

(No Model.)

P. BUNAU-VARILLA.
DREDGER.

No. 568,234.

Patented Sept. 22, 1896.

Fig. 5.

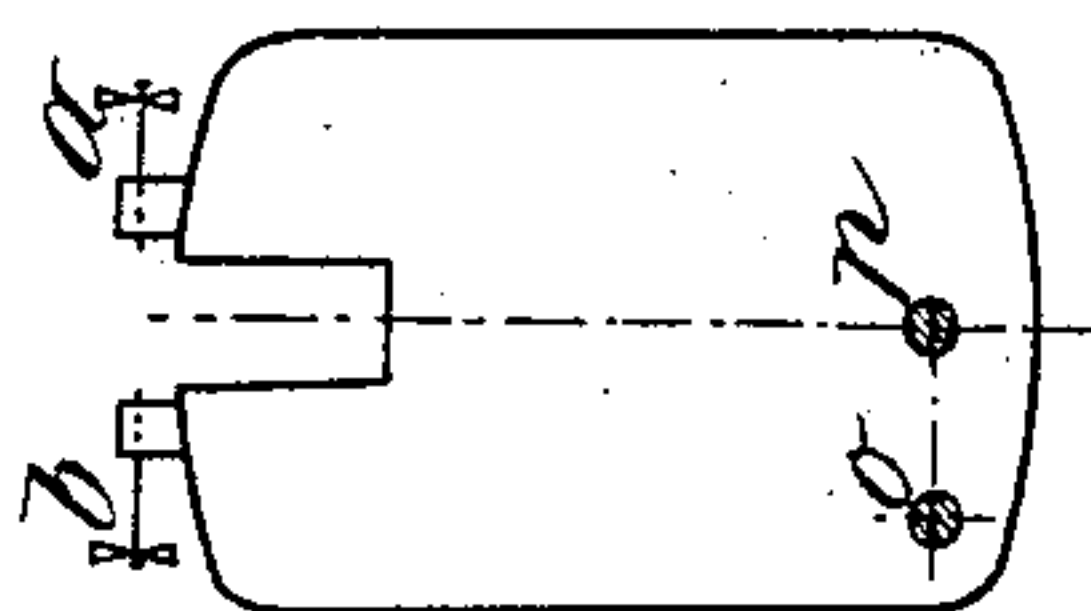


Fig. 4.

