

(No Model.)

2 Sheets—Sheet 1.

W. G. DENHAM.
SPONGE DREDGER.

No. 476,920.

Patented June 14, 1892.

FIG. 1.

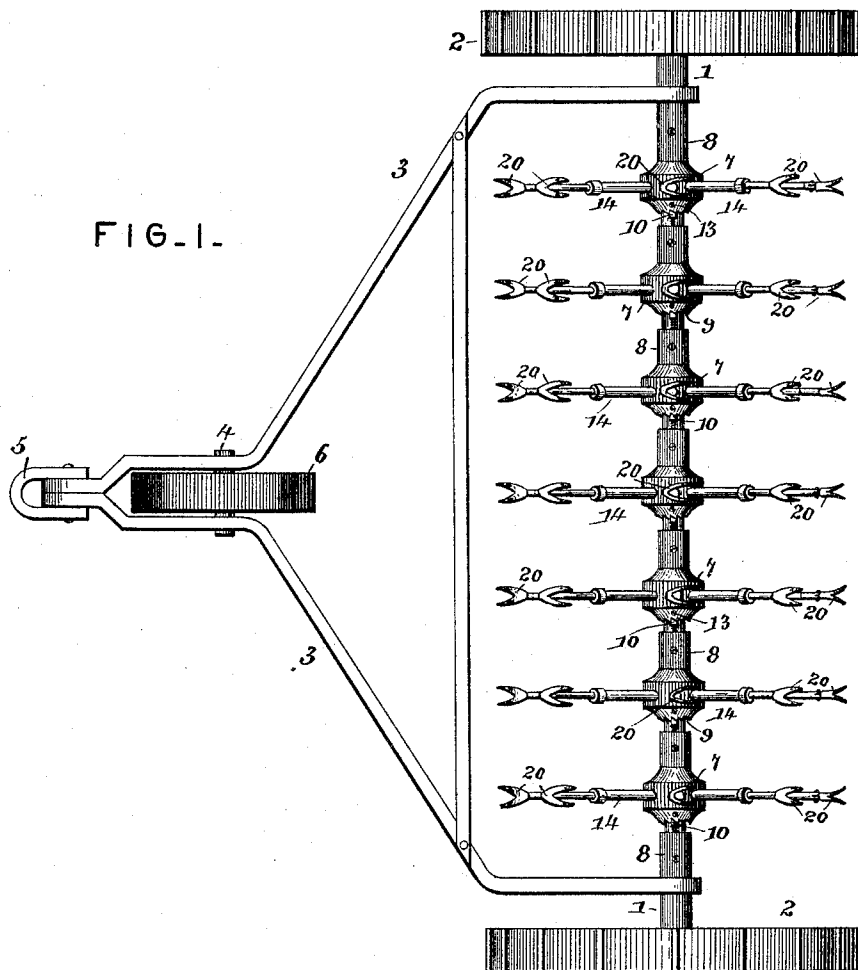
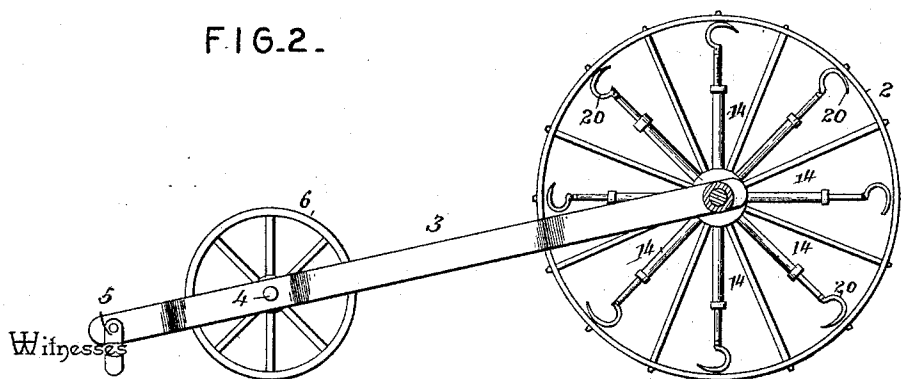


FIG. 2.



