

No. 700,406.

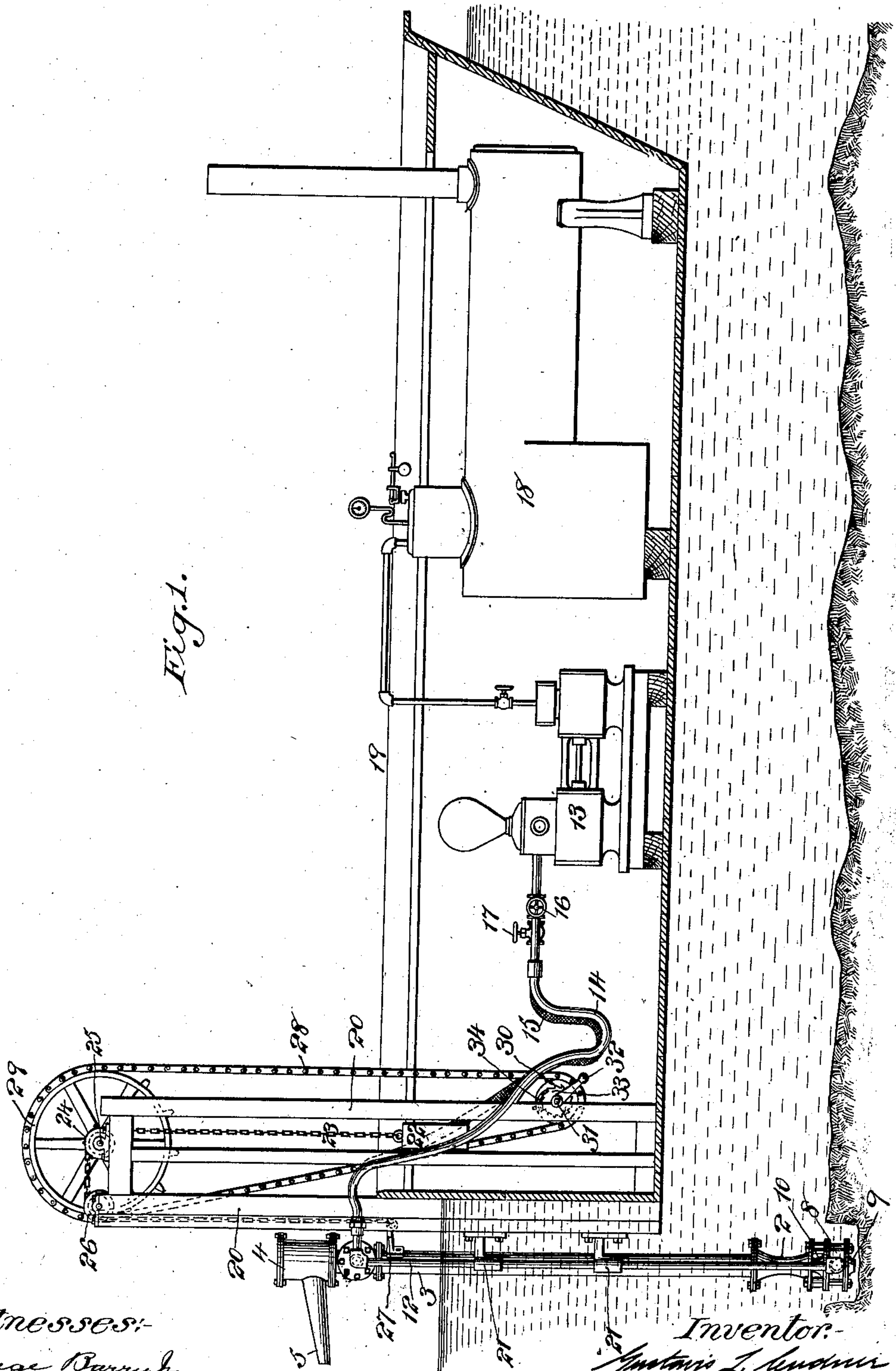
Patented May 20, 1902.

G. L. CUDNER.
HYDRAULIC DREDGE.

(Application filed Aug. 30, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Henry Thieme.

Inventor:
Gustav L. Kudner
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Fig. 3.

