

(No Model.)

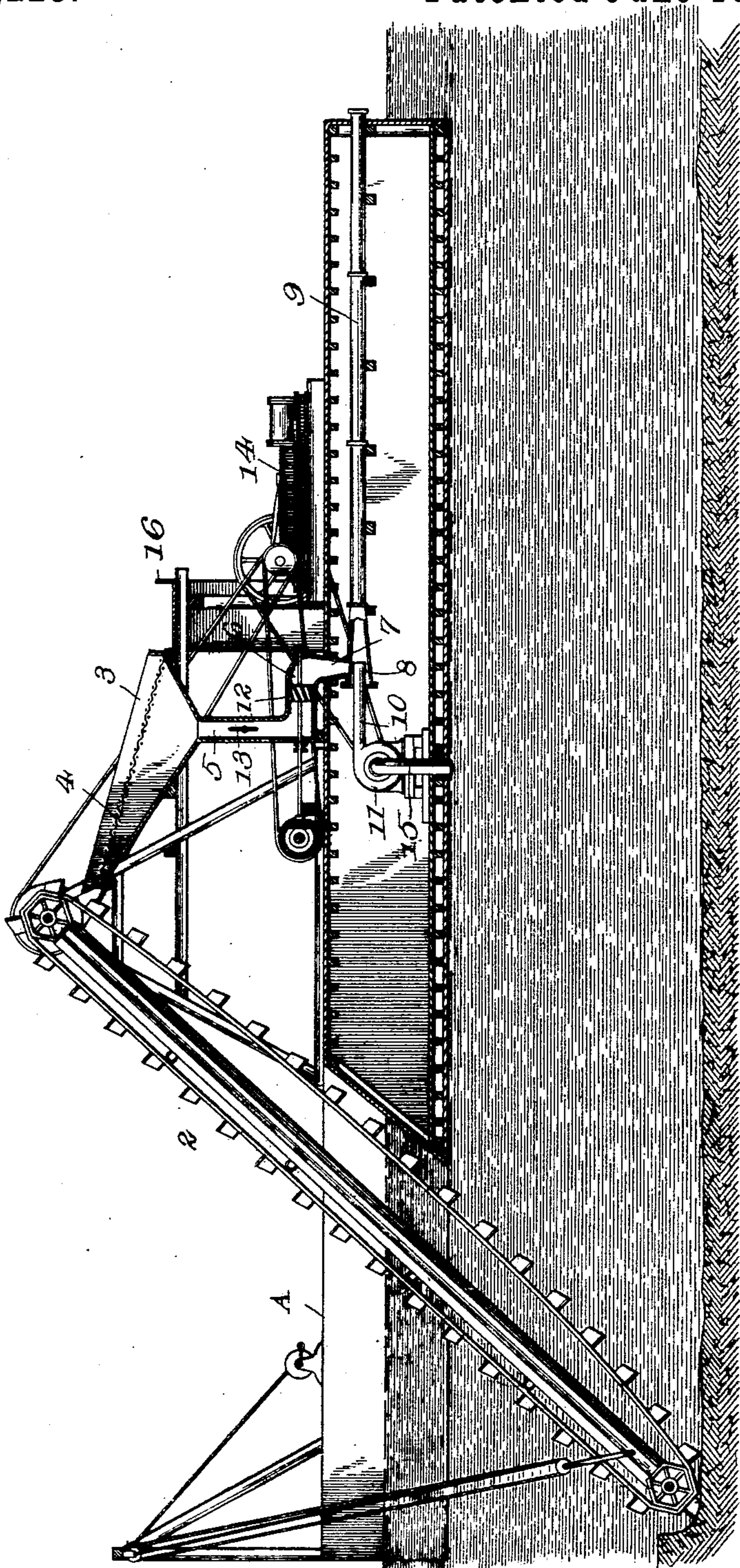
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A. F. CARROLL.
DREDGER.

No. 541,223.

Patented June 18, 1895.

Fig. 1.



Inventor

Witnesses

Chas. A. Ford.