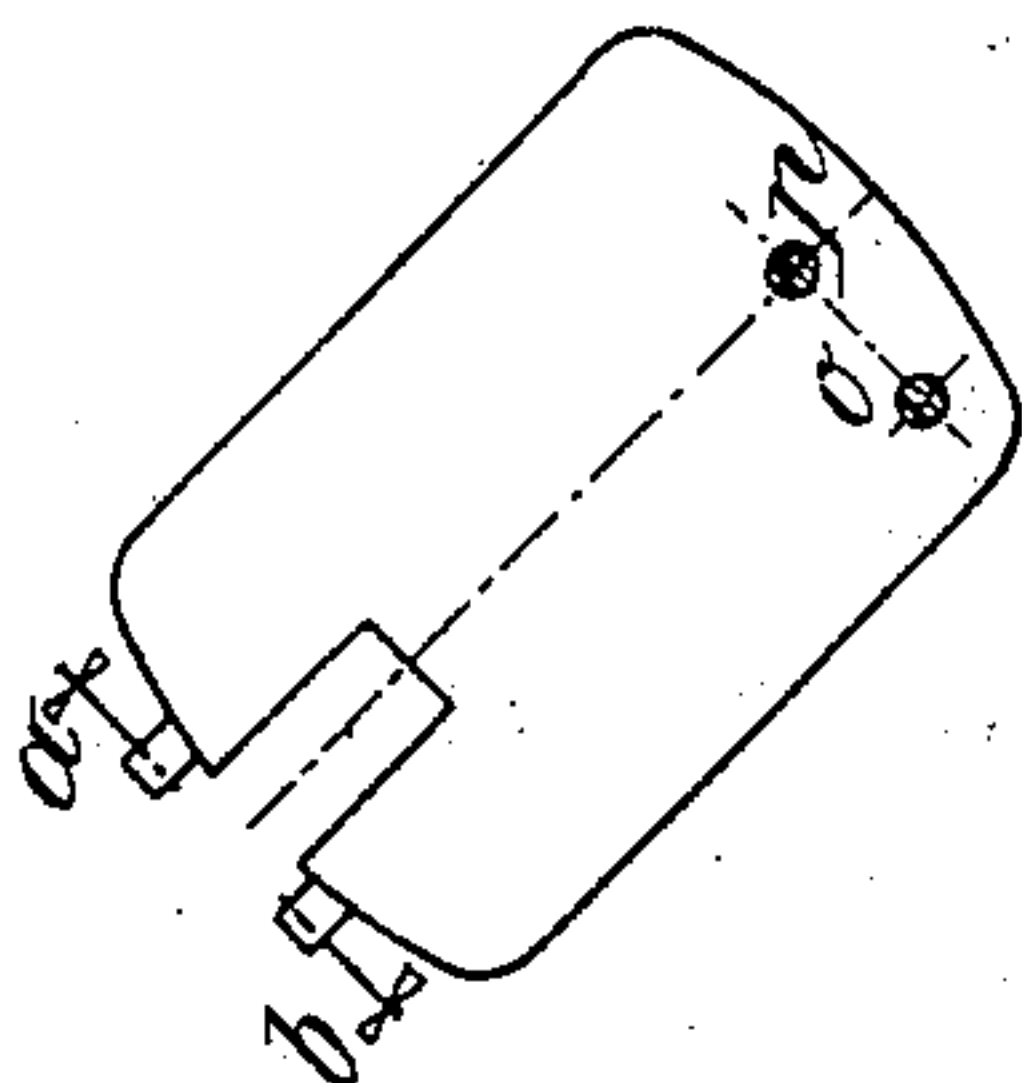


Fig. 3.

