

(No Model.)

W. S. HOW.  
TOOTH REGULATOR.

No. 385,117.

Patented June 26, 1888.

Fig. 1.

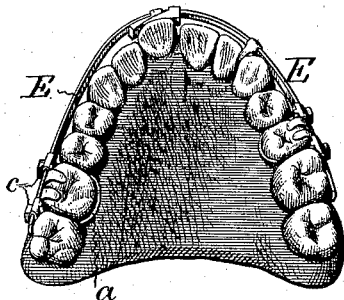


Fig. 2.

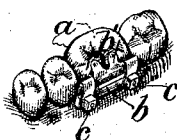


Fig. 5.

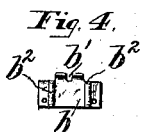


Fig. 9.



Fig. 8.



Fig. 10.



Fig. 6.

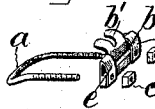


Fig. 7.

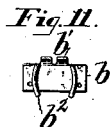
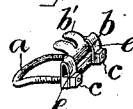


Fig. 11.



Fig. 12.

Fig. 14.

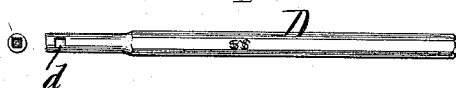


Fig. 13.

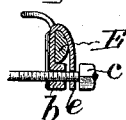
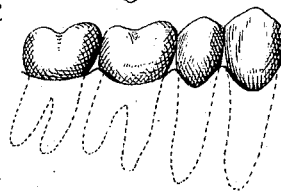


Fig. 3.



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INVENTOR;

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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.

## TOOTH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 385,117, dated June 26, 1888.

Application filed February 13, 1888. Serial No. 263,872. (No model.)

*To all whom it may concern:*

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

My invention relates to devices for regulat-  
ing natural teeth in the mouth.

Malpositions of the natural teeth are often  
15 capable of correction by means of mechanical  
apparatus fixed upon or attached to the other  
teeth in the mouth. Such attachments are  
usually secured by collars, which must, in  
every instance of which I am aware, be made  
20 especially for and fit closely around the indi-  
vidual tooth that is to serve as one of the an-  
chorages of the fixture. It is also commonly  
necessary that the adjacent teeth be separated  
from the anchor-tooth by the thickness of the  
25 collar, so as to apply the collar, and the space  
thus required by the collar—usually applied,  
necessarily, on two teeth—amounts to four  
times the thickness of the collar, so that a very  
considerable space is lost which it is desirable  
30 to utilize in and while regulating the teeth—  
as, for instance, in cases where some of the  
teeth are crowded out of line or are irregular  
as respects the dental arch. With such col-  
lars valuable time is also lost in fitting them  
35 over the teeth.

The object of my invention is to provide for  
the regulation of natural teeth without the  
disadvantages mentioned and to facilitate ap-  
plying and removing the apparatus, my an-  
40 choring band or yoke being applied without  
the necessity of separating the adjacent teeth  
or occupying valuable space and with in-  
creased facility.

I have shown my improvements as embodied  
45 in the best way now known to me, and have set  
forth the improvements claimed by me in the  
several claims at the close of this specification.

I desire it understood that some of my said

improvements may be used without the others,  
and in different ways.

In the accompanying drawings, Figure 1 is  
a general view of my improved apparatus ap-  
plied to an irregular dental arch. Fig. 2 is an  
outside view of the clamp-yoke fitted to a  
5 molar tooth. Fig. 3 is a view in elevation of  
several natural teeth, showing their forma- 55  
tion—that is, their taper from the crowns to  
the cervical walls or necks—and with the ap-  
proximal sides of the crowns in or nearly in  
contact and with the enlarging spaces between  
60 them as the necks are approached. Fig. 4 is  
a view of the inner surface of the coupling-  
bar of the clamp-yoke, or that surface which  
rests upon the outside of the tooth to which  
the clamp-yoke is applied. Fig. 5 is a plan 65  
or top view of the clip or fingers of said  
yoke. Fig. 6 is a view of the several parts  
of the clamp-yoke detached, and Fig. 7 is  
a view thereof with the parts united as  
when in place around the neck of the tooth. 70  
Fig. 8 is a view of the wire out of which the  
yoke portion of my improved clamp-yoke is  
made, and Figs. 9 and 10 are views of said  
yoke bent into shape and fitted (in Fig. 9)  
with a sustaining clip or fingers and (in Fig. 75  
10) with an anchoring button or lug. Figs. 11  
and 12 show, respectively, the inside ribbed  
surfaces of the coupling-bar of the clamp-  
yoke for a molar and a bicuspid tooth, and  
Fig. 13 is a vertical section through the im- 80  
proved clamp-yoke, showing its application to  
the well-known spring-bow regulating device  
of Dr. Patrick. Fig. 14 is a side and end view  
of one form of wrench by which the clamp-  
nuts of my improved device may be applied 85  
and removed.