V. B. Hillyard.

By his Attorneys. Anthony F. Carroll,

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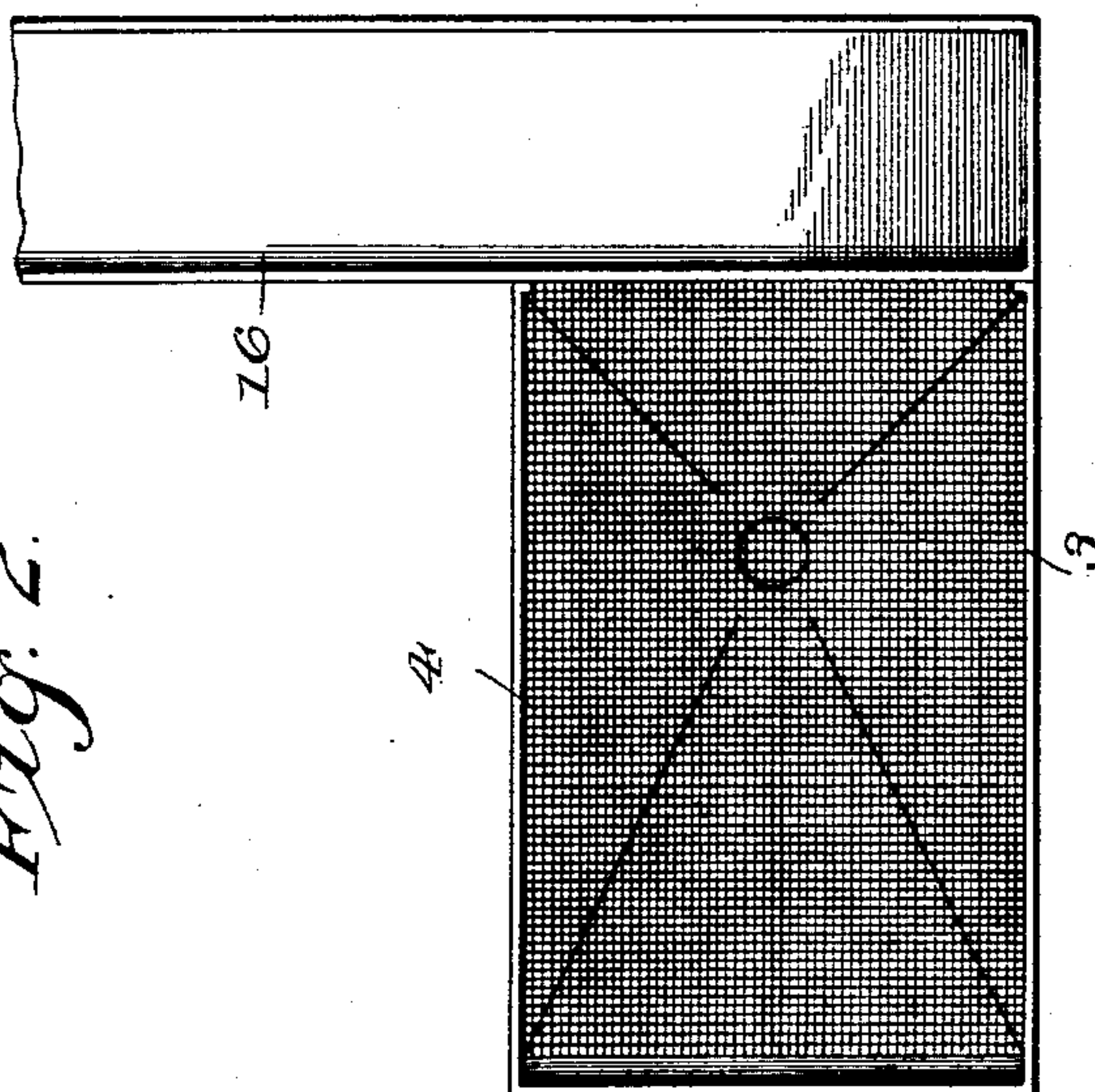
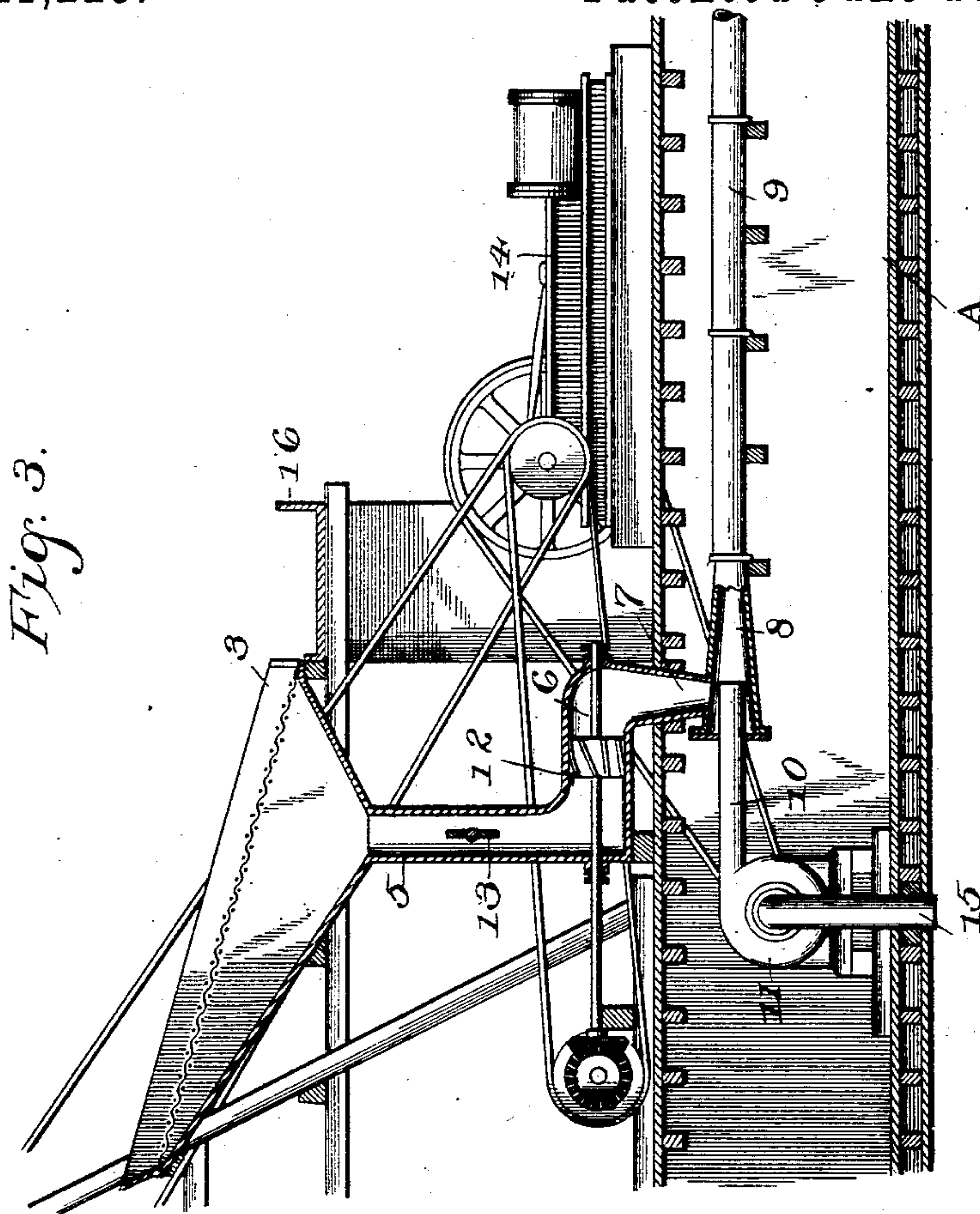
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By his Attorneys. *Anthony F. Carroll,*