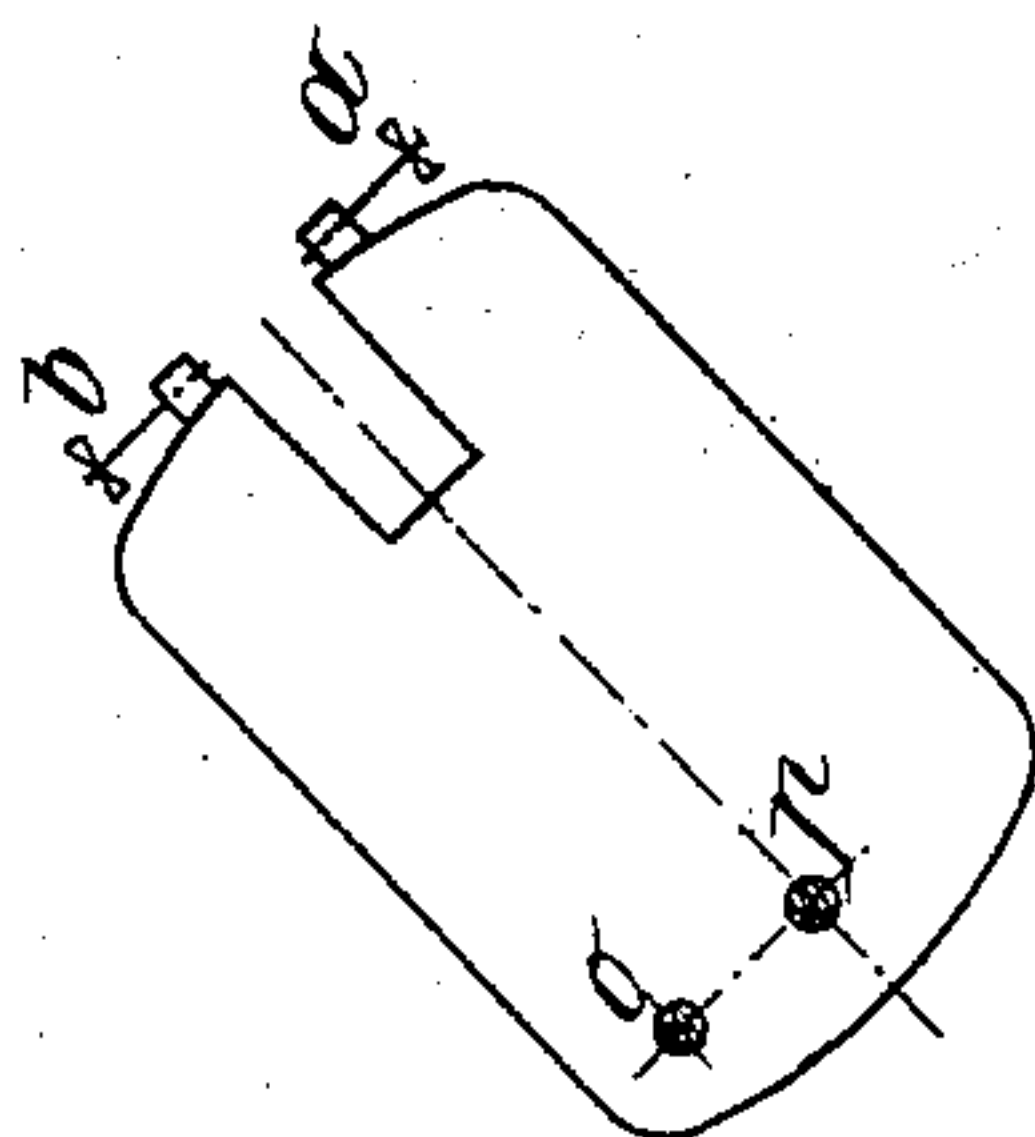


Fig. 2.

