

(No Model.)

H. W. YERRINGTON.
DREDGE PUMP ATTACHMENT.

No. 506,354.

Patented Oct. 10, 1893.

Fig. 1.

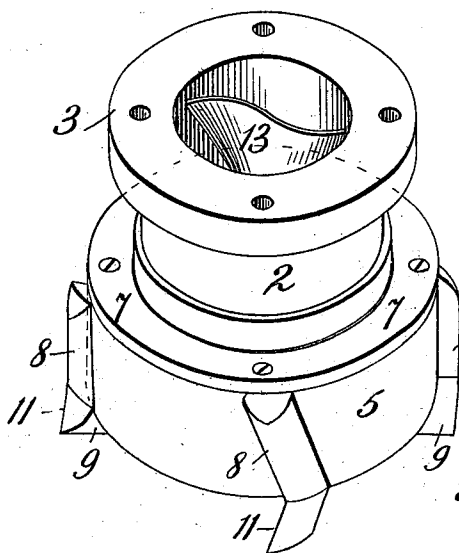


Fig. 3.

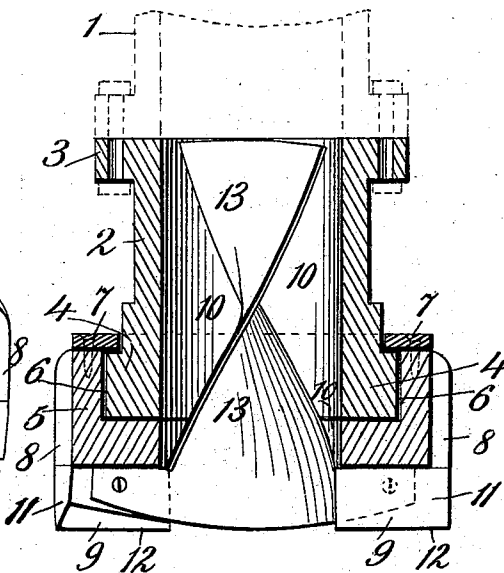


Fig. 2.

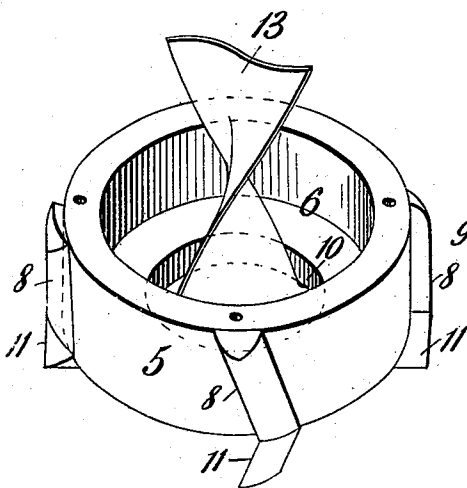
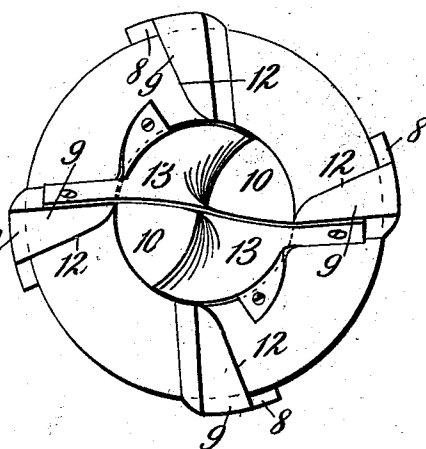


Fig. 4.



Attest:

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HENRY W. YERRINGTON, OF OCEANIC, NEW JERSEY.

DREDGE-PUMP ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 506,354, dated October 10, 1893.

Application filed May 11, 1893. Serial No. 473,777. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. YERRINGTON, a citizen of the United States, residing at Oceanic, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Dredge Pump Attachments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an improved attachment for dredge pumps, and has for its objects, first, to provide a novel form of cutter or tool head adapted to be removably attached to the end of the suction pipe and rotated thereon by the force of the suction, and second, to afford a cutter head provided with cutting or stirring points of an improved construction for quickly and effectively disintegrating and loosening the material to be dredged, as will be hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a perspective view of my improved attachment; Fig. 2 a similar view of the cutter head with its operating screw; Fig. 3 a vertical central section of Fig. 1; and Fig. 4 a bottom plan view of the same.

