R. BRADBURY.

DENTAL APPLIANCE.

APPLICATION FILED OCT. 15, 1908.

920,013.

Patented Apr. 27, 1909.

Fig. 1.

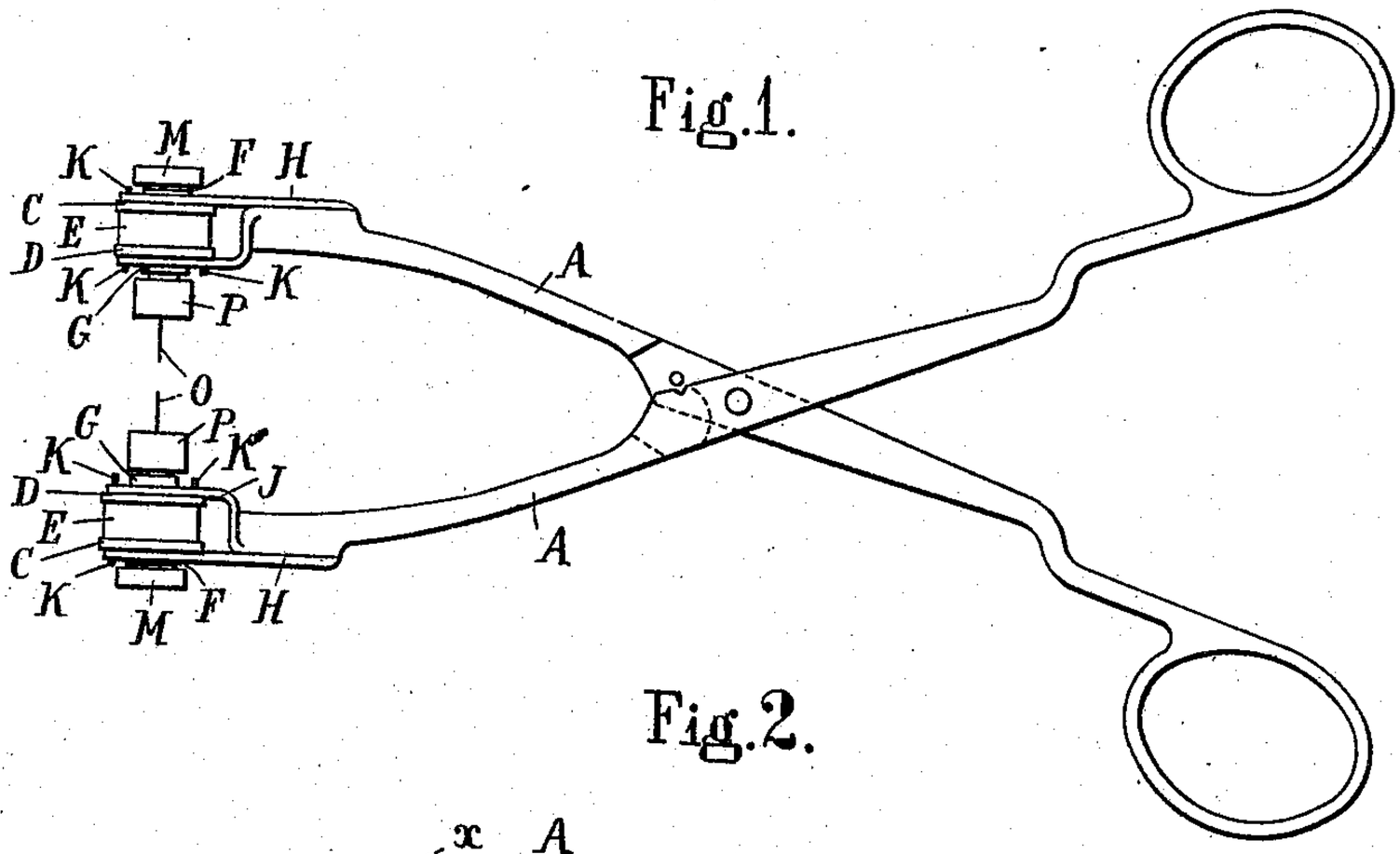


Fig. 2.

