July 3, 1923.

1,460,558

A. O. OLDEN

DREDGER

Filed Nov. 22, 1920

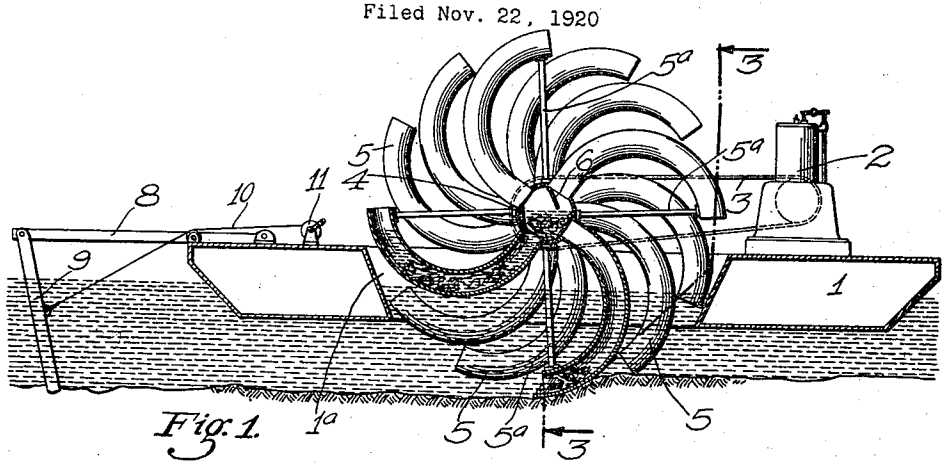


Fig. 1.

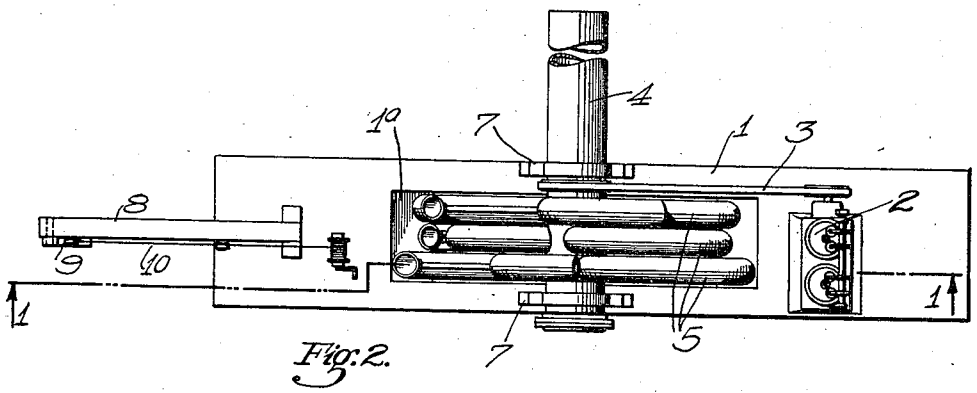


Fig. 2.

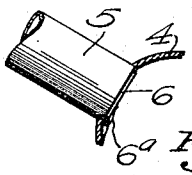


Fig. 4.

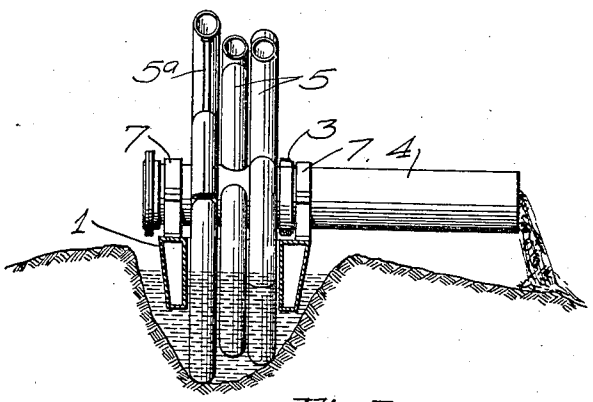


Fig. 3.

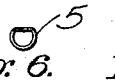


Fig. 6.



Fig. 5.

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UNITED STATES PATENT OFFICE.

ARTHUR O. OLDEN, OF NATIONAL CITY, CALIFORNIA.

