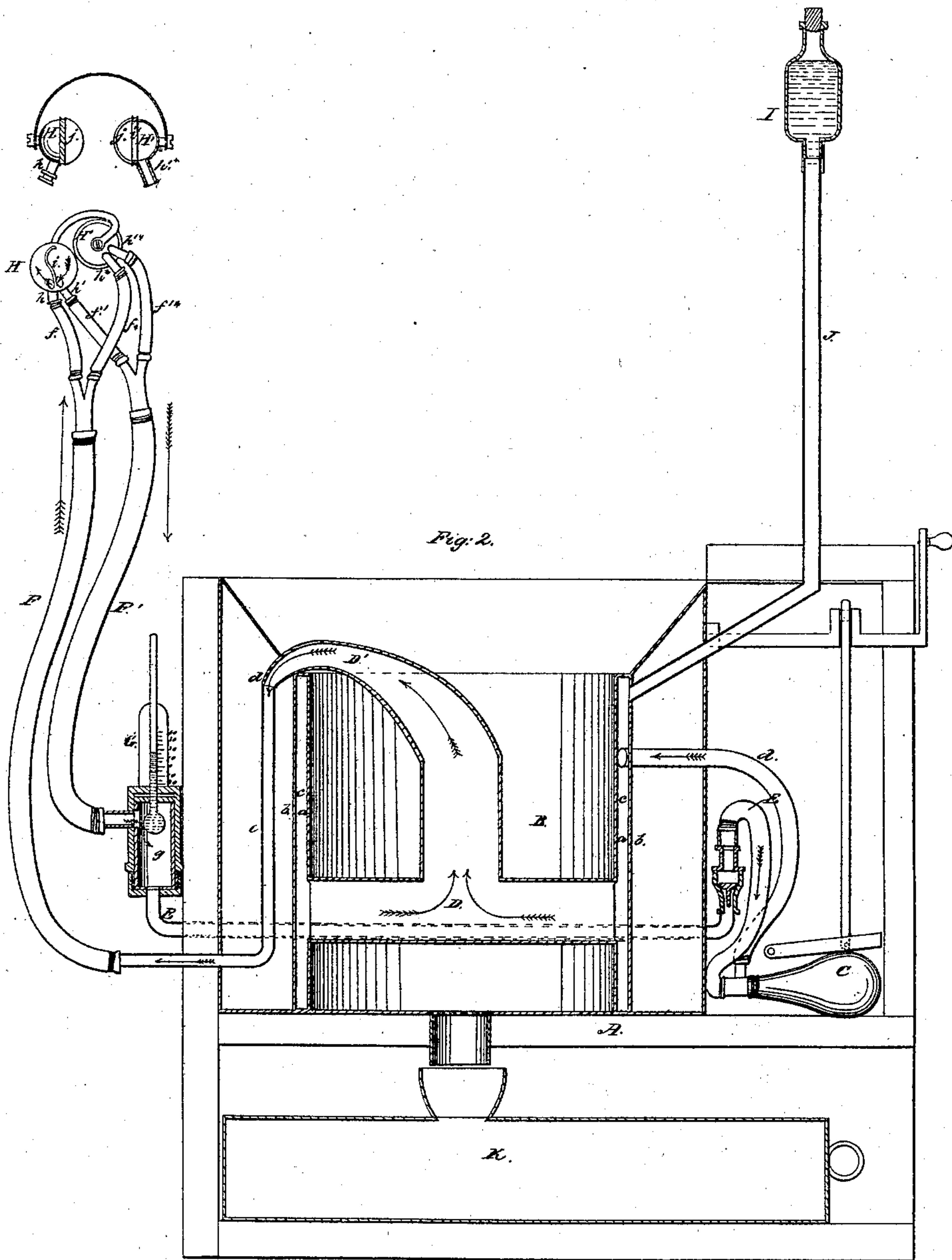


E. Duddy,
Cooling Teeth.

N^o 39,673.

Patented Aug. 25, 1863.



Witnesses:
Abt. H. Louder
Wm. Livingston

Inventor
Edmund Duddy

UNITED STATES PATENT OFFICE.

EDWARD OUDRY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR COOLING THE TEETH.

Specification forming part of Letters Patent No. 39,673, dated August 25, 1863.

To all whom it may concern:

Be it known that I, EDWARD OUDRY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Apparatus for Cooling the Teeth; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my apparatus. Fig. 2 is a detached section of the mouth-piece.

Similar letters of reference in both views indicate corresponding parts.

The object of this invention is an apparatus by which a freezing-mixture or a cooling medium, either in a liquid or gaseous state, can be applied to the teeth or any other part of the body in a convenient and expeditious manner.

The invention consists in the arrangement of mouth-pieces at the ends of double-channeled flexible pipes communicating with a refrigerating-chamber and pump in such a manner that by the action of the pump a continuous current of the cooling medium can be passed through the mouth-pieces, and by the application of said mouth-pieces to a tooth or other part of the body the desired cooling effect is produced.