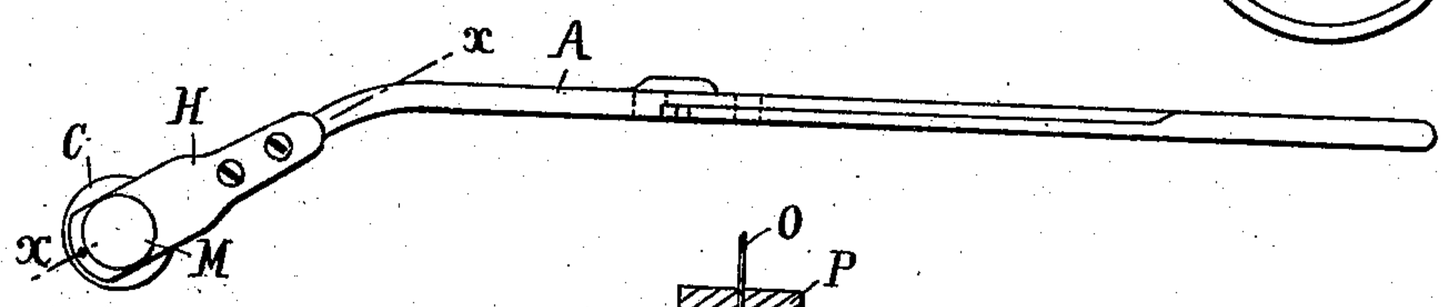


Fig. 3.

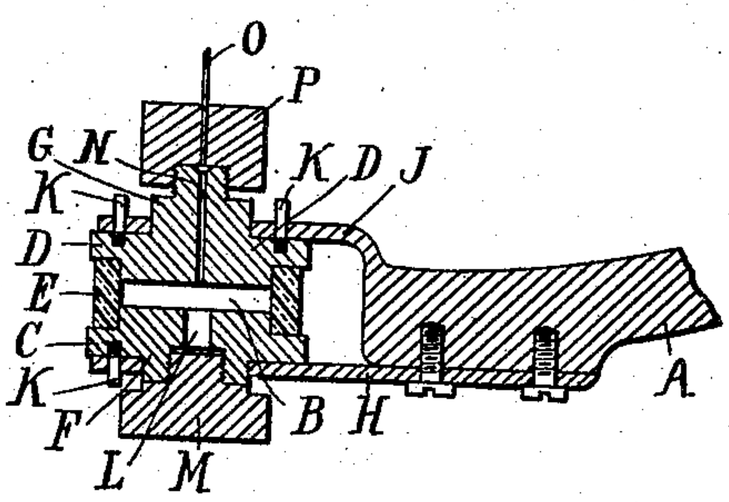
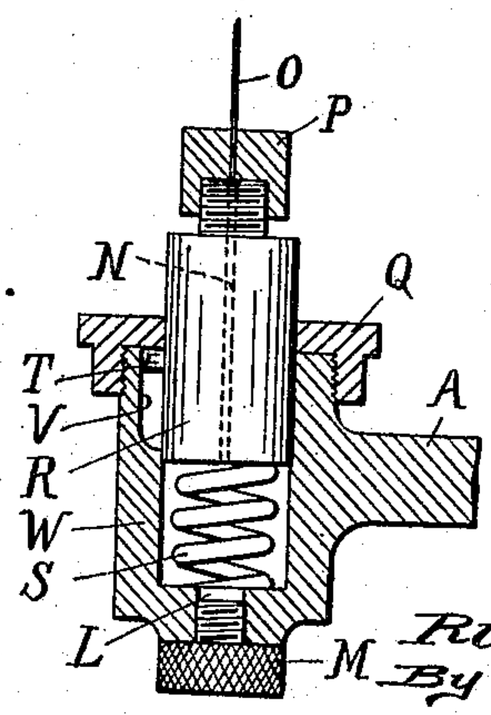


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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DENTAL APPLIANCE.

No. 920,013. Specification of Letters Patent. Patented April 27, 1909.

Application filed October 15, 1908. Serial No. 457,919.

To all whom it may concern:

Be it known that I, RICHARD BRADBURY, a subject of the King of Great Britain, residing at Broadstairs, England, have invented certain new and useful Improvements in Dental Appliances, of which the following is a specification.

This invention relates to dental syringes or enemas and has for its object to construct a dental syringe or enema adapted to inject a local anesthetic fluid into the gums of a patient at two or more points opposite each other simultaneously.