DREDGER.

Application filed November 22, 1920. Serial No. 425,738.

To all whom it may concern:

Be it known that I, ARTHUR O. OLDEN, a citizen of the United States, residing at National City, in the county of San Diego and State of California, have invented a certain new and useful Dredger, of which the following is a specification.

My invention relates to dredgers more particularly adapted for use in connection with ditches for dredging the sand, silt and other matter which washes into ditches and raising it to a position so that it flows with some water out over the banks of the ditch and serves for irrigating and fertilizing the soil adjacent the ditch and the objects of my invention are: first, to provide a dredger wherein the digging device also serves for raising the silt and other material from the ditch upwardly to a position so that it will flow out over the banks of the ditch; second, to provide a dredger of this class in which the digging device also serves to move the dredger along as required for cleaning the ditch, and with means for retarding the movement as desired; third, to provide a dredger of this class in which the conducting pipe serves as a conductor for the dredged material from the dredger as well as an axle for the dredger so that the conductor is revolved, thereby keeping the material agitated and preventing its packing in the conductor; fourth, to provide a novelly constructed dredger and fifth, to provide a dredger of this class which is very simple and economical of construction, durable, easy to operate, efficient in its action and which will not readily deteriorate or get out of order.

With these and other objects in view as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawings and to the characters of reference thereon which form a part of this application in which:

Figure 1 is a sectional view of my dredger through 1—1 of Fig. 2 and showing some of the parts and portions in elevation to facilitate the illustration; Fig. 2 is a top or plan view of the dredger showing some of the parts fragmentarily; Fig. 3 is a sectional view through 3—3 of Fig. 1; Fig. 4 an enlarged detailed sectional view of the connection between the main conductor and one of the digging and hoisting devices and showing the trap door in connection therewith; Fig. 5 is a small detailed extended side view of the digging end of one of the devices shown in a slightly modified form from that of the other views of the drawings and Fig. 6 is an end view thereof.

Similar characters of reference refer to similar parts and portions throughout the several views of the drawings.

The float 1, engine 2, belt 3, combined conductor and axle 4, tubes 5, trap doors 6, bearings 7, support 8, retarder 9, cable 10 and windlass 11 constitute the principal parts and portions of my dredger.

The float 1 is of suitable width and length for the purpose used, it being noted that for cleaning ditches and the like, it should be long and narrow as shown best in the drawings. This float is provided on one end, preferably the front end, with a motor 2 and revolubly mounted across said float is a tubular member 4, mounted in the bearings 7 which are supported on opposite sides of the float 1. This float 1 is provided with an opening 1^a therethrough and secured to the pipe 4, and adapted to extend through the opening when turned in the proper relative position, are a series of rows of curved tubular members 5, so arranged that only one or two are adapted to engage the digging surface at a time when revolved in connection with the tubular member 4. These curved tubular members are provided at their extended ends, preferably with sharpened edges adapted as diggers and on their inner ends where they extend through the tubular member 4 are provided with trap doors 6 for enclosing their inner ends and provided with torsion springs 6^a shown best in Fig. 4, tending to hold said doors 6 closed but permitting their opening when pressure is brought to bear against said trap doors 6. The outer ends of these tubular members 5 are supported by means of braces 5^a. It will be noted that in the illustration which is a part of this application, there is shown three rows of curved tubes with four tubes in each row and each secured to the tubular member 4 and adapted to revolve with said tubular member and engage the bottom portion of the ditch, one end at a time, in such a manner as to tend to move the float in the direction it is desired to dig, or lower the bottom of the ditch so that with the revo-

