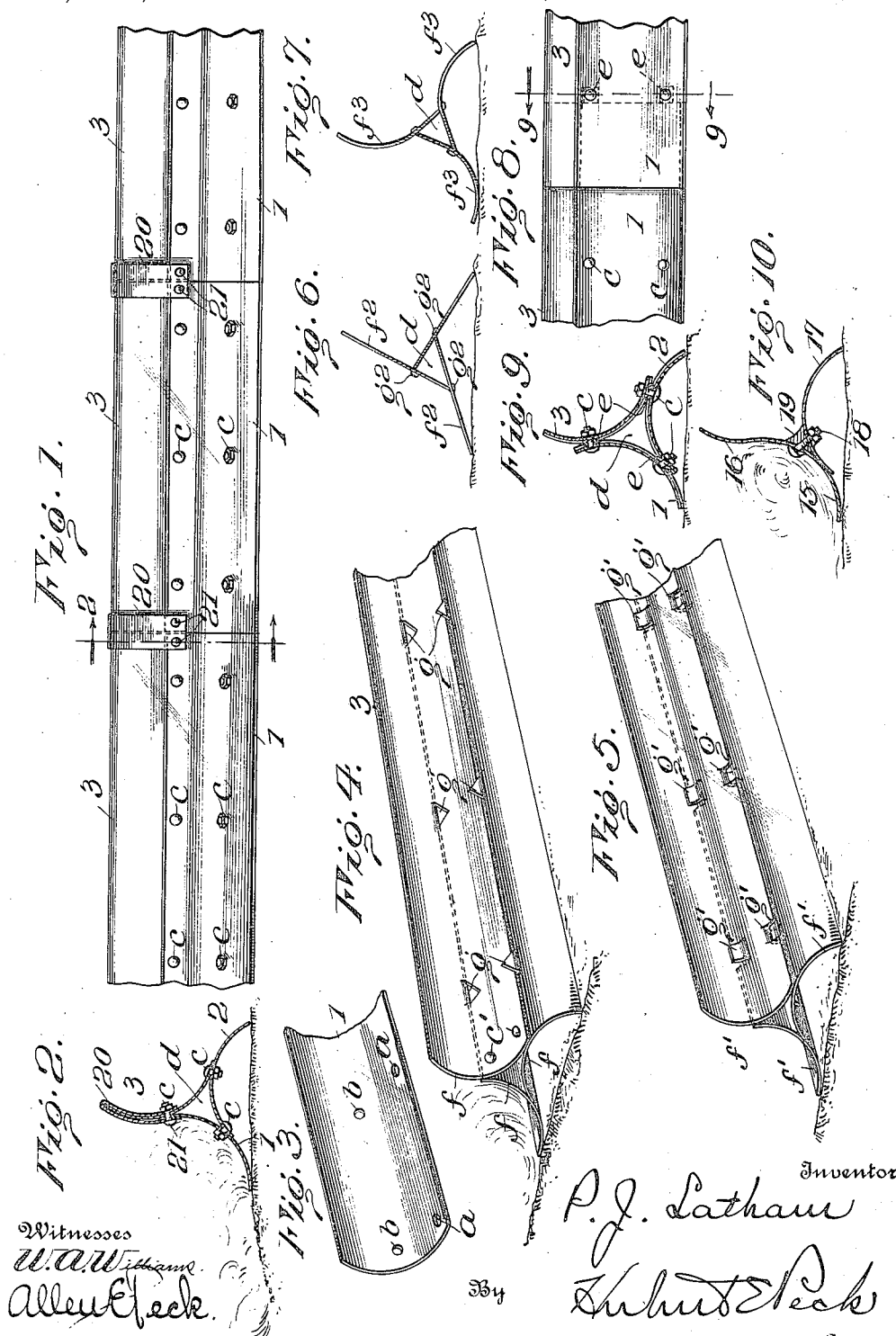


1,175,962.

Patented Mar. 21, 1916.



Witnesses
 W. A. Williams
 Allen Beck

Inventor
 P. J. Latham
 Schubert Beck
 Attorney

UNITED STATES PATENT OFFICE.

