

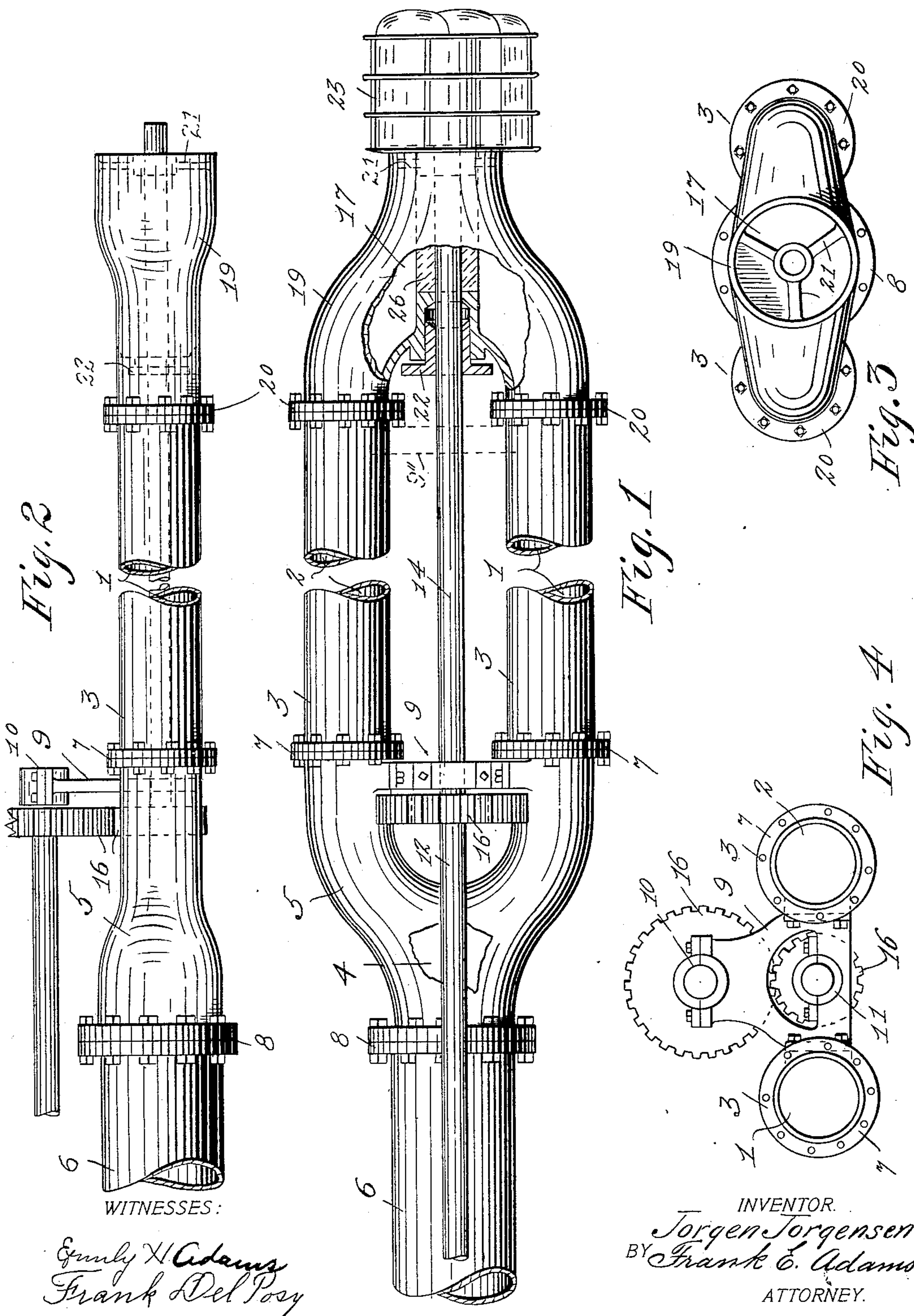
No. 735,106.

PATENTED AUG. 4, 1903.

J. JORGENSEN.  
SUCTION PIPE.

APPLICATION FILED OCT. 22, 1901. RENEWED JUNE 25, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JORGEN JORGENSEN, OF SEATTLE, WASHINGTON.

## SUCTION-PIPE.

SPECIFICATION forming part of Letters Patent No. 735,106, dated August 4, 1903.

Application filed October 22, 1901. Renewed June 25, 1903. Serial No. 163,135. (No model.)

*To all whom it may concern:*

Be it known that I, JORGEN JORGENSEN, a citizen of the United States of America, and a resident of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Suction-Pipes, of which the following is a specification.

My invention relates to improvements in suction-pipes operating in conjunction with a mechanical excavator for hydraulic dredging, and has special reference to the intake or working end of such a pipe.

Among numerous objects attained by this invention are efficient transmission of the materials as excavated, protection of the driving mechanism of the excavator from abrasions, greater efficiency and wider scope of operations of the excavating apparatus, and prolongation of the usefulness of the intake. These objects I attain by the constructions, combinations, and arrangements of parts as disclosed by the accompanying drawings, set forth in the following specification, and succinctly pointed out in the appended claims.

With reference to the drawings filed herewith and bearing like reference characters for corresponding parts throughout, Figure 1 is a plan view of the intake connected to a portion of a suction-pipe of the nature above set forth with parts broken away and excavating mechanism in relative position as preferably embodied. Fig. 2 is a side elevation of the intake and mechanism disclosed in Fig. 1 with the excavator proper removed. Fig. 3 is a view in elevation of the receiving end of the intake disclosed in Fig. 1 with the excavating mechanism removed, and Fig. 4 is a view in elevation of the intake with the receiving end disconnected therefrom.