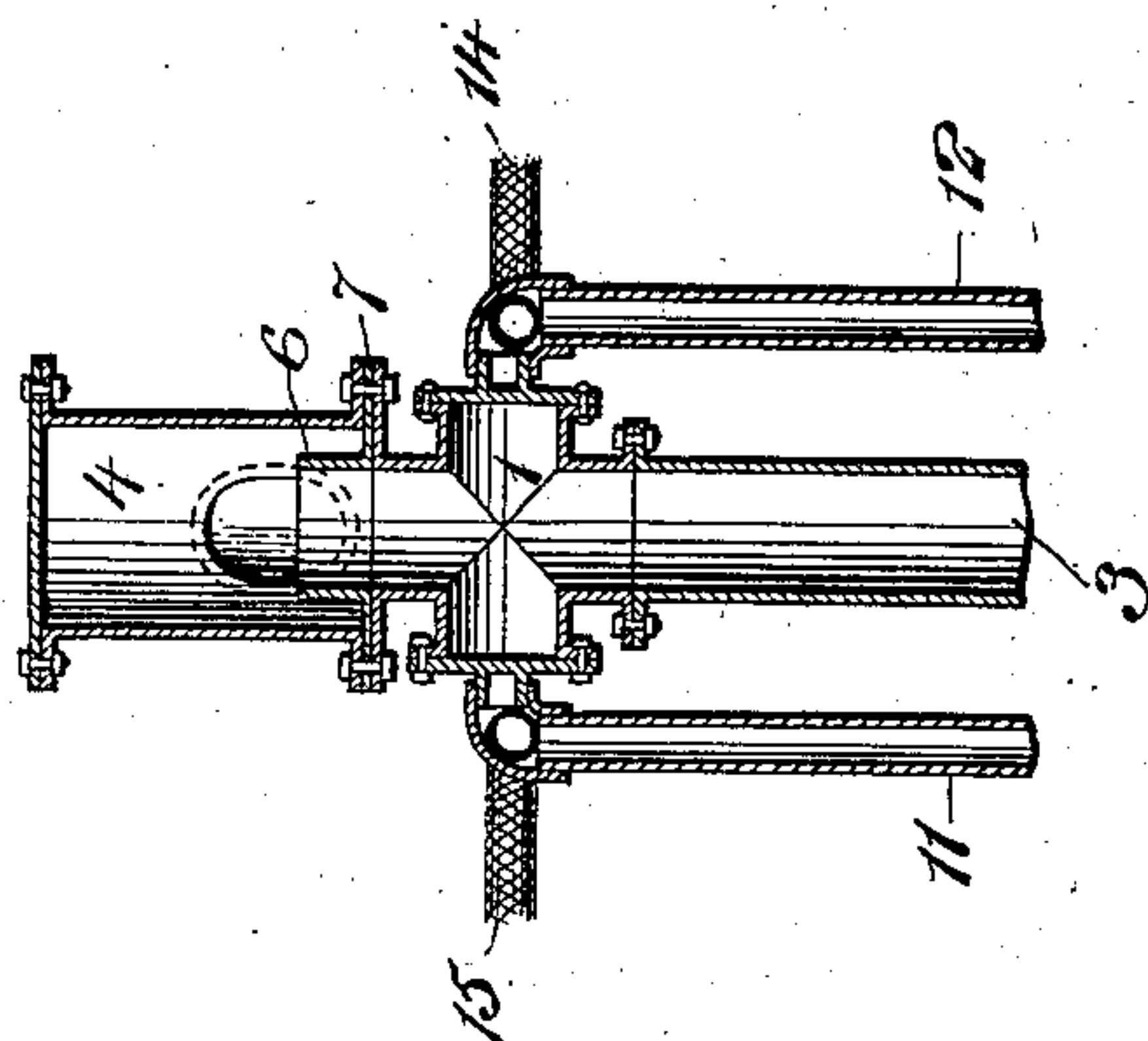
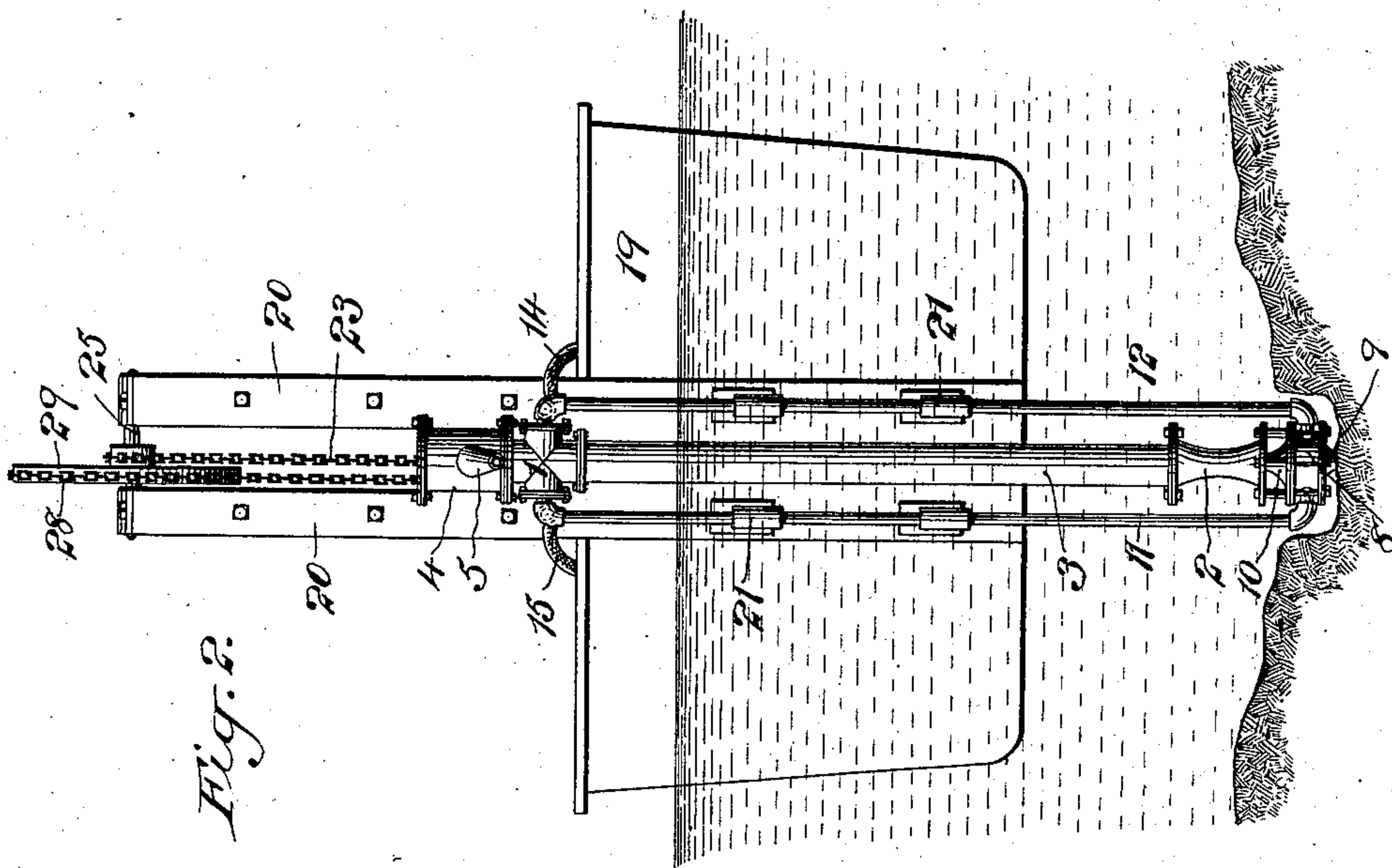