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UNITED STATES PATENT OFFICE.

ANTHONY F. CARROLL, OF PORTLAND, OREGON.

DREDGER.

SPECIFICATION forming part of Letters Patent No. 541,223, dated June 18, 1895.

Application filed February 28, 1895. Serial No. 540,102. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY F. CARROLL, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Dredger, of which the following is a specification.

This invention relates to that class of dredges in which the soil is elevated by an endless excavator, dumped into a suitable receptacle, and conveyed to a convenient point of discharge through a pipe, a centrifugal pump being employed to cause the water and soil to pass through the pipe to the dump.

My invention aims to separate wood, stones, and other large matter from the soil, and to permit only small and light substances to pass into the discharge spout, thereby obviating injury and choking up of the conveyers.

The primary object of the invention is to prevent back pressure in the feed, or supply pipe, and to supplement the action of the pump in forcing the water and soil through the discharge pipe. This back pressure has been found to give considerable annoyance, and detract from the usefulness of dredges of this type, as heretofore constructed, and is wholly obviated by the present invention.

The improvement consists of the novel features and the peculiar construction and combination of the parts which hereinafter will be more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of a float or scow upon which the operating parts are mounted. Fig. 2 is a plan view, in detail, of the receptacle or hopper for receiving the excavated soil and the side delivery-chute for conveying away the large and bulky matter. Fig. 3 is a detail view, on a larger scale, of the feed-pipe, the propeller operating in the chamber thereof, the inner end of the discharge-pipe, and the centrifugal pump.

