J. G. HILL.

Life Preserver, Buoy and Boat.

No. 227,779. Patented May 18, 1880.

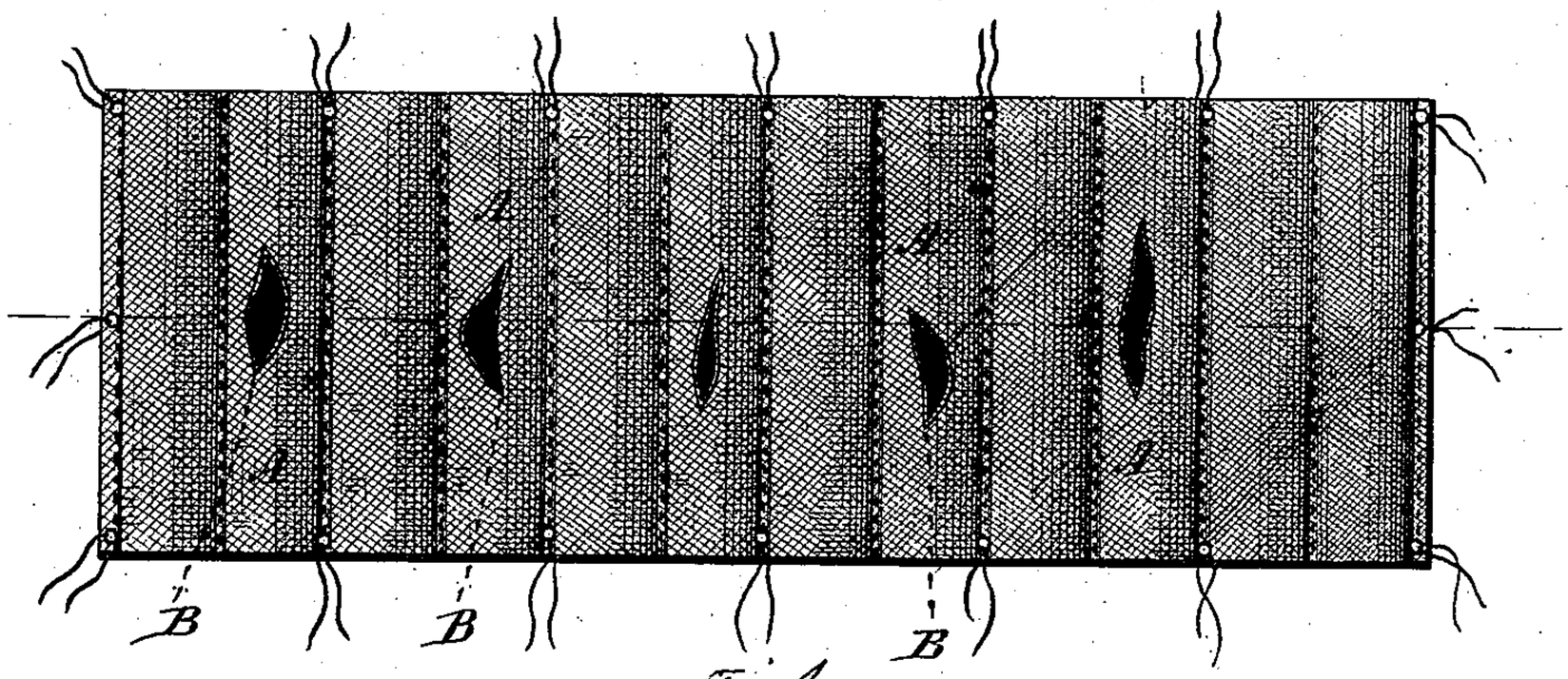


Fig 1.