Fig. 2.



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UNITED STATES PATENT OFFICE.

GUSTAVIS L. CUDNER, OF NEW YORK, N. Y.

HYDRAULIC DREDGE.

SPECIFICATION forming part of Letters Patent No. 700,406, dated May 20, 1902.

Original application filed June 5, 1901, Serial No. 63,202. Divided and this application filed August 30, 1901. Serial No. 73,802. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVIS L. CUDNER, a citizen of the United States, and a resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Hydraulic Dredgers, Excavators, and Elevators, of which the following is a specification.

My invention consists in an improvement in hydraulic dredgers, excavators, and elevators, and has for its object to provide an apparatus which may be readily adjusted to different heights.

A further object is to provide certain improvements in the construction, form, and arrangement of the several parts of the apparatus, so as to produce an effective apparatus capable of rapidly performing its work.

A still further object is to provide a discharge-box surrounding the upper end of the stand-pipe of the apparatus, the said discharge-box being provided with a spout leading therefrom at a point below the outlet end of the stand-pipe for preventing the return of the discharged material from the discharge-box back into the stand-pipe after it has once been discharged therefrom.

My present invention is a division of my application, Serial No. 63,202, entitled "Hydraulic dredger, excavator, and elevator," filed June 5, 1901, and is directed more particularly to the stand-pipe and its handling devices.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents my improved apparatus in connection with a boat or scow, the apparatus being shown in its working position. Fig. 2 is an end view of the same, and Fig. 3 is an enlarged detail sectional view of the upper portion of the stand-pipe and its adjacent parts.

