(No Model.) 2 Sheets—Sheet 1.

H. K. REYNOLDS.

DREDGING MACHINE.

No. 597,190. Patented Jan. 11, 1898.

Fig. 1.

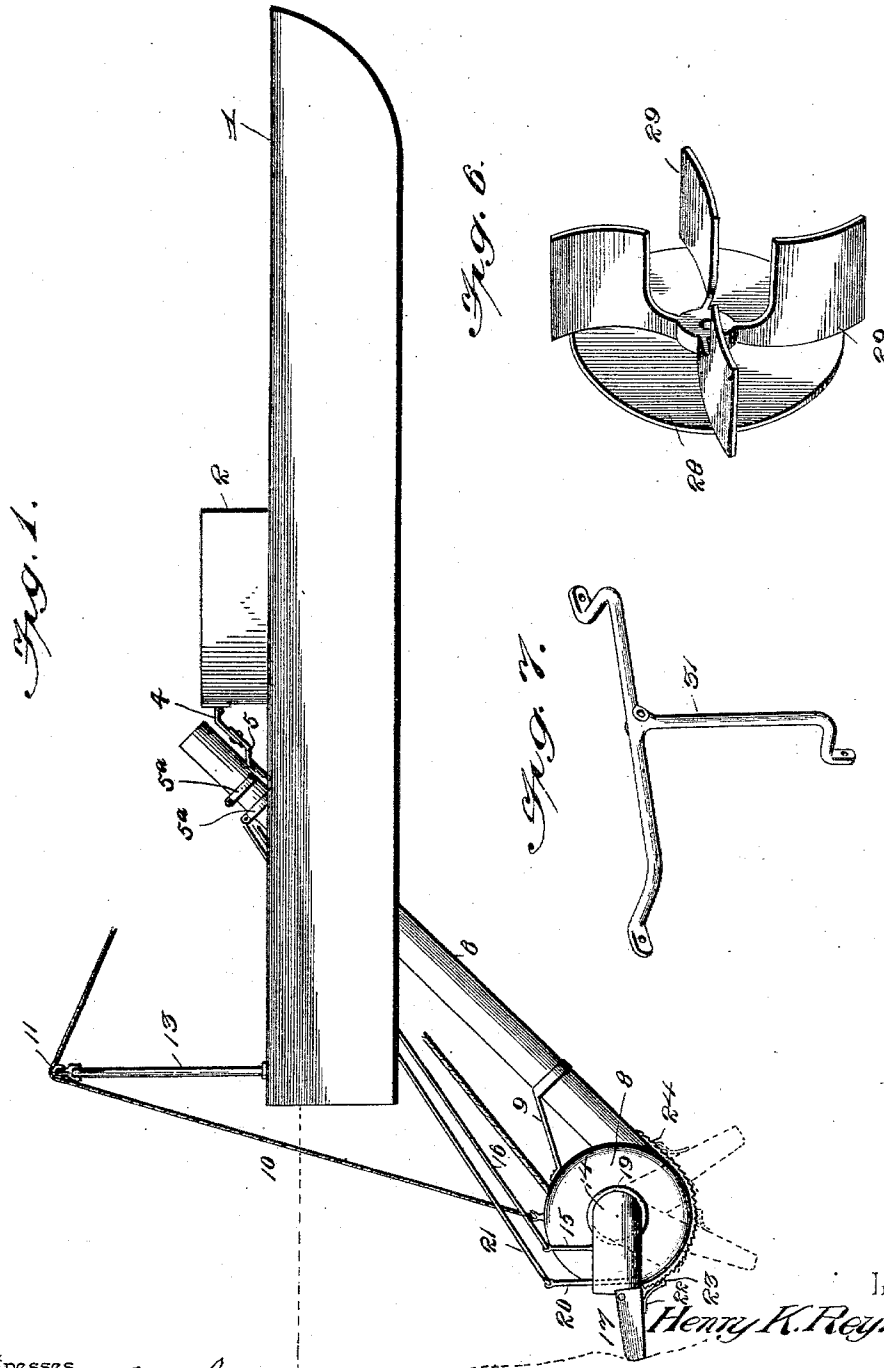


Fig. 6.

