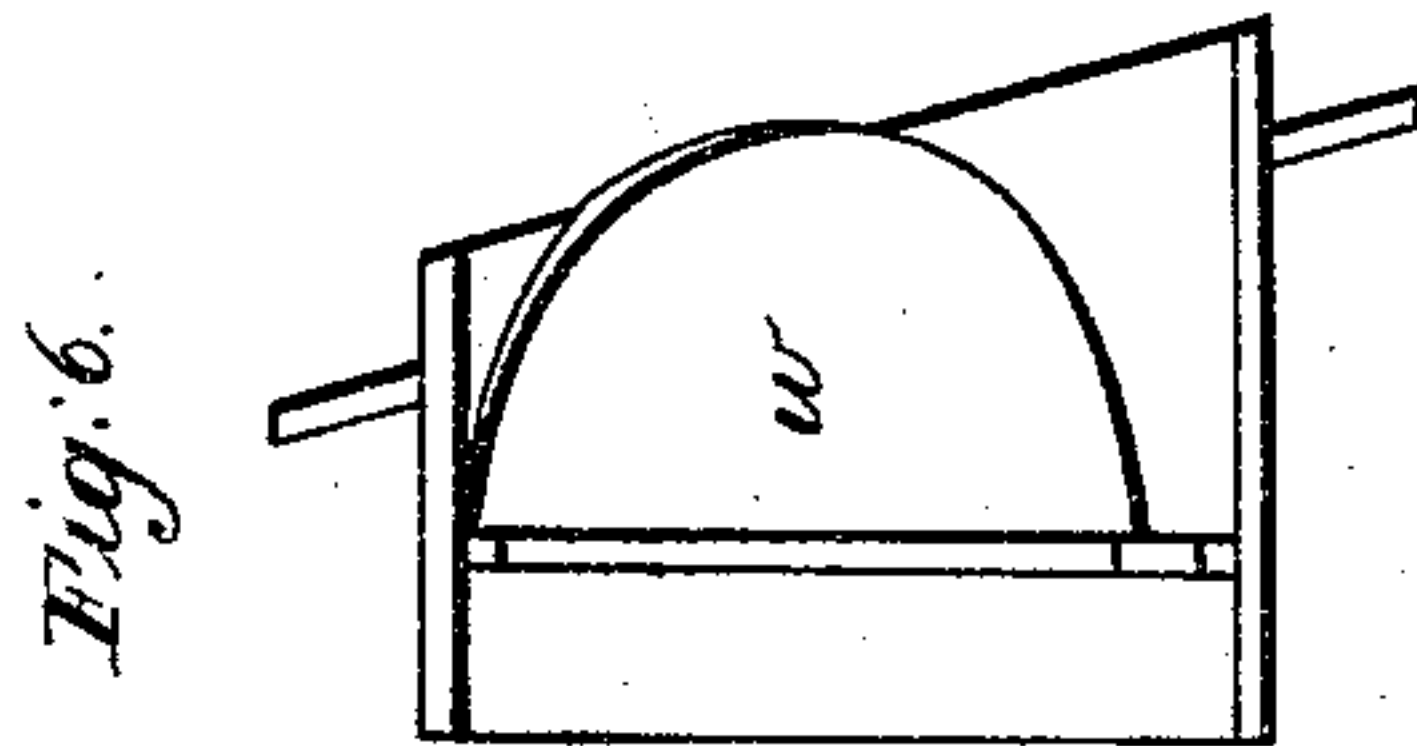
