

UNITED STATES PATENT OFFICE

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ILLUMINATING DEVICE FOR THE DISPLAY AND EXAMINATION OF NEGATIVES

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My invention relates to the class of devices intended for the examination of negatives and which furnish the illumination required, but it is a strikingly novel departure therefrom in that it combines in mutually cooperative relation means which permit the mounting of negatives for display purposes, with means for mounting negatives for examination and diagnosis, the functions of the one being performed without interfering with those of the other.

The main object of the invention is a device of the said class a part of whose structure is formed to roughly resemble the correct shape of the human jaw and mouth.

Another object of the invention is to provide a construction with means in its rear to facilitate the practical examination of negatives, the front of which is suggestive of the human mouth and has means for mounting X-rays of teeth therein in the position such teeth naturally occupy so as to form an attractive illuminated display model which makes clear to the layman at a glance the character of a radiograph and its value as a precautionary measure.

Another object of the invention is to enable a dentist or physician, in explaining to a patient the results of the examination of the radiographs he has made for him, to utilize the rear of my improved device for the examination of the actual negatives, and the position of the various display radiographs in the front of the device to make easily comprehensible to the patient the location of the particular teeth under discussion.

Another object of the invention is to permit X-ray negatives to be placed in the front of my device in the actual position in which the teeth they depict are located in the mouth of the patient, so that the explanation of the diagnosis of the same may be more readily understood by him.

As will be seen from the drawings forming part hereof, my improved device consists essentially of a closed casing with a plane rear wall, the slanting sides, curved front, and the conformation of its forward part as a whole, being suggestive of the

human jaw and mouth. It is revolvably mounted on a stand or base, encloses an electric light bulb, and its sides are in the main formed of light-diffusing material, its top and bottom being made of any suitable opaque material, preferably metal.

Referring to the drawings, in which similar reference numerals indicate corresponding parts,

Figure 1 illustrates my novel device in perspective, with X-ray negatives of teeth mounted therein; and

Figure 2 is a section thereof.

The base is designated by the numeral 1, 2 indicating wires to be connected to an electrical source, and 3 a chain which is attached to a rheostat combined in the usual way with the electric bulb 4 mounted in socket 4' for increasing and decreasing the intensity of the light. Mounted on the base is a casing comprising a forward elongated part 5 with light-proof top and bottom, having sloping sides 5', and a rear part 5² the side walls of which are opaque. The rear part extends beyond the sides of the forward part. The sides of the forward and the back of the rear part, are provided with channels 6 in which are removably mounted plates of light-diffusing material such as frosted glass 7.

Adjacent the channels 6, 6 in each of the slanting sides and the front side of my device are additional channels 8, 8 for the reception of flat mounts containing radiographs, and forward of the channels 8, 8 in the said front side are channels 8', 8', the angle of which permits the insertion therein of a curved mount containing radiographs. Hinged to the front of the casing is a flap 5³. When a curved mount is in place in the channels 8' this flap rests upon the top of same.

An X-ray examination usually requires more than one radiograph, and in the examination of a complete mouth it is necessary to take from ten to fourteen negatives. For convenience, these are mounted in a holder while the dentist or physician is explaining them to the patient. Inasmuch as the holder is flat, it is not easy for the

layman to follow the explanation and to tell exactly what tooth, or even area, the dentist is referring to, as the mouth is not flat but has a particular curvature. By the use of my invention, this difficulty is overcome, for the reason that the shape of the part of my device which will be utilized in the case supposed, is such that it roughly suggests the human jaw and mouth, and is so constructed that mounts that contain negatives of teeth can be so inserted therein as to properly and correctly position all the teeth they depict in harmony with the said strongly suggestive mouth-contour.

This is made possible by the use of the mounts 9 which are original with me and are described in my Patent No. 1,680,299, dated April 14, 1928, in conjunction with the fact that the sides of the forward part of my device, or the spaces between the channels 8 are made square in order to accommodate said mounts. These mounts have variously placed openings so that, despite the fact that some of the X-rays may be taken with the film in vertical and others with the film in horizontal position, they may all be so placed in my holding device as to show the teeth portrayed in their correct positions without readjustment, as indicated by Figure 1.

For this reason and because the mounts can be arranged to show upper and lower rows, to illustrate radiographs of the teeth in the upper and lower jaw, in correct relation, the simulation roughly of the device to the human mouth is greatly heightened.

In employing my device for display purposes it will be found preferable to keep the flap 5³ in closed position and to place a curved mount with contained radiographs in channels 8'. As a preliminary to such use, any flat mount 9 which may have been placed in the channel 8 in the front of the device is of course removed.

In the back of my device is a support 10 which may be used to accommodate a holder containing X-ray negatives in a flat position when the dentist or physician desires to examine them in that way, the holder, of course, also resting against the large pane of frosted glass which closes the rear opening of the casing. The electric light bulb in the casing is located at a point where it will provide even distribution of light.

While it is generally preferable, in the examination and display of X-ray negatives, to use light-diffusing material such as the frosted glass with which the front and rear of my device is equipped, this is made removable as it may be desired in some cases to dispense with the same and examine or display the negatives in their mounts alone.

The creation of my novel device has brought into the art a new construction. As stated above, it is a casing intended in part

to resemble roughly the human jaw. By its means therefore it is possible to show radiographs of teeth in the position they naturally occupy. It may also be made to serve as an educational exhibit of X-ray work while at the same time providing means for the examination and diagnosis of negatives, or it may be entirely devoted to the latter purpose in the way already explained.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a device of the character described, the combination of a casing whose sides and rear are closed in part by light diffusing material, illuminating means therein, means at the rear of the casing for supporting a flat holder containing X-ray negatives for examination, means at the sides of the casing for holding flat mounts containing X-ray negatives, and additional means at the front of the casing for holding mounts containing X-ray negatives in curved position, the means for holding the said mounts maintaining them in position in front of the light-diffusing material for examination of the contained negatives by the light from said illuminating means, substantially as and for the purposes set forth.

2. A device of the character described comprising a casing constructed to roughly resemble the human jaw and provided with light diffusing means forming the side walls and one end wall thereof, and means for removably mounting radiographs of teeth before said light diffusing means in the order in which they occur in the human jaw, substantially as and for the purpose described.

3. In combination in a device of the character described, a casing constructed to roughly resemble the human jaw, light diffusing material forming the walls of said casing, a rear part comprising an extension having an end wall of light diffusing materials, means for detachably mounting radiographs of teeth before said light diffusing material, and illuminating means in said casing, substantially as and for the purpose described.

4. In a device of the character described, the combination of a casing constructed to roughly resemble the human jaw, the walls of said casing in part comprising removable sections of light diffusing material, channels for the reception of said light diffusing material, and additional channels adapted to hold removable mounts containing radiographs in front of said diffusing material, substantially as and for the purpose described.

In testimony whereof, I have signed my name to this specification.

ELLIOTT B. MABEE.