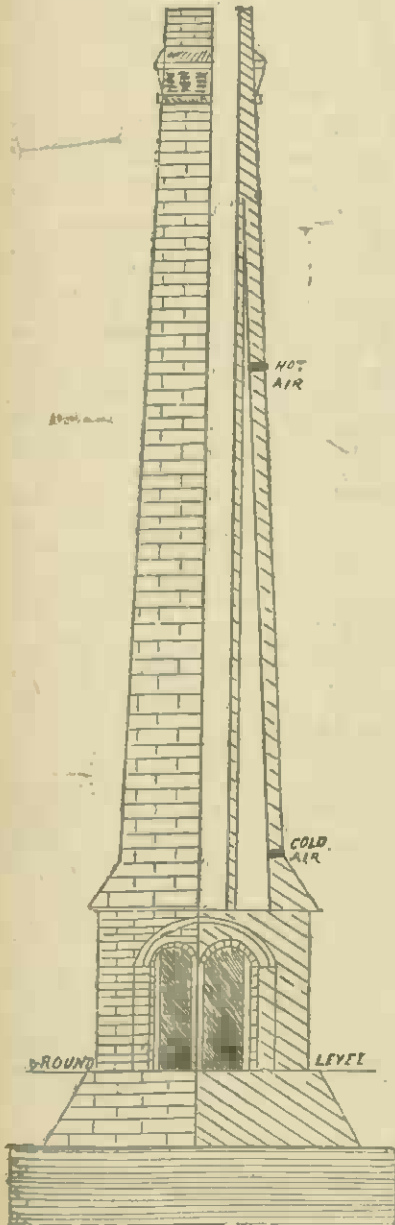


daily task on the great brick tower, which will cost not less than \$70,000 and will take half a million brick in its construction. Heretofore most of the big stacks here have been of solid walls. There is one of this style in the southwestern part of town. It is near 80 feet high, and while it may not be said to be unsafe, its cracked condition is warning that it will not endure for many years. So it is with the other "solid wall" chimneys; hence the reason for making the new stack walls hollow. They are built after a design to secure strength and at the same time to provide for the expansion and contraction of the air, as it becomes heated or cooled.

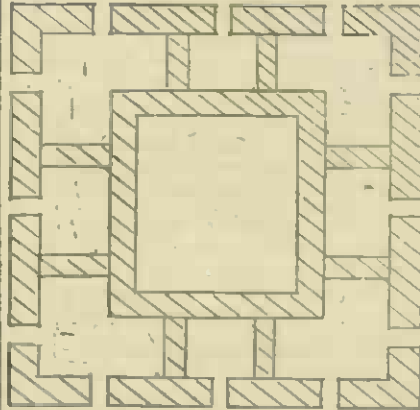


The new Germania's stack will be ample for all the furnaces now constructed there, and for more that are to be added in the near future. It will be connected with the 250 foot flue which has just been completed at the works.

At its base, ten feet below the surface of the ground, the stack is 34 feet square. The foundation is 10 feet thick. As a base there has been laid

three thicknesses of three-inch plank, covering the entire surface of 1,156 feet. On this is laid the brickwork, which is cemented so that it is practically a solid mass of 11,560 cubic feet. For the next 18 feet the edifice is 22 feet square, giving the opening for connecting the flue. The walls in this part are on the same plan—hollow—as those in the main stack.

Twenty-six feet from the base begins the stack proper, the outside being 20 feet square. The opening in the center is 610 feet square the entire length of the chimney. For 149 feet the proper rises, the "bitter" being five-sixteenths of an inch to the foot. This gradual reduction makes the outside of the chimney 12 feet square at its top, and so the inner space is 10 feet square and the walls have become solid, the top is a solid one-foot wall.



PLAN OF THE WALLS.

The plan of the walls shown in the accompanying illustration is as the chimney is constructed at the 20 foot square starting point. Between that and the solid 10-foot foundation below, the same general plan is followed, with modifications necessary for the connecting avenues. The exterior and interior walls and cross-sections uniting them are shown, giving the spaces between. The openings through the exterior walls—twelve in all, two into each corner space and one into each side space—are to admit cold air, and there are similar openings up on the chimney as indicated in the other illustrations, where the hot air escapes. These openings and the hollow walls are the new feature of construction in chimneys here. The heated or chilled air in the stack has caused the expansion or contraction which has shaken and cracked the piles of masonry. It is believed that the present plan will do away entirely with this trouble, and that the hot air escapes above and the cooling draughts from below will so equalize the temperature as to materially aid in preserving the chimney from injury, and that the expansion will be regulated thereby within safe limits.

The illustration of the chimney shows one-half as it is enclosed, and throws open the other half for inspection of the interior. There the idea of the hollow walls is made clear. The apertures between the outside and inside walls continue 140 feet from the foundation; then for the last twenty-five feet the walls are solid, as shown in the cut.

When this stack is completed, as it is expected to be near the latter part of

July, the Germania works will be better fitted in this respect than any similar works in the West. The work of construction is being carried on with the greatest care, special attention being paid so that no faults or flaws shall enter therein, when the hard brick and cement have become firmly united the whole pile will be almost as hard as iron, and be even better than that metal for withstanding the ravages of time and the elements.

VARIAN GIVES AN OPINION.

In answer to questions from the State board of equalization, Acting-Attorney General Varian has rendered the following lengthy and important opinion:

SALT LAKE CITY, June 19, 1896.
To the State Board of Equalization,
Salt Lake City:

Gentlemen—I am in receipt of your communication of the 18th instant, requesting an opinion upon certain questions therein propounded as follows:

First—What action may be legally taken by the board to compel the county commissioners in any county to provide maps for the use of the assessor, under the provisions of section 50 of the "Revenue act?"

Answer—The law directs the board of county commissioners to provide these maps, and it is further provided that all of these maps shall be plated and "made" by the county surveyors. (Section 123, county government bill.)

It is the plain duty of the county commissioners to order these maps, but in the event of failure or refusal to do so, the business of the assessor must not stop. He may order and procure them himself. In the event of his failure to do so, in the opinion of this office, the board of equalization may procure them. In either case the county surveyor should be called upon to make the maps. If he fails or refuses, the same may be procured to be made by other competent persons, and the county in default must pay one-half thereof. In an aggravated case if necessary, penalties may be enforced against the commissioners and surveyor, for wilful failure to perform their duties. The commissioners are liable on their official bonds to forfeit to the use of the county \$500 in addition to the penalties prescribed by the penal code. (Section 45, county government act.)

Attention is directed to the power of the board to prescribe a rule requiring the assessor, when the commissioners refuse to furnish maps, to apply to the surveyor, and in the event of his refusal, to procure the maps to be made, etc. (Par. 2, section 82, revenue act.)

Second—"In listing property upon which there is a mortgage, is it proper to deduct the amount of the mortgage from the value of the property?"

Answer—No.

Third—"Will it be necessary this year, to place the figure 1 opposite the name of each taxpayer liable to pay a poll tax?"

Answer—The law requires this to be done, and the assessment book which contains this designation must be completed on or before the first Monday in June. In fact, as I am informed, much of the work of the assessors was done before the law took effect. (April 5, 1896.)