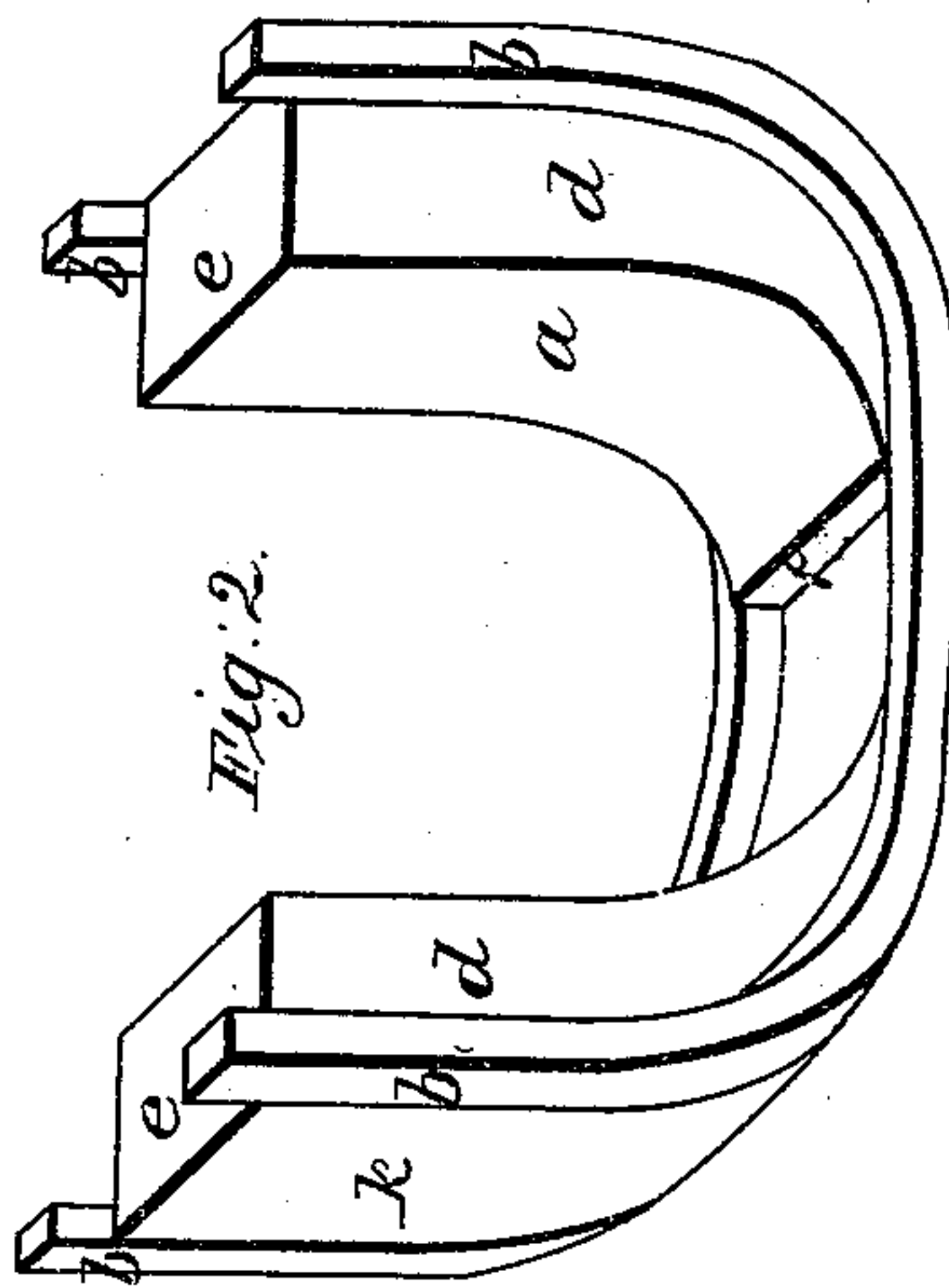