PERSIE JULIAN LATHAM, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO HIMSELF, AND ELIHU H. ROPES, OF JERSEY CITY, NEW JERSEY.

DEVICE FOR CAUSING DEPOSIT OF SAND AND SNOW.

1,175,962.

Specification of Letters Patent. Patented Mar. 21, 1916.

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To all whom it may concern:

Be it known that I, PERSIE JULIAN LATHAM, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Devices for Causing Deposit of Sand and Snow, of which the following is a specification.

This invention relates to certain improvements in means for causing deposit of sand and snow; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawings illustrating what I now believe to be the preferred embodiments of the invention from among other formations, arrangements and constructions within the spirit and scope thereof.

An object of the invention is to provide a portable comparatively inexpensive device composed of readily assembled elements that can be set up at suitable locations to cause the precipitation of sand held in suspension by water or air or of snow held in suspension by air, for the purpose of building and protecting beaches and shores, and of protecting buildings or the like, and railroads from the encroachment of sand and snow carried by the wind.

A further object of the invention is to provide a portable device for accumulating sand and snow, composed of a series of approximately-radiating wings or blades extending throughout the length of the device, and capable of being nested or packed together for convenient economical transportation, and of being readily assembled and secured together on the beach or elsewhere to form the complete accumulator.

A further object of the invention is to provide an improved comparatively inexpensive device for causing accumulation of sand or snow at predetermined points, composed of approximately similar interchangeable blades or wings that can be prepared at the factory or elsewhere for easy convenient assembling whenever and wherever desired or needed.

The invention consists in certain novel features in construction and in combinations and arrangements as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying draw-

ings:—Figure 1, is a front elevation of a row of abutting units or sections constructed in accordance with my invention and arranged end to end and suitably confined or secured together. Fig. 2, is a cross section on the line 2—2, Fig. 1. Fig. 3, is a detail perspective of a blank, sheet or blade such as employed to make up a unit or section of the structure of Fig. 1. Figs. 4, 5, 6, 7, 8, 9, and 10, illustrate modifications, Fig. 9, being a section on the line 9—9, Fig. 8.

In carrying out my invention, I provide a suitable number of peculiar portable units or sections particularly adapted to be arranged end to end or otherwise on a beach to cause gradual elevation of a portion of a beach by retarding the back flow of the water to the necessary extent to permit precipitation of the sand held in suspension on a predetermined area of the beach. These units or sections are preferably similar, and each is composed of several approximately-similar wings or blades extending throughout the length of the section and approximately radiating from and secured together at a common center. These blades are so arranged as to provide an approximately hollow or concave base of extensive transverse fore and aft width, and an upwardly projecting wall to obstruct the moving water or air and retard the same to the extent necessary to permit precipitation of the sand or snow held thereby in suspension. The blades or wings are also approximately uniformly arranged at approximately equal angles so that any two adjacent wings or blades can form the base and the intervening wing or wings the upwardly extending wall, hence each section or unit will always present a base to the beach and an extending wall in whatever position the section may be deposited or even if rolled over on the beach by the force of the water.

I prefer to form each section of three or more uniformly disposed and arranged radiating blades or wings, two of which 1, 2, (in Figs. 1, 2, 3) constitute the base, and the third 3, the upwardly extending obstructing wall. The blades (Fig. 3) can all consist of similar comparatively thin sheet metal, usually sheets of stock sizes. These sheets are preferably rolled or pressed into straight, corrugated or curved form, usually so that all sheets will be of the same size

and radius. I usually form each sheet with a longitudinal row of bolt or rivet holes *a*, along one longitudinal edge, and another longitudinal row of bolt or rivet holes *b*, along its longitudinal central portion. The blanks or sheets (Fig. 3,) thus formed can be readily assembled on the beach or elsewhere to form the sections or units, by arranging three sheets back to back or with their convex faces engaging so that each sheet overlaps another sheet and is in turn overlapped by the third sheet with one longitudinal edge portion of each sheet secured to the central portion of the next sheet with its opposite edge portion projecting to form a portion of the base or else a portion of the upright wall. By this arrangement, the bolt holes *a*, of one sheet will register with the bolt holes *b*, of the next sheet and the three sheets can hence be rigidly secured together by three rows of rivets or bolts *c*, to form the complete unit. When thus formed the unit is provided with a hollow longitudinal center or hub *d*, which if so desired, can be utilized to receive rods or pipe sections for coupling together a row of units arranged end to end as will be readily understood by those skilled in the art.

