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PATENTED MAY 30, 1905.

C. DOUGHERTY & H. F. WILKINSON.

LIFE SAVING APPLIANCE.

APPLICATION FILED AUG. 22, 1904.

2 SHEETS—SHEET 1.

Fig. 1

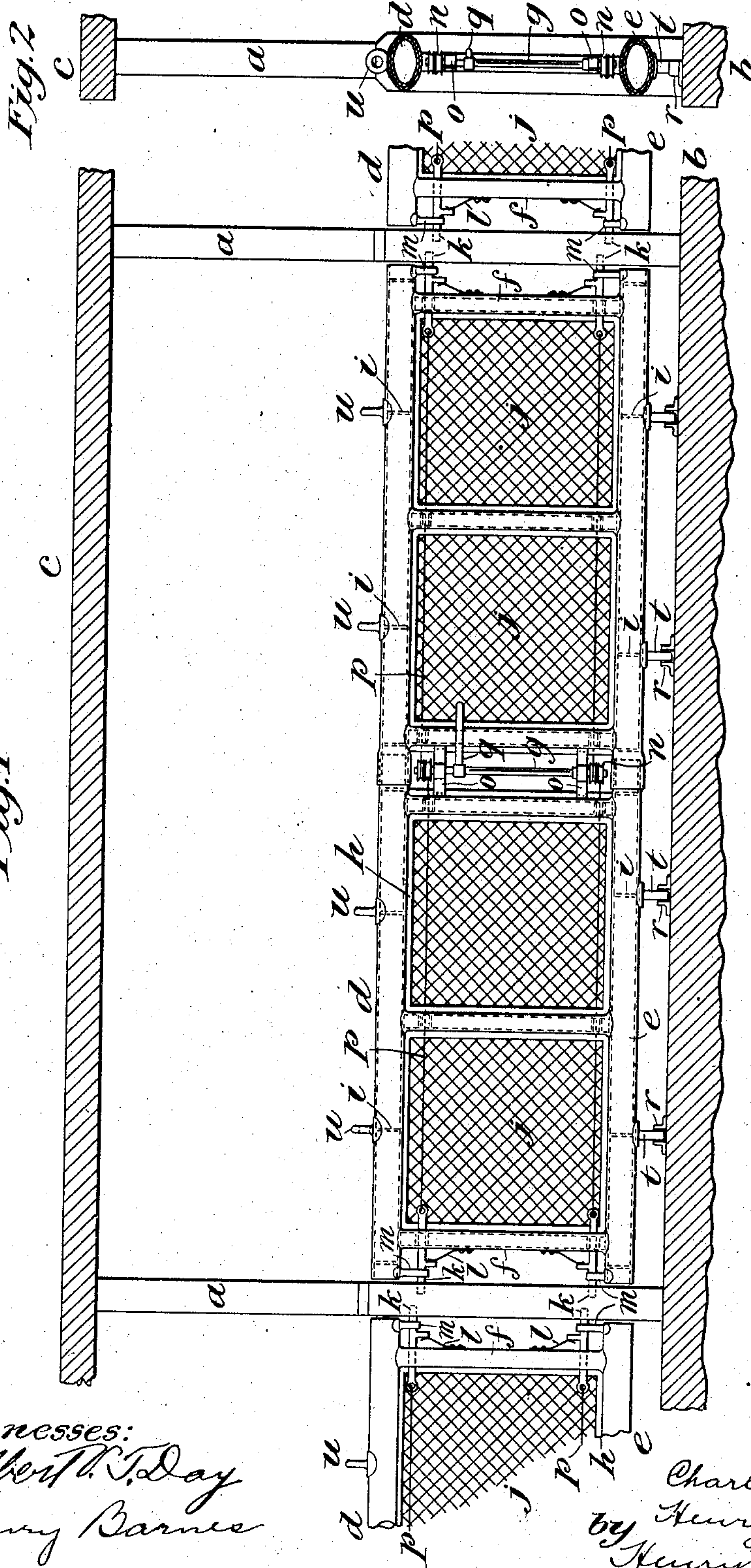


Fig. 2

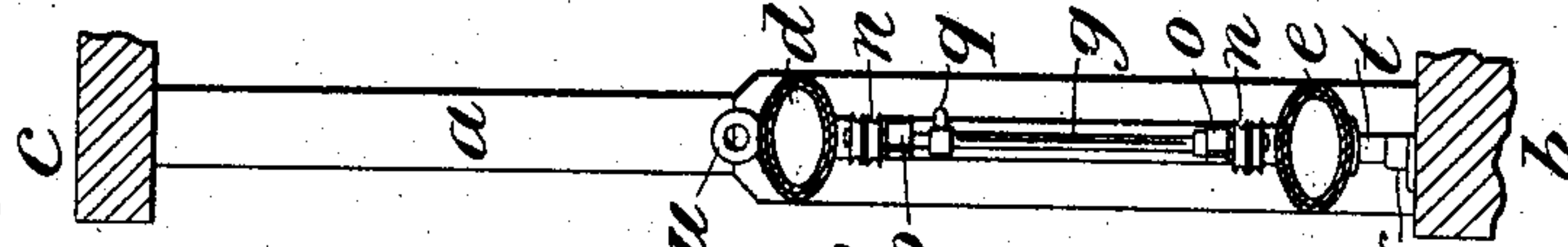
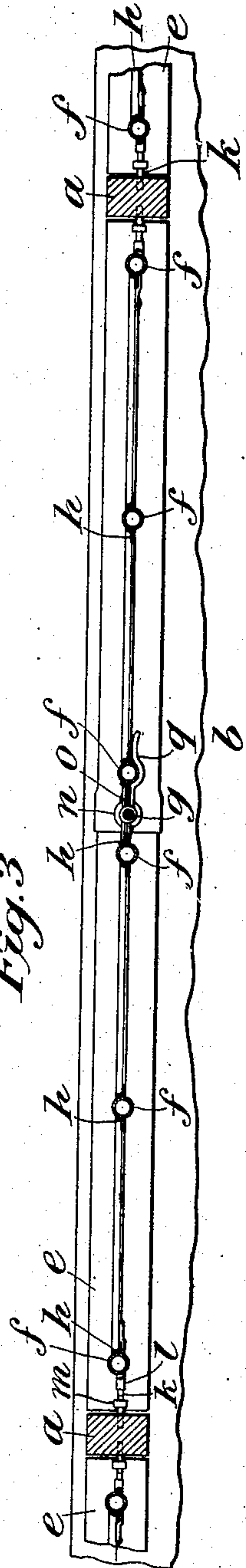