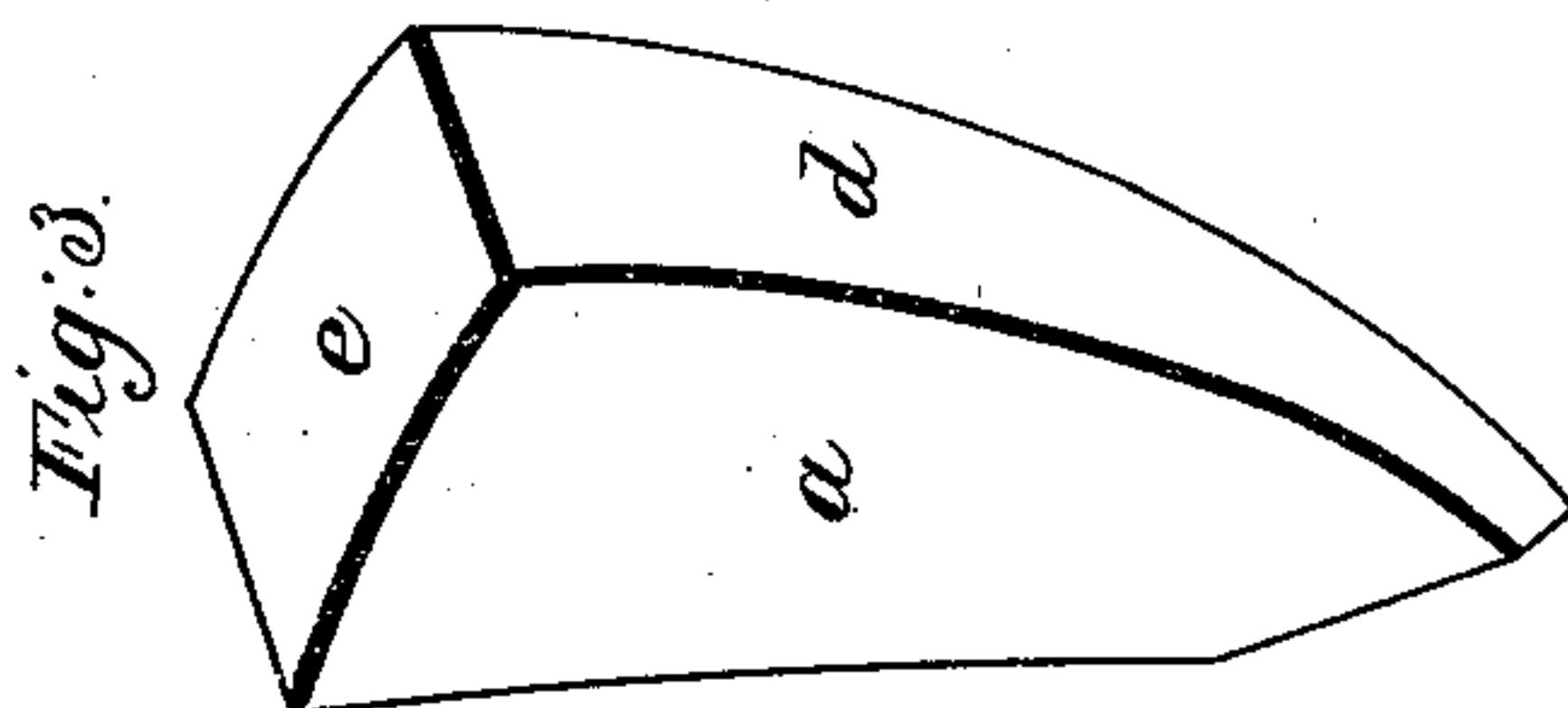
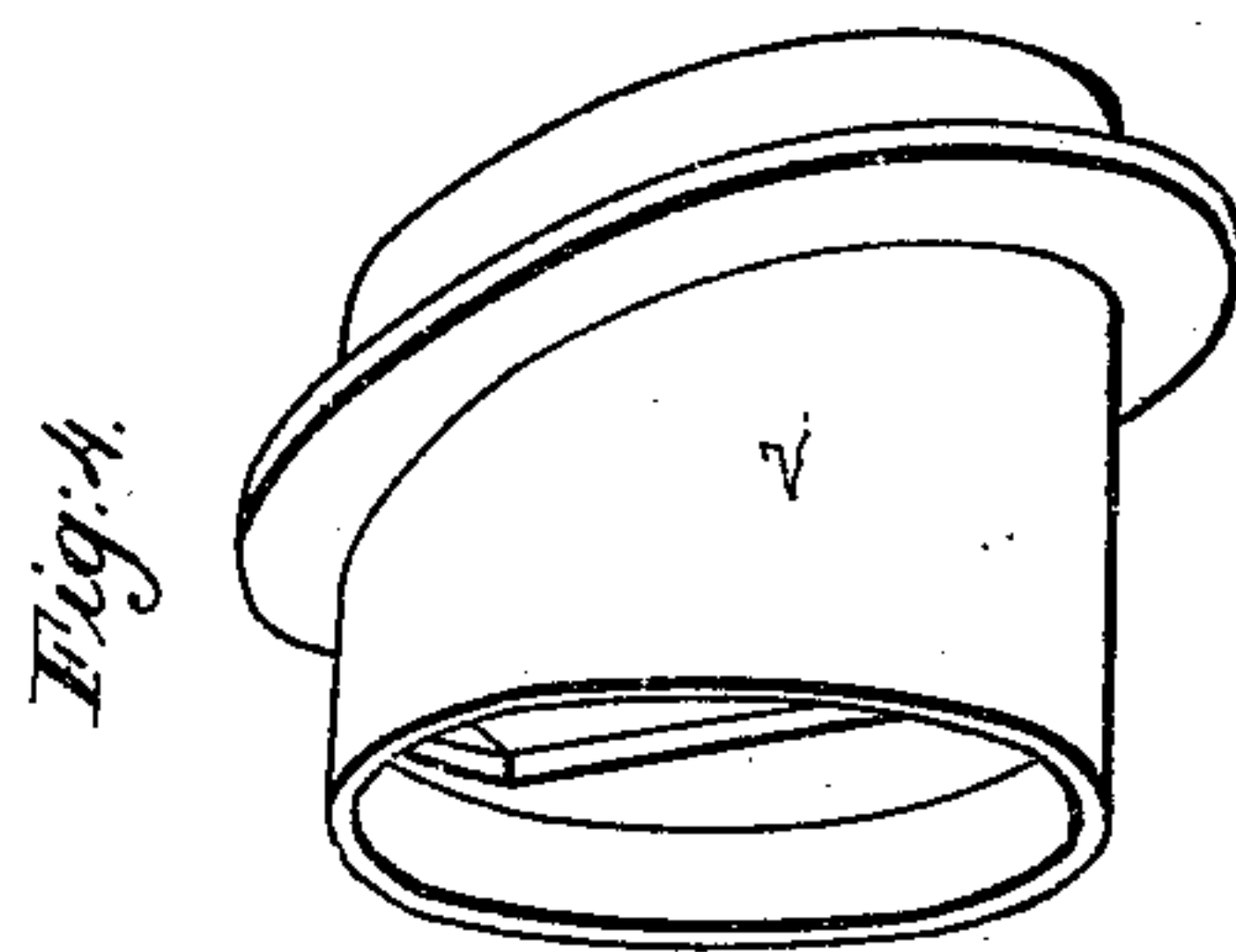
