

(No Model.)

W. S. HOW.
TEETH SEPARATOR.

No. 513,016.

Patented Jan. 16, 1894.

FIG. 1.

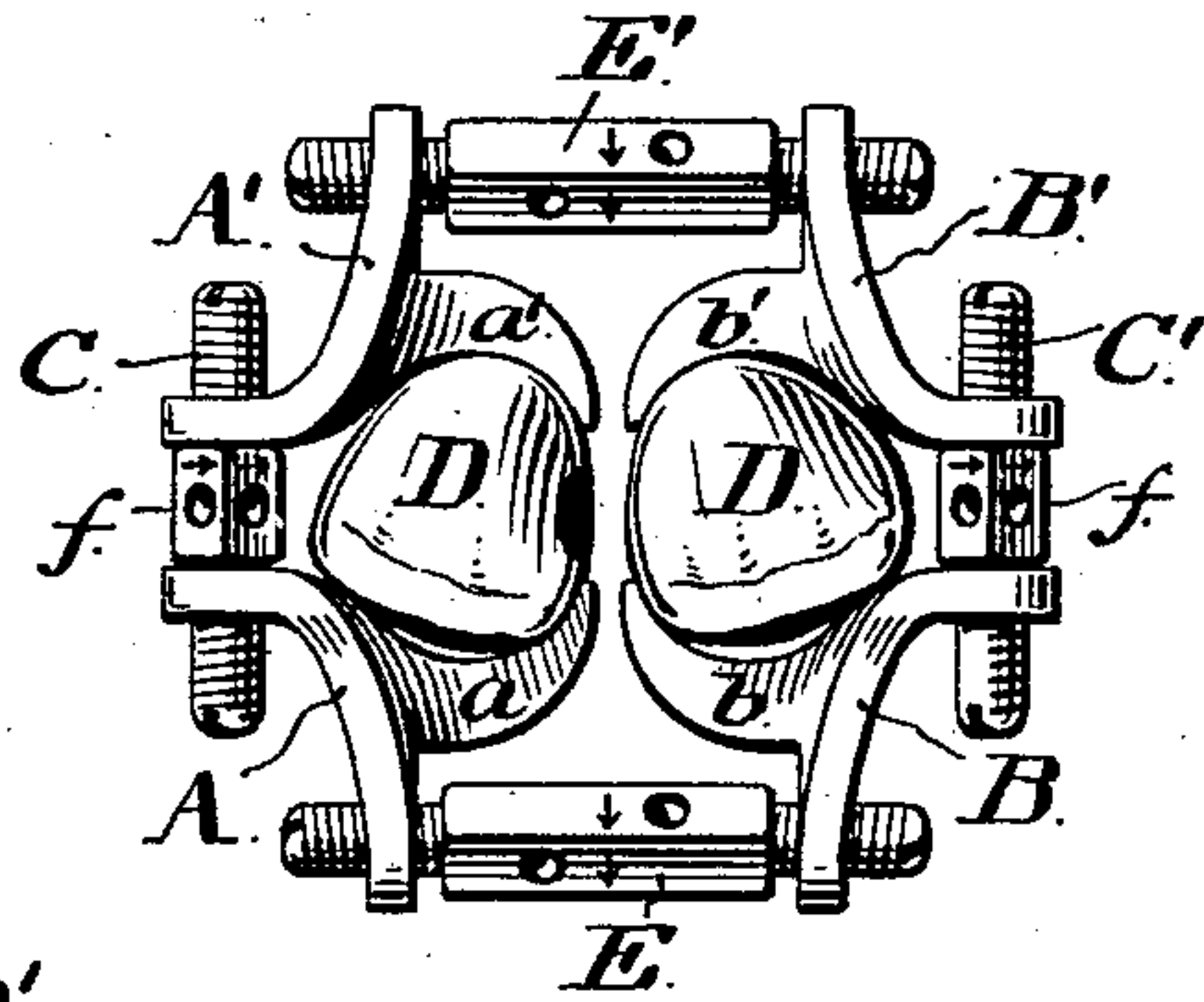


FIG. 8.

