(No Model.)

C. L. ANDERSON.

TOPOGRAPHICAL REPRESENTATION OR MODEL.

No. 298,812. Patented May 20, 1884.

Fig. 1.

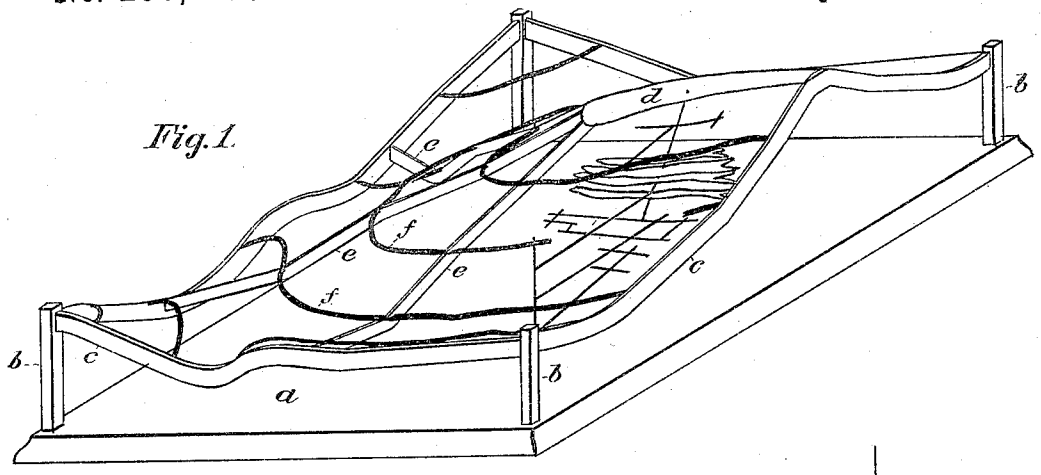
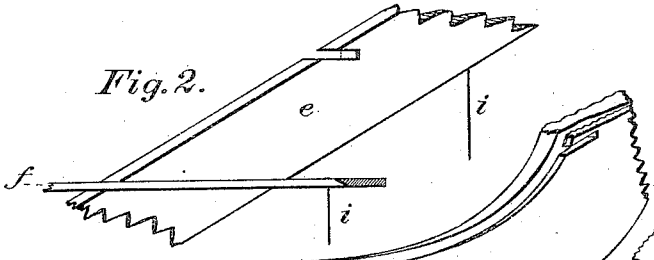


Fig. 2.



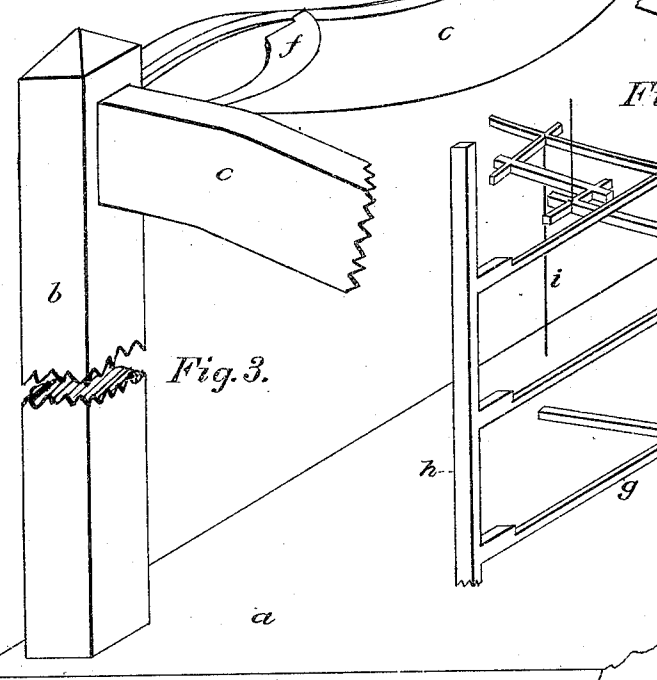
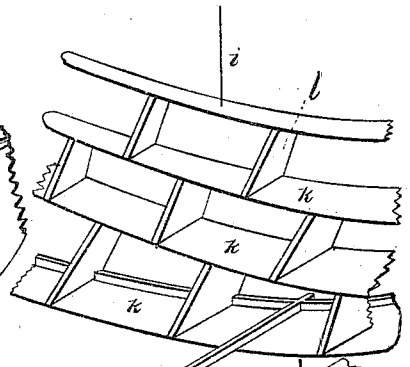
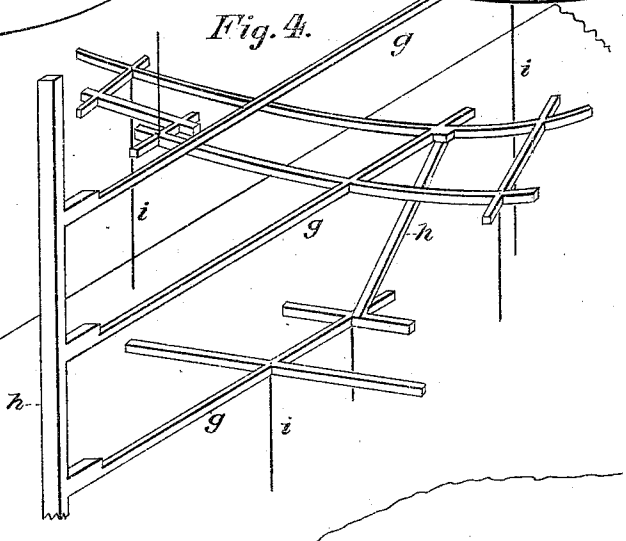
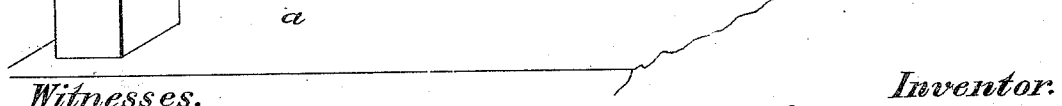