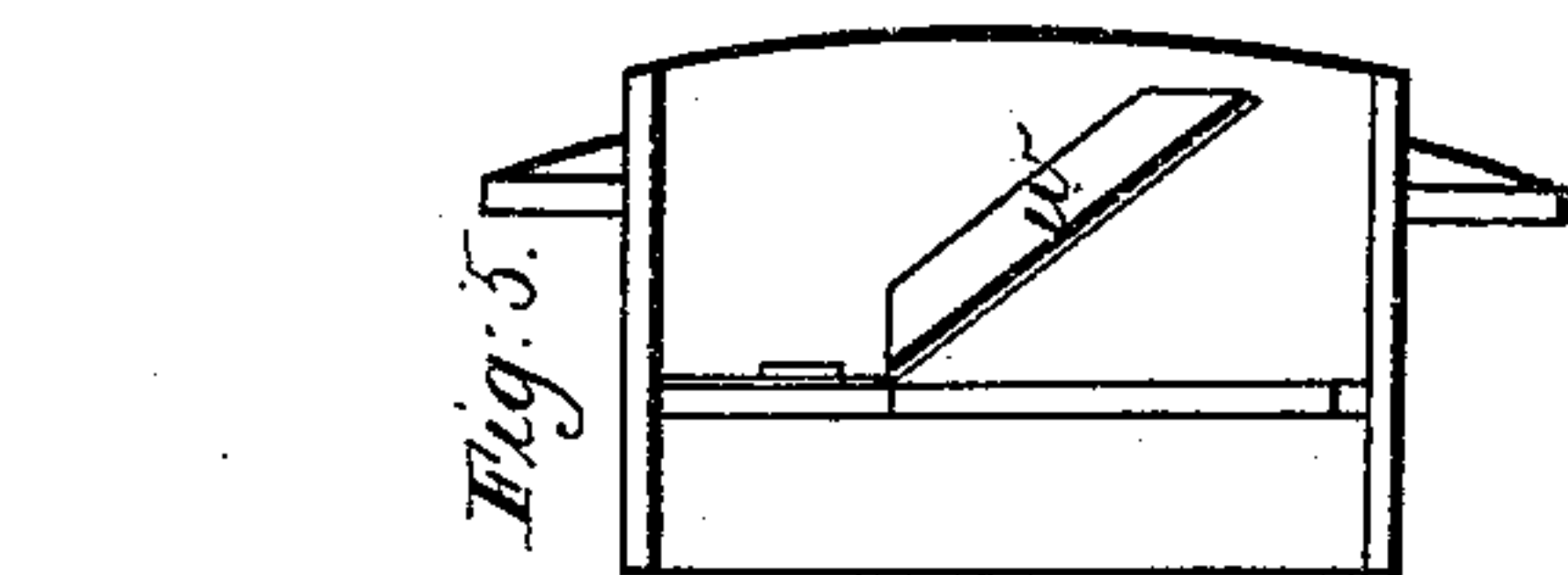
