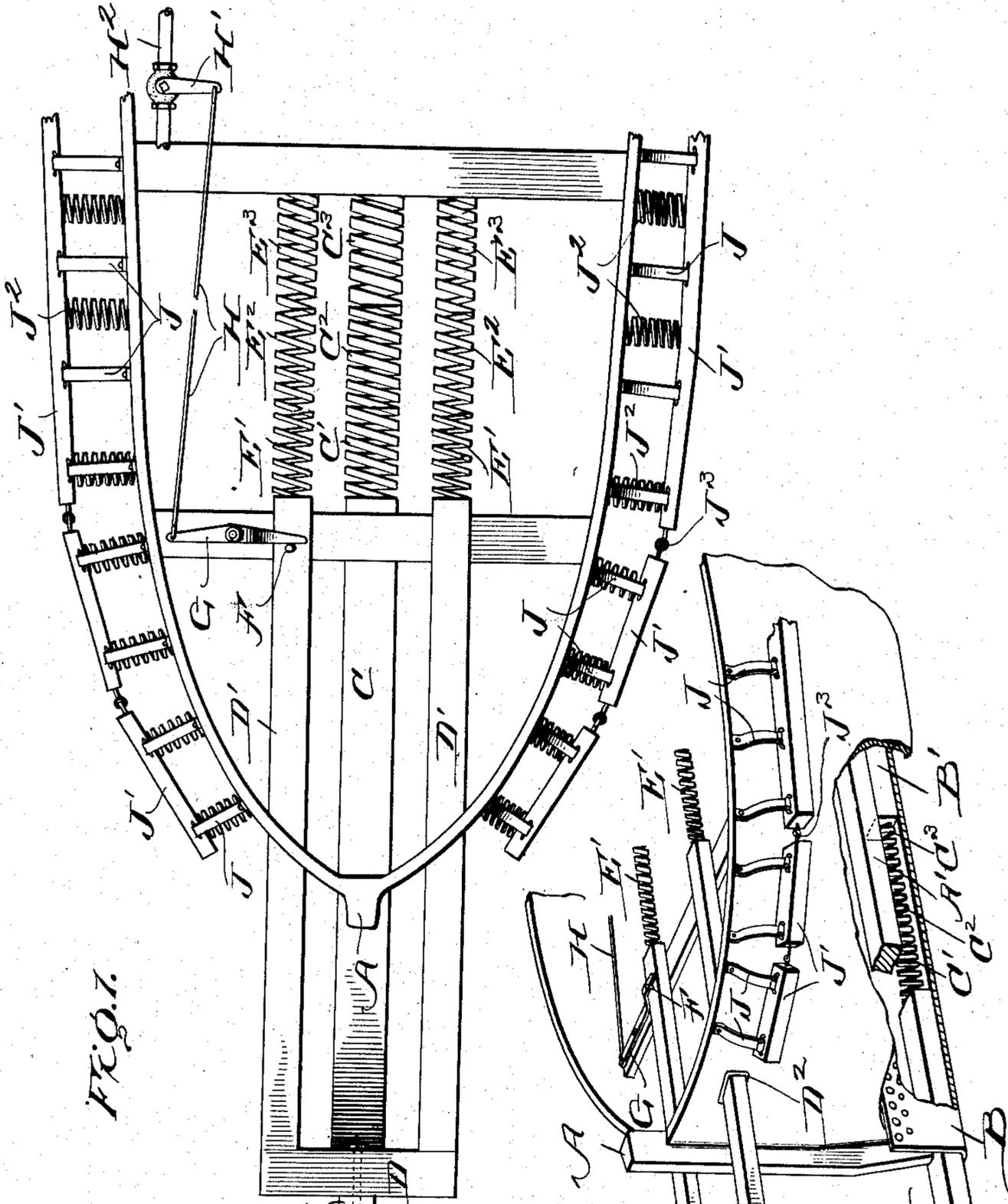


FIG. 1.

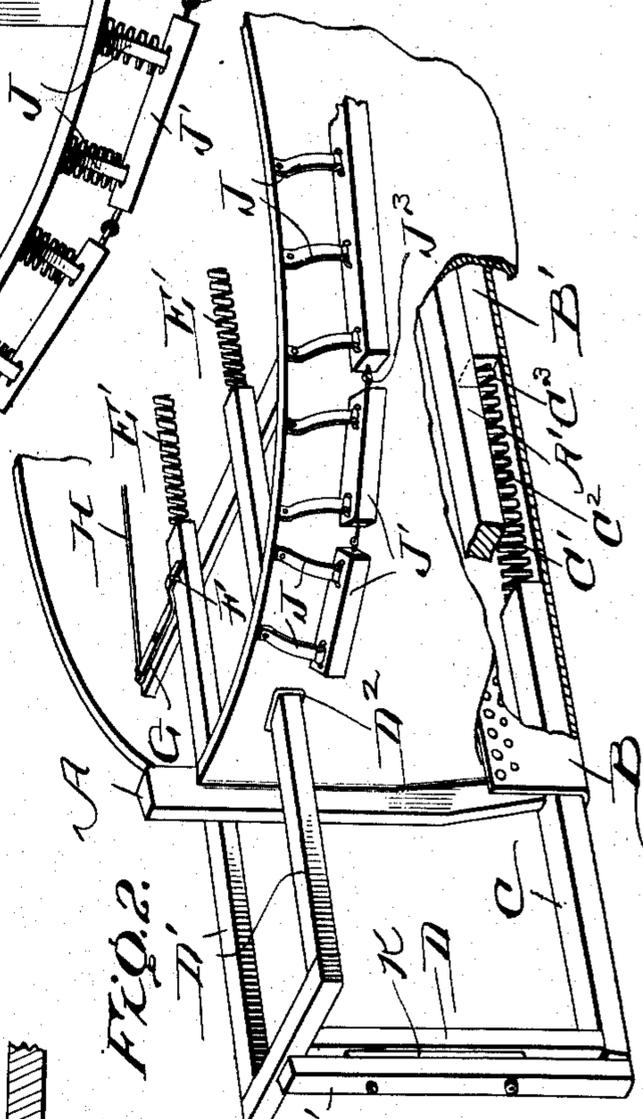


FIG. 2.

