

W. O. HOUSER.
DENTAL FILM HOLDER.
APPLICATION FILED MAR. 3, 1920.

1,405,217.

Patented Jan. 31, 1922.

Fig. 1.

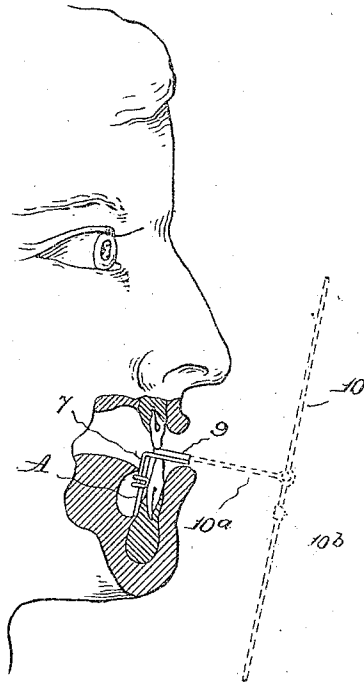


Fig. 6.

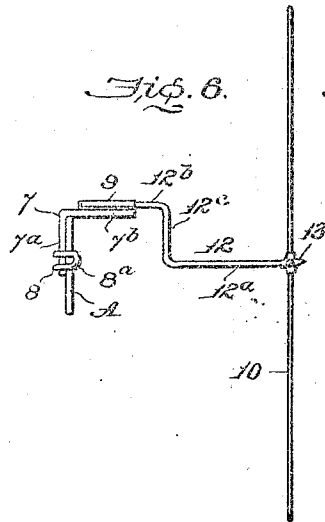


Fig. 2.

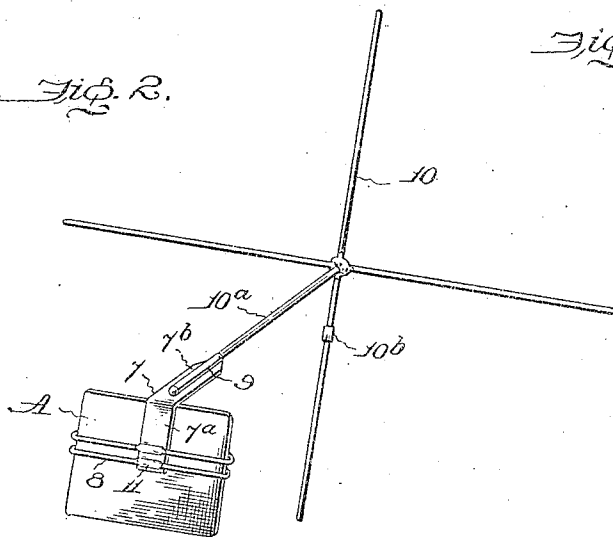


Fig. 3.

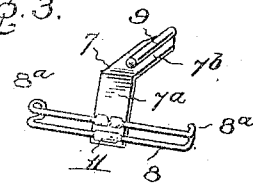


Fig. 4.

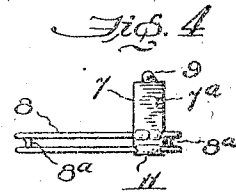
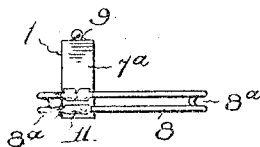


Fig. 5.



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DENTAL FILM HOLDER.

1,405,217.

Specification of Letters Patent.

Patented Jan. 31, 1922.

Application filed March 3, 1920. Serial No. 362,950.

To all whom it may concern:

Be it known that I, WILLIAM O. HOUSER, a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented Improvements in Dental Film Holders, of which the following is a full and complete specification.

My invention is an improvement in film holders of that particular type which are used in connection with X-ray apparatus for taking pictures of the teeth of a patient for the purpose of facilitating the treatment of the same by the dentist.

In order that a good picture of the teeth to be treated may be taken it is necessary that when the film is arranged in the mouth of the patient back of and in proper relation to said teeth the cone of the X-ray apparatus must be adjusted so that the projection of the rays will be perpendicular to the plane of the film; and in order to accomplish this I combine with the film-holder a removable attachment that will correctly indicate the exact position of the film and provide a guide for readily and accurately adjusting the cone for the required exposure. For this purpose the film-holder in the present instance is provided with a small tube disposed at right angles to the plane of the film supported in said film-holder, and in connection therewith employ a spider or skeleton frame having a stem projecting perpendicularly from the center thereof to be inserted in the tube on the film-holder, whereby when the parts are assembled the spider or skeleton frame will be disposed parallel with the film and beyond the mouth of the patient to thus permit the cone of the X-ray apparatus to be quickly and accurately adjusted by simply bringing the flared outer end of the same in proper relation to the spider or skeleton frame; all as hereinafter fully described, and specifically set forth in the appended claims.

In the accompanying drawings:—

Fig. 1 is a view illustrating the application of my invention.

Fig. 2 is a perspective view of the film-holder and indicator or guide applied in connection therewith.

Fig. 3 is a detail perspective view of the film-holder.

Figs. 4 and 5 are elevations of the film-holder, showing variations in the arrangement of the film-holding-clip thereon, hereinafter explained.

Fig. 6 is a side elevation, illustrating a modification hereinafter referred to.