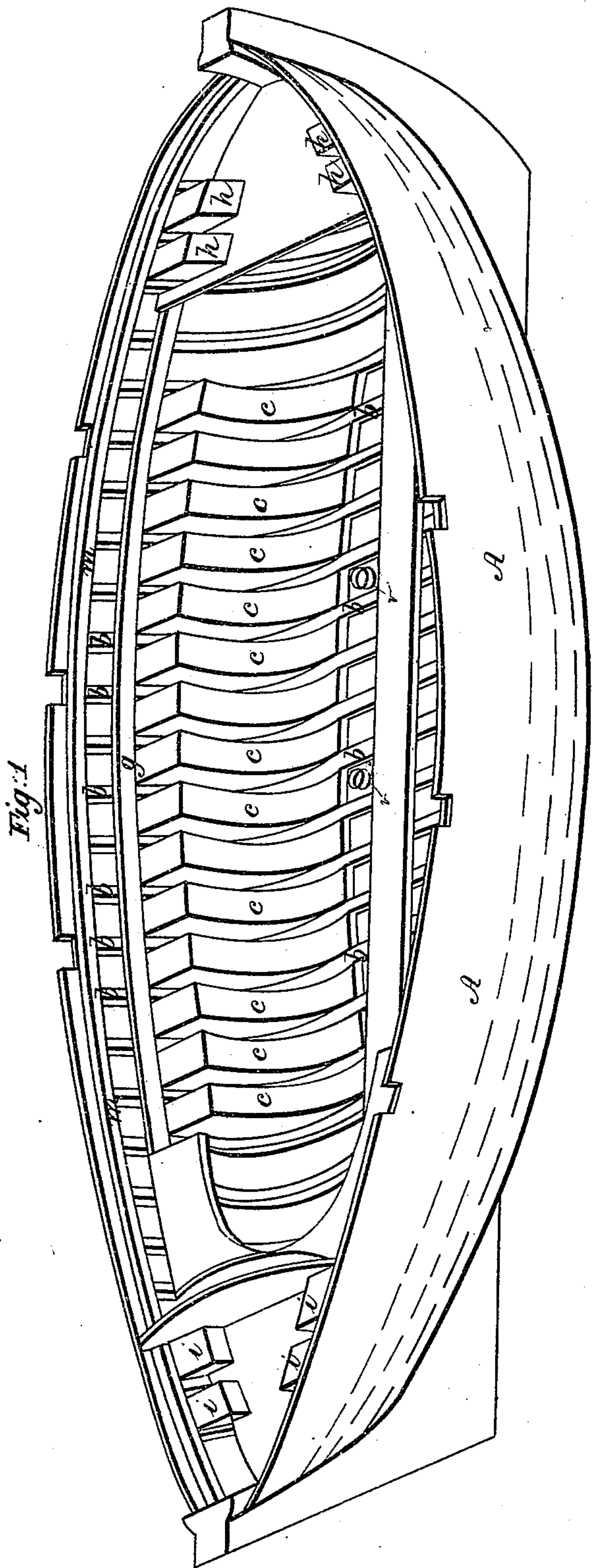