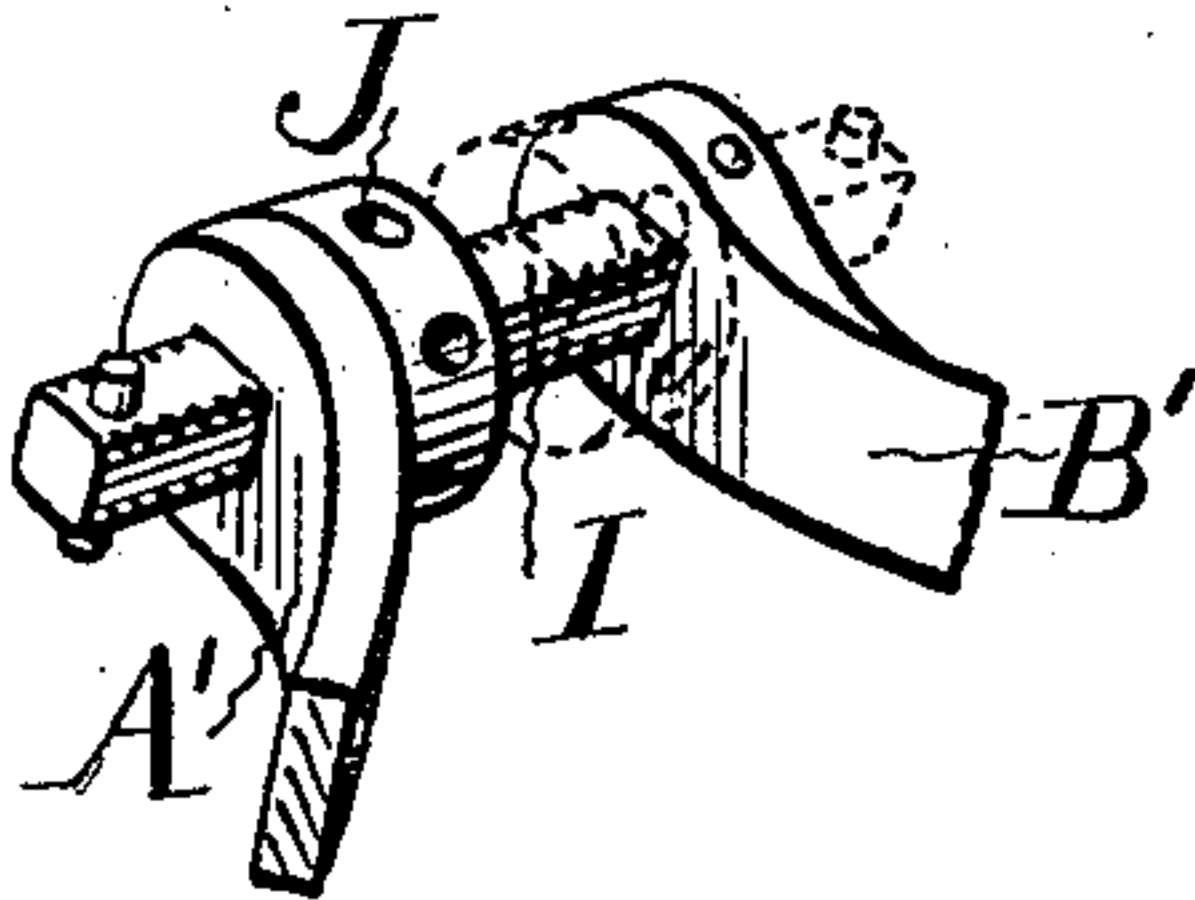


FIG. 7.

