A. G. STENBERG.

DREDGE PUMP.

APPLICATION FILED JULY 29, 1914.

1,374,533. **Patented Apr. 12, 1921.**

3 SHEETS—SHEET 1.

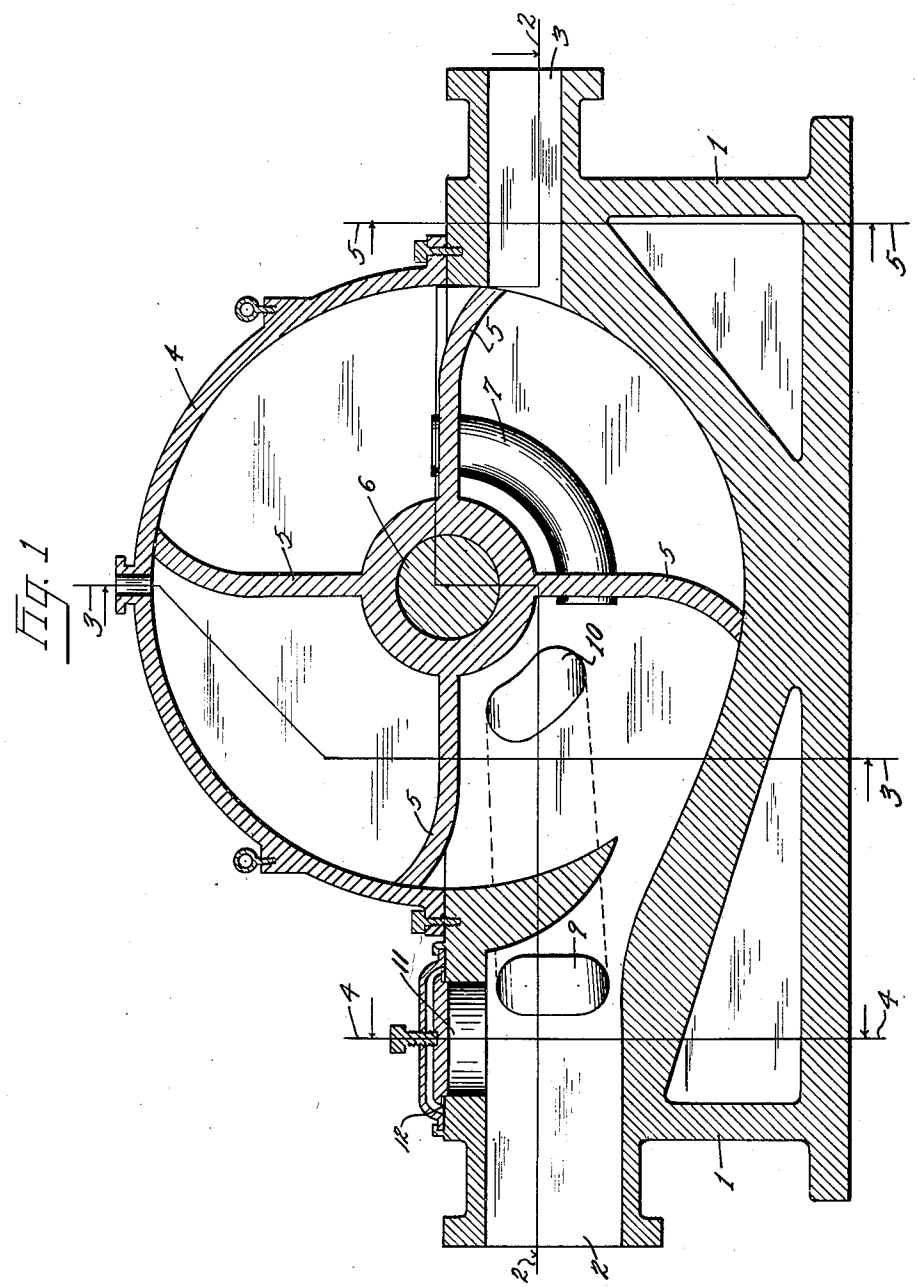


Fig. 1

WITNESSES

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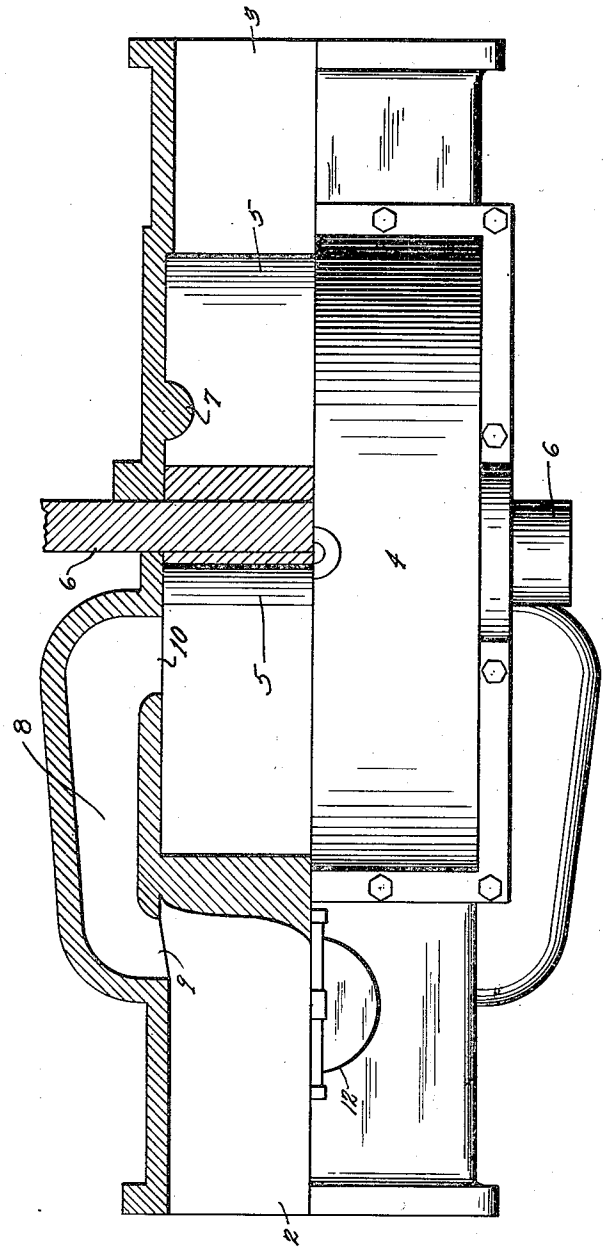
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3 SHEETS—SHEET 2.

Fig. 2