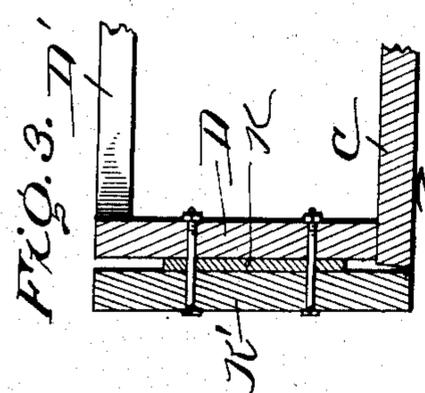


FIG. 3.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## PROTECTOR FOR VESSELS IN CASE OF COLLISION.

No. 865,244.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed May 3, 1906. Serial No. 315,118.

To all whom it may concern:

Be it known that I, NIELS CHRISTIAN YORGENSEN-GUNDHOLM, a subject of the King of Denmark, residing at Bradfordville, in the county of Leon and State of Florida, have invented a new and useful Improvement in Protectors for Vessels in Case of Collision, of which the following is a specification.

This invention relates to a protector for vessels in case of collision.

10 The invention consists of stem and side buffers, the buffers being backed by springs, and provided with means for automatically checking the speed of the vessel, sounding an alarm or reversing the engines, as may be desired.

15 The invention consists of the novel features of construction, hereinafter fully described, pointed out in the claims, and shown in the accompanying drawings, in which:

20 Figure 1 is a diagrammatic plan illustrating the relative arrangement of the various parts, the keel and bottom of the vessel being removed to show parts under the keel. Fig. 2 is a perspective view of the bow portion of the vessel, showing my device in position, parts being broken away or removed. Fig. 3 is a vertical section through the forward end of the buffer.

25 In these drawings A, represents a stem of a vessel and A', the keel.

30 A casing B, is carried by the keel and is open at its forward end. The casing B is closed at its rear end by a block or beam B', which is fastened to the under side of the keel A'.

35 Sliding in the forward portion of the casing B, and projecting outwardly therefrom, is a horizontal buffer beam C, and this beam bears at its inner end upon springs C', C<sup>2</sup>, and C<sup>3</sup>, arranged within the casing B, and increasing in size and strength in the order named.

40 Upon the forward end of the buffer beam C, is arranged a T-standard D, and to the T-head of the standard are arranged the forward ends of upper buffer beams D', the inner ends of which slide within suitable boxes D<sup>2</sup>, the forward ends of which open outwardly through the bows of the vessel and upon opposite sides of the stem A.

45 Within the boxes D<sup>2</sup>, are arranged in the order named springs E', E<sup>2</sup>, and E<sup>3</sup>, increasing in size and strength in the same manner as the springs C', C<sup>2</sup> and C<sup>3</sup>.

50 Upon one of the buffer beams D', is arranged a pin F, which projects upwardly and engages an end of a pivoted lever G, and to the opposite end of the lever is connected a cable H, which is connected to an extra pipe stop H', placed in a steam pipe H<sup>2</sup>, and between the boilers and engines.

Upon the sides of the vessel adjacent the bows and for any distances thought necessary, are secured compound curved springs J, the springs being fastened to the sides of the vessel at their upper ends and at their lower ends, they support a plurality of buffer blocks J'.

60 Coil-springs J<sup>2</sup>, are interposed between the inner faces of these blocks and on sides of the vessel and the blocks upon the same side of the vessel are connected together by suitable links J<sup>3</sup>.

To strengthen the outer portion of the buffer and cause a blow to be distributed upon the upper and lower buffers, I secure a block K, to the upright portion of the T-head D, and to the front face of this block K is arranged an upright beam K', which beam receives the impact of a head on blow. By using the beam K', a blow received by reason of the vessel striking anything under the water line will be transmitted and act upon the upper buffers D', as well as upon the keel buffer C, and should the blow be delivered above the water line, a portion of the shock will be taken up by the keel buffer C, instead of throwing all of it upon the upper buffers.

75 The advantages of the construction herein described will be obvious from this description and from the drawings.

80 Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a vessel, a casing carried by the keel, of the vessel having a buffer beam working in the casing and projecting in advance of the bow of the vessel, and a plurality of spiral springs arranged in said casing in the rear of the inner end of the buffer beam, said springs increasing in size and strength as the rear end of the casing is approached.

2. The combination with a vessel, a plurality of coil springs carried thereby, buffers bearing upon said springs and connected together, a pivoted lever, a cable having one end attached to said lever and means carried by one of the buffers for moving the lever upon movement of the buffer inwardly.

3. In a vessel having keel and stem, springs carried by the keel, boxes opening through the vessel bow, springs in said boxes, a buffer frame comprising beams projecting in advance of the stem, and bearing on said springs, and means connecting the beams.

4. The combination with the bow portion of a vessel, of a casing carried by the keel, boxes parallel to the keel and opening through the bow of the vessel on opposite sides of the stem, buffer beams working respectively in the casing and in the boxes and bearing on the springs, a cross piece connecting the beams working in the boxes, and a block connected to the outer end of the beam working in the casing, and to the cross piece between the remaining beams.

NIELS CHRISTIAN YORGENSEN-GUNDHOLM.

Witnesses:

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