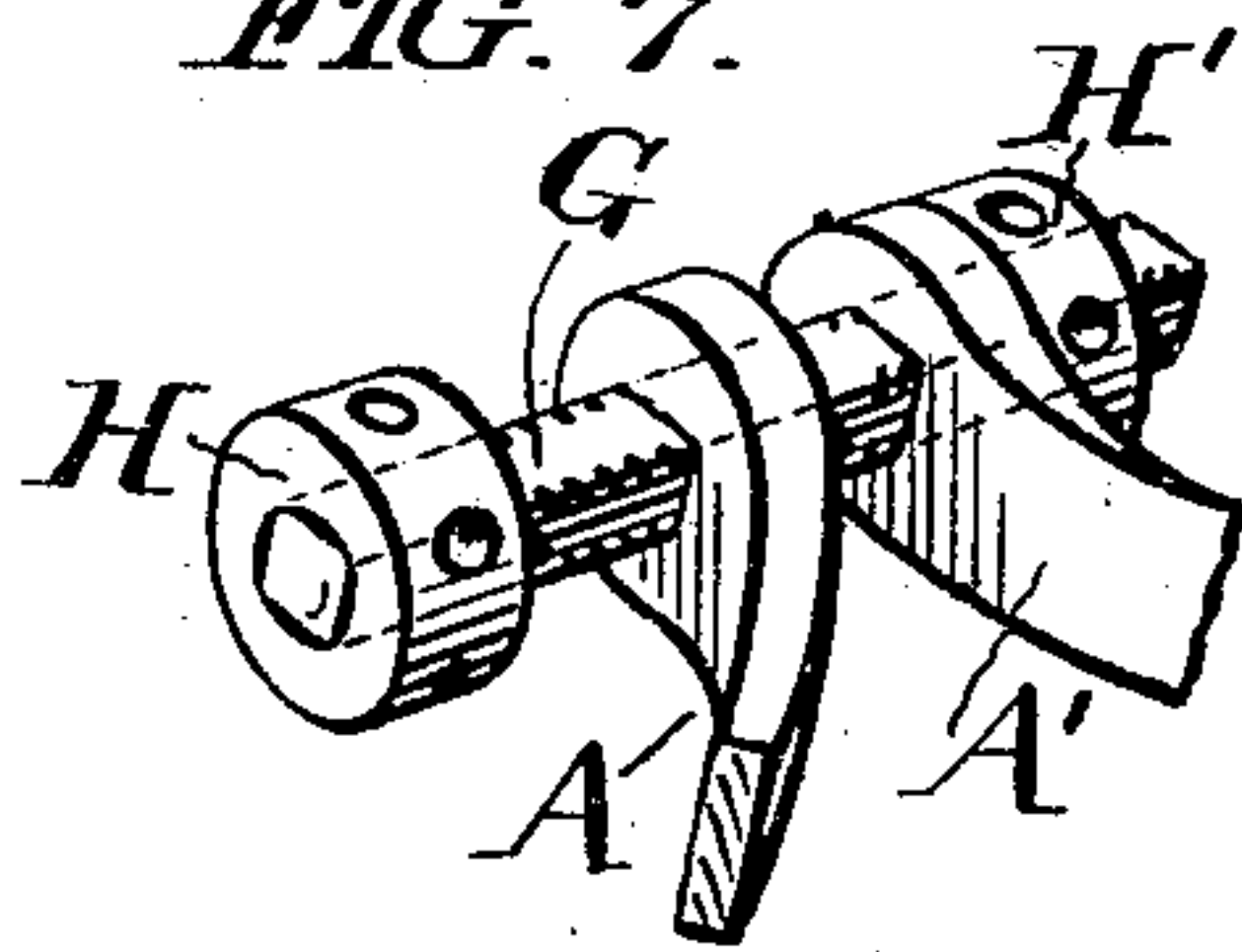


FIG. 2.