Witnesses

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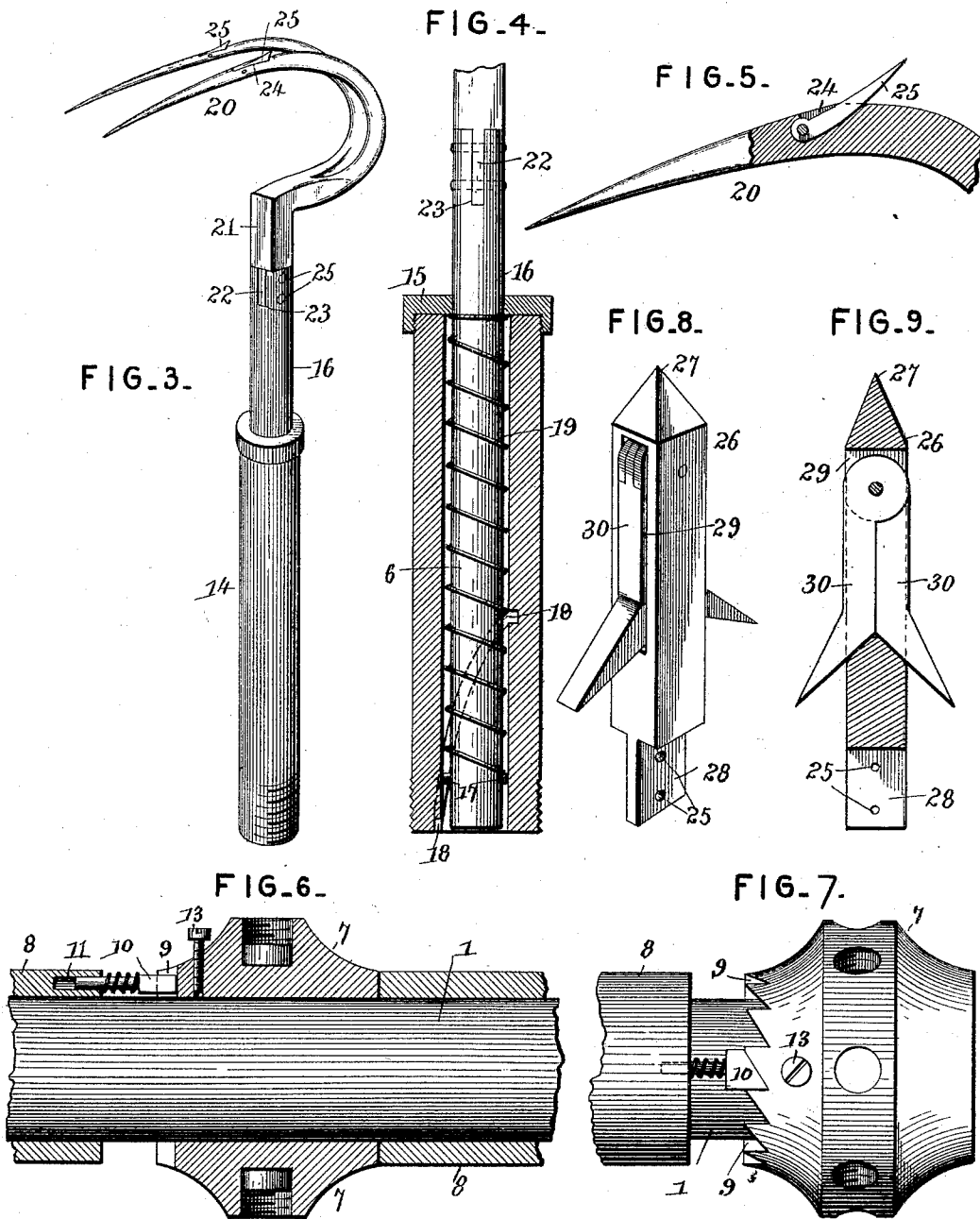
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2 Sheets—Sheet 2.

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM GOSSON DENHAM, OF MONTICELLO, FLORIDA.

SPONGE-DREDGER.

SPECIFICATION forming part of Letters Patent No. 476,920, dated June 14, 1892.