# I. Raymond. Life Boat.

N<sup>o</sup> 2,938.

Patented Feb. 4, 1843.





# UNITED STATES PATENT OFFICE.

LEWIS RAYMOND, OF NEW YORK, N. Y.

## LIFE-BOAT.

Specification of Letters Patent No. 2,938, dated February 4, 1843.

*To all whom it may concern:*

Be it known that I, LEWIS RAYMOND, of the city, county, and State of New York, have invented a new and useful Improvement in Life-Boats, of which the following is a full and accurate description, reference being had to the accompanying drawings, making part of this specification.

In the form of the boat itself there is nothing new as it may be made after any of the known models—air cases are employed, as in boats hitherto constructed, but are arranged in such a manner as to add both to the strength and buoyancy of the boat. In combination with these a series of self acting valves are used adapted to apertures in the bottom of the boat, constituting an important feature of my invention.

In the accompanying drawings A A Figure 1 is the boat so drawn as to give a view of its interior, the ribs or timbers *b b* and air cases *c c* on one side being shown. The ribs are constructed and arranged in the usual manner and between each of them an air case is placed as shown at Fig. 2, where one of the air cases is seen detached from the boat with one of the timbers *b b* on each side of it as when in place. These air cases consist of a front plate *a* Figs. 2 and 3 facing the interior of the boat, and of a back plate *k* opposite to this; both of which plates are curved so as to give the cases the same bend as the ribs or timbers *b b*. They are connected at each end by side plates *d d* Fig. 2 only one of which is seen forming a case closed at top and bottom by plates *e* and *f* Fig. 2. The side plates *d d* are very narrow at bottom enlarging in width as they extend upwards and have their edges curved to adapt them to the curvature of the front and back plates. The cases *c c* are necessarily larger on top than bottom causing the bottom plate *f* to be much smaller than the top plate *e*. The cases so constructed when in place fit tightly between the ribs or timbers *b b* with their back plates fitting against the inside of the planking of the boat and their front plates *a a* facing the interior of the boat where they are covered by the ceiling which is laid over them but which is removed in Fig. 1 to show the air cases. The air cases *c c* extend to within a few inches of the keel of the boat but do not reach any higher than the rising *g* Fig. 1 on which the seats are placed—the tops of the cases being on a