Fig. 7.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

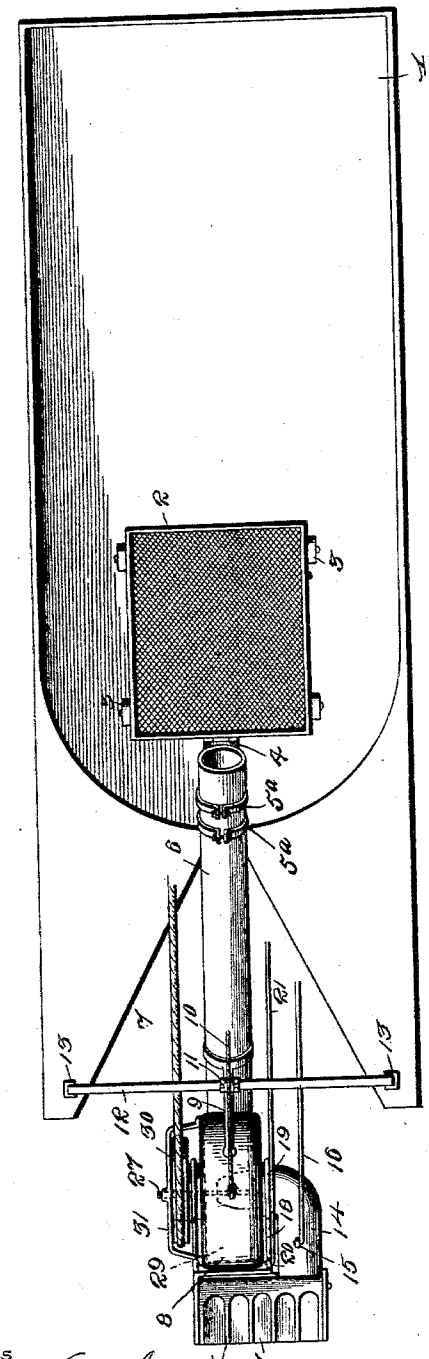


Fig. 3.

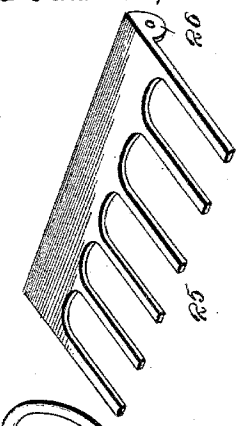


Fig. 4.

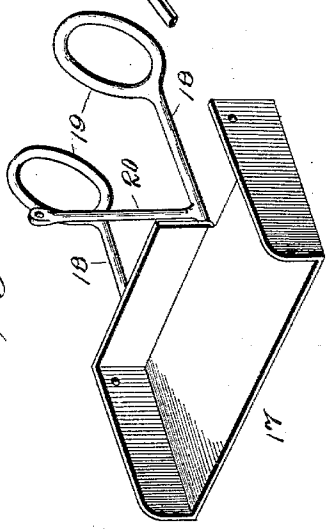
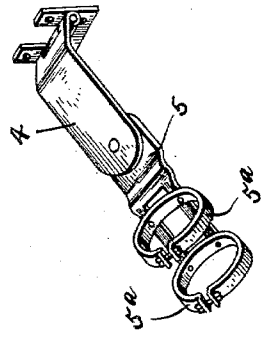


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY K. REYNOLDS, OF ATTICA, OHIO.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 597,190, dated January 11, 1898.

Application filed September 26, 1896. Serial No. 607,063. (No model.)

To all whom it may concern:

Be it known that I, HENRY K. REYNOLDS, a citizen of the United States, residing at Attica, in the county of Seneca and State of Ohio, have invented a new and useful Dredging-Machine, of which the following is a specification.

This invention relates to dredging-machines, and is designed to be operated from a suitable float, raft, or boat for the purpose of pumping out sand, gravel, or clay with water from sand-bars, beds, or channels of rivers or streams or any body of water, being also adapted to work against the contiguous banks thereof.

The object of the invention is to simplify and improve dredging-machines in use at the present time, whereby the scoop or nozzle may be adjusted into any desired position for operating either on the bed of the stream or upon the contiguous banks; also to provide in connection with a submerged pump a swiveled suction-pipe and a scoop or shovel adjustably connected to such suction-pipe, so as to be placed at any angle thereto.