It consists, further, in the arrangement of a partition in each mouth-piece, in combination with two channels, one on each side of the said partition, and communicating by means of flexible pipes with the refrigerating chamber in such a manner that the current of the cooling medium can freely circulate through each mouth-piece; also, in the combination, with the mouth-pieces, flexible tubes, and pump, of a flat tube arranged in the interior of the refrigerating-chamber in such a manner that the liquid or gas to be cooled is passed through the refrigerating-chamber in a very thin sheet, offering a large surface to the influence of the ice or cooling-mixture in said chamber, and that the temperature of the cooling medium is brought down to the lowest possible degree. Finally, in the application of a thermometer between the refrigerator-chamber and the mouth-pieces, in combination with the pump, in such a manner that the temperature of the cooling medium can be

determined and regulated at a glance, and with the greatest facility and accuracy.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a box made of wood or any other suitable material, and provided with double walls, the space between which is filled with charcoal dust or air, or any other good non-conductor of heat. The box A contains a cylindrical vessel, B, made of sheet metal or any other suitable material, and provided with double walls *a b*, as clearly shown in Fig. 1 of the drawings. The annular space *c* between the walls connects by a pipe, *d*, with the pump C, and a thin flat tube, D, extends diametrically across the vessel B. This tube is open at both ends, so that its interior communicates freely with the annular space *c*. From the middle of the flat tube D rises a goose-neck, D', also flat, like the body of the tube, but coming down gradually to a point, *d*, where it joins a brass pipe, *e*, that leads down through the space between the double walls of the box A, and connects with a flexible pipe, F.

E represents a pipe, which leads from the pump C around the cylindrical vessel B to a reservoir, *g*, which connects with a flexible pipe, F'.

G is a thermometer, which is inserted into the reservoir *g*, so that the temperature of the medium passing through said reservoir can be determined at a glance.

The pipes F F', which are made of india-rubber or other suitable flexible material, divide at their extreme ends in two branches, *f f** *f' f'**, bringing each of said pipes in communication with both mouth-pieces H H'. These mouth-pieces are small metallic hemispherical vessels, each provided with two nipples, *h h** *h' h'**, to communicate with the corresponding branches of the pipes F F', and the openings leading to these nipples are divided one from the other by a partition, *i i*, which admits of a communication between the two compartments of the mouth-piece formed by the same through a gate or opening at that end farthest from the holes of the nipples. The mouth-pieces are covered over by a thin stratum, *j j*, of india-rubber cloth, or other suitable elastic and water or

gas proof material, which of course has to be changed according to the nature of the cooling medium. The cooling medium, whatever it may be, is contained in vial, I, which is secured to the top of a brass tube, J, that communicates with the annular space *c* between the two walls of the refrigerating-chamber B, and which may be provided with a stop-cock to regulate the flow of the liquid. A vessel, K, under the bottom of the refrigerator-chamber, is intended to receive the ice-water.

When it is desired to use the apparatus, the refrigerating-chamber is packed with ice or a mixture of ice and salt, or any other freezing-mixture. The cooling medium is admitted to the annular space *c* and flat tube D, and the pump is set in motion. By the action of the pump the cooling medium is caused to flow through the apparatus in the direction of the arrows, shown in Fig. 1, passing through the goose-neck D', pipes *e* and F, and branches *f f** to the mouth-pieces H H', and after having circulated through them the current returns through the branches *f' f'**, pipe F', reservoir *g*, and pipe E to the pump. By continuing the action of the pump the cooling medium is made to pass through the apparatus in a continuous current, and a tooth or other part of the body, to which one or both mouth-pieces may be applied, can thus be cooled to any desired degree. The temperature of the current can be determined at all times by the thermometer, with the bulb of which said current

comes in contact as it passes through the reservoir *g* in passing back to the pump.

This apparatus is particularly intended for the purpose of cooling teeth previous to extracting them, so that the nerves can be benumbed and the teeth extracted without pain.

What I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of one or more mouth-pieces, H H', at the ends of double-channeled flexible pipes F F', in combination with a refrigerating-chamber and pump, constructed and operating substantially as and for the purpose specified.

2. The arrangement of a partition, *i*, in each mouth-piece, in combination with two channels, *h h**, pipes F F', and refrigerating-chamber B, all constructed and operating in the manner and for the purpose substantially as shown and described.

3. The flat tube D D' in combination with the refrigerator-chamber B, pump C or its equivalent, pipes F F', and mouth-pieces H H', all as and for the purpose set forth.

4. The thermometer G, applied in combination with the mouth-pieces H H', pipes F F', and pump C, or its equivalent, in the manner and for the purpose described.

EDWARD OUDRY.

Witnesses:

ROBT. SOUDER,
M. M. LIVINGSTON.