

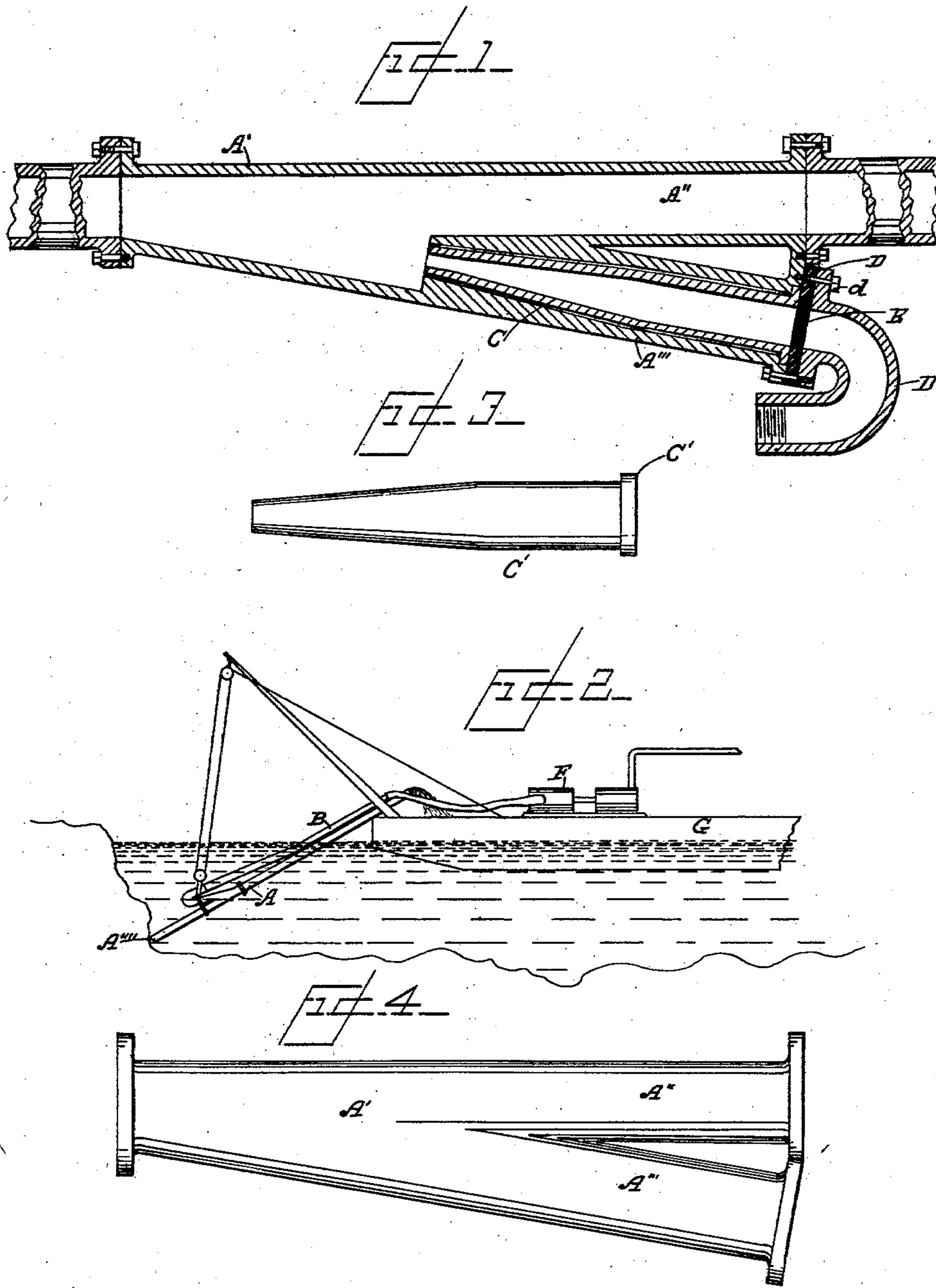
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PATENTED NOV. 10, 1903.

B. FLOOD.  
HYDRAULIC ELEVATOR FOR DREDGING PURPOSES.

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NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

BENTON FLOOD, OF LOS ANGELES, CALIFORNIA.