Other objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in an improved dredging apparatus embodying novel features and details of construction and arrangement of parts, as hereinafter particularly described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a side elevation showing the improved apparatus in operation. Fig. 2 is a plan view of the same. Fig. 3 is a detail perspective view of the bracket supporting the upper end of the discharge-pipe. Fig. 4 is a similar view of the scoop or shovel. Fig. 5 is a detail perspective view of the grating for the shovel. Fig. 6 is a similar view of the fan. Fig. 7 is a detail view of the bearing-bracket for the fan or pump-shaft.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates a float upon which the improved apparatus is carried and from which it is operated. This float is adapted to receive the material discharged by the pump and also to carry the motor by which the pump is driven.

2 designates a screen-box which is arranged in the upper portion of the float and mounted upon suitable rollers 3, whereby it may move longitudinally of the boat as the rest of the apparatus is adjusted in the manner hereinafter explained. Hinged to the box 2 on a horizontal axis is an arm 4, having at its outer end an extension-arm 5, pivoted to it on an axis at right angles to the axis of the first arm. The arm 5 has one or more split collars 5^a on it, which embrace and hold firmly the upper end of the discharge-pipe 6 and at the same time permit the longitudinal adjustment thereof. The bracket allows the pipe 6 to be rocked in a vertical plane for elevating the shovel or scoop or moved laterally. In order to facilitate the lateral movement of the discharge-pipe 6, the float 1 is cut away, as indicated at 7 in the plan view Fig. 2, thus providing an open space, down through which the discharge-pipe passes.

At the lower end the discharge-pipe 6 is a cylindrical pump-case 8, to which the discharge-pipe 6 is tangentially disposed. An oblique brace 9 is interposed between the pump-case and the discharge-pipe for stiffening said parts and rendering the device steadier in action.

10 represents a hoisting rope or chain which connects at one end to the pump-case 8, extending thence upward and over a grooved roller or pulley 11, and then to the motor or a suitable windlass, whereby the entire apparatus may be raised or lowered to any desired position. The pulley 11 is supported upon a horizontal beam 12 in such manner that it may slide longitudinally of said beam when the pump is moved laterally to one side or the other. The beam 12 is supported at the proper elevation by means of spaced standards 13, extending upward from the deck of the float.

The pump-case 8 is provided at one side with a central opening, and a suction-pipe 14 in the form of an elbow communicates with the pump-case through said opening, said suction-pipe and the pump-case being provided with interlocking collars whereby a

swiveled connection is obtained between these parts, enabling the suction-pipe to be turned to any desired angle, as indicated in the full and dotted lines in Fig. 1. To the free end of the suction-pipe 14 is secured an arm 15, from which a rod or other suitable connection 16 extends to a convenient point on the float for enabling the suction-pipe to be turned into the desired position. In front of the mouth of the suction-pipe 14 is a shovel or scoop 17, which gathers up the sand, gravel, clay, &c., and directs the same into the suction-pipe 14. The scoop 17 also extends across the periphery of the pump-case 8 and is provided with spaced arms 18, which extend back upon each side of the pump-case and are provided at their rear ends with straps 19, which loosely embrace collars on the opposite sides of said pump-case, enabling the scoop to be swung upon the same center as the suction-pipe 14. The scoop 17 is also provided with an upwardly-extending arm 20, from which a rod 21 or other suitable connection extends to the float, enabling a person thereon to adjust the angle of the scoop. To the under side of the scoop is attached a spring-arm 22, having a catch projection 23 at its free end, said projection being arranged to engage a rack bar or plate 24, attached to the periphery of the pump-case 8, whereby the scoop may be held wherever adjusted.

25 designates a grating comprising a series of parallel bars or fingers and having spaced perforated ears 26, by which it is pivotally connected to the rear end of the scoop. This grating occupies a position in front of the mouth of the suction-pipe and prevents the ingress of large pieces of solid matter, which would interfere with the operation of the pump. The grating also forms, in connection with the scoop, a table upon which such solid pieces may rest while being elevated to the surface of the water.

Within the case 8 is arranged a central horizontal shaft 27, and upon this shaft is mounted a disk 28, having at one side a series of blades 29, which are cut away adjacent to the inner end of the suction-pipe to admit the material being dredged. The shaft 27 passes through the side wall of the case 8 opposite to the suction-pipe and has a pulley 30 fast thereon, from which a driving chain, rope, or belt runs to the motor on the float, whereby the pump is driven. The extreme outer end of the shaft 27 is journaled in a trifurcated bracket 31, secured to the pump-case.

