S. DIAMANT.

ADENOTOME.

APPLICATION FILED APR. 1, 1919.

1,339,691.

Patented May 11, 1920.

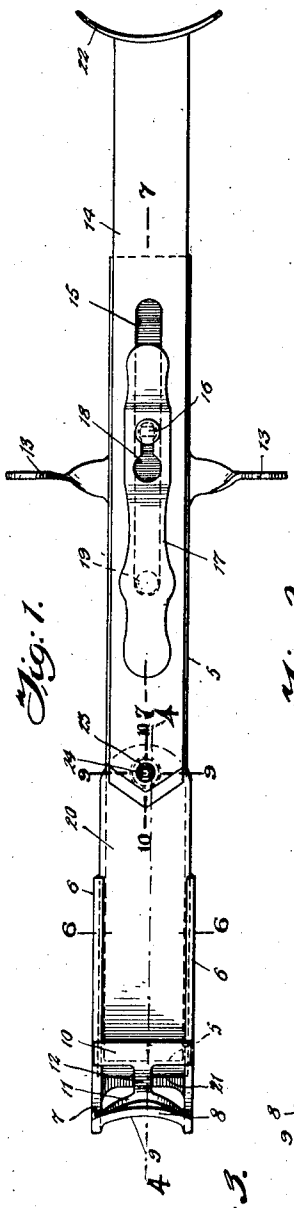


Fig. 1.

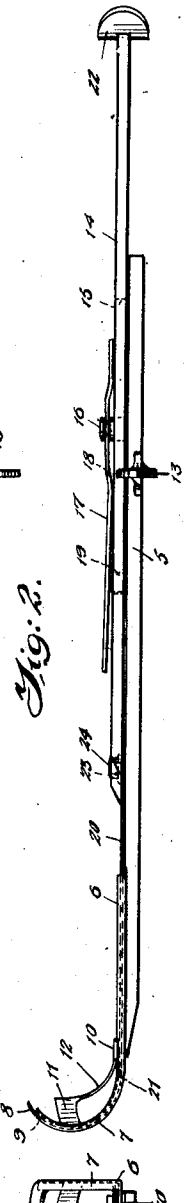


Fig. 2.

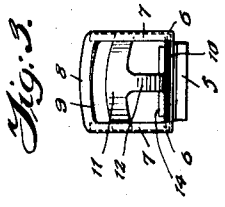


Fig. 3.

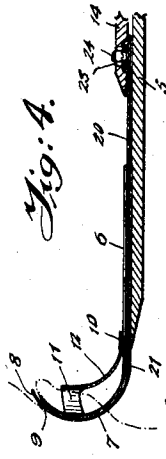


Fig. 4.

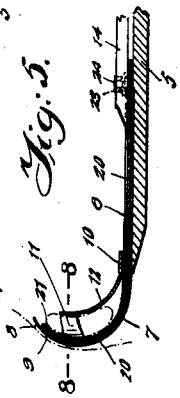


Fig. 5.



Fig. 6.

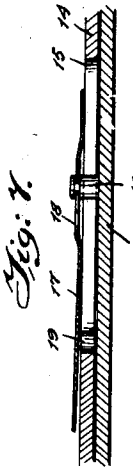


Fig. 7.

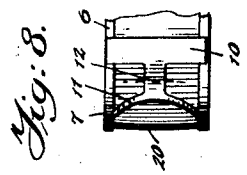


Fig. 8.

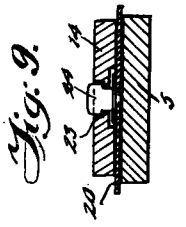


Fig. 9.

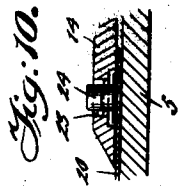


Fig. 10.

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UNITED STATES PATENT OFFICE.

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ADENOTOME.

1,339,691. Specification of Letters Patent. **Patented May 11, 1920.**

Application filed April 1, 1919. Serial No. 286,726.

