(No Model.)

E. HARDING.

Combined Life Raft and Settee.

No. 232,891. Patented Oct. 5, 1880.

Fig. 1.

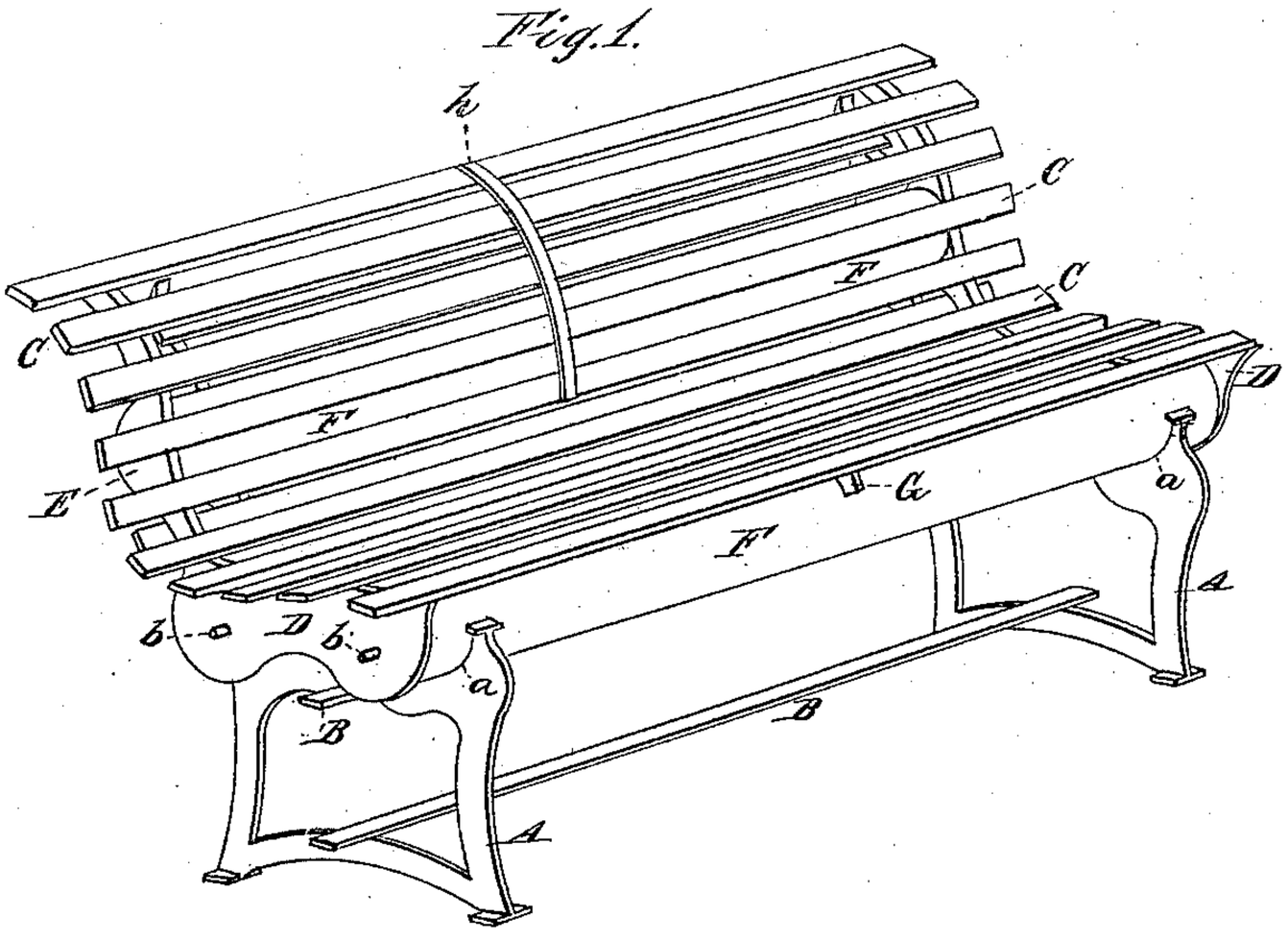


Fig. 2.

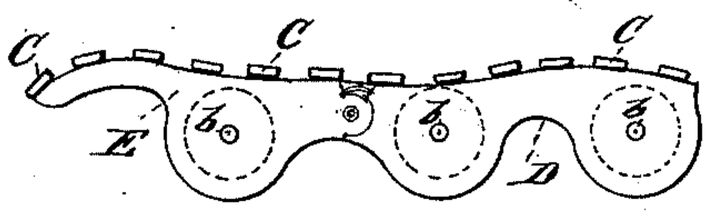


Fig. 3.

