No. 703,729. Patented July 1, 1902.

J. KUPFER.

DENTAL MOUTH MIRROR.

(Application filed Jan. 4, 1901.)

(No Model.)

Fig. 1.

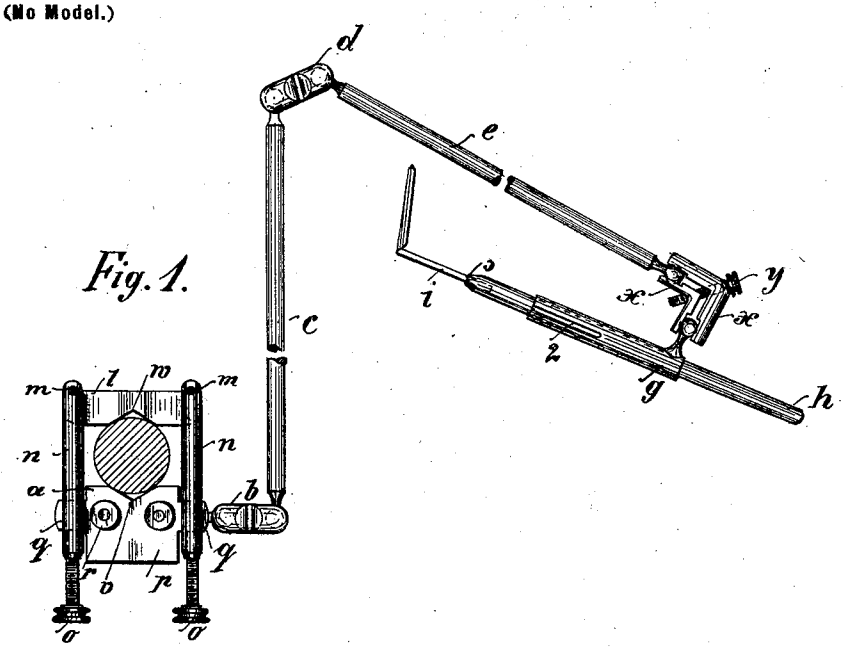


Fig. 2.

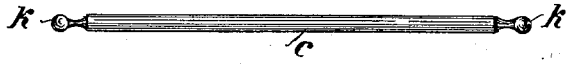


Fig. 3.

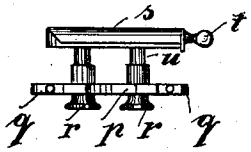


Fig. 4.

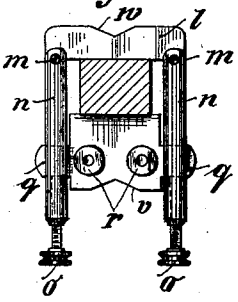
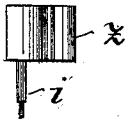


Fig. 5.



Witnesses:

Frank A. Obert

Wales M. Curtis

Inventor

Julius Kupfer

By R. C. Rosenbaum

Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JULIUS KUPFER, OF BAMBERG, GERMANY.

DENTAL MOUTH-MIRROR.

SPECIFICATION forming part of Letters Patent No. 703,729, dated July 1, 1902.

Application filed January 4, 1901. Serial No. 42,059. (No model.)

To all whom it may concern:

Be it known that I, JULIUS KUPFER, a subject of the King of Bavaria, residing at Bamberg, in the Kingdom of Bavaria and German Empire, have invented certain new and useful Improvements in Holders for Apparatus Required in Dental Operations, of which the following is a specification.

Certain instruments for dental operations—such as mirrors, tongue-holders, and the like—frequently require to be held in the position of use for a long time while a patient is being operated on. In order to hold a mirror, for example, in the desired position in the mouth during the operation, a specially-constructed clamp has hitherto been employed which was fixed to the teeth. The drawbacks of this arrangement were in troubling the patient by the frequently unnecessary use of the clamp, in the insufficient freedom of movement of the mirror, and in the impossibility of employing the device in all cases, owing to its dependence on the condition of the mouth. The hitherto-existing devices for fixing the tongue in a certain position, which consist of two plates movable perpendicularly, one of which is placed under the chin and the other on the tongue, have the defect that the tongue has still sufficient freedom of movement to gradually work out from under the plate. The present invention obviates these drawbacks and may be very usefully employed for adjusting and holding all instruments which can possibly be required for dental operations.

The invention consists of the details of construction hereinafter described and claimed.

With this device operations can be effected for which hitherto there has been no apparatus devised—such, for instance, as without the help of a third person to draw away the cheek from the teeth or by the arrangement of a glass containing a suitable anesthetic fluid in an open ring and by suitably inclining the holder to drop the anesthetic on the mask without any further exertion on the part of the operator.

The advantage of the apparatus consists in its being capable, owing to its construction, of imitating the movements of the human arm and of fulfilling to a certain extent the functions of the human hand.

One form of construction of the object of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view of the adjustable holder. Fig. 2 is a part of the holder. Fig. 3 is a view of the clamping-plate with the clamp removed. Fig. 4 is a view of the fixing device when attached to an angular head-rest bar. Fig. 5 shows a tongue-holder with attachment-pin.

In Fig. 1 of the drawings, *a* is the clamp for attaching the whole apparatus to the head-rest bar, which is shown circular in section. *b* is a joint; *c*, part of the holder, to which the other part *e* of the holder is joined by a joint *d*. The slotted socket *g*, with the holder of the instrument *h*, is attached with a similar link to the part *e* of the holder. Part of the clamp for fixing the apparatus to the head-rest bar of the operating-chair forms a plate *p* with flanges *q* at the sides, to which plate the part *s* of the holder with the ball-and-socket joint *t* is attached by means of screws *r* and pins *u*. This plate *p* is placed against the head-rest bar of the operating-chair and pressed against the chair-back by means of the plate 1 and the arm *n*, pivoted at *m* in such a way that the screws *o* are screwed against the side flanges *q* of the plate *p*. As will be seen from the drawings, the clamp can be turned around so that it can be applied to round as well as angular bars. The arm *c* has ball-and-socket joints *k*. The joint *f*, for example, consists of two plates *x* with semicircular holes for inclosing the balls *k*, pressed firmly together by means of screws *y*. The instrument-holder is pushed into the socket *g*, having a slit 2, and the instrument *i* or *z* screwed into the holes 3 of the holder by means of screw-threadings.

The clamp is shown in Fig. 4 as it is applied where the head-rest bar is rectangular. The notches *v* and *w* are turned outward, the parallel edges of the clamping-plates are turned toward each other, and the arm *n* turned about one hundred and eighty degrees.

In Fig. 5 an angle-joint is shown in which the plates *x* are bent at right angles in order to be able to obtain any desired position of the arms with the slightest possible displacement of the various parts. This joint is most generally used at the outer end of the arm to give the greatest freedom to the instrument.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. An adjustable holder for the purpose set forth, consisting of the reversible clamping-plate 1, adapted to seat on one side against a round support and on the other side against a rectangular support, the arms *n*, *n*, pivoted thereto, the reversible plate *p* and the clamping-screws *o*, *o*, carried by the arms and adapted to bear against the plate *p*, in combination with a jointed tool-carrying arm, substantially as described.

2. In an adjustable holder, the combination of arm-sections, and a ball-and-socket joint connecting them together, the latter consisting of two parallel angle-plates having sockets formed between them at their extremities and a screw adapted to clamp the plates against the ends of the arm-sections.

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

JULIUS KUPFER.

Witnesses:
LUD. HEINER,
JOHANN B. SIMON.