To all whom it may concern:

Be it known that I, SIDNEY DIAMANT, a citizen of the United States, and a resident of the borough of Manhattan, city and State of New York, have invented new and useful Improvements in Adenotomes, of which the following is a specification.

This invention relates to adenotomes, or instruments for removing adenoids, and has for its primary object to provide an instrument for this purpose, which will cleanly remove the adenoid tissue without leaving tabs of the tissue hanging loose in the naso-pharynx, and also without stripping down the mucous membrane of the posterior pharyngeal wall.

More particularly, the present invention comprehends an instrument for removing adenoids, which consists essentially of two primary parts, namely, a curetting blade and a slidably mounted cutting blade having its edge opposed to the cutting edge of the curetting blade.

The invention further has for an important object to provide an instrument which is so constructed and wherein the several parts are so arranged that a maximum amount of the adenoid tissue may be removed.

It is also one of the purposes of my invention to construct the several parts of the instrument in such manner that the instrument will be absolutely rigid, and may be handled in an expeditious manner and accurately positioned and operated to remove the adenoids.

With the above and other objects in view the invention consists in the improved construction, combination and relative arrangement of the several parts which will be hereinafter more fully described and subsequently claimed and illustrated in the accompanying drawing, wherein—

Figure 1 is a top plan view of an instrument for removing adenoids, constructed in accordance with one embodiment of my invention.

Fig. 2 is a side elevation.

Fig. 3 is an end elevation of the head of the instrument.

Fig. 4 is a detail longitudinal section taken on the line 4—4 of Fig. 1 and showing the sliding cutting blade in its retracted position.

Fig. 5 is a similar view showing the flexible sliding blade in position relative to the affixed curetting blade after the adenoid has been completely removed.

Fig. 6 is a transverse section taken on the line 6—6 of Fig. 1.

Fig. 7 is a detail longitudinal section taken on the line 7—7 of Fig. 1.

Fig. 8 is a detail section taken on the line 8—8 of Fig. 5.

Fig. 9 is an enlarged transverse section taken on the line 9—9 of Fig. 1.

Fig. 10 is a detail longitudinal section on line 10—10 of Fig. 1.

In the removal of adenoids by the ordinary curette now known in the art, the adenoids often remain attached to the pharyngeal wall by means of a pedicle of mucous membrane after they have been cut through by the wall of the curette. In attempting to remove the adenoid when it is in this condition, there is considerable danger of stripping down the mucous membrane on the posterior pharyngeal wall, or of leaving a fragment of the adenoid tissue hanging by a small pedicle.

It is the purpose of the present improvement to obviate such objections to adenoid removing instruments as now generally constructed and used, and to provide an instrument wherein the adenoid is first cut through by a downward sliding movement of the curette blade, after which the pedicle is divided by the upward movement of a sliding blade whereby a clean division of the tissue will be effected. With this end in view I provide a rigid metal body bar 5, preferably of bar steel, and having longitudinally extending guides 6 formed along its side edges at one end of the bar. These guides are extended beyond the end of the body bar and curved as indicated at 7 to form a curetting head, the ends of such curved portions of the guides being integrally connected by the curetting blade 8 having a lower curved cutting edge 9, facing in a forward direction or away from the instrument head.

10 indicates a transverse bridge connecting the guides 6 at a point in spaced relation to their curved ends 7, and a second curved or bowed bridge plate 11 also connects the curved ends of the guides at a point adjacent to the curette blade 8, the latter bridge plate being centrally and integrally connected to the bridge member 10 by the arm 12. The body bar 5 at a point in spaced relation to its other end is pro-

vided upon its opposite edges with the finger pieces 13.