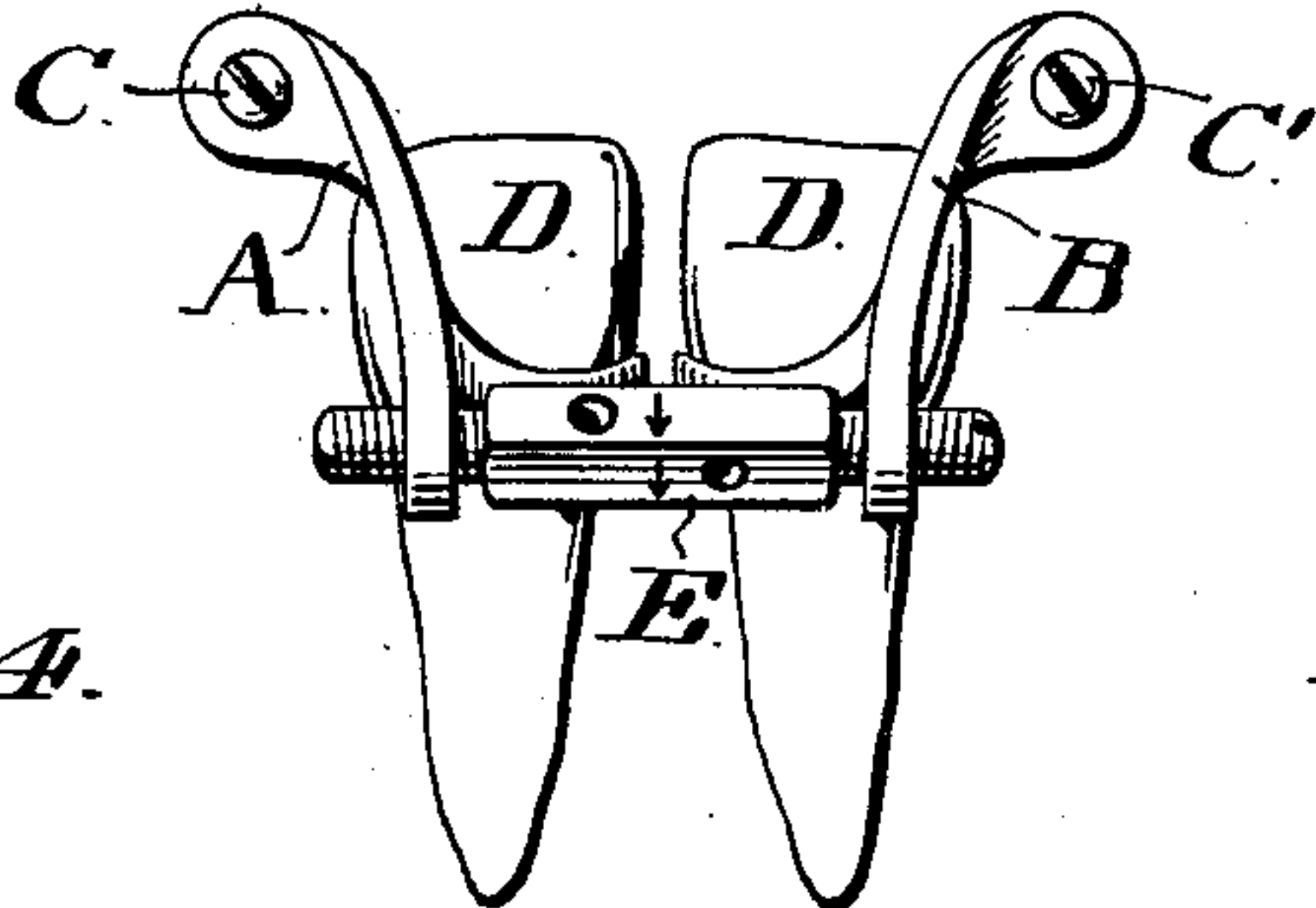


FIG. 4.

