

A. TEN WINKEL.
CONCENTRATING APPARATUS.

APPLICATION FILED APR. 14, 1902.

NO MODEL.

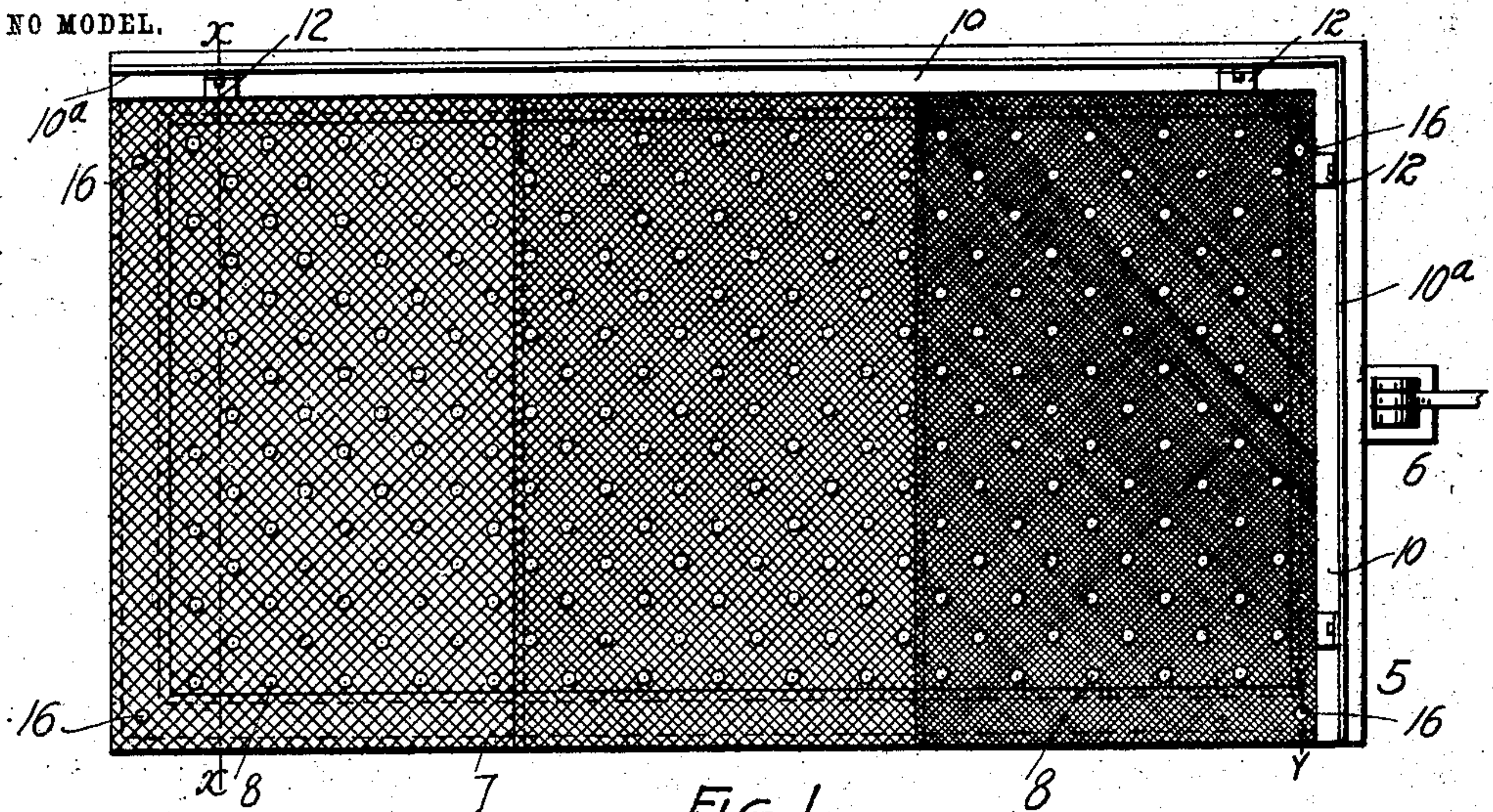


FIG. 1

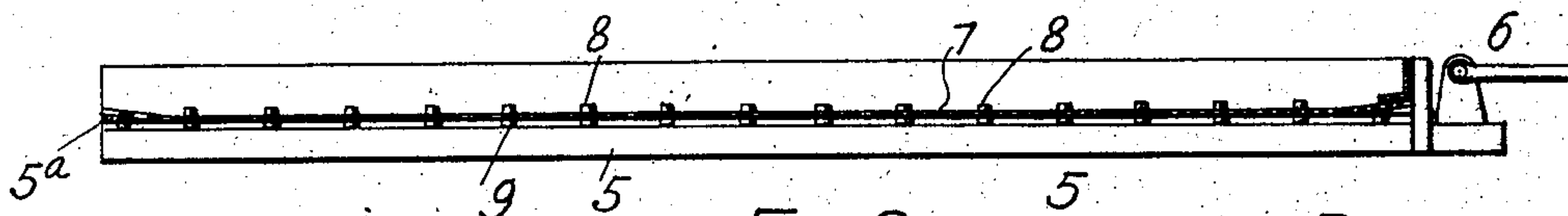


FIG. 2

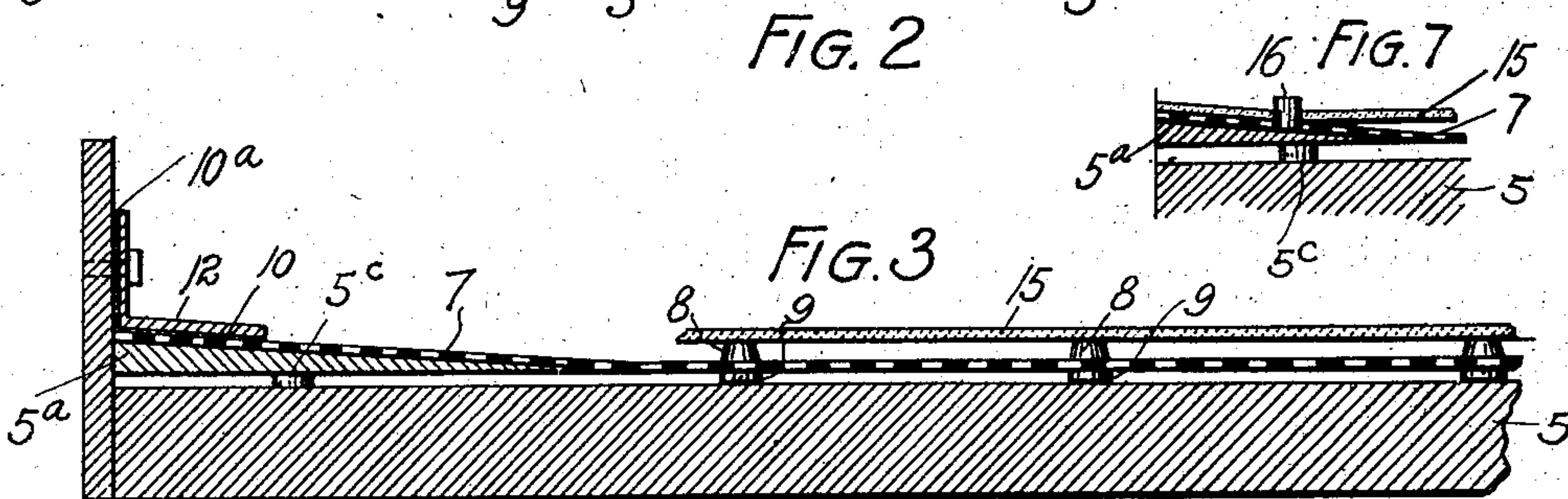


FIG. 3

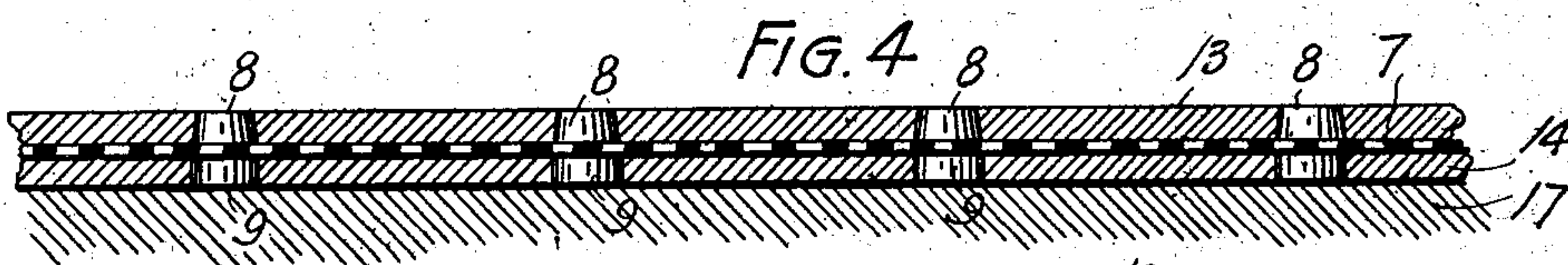


FIG. 4

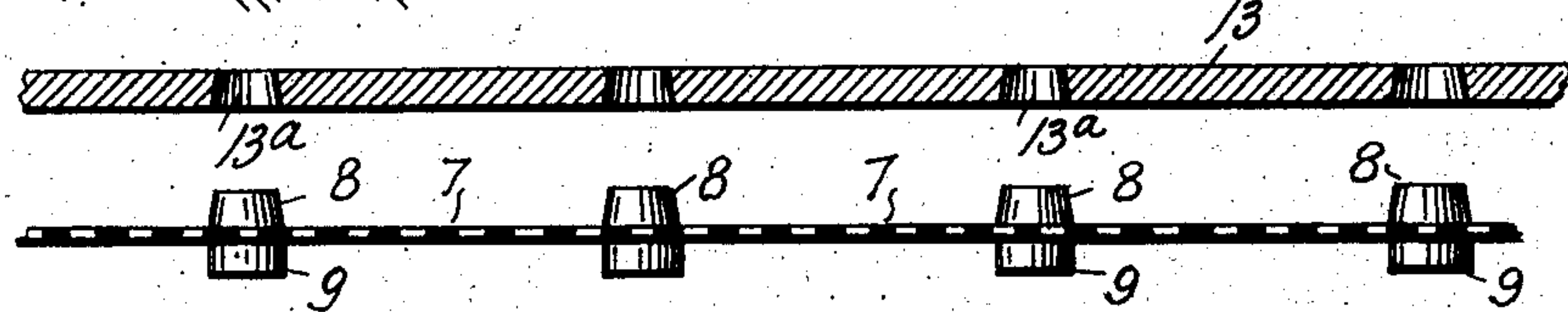


FIG. 5

FIG. 6

WITNESSES: 14a

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UNITED STATES PATENT OFFICE.

AUGUST TEN WINKEL, OF DENVER, COLORADO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO STANLEY H. BISSELL, OF DENVER, COLORADO, DWIGHT BISSELL, OF REDWOOD FALLS, MINNESOTA, AND FLORENCE M. COTTON, OF MINNEAPOLIS, MINNESOTA.

CONCENTRATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 728,331, dated May 19, 1903.

Application filed April 14, 1902. Serial No. 102,913. (No model.)

To all whom it may concern:

Be it known that I, AUGUST TEN WINKEL, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Concentrating Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in concentrating apparatus, and more particularly to a mesh fabric adapted for use with various types of concentrating-tables, my object being to separate the finer elements from the coarser products by allowing the fines to pass through the mesh of the fabric on the surface of the table and travel along on a plane below the gangue and coarser elements. In other words, it performs a sizing function after the material has been discharged upon the table.

My further object is to provide a fabric of the class stated which shall be simple in construction, economical in cost, durable, and thoroughly practicable in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a top or plan view of a table equipped with my improvement. Fig. 2 is a longitudinal section taken through the same. Fig. 3 is a fragmentary view, the parts being shown on a larger scale. This view is a section taken on the line *x x*, Fig. 1. Fig. 4 illustrates the manner of applying the top and bottom projections to the mesh fabric, the same being shown on a larger scale. Fig. 5 shows the complete fabric with the top and bottom forming plates removed