The largest part of a tooth is its crown, and  
it lessens in diameter, generally, from the  
crown to the neck or gum line, (see Fig. 3,) so  
that above the gum-line, even if the walls of 90  
the crowns are crowded together, there is a  
space between the necks of the teeth. I avoid  
separating the crowns to apply a band or col-  
lar around the tooth by making use of a sec-  
tional clamp-yoke, consisting of the bent-wire 95  
yoke proper, *a*, having its ends screw-threaded,

a coupling-bar, *b*, perforated for the passage of said screw-threaded ends, and screw-nuts *c c*, to be screwed upon said ends after the coupling-bar has been fitted thereon. The yoke *a* is applied to the tooth from the palatal side by passing its threaded ends, one on each side of the tooth, outward through the space between the necks of the adjacent teeth above the gum-line. The loop side of the yoke fits snugly against the curved inner or palatal side of the tooth, and the threaded ends project beyond the tooth on each side to receive the coupling-bar *b*, through the perforations of which said threaded ends pass. The nuts *c c* are then screwed up tight on said ends to clamp the yoke tightly upon the neck of the tooth. This action would cause the loop to move, owing to the taper of the neck, toward the gum and cause pain, if not injury; hence I fit the coupling-bar *b* with a clip or fingers, (one or more,) *b'*, to engage or lap over on the biting-surface of the tooth, and thus prevent the clamp-yoke moving endwise upon the tooth.

The nuts *c* are or may be applied and removed by means of the lever-wrench *D*, having a lateral wrench-hole, *d*, to receive a nut, as well as a similar hole in the end of the wrench for a like purpose. (See Fig. 14.)

In many cases my improved clamp-yoke may be used in connection with other well-known appliances, and hence I fit the curved portion of the yoke or loop *a* with an anchoring button or lug, *a'*, to constitute an anchoring connection for ligatures, &c., or pulling or pushing connections for regulating devices. (See Fig. 10.) In some cases it will also be advisable to fit this curved portion of the yoke or loop with a clip or finger to prevent the loop riding toward the gum. (See Fig. 9.)

In some cases it will be desirable to provide the inner surface of the coupling-bar *b*, which is clamped against the outer surface of the tooth, with ribs *b<sup>2</sup> b<sup>2</sup>*, which not only strengthen the bar, but prevent its twisting laterally on the tooth. (See Figs. 4, 11, 12, 13, and Figs. 1 and 5, which latter show the application of the ribs to the curved outer or buccal side of the tooth.) These ribs may be straight or more or less curved to fit particular teeth.

To adapt my improved clamp-yoke to the

well-known spring regulating-bow *E*, which is made to conform in general shape to the dental arch, and is fitted with hooks, wedges, &c., in regulating irregular arches, I fit said clamp-yoke with a spring-lip, *e*, (one or more,) bent over outwardly and perforated for the passage of the end or ends of the yoke *a*, and so that it forms a clamp-socket to receive the bow *E*. Obviously, by tightening up the nut *c*, to bind the clamp-yoke upon the tooth, it will also clamp the lip *e* tightly upon the bow *E* and lock the two securely together. Any adjustment required may obviously be effected by loosening and tightening the nut *c*.

Without elaborating the advantages of my improvements, I state my claim to be as follows:

1. The clamp-yoke for dentists' use hereinbefore described, consisting of the bent-wire yoke, both members of which are screw-threaded, the rigid coupling-bar perforated for the passage of the screw-threaded ends of said yoke and provided with a rigid locking clip or finger to fit over the end of the tooth, and the independent clamp-nuts fitting said screw-threaded ends of said yoke, substantially as described, whereby said yoke may be inserted from the palatal side of the tooth by one movement with one leg or end of said yoke at each side of the neck of the tooth to which the yoke is to be clamped and be securely clamped in proper position upon the tooth without bending by the separate clamp-nuts and without interfering with adjacent teeth.

2. The clamp-yoke having a coupling-bar provided with a spring-lip to be compressed by a clamp nut, substantially as described.

3. The clamp-yoke having a coupling-bar fitted with strengthening or locking ribs next the tooth, substantially as described.

4. The clamp-yoke having an anchoring button or lug at its inner curved portion, substantially as described.

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

WOODBURY STORER HOW.

Witnesses:

GEORGE W. CLEMENT,  
ISAAC M. YOUNG.