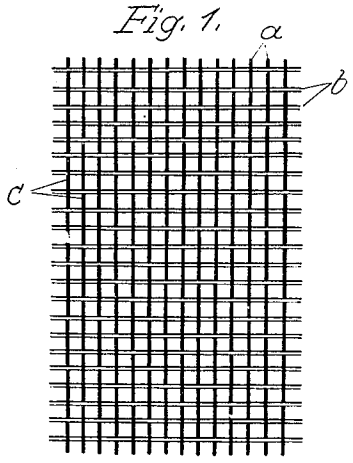
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DENTAL PLATE

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Fig. 1.



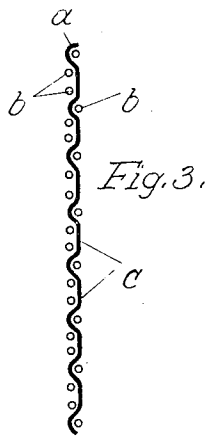
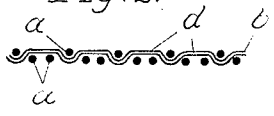


Fig. 3.

Fig. 2.



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Fig. 4.

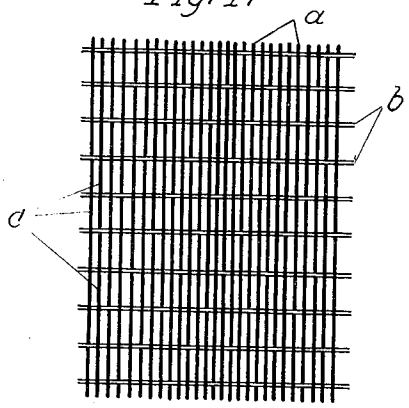


Fig. 5.

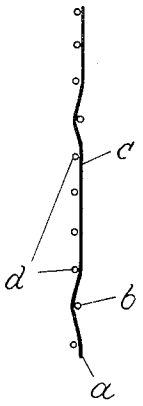


Fig. 6.

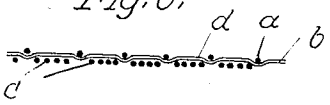
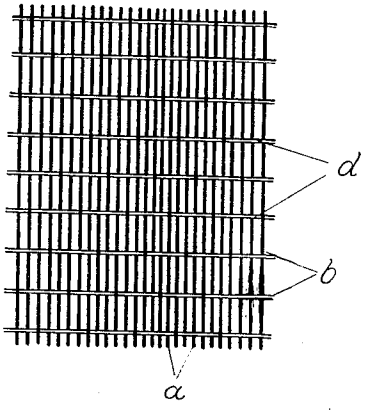


Fig. 7.



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UNITED STATES PATENT OFFICE

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DENTAL PLATE

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Application August 5, 1931, Serial No. 555,342, and in Germany August 11, 1930

5 Claims. (Cl. 32—4)

It is known to reinforce dental plates of rubberized material with embedded metal, plates of rubberized material alone being very brittle and for this reason having to be made very thick. With this object in view wire gauze, that is to say simple, linen-weave fabric or chain netting has been used. Neither wire gauze nor chain netting, however, is capable of withstanding on its own the static strain to which the plate is subject, but embedded in the rubberized material it imparts great strength thereto with the result that the plates are not so readily broken or damaged.

A particular drawback in connection with embedded gauze is that the surfaces are very rough. When the covering layer in a dental plate provided with such a metal reinforcement has closed up the meshes completely the rough surfaces of the material cause irritation of the mucous membrane of the gum and tongue. The invention relates to a dental plate in which the defects found in plates used heretofore are eliminated.

According to the invention there is provided a dental plate consisting of wire gauze which, with the object of obtaining a smooth surface on both sides, is woven in such a manner that each wire skips two or more cross strands prior to interlacing with one or more of said cross strands. The meshes in the gauze are, on hygienic grounds, filled with a suitable filling compound. This compound may be of rubber vulcanized after application in the usual manner or may be made of any other material capable of properly filling the interstices of the gauze and of presenting a smooth surface, the material of course being insoluble in the fluids found in the mouth. This filling compound, however, is not provided for the purpose of strengthening the plate.

Figs. 1 to 3 of the drawings show, as examples, three greatly enlarged views of the simple wire gauze which, according to the invention, may be used for the dental plate.

Each warp strand *a* on the top surface of the gauze skips two weft strands *b* before connecting under such a strand (Fig. 1). In the same manner the weft strands *b* skip two warp strands *a* on the bottom surface and subsequently bind the third strand. This method of interlacing, as seen particularly in Figs. 2 and 3, causes the portion *c* of the strands *a* which skip the two weft strands on the top surface of the gauze to predominate and thus, together, form a comparatively smooth surface, whereas the bottom surface of the gauze is formed mainly by the portions *d* of the weft strands *b*. This gauze, therefore, is quite smooth on both sides. It may be made even smoother by skipping the individual strands over three, four or even more cross strands instead of two only before they interconnect with one or more of said cross strands.