Fig. 3



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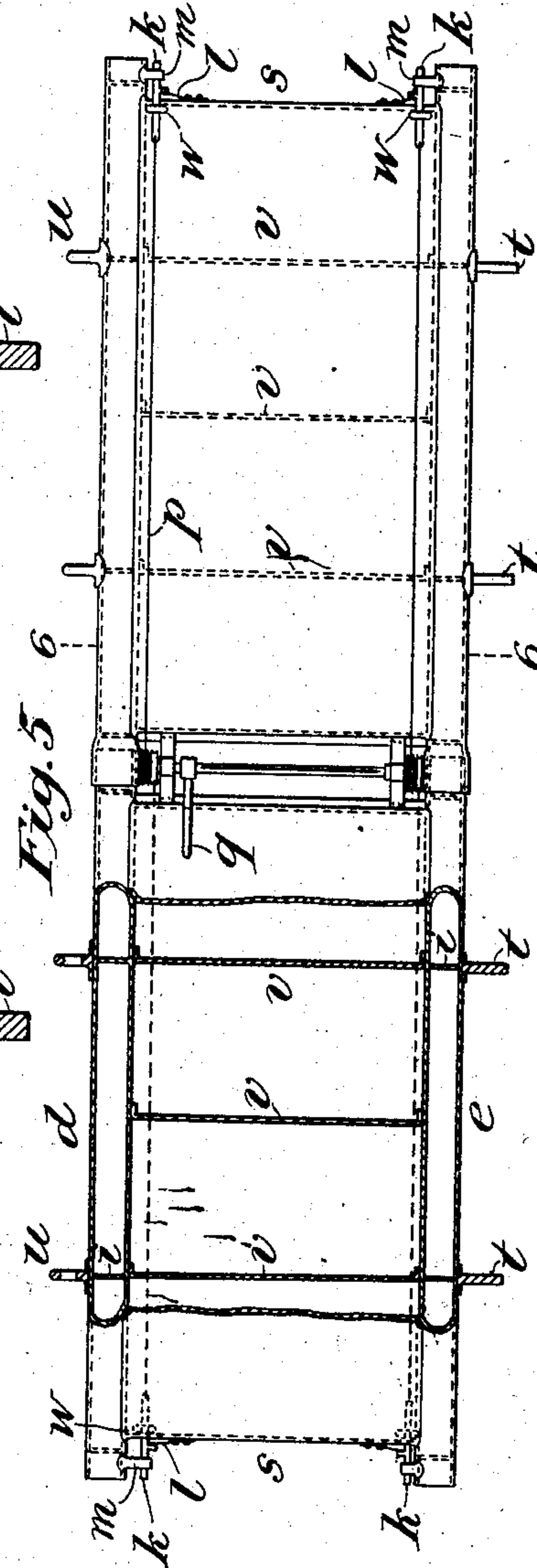
