

J. W. IVORY.
TOOTH SEPARATOR.
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1,048,972.

Patented Dec. 31, 1912.

Fig. 1.

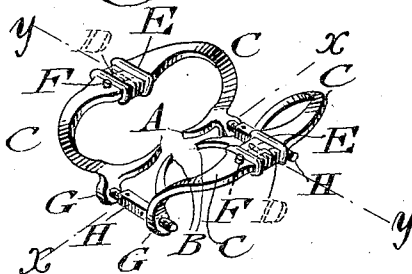


Fig. 2.

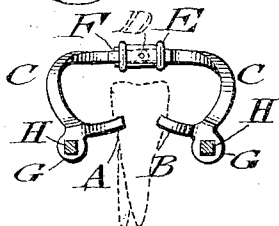


Fig. 4.

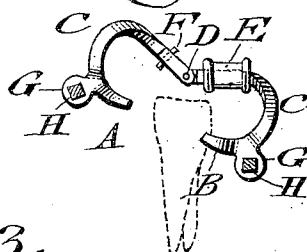


Fig. 3.

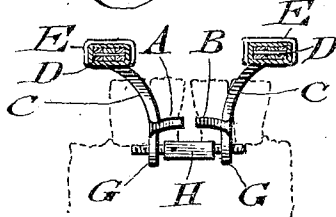


Fig. 7.

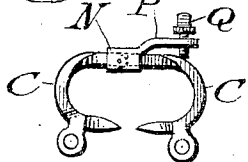
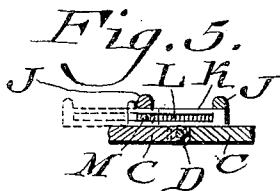
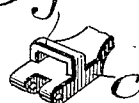


Fig. 6.



WITNESSES

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TOOTH-SEPARATOR.

1,048,972.

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Patented Dec. 31, 1912.

Application filed March 7, 1912. Serial No. 682,301.

To all whom it may concern:

Be it known that I, JAMES W. IVORY, a subject of the King of Great Britain, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Tooth-Separator, of which the following is a specification.

My invention consists of a separator for teeth comprising a pair of frames with beaks thereon adapted to enter the space between adjacent teeth, and means for spreading-apart said frames, the latter being formed of articulated sections whereby they may be opened for convenience in applying the implement over the teeth and removing it therefrom, and means for coupling the sections of the frame each as one rendering it rigid after adjustment in position.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a perspective view of a tooth separator embodying my invention. Fig. 2 represents a section on line $x-x$ Fig. 1. Fig. 3 represents a section on line $y-y$ Fig. 1. Fig. 4 represents a section similar to Fig. 2, the frame therein being opened out. Figs. 5, 6 and 7 represent views showing other means for coupling the sections of the frame.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A and B designate beaks which are formed respectively on the bases of opposite arch-shaped frames C, and adapted to have their points meet or approximately meet at or about the space between adjacent teeth to be separated. The frames C are separated at their crowns and connected there by comparatively horizontal pivots D as joints forming articulated sections which permit the opening and closing of the sections of each frame for purposes to be hereinafter stated.

E designates sleeves which are fitted over the sections of the frame at the pivotal portions thereof, thus locking said sections rendering the frames comparatively integral, it being evident that when the sleeves are moved a sufficient distance the pivotal portions of the frames are uncovered whereby the sections of the frame are adapted to be

moved on their pivots so as to be opened and closed or expanded and contracted, but when the frames are in closed condition, the sleeves are moved over the joints of the sections, thus locking the latter, and rendering each frame rigid as one piece.

In order to limit the movement of the sleeves E in one direction, the sections of the frame are provided adjacent to their joints or pivots with studs or projections F which are so disposed that when the sleeves are moved to cover said joints and cause the locking of the sections, they abut against said studs, the effect of which is evident.

At or about the bases of the frames C are ears G which are internally threaded for engagement of the threaded ends of the screws H which extend transversely or at an angle to said beaks A, B back of the latter, it being noticed that the threads of said ears and screws are pitched right and left, so that when the screws are operated in one direction, the frames may be pushed apart, and in the other direction they may be drawn together. In either case when said frames are operated by said screws the former move to and from each other in comparatively parallel lines without lateral strain on said screws, it being noticed that while the sections of each frame are pivotally jointed as has been stated, the joints are rendered rigid by the sleeves E which embrace the portions of said sections over the pivots D, and so lock the connected sections as one as above stated. When said sleeves are moved in the required direction, the sections of the frames are released from the same and they may be opened or widened by raising so as to place the device in position over opposite teeth to be operated upon and dispose the companion beaks of the opposite frames into the space between said teeth relatively at the labial and lingual sides thereof. Then the sections are lowered and so closed and the sleeves moved over the joints of the same, thus locking the sections and rendering each frame comparatively rigid, while the sleeves rest on the faces of adjacent teeth. The screws are then operated whereby the beaks first contact with the teeth and as they are moved from each other with the frames that carry them they press said teeth in opposite directions and so separate them. When the screws are rotated in reverse direction, the frames and consequently the beaks are

brought together whereby the teeth are relieved of the separating pressure of the former. Then the sleeves are moved back whereby the joints of the sections of the frames are unlocked, and the sections may be opened, thus permitting the device to be carried over the teeth and so removed therefrom.

In Figs. 5 and 6 I have shown another means for coupling the sections of the frame in which I provide an extension J in each section, in the form of a loop, and I provide a bolt or bar K which is movably mounted in the loops and serves to couple the frames together. When the bar or bolt K is moved in the position shown in dotted lines, Fig. 5, it will be understood that the sections are uncoupled, and I preferably provide a slot L in the bolt in which is seated a transversely extending pin M carried by one of the loops, which pin allows the bar to slide on it in either direction of its motion and prevents improper disconnection and loss of said bar when drawn out to full extent.

In Fig. 7 I have shown another means for coupling the sections of the frame, in which I provide a sleeve N similar to the sleeve E and provide the same with an ear P in which is fitted the set screw Q which may be tightened against the section beneath the same, it being understood that when the sleeve is moved to complete the sections and said screw properly operated the sleeve will be limited in its motion and locked in its adjusted position.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a dental tooth separating device, a plurality of beaks, frames adapted to carry said beaks, and means on the frames for operating the latter to spread said beaks,

said frames being composed of articulated sections each formed of members pivoted together at their inner ends, said beaks being on the outer ends of the sections and said means being on said outer ends adjacent to said beaks.

2. A dental tooth separator composed of a plurality of frames adapted to be moved in opposite directions in comparatively parallel lines, inturned beaks on said frames at the bases thereof, and screws joining opposite bases and extending at an angle to said beaks, said frames being formed each of articulate sections, and means for closing the joints of said sections and rendering said sections rigid as one.

3. In a dental tooth separating device, a plurality of beaks, frames adapted to carry the same, said frames being formed of articulate sections, means for moving said frames to spread said beaks, and means for coupling said sections and connecting them as one.

4. In a dental tooth separating device, a plurality of beaks, frames adapted to carry the same, means on the frame for operating the same to move the beaks in opposite directions, and slides on the sections adapted to embrace the pivotal portions thereof and couple the sections as one.

5. In a dental tooth separating device, a plurality of beaks, frames adapted to carry the same, means on the frame for operating the same to move the beaks in opposite directions, and slides on the sections adapted to embrace the pivotal portions thereof and couple the section as one, and means for controlling said slides in the closing positions thereof over the joints of the frames.

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Witnesses:

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