

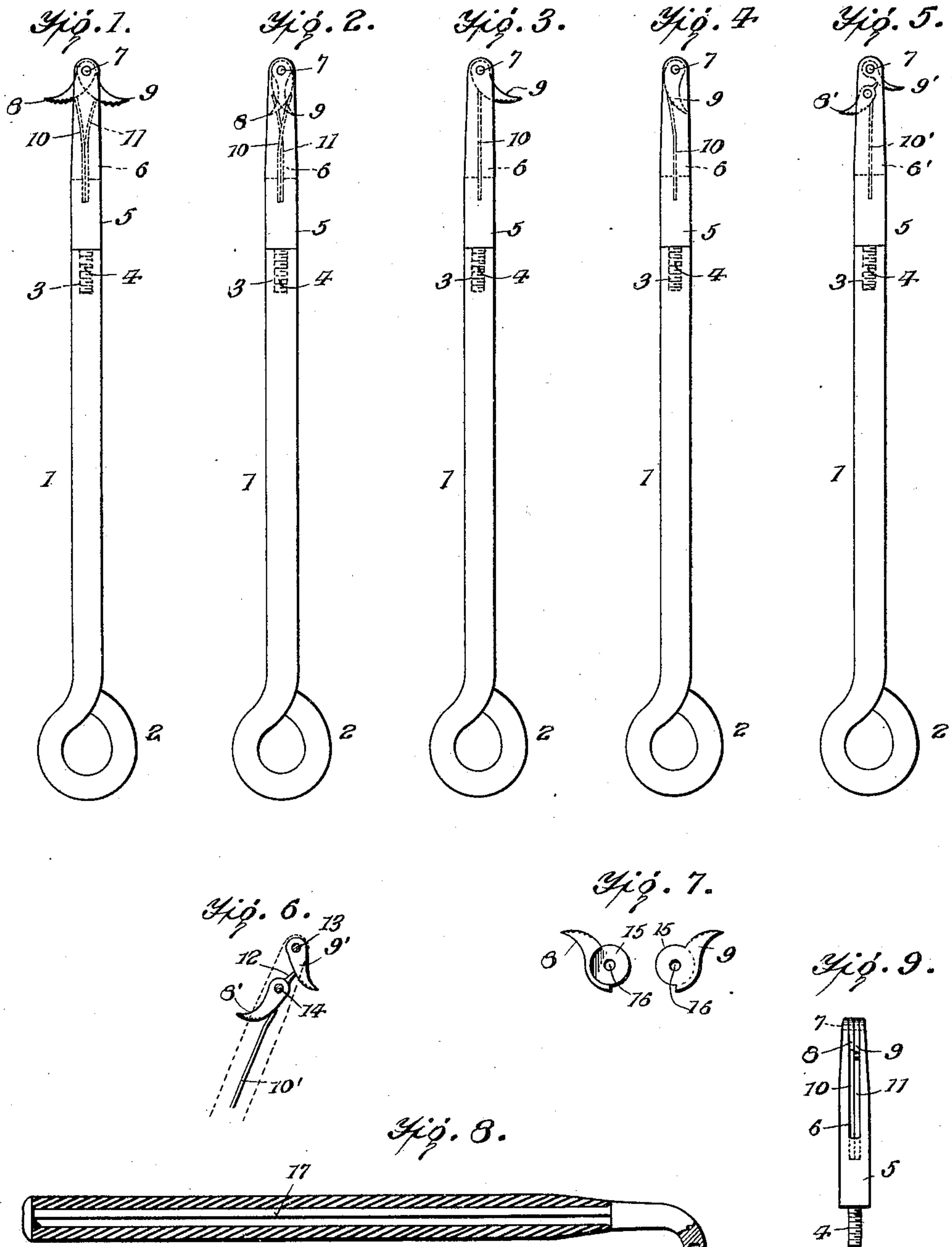
R. H. GALLAGHER & R. E. DUTCHER.

DENTAL INSTRUMENT.

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916,856.

Patented Mar. 30, 1909.



WITNESSES

L. H. Schmidt.
R. A. Stanley

INVENTORS
ROY H. GALLAGHER,
RAYMOND E. DUTCHER,
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROY H. GALLAGHER AND RAYMOND E. DUTCHER, OF PLAINVIEW, NEBRASKA.

DENTAL INSTRUMENT.

No. 916,856.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROY H. GALLAGHER and RAYMOND E. DUTCHER, citizens of the United States, and residents of Plainview, Nebraska, have made certain new and useful improvements in Dental Instruments, of which the following is a specification.

Our invention relates to dental instruments, and is an improvement in those appliances used for the purpose of extracting roots of teeth which are broken or decayed off too far to grasp with forceps, or are too frail to stand the pressure of forceps without crushing and breaking off, even if they are long enough to be engaged by the instrument. Various devices have been proposed for accomplishing this purpose, and some of these devices are in use. One form which is commonly met with consists of a long round shank having a tap on its reduced end portion, and a number of screw threads above the tap. This instrument is designed to be inserted in a canal of the tooth and to be rotated after the manner of the ordinary cork screw. The terminal tap cuts its way through the material of the tooth and the screw threads enter the grooves thus prepared to give a firm hold on the tooth. One disadvantage of the use of this instrument is that the screw naturally has a wedging action and tends to split the root, which is thereby rendered still more difficult to extract. Moreover, the operation of cutting into the tooth by this instrument may occasion pain to the patient, especially if the tooth is sore.

Our invention has for its object the provision of a device for extracting the roots of teeth, in which a firm hold may be secured upon the root without danger of splitting the latter.

A further object is to provide a device which does not require a preliminary cutting action in order to secure a good hold upon the tooth, and in which, therefore, the suffering occasioned by the use of the instrument is eliminated.