Upon the upper surface of the body bar 5 a rigid steel bar 14 is slidingly engaged, said bar being provided with a longitudinally extending slot 15 to receive a pin or stud 16, which is fixed in the bar 5. The sliding bar 14 is removably held in assembled relation with the body bar 5 by means of a resilient latch plate 17 of thin sheet steel. This plate is formed with a key hole slot 18 in spaced relation to one of its ends to receive the stud 16. A pin 19 is fixed in the other end of the plate 16 for engagement in the slot 15 of the sliding bar 14. When it is desired to remove the bar 14 and disassemble the parts, the end of the plate 17 is sprung upward and outwardly to disengage the pin 19 from the slot 15, and said plate is then shifted to position the pin or stud 16 in the enlarged end of the key hole slot 18. The plate 17 may then be detached and the bars 5 and 14 disassembled, by slightly raising the bar 14, so that the slot 15 is free of the stud 16. By now swinging the bar 14 outwardly until the half flanged slot or key hole indicated at 24 in the bar 14 is disengaged from the reduced or necked portion of the rivet 23 attached to the sliding blade 20, said bar and the blade may be disconnected from each other.

In Figs. 9 and 10 of the drawings I have illustrated in detail the particular means for detachably connecting the bar 14 to the end of the flexible steel cuttting blade 20, but this specific connecting means constitutes no essential part of the present invention, and other analogous means may be substituted therefor. The blade 20 has close sliding contact upon the face of the body bar 5 and its longitudinal edges are respectively engaged in the guides 6 on the side edges of the body bar. 21 designates the cutting edge of the sliding blade 20, which is opposed to the cutting edge 9 of the curette blade 8. The other end of the bar 14 is provided with a suitable thumb piece 22 for the convenient operation of said bar. Having now described the several structural parts of the instrument, its operation will be understood as follows:

The first operation is similar to that of the ordinary curette, the vault of the naso-pharynx being tightly hugged by the curette blade 8 during every phase of the cutting motion. Consequently, it will be understood that it is not essential that the curve of the curetting head of the instrument should correspond with the curve of the vault of the naso-pharynx in order to effect a complete removal of the adenoid tissue, which purpose is completely subserved by the second act or operation, namely, the sliding movement of the blade 20, so that its cutting edge 21 cuts through and completely severs the pedicle remaining and connecting the adenoid to the vault wall after the curetting operation. At the completion of the sliding movement of the blade 20, the adenoid which has been removed will be retained between the sliding blade and the guard composed of the bridge members 10 and 11 and the connecting piece 12.

By providing a guard of skeletonized construction, as above described, the adenoid which has been cut out or removed may be very readily displaced and removed from its position beneath the guard.

In adenotomes of other types and construction the curve of the instrument head is intended to fit the vault of the naso-pharynx. As a matter of fact, however, the curve of the vault and the width of the naso-pharynx are not the same in any two individuals. Consequently, such instruments can fit the vault of the pharynx accurately in only a limited number of cases. Accordingly, as the frame of the instrument is not moved during the cutting operation a complete removal of the adenoid tissue by the present type of adenotome is possible in only a limited number of cases.

In the present improvement it is to be noted that the distance from the outer surface of the sliding blade 20 to the rear surfaces of the guide 6 on the edges of the body bar is very slight, actually being only .025 of an inch. It is therefore apparent that by means of my improved instrument the adenoid tissue may be more clearly removed by a closer cut than is possible heretofore. The knife blade 20, when moved or projected forwardly in the guide 6 flexes or curves transversely as it approaches the point of greatest curvature of the head of the instrument, at which point it cuts through the tissue. The peak of the transversely curving cutting edge of the blade is then substantially in the plane of the outer faces of the guide 6, so that all of the tissue is cleanly cut away.

The parts 10, 11 and 12, constituting the guard on the instrument head, effectually prevent the slipping of the uvula into the instrument head where it might be cut or injured by the sliding blade 20. This guard, however, is relatively small or of reduced size, so that it will occupy only a minimum of space in the back of the mouth. The blade 20 will freely flex or bend in its sliding movement in the guides 6 when pressure is exerted against the thumb piece 22, and as the bar 14 and the blade 20 may be very readily detached or removed from connection with the bar 5, the cutting edge of the blade may be resharpened and kept in perfect condition. Complete sterilizing of all parts is readily accomplished upon simply disassembling the same.

