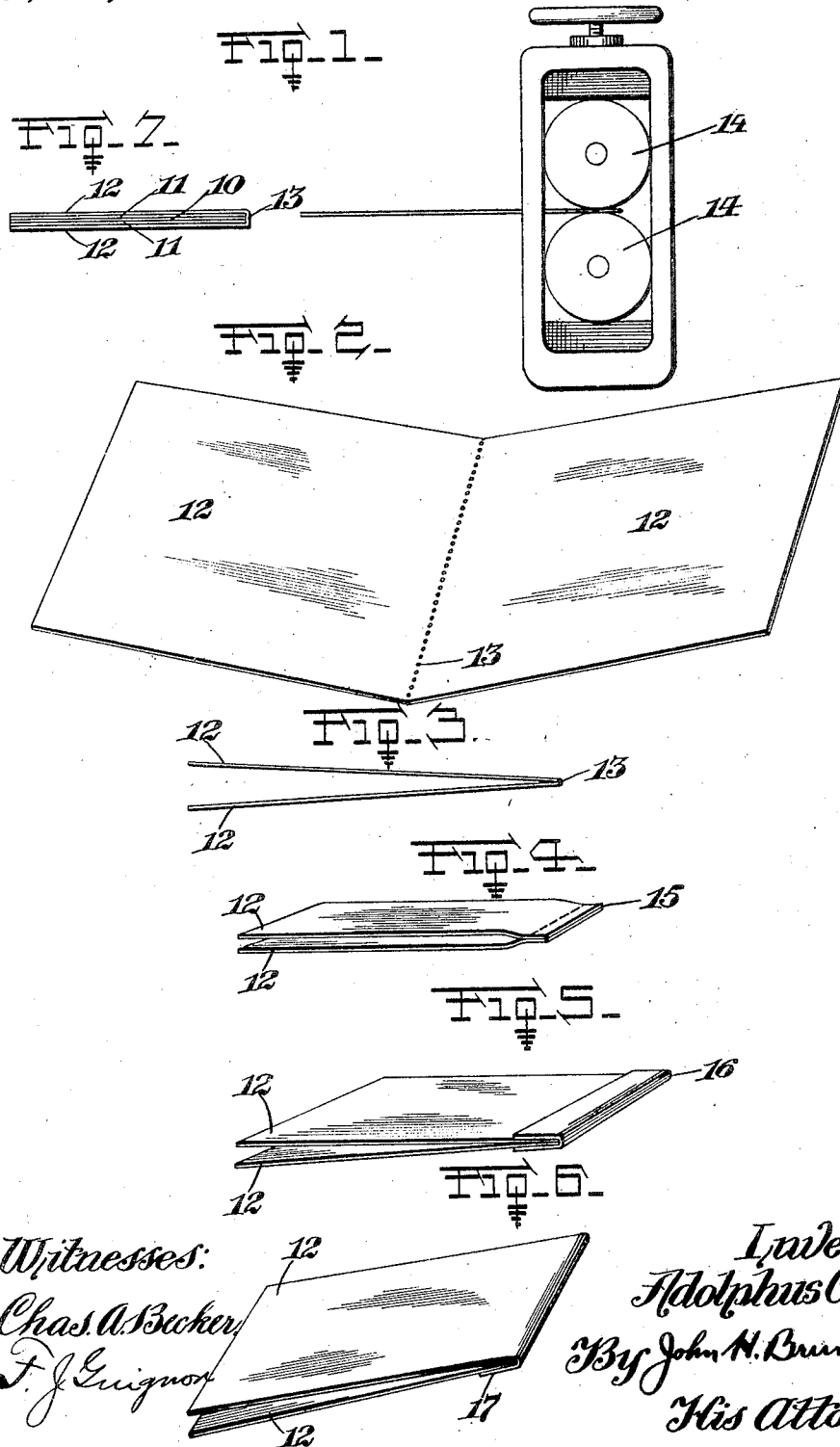


A. G. MEIER,
PROCESS OF MAKING COMPOSITE FOILS.
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1,057,571.

Patented Apr. 1, 1913.



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UNITED STATES PATENT OFFICE.

ADOLPHUS G. MEIER, OF ST. LOUIS, MISSOURI.

PROCESS OF MAKING COMPOSITE FOILS.

1,057,571.

Specification of Letters Patent.

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Application filed December 9, 1911. Serial No. 864,868.

To all whom it may concern:

Be it known that I, ADOLPHUS G. MEIER, a citizen of the United States, and residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Processes of Making Composite Foils, of which the following is a specification.

This invention relates to composite foils and more particularly to composite dental foils forming the subject matter of my Patent No. 1,008,845 and a patent to J. J. Kessler, No. 1,008,970 both granted Nov. 14, 1911.

The composite foil forming the subject matter of the above patents comprises a body metal and a plating of gold. In accordance with the Kessler patent the composite foil is formed by passing a foil of the body metal and foils of gold through rolls so as to unite them by pressure. The foils are assembled between papers and passed with the papers through rolls. This facilitates the handling of the foils and protects them during the rolling operation. In accordance with the Kessler process the papers are entirely separate, and difficulty has therefore been experienced in the practical working of the process, due to the fact that the papers shifted relatively during the rolling operation, causing not only imperfect union of the foils, but exposing the foils to the rolls and causing them to stick thereto. Such a shifting of the papers also caused considerable waste in trimming for the reason that one paper would project over the other rendering it necessary to trim off considerable material along one edge to produce a straight edge to trim from.