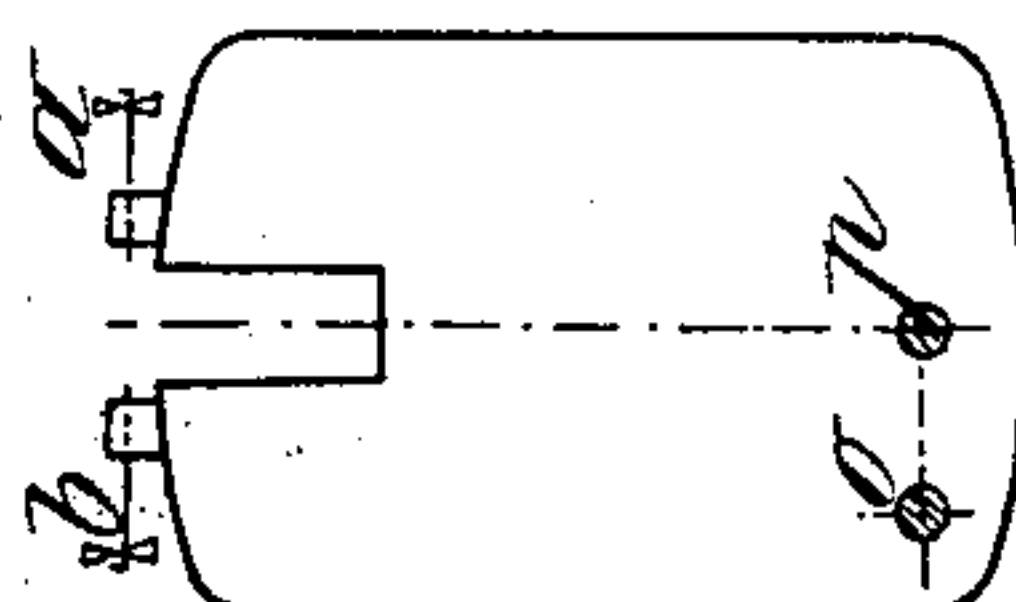
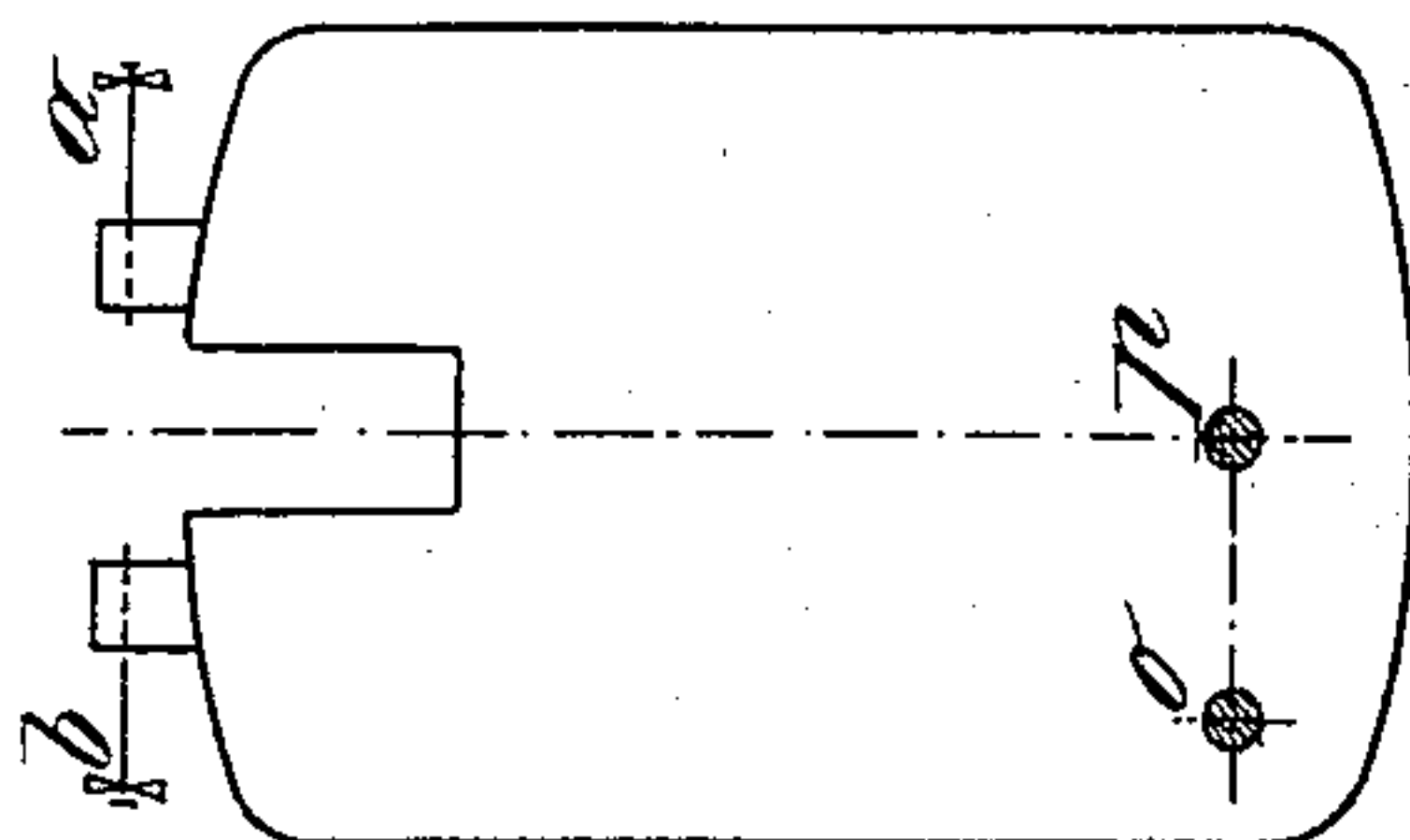


Fig. 1.



WITNESSES.

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UNITED STATES PATENT OFFICE.

PHILIPPE BUNAU-VARILLA, OF PARIS, FRANCE.

DREDGER.