My said improved syringe or enema comprises a pair of arms hinged or pivoted together after the manner of the arms of dental forceps or of scissors, and so constructed that the one action of closing the arms will perform the double operation of piercing the gums and injecting the fluid anesthetic.

Referring to the accompanying drawings, Figure 1 is a face view, and Fig. 2 is a side view of my improved syringe or enema. Fig. 3 is a section on the line *x*, *x*, Fig. 2 drawn to a larger scale. Fig. 4 is a section also to a larger scale illustrating a modification in which a sliding piston is used in lieu of a compressible chamber.

Like letters of reference denote corresponding parts in the several figures.

The apparatus shown comprises a pair of pivoted arms A, A adapted at one end to be grasped by the hand of the operator and at the other end to receive the anesthetic fluid. These arms are suitably curved or bent to enable the instrument to be conveniently applied to the gums of a patient. The anesthetic fluid is contained in a chamber B formed in each arm by oppositely arranged rigid pieces C, D and an elastic cylindrical piece E. The pieces C, D are shown provided with cylindrical bosses F, G respectively adapted to slide in apertures in plates H, J carried by each arm A. In the drawing the plate J is shown integral with the arm A and the plate H is attached to the arm by screws. It is obvious that both plates may be integral with the arm or both may be attached to the arm.

K, K, K are steadying pins fixed to the pieces C, D and passing through holes in the plates H, J. These pins serve to prevent turning of the pieces C, D in the plates H, J.

L is a filling inlet, and M is a cap for closing said inlet.

N is the outlet thoroughfare leading to the tubular needle O which passes through and is supported by a holder or cap P screwed on a projecting part of the piece D. The tubular needle is of the usual type adopted by dentists, and is furnished with a head that abuts against the outer end of the piece D as indicated.

Both arms A are fitted in the same manner. In use the arms are closed firmly onto the gum of the patient so as to cause the needles O, O to pierce the gum on opposite sides thereof. During this operation the pressure on the needles or should the gum be very soft then the contact of the faces of the caps P, P with the gum causes the pieces D, D to move back and compress the elastic cylinders E, E thereby contracting the chambers B, B and consequently forcing out some of the fluid contents which completely fills said chambers. In this way the piercing of the gum and the injection of the anesthetic are performed by one operation.

The apparatus affords very effective and steady control of the whole operation, and moreover enables the piercing and injecting to be done with one hand, the other hand being available for holding the cheek of the patient or for doing any other work which may at the moment be required.

If the pivot of the arms A is of the known type used in forceps which allows of the arms being readily detached when desired, either half of the apparatus can be used as a single piercer and injector in places where the double arrangement cannot be used. The apparatus is shown provided with one needle in each arm, but it is obvious that it may have two or more needles.

In the arrangement shown in Fig. 4 in lieu of a collapsible chamber I provide a plunger R sliding through a cap Q and backed by a spring S. T is a pin projecting from the side of the plunger and sliding in a groove V in the part W, said pin serving to limit the outward travel of the plunger. The needle O is supported by a holder or cap P screwed on the end of the plunger, and the filling is effected through an inlet L which is normally closed by a cap M. The plunger R is pierced longitudinally to provide a channel N leading to the conduit in the needle O. The action is similar to that described with reference to Fig. 3, the inward movement of the plunger when endwise pressure is applied thereto serving to eject a proportion of the fluid contents.

What I claim is:—

1. A dental syringe or enema, comprising in combination a pair of pivoted arms, a chamber in each arm for receiving liquid anesthetic, a movable part of said chamber serving to control the volume thereof, a tubular needle carried by said movable part, an inlet for admitting liquid anesthetic, and a cap for closing said inlet.

2. A dental syringe or enema comprising in combination a pair of pivoted arms, pieces C, D mounted in said arms with a capability of sliding therein, an elastic cylinder E forming with the pieces C, D a collapsible chamber for receiving anesthetic fluid, a tubular needle O supported by a cap P mounted on the piece D, said piece D having an outlet channel communicating with the conduit in the tubular needle, and the piece C having an inlet and a removable cap for closing said inlet.

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

RICHARD BRADBURY.

Witnesses:
GEO. HARRISON,
HERBERT A. BEESTON.