## HYDRAULIC ELEVATOR FOR DREDGING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 743,979, dated November 10, 1903.

Application filed February 17, 1903. Serial No. 143,850. (No model.)

*To all whom it may concern:*

Be it known that I, BENTON FLOOD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Hydraulic Elevators for Dredging Purposes, of which the following is a specification.

The object of my invention is to provide a simple and reliable device for dredging in which the elevator-pipe will be free of obstructions which would interfere with the uninterrupted passage therethrough of the substance operated on. I accomplish this object by means of the device described herein and shown in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of my hydraulic elevator. Fig. 2 is an elevation of a portion of a scow with my elevator secured thereto in operative position. Fig. 3 is a side elevation of the injector-nozzle. Fig. 4 is a side elevation of the Y branch.

In the drawings, A represents the elevator-pipe, A' the Y branch of my elevator, which is preferably made of cast-iron, the suction branch A'' thereof extending therethrough, preferably in a straight line, and the injector branch A''' communicating therewith at an acute angle, as shown. Centrally disposed in the injector branch A''' is the removable injector-nozzle C. The discharge end of this nozzle (when the nozzle is in place in the injector branch) is preferably about opposite the point of junction between the two branches and should be so contracted at the discharge end thereof as to give the water forced therethrough a relatively greater velocity at the point of discharge therefrom than at any other point to create a suction through the suction branch. The injector-nozzle is provided at one end with an annular flange C', adapted to fit into an annular groove in the injector branch A'''. To the end of the injector branch I have bolted the return-bend D by bolts d, passing through an annular flange D' on the bend. Between the flanges C' on the removable nozzle and the flange D' on the return-bend D, I have interposed a flexible gasket E, by means of which a water-tight connection is made between the injector branch and the return-bend. The return-

bend D is screw-threaded at one end for connection therewith of pipe B, which extends therefrom to the pump F.

My hydraulic elevator is operated as follows, referring to Fig. 2: The return being connected with the force F by pipe B and the suction branch A'' being connected with the elevator-pipe A, extending from the suction-point, where the dredging is to be done, to the discharging end thereof on the scow, an agitator (not shown) being operatively located in proximity to the suction end A''' of the elevator, and motion being imparted thereto to agitate the dirt and gravel on the bottom at this point, water is pumped under pressure into and through the pipe B, passing the return-bend and up through the removable nozzle into the elevator-pipe with considerable velocity, carrying with it water and the debris held therein, the same being discharged at the discharging end of the elevator-pipe on the scow G, whence it is carried by troughs or otherwise to any desirable location. It will be manifest that the elevator-pipe A being straight and of a uniform width from its suction to its discharge end and there being no obstacle therein to prevent the rapid passage therethrough of any hard substance that may get into the pipe, it will afford simple and convenient means without complication or obstruction to elevate and transfer sand, gravel, and other substances that may be mixed with water from one place to another, as is usually required in dredging. The injector branch is properly positioned above the elevator-pipe and discharges downwardly thereinto, so that any substance entering the elevator-pipe may pass upward along the bottom of the pipe, as is shown in proper position in Fig. 2.

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

1. In a dredging apparatus, the combination with an elevator-pipe, and a Y branch, of a removable injector-nozzle fitted to and filling one of the sections of the Y branch whereby the discharge therethrough is equivalent to the full capacity of said section.
2. The combination with an elevator-pipe, of a Y branch, a removable injector-nozzle in one section thereof, a U-shaped pipe secured to the Y branch and holding the nozzle in



place therein, a pump, and a pipe leading from the latter to the U-shaped pipe.

3. The combination with a suction-pipe made in three sections, the intermediate section Y-shaped, and one branch thereof forming a continuation of the other two sections, the bore of the entire pipe thus constructed being unobstructed from one end to the other, of a pipe discharging into the other branch of the Y branch without the bore of the main

section whereby to create suction in the suction-pipe without in any wise forming an obstruction therein.

In witness that I claim the foregoing I have hereunto subscribed my name this 9th day of 15 February, 1903.

BENTON FLOOD.

Witnesses:

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