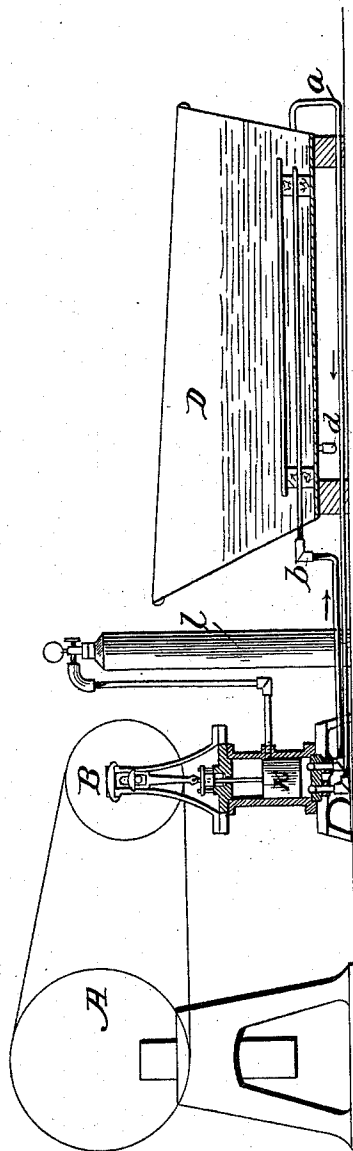


(No Model.)

G. A. SCHMITZ.
DEVICE FOR FEEDING OXYGEN OR CARBONIC ACID IN CIRCULATING
BATHING WATERS.

No. 573,927.

Patented Dec. 29, 1896.



Attest
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UNITED STATES PATENT OFFICE.

GUSTAV ADOLF SCHMITZ, OF HANOVER, GERMANY.

DEVICE FOR FEEDING OXYGEN OR CARBONIC ACID IN CIRCULATING BATHING-WATERS.

SPECIFICATION forming part of Letters Patent No. 573,927, dated December 29, 1896.

Application filed May 4, 1896. Serial No. 590,139. (No model.) Patented in Germany October 28, 1895, No. 86,540.

To all whom it may concern:

Be it known that I, GUSTAV ADOLF SCHMITZ, a resident of the city of Hanover, Empire of Germany, have invented certain new and useful Improvements in Devices for Feeding Oxygen or Carbonic Acid in Circulating Bathing-Waters, (the same being patented to me in Germany, No. 86,540, dated October 28, 1895,) of which the following is a specification.

The object of the present invention is to convey, in as abundant as possible a quantity, oxygen or carbonic acid in bath-water. The great point is to make the water absorb a large quantity of the substances, and this can occur only by an energetic circulation.

In the accompanying drawing, which shows a side elevation of the apparatus, partly in section, D is the bath-tub, into which the circulating water is led through the inlet-pipe *a*, while *b* is the tube which conveys the water back from the bath-tub to the pump B. This pump B is constructed in such a manner that the proportion of oxygen allowed to enter is exactly regulated according to the speed of the circulation of the water and the pressure in the steel bottle *l*. To that end the pump-cylinder is provided with a boring at *c*, which is covered or uncovered by the piston K, acting as a slide-valve. It is free when the piston has reached its highest elevation. When in that position, the lower side of the piston fits close to the upper edge of the inlet-opening or boring, so that when the pump rotates the oxygen contained in the reservoir *l* will have only a moment to enter the pump-cylinder, as at the next moment and during the entire downward stroke of the piston said opening will be closed.

The feature of the invention is thus that a circulation of water takes place in which the feeding of gas can exactly be regulated, the same being always proportionate to the number of revolutions and to the pressure in the flask, both of which can be regulated as desired. The simplest form of construction is shown in the drawing. If we consider that such a motor is frequently used, for instance, in hospitals, &c., so that a tight closing of the

piston and of the sliding organs is not required, the piston can, at a certain point, release a valve whose shutting off must be tight and safe. The inlet-pipe *a* is provided with a heating device in order to compensate for the heat lost by the circulation, if desired. It is evident that with this method of feeding the oxygen or carbonic acid the water will absorb the gases in a perfect manner, while the pressure must be considered as a very effective factor in this case. It may be remarked, moreover, that the proportion of oxygen or carbonic acid remains the same until the close of the operation, and the same can be increased at the end of the bath, as the pressure in the flask *l*, which is generally maintained at ten atmospheres, and the rotations of the machine can be optionally increased.

The steel flask *l* is provided with a pressure-reduction valve which keeps the pressure constant until said flask is empty.

A is a driving-motor; B, the pump; K, the piston, working as a slide; *c*, the inlet-orifice; *l*, the oxygen-reservoir, which is under a constant pressure, and D the bath-tub, with the suction-pipe *a*, the forcing-pipe *b*, and the outlet-pipe *d*.

I claim—

1. In combination with a bath-tub a pump, the pipes connecting the same with the tub for the free circulation of water, a gas-tank and a connection between the same and the water-circulating system, substantially as described.

2. In combination with a bath-tub, a pump with its piston, the pipes connecting the same with the tub for the free circulation of the water, a gas-tank and a connection between the same and the pump, the piston of said pump regulating the amount of gas supplied to the circulating system, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GUSTAV ADOLF SCHMITZ.

Witnesses:

PAUL SUNDER,
H. MENELL.