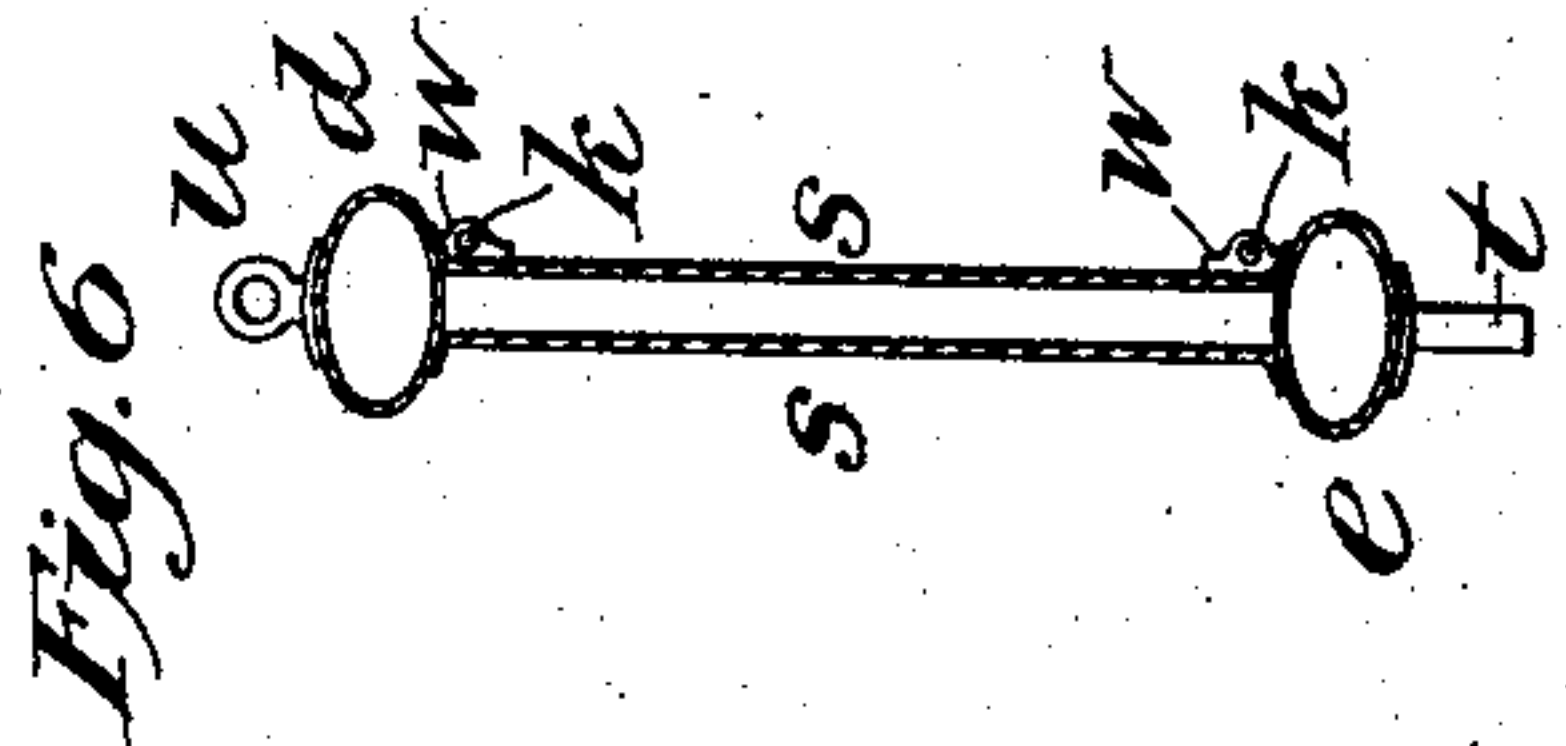
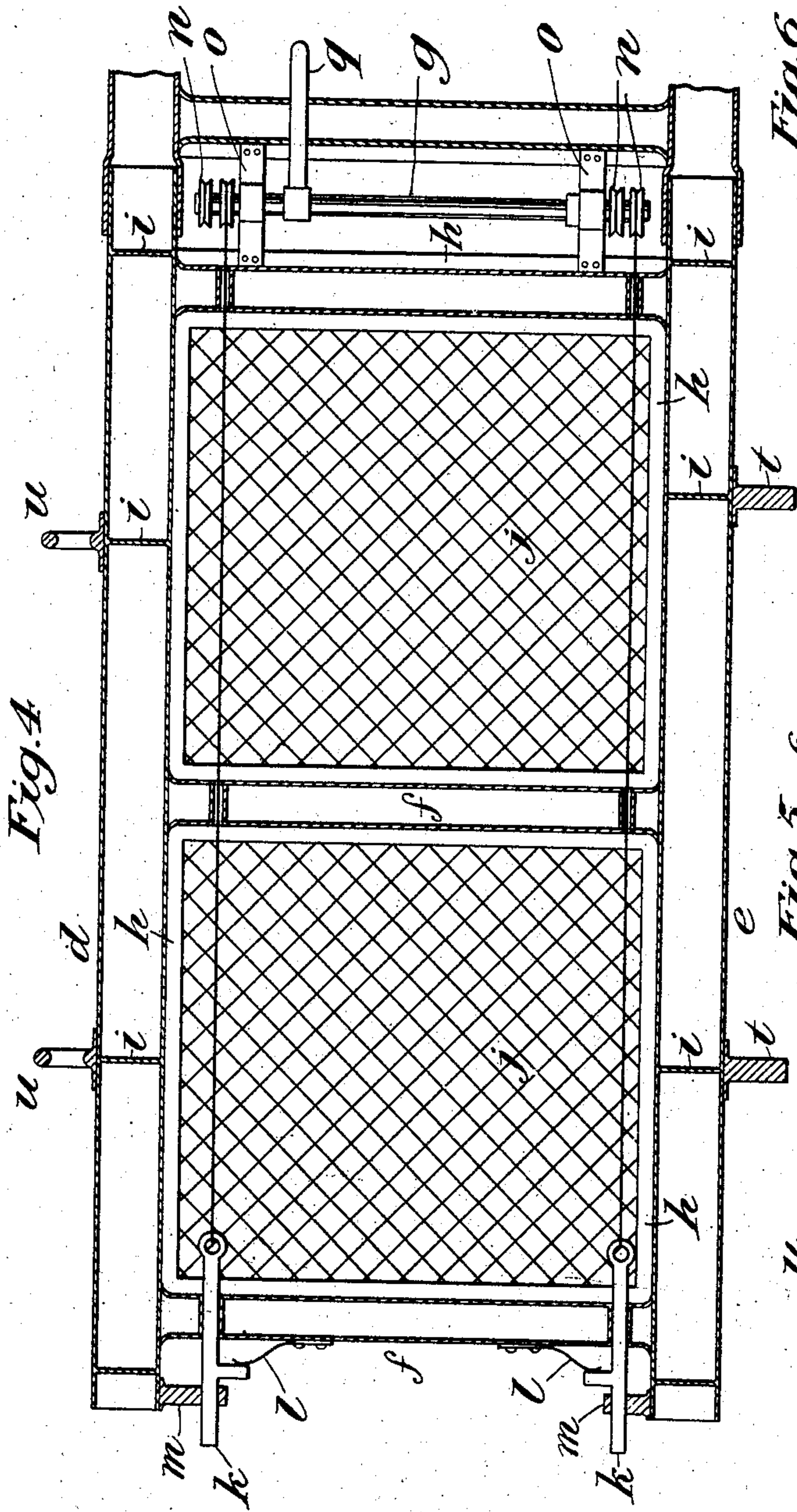
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES DOUGHERTY AND HENRY F. WILKINSON, OF NEW YORK, N. Y.