Application filed January 13, 1892. Serial No. 417,964. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOSSON DENHAM, a citizen of the United States, residing at Monticello, in the county of Jefferson and State of Florida, have invented a new and useful Sponge-Dredger, of which the following is a specification.

This invention relates to improvements in machines for dredging for sponges; and the objects in view are to provide a cheap and simple machine adapted to be dragged over sponge-reefs and to disengage sponges therefrom, and to so construct the machine as to adapt it to automatically free itself from any engagement with rocks and reefs over which it is dragged.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan of a sponge-dredging machine constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a detail in perspective of the dredge-hook and its spoke preferably employed. Fig. 4 is a longitudinal section thereof. Fig. 5 is a section of the end of hook. Fig. 6 is a longitudinal section through a portion of the axle and an adjacent hub and collar. Fig. 7 is a side elevation of the same. Fig. 8 is a modified construction of hook, or rather spear, that may be substituted for the hook; and Fig. 9 is a longitudinal section thereof.

Like numerals of reference indicate like parts in all the figures of the drawings.

In constructing the machine I employ a transverse axle 1 of any suitable length, and fixedly secure the ends of the same to a pair of ground-wheels 2, the peripheries of which are ribbed or roughened, as shown. To the axle between the wheels and adjacent thereto there is loosely connected a pair of hounds 3, which extend forwardly parallel to each other to a point about opposite the peripheries of the wheels 2, thence are inwardly bent or converged toward each other until a short distance apart, again extended forwardly and provided with a transverse axle 4, and in front of the same bolted together and embraced by

a draft clip or clevis 5. Upon the axle 4 a small wheel 6 is mounted for loose rotation, and is adapted to support the hounds 3 when the machine is not in operation.

7 designates a hub, a series of the same being employed and loosely mounted upon the axle 1, which hubs alternate with sleeves 8, which, unlike the hubs, are fixed upon the axle. The hubs have their faces provided with inclined teeth 9, and the same are designed to ride over spring-actuated catches or detents 10, mounted in cavities 11, formed in the ends of the sleeves 8, so that the hubs are free to move in but one direction, and are estopped from moving in the opposite direction by the said catches or detents. The hubs are provided with set-screws 13, by which, when desired and for purposes hereinafter apparent, they may be made rigid with the axle or shaft 1 and move therewith.

From each hub radiates a series of tubular spokes 14, the same having their inner ends screwed into threaded mortises formed in the hub and seated upon rubber plugs 14^a. The outer ends of the hollow spokes have their bores reduced by caps or ferrules 15, and fitting in each of the tubular spokes and projecting beyond the ferrules is a solid cylindrical spoke 16. The spoke 16 is provided near its inner end with a pair of diametrically-opposite lugs or pins 17, which extend laterally into spiral slots 18, formed in the tubular spokes. Encircling each solid spoke and interposed between the pins 17 and the cap 15 is a coiled spring 19, the tendency of which is to retract the solid spoke within the tubular spoke.

20 designates a pair of curved dredging-hooks, the inner ends of which merge into or are made fast to a shank or tang 21. This tang is reduced at its rear end to form a tenon 22, designed to fit into a mortise 23, formed in the outer end of the solid spoke 16, to which it is secured by a pair of pins, one of which is a break-pin. A series of these pairs of dredging-hooks 20 is employed, there being a pair for each spoke of the several wheels. Recesses 24 are formed in the hooks 20, and bars 25 are pivoted in the recesses.

In operation the machine is dragged along

by steam or other power over the sponge-reefs and the hooks that are nearest the reef or at the under side of their wheels engage with the sponges. As power is exerted upon the machine the spokes become extended against the tensile strength of the springs, and during the extension of the spokes by reason of the spiral slots formed in the tubular spokes the solid spoke-sections will be given a twist, so that the sponges are torn from the reefs. The engaging of the hooks by the sponges serves to turn the series of dredging-wheels so as to bring the succeeding set of hooks into position, which likewise engage and twist off the sponges. Should the hooks engage with rocks or reefs, the subsequent extension of the spokes will serve, as will be readily apparent, to disengage the hooks from the rocks or reefs, so that, as before mentioned, such disengagement is automatic.