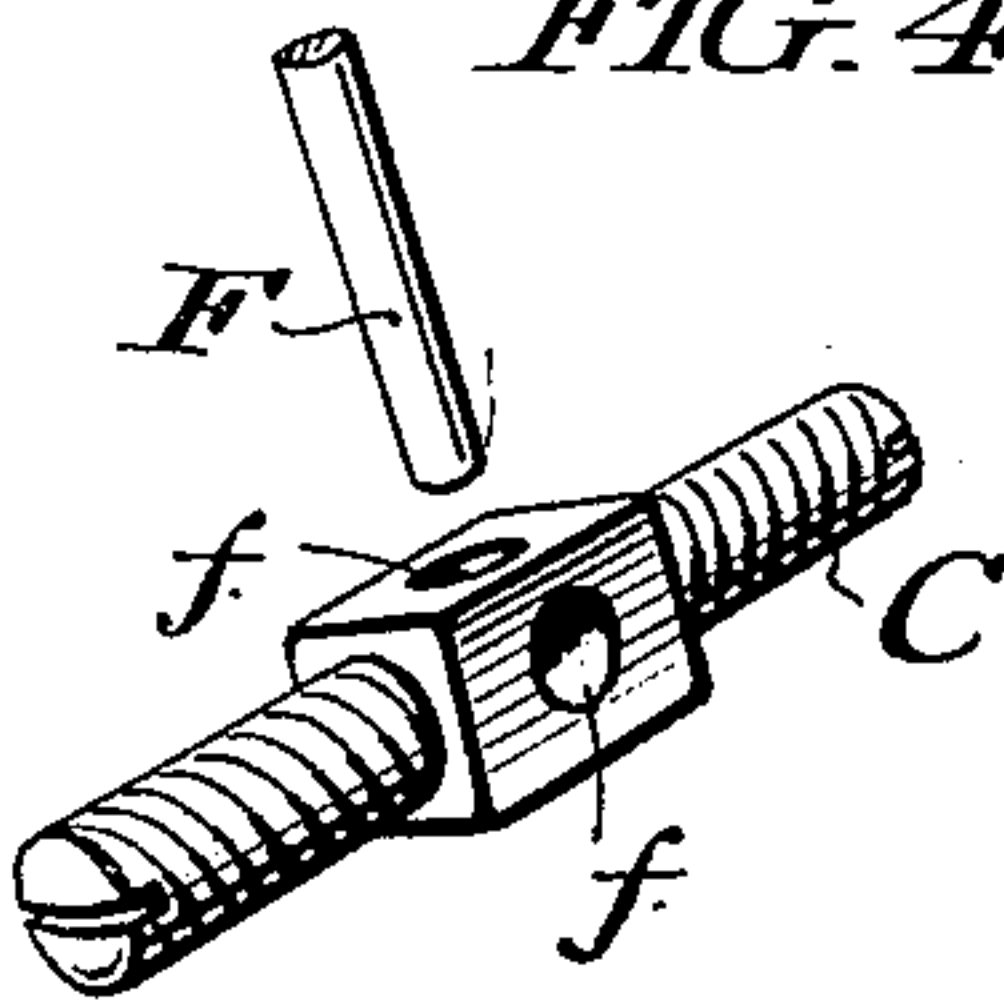


FIG. 5.