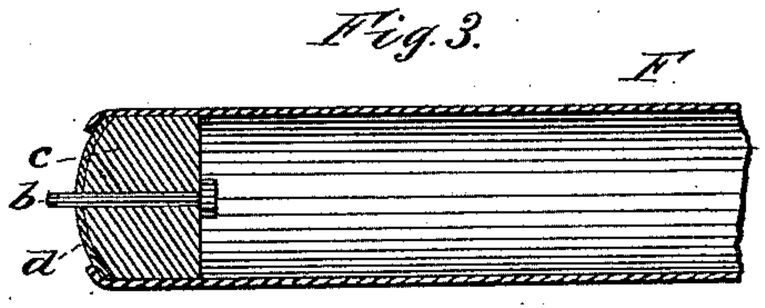


Fig. 5.

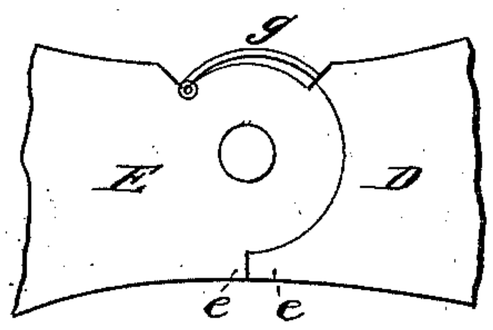
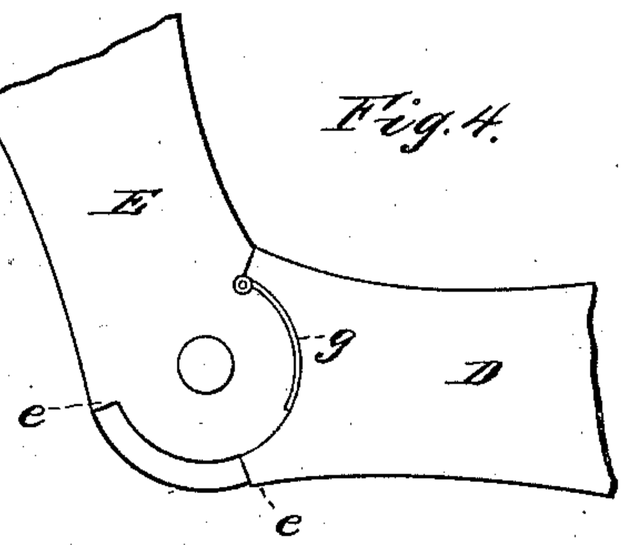


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

EMMETT HARDING, OF WEST TROY, NEW YORK.

COMBINED LIFE-RAFT AND SETTEE.

SPECIFICATION forming part of Letters Patent No. 232,891, dated October 5, 1880.

Application filed August 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, EMMETT HARDING, of West Troy, county of Albany, and State of New York, have invented certain new and useful Improvements in Combined Life-Rafts and Settees, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to that class of devices ordinarily employed upon shipboard, and intended to be converted into a life-raft to be thrown overboard or into the water in case of accident, thus affording a buoyant support for one or more persons.

The object of my invention is to construct the seat and back of a settee or bench in such a manner that the two may be easily and quickly lifted off from their ordinary frame or support, and with the connected air-tight cylinders be readily thrown overboard, thus forming a convenient and serviceable life-raft, convertible from the settee instantly, and without more preparation than is necessary to simply lift the apparatus, producing a cheap and durable and simple device, which is not likely to get out of order or to be damaged by exposure to the weather. To accomplish this the invention involves certain novel and useful peculiarities of construction and relative arrangements or combinations of parts, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a perspective view, showing my improved life-raft in proper position upon the frame-work of a settee, and forming the seat and back thereof. Fig. 2 is an end elevation of the raft, the parts being assembled as in Fig. 1. Fig. 3 is an axial section through one end of one of the air-tight cylinders, showing the method adopted for connecting the cylinders with the cross-pieces upon which the slats are secured. Fig. 4 is a side elevation, showing the cross-pieces detached from the other parts, and illustrating the locking-joint employed between the cross-pieces of the back and the corresponding piece of the bottom or seat, the two parts being represented as inclined toward each other, the same as when upon the settee-frame. Fig. 5 is a similar view, showing the two cross-pieces in their locked position.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

A A are the metal or wooden frames intended to support the seat and back of the settee. These are preferably made of cast-iron, and are provided with depressions *a* at suitable points, intended to receive and hold the air-tight cylinders. The two frames (or all, if more than two be employed) are braced together by the string-pieces B B in such manner that they shall preserve at all times their proper relative positions independently of the bottom and back slats or strips which go with the raft when it is thrown over the vessel's side.

