

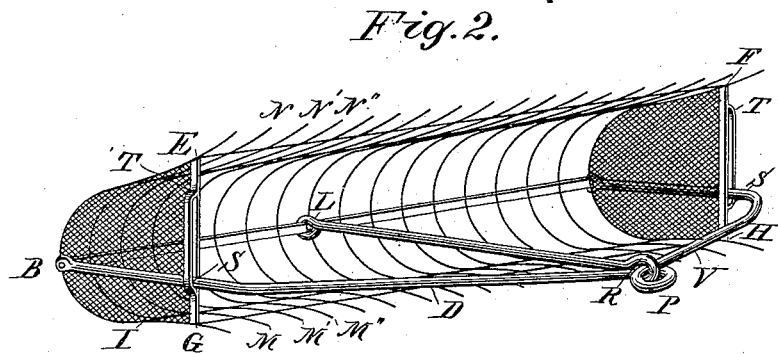
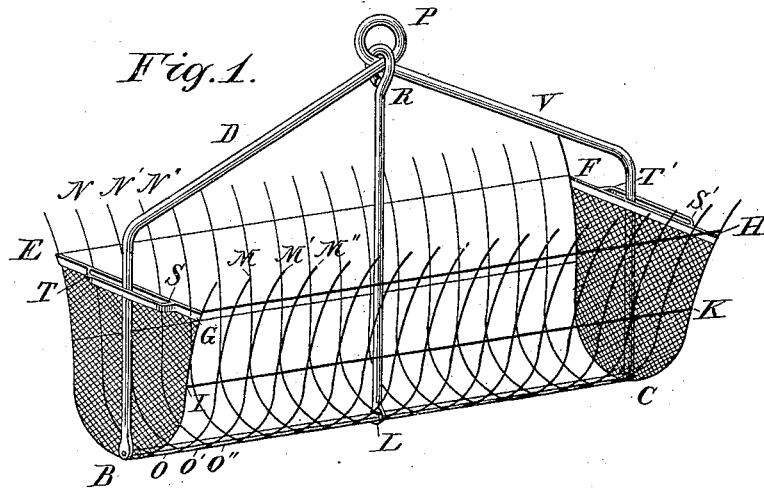
(No Model.)

C. W. TOWNSEND.

DREDGE FOR MINING SUBMERGED ROCK.

No. 266,402.

Patented Oct. 24, 1882.



*Witnesses.*

*J. L. McHugh*

*G. L. Bryan*

*Charles W. Townsend*

*Inventor.*

# UNITED STATES PATENT OFFICE.

CHARLES W. TOWNSEND, OF CHARLESTON, SOUTH CAROLINA.

## DREDGE FOR MINING SUBMERGED ROCK.

SPECIFICATION forming part of Letters Patent No. 266,402, dated October 24, 1882.

Application filed May 18, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. TOWNSEND, of the city of Charleston, county of Charleston, and State of South Carolina, have  
5 invented a new and useful improvement in dredges for mining phosphatic or other mineral deposits in the beds of deep or shallow rivers, of which the following is the specification.

The invention relates to dredges for mining  
10 phosphatic or other mineral deposits in the beds of rivers. Heretofore phosphatic deposits have been taken up with tongs or by suction-pump—both comparatively slow and costly processes.

The object of my invention is to provide a machine which, when dragged or towed forward and backward in deep or shallow water along the bottom of river-beds, will rapidly gather up the phosphatic (or other mineral) deposits lying on or near the surface, retain such  
20 deposits in its basket-like receptacle, while passing off all sand and mud and other admixed foreign matter, and which machine will automatically conform and adjust itself to the surface it is raking whether drawn forward or  
25 backward.

The invention consists in an arrangement of a double set of prongs or teeth, similar to a rake, riveted on and curving outward and upward from a fixed bar, each set of two prongs  
30 in a vertical plane at right angles to the bar being two or three inches apart, (or more, according to size of deposits,) so as to form a basket-like receptacle, the ends of which are closed.

It also consists in applying a sliding vertical frame to this fixed structure of base-bar and prongs, so as to secure an automatic adjustment of the machine to the surface of the  
40 river-bed that is being mined or dredged.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a perspective view of the machine or dredge in vertical position, and Fig. 2 is a  
45 like view of the same in position to be dragged.

The construction of the machine is as follows: B C is a stout bar of iron or steel. Riveted to this bar as a base at points O O' O'', at the distance of one or two inches apart, are the  
50 iron or steel prongs or teeth M N M' N' M''

N'', each pair of which is in a vertical plane at right angles to the base-bar B C. The bars G H and I K (made of iron or steel) are attached by rivets to each of the prongs and act as braces to the prongs to hold them in position. The sides E B G and F C K are closed  
55 either wholly or with iron bars or grating at about two inches interval, and at the top of each of the sides is the slot T S T' S', in which the frame B D V C may slide backward and forward from points T T' to S S'. The frame  
60 B D V C is a fixed piece of iron or steel, and is fastened to the base-bar B C at the points B and C by a washer at one end and a washer and pin at the other end, so as to allow the  
65 frame B D V C to revolve and move backward and forward on bar B C as a fixed base. The bar R L, fastened to base-bar at point L, is to brace frame B D V C and strengthen it. The loop P is for attaching chain or tow-line to the  
70 machine.

The operation of this machine is as follows: When the machine is dropped on the river-bed it will fall on the surface, as in Fig. 2, and the line being tightened on loop P, the frame B D  
75 V C will rise to points T T' in the side slots and there stop, and the line being further pulled by the tow, the machine will in that position follow the tow, and the prongs at the points M M' M'' will dig, rake, take up, and gather all  
80 phosphatic deposits over two inches diameter, and these deposits will fall back into the back part of the cradle or basket-like receptacle and be there retained by the back set of prongs, which will then be in position upward and forward, as in Fig. 2. The water and mud and sand will pass through the intervals between  
85 the prongs, and the phosphatic deposits and nodules, freed from all admixture, will remain.

The machine can be dragged backward as well as forward without being raised, working when reversed on the like principle and in the same manner as above described when the prongs at the points N N' N'' work and rake  
90 the surface.

What I claim is—

1. The combination of two sets of prongs or teeth symmetrically arranged on opposite sides of a central longitudinal plane, each set in turn operating to gather or retain the deposits as  
100

the dredge is drawn back and forth upon its one side or the other over the surface to be dredged, substantially as described.

2. The combination, with the prongs or teeth,  
5 constructed and arranged as described, and the  
end pieces, of a frame or bail pivoted to said  
end pieces, and loops or slots to guide and

limit the movement of said frame or bail, as described.

CHARLES W. TOWNSEND.

Witnesses:

J. P. K. BRYAN,

G. D. BRYAN.