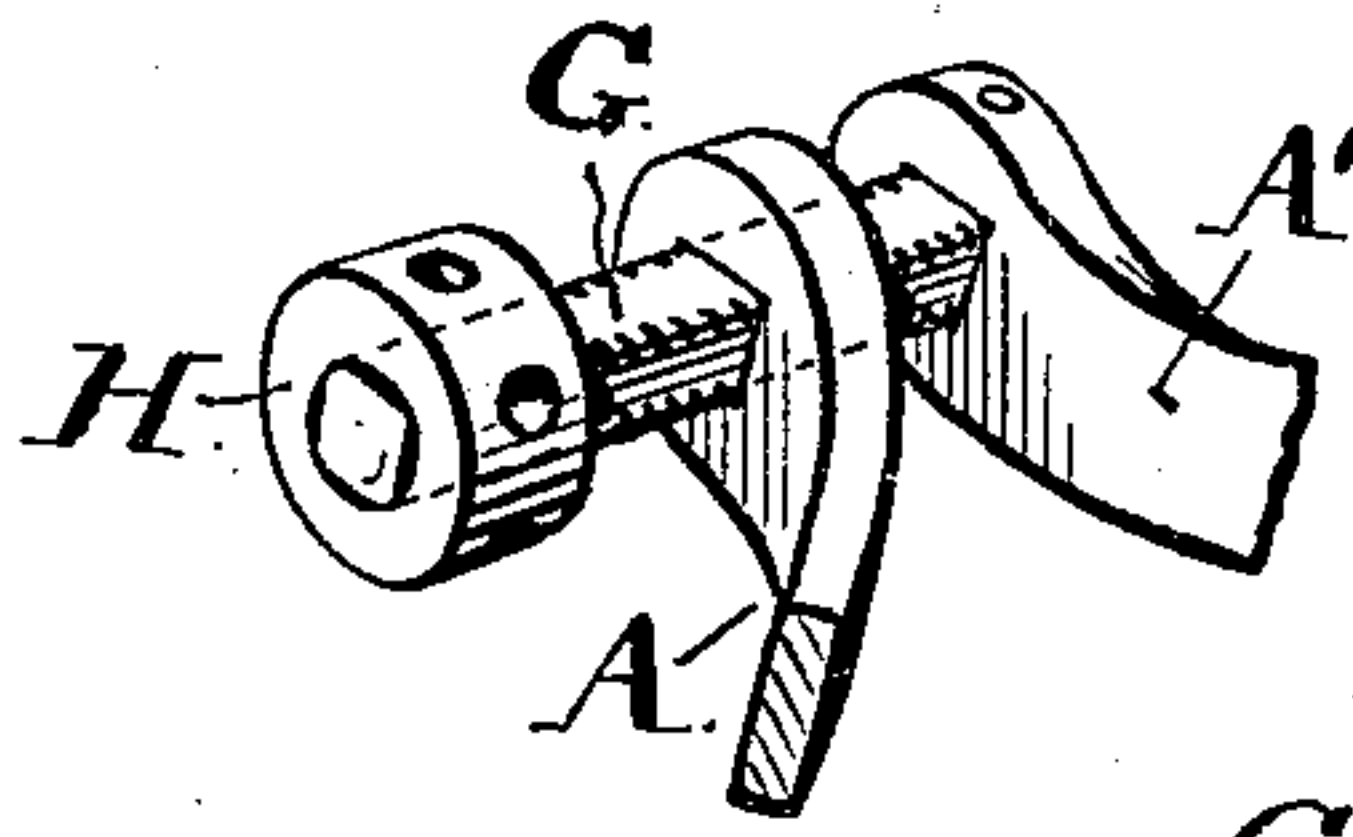


FIG. 3.