In the embodiment of my invention illus-

trated herein as the preferred form, it will be noted that the instrument consists essentially of two slidingly coöperating members which are preferably formed of flat cold rolled steel. The use of the straight cold rolled steel gives a maximum rigidity in the bars 5 and 14, which is essential in order to permit of sufficient pressure being exerted by the operator in curetting the adenoids, which in many cases is a very tough tissue. Also by the use of the rigid cold rolled steel members frequent sub-surface defects, found in metals such as drop forgings and constituting parts of small volume, may be eliminated. However, I preferably form the guides 6 and the curved head of the instrument of tool steel, which is susceptible to tempering, and may be provided with a cutting edge which will be far more effective and will be retained for a greater length of time than would be possible if this portion of the instrument was formed of cold rolled steel like the sliding bar or member 14.

From the foregoing description taken in connection with the accompanying drawing, the construction, manner of operation and several advantages of my improved instrument will be clearly and fully understood. The several parts are quite simple in construction, reliable and efficient in practical use and the instrument as a whole may be manufactured at relatively small cost. While I have herein shown and described the preferred embodiment of the invention, it is nevertheless to be understood that the device may also be exemplified in various other forms and constructions, and I accordingly reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. In an instrument of the character described, a rigid body bar having a curved head terminating in an adenoid cutting blade bearing a fixed relation to the head, the cutting edge of said blade facing away from the body of the instrument, and a second cutting blade slidably mounted upon said body bar and having a cutting edge opposed to the cutting edge of said fixed blade.

2. In an instrument of the character described, a rigid body bar having a curved head formed with an adenoid cutting edge operable to perform an initial cutting operation, a cutting blade slidably mounted upon said body bar and having a cutting edge opposed to the cutting edge on said head, and means on the head acting in conjunction with the cutting blade to confine the severed adenoid tissue but permitting of the protrusion of parts of such tissue.

3. In an instrument of the character described, a rigid body bar having a curved head formed with an adenoid cutting edge, a cutting blade slidably mounted upon said body bar and having a cutting edge opposed to the cutting edge on said head, and a skeleton guard on said head affording openings through which the adenoid tissue may protrude.

4. In an instrument of the character described, a rigid body bar having a curved head formed with an adenoid cutting edge, a cutting blade slidably mounted upon said body bar and having a cutting edge opposed to the cutting edge on said head, and a skeleton guard on said head having transverse and longitudinally extending parts for gripping engagement with the severed adenoid tissue, said parts affording openings for the protrusion of such tissue.

5. In an instrument of the character described, a rigid body bar having a curved head terminating in an adenoid cutting blade, a second rigid bar slidable upon said body bar, a flexible cutting blade connected to said second named bar and movable upon said head, a pin and slot connection between said rigid bars, and a detachable latch device for maintaining such connection.

6. In an instrument of the character described, a rigid body bar having a curved head terminating in an adenoid cutting blade, a second rigid bar slidable upon said body bar, a flexible cutting blade connected to said second named bar and movable upon said head, a pin and slot connection between said rigid bars, and a latch device detachably engaged with said pin and coacting with the sliding bar to maintain such connection.

7. In an instrument of the character described, a rigid body bar having a curved head terminating in an adenoid cutting blade, a second rigid bar slidable upon said body bar, a flexible cutting blade connected to said second named bar and movable upon said head, a pin and slot connection between said rigid bars, a resilient latch plate detachably engaged with said pin and coacting with the sliding bar to maintain such connection, and a stud carried by said latch plate and disposed within said slot.

8. In an instrument of the character described, a rigid body bar having a curved head of tempered steel provided with an adenoid cutting blade bearing a fixed relation to the head, said head having guides at its opposite edges and a flexible steel cutting blade movable in said guides, said blade flexing transversely at its cutting edge in its movement upon the curved head toward said fixed blade and the peak of such cutting edge being disposed substantially in the plane of the outer faces of the guides.

In testimony that I claim the foregoing as my invention I have signed my name.

SIDNEY DIAMANT.