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3 SHEETS—SHEET 3.

Fig. 3

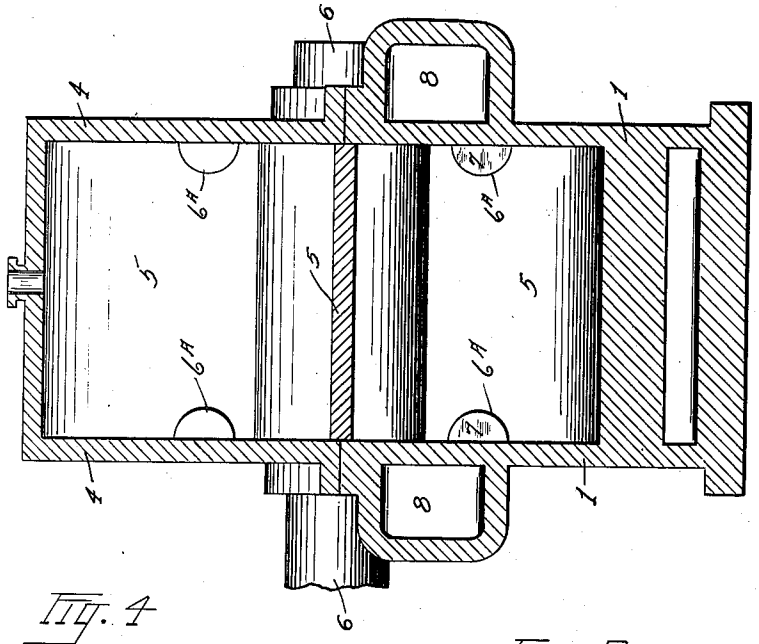
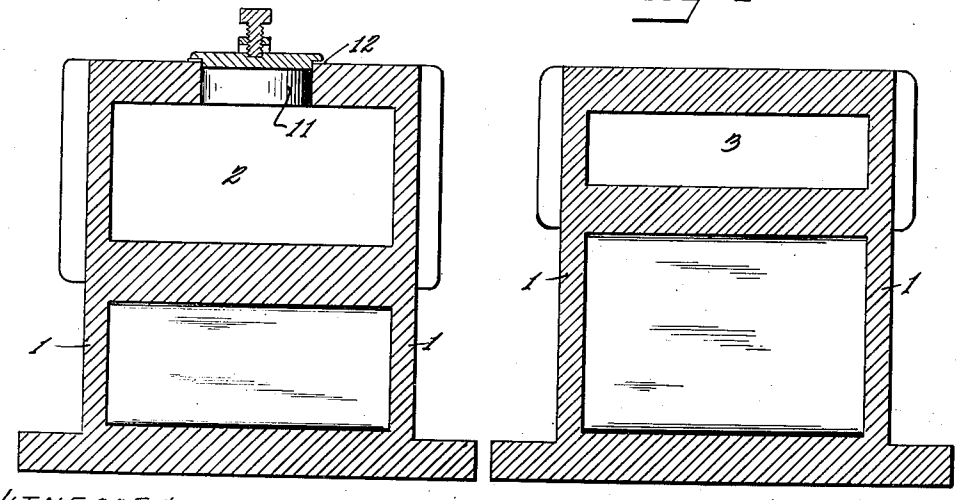


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE.

ANDERS GUSTAF STENBERG, OF GALVESTON, TEXAS.

DREDGE-PUMP.

1,374,533. Specification of Letters Patent. Patented Apr. 12, 1921.

Application filed July 29, 1914. Serial No. 853,851.