The numeral 1 designates the ordinary flexible suction pipe of a dredge pump, the end of which is coupled to a short cylindrical casing, 2, preferably of metal. This casing is provided with flanges, 3 and 4, at its top and bottom respectively, the flange, 3, being adapted to connect with the suction pipe, while the flange, 4, is for the purpose of supporting a ring or cutter head, 5, as it may be termed, which is revoluble upon said flange, as will be hereinafter explained. The flange, 4, rests loosely in an annular recess or chamber, 6, formed in the cutter head, of the same depth as itself. An overlapping ring, 7, detachably secured to the top edge of the cutter head supports said head on flange, 4, and loosely connects said parts. The cutter head is provided on its outer circumference and base with suitable blades, scrapers or cutting points for loosening and cutting up the mud,

sand, &c., to be removed by the action of the suction pump. A preferred and novel form of cutters is shown in the drawings, consisting of the inclined or spiral blades or cutting edges, 8, four in number, formed on or secured to the outer circumferential surface of the head and extending from top to bottom thereof, as shown, and the four horizontal and radial or nearly so blades or cutters, 9, formed on or secured to the under side or base of the head and extending inwardly to the central opening, 10 in the head and casing. Each blade or cutter, 9, is a continuation of a blade, 8, and has two cutting edges, 11 and 12, the former of which is a continuation of cutting edge, 8, but inclined in an opposite direction, and the latter a horizontal and nearly radial edge, as shown.

The material loosened by the side cutters, 8, is carried down to the bottom cutters, 9, and unites with what is removed by these cutters and is then drawn in to the central opening 10, and up the same by the force of the suction.

The cutter head has rigidly secured to its base a worm or screw, 13, extending up through the central opening to about the top of casing, 2, as shown. The upward flow of the water through the suction pipe will revolve the screw and cutter head attached to it on the flange, 4, whereby the cutting points will be operated to scrape and loosen the matter to be removed. The lower end of the screw or worm extends across the central opening, 10, and is secured to two opposite cutters, 9, being further secured to the base of the head at points on the edge of the central opening, between opposite pairs of cutters, as shown. The screw revolves in casing, 2, with an easy fit, at a speed depending on its pitch, which may be varied according to the nature of the soil to be removed. It will be observed that the screw divides the casing into two chambers so that two currents are created through the same, which unite into one in the suction tube above. It will be further observed that the cutter head can be easily and quickly detached from the pipe casing, it being merely necessary to remove ring, 7, when a new head may be attached in case of an injury or accident to the first, or one with a different form of cutters, or with a different pitch of screw as may be desired. It will be still further ob-

- served that my cutters afford a long cutting or scraping edge extending from top to bottom of cutter head inclined in one direction, thence below the base a distance inclining in an opposite direction, thence in a radial or nearly so direction to the central opening at the base of the screw, whereby a large amount of material is loosened and fed to the screw and removed in a short time.
- 10 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—
1. In combination with the suction pipe of a dredge pump, a flanged casing secured to said suction pipe, an annular cutter head detachably secured to the flanged casing and adapted to be revolved thereon, and provided with cutters on its outer circumference and base, and a screw rigidly attached to said cutter head for revolving the same by the flow of the suction for the purpose set forth.
 2. The combination, with the suction pipe of a dredge pump, of a flanged casing, secured to said suction pipe, a cutter head detachably secured to said casing by suitable means, and provided with spiral cutters or blades on its circumferential surface and horizontal radial cutters or scrapers on its base extending to a central opening in the base of said head, the cutting edges of said cutters being continuous, and a screw attached to said head for revolving the same upon the flanged casing by the force of the suction, substantially as set forth.
 3. A cutter head adapted to be removably attached to and revolved upon the suction pipe of a dredge pump, consisting of a cylindrical casing having a central opening and an annular recess or chamber above its base for the reception of a flanged casing secured to the end of the suction pipe, a ring secured to its upper edge and overlapping the flanged casing, cutters or scrapers formed on its circumferential surface and base, each cutter on the circumferential surface being continuous with or forming part of a cutter on the base, and a screw or worm secured to said cutter head for revolving it, substantially as shown and described.
 4. A cylindrical cutter head having cutters or scrapers formed on or projecting from its outer surface and base, each cutter having a spiral or inclined cutting edge from top to bottom of said head, an oppositely inclined or spiral edge extending below its base, and a substantially horizontal and radial cutting edge extending to a central opening in said head, and a screw secured in said opening and projecting above it, for the purposes set forth.
 5. In combination with the suction pipe of a dredge pump, a flanged casing secured to said suction pipe, and an annular cutter head detachably secured to said casing and adapted to be revolved thereon and provided with cutters and a screw for the purposes set forth.
 6. A cutter head adapted to be attached to and revolved upon the suction pipe of a dredge pump, consisting of a cylindrical casing having a central opening and an annular recess above its base for the reception of a flanged casing secured to the end of the suction pipe, a ring secured to its upper edge and overlapping the said flanged casing, cutters or scrapers formed on it, and a screw or worm secured to said cutter head for revolving it, substantially as set forth.
- In testimony whereof I affix my signature in presence of two witnesses.
- HENRY W. YERRINGTON.
- Witnesses:
DANIEL H. APPLEGATE,
J. F. CLARK.