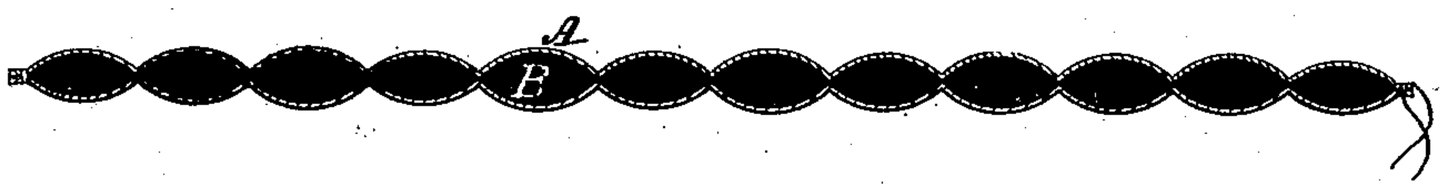


Fig 2

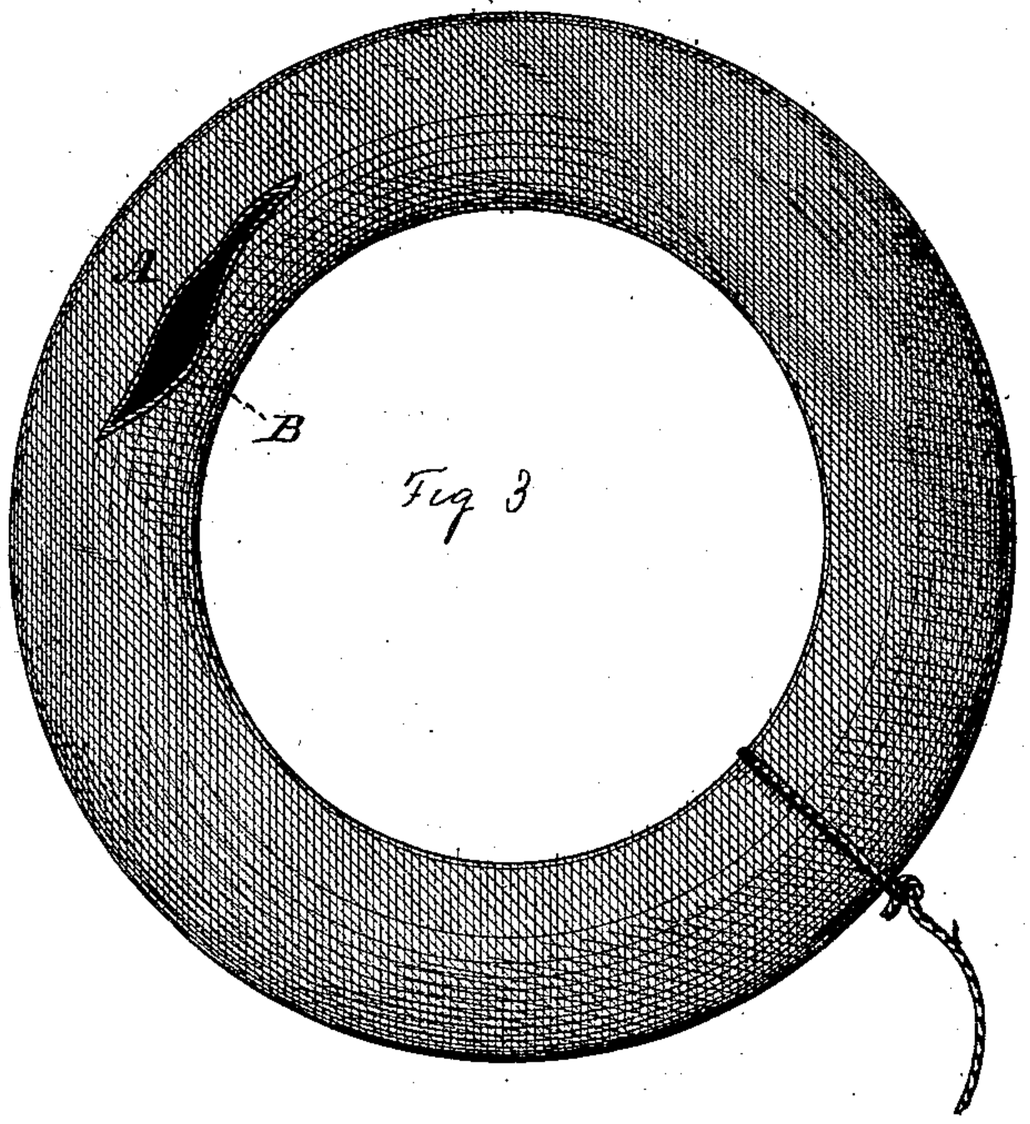
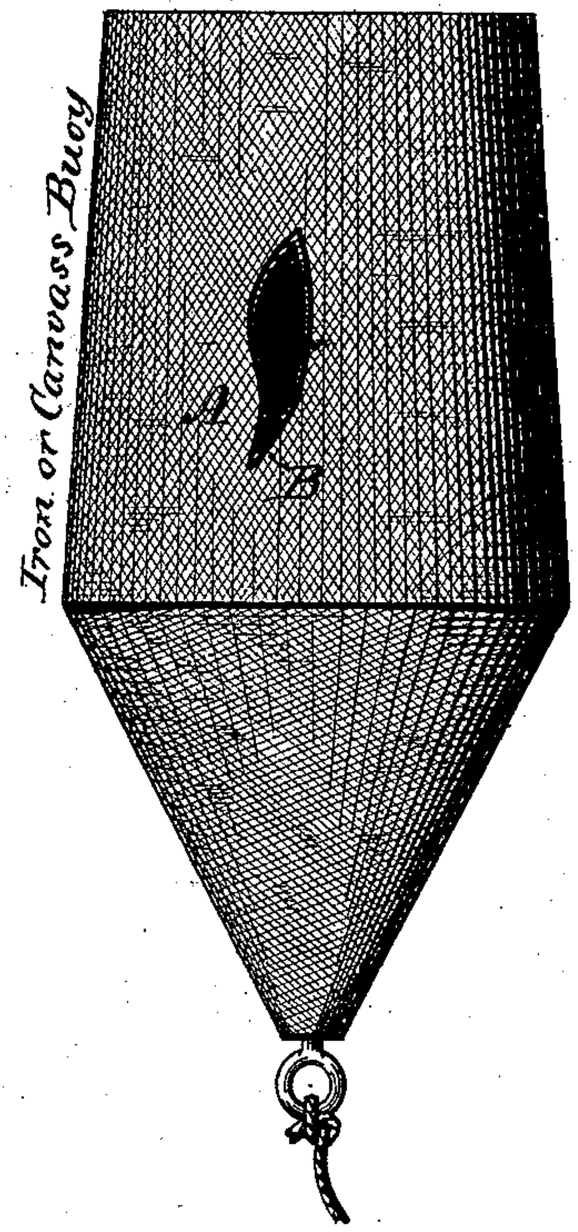