While the longitudinally hollow hubs or central portions of the units can be utilized to receive means for holding a row of units arranged end to end against lateral deflection, yet I do not thereby mean or intend to limit my invention to any particular means for locking or otherwise securing a series of units together. Various devices and adaptations can be employed or utilized for maintaining the units in alinement or if so desired against separation. For instance, in Figs. 1 and 2, I show U-shaped coupling strips or clips 20, straddling the upright wall 3, of the bulkhead and bridging the joints between the units and secured thereto by bolts 21.

In Figs. 8 and 9, I show the units secured together against lateral deflection by a slip joint that is, the end of one unit is telescoped into the end of the next unit. This method of slipping the end of each unit over the end of the next unit in forming a bulkhead or other row of units, can be provided for by clamping the three wings or blades of a unit tightly together at one end of the unit and spacing them apart by the interposition of washers *e*, at the other end of the unit.

When the unit or section is thus formed of radiating or overlapping sheets, a base of extensive transverse width is provided by downwardly diverging walls that have a tendency to sink in the sand to fill the concavity of the base and thereby firmly anchor the section.

When the sections are arranged to form a bulkhead, I preferably locate each section

with the convex face of its upright blade facing the surf and consequently with the base blade having its concave face uppermost arranged at the front of the section *i. e.*, extending toward the surf (Fig. 2). The weight of the water on said concave face will hence tend to hold the section down to the sand when the surf strikes the upright blade and flows over the top edge thereof and falls onto the convex top face of the rearwardly extending blade of the base. The weight of the water on said rear blade tends to drive its down turned edge into the sand and thus firmly anchor the section. If the force of the water is sufficient to turn or roll the section over on the beach, it will still present a base on the sand and a blade obstructing the water, as before.

Various devices can be provided for securing the blades or wings together to form the units, and my invention is not limited to the rows of bolt holes and rivets or bolts for this purpose, but is intended to cover and include equivalent means which doubtless will vary according to the material of which the blades are composed. I do not attempt to illustrate the many different fastening and securing devices that might be employed, although in Fig. 4, I show a unit composed of three similar blades *f*, each having a row of tongues *g*, along its central portion, cut therefrom and pressed outwardly at the convex face thereof, and so arranged that when the three blades are assembled, the one edge of each blade will catch under and be held down by the tongues of the next blade. If so desired, the ends of the blades can also be secured together by bolts or rivets *c'*.

In Fig. 5, I show a unit composed of three similar blades *f'*, assembled as in the preceding figures of the drawing, but secured together by tongues *g'*, passed through slots and upset or bent down. Each blade (or sheet) *f'* is formed with a row of slots along its central portion, and along one edge a corresponding series of tongues *g'*, are formed by transverse cuts or slits extending inwardly of the blade through said edge. The tongues thus formed are bent outwardly to project from the convex face of the blade. Thus when the blades are assembled with their convex faces abutting, the tongues extend through the slots and are bent down at the concave faces of the blades and thereby lock the blades together to form the unit of the desired shape.

In Fig. 6, I show a unit of the base and upright wall formation described, but formed by three flat or plane blades (plates or sheets) *f''*, locked together by tongues *g''* projecting from the edge of each blade through slots in the centers of the blades and bent down or upset, although of course, any suitable means can be provided for se-

curing the flat (plates or sheets) blades together. Also, the outer or projecting portions f^3 of these blades of Fig. 6, might be transversely curved (concavo-convex) as shown by Fig. 7. Nor in fact do I wish to limit my invention to a unit or section composed of three blades, wings or planes, as more than three can be employed. Nor, do I wish to limit my invention to the unit or section composed of separately formed blades or wings, afterward assembled and secured together.