To all whom it may concern:

Be it known that I, ANDERS GUSTAF STENBERG, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Dredge-Pumps, of which the following is a specification.

This invention relates to improvements in dredge pumps and its object is to produce a pump of this class that is simple in construction, cheap to manufacture and powerful and efficient in operation. Means are provided whereby congestion of the inlet is avoided. The pump is of the type usually carried upon a dredge and provided with a hose, connecting with the intake, which leads to the bottom of the river to draw up sand, gravel and the like.

With the foregoing and other objects in view the invention consists in the combination and arrangement of parts to be hereinafter fully described in the following specification, pointed out in the claims and illustrated in the accompanying drawings which form a part of said specification and in which—

Figure 1 is a vertical section through my improved pump.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is a section taken on line 3—3 of Fig. 1.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

Fig. 5 is a section taken on line 5—5 of Fig. 1.

Like reference characters indicate corresponding parts throughout the several views.

The reference numeral 1 designates the body of the pump which is formed with the inlet 2 and outlet 3 and a casing 4 is suitably secured to the pump body to cover the rotor or piston 5 which is fast to the shaft 6 which may be connected directly to the motor or other power supply. Each of the wings of the piston is recessed along each edge as at 6ª to permit passage over the ribs 7 formed in the pump body whereby the maximum degree of suction is created in the portion of the piston chamber that registers with the inlet 2. The recessed portions of the wings passing over the rib 7 create friction which increases the suction power of the rotor. 8, 8 are passage-ways that connect the inlet 2 with the vacuum chamber in the piston chamber, the openings 9 being in the inlet and the openings 10 being in the vacuum chamber thus affording a means for relieving possible congestion of the intake. The material drawn through the intake and vacuum chamber is ejected through the outlet 3. A man hole 11 connects with the inlet 2 and is provided with a cap or cover 12 which may be removed when it is desired to clean the pump or for other reason.

The operation of the invention is as follows:

Power being applied to rotate the shaft 6, the rotor is made to turn in a counterclockwise direction, as looked at in Fig. 1. The turning of the rotor creates a suction in the casing and draws up the material into the inlet 2. This material finds its way through the constricted substantially tangential throat to the pockets of the rotor confined between adjacent blades 5. It also is drawn around through the by-pass 9, 10, and delivered into the central portions of the pockets. By having a two-point delivery of the material to the rotor the filling of the pockets to capacity is assured, and it is the attainment of this object that secures the highest efficiency of a pump of this character. The material entering through the throat arranges itself circumferentially in the pockets, while that drawn in through the by-pass 9, 10, is caused to fill the interior thus entering in opposite directions and combining to completely fill the pockets.

The port 9, placing the by-pass in communication with the inlet 2 is disposed close to the constricted throat so that any congestion sought to be created by the reduction in cross-sectional area of the throat will be relieved by the diverting of material also through the by-pass.

Owing to the recesses 6ª, communication is established between the pockets of the rotor. It is highly important to the most efficient operation of the pump, that the maximum suction should be maintained by the rotor. The high rate of speed at which the rotor is revolving, will maintain a suction at the inlets and owing to the communication established by the recesses 6ª, this suction will manifest itself to an extent, throughout all the pockets of the rotor not engaged by the ribs 7. Thus as each pocket comes over the inlets, there will be no lost energy due to improper suction, as to a cer-

tain extent there will already exist a suction in the pockets.

Now there is another function produced by the recesses 6^a, and this function flows from the coöperation of these recesses with the port 10 that leads from the by-pass into the rotor chamber. As shown in Fig. 1, this port 10 is of an arcuate form struck from the same center, and having the same radius, as the recesses 6^a, and consequently as the blades 5 rotate the recesses pass this port 10 in registry therewith, so that there is not that diminution of the port area that would result where the edges of unrecessed blades crossed the same. In consequence, the flow from the by-pass to the pockets is continuous and unchecked at all times.

What is claimed is:

1. A pump including a rotor chamber having an inlet and an outlet, a rotor in said chamber having separated pockets arranged in communication, and means for cutting off the communication between the pockets as same approach said outlet.

2. A pump including a rotor chamber having an inlet and an outlet, a rotor in said chamber having separated pockets normally in communication, passages for delivering material to the rotor pockets both centrally and peripherally, and means for cutting off the communication of each pocket with the next following pocket as the former approach and pass said outlet.

3. A pump including a rotor chamber, having an inlet and an outlet, a rotor in said chamber having blades dividing the rotor into a series of pockets, said blades having recesses in their edges to allow of communication between said pockets, a reduced throat for delivering material from the inlet to the pockets through the periphery of the rotor, a by-pass having an intake port in communication with said inlet near said throat, and a discharge port leading into the rotor chamber for delivering material to the central portions of said pockets, said discharge port being arcuate and disposed to register with said recesses, and ribs in the rotor chamber near said outlet and adapted to be received by said recesses whereby to close the communication between preceding and following pockets at the point of evacuation.

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

ANDERS GUSTAF STENBERG.

Witnesses:
J. F. SARNER,
W. E. GROVER.