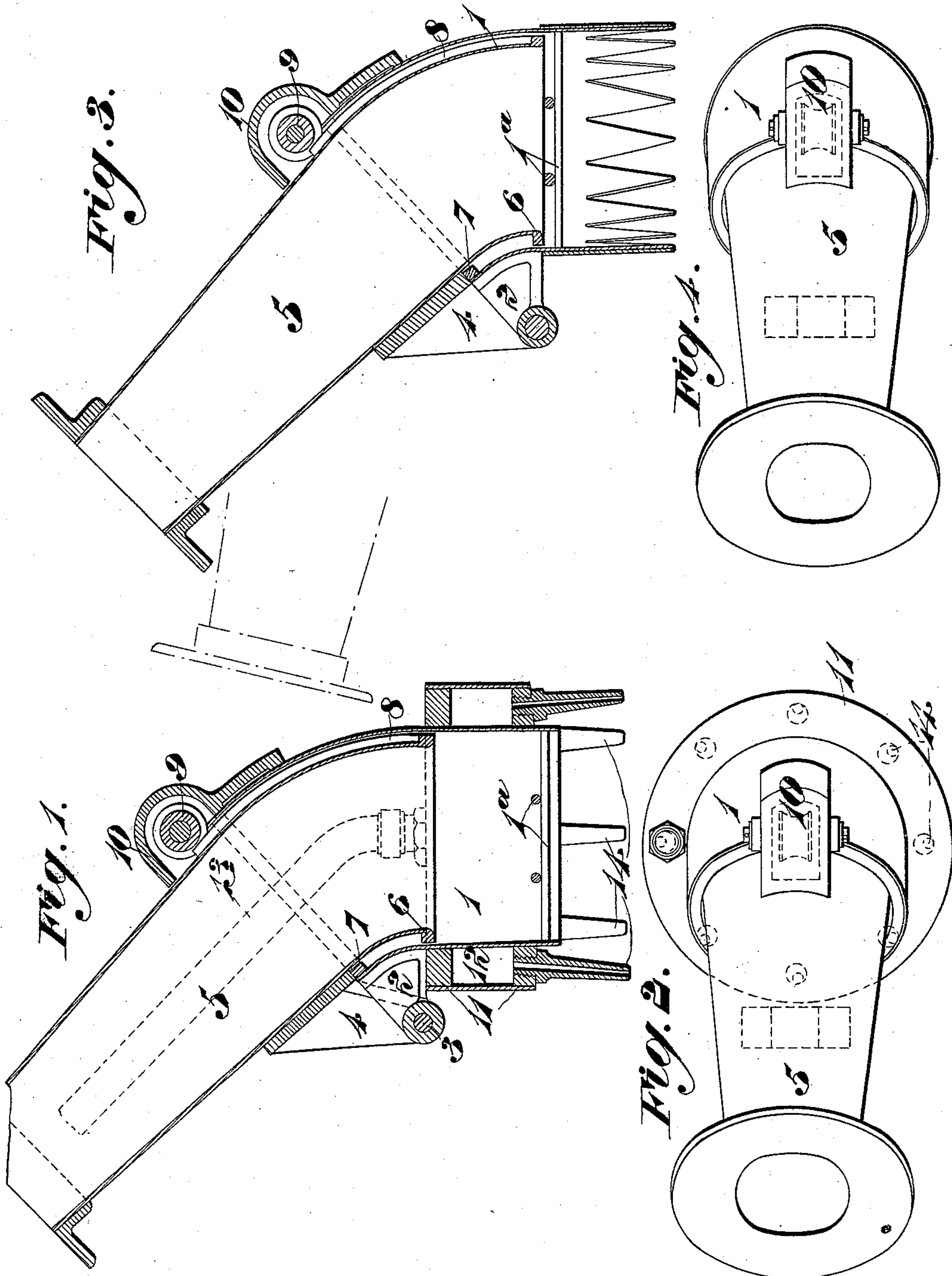


(No Model.)

J. GWYNNE.
DREDGING APPARATUS.

No. 534,149.

Patented Feb. 12, 1895.



Witnesses

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JOHN GWYNNE, OF LONDON, ENGLAND.

DREDGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 534,149, dated February 12, 1895.

Application filed December 29, 1893. Serial No. 495,040. (No model.)

To all whom it may concern:

Be it known that I, JOHN GWYNNE, a subject of the Queen of Great Britain and Ireland, residing at Hammersmith, London, in the county of Middlesex, England, have invented Improvements in Dredging Apparatus, of which the following is a specification.