Two or more of the blades might be integral. For instance, in Fig. 10, I show a unit wherein the blades 15, and 16, are integral, while the blade 17, is secured thereto at 18 and braced by filler strip 19.

I prefer to construct the units or sections of similar interchangeable sheets, blanks or blades because such sheets can be produced at low cost and can be nested or packed into bundles and thus economically transported, and then can be readily and economically assembled to form the sand or snow accumulator units or sections without the employment of expensive skilled labor, and furthermore, such units are inexpensive in construction, are self anchoring in the sand under the action of sand laden air or water, and are light in weight and can be readily handled and moved or shifted as required to form bulkheads and jetties and for other purposes, such as the protection of railroads against drifting snow. For some purposes the units or sections will be so located as to present the concaved faces of their upright blades against the advancing wind or water to retard the movement thereof sufficiently to cause deposit or precipitation of sand or snow.

It is evident that various changes, modifications, departures, and variations might be resorted to without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the exact disclosure hereof.

What I claim is:—

1. A portable self-anchoring sand accumulator comprising longitudinal blades approximately uniformly distributed around a common center and each having one free longitudinal edge portion arranged approximately tangentially with respect to said center, said blades being arranged to form a concaved base the rear edge portion of which meets the beach at a greater angle than the front edge portion of said base, and a single wall projecting upwardly from the longitudinal central portion of said base and inclined rearwardly to facilitate the rearward passage of the surf over the top edge of said single wall and to retard the back flow of water over said wall, substantially as described.

as described, consisting essentially of longitudinal blades arranged approximately uniformly around a common center and at their free edge portions extending laterally in the same direction from radial lines to form a single upwardly extending wall at its free upper edge deflected rearwardly and a downwardly and forwardly extending blade at its free forward edge arranged to rest approximately flatly on the beach and a downwardly and rearwardly extending blade at its free rear edge arranged to enter the beach.

3. A portable self-anchoring sand accumulator consisting essentially of three longitudinal blades any two adjacent blades of said three being formed to constitute a concaved base with its rear edge depending at a greater angle than its front edge with respect to the beach and the remaining blades being formed to constitute a single upwardly extending wall deflected rearwardly at its upper edge portion, for the purposes substantially as set forth.

4. A sand accumulator having a single longitudinal wall extending upwardly from the longitudinal central portion of the accumulator and formed to facilitate the passage of surf over the top edge of said wall and to retard the back flow of water, and having a blade extending downwardly and forwardly from said central portion to facilitate the upward flow of surf on said blade to said central portion and upwardly therefrom along the front face of said wall, and having a blade extending downwardly and rearwardly from said central portion to receive the impact of the water dropping from the top edge of said wall, the rear edge of said rear blade forming an anchoring edge as distinguished from the front edge of said front blade.

5. A device for the purposes substantially as described composed of three approximately similar transversely curved longitudinal blades secured together at and approximately uniformly arranged around a common center to form a concaved base the front edge of which is arranged to meet the beach in a substantially tangential manner and the rear edge of which curves downwardly to bite into the beach and a single upwardly extending wall at its top edge curved rearwardly to facilitate the flow of surf thereover and to retard the back flow of water.

6. An accumulator consisting of several approximately similar longitudinal blades approximately uniformly arranged around a common center and extending therefrom approximately tangentially, said blades overlapping and secured to each other at said center to form a longitudinal hollow hub, each blade being secured along its longitudinal central portion and along one

longitudinal edge portion, substantially as described.

7. An accumulator consisting of several approximately similar transversely curved longitudinal blades meeting and overlapping and secured to each other at the longitudinal central portion and the longitudinal edge of each blade to form a longitudinal

hollow hub, said blades being approximately uniformly distributed around said hub. 10

In testimony whereof I affix my signature in presence of two witnesses.

PERSIE JULIAN LATHAM.

Witnesses:

F. J. MOORE,
EDGAR H. GRIFFITHS.