LIFE-SAVING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 791,255, dated May 30, 1905.

Application filed August 22, 1904. Serial No. 221,804.

To all whom it may concern:

Be it known that we, CHARLES DOUGHERTY and HENRY F. WILKINSON, citizens of the United States, residing in the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Life-Saving Appliances, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

Our invention relates to life-rafts or buoyant life-saving appliances for use on vessels, and has for its object to provide such an appliance as a useful part of the structure of the vessel, but so constructed and so located that it may be instantly detached and dropped overboard for the performance of its life-saving functions.

To the accomplishment of this object our invention includes the provision of a railing which shall possess effective buoyancy and flotative stability and other desirable attributes of a life-saving appliance and includes means for detachably retaining this life-raft railing in upright position, so that its detachment and launching may be speedily effected with the exertion of little strength and no especial skill. The desirable form of a railing with its greatest lateral dimension that of height and the usual location of a railing along the edge of a deck contribute to the ready performance of the launching operation.

Our invention also includes various advantageous features of construction and combination of parts, such as will more fully appear from the following particular description of the constructions embodying our invention illustrated in the accompanying drawings. We will now describe such constructions and will thereafter point out our invention in claims.

Figure 1 is a side elevation of a life-raft railing in position on a vessel with portions of decks of the vessel in section. Fig. 2 is a vertical central cross-section of the same. Fig. 3 is a horizontal section of the same. Fig. 4 is an enlarged vertical central section of a portion of the life-raft railing detached from the vessel. Fig. 5 is a side elevation,

partly in section and also detached from the vessel, of a modified construction of life-raft railing. Fig. 6 is a vertical section of the same, taken on a plane indicated by the line 6 6, Fig. 5.

The construction shown in Figs. 1 to 4, inclusive, is particularly designed for use on excursion-steamers or for other uses where an open or net work construction is desirable, while the construction shown in Figs. 5 and 6 is particularly designed for use on ferry-boats or for other uses where a closed structure is desirable.

The railing is composed of separate sections, each section constituting a life-raft. In the construction of vessels uprights are usually provided extending from deck to deck. These uprights are usually spaced at suitable intervals apart to permit of the inclusion of a suitable life-raft railing-section between them and are so located as to permit of the attachment of the life-raft railing-sections to them, so as to maintain the sections in position. Two of these uprights *a a* are shown in Figs. 1, 2, and 3 extending from a lower deck *b* to an upper deck *c*. Should these uprights be not present or available, posts or uprights may be especially provided for the attachment of the life-raft railing. A complete section of life-raft railing is shown between these two uprights, and portions of sections of life-raft railings are shown extending from these uprights toward the next adjacent uprights. The entire railing may be built up in this manner of life-raft sections.