level with the bottoms of the seats which are not represented in the drawing. Two cases *h h* in the bow and two marked *i i* in the stern of the boat on each side rise above the others and are on a level at top with the gunwale *m m* of the boat; the object of this arrangement being to enable the boat to be righted when capsized, by applying only a slight force to one side of it; as the stern and bow cases will under those circumstances be immersed before the others, and will necessarily support the boat which may be righted without any difficulty in the manner stated. At their lowest point near the keel of the boat the cases project very little beyond the surface of the timbers *b b*; as they enlarge however in extending upward this projection increases and they necessarily project some distance at top in front of the timbers. The object of constructing them in this manner, that is making them of a curved form like the timbers *b b* and larger above than below is to increase the buoyancy of the boat as the quantity of water in it increases and to obtain the same amount of buoyancy also in the lower part of the boat, without occupying as much space; as in life boats of the ordinary construction. The curved form of the inside of the cases allows of this being effected by bringing the ends of the cases near the keel, which if they were constructed otherwise with a plane or straight side could not be done without great inconvenience and loss of room in the boat. The number of cases employed compensates for their want of size, a great amount of displacement being obtained in this way than where large air cases are used as in life boats hitherto constructed, the arrangement of the cases allowing of a greater number being employed, forty cases being the complement of a boat twenty five feet in length, the size most in use. Another advantage is also derived from this arrangement. If one of these cases should be injured the safety of the boat will not be endangered as it would be were a few large air cases employed as it can be removed and repaired more readily than in the other case. When the boat is partially filled with water it will be prevented from capsizing also by the manner in which the air cases are constructed, in the event of more weight being placed on one side than the other; for the water being thrown on one side, the cases on the oppo-



site side will operate by their gravity in preserving the equilibrium of the boat; while those on the same or submerged side will produce the same effect by their buoyancy the construction of the cases assisting materially to produce this effect owing to their being made larger and heavier at top than bottom.

In the bottom of the boat I make openings on each side of the keel above or below the water line and adapt to them valves made of leather and cork or other buoyant material. Those below the water line of the boat are kept closed when the boat is in the water but open, when the boat is lifted by the sea so as to expose them, and permit whatever water is in the boat to flow out. Those above the water line open and let out the water whenever it rises in the boat higher than the water level, being opened by the pressure of the water. In Fig. 1 *v v* are cylindrical boxes adapted to the apertures in the bottom of the boat. They are constructed like the boxes used in pumps provided with clack valves *w w* shown in the sectional drawings Figs. 5 and 6 arranged in the same manner only that the position of the boxes is changed the part of the box which is uppermost in pumps being turned downwards to allow of the valves opening in that direction. When in place the boxes project on the inside of the boat above the valves so as to protect them from injury while on the outside of the boat they are below the level of the planking producing the same effect. In Fig. 1 *v v* are the boxes arranged in the manner described.

In Fig. 4 one of the boxes is shown detached. At Fig. 5 a vertical section of the valve and box is given and at Fig. 6 a section of the box showing the valve *w* depressed from its seat. The valves so arranged may be used in every variety of boat by adapting the boxes in which they are placed to openings made in the boat as already set forth and when combined with life boats of the construction described are found to be a great improvement.

An advantage is derived from the arrangement of the cases *c c* besides those already enumerated. As the tops of these cases are on a level with the bottoms of the benches they serve to support the latter while from their being arranged between the ribs of the boat they give at the same time additional strength to the whole vessel. Those portions of the cases too which intervene between the benches, when covered over, serve as additional seats adding to the convenience of the boat.

Having described my mode of constructing life boats what I claim as my invention and desire to secure by Letters Patent is—

1. Combining with openings in the boat as herein set forth self acting valves arranged and operating substantially in the manner described.

2. Also the self acting valves as hereinbefore described in combination with the air-boxes as specified and set forth.

LEWIS RAYMOND.

Witnesses:

SAM WEBB,  
JAMES EDSALL.