Fig. 3.

Fig. 4.







Witnesses.

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TOPOGRAPHICAL REPRESENTATION OR MODEL.

SPECIFICATION forming part of Letters Patent No. 298,812, dated May 20, 1884.

Application filed February 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE L. ANDERSON, of the city and county of San Francisco and State of California, have invented an Improvement in a Topographical Representation or Model; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a novel topographical representation or model, showing surface and subterraneous features of a work and its surroundings.

The special adaptation of my invention is to a mine, of which I am thus enabled to represent clearly the shafts, drifts, or tunnels, stopes, and any other excavations, and also the surface of the country immediately surrounding it.

The object of my invention is to furnish a suitable representation or model of the work, for the purposes of inspection, and that it may be readily explained to those interested and comprehended by them, whether in the ordinary course of business or in litigation for the subservience of justice.

As the most frequent use of my invention pertains to mines, I shall describe it in connection with such work, and by referring to the accompanying drawings it will be seen that Figure 1 is a perspective view of my representation or model. Fig. 2 is a detail showing a rib, *e*, which supports the surface contour-strips, one of which is shown by *f*. Fig. 3 is a detail perspective showing a corner-post, *b*, supporting the side pieces, *c*, between which extends a contour-strip, *f*. Fig. 4 is a perspective view showing the shafts, drifts or tunnels, and stopes of the interior workings of the mine.

The surface-contours and interior workings of all kinds are usually shown by maps, which give horizontal distances only; but by means of my invention the vertical as well as the horizontal distances are given, which at a glance will give the court, jury, or the mine-superintendent a correct idea of the relative positions of the surface of the ground, the shafts, stopes, and other excavations of the mine.

In Fig. 1, *a* is a horizontal datum or base plane, made of wood or other light material, from the several corners of which small posts *b* of the desired length are placed to support side pieces, *c*, the upper edges of which represent the surface of the ground, or a reduced cross-section of the ground, on that vertical plane. These side pieces support the top *d* of the model, which consists of a strip carved to a reduced fac-simile of that portion of the surface of ground which it represents, its edges being a reduced line of contour of the ground at that elevation. To this top piece, *d*, several ribs, *e*, are fastened, which extend to the side pieces, *c*, to which they are secured by screws, dowels, or otherwise. These ribs are also curved to represent the slope of the ground, radiating from the top, and are necessary to support the strips *f*, which represent more minutely the contour of the surface, their outer edges being curved to reduced lines of contour of the surface of the ground at the elevations they are placed to represent.

