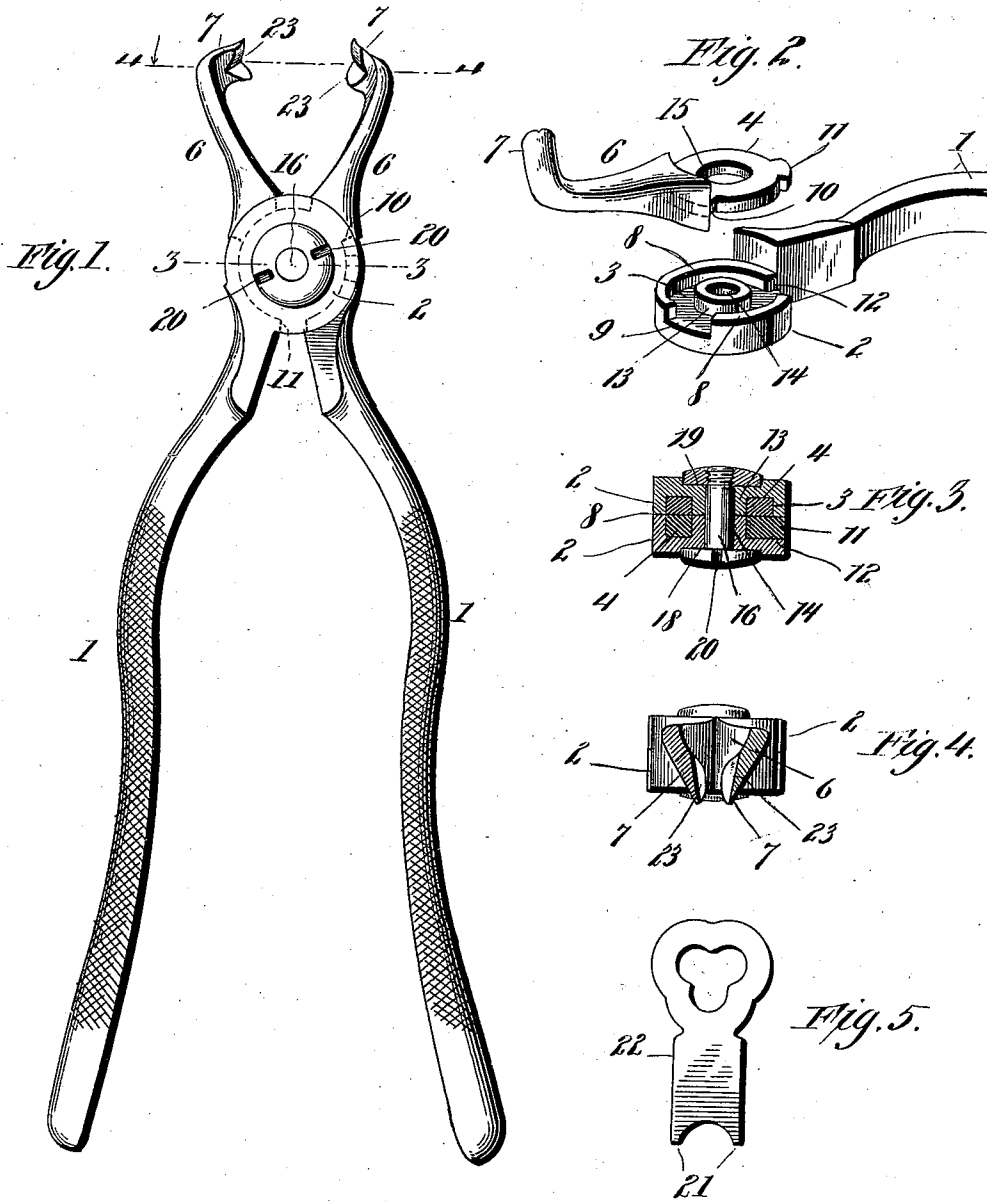


(No Model.)

J. MARKOWSKY.
DENTAL FORCEPS.

No. 560,419.

Patented May 19, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN MARKOWSKY, OF PHILADELPHIA, PENNSYLVANIA.

DENTAL FORCEPS.

SPECIFICATION forming part of Letters Patent No. 560,419, dated May 19, 1896.

Application filed April 1, 1896. Serial No. 585,814. (No model.)

To all whom it may concern:

Be it known that I, JOHN MARKOWSKY, a subject of the Emperor of Russia, residing at Philadelphia, (Frankford,) in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dental Forceps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates more particularly to dental forceps; and it has for its object to provide a simple and efficient construction under which when one of the jaws or teeth of the forceps is broken it can be readily removed and replaced by another, and which will also admit of one set of jaws or teeth being substituted for another.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described, and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a plan view of the invention. Fig. 2 is a detail perspective of one of the separate jaws and the socket in which it is held. Fig. 3 is a vertical section through the forceps on line 3 3 of Fig. 1. Fig. 4 is a vertical section through the jaws on the line 4 4 of Fig. 1. Fig. 5 is a plan view of the key for operating the pivoting-belt.

