

answerable to the architect for the performance of the whole work in all its branches.

The law as it now stands leaves it in the power of a contractor frequently to cause great delay in the execution of the work, when he thinks an architect unnecessarily strict, by protesting, through a notary, against his orders. In all cases of dispute, the question at issue should be left to professional arbitrators, or experts, whose decisions, on such matters, should be final.

In concluding these remarks on the architectural profession, we desire to say that in no respect whatever are they intended to apply individually to any person or to any class: they have been given with the hope that they may lead the profession, in all its branches, to reflect, and consider in what way they can combine together, and obtain a law properly defining their duties and privileges, and doing away with any distinction, in the eyes of the law, between themselves and their brethren in the other Provinces; and, also, in the hopes that such a combination would stimulate its younger members to endeavour to raise their standard of excellence equal to that of the mother country.

### SANITARY ARCHITECTURE AND ITS APPLIANCES.

MR. F. N. BOXER,

Editor of the CANADIAN MECHANICS' MAGAZINE.

SIR,—I have read with much interest the portion of your article upon "*Sanitary Architecture and its appliances*," contained in the April issue of the CANADIAN MECHANICS' MAGAZINE, and in this connection, if you will permit me, I desire to lay before you and your readers some considerations derived from my own experience in this department.

I am particularly moved to this communication because I have never yet found in point a statement of the true conditions at once so complete and so concise as is contained in your answer to "objections" to Professor Godfrey's plan. You will therefore not fail to understand and appreciate what I have to say. It very seldom happens that the same mind conceives and elaborates any plan of extensive application, and no investigator in the department of Sanitary Engineering can fail to be struck with evidences of pure theory without any basis in common sense. The plan suggested by Professor Godfrey appears to be admirable in the building where he has placed it, and will be equally effective wherever the same favorable conditions exist. Those favorable conditions consist of a constant and strong upward draft through the stand pipe. Its weak point is in the unreliability of such conditions. It is not in every building such a draft can be secured, nor do I know of any way in which it can with any certainty be predicted.

There is one prime fact which must not be overlooked for a moment in considering this subject, viz., that every inch of interior surface of a waste pipe soon becomes foul and stinking. Therefore in Professor Godfrey's plan the draft must be strong, in order to draw in through the closets and wash bowls a current of air sufficiently strong to carry down with it all the odor arising from the foul interior of the connecting waste pipe. If this current is not strong it will not so carry away these odors, but they will find their way upward into the apartment. In this connection it is pertinent to inquire what is the source of this strong upward draft in Professor Godfrey's stand pipe. Is it due to causes in the house, or in the sewer? If it is due to causes in the house, then it is evident that Mr. Springle's running trap will be an advantage, because it will restrict the sources of supply to the apartment and will also restrict the quantities of odor to be removed to that supplied by the drain pipe itself, and it certainly is not desirable to a householder to make his house a duct for sewer ventilation, that should be accomplished by independent means.

If the source of this current is in the sewer, then it is evident there would be an escape of it through the laterals leading to each closet, bowl, &c. It would be highly desirable to prevent

that, and the fact that Professor Godfrey's house is not filled with sewer gas shows that the cause is not in the sewer and that the running trap ought be employed.

The defect of Alderman McLaren's plan is analogous to the defect of Professor Godfrey's plan, viz., it does not provide against the escape into the apartment of stenches from the interior of the closet itself. And in this respect Mr. Springle's plan is no improvement. Excrement remains in the trap until dissolved, and principally on the closet side. From this effluvia will certainly arise, and have but one way to escape, to wit, into the apartment. The only method of preventing the escape of foul odors with Professor Godfrey's plan and a feeble draft, or from the closet traps of Mr. McLaren's plan, is by ventilation applied to the closet above the highest point to which the foul surface can extend, and even that alone will not be effectual except when coupled with a structure which will ensure the passage of sewer gas and odors into the ventilator. That method of applying ventilation is my invention. It has proved upon trial to be the perfection of sanitation in protecting inhabited apartments from sewer gas and foul odors from closets and waste pipes of all descriptions. It has gone extensively into use in this city during the past year, and is approved by the official architects of the United States Capitol and of the Treasury Department. It is also in successful use in many other places throughout the United States, from Maine to Georgia, and Iowa.

You will find my system fully described in the accompanying pamphlet, and it only remains for me to add that the ventilation pipe for the closets, &c., should not be the soil pipe which receives the rain water.

Respectfully,

R. J. O. SMITH.

Washington, D. C., 3rd May, 1876.

We have much pleasure in bringing before the public our correspondent's remarks on this important subject. We have said before that Dr. Godfrey's plan was excellent, but like all other plans, subject to modifications according to circumstances. We repeat our former assertions, however, that the main cause of trouble in drains and water closets lies in imperfect workmanship and the want of efficient officers to superintend sanitary matters.

### VIEW OF THE GREAT FLOOD ON THE OTTAWA RIVER.

The sketch furnished on page 196 shows the great height of the water under the Suspension Bridge. The falls, which are within a couple of hundred feet of the bridge, were almost obliterated by the boiling surge of waves, heaving and twisting through the narrow gorge of limestone rock, with a gigantic power that threatened at one time to carry bridge, piers, and even the solid rock away in its impetuous course.

### KELSEY & MULTER'S IMPROVED METHOD OF MANUFACTURING GRAIN CRADLE-FINGERS.

(See page 209.)

On page 209 we afford an illustration of this method of making grain cradle-fingers by which as much work can be accomplished as twenty-five to thirty men could do by hand in the usual way. The operation of cutting out the grain cradle-fingers is performed by means of a serrate-edged or denticulated knife, Fig. 1, set in a rotatory cylinder cutter-head, and which is passed over, or under, a tapering piece of timber, Fig. 2, grooving it out, on one side first, so as to form a set, more or less in number, of grain cradle-fingers, at the same time giving them an elliptical, or other sectional form, as shewn in Fig. 5. Then, after being bent, as in Fig. 5, the reverse side is passed over the knife, thus completing a whole set of cradle-fingers, but leaving them attached at their ends.

The advantage of cutting a lot of cradle-fingers out of one quality of wood, and of bending them in an uniform manner, to any curve, and still keeping them attached at their ends until they have become thoroughly set by seasoning, will be obvious to all manufacturers of agricultural implements. The knife is formed in one solid piece, or may be made in sections, and blocked together into one blade.

Patented in Canada through the Editor of the CANADIAN MECHANICS' MAGAZINE. For further particulars address J. L. Multer, Richmondville, Schoharie Co., New York.