From the foregoing description it will be seen that by means of the appliances described the pump, suction-pipe, and shovel or scoop may be adjusted to any desired position or angle and moved either vertically or laterally. This greatly facilitates the dredging of river-beds, channels, &c., and the desirable ends and advantages referred to are attained by very simple means. The discharge-pipe may be lowered until its upper end is nearly on a level with the surface of the water, thus decreasing the distance which the water or other material has to travel before being deposited in or upon the float.

By vibrating the scoop or shovel by means of the mechanism described it may be used as a ram to loosen the sand, &c., preparatory to its being subjected to the action of the pump.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a dredging-machine, the combination with a suitable float, and a screen-box movably mounted thereon, of the discharge-pipe of the dredging apparatus and adjustably and rockably supported on said box, a hoisting rope or chain attached to the dredging apparatus, an elevated horizontal beam supported on standards on the float, and a pulley over which said chain or rope runs, said pulley being mounted to slide longitudinally of said beam, substantially as described.

2. The combination with the screen-box, and the discharge-pipe of the dredging apparatus, of a bracket attached to said box and provided at its outer end with a collar between which said discharge-pipe is received, substantially as and for the purpose described.

3. In a dredging-machine, the combination with a submerged pump and means for adjusting the position thereof, of a suction-pipe of elbow form having a swiveled connection with the pump-case, and connections to said suction-pipe whereby the latter may be adjusted as to its angle, substantially as described.

4. In a dredging-machine, the combination with a submerged pump, and means for adjusting the position thereof, of a suction-pipe having a swiveled connection with the pump-case, an upwardly-extending arm at the free end of said suction-pipe, and a rod or other connection extending to said arm, whereby the suction-pipe may be adjusted as to its angle, substantially as described.

5. In a dredging-machine, the combination with a pump having a discharge-pipe, and means for adjusting the position of said pump, of a suction-pipe having a swiveled connection with the pump-case, a scoop or shovel pivotally connected to the pump-case on the same center with the suction-pipe, and means for adjusting said scoop or shovel as to its angle, substantially as described.

6. In a dredging-machine, the combination with a pump having a discharge-pipe, and means for adjusting the position of said pump, of a suction-pipe having a swiveled connection with the pump-case, a scoop pivoted to the pump-case on the same center with the suction-pipe, a spring-arm attached to the under side of said scoop and having a catch projection at its free end, and a rack on the pump-

case with which said projection engages, substantially as described.

7. In a dredging-machine, the combination with a submerged pump, of a suction-pipe of elbow form having a swiveled connection with the pump-case, and a scoop hinged to the pump-case and extending transversely in front thereof and of the suction-pipe, a grating pivoted to the upper rear portion of the scoop with its free end resting on the front edge of the scoop, and means to adjust the suction-pipe and the scoop, substantially as described.

8. In a dredging-machine, the combination with a receptacle, and a discharge-pipe from the dredging apparatus, of a bracket connected to the receptacle by a universal joint, and one or more collars on said bracket for engaging and holding the discharge end of said pipe and permitting the adjustment thereof, substantially as described.

9. In a dredging-machine, the combination with a receptacle, and a discharge-pipe from the dredging apparatus, of a bracket comprising an arm hinged to the receptacle, an extension-arm pivotally connected to the first arm on an axis at right angles to the hinge of the first arm, and a split collar attached to said extension-arm and adapted to embrace and clamp the discharge end of said pipe and permit the adjustment thereof, substantially as described.

10. In a dredging-machine, the combination with a submerged pump-case, of an elbow-shaped suction-pipe communicating with said case through an opening in its side, and having a swiveled connection with said case, a scoop mounted in front of said case and extended upon one side thereof to embrace the receiving end of the suction-pipe, and spaced arms on the scoop journaled on the pump-case in line with the axis of movement of the suction-pipe, substantially as described.

11. In a dredging-machine, the combination with a submerged pump arranged to work in a vertical plane, and means for adjusting the position thereof, of a suction-pipe having a swiveled connection with the pump-case and having its discharge end entering one side of the pump-case at or near the middle of the same, and means to adjust the free end of the suction-pipe, substantially as described.

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

HENRY K. REYNOLDS.

Witnesses:
A. B. RAYMOND,
T. J. JAMES.