The contour-strips *f* are held in place by the ribs *e*, and the side pieces, *c*, as will be seen in Figs. 2 and 3. The tunnels or drifts and shafts are represented by means of pieces of wood carved to a reduced fac-simile of the excavations they represent. These strips or pieces of wood are preferably formed by gluing several thicknesses of veneer together, with the grain of one piece of veneer crossing at or near right angles the grain of the piece next to it, whereby the pieces are strengthened and stiffened without sacrificing lightness.

In Fig. 4 the tunnels or drifts *g*, and the shafts *h*, which may be either vertical or inclined, are shown. The pieces representing tunnels or drifts are attached to the strips representing shafts at distances from each other corresponding to the difference in the levels of the tunnels or excavations they represent, and they are held in their proper position in the model by pieces of wire *i*, secured to them and to contour-strips, ribs, or datum plane.

The stopes *k* are represented by thin pieces of veneer, metal, or other material placed in a horizontal position, their edges being curved to a reduced fac-simile of a contour line of the excavation they represent. These horizontal pieces *k* are fastened together by being screwed, nailed, or glued to thin pieces of wood *l*, the edges of which represent a reduced vertical cross-section of a portion of the excavation or

stope. When fastened together, they are held in their proper places in the model by wires *i*, extending from them to ribs, contour-strips, or the datum-plane, as may be required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a representation or model, an open frame composed of separated parts or strips secured together, and each curved to a reduced fac-simile of the contour of the surface of the ground at the elevation it represents, whereby the topography of the surface is illustrated, said frame being elevated above a datum or base plane, and suitable strips or pieces under said frame, between it and the datum plane, arranged in relation to each other and to the contour of the surface-frame to properly represent the interior features of a subterraneous work, substantially as described.

2. In a representation or model, the side pieces, *c*, curved to represent a reduced cross-section of the ground on a vertical plane and the pieces *f*, secured thereto, and curved to reduced lines of contour of the surface of the ground, whereby the topography of the ground is illustrated, substantially as herein described.

3. In a representation or model, the side pieces, *c*, curved to represent a reduced cross-section of the ground on a vertical plane, the top *d*, carved to a reduced fac-simile of that portion of the ground which it represents, the rib-pieces *e*, extending from the top *d* to the side pieces, *c*, and curved to the slope of the ground, and the pieces *f*, supported on said ribs between the side pieces, and curved to reduced lines of contour of the surface of the ground, whereby the topography of the ground is illustrated, substantially as herein described.

4. In a representation or model, an open frame-work representing the topography or surface of the ground, and elevated above a datum or base plane, in combination with the strips *h*, secured between and to said frame-work and datum-plane by wires *i*, and representing the shafts of a mine or other subterraneous work, substantially as described.

5. In a representation or model, an open frame-work representing the topography or surface of the ground, and elevated above a datum or base plane, in combination with the strips *g*, secured between and to said frame-work and datum-plane by wires *i*, and representing the tunnels or drifts of a mine or other subterraneous work, substantially as described.

6. In a representation or model, an open frame-work representing the topography or surface of the ground, and elevated above a datum or base plane, in combination with the horizontal pieces *k*, spaced by strips *l*, and secured between and to said frame-work and datum-plane by wires *i*, said pieces representing the stopes of a mine or other subterraneous work, substantially as herein described.

7. In a representation or model, an open frame-work representing the topography or surface of the ground, and elevated above a a datum or base plane, in combination with the vertical and inclined strips *h*, the strips *g*, and horizontal spaced pieces *k*, secured between and to said frame-work and datum-plane by wires *i*, and to each other, and representing the shafts, drifts, or tunnels, stopes, and other interior excavations of a mine or other subterraneous work, substantially as herein described.

8. In a representation or model, the side pieces, *c*, elevated above a datum or base plane, as shown, the top *d*, ribs *e*, and contour-strips *f*, as described, for showing the topography or surface of the ground, in combination with the strips *h g*, and pieces *k*, secured between and to the frame formed by pieces *c*, *d*, and *e*, and the datum-plane, and to each other, for showing the shafts, drifts, or tunnels, stopes, and other interior excavations of a mine or other subterraneous work, substantially as herein described.

In witness whereof I have hereunto set my hand.

CLARENCE L. ANDERSON.

Witnesses:
C. D. COLE,
J. H. BLOOD.