If desired, I may vary the form of dredge-hook to any degree, and have illustrated in the two last figures of the drawings one convenient form. In this modification a spear 26, terminating at its outer end in a point 27 and at its inner end in a reduced tenon 28, is inserted in the mortise 23 of the spoke. Each spear is provided with a transverse recess 29, in which are crossed and pivoted a pair of barbs 30, adapted to fold within the spear body or shank when the spear is inserted into the sponge and to engage the sponge and prevent its removal accidentally from the spear-body. In the use of this modified construction of the hook the several hubs are, through the medium of their set-screws, made rigid upon the axle 1, and hence the spears revolve with the axle and are plunged into the sponges, operating to twist the same from the reefs in the same manner as heretofore described with relation to the hooks 20, and likewise freeing themselves from engagement with the reefs or rocks.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a machine of marked simplicity and durability which is designed to be drawn over sponge-reefs and to engage and tear from their fastenings the sponges, and to automatically disengage itself or its members from any engagement with rocks or other obstacles that would tend to break the members, all as heretofore described.

It will be seen that the sponge-engaging ends of the spokes do not extend below the treads of the wheels for supporting the machine, or, in other words, terminate about even therewith or a short distance thereabove such treads, whereby the treads of the wheels alone have contact with the ground, and the machine does not run upon the points.

Having described my invention, what I claim is—

1. In a sponge-dredge, the combination, with a wheel frame-work, of a series of sponge-pick-

ing wheels mounted in the frame-work, the engaging ends of the spokes being above or in a plane with the treads of the supporting-wheels, substantially as specified.

2. In a sponge-dredge, the combination, with a transverse shaft or axle, draft devices, and wheels mounted on the axle, of a series of sponge-picking wheels mounted on the axle, the spokes of the latter wheels terminating short of or on a line with the treads of the supporting-wheels, substantially as specified.

3. In a sponge-dredge, the combination, with an axle, supporting-wheels rigidly mounted thereon, and draft devices, of a series of revoluble hubs mounted on the axle, a series of spokes having sponge-engaging ends radiating from the hubs and terminating above or in a plane with the treads of the wheels of the frame, substantially as specified.

4. In a sponge-dredge, the combination, with the axle, the fixed wheels on the ends of the same, and the draft devices, of the series of hubs mounted loosely on the axle and having their faces provided with inclined teeth, collars mounted on the axle and alternating with the hubs, spring-pressed detents extending from the collars and adapted to engage the teeth of the hubs, whereby said hubs are permitted to rotate in but one direction, and sponge-engaging spokes radiating from the hubs and terminating above or in line with the lower portions of the supporting-wheels, substantially as specified.

5. In a sponge-dredge, the combination, with the frame-work, of a wheel rotatably mounted therein, said wheel comprising a hub, a series of hollow tubular spoke-sections spirally slotted and radiating from the hub, a series of solid spoke-sections mounted in the tubular section and terminating at their outer ends in sponge-engaging devices and at their inner ends in lugs riding in the spiral slots, and springs for normally retracting the solid spoke-sections within the tubular sections, substantially as specified.

6. In a sponge-dredge, the combination, with the frame-work, of the dredging-wheel mounted therein for rotation, the same consisting of a hub, a series of tubular spoke-sections spirally slotted and terminating at their outer ends in perforated caps, solid spoke-sections mounted in the tubular spoke-sections and having lugs engaging the slots thereof and at their outer ends terminating in mortises, coiled springs mounted on the solid spoke-sections and interposed between the lugs and caps, and the series of dredging-hooks the shanks of which fit within the mortises, substantially as specified.

7. In a dredge for sponges, a dredge-wheel having telescopic spokes terminating in sponge-engaging ends, in combination with means for normally maintaining the spokes telescoped and for laterally twisting the outer sections of the spokes when distended, substantially as specified.

8. In a sponge-dredge, a dredging-wheel
having spokes combining with the twin hooks
20, terminating at their rear ends in the shank
21 and at their outer extremities recessed, and
5 the pivoted bars 25, located in the recesses,
substantially as specified.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

WILLIAM GOSSON DENHAM.

Witnesses:

D. L. OAKLEY,
J. H. TUCKER.