therefrom, one of said plates being above and the other below the apron. Fig. 6 is a detail view in perspective, showing one of the lower tips or projections of the fabric. Fig. 7 is a fragmentary section taken on the line *y y*, Fig. 1.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the table, which, as shown in the drawings, is intended to reciprocate longitudinally through the instrumentality of suitable mechanism. (Conventionally shown at 6 in Figs. 1 and 2.) It is assumed that the material to be treated is fed upon the table at or near the upper right-hand corner and that the table is laterally or transversely inclined, the gangue being discharged at its lower edge and the concentrates at the tail or left-hand extremity of the table. It must, however, be understood that my improvement is not limited to a table of this character. My improvement consists of a wire-cloth or other mesh fabric 7, having projections 8 and 9, consisting of lugs or pins extending above and below the same. When this fabric is placed on a table, the projections 9 rest on the surface thereof and the fabric is secured to the table in any suitable manner. As shown in the drawings, the mesh fabric is soldered to a frame 5^a, located at the outer edge of the table and extending around the same. The soldered portion of the screen is indicated by dotted lines in Fig. 1. This frame is supported by depending projections or short lugs 5^c of the same height as the projections 9 of the mesh fabric, whereby the frame is supported above the surface of the table. This frame is thickest at its outer edge and tapers downwardly as it extends inwardly. A strip of metal 10 is applied to the fabric 7 above the frame along the upper side and the head end of the table or the end farther to the right in Figs. 1 and 2 of the drawings. This metal strip has an upwardly-projecting flange 10^a. At intervals metal angle-clips 12 are applied to the strip 10 for holding the latter in place.

As shown in the drawings, (see Fig. 1,) the fabric 7 is made of varying mesh, the section at the head end of the table being finest, the next section coarser, and the section at the tail of the table the coarsest. These sections overlap each other and are soldered together, as indicated by dotted lines in Fig. 1.

In order to hold the mesh fabric down upon the surface of the table, a sheet of linoleum 15 may be applied thereto, being laid upon the projections 8, except at the feed corner and along the side of the table where the wash-water is delivered. This feature is shown in Fig. 3, but is omitted in Figs. 1 and 2. This sheet of linoleum is held in place by projections 16, made fast to the frame and passing through the mesh fabric and the linoleum.

When my improvement is in use on a table of the character above described, the material to be treated is fed thereon and subjected to the action of the wash-water delivered along the upper edge thereof in the usual manner. When the table is subjected to the longitudinal reciprocation, the finer mineral values pass through the mesh of the screen and travel along the surface of the table below the screen, while the coarser elements travel on top of the screen. The projections 8 and 9 facilitate the separation of the values from the gangue.

In manufacturing my fabric two plates 13 and 14 are employed. The lower plate 14 is placed upon a smooth support or foundation 17. This plate is provided with openings 14^a, in which the tips 9 are placed. The screen or mesh fabric is then placed on top of the plate 14 and in contact with the said parts 9, after which the upper plate 13, having openings 13^a, is placed upon the screen with the openings 13^a registering with the openings 14^a of the lower plate. Molten solder is then poured into the openings 13^a and allowed to cool. This solder fastens or secures the parts 9 to the mesh fabric and forms the projections 8 above. The openings 13^a are made tapering to facilitate the removal of the plate 13 after the solder has cooled. The plate 13 is preferably made of aluminium to prevent the solder from adhering thereto.

Having thus described my invention, what I claim is—

1. The combination with a concentrating-table, of a mesh fabric applied thereto and having projections consisting of lugs or pins forming a support for the mesh above the surface of the table.

2. The combination with a concentrating-table, of a mesh fabric provided with projections extending above and below the same but made fast thereto, the lower projections resting on the surface of the table and forming a support for the fabric, leaving a space below for the fine material passing through the fabric.

3. The combination with a concentrating-table, of a mesh fabric secured thereto, and projections consisting of lugs or pins resting on the upper surface of the table, made fast to the fabric and supporting the same on the table.

4. The combination with a concentrating-table, of a mesh fabric having projections made fast thereto and projecting from its opposite surfaces, and suitable means for securing the fabric to the table, substantially as described.

5. The combination with a concentrating-table, of a frame surrounding the outer edge of the table and supported a short distance above the surface of the latter, and a mesh fabric secured to the frame and provided with depending projections consisting of lugs or pins supporting the fabric above the surface of the table.

6. The combination with a concentrating-table, of a mesh fabric made fast thereto and provided with projections extending from its opposite surfaces, suitable means for securing the fabric to the table, and a sheet of suitable material as linoleum applied to the upper surface of the fabric for the purpose of holding the same down upon the table, substantially as described.

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

AUGUST TEN WINKEL.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.