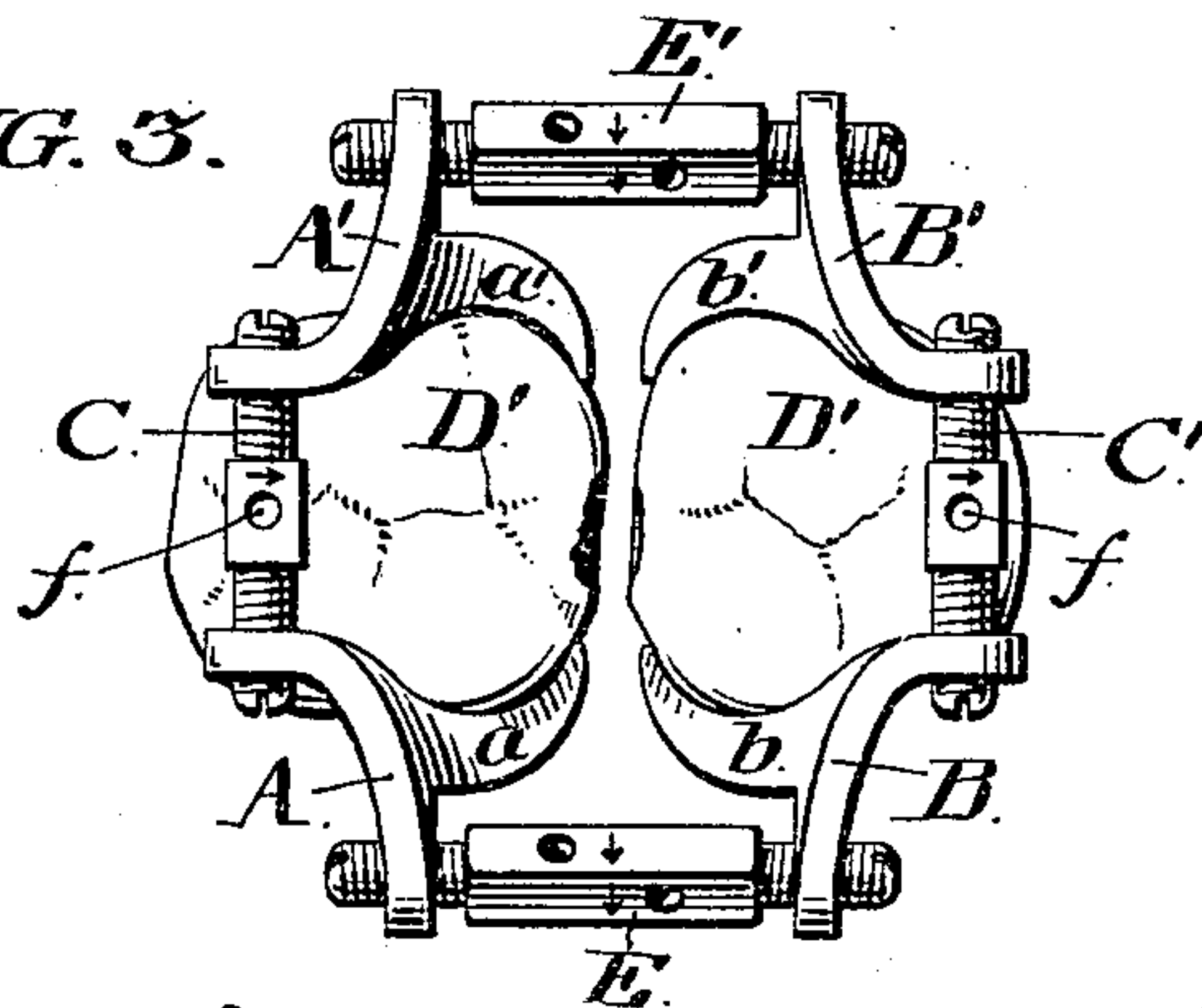


FIG. 6.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WOODBURY STORER HOW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF SAME
PLACE.

TEETH-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 513,016, dated January 16, 1894.

Application filed November 13, 1893. Serial No. 490,813. (No model.)

To all whom it may concern:

Be it known that I, WOODBURY STORER HOW, a citizen of the United States, residing in the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have
5 invented certain new and useful Improvements in Teeth-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as
10 will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements, as hereinafter claimed, in separators such as employed by dentists for forcing apart
15 or increasing the space between proximal teeth and for keeping them suitably separated during treatment or operations performed thereon.

Separators of the class to which my improvements relate are shown in United States
20 Patent, No. 154,867, granted to Oliver A. Jarvis, September 8, 1874, and No. 366,025, granted to Safford G. Perry, July 5, 1887.

The object of my invention is to provide a
25 separator having a wider range of adjustment than those heretofore employed and adapted for use upon proximal teeth of varying sizes, and in any location in the mouth.

In the accompanying drawings which show
30 a suitable embodiment of my invention, Figures 1 and 2 represent, respectively, a plan and an elevation of a separator as applied to central incisor teeth. Fig. 3 is a plan view of the separator as applied to the largest posterior teeth. Fig. 4 is a detail view in perspective, on an enlarged scale, designed to illustrate means for adjusting the separator. Figs.
35 5 and 6 show, respectively, a view in perspective and a sectional view of a modification of the adjustable connection between the bow sections; and Fig. 7 a view in perspective of another modification of said connection. Fig. 8 is a view in perspective of a
40 modification of the adjustable connection between the bows.

A pair of sectional bows, each consisting of two parts adjustably connected, are provided as follows:—The parts A A' of one bow have
50 each a curved separating jaw *a a'* for engaging with a tooth at or near the surface of the