The excavator 2 is located at one end of the float A, and is manipulated in any of the usual ways, both with regard to the manner of its operation, and with respect to regulating the depth to which the excavating is to be performed. A receptacle, or hopper, 3 is located at the delivery end of the excavator

to receive the excavated soil. The upper end of this receptacle is closed by a screen 4 which separates stones, wood and other large matter 55 which would be likely to work injury to and choke the operating parts of the discharge mechanism. The bottom of the receptacle, or hopper, 3 inclines in opposite directions, and a supply or feed pipe 5 communicates 60 with the lower portion thereof so as to convey the soil into a horizontal compartment 6 which terminates at one end in a discharge nozzle 7. The discharge spout, or pipe, 9 is provided at its receiving end with an enlarged or flaring 65 section 8 into which the discharge spout 7 and the pipe 10, leading from the centrifugal pump 11, extend. The end of the pipe 10 passes across the end of the discharge spout 7 to cause the water, discharged therefrom 70 into the enlarged section 8, to create a suction, after the fashion of a tuyere, through the said discharge spout 7 to draw the soil and water therefrom, and cause it to pass through the discharge pipe 9. 75

A propeller-wheel 12 is located in the compartment 6, and is driven at a sufficiently high rate of speed to materially assist and cause the passage of the soil through the feed pipe 5, the discharge spout 7, into the 80 receiving or enlarged section 8 of the discharge pipe 9. A suitable valve 13 is located in the feed pipe 5, at a point between the propeller-wheel 12 and the receptacle 3, to be operated to shut off the supply of matter to the 85 compartment 6 in the event of the propeller-wheel 12, or the discharge pipe 9, choking.

From the foregoing it will be seen that the chief purpose of the propeller-wheel 12 is to assist the action of the pump 11 in forcing 90 the soil through the discharge spout 7 into the pipe 9. It is obvious that if the propeller-wheel 12 should be dispensed with, or should be of such construction as to serve as an agitator of crusher, the pressure of 95 the pump 11 would be sufficient, at times, to cause a back action, and result in a flow of the water through the spout 7 and pipe 5 instead of, in the desired direction, through the pipe 9. Particularly would this action result 100 if the column of water should be retarded in its passage through the pipe 9 from any cause, or if the latter should become choked. Hence, it will be seen that the propeller-wheel 12 is

of vital importance and forms the leading feature of the present invention.

The centrifugal pump, as also the propeller-wheel 12, will be operated by suitable gearing from the engine 14. The water entering through the suction pipe 15 is discharged through the pipe 10 into the pipe 9, and the soil delivered into the receptacle 3 passes by way of the feed pipe 5, compartment 6 and discharge spout 7 into the said pipe 9 and is conveyed by the flow of the water to the desired point of discharge. The wood, large stones and other matter too large to pass through the meshes of the screen 4, gravitate down the same and are received into a lateral chute 16, which delivers them into a barge or scow lashed alongside of the float A.

In the disposition and arrangement of the parts 12 and 13, changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim is—

1. In a dredge, the combination of a compartment having a discharge nozzle and a feed pipe, a propeller wheel operating in the said compartment between the feed pipe and the discharge nozzle to cause a positive movement through the said compartment of the excavated soil, a discharge pipe for conveying the excavated soil to a convenient point of deposit, and having its receiving end communicating with the aforementioned compartment, and a blast pipe communicating with the discharge pipe, substantially as set forth for the purpose described.

2. In a dredge, the combination of an approximately horizontal compartment provided at one end with a vertically-disposed discharge nozzle and at its opposite end with

a supply or feed pipe, a propeller wheel operating in the said compartment to cause a positive movement therethrough of the excavated soil, a discharge pipe for conveying the excavated soil to a convenient point of deposit, and having its receiving end enlarged and communicating with the aforementioned compartment, and a blast pipe having its delivery end extending into the receiving or enlarged end of the discharge pipe and projecting across the delivery end of the said discharge nozzle, substantially as set forth for the purpose described.

3. In a dredging apparatus, the combination of an excavator, a receptacle for receiving the excavated soil, a separating screen interposed between the excavator and the receptacle for removing large and bulky matter and delivering the same into a chute, a feed pipe leading from the receptacle and provided near its lower end portion with a compartment and discharge spout, a controlling valve located in the feed pipe, a propeller-wheel arranged in the said compartment to cause a positive movement of the excavated soil through the said feed pipe and discharge spout, a discharge pipe having an enlarged section at its receiving end into which the said discharge spout extends, and a centrifugal pump having its delivery pipe projected into the receiving section of the discharge pipe and extending across the delivery end of the said discharge spout, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ANTHONY F. CARROLL.

Witnesses:

T. G. THORNTON,
JAMES GLEASON.