SPECIFICATION forming part of Letters Patent No. 568,234, dated September 22, 1896.

Application filed February 29, 1896. Serial No. 581,375. (No model.) Patented in France June 12, 1895, No. 248,105, and in Belgium August 1, 1895, No. 116,783.

To all whom it may concern:

Be it known that I, PHILIPPE BUNAU-VARILLA, engineer, a citizen of the Republic of France, residing in Paris, France, have invented certain Improvements in Dredgers, (for which I have obtained a French patent, dated June 12, 1895, No. 248,105, and Belgian patent, dated August, 1, 1895, No. 116,783,) of which the following is a specification.

This invention relates to certain improvements in dredgers with the object of rendering their movement and control easier and more rapid.

My improvements mainly consist in means for effecting the movement of the dredger from side to side on its axis and its forward or backward movement without the use of chains and anchors, as required heretofore, the control of the several working parts of the dredger when they are connected together—such as the dredger-chain, sling, and the like—by the aid of an electric current derived from an exterior source which may be common to several dredgers or elevators, while these machines are individually provided with a separate motor.

The advantages obtained by my improvements are the suppression of the chains and anchors for the axial movement, the forward and backward movement allowing free play to the dredging mechanism. The suppression of separate motors for each of the working parts simplifies the construction of the dredger and lightens it, also rendering the direction of the work more uniform.

In order that my invention may be better understood, reference is had to the accompanying drawings, upon which—

Figure 1 is a plan of my improved dredger; and Figs. 2, 3, 4, and 5 are plans on a reduced scale, showing the dredger in successive positions of working.

Similar letters refer to similar parts throughout the several views.

As shown on Fig. 1, my improved dredger is provided upon its main axis with a well *p* and upon a line at right angles to this axis and passing through the well *p* with a second well *o*. Within each of the wells *p* and *o* is inserted a shaft of metal or of wood fur-

nished at its lower end with a pointed metallic shoe. These shafts are capable of being readily raised by means of windlasses or equivalent devices.

The shaft in the central well *p* is used for the movement of the dredger sidewise during the time that the shaft in the well *o* is raised. The dredger swings around the shaft *p* for a limited period. The other shaft in the well *o* is used for the forward or backward movement. To effect this, the dredger is placed in such a position that its main axis makes a definite angle with the line or direction in which it is proposed to advance, and the shaft in the well *o* is lowered, while the other shaft in the well *p* is raised. The dredger is then capable of pivoting around the shaft in the well *o*. This pivotal movement around a new axis may be continued until the shaft in the central well *p* comes onto or over the selected line of advance. Thereupon the shaft of the well *p* is lowered and that in the well *o* is lifted, the dredger being then ready to take up a new position.

The various movements of rotation of the dredger are imparted to it without the aid of traction by chains upon fixed exterior points. For this purpose the dredger is furnished with one or more helices or screws *a b*, having horizontal axes arranged at right angles to the axis of the dredger, and worked either by means of an electromotor, as hereinafter described, or in any other convenient manner; or I may use instead of the helices or screws centrifugal pumps utilizing the pressure of the water expelled as the motive power.

The motors of the several working parts of the dredger, as already stated, are electromotors supplied with electric fluid from a central source or station.

What I claim is—

1. A dredge or other floating structure, provided with wells extending through its bottom, shafts or rods movable vertically in said wells, said rods being adapted to be lowered into contact with the ground to form temporary fulcrums for the dredge, and propellers whose lines of action pass exteriorly of said well to swing the dredge about

its temporary fulcrum, substantially as described.

2. A dredge or other floating structure, provided with wells extending through its
5 bottom, vertically-movable shafts or rods in said wells, said rods being adapted to be lowered into contact with the ground to form temporary fulcrums for the dredge, and propellers whose axes are arranged transversely

of the dredge to swing the same about its fulcrum, substantially as described. 10

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

PHILIPPE BUNAU-VARILLA.

Witnesses:

LÉON FRANCKING,
CLYDE SHROPSHIRE.