The construction of life-raft railing shown in Figs. 1 to 4, inclusive, comprises in each section an upper horizontal rail *d* and a lower horizontal rail *e* and stanchions *f*, extending from upper rail to lower rail. These rails and stanchions are of tubular construction and are divided by bulkheads *i* into several separate water-tight compartments. As shown, each upper rail *d* and lower rail *e* is made up of two pieces of oval cross-section and rigidly secured together in a water-tight manner, and the stanchions *f* are rigidly secured to the upper and lower rails in a water-tight manner and are suitably spaced so as to provide a firm construction, two stanchions being quite

close together near the middle of each section, so as to conveniently hold between them the actuating-shaft *g* of the locking means. For the attachment of the bearings *o* of the actuating-shaft and also for the attachment of the wires or ropes of the lattice construction *j* angle-iron strips *h* are provided. The locking means include bolts *k*, of which two are shown at each end of each section. These bolts slide in eyes *m*, projecting from the upper and lower rails, respectively, and also in bearing-tubes set in the stanchions. Springs *l* are secured to the stanchions and bear against projections on the bolts and tend to maintain the bolts in locked position, and in this locked position the bolts enter sockets formed in the uprights *a*. For the purpose of withdrawing the bolts they are connected by chains or cables *p* with sheaves *n* on the actuating-shaft *g*, and a handle *q* is provided on the actuating-shaft for the ready actuation of the shaft to wind the cables on the sheaves and withdraw the bolts. This construction permits all the bolts of any section to be instantly withdrawn by the actuation of the handle *q*. The lower rail is provided with a number of downwardly-extending pins *t*, which are rigidly secured thereto and which enter half-open sockets *r*, secured to the deck. These sockets are open at their inner sides, but closed at their outer sides, so that they resist any outward pressure on the rail when the rail is locked in place, but so that they readily permit the rail to be tilted or toppled over outwardly after the bolts have been withdrawn. The upper rail is provided with a number of eyes *u*, to which a guard-line or life-line may be attached. In the construction shown the eyes *u*, pins *t*, and the guide-eyes *m* for the bolts are made integral with pads, whereby they are brazed or otherwise firmly secured to the upper and lower rails, respectively.

In the modified construction shown in Figs. 5 and 6 the stanchions are omitted and the upper and lower rails *d* and *e* are joined by a flat closed hollow structure made up of front and rear walls *s* and of bulkheads or partitions *v*, so as to constitute air-tight tanks divided by bulkheads into separate compartments. In this modified construction the cables *p* for actuating the bolts *k* are located outside of the tanks, and the bolts have guide-eyes *w* projecting from the tanks in addition to the guide-eyes *m* projecting from the horizontal rails.

The structures above described are of considerable buoyancy and are practically unsinkable, for the reason that they contain numerous separate air-compartments. They are of a form which is desirable for life-rafts, being of considerable flotative stability and easily grasped and held by persons in the water and capable of entirely supporting persons who are in an exhausted or enfeebled condition. In case of sudden disaster they

can be operated by any passenger. The operation consists merely in swinging the handle *q*, thereby withdrawing the bolts, and slightly pressing the upper part of the railing-section outward. The bolts are shown in withdrawn position in Fig. 5. The withdrawal of the bolts puts the section in a condition of unstable equilibrium, and it is already at the side of the vessel and on the edge of the deck, and therefore a slight outward pressure is all that is required to launch it. Should a panic ensue and the rails be forced outward, the same result would be attained, and even if passengers are forced overboard with the railing they will go overboard with life-rafts, which will sustain them in the water.

By the words "railing" or "railing-section" as used in the claims we do not designate merely the upper rail of the guard structure or bulwark of a vessel, but substantially the complete structure, which constitutes the guard or bulwark.

It is obvious that various modifications may be made in the constructions shown and above particularly described within the principle and scope of our invention.

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

1. A buoyant railing, in combination with means for detachably securing it in upright position on a vessel.

2. A buoyant railing provided with a plurality of water-tight compartments, in combination with means for detachably securing it in upright position on a vessel.

3. A buoyant railing provided with a plurality of locking devices for holding it in upright position on a vessel, and provided with a single member controlling all of the locking devices.

4. A buoyant railing provided with a plurality of bolts for holding it in upright position on a vessel, and means for withdrawing all of the bolts at one operation.