The stand-pipe of the apparatus comprises a head-section 1, an injector-section 2, and one or more intermediate sections 3. The stand-pipe is provided with an open bottom for the reception of the material to be elevated and an open top for discharging the material. A closed discharge-box 4 is secured to the head 1 of the stand-pipe, which discharge-

box is provided with a discharge-spout 5 for conveying the material to any desired point. The open top of the stand-pipe is projected into the interior of the discharge-box 4 a distance above the bottom thereof, preferably by providing a supplemental tubular section 6, having a flange 7 interposed between the flanges of the discharge-box 4 and the head-section 1 of the stand-pipe. The spout 5 leads from the discharge-box 4 at a point below the outlet to the end of the stand-pipe, so as to insure the removal of all material which may be discharged from the stand-pipe. A nozzle-chest 8 is spaced a short distance below the open bottom of the stand-pipe, which nozzle-chest is provided with a downwardly-extended nozzle 9 for disintegrating the material and an upwardly-projecting nozzle 10 for drawing the material into the interior of the stand-pipe and forcing it upwardly there-through into the discharge-box. Two hydraulic feed-pipes 11 and 12 are connected at their lower ends to the nozzle-chest and are spaced at their upper ends from the head-section 1 of the stand-pipe. These hydraulic feed-pipes 11 and 12 are connected with a suitable hydraulic pump 13 through flexible hose-pipes 14 15. Cocks 16 17 may be provided for regulating the flow of water from the hydraulic pump 13 to the nozzle-chest 8. A suitable boiler 18 is employed for furnishing power to operate the said hydraulic pump 13.

The scow which is represented as carrying the apparatus hereinabove described is denoted by 19, and it may be of any well-known and approved construction. The stand-pipe and its connected parts are located exterior to the scow and may be adjusted for bringing the lower end of the stand-pipe into the proper position for dredging and excavating as follows: A suitable framework 20 is mounted at one end of the scow, which framework is provided with a plurality of guide-brackets 21, which embrace the hydraulic feed-pipes 11 and 12 upon opposite sides of the stand-pipe. These brackets are preferably arranged in pairs, as shown, so as to obtain an extended bearing for the feed-pipes, and the said brackets are so arranged that they will permit the stand-pipe and its connected parts to

have a considerable range of vertical adjustment to render the apparatus applicable for use on bottoms at various distances from the surface of the water. A counterbalance-weight 22 is provided with a chain 23, which
 5 passes upwardly and over a sprocket-wheel 24, fixed to a shaft 25, mounted in the top of the framework 20, and from thence passes over an idler-pulley 26 and downward, where
 10 its other end is connected to a rearwardly-extended bracket 27, carried by the stand-pipe.

To permit the apparatus to be easily raised and lowered, I provide a sprocket-chain 28,
 15 which passes over a large sprocket-wheel 29, fixed to the shaft 25, and around a small sprocket-wheel 30, fixed to a shaft 31, mounted on the supporting-frame 20. This shaft 31 is provided with an operating crank-handle 32, and is also provided with a ratchet 33,
 20 engaged by a pawl 34 for holding the apparatus in any of its vertical adjustments.

The flexible hose-pipes 14 and 15 are made of sufficient length to permit the apparatus
 25 to be raised and lowered to the limits of its movement without interfering with the connection between the hydraulic pump and the feed-pipes 11 and 12.

What I claim is—

30 1. In a dredger, excavator and elevator, a stand-pipe comprising a head-section, an injector-section, an intermediate section, and a discharge-box having an outlet therein, and

a supplemental tubular section projected above the outlet in the discharge-box, substantially as set forth. 35

2. A dredger, excavator and elevator comprising a stand-pipe, a nozzle-chest, two hydraulic feed-pipes communicating at their lower ends with the nozzle-chest and rigidly
 40 spaced from the stand-pipe at their upper ends, a suitable support and means for adjustably securing the stand-pipe to the support comprising guide-brackets through which the feed-pipes are fitted to slide, substantially
 45 as set forth.

3. In combination, a dredging, excavating and elevating apparatus and means for adjusting it comprising a suitable framework, a cross-shaft mounted therein, a sprocket-
 50 wheel fixed on the shaft, a counterbalance-weight, a chain passing over the said sprocket and connecting the counterbalance-weight with the apparatus, a large sprocket fixed on said cross-shaft, a small sprocket having an
 55 operating crank-handle and a sprocket-chain connecting the last-named two sprockets, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 29th day of August, 1901. 60

GUSTAVIS L. CUDNER.

Witnesses:

FREDK. HAYNES,
 HENRY THIEME.