This invention comprehends an intake of the class expressed having a plurality of passages of extended length delivering into a single main channel and as now considered embodies two oppositely-disposed passages, as 1 and 2, preferably rendered of equal area of cross-section and formed in separated parallel stems or portions 3 of the body of the intake, which in the present instance consists mainly of tubular sections or piping of suitable length and diameter. These passages 1 and 2 are conveniently converged at the de-

livery end and brought into communication with a main channel 4, embodied in the base of a substantially Y-shaped portion 5 of the intake and approximately equal in area of cross-section to the combined area of passages 1 and 2. The portion 5 preferably comprises a detachable part suitably formed for attachment of stems 3 to the ends of the furcations thereof and at the delivery or opposite end for rigid connection to a suitable suction-pipe, as 6, and as now considered these connections are preferably made by means of suitable peripheral flanges 7 and 8, provided on the abutting ends of respective parts and secured together in any suitable or well-known manner. Adjacent said delivery end of the intake a suitable bearing 9 is located and fixed in any desired manner to the body of the intake and as now considered embodies an upper and a lower journal marked 10 and 11 and respectively adapted to support a longitudinally-disposed drive-shaft 12 and a driven shaft 14, and the latter journal is suitably located to support said driven shaft between the passages 1 and 2 of the intake and preferably as now considered with the center thereof on a line with the centers of said passages, thus protecting said shaft from drifting debris or the like and conveniently removing it from possible contact with the excavated materials as transmitted. If desired, a second bearing, as 9', for the driven shaft may be located adjacent the receiving ends of said passages, as indicated by dotted lines in Fig. 1, and said shaft is preferably coupled to shaft 12 by a suitable pair of spur-gears 16, disposed adjacent bearing 9.

In the present instance the passages 1 and 2 of the intake are arranged to transmit from a single receiving-channel, as 17, adjacent which an excavator, as 18, is suitably mounted for operation by shaft 14. This channel is substantially equal in area of cross-section to the combined area of passages 1 and 2 and is conveniently formed in the base of a suitable Y-shaped portion 19, having the furcations thereof suitably diverged for attachment to stems 3 of the intake, with passages of like area to those of said stems, and suitable peripheral flanges, as 20, are provided at the abutting ends of said stems and furcations for convenient connection of this Y



portion to the intake. At the receiving end of body 19 a suitable spider 21 is conveniently secured and is formed with a journal positioned concentric the channel 17 for rigid support of the shaft 14, and a suitable aperture is provided in the crotch of said body to receive said shaft, and a stuffing-box, as 22, of any suitable or ordinary construction, is conveniently mounted at said aperture about said shaft. Between the spider 21 and inner end of box 22 a suitable jacket, as 26, is preferably arranged about shaft 14 to protect it from abrasion and conveniently comprises a suitable wooden section.

In the preferred embodiment the excavator comprises a suitable rotative cutting device, as 23, which is mounted on the projecting end of shaft 14 and suitably formed to agitate and excavate the materials as said shaft is rotated and operates in conjunction with a suitable pump or the like, conveniently coupled to suction-pipe 6 in any suitable or ordinary manner. The suction-pipe is ordinarily mounted on a suitable movable ladder or the like adapted to direct the feed of the excavator, and my improved intake is secured at the free end of said pipe, with the gears 16 and driving-shaft 14 well above the excavator, as determined by length of stems 3, and thus removed from all possible contact with the spoil as agitated and from interference with the bank or deposit of materials as the excavator is fed therethrough. As now considered the intake is positioned with the center of stems 3 disposed at right angles to the vertical line of movement, so that the excavator can be brought well into the deposit of materials in shallow water without interference therewith of the body of the intake and, furthermore, allowing the end of the excavator to be brought well into the work at various angles.

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

1. The combination with a suction-pipe of

the nature indicated; of an intake formed of two separated passages of equal area converging at the ends and united at each end with a single channel equal in area to the combined area of said passages.

2. In an intake of the nature indicated, two oppositely-disposed substantially Y-shaped portions each formed with a passage in each furcation and a single channel in the base, and parallel tubular stems connecting the ends of said furcations.

3. In an intake of the nature indicated, two oppositely-disposed substantially Y-shaped portions formed with a passage in each furcation and a single channel in the base, parallel tubular stems connecting the ends of said furcations and a stuffing-box in the crotch of one portion.

4. The combination with a suction-pipe; of an intake comprising a body formed with parallel stems having passages, means to connect the passages to the said pipe, a drive-shaft mounted parallel said pipe, a driven shaft journaled between said stems, means to couple said shafts together, and excavating apparatus operably connected to said driven shaft adjacent the free end of the intake.

5. The combination with a suction-pipe; of an intake comprising a body formed with oppositely-disposed Y-shaped ends each having a channel in the base and a passage in each furcation, tubular stems connecting the furcations of opposite ends, a stuffing-box in the crotch of one end and a spider in the base of said end, a bearing on said body, a driving-shaft journaled in the bearing, a driven shaft coupled to the driver disposed in said stuffing-box extending between said stems and journaled in said spider and bearing, and a rotary excavator fixed on said driven shaft.

Signed at Seattle, Washington, this 31st day of August, 1901.

JORGEN JORGENSEN.

Witnesses:

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