gum and the parts B B' of the other sectional bow are likewise provided with separating jaws *b b'* for similarly engaging a tooth next that engaged by the jaws *a a'*. The two sections A A' and B B' of each bow are bent or
55 curved so that the inner or adjacent ends of the sections of the respective bows are made to project beyond the crown ends of the teeth with which they may be engaged and these ends of the bow sections are provided with
60 tapped holes or female screws by way of which the two sections of each bow are respectively adjustably connected by means of screw bars, the screw bar C connecting the sections A A' of one bow, and the screw bar C' connecting
65 the sections B B' of the other bow. These screw bars are each provided with two-way threads—that is, with a right hand thread at one end, and a left hand thread at the other, for engaging the screw threads at the inner
70 ends of the sections of the respective bows. In this way the turning of a screw bar in one direction causes the bow sections, and consequently the separating jaws, to approach each other, while the turning of the bar in the other
75 direction causes a spreading apart or separation of the parts. The screw bars connecting the bow sections occupy positions clear of the teeth with which the separator may be engaged, as will be seen by reference to Figs. 1,
80 2 and 3, in which D D represent incisors and D' D' posterior teeth.

The outer ends of the sectional bows A A' and B B' are provided with tapped holes or female screws which are engaged by screw
85 bars E E', these screw bars being provided with two-way threads (a right hand thread at one end and a left hand thread at the other) by means of which the bows of the separator may be spread apart or caused to approach
90 each other as in the Perry separator hereinbefore mentioned.

In operation the separator is adjusted upon any two proximal teeth as desired by manipulating the adjusting screws C C' by means of
95 a lever F engaging holes *f* in the screw bars, or by a screw driver engaging the end nicks in the screws, and when the sections of the respective bows are adjusted toward each other sufficiently to tightly engage the teeth
100

by the separating jaws the screw bars E E' are turned by a lever or screw driver so as gradually to spread apart the teeth as will readily be understood.

5 By my improvements it will be seen that the one device having the sectional adjustable bows may be used for engaging and separating either large or small teeth, incisors or molars, and be used successfully upon any
10 proximal teeth in the mouth; and that the screws adjustably connecting the sections of the respective bows are out of contact with and project clear of the gums and teeth and are readily accessible for adjustment.

15 I do not wish to be understood as confining my invention in all respects to the details of construction hereinbefore specifically described, as it may be modified somewhat while still retaining essential features of my
20 improvements. For instance, instead of the two-way adjusting screws CC', I may employ adjustable connections between the sections A A' and B B' of the respective bows, such as shown by Figs. 5 and 6, in which one of
25 the bow sections is fast upon one end of a squared screw bar G, and the other section adapted to slide upon this bar which has rounded corners and is provided with a screw thread. A screw nut H adjustable upon the
30 bar serves to move the adjustable section of the bow toward the fixed section and to hold it against movement away from the fixed section, as will readily be understood. This construction it will be seen prevents the accidental displacement of the separator by over-
35 coming the tendency of the bow sections to twist or turn when the separating jaws are acting upon the very sloping sides of some teeth. As shown by Fig. 7 the adjustable
40 connection between the sections of a bow consists of the singly-threaded screw bar G upon which the bow sections are adapted to slide and the two screw nuts H H' working upon

the screw bar outside of its connections with the bow sections. In this way, as will be ob- 45
vious, the sections may be drawn toward each other by turning the nuts. As shown by Fig. 8 instead of the two-way adjustable connections E E', the adjustable connections be- 50
tween the two bows (whether they be made in sections or each in one piece) may consist each of the singly-threaded screw bar I fixed at one end to one of the bows, with its opposite end passing freely through the other bow, and provided with the adjusting nut J by 55
which to spread the bows apart. Instead of having the screw bar I fixed to one of the bows, it may pass freely through both bows and an additional adjusting nut be employed as indicated by dotted lines Fig. 8. In this 60
way each bow may be operated upon to move them apart.

It is furthermore obvious that the members A' G Fig. 5 may be constructed in one solid piece and so be integral in structure to con- 65
stitute a modification of my invention as aforesaid.

I claim as my invention—

1. The combination of the two bows each composed of sections adjustably connected 70
and provided with the separating jaws, and the adjustable connections between the bows by means of which they may be spread apart, substantially as set forth.

2. The combination of the two bows each 75
provided with the separating jaws, the screw bar passing freely through one or both of the bows, and the nut (or nuts) for spreading the bows apart, substantially as set forth.

In testimony whereof I affix my signature in 80
presence of two witnesses.

WOODBURY STORER HOW.

Witnesses:

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R. DALE SPARHAWK.