In the drawings the numeral 1 designates the handles of the forceps, each of which is formed at its inner end with what, for convenience, I will designate a "knuckle" 2. In the inner or meeting faces of the knuckles are formed sockets 3, which preferably though not necessarily are circular in form. These sockets are designed to receive the shanks 4 of the separable jaws 6, each of which is formed with a tooth 7. The peripheral rim 8 of each socket is formed with a recess 9, designed to receive the connecting-neck 10 between the shank and jaw, so as to permit the shank to lie within the socket and bring its inner face

practically flush with the edge of the peripheral rim of the socket. This also serves to hold the shank and jaw in place, so that it cannot turn; but for the purpose of greater security in holding the jaw in place I prefer to form a lip or stud 11 on the outer edge of the shank and to provide a notch or recess 12 in the peripheral rim to receive the stud or lip. I also prefer to form a collar 13 around a central opening 14 in each of the two knuckles, which collar will pass into the correspondingly-shaped opening 15 in the shank of each jaw. A bolt 16 will pass through the collars 13, the head of the bolt lying preferably in a recess 17, formed in the outer face of one of the knuckles, and a nut 18 being applied to the threaded end of the bolt and adapted to lie in a recess 19, formed in the outer face of the other knuckle. This bolt pivots the two knuckles together. It will be observed that by this construction the shanks of the two jaws are concealed in their respective sockets, and when the knuckles are brought together and held by the bolt 16 the jaws and knuckles have the appearance of being formed integrally with each other. The head of the bolt is preferably formed with two notches 20, adapted to receive prongs 21 upon a key 22 for the purpose of screwing and unscrewing the bolt. If one of the jaws should become broken, it is only necessary to remove the pivot-bolt and then take out the shank of the broken jaw and replace it with another. This can be done in a few minutes and with ease and without any particular skill.

The teeth 7 of the jaws extend laterally from the jaws and are inclined inwardly and toward each other from the point where they leave the jaws, and their inner faces are formed with the beveled recesses 23, which recesses form inclined ways which diverge from the points or lower edges of the teeth upwardly toward the jaws, so that when the teeth are placed on the opposite sides of a molar tooth and the handles of the forceps are pressed together the teeth are caused to exert a gripping and drawing action on the tooth in the operation of pressing the handles together, so as to take a firm grip upon the tooth, thus forcing the tooth upward during such gripping action and partially extracting the tooth without twisting or wrenching the

tooth, as under ordinary constructions of forceps. This renders the operation easier for the dentist as well as for the patient and enables the tooth to be extracted in less time than otherwise.

5 While the manner described of securing the replaceable jaws in place and securing them to the knuckles of the handles is particularly well adapted for dental forceps, still that feature of the invention could be employed in instruments for other uses—such, for instance, in pliers, pincers, and other similar instruments having jaws. It will also be observed that under this construction the shanks of the jaws lie between the knuckles of the handles, or, in other words, are attached or connected to the handles at the knuckles and form practically a part of the pivotal connection between the two handles.

10 I have illustrated and described with particularity the preferred details of construction and arrangement of the several parts, but it is obvious that changes can be made therein without departing from the essential features of my invention.

20 Having described my invention and set forth its merits, what I claim is—

1. In dental forceps or other instruments of the kind described, the combination of the handles, the removable jaws having a portion thereof detachably attached and secured at the point of pivotal connection between the two jaws, and means for pivoting the jaws together, substantially as and for the purposes described.

2. In dental forceps or other instruments of the kind described, the combination of the handles, provided with knuckles having sockets formed therein, removable jaws having shanks fitting in said sockets, and a pivot connecting the jaws together, substantially as and for the purposes described.

3. In dental forceps or other instruments of the kind described, the combination of the handles, provided with knuckles having sockets formed therein, removable jaws provided with shanks fitting in said sockets, a stud or lip and a recess, formed one in a part of the knuckle and the other in the shank, and a pivot connecting the knuckles together, substantially as and for the purposes described.

4. In dental forceps or other instruments of the kind described, the combination of the handles, provided with knuckles having sockets formed in their meeting faces and having covers around central openings in the knuckles, the peripheral rims of the sockets being formed with recesses, the removable jaws formed with shanks, fitting in the sockets of the knuckles, and having a neck to fit in one recess of the peripheral rim and a stud or lip to fit in the other, and a pivot-bolt connecting the knuckles together, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MARKOWSKY.

Witnesses:

JAN HATRALZ,
ELLA F. APPLGATE.