Fig 3



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UNITED STATES PATENT OFFICE.

JOSEPH G. HILL, OF NEWARK, NEW JERSEY.

LIFE-PRESERVER, BUOY, AND BOAT.

SPECIFICATION forming part of Letters Patent No. 227,779, dated May 18, 1880.

Application filed December 5, 1879.

To all whom it may concern:

Be it known that I, JOSEPH G. HILL, of the city of Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Life-Preservers, Buoys, and Boats, of which the following is a specification.

My said improvements relate more particularly to the construction of life-saving mattresses, buoys, beacons, &c., but comprehend all analogous structures.

The said improvements consist in the combination, with shells of said structures, of a buoyant filling of lamp-black, to increase their buoyancy and to render them as well water-repellent.

The invention made and the manner of making shall be hereinafter particularly described, and I shall specify in the claims that which I consider as my substantive invention.

The accompanying drawings, in which Figure 1 represents, in plan and section, a life-saving mattress, Fig. 2 a view of a buoy, and Fig. 3 a life-preserver, serve to illustrate tangible applications of my invention.

In the said drawings, A represents the inclosing case, sack, or shell, and B the filling of lamp-black.

In life-preservers I use a case or structure of painted canvas or other suitable material of a nature that will prevent the fine powder of lamp-black from sifting through, and in buoys, beacons, and ship-compartments I may use the ordinary construction and material; but in filling the shell, sack, or casing I find it necessary to compact the filling of lamp-black to a certain density only; and the exact degree being indescribable with reference to different circumstances, I can only say that it should be to a mean density sufficient only to obtain the highest degree of buoyancy, for if compacted to a density beyond such mean the buoyant properties of the filling would be lost, and it would become highly ponderable.

I use the lamp-black because of its marked and superimponderability, and because of its incapacity to be assimilated with water under ordinary circumstances to form a solid. Should accident burst a hole in the mattress or collision perforate a buoy, the impenetrable powder of lamp-black will act as a barrier to the inroads of water.

I use it also because it is the cheapest known solid of the least specific gravity, and because it is an article of commerce requiring no preparation for use.

The lamp-black I use I prefer made from resinous substances, as giving the least specific gravity of ordinary productions. For the purpose stated it must be used under a certain condition of compactness to obtain the best floating results, for if used under too great a degree of density it fails of its proper function, for beyond a certain density its specific gravity increases and would correspondingly defeat the object aimed at, while if used without a due degree of compactness its bulk would materially depreciate its advantageous uses for the purpose stated. It is a material matter, therefore, that it be used with a degree of compactness that will give it the greatest active buoyancy in the least possible space with regard to the weight to be sustained.

In filling a form or structure care must be taken in obtaining the required density that the filling must be gradual and under a gradual pressure; otherwise the material will be displaced on account of its extreme lightness.

As a repellent for water and moisture it is pre-eminently the best, so that if the shell or structure, or a compartment thereof within which it is contained, should be punctured or otherwise damaged, it not only precludes the entrance of water, but, by its compactness and antagonism to water, it cannot enter.

In the application of lamp-black as a buoyant filling any of the known appliances or structures of different forms and sizes may be used.

For life-boats I propose to improve the flotative security by filling the usual air-tanks or spaces sectionally by filling the lamp-black in small sacks or bags, and thereby giving security against all flotative loss in the event of casualty or damage to the boat or to any portion thereof.

In practice I have found that about one pound of lamp-black is equal to about three pounds of cork, and that it will have a floating capacity about equal to six pounds above wa-

ter, while the use of lamp-black gives infinitely greater security than air, and its use as a flotative agent is better than any known matter.

That lamp-black is old as a packing I admit; but as a mere packing it would be functionless in my invention; and I desire it to be distinctly understood that I am not claiming lamp-black, but only my improvement in flotative bodies, to wit:

I claim—

1. A flotative structure rendered securely buoyant by means of one or more chambers filled with lamp-black, operating as a water-repellent, substantially as described.

2. In flotative bodies, such as life-preservers and mattresses and the like, the combination of a painted canvas case or structure with a water-repellent filling of lamp-black, substantially as and for the purpose set forth.

JOSEPH G. HILL.

Witnesses:
RUDOLPH G. RABE,
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