Other objects and advantages will appear hereinafter and will be particularly pointed out in the appended claims.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view of a double-barbed instrument in its normal condition with the barbs extended. Fig. 2 is a view of a double-

barbed instrument with the barbs closed. Fig. 3 is a view of a different form showing a single-barbed instrument with its barb in operative position. Fig. 4 is a view of a single-barbed instrument showing the barb closed. Fig. 5 is a view of another form showing a double-barbed instrument, the barbs in this case being pivoted at different points. Fig. 6 is a detail view showing the relation of the barbs in Fig. 5. Fig. 7 is a view showing a different arrangement of the two barbs shown in Figs. 1 and 2. Fig. 8 is a view of a right angled handle for use with our invention. Fig. 9 is a side view of the instrument showing the end slot and the manner in which the barbs are secured.

Referring now to the drawing, 1 denotes a shank or stem which may terminate at one end in a loop or ring 2, or in any other convenient form. The opposite end of the shank is provided with a threaded socket 3, arranged to receive the screw 4 of an extension 5. The member 5 consists preferably of a cylindrical piece of steel provided with a slot 6 in one end thereof, and having at its outer end a pivot pin 7, which is secured between the two branches of the slotted member 5. Pivoted upon the pin 7 are two barbs 8 and 9. These barbs are normally acted upon by the springs 10 and 11, which tends to keep them swung outwardly. It will be noticed that these barbs are of a peculiar shape, which is clearly shown in Figs. 6 and 7. Each of these barbs is provided with a serrated edge and the barbs are made of the best steel available for purposes of this kind. It will be observed that the barbs are convex on one side and concave on the other. The pivot pin 7 is also made of hardened steel and of sufficient size to bear a considerable strain.

In Fig. 2 we have shown the barbs as being closed. We may also make the instrument with a single barb, as shown in Figs. 3 and 4.

In Fig. 5 we have shown a different form, in which the barbs on either side of the instrument are not pivoted on a common pivot but have separate pivots 13 and 14, one above the other. This provides an instrument which is especially adapted for use in extracting teeth with long roots. The manner in which the barbs are kept spread apart is clearly shown in Fig. 6. In this figure the lowermost barb 8' has upon it a projection or stud 12, which, as long as the

barb 8' is in a closed position, does not bear upon the barb 9', but which is designed to operate the barb 9' so as to move the latter away from its normal position, when the
5 barb 8' is moved by the spring 10'.

In order to reduce the length of the pivot pin and consequently the size of the instrument, we may arrange the two barbs shown in Fig. 1 in the manner illustrated in Fig.
10 7. In this figure each of the barbs 8 and 9 has a cut away portion 15 and the barbs are provided with openings 16, which are arranged to register, and through which the pivot pin is adapted to pass. The cut away
15 portions 15 are placed together, so that when the two barbs are assembled, they require a slot of only the same size as either one of them and the barbs themselves lie in the same common plane.

20 In Fig. 8 we have shown a right angled handle attachment 17, which is provided with a threaded slot in its laterally projecting stem 18, arranged to receive the threaded portion 19 bearing the barb at its lower extremity.
25

In the use of our instrument the barbed end is inserted into the canal of the tooth, the barbs during the insertion yielding and permitting the instrument to enter far
30 enough to get a good grip on the root. The serrated points of the barbs are maintained against the walls of the canal by means of the springs and when now pressure is exerted in the opposite direction by a pull, the sharp points of the barb cut through the
35 soft or decayed part of the tooth into harder material, spreading out as the force increases, and each moment getting a firmer grip upon the root, by which means the root
40 may be extracted. It will be seen at once that this operation is comparatively simple and that there is no preliminary fastening of the instrument to the tooth preparatory to extracting it. Moreover, there is not the
45 danger of splitting the tooth that there is in employing a screw having a wedging action all around as has been described.

In the use of our improved root extractor, if one of the barbs is broken it can be easily
50 replaced by another one at small cost, while in the case of the tap and screw extractor, if the small end is broken off, the instrument is rendered valueless. Moreover, the barbs

can be sharpened without removing them from the shank if they should become dull. 55

We are aware that other constructions than those shown herein, based upon the same general idea, may be made, but we consider and desire to claim as our own all such modifications as fairly fall within the spirit
60 and scope of the invention.

Manifestly, when so desired, the shank or handle and the barb holding extension may be integral instead of connected by threaded joint as shown in Figs. 1 to 5. It will also
65 be understood that one, two or more barbs may be used on each instrument; that the barbs may be made with or without the cut away portions and that the instruments may be made in different sizes to suit the work
70 for which they are designed.

The instrument, as shown and described, possesses many advantages in addition to those before enumerated. Thus it will not slip out or become clogged in use and is
75 capable of efficient use when the instruments ordinarily employed for the purpose are ineffective.

We claim—

1. A tooth root extractor comprising an
80 operating handle, one or more spring actuated curved barbs pivoted in the end of said handle with their outer points normally distended, the concave edges of said barbs being turned toward the operating end of the device, thereby maintaining the points in a
85 position practically at right angles to the side walls of the tooth.

2. In a dental instrument, a device substantially as described, comprising a handle,
90 and upper and lower barbs pivoted thereto, one of said barbs having a stud or projection to engage and operate the other barb.

3. In a dental instrument, a handle provided with a slot, upper and lower barbs
95 pivoted thereto and arranged to enter said slot and having their pivotal points lying in the central axis of the handle, one of said barbs having a stud or projection to engage and operate the other barb, and a spring for
100 operating the first named barb.

ROY H. GALLAGHER.

RAYMOND E. DUTCHER.

Witnesses:

G. F. DURLAND,

H. L. BUCKINGHAM.