The objects of this invention are to improve the process of uniting foils into a composite foil so as to facilitate the handling of the foils and the paper, to prevent shifting and wrinkling during the rolling operation, and to prevent waste and prepare the foils for trimming.

The invention will be described in connection with the accompanying drawings in which:

Figure 1 is a diagrammatical view of a pair of rolls, Fig. 2 is a perspective view showing the means for supporting the foils during the rolling operation, Fig. 3 is an edge view of Fig. 2 showing the supporting means folded, Figs. 4, 5 and 6 are perspective views showing other forms of support-

ing means, and Fig. 7 is a partial section through the foils and the supporting means of Figs. 2 and 3 showing the foils in position in the supporting means and ready to be passed through the rolls.

Referring to Figs. 2 and 3, 12, 12 designate two sheets of paper or other suitable material joined or attached together at 13. In the actual construction, a single sheet forming the parts 12, 12 is perforated at about its middle as shown, and the sheet is folded on the perforated line. The result will be two sheets attached or joined along one edge 13, and since the edge is perforated the sheets will be joined or attached at separated points.

In the operation the foils of the body metal 10 and of the surface metal 11 are placed together between the sheets 12, 12 as shown in Fig. 7 with the edge of the foils abutting against the perforated edge 13. The assembled foils and sheets 12 are then passed through the rolls 14 with the edge 13 foremost. In view of the fact that the sheets are so attached, the sheets and foils can be handled more conveniently than if the sheets are separate. The sheets and foils will not wrinkle during the rolling operation in view of the fact that the sheets are attached along one edge thereby preventing shifting. It is advantageous to perforate the edge 13 so as to connect the sheets at separated points, as this will obviate wrinkling of the paper along the folded edge. If the sheets are merely folded without perforating the paper will be wrinkled along the folded edge, and this will in turn cause wrinkling of the thin foils along their edge, and thus prevent proper union. Not only will this procedure prevent shifting and wrinkling of the sheets and the foils, but it will facilitate trimming. The composite foil as passed from the rolls will be positioned with one edge abutting against the edge 13. This edge can therefore be used as a guide in trimming so that the trimming cut can be reduced to a minimum, thereby reducing waste. The foils with their retaining sheets as discharged from the rolls (and trimmed along the folded edge) can be stacked up against a cutter gage and cut into suitable pieces.

The procedure in rolling is different from that in the Kessler patent. In the Kessler patent the foils are first passed together with paper between rolls, then passed bare

through the rolls, and then passed with rough paper through the rolls to break up the fiber and soften the foil. In accordance with this invention the sheets 12 are of sufficiently coarse grain to soften the foil and sufficiently hard so that the entire rolling operation may be performed and completed with the foils between the sheets. The foils are therefore assembled between the sheets and rolled until they are united to form the finished product. The sheets are rouged with ocher to prevent sticking of the foils to the sheets. The sheets and foils as discharged from the rolls are then trimmed down together to finished size.

Figs. 4, 5 and 6 show other methods and means of attaching or joining the edges of the sheets 12. In Fig. 4 the edges 15 are attached by a narrow line of paste. This may be done in any suitable manner. Where the paper forming the sheets 12 is thin and is coated with ocher dampened with glycerin, the edges of the paper will stick together as they are passed through the rolls so that no additional paste will be required in this case. In Fig. 5 a narrow strip of paper 16 is folded over one of the edges of the sheets 12. This strip may be placed over the edges of the sheet 12 with or without the use of an adhesive, as a matter of fact, the rouge or ocher coating on the sheets will also act as an adhesive as explained above. The strip will enter the bite of the rolls first and will serve to hold the edges of the sheets 12 from shifting, due to the fact that the parts of strip 16 extending on opposite sides of the sheets are secured together along their roll entering edge. In Fig. 6 one of the sheets 12 is folded over and against the other sheet as shown at 17. Here also the lap 17 may be provided with an adhesive to attach it to the lower sheet 12, or the ocher coating may be relied upon to furnish the adhesive. The sheets 12 are thus secured together along one edge by the adhesion of the lap 17 with the lower sheet 12. In Figs. 5 and 6 the sheets 12 are attached along their edges either by a separate folded strip, or by a lap extending over a free edge of one of the sheets. The wrinkles forming along the folded edge of the strip or lap

will not therefore be next to the foils, but will be separated therefrom by the sheets themselves. At the same time the sheets are attached along one edge so as to retain the foils and sheets in assembled relation and prevent their shifting. It will thus be seen that the edges of the sheets 12 in all the different forms are so attached that wrinkling along the attached edge will be obviated.

It is obvious that various changes may be made in the details of the process within the scope of the appended claims without departing from the spirit of this invention; it is therefore to be understood that this invention is not to be limited to the specific details described and shown.

Having thus described the invention what is claimed is:

1. The improvement in the method of uniting foils into a composite foil which consists in rolling and uniting the assembled foils between sheets of material attached at one edge.

2. The improvement in the method of uniting foils into a composite foil which consists in assembling the foils between sheets of material attached along one edge and passing the assembled sheets and foils through rolls with the attached edge foremost so as to unite the foils into a composite foil.

3. The improvement in the method of uniting foils into a composite foil which consists in rolling and uniting the assembled foils between sheets of material attached along one edge at separated points.

4. The improvement in the method of uniting foils into a composite foil which consists in assembling the foils between a folded sheet of material perforated at the fold and passing the assembled sheet and foils through rolls with the folded edge foremost so as to unite the foils into a composite foil.

In testimony whereof I affix my signature in presence of two witnesses.

ADOLPHUS G. MEIER.

Witnesses:

J. V. KINSELLA,
G. A. SCHAEFERING.