lution of the tubular member 4, together with the members 5, engages the sand and silt in the bottom of the ditch, the dredger is moved along the ditch, the sand and silt is forced up in the tubes 5 at the same time that the tubes 5 engage the sand and dirt in the bottom of the ditch, the pressure in the tubes caused by forcing the sand and dirt and water in the ends of the tube causes air pressure in said tubes causing the sand, silt and water to pass from the tubular member 4 and also that with the revolution of said members the sand, silt and water are gravitated until the pressure opens the trap doors 6 and permits the same to flow into the tubular member 4 which extends outwardly over the banks of the ditch so that said sand, silt and water passes out over the banks of the ditch which results in removing the sand and silt from the bottom of the ditch, carrying it together with some water from the ditch over the banks where it will spread in a thin substance over the top surface of the ground, thus irrigating and fertilizing the ground adjacent the ditch. Mounted on the back of the dredger is a support 8, upon which is pivotally mounted a retarding member 9 which extends downwardly adapted to engage the bottom of the ditch for retarding the movement of the dredger as desired, and this retarding member 9 is supported by means of a cable 10 wound on a windlass 11 so that the retarding member 9 may be operated as desired for retarding the movement of the dredger forwardly in the ditch.

In the modified form of construction, shown in Figs. 5 and 6 of the drawings, the extended ends of the curved tubular members 6 are reduced in size on their inner and side surfaces so that there is provided clearance for the silt, dirt and sand shortly after it passes the end so that it will flow readily into the tubular member 4 and not pack in the tube 6 which might be necessary in some substances.

Though I have shown and described a particular construction, combination and arrangement of parts and portions and a certain modification thereof I do not wish to be limited to this particular construction, combination and arrangement, nor to the modification but desire to include in the purview of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

It is obvious that with this construction, there is provided a dredger in which sand, silt and other substances may be readily removed and raised to an elevation and conducted to a place desired; that the dredger may be moved and retarded from movement to regulate the conditions to be met; that the dredging device performs the functions of digging, raising the substance dug, conducting it to the position desired, moving the dredger and keeping the conductor revolving, thereby agitating the substance therein to prevent its clogging; that it is believed that the pressure caused by the impact of the ends of the tubes 5 with the sand and other substances will cause air and water pressure for forcing the substance from the tubular member 4; that in addition to this, gravity of the substance together with the water will cause the pressure for forcing the substance from the tubular conductor 4.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A dredger, including an outwardly extended revolubly mounted tubular axle positioned substantially above the ground to be removed, a plurality of curved digging and conducting members communicating with the interior of said axle and means for revolving said tubular axle together with said curved digging and conducting members.

2. A dredger, including an outwardly extended revolubly mounted tubular axle positioned substantially above the ground to be removed, a plurality of curved digging and conducting members communicating with the interior of said axle, trap doors for closing the openings from said curved members to said extended tubular axle, means for revolving said tubular axle together with said curved digging and conducting members and a float member upon which said revoluble tubular member is supported.

3. A dredger, including a float, a tubular axle revolubly mounted on said float and extending over the edge of the same, a plurality of curved tubular members with one end communicating with said tubular axle and their other open end extending outwardly therefrom and means mounted on said float for revolving said tubular axle.

4. A dredger, including a float, a tubular axle revolubly mounted on said float and extending over the edge of the same, a plurality of curved tubular members with one end communicating with said tubular axle and their other open end extending outwardly therefrom, means mounted on said float for revolving said tubular axle and a trap door mounted over the inner ends of said tubes adapted to regulate the flow of substance from said curved tubular members to said extended tubular axle, dependent upon the pressure of the substance in said curved tubular members.

5. A dredger, including a float, a tubular axle revolubly mounted on said float and extending over the edge of the same, a plurality of curved tubular members with one end communicating with said tubular axle and their other open end extending outwardly therefrom, means mounted on said

float for revolving said tubular axle, a trap door mounted over the inner ends of said tubes adapted to regulate the flow of substance from said curved tubular members to said extended tubular axle, dependent upon the pressure of the substance in said curved tubular members and means mounted on said float for retarding the forward movement of said float.

6. A dredger, including a revolubly mounted tubular axle, a plurality of curved digging, conducting and propelling members and a portable support upon which said revoluble tubular member is supported.

7. An apparatus of the class described, including a portable support, a laterally extended discharge tube revolubly mounted on said support, a plurality of combined digging, conducting and propelling members secured to and communicating with said discharge tube and discharge regulating means positioned in said discharge tube adjacent to the ends of said digging, conducting and propelling members communicating with said discharge tube.

In testimony whereof, I have hereunto set my hand at San Diego, California this 16th day of November 1920.

ARTHUR O. OLDEN.