The slats C C, running lengthwise of the settee, are secured at each end upon a pair of cross-pieces, D and E, which are hinged together, the piece D bearing the slats of the bottom part, and E those of the top or back, and the hinge is of such a character as will permit the two parts to assume substantially the same level when they are removed from the supports, so that the bearing-surface of the life-raft will be equal to the combined area of the seat and back sections.

The cylinders F are preferably made of galvanized iron, of sufficient weight to withstand all the damaging effects to which they are exposed when in use. They are connected with the cross-pieces by means of ordinary carriage-bolts, as at *b*, which pass through perforations provided for them in the cross-pieces. These bolts are secured in blocks of wood *c* driven into the ends of the cylinders, and over these blocks are cap-plates *d*, secured by turning down the metal of the cylinder, as shown, and then using solder to perfect the joints. Solder is also applied to secure the openings in the cap-plates through which the bolts are made to pass, and thus the cylinder is made air-tight.

The hinge between the parts D and E is made by use of the bolts upon the ends of the intermediate cylinder, which form the axis around which the parts are turned. At the lower part of the pivot a projection, as *e*, on each section is made to abut against a corresponding projection upon the opposite section, thus governing the relative position of the two parts when the raft is formed, or preventing one part from dropping below the other.

A spring, *g*, upon one side of the hinge is released as soon the back is turned down sufficiently, and this abuts against a projection upon the other side, locking the parts firmly in the desired extended position for use upon the water.

The spring *g* is made strong and durable, and when the raft is upon the settee-frame, or when the back and bottom are inclined toward each other, this spring rides under the overlapping portion of the opposite cross-piece. The hinged cross-pieces being properly adjusted upon the bolts projecting from the cylinder-heads, the slats are screwed or otherwise secured in place and serve to bind all the parts properly together.

When the raft is upon the settee-frame its weight is borne by the cylinders, which are amply strong for the purpose. The slats are bound midway between their extremities by an intermediate cross-piece, G, beneath the bottom part, which may be hollowed out to rest upon the cylinders, thus giving an additional bearing for the central part of the seats, and the slats of the back may be secured by a strip, *h*, at or near the center thereof; or instead of these intermediate strips any suitable method of connecting the parts may be adopted, the object thereof being merely to afford strength and rigidity, both while in use as a settee and while in the water and exposed to various strains.

The size and number of the cylinders are, of course, immaterial. I have found that three cylinders of about five inches diameter are amply sufficient to afford the requisite buoyancy, two being located beneath the bottom and one beneath the back part, substantially as shown. It being desirable that the raft shall be capable of being cast overboard easily by two persons, it is not proposed to make it of much greater length than an ordinary settee, or from six to eight feet; but of course it could be made of any desired length without departing from the general construction herein indicated.

Although intended to be launched by two persons, the raft constructed substantially in accordance with the foregoing explanation will be found capable of supporting a much greater number of persons in the water. When thus made the utility of the settee is not at all impaired, while there are added to it all the desirable features of a practical life-saving apparatus.

The hinged seat and back, permitting the raft to lie comparatively flat upon the water, is a desirable and important feature of the invention. It affords an extended raft-surface, and is manifestly superior to any raft which might be made by use of a wooden or other settee used in its ordinary condition with the seat and back at right angles to each other.

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

1. The air-tight cylinders, combined with hinged cross-pieces and longitudinal slats, forming the seat and back of the settee and serving to hold the cross-pieces in place, substantially as shown and described.

2. The combination, with the cylinder and cross-piece, of the wooden head-block, the cap-piece, and the projecting bolt, secured therein and adapted to connect the cross-piece with the cylinder, substantially as shown and described.

3. The herein-described combined life-raft and settee, composed of the two sections hinged together, having longitudinal and cross pieces, as explained, forming the seat and back, and the frame for the support of the seat and back, composed of two or more sections braced together, and provided with depressions for the reception of the air-tight cylinders, all constructed and arranged to operate substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

EMMETT HARDING.

Witnesses:

ARTHUR M. PIERCE,

WORTH OSGOOD.