This invention has reference to improvements hereinafter described with reference to the drawings in the construction of what are called mouth pieces forming a portion of dredging apparatus of the kind in which material such as silt, mud, sand and gravel, is raised by means of a current of water caused by any suitable means (such as a centrifugal pump) to pass upward through a pipe to which the mouth piece is applied.

Referring now to the accompanying drawings, Figure 1 shows in vertical section a mouth piece according to this invention. Fig. 2 shows a plan of the same. Figs. 3 and 4 are corresponding views of a modification.

As will be seen on reference to Figs. 1 and 2, the mouth piece is so constructed that it and the pipe to which it is applied shall be capable of movement relatively to each other for the purpose of enabling the mouth piece to at all times take a proper bearing on the material to be dredged notwithstanding any variation that may occur from time to time in the angular position of the said pipe with regard to the surface of the said material, as for example variations due to the rising and falling movement (owing to tidal action) of the vessel with which the apparatus is used.

As will be obvious suction pipes and mouth pieces as described can be constructed in various forms.

In the arrangement shown in Figs. 1 and 2 the mouth piece comprises a tubular piece 1 to which is fixed a lug or bracket 2 by means of which and a pivot pin 3, it is hinged or jointed to a corresponding lug or bracket 4 secured to the suction pipe 5. The lower end of the suction pipe is bent to a circular form having the pivot connecting it to the mouth piece as a center, and the upper end of the mouth piece is similarly bent, these end portions being fitted telescopically one within the other, as shown, so that when the mouth piece has taken a bearing upon the material to be dredged the suction pipe can move in a

vertical plane about the above mentioned pivot pin as a center without interfering with the position or action of the mouth piece. 1^a is the ordinary grid at the lower part of the mouth piece.

On the lower end of the suction pipe is an extension 6, which, in conjunction with a similar extension 7 within the upper part of the mouth piece, serves as a stop to confine the turning movement of the two parts within convenient limits; but other convenient means may be used for this purpose if desired. 8 is a guide rib carried by the curved portion of the suction pipe and arranged to work against a grooved guide roller 9 mounted within a box 10 fixed to the mouth piece.

When the material to be dredged is in the form of a more or less compact mass, a casing 11 may advantageously be secured around the lower portion of the mouth piece 1 so as to form therewith a water-tight chamber 12 into which water under pressure is led by a pipe 13 and from which such water is discharged in the form of one or more jets or streams. In the example shown, the water is discharged in the form of jets through a number of nozzles 14 secured to the bottom of the chamber; but it may be discharged through openings otherwise formed, as for example through an annular opening at the bottom of the chamber. The nozzles may be made readily detachable so that nozzles of different sizes can be used according to requirement. When an annular opening is used instead of nozzles, the cross-sectional area of such opening may be made adjustable by any suitable means. Thus the annular opening may be formed between the bottom of the chamber and the conical mouth piece, and the water chamber made adjustable on such mouth piece so that by moving the one on the other the size of the discharge opening between them can be altered to vary the rate and force of the discharge of water. In this way the jet or jets or stream or streams of water act to disintegrate, break up, or loosen the said material and render it capable of being readily withdrawn through the suction pipe with the water that is drawn there-through.

In some cases, as where the material is of a soft nature, the water chamber and nozzles

may be dispensed with as in the modified construction shown in Figs. 3 and 4. In this construction the lower end of the mouth piece is made of two concentric tubes and serrated to form inlets for the passage of water and material to be dredged, to the suction pipe. In other respects the construction is similar to the construction shown in Figs. 1 and 2.

What I claim is—

10 1. In dredging apparatus a suction pipe having a portion curved to the arc of a circle, provided with a separate mouth piece similarly curved and arranged telescopically one within the other, and a water tight chamber carried
15 by said mouth piece and having an inlet and an outlet for water under pressure, said suction pipe and mouth piece being hinged or jointed together with the axis of the hinge coinciding with the center of said curves, substantially as herein described, for the purpose
20 specified.

2. In dredging apparatus, a suction pipe and a mouth piece having their adjacent ends bent to a circular curve, arranged telescopically
25 one within the other and provided with stops

to limit their relative movement, lugs or brackets and a pivot pin connecting the said suction pipe and mouth piece, a guide rib on one of the hinged or jointed parts and a guide roller on the other of such parts and against which said rib is arranged to work substantially as herein described. 30

3. In dredging apparatus, the telescopically arranged suction pipe 5 and mouth piece with the stops 6 and 7, lugs 2 and 4 and pivot pin 35 3 the guide rib 8 and guide roller 9 on the pivoted parts, and a water-tight chamber secured to the outer side of said mouth piece and provided with an inlet for water under pressure and discharge nozzles 14 substantially as described for the purposes specified. 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN GWYNNE.

Witnesses:

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