A special advantage of the wire gauze described is to be found in the fact that in spite of the considerably smoother surfaces, thicker wires may be used than in simple, linen-weave gauze. The strength of this gauze is so great that a plate of this material is sufficiently strong to withstand the strain set up during mastication, even without being embedded in rubberized material or the like. Furthermore, a dental plate of such a material, instead of the usual plate metal, offers the advantage, due to its elasticity, of being much more readily prepared, that creases are not formed while the impressions are made and that it is possible to produce an exact replica of the ridges of the gum. In spite thereof, the dental plates made according to the invention are no thicker than if made of the usual plate metal.

In order to make the surfaces even smoother, the gauze may be rolled before being impressed.

The meshes in the gauze are advantageously stopped with a filling compound for reasons of hygiene, so as to prevent food from adhering to the plate. The filling compound, however, is not provided to relieve any of the stresses set up. On the other hand, the ridges of the gum, impressed on the gauze, are not covered by this compound, with the result that the tongue retains its natural position.

A further embodiment of a wire gauze which may be used for the dental plate according to the invention is shown, greatly enlarged, in Figs. 4–7.

Fig. 4 shows a front view of the gauze (the side adjacent the tongue).

Figs. 5 and 6 are side views thereof, and

Fig. 7 a view of the back.

The strands *a* are so closely spaced that they almost touch each other. Each strand *a* on the front of the gauze skips four weft strands *b* before connecting under one of said weft strands. The weft strands *b* are spaced farther apart than the warp strands and, as shown in Fig. 6, run in a straight line. This method produces greater smoothness on the side adjacent the tongue. The successive strands are woven in staggered formation. The weft strands, naturally, are woven in a manner reverse to the warp strands. As will be seen from Figs. 4 to 6 and from the comparatively wide spacing between the chain strands *a*, the front side of a finished plate will be the tongue side and is formed mainly of the strand portions *c* which skip four weft strands *b* and extend in a

straight line. Contrary thereto, the back of the gauze is quite rough, since the strand portion *c* which is almost plane and extends in a straight line is crossed at regular intervals by the portion *d* of the weft strand *b*. The back, therefore, to a certain extent resembles a kind of grid. The gauze may be rolled in a manner known per se in order to produce a smoother surface and, obviously, the weave may differ, in which case it should be remembered that the strands on the front of the gauze, that is to say the side of the plate which, subsequently, is turned to the tongue, skip more weft strands than on the back. Both weft and chain strands may, of course, be interlaced with each other.

In the production of such dental plates the gauze is first pressed into the required shape, the ridges of the gum being impressed at the same time so that they appear on the tongue side. In this manner the natural position of the tongue is retained. When the plate is impressed the individual weft and warp strands which extend in a straight line, are bent in the form of an arc, with the result that, together, they form a closed arch capable of withstanding considerable strain but, at the same time, having a certain amount of resilience. A thin layer of rubber is applied to the gum side of the plate after receiving the impressions to which, while it is still soft, the most minute pecularities in the gum may be transferred so as to cause the plate to adhere to the gum as firmly as possible. The grid-shaped back of the gauze assists in establishing a firm binding between the gauze and the rubber. The meshes in the gauze on the tongue side are, for the sake of hygiene, stopped with a filling compound and, due to the character of the gauze in itself, so smooth a surface is thus obtained that blisters or irritation on the tongue need not be feared.

What we claim is:—

1. A dental plate having a base of wire gauze wherein the warp stitches are at least two weft picks long on one side of the gauze and lie closely side by side, said base being shaped to conform to the irregularities of the palatal surface of the mouth with the long warp stitches on its lingual surface.

2. A dental plate consisting of woven wire, the warps and wefts thereof extending over at least two cross members before interlacing with the next member resulting in the formation of a structure with comparatively long straight stretches of the material which produce smooth surfaces when the structure is shaped to produce a plate conforming to the irregularities of the palatal surface of the mouth and positioned to form supporting arches capable of resisting strong compressive stresses.

3. A dental plate consisting of wire gauze wherein the warp threads as well as the weft threads extend over at least two cross threads before interlacing with the next threads with the result that the individual wires form comparatively long straight stitches producing thereby smooth surfaces which when the plate is being shaped to conform to the irregularities of the palatal surface of the mouth are bent to form supporting arches capable of resisting strong compressive stresses.

4. A dental plate as per claim 3 in which the interstices of the structure forming plate are provided with a filler for hygenic reasons and to facilitate cleaning of the plate.

5. A dental plate as per claim 3 in which the interstices of the structure forming plate are provided with a dental rubber mass for hygienical reasons and in which the gum contiguous portion of the plate is coated with a filler of dental rubber whereby exact conformation of the plate to the irregularities of the palatal surfaces of the mouth is effected.

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