5. A buoyant railing provided with a plurality of bolts for holding it in upright position on a vessel, and provided with a single member arranged to withdraw all of the bolts at one operation.

6. A buoyant railing provided with a plurality of locking devices for holding it in upright position on a vessel, retractive means for yieldingly retaining the locking devices in locked position, and a single member arranged to control all the locking devices.

7. A buoyant railing provided with a plurality of bolts for holding it in upright position on a vessel, separate means for each bolt arranged to yieldingly retain the bolt in locking position, and a single member arranged to control all of the bolts.

8. A buoyant railing provided with a plurality of bolts for holding it in upright position on a vessel, an actuating-shaft, flexible connections from the shaft to all of the bolts,

and winding means on the shaft for such flexible connections.

9. A railing-section provided with buoyant means at its longitudinal edges and means for detachably securing it in upright position on a vessel.

10. A railing-section provided with buoyant means at its longitudinal edges and also with buoyant members extending transversely across the section, and means for detachably securing it in upright position on a vessel.

11. A railing-section comprising longitudinally-disposed buoyant rails, transverse members connecting the rails, and means for detachably securing the section in upright position on a vessel.

12. A railing-section comprising longitudinally-disposed buoyant rails, buoyant transverse members connecting the rails, and means for detachably securing the section in upright position on a vessel.

13. The combination, with a pair of posts at the side of a vessel having a free clear space between them, of a buoyant railing-section arranged to be detachably supported between the posts.

14. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and rigid means connecting the upper and lower rails, in combination with means for securing the section in upright position on a vessel.

15. A railing-section consisting of a buoyant upper rail and a buoyant lower rail, each provided with water-tight compartments, and rigid means connecting the upper and lower rails, in combination with locking means for detachably holding the section in upright position on a vessel.

16. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and means for rigidly connecting the upper and lower rails, in combination with bolts located in proximity to the extremities of the upper and lower rails for holding the section in upright position on a vessel.

17. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and rigid means connecting the upper and lower rails, and provided with a plurality of locking devices for holding it in upright position on a vessel and a single manually-operatable part controlling all of the locking devices.

18. A railing-section consisting of a buoyant upper rail and a buoyant lower rail, each provided with water-tight compartments, and rigid means connecting the upper and lower rails, in combination with bolts located in proximity to the extremities of the upper and lower rails, an actuating-shaft and a handle there-

for, flexible connections from the shaft to all of the bolts, and winding means for such flexible connections, substantially as set forth.

19. A railing-section consisting of a buoyant upper rail and a buoyant lower rail, and buoyant stanchions connecting the upper and lower rails, in combination with means for securing the section in upright position on a vessel.

20. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and buoyant stanchions connecting the upper and lower rails, the upper and lower rails and stanchions being provided with water-tight compartments, in combination with locking means for detachably holding the section in upright position on a vessel.

21. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and buoyant stanchions connecting the upper and lower rails, in combination with bolts located in proximity to the extremities of the upper and lower rails for holding the section in upright position on a vessel.

22. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and buoyant stanchions connecting the upper and lower rails, and provided with a plurality of locking devices for holding it in upright position on a vessel, and a single manually-operatable part controlling all of the locking devices.

23. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and buoyant stanchions connecting the upper and lower rails, in combination with bolts located in proximity to the extremities of the upper and lower rails, an actuating-shaft, flexible connections from the shaft to all of the bolts, and winding means for such flexible connections, substantially as set forth.

24. A railing-section consisting of a buoyant upper rail and a buoyant lower rail and buoyant stanchions connecting the upper and lower rails, the upper and lower rails and stanchions being provided with water-tight compartments, in combination with bolts located in proximity to the extremities of the upper and lower rails, an actuating-shaft and a handle therefor, flexible connections from the shaft to all of the bolts, and winding means for such flexible connections, substantially as set forth.

In testimony whereof we have affixed our signatures in presence of two witnesses.

CHARLES DOUGHERTY.

HENRY F. WILKINSON.

Witnesses:

HENRY D. WILLIAMS,

ALBERT V. T. DAY.