In the present instance the film-holder consists preferably of a metal strip 7 bent upon itself to provide members 7^a, 7^b, disposed at right angles to each other and a clip 8 attached to the outer end of one of said members as 7^a to receive and firmly hold the film A. The film-holding-clip 8, herein shown, is made of a length of wire bent upon itself and shaped to form a straight body portion with inwardly projecting ends 8^a, 8^a, to grip the edges of the film, and said wire clip is attached to the metal strip, as by solder 11, so that it will be disposed laterally with respect thereto, projecting in some instances more or less at either side thereof according to the location of the teeth to be photographed. Therefore I contemplate furnishing with the indicator or guide, hereinafter particularly described, several film-holders with different arrangements of the clip device, such for instance as shown in the several modifications suggested in Figs. 3, 4 and 5 of the drawings.

In carrying out my invention the member 7^b of the film-holder or bent metal strip 7 has attached on one side thereof, preferably the outer side, a small tube 9, disposed lengthwise of the member and therefore at right angles to the wire clip 8 and film A supported therein; and the indicator or guide which I employ in connection with this film-holder consists of a spider or skeleton frame 10, made of two or more wires crossing each other centrally and provided with a stem 10^a projecting perpendicularly from the center of the spider at the junction of the wires, the wires constituting the spider and its stem being connected together in any suitable manner, as for instance by means of solder. The size of the wire forming the stem 10^a is such that the outer end thereof will fit snugly within the tube 9 on the film-holder, and the length of said stem is such that when the parts are assembled and applied in the operation preliminary to taking the picture by the X-ray apparatus the spider or guide device will be located a suitable distance beyond the mouth of the patient. One of the arms of the spider may be, and preferably is, provided with a convenient mark or pointer, located at such a distance from the stem 10^a that when the spider is connected

to the film-holder and said arm swung to a position directly in front of the film (see Figs. 1 and 2) the aforesaid mark or pointer will be on a perpendicular line from the center of the film, permitting of the adjustment of the cone so that the center of the rays will strike the center of said film. The proper centering of the rays with respect to the film may be provided for, also, by bending the stem of the spider as shown in Fig. 6, and in this instance that portion 12^a of this modified form of stem 12 which is contiguous to the radiating arms 10 of the spider may be arranged on a perpendicular line from the center of the film and the center 13 of the spider will then form the mark or pointer for the purpose. In this modification the portion 12^b of the stem connects the guide device with the film-holder, and the aforementioned portion 12^a is on a plane parallel therewith but at a certain distance therefrom according to the length of the connecting portion 12^c, said length depending on the width of the film, as will be understood. Though I prefer to make the guide device of wire it may be made of strips of metal or other material, and instead of being in the form of a spider or skeleton frame a disk may be employed, the main object being to provide a surface exactly parallel to the face of the film which will serve as a guide in adjusting the cone of the X-ray apparatus for the purpose of properly directing the rays towards the film.

The operation of my improved dental film-holder will be readily understood by reference to the drawings; for the film-holder being supplied with a film is adjusted in the mouth of the patient so that the film will be located in the rear of the teeth to be photographed—care being taken of course to have said film parallel with said teeth—and then the guide device is applied by inserting the outer end of the stem of the spider in the tube on the film-holder. When the parts are thus assembled the spider will be located beyond the mouth of the patient and being exactly parallel with the face of the film the cone of the X-ray apparatus may be readily and conveniently adjusted by bringing the flared outer end of the same in such close proximity to the spider that said flared end will properly register therewith and consequently assure the proper projection of the rays to the film. Of course in adjusting the cone in proximity to the spider it should be

arranged so that the indicator or pointer 10^b or 13, will be on a line with the center of the flared end of said cone, to center the rays as hereinbefore explained. After the cone has been adjusted it may be swung to one side and the spider or guide device removed, after which said cone is returned to its former position for the required exposure. This manipulation of the cone, for the purposes of the desired adjustment and shifting movement to permit of the removal of the spider, is provided for in the conventional type of X-ray apparatus.

From the foregoing it will be apparent that my improved film-holder and guide device provide for not only conveniently positioning the film within the mouth of the patient, but also for quickly and accurately adjusting the X-ray apparatus preliminary to taking the picture; and it will be noted, also, that the parts constituting the complete device are light in construction so that when applied the inconvenience to the patient is reduced to the minimum, and that the facility and accuracy with which the several adjustments may be made preliminary to the exposure serves to further minimize the inconvenience of taking the required picture of the teeth to be treated as well as insuring the taking of a good picture by proper direction of the rays with respect to the teeth and film.

I claim:

1. In a dental film-holder, the combination with a holder for the film of a guide device comprising vertical and transverse guide members and a stem for connecting the device to the holder, whereby the aforesaid guide members are disposed parallel with the film in the holder for the purpose set forth.

2. In a dental film-holder, the combination with a holder for the film of a guide device comprising a spider, means for connecting the spider to the film-holder, and an indicating mark on the spider with relation to the film-holder, for the purpose set forth.

3. In combination with a dental film-holder comprising a body portion having members at right angles to each other and a clip attached to one of said members transversely thereof, of a tube attached to the other member of the film-holder longitudinally thereof, and a spider having a stem adapted to fit within said tube, substantially as shown and described.

WILLIAM O. HOUSER.