



IS IT ADVISABLE TO RESORT TO THE USE OF WROUGHT IRON PIPE AND FITTINGS? *

IN view of the fact that the sanitary regulations of municipal bodies are requiring the cast iron soil, waste and ventilation pipes to be air tight, is it advisable to resort to the use of wrought iron pipe and fittings?

What is the necessity for substituting wrought iron for cast iron pipe for soil, waste and ventilating purposes in order to make same air and water tight? There is no doubt but wrought iron pipe can be put together perfectly tight, so also can cast iron pipe. It is being done successfully every day. Joints made with lead and oakum will not be tight, however, unless pains are taken in packing the oakum sufficiently to calk the lead against, without driving more or less of it into the pipe, thereby having nothing against which to pack the lead, and the use of lead free from solder, nor will a screwed joint be tight unless the threads are perfect and tightly screwed together. This joint, however, has the advantage over lead in the fact that it will soon rust tight, and the longer it stands the tighter it becomes. A lead joint in cast iron pipe is liable to become loosened from the following causes: unequal expansion and contraction, settlement of walls, floors and beams, from which pipes are often hung and dependent for support. To what extent such settlement affects cast iron soil and waste pipe well constructed to begin with, I cannot say, but offer it as my opinion that to all intents and purposes it is unaffected by such settlements as usually occur in a building before the same is condemned and abandoned, when the cast or any other soil pipe would naturally share the same fate, so the real condition being of no importance so far as further use is concerned.

Wrought iron pipe is very elastic and will yield to strain without injury more readily than cast iron pipe: but this is of no special importance in this particular case, as we do not construct soil-pipe to support buildings nor keep floors from settling, nor would it do it if we did, therefore cast iron pipe is as good as wrought, so far as trouble from settlement is concerned, according to my judgment.

The weakest part of using wrought iron pipe with threaded joints for house drainage purposes, is the impossibility or impracticability, of protecting that part of the screw-head that will not go into the fitting, leaving $\frac{1}{2}$ -inch or more of unprotected pipe threads cut nearly in two by the action of the dies in cutting the threads, the threads being $\frac{1}{4}$ -inch deep, the pipe not more than $\frac{1}{16}$ thick. You can readily see its weakness here. Cast iron pipe is also weak here, although in a different manner. When you cut a pipe you have no spigot left except on the end you do not wish to use, for the want of which it becomes very difficult to make a tight and satisfactory joint. The liability of showing oakum through the space between the ends of the pipe and the shoulder of fitting into the pipe, and the pipe pulling apart, is a serious objection to a joint without a sprigot end, which should and could be remedied.

It is well known to practical plumbers that it is not a difficult matter to make tight joints with lead and oakum; but it is equally well known to the writer of this paper that a large proportion of our best workmen do not give this department of the plumber's trade the attention its importance demands, but are so anxious to polish up and overcast joints that catch the eye, that the matter of perfectly tight soil and waste pipe is not considered at all. This, however, is not the fault of cast pipe, lead or oakum, but is another illustration of how a plumber will put in three times the amount of time necessary to make good work, either doing nothing, or making the helper give the joints a few ineffectual taps with a calking chisel, or half doing the work himself, thereby bringing this excellent joint and pipe for drainage work into disrepute, and justly so if they do not make this

joint all it is capable of receiving at their hands, for it is a fact that I never yet have seen a soil-pipe put up without reference to a water test, that did not leak in a majority of joints when the same become stopped, thereby putting a pressure of water on the stack. There are no places or conditions under which a perfectly tight and satisfactory job cannot be constructed with cast iron pipe and lead joints, if the plumber doing the work will only spend one-half the time doing it that he does fooling around, scrubbing up parts of the work that are not only unnecessary and uncalled for, not wanted or paid for by anybody else than the man least able to afford such extravagance, the master plumber; for it is a fact that nine-tenths of the people employing plumbers, either by day or contract, do not intend to pay for fancy work at fancy prices. They understand the importance, in a financial sense, of having two-thirds of the plumbers in their city or town estimate, and thereby getting the closest possible figures and giving the work to their favorite, providing he will cut the figures still a little lower to insure a good job and their lasting friendship.

But we were speaking about conditions for doing good work. I must say that wrought iron pipe is much more difficult to handle than cast when large sizes are required, unless buildings are especially constructed for its size. It is quite a difficult matter to revolve large size fittings between joists set as they usually are, 16, 14 and 12 inches apart from centre to centre. Again, when soil pipes come in brick walls in chases left by the bricklayers 4 by 8, at the commencement of same, and, as frequently happens, 4 by 3 at finish, or worse, covered after second story is reached and entirely abandoned. In addition to this, the trimmers around chimney breast on opposite sides of walls even, often make it necessary to do so much cutting away of mason work in order to turn the fittings into proper position, that does not appear at all necessary when the work is finished; and as plumbers, as a rule, were never known to even make an attempt at replacing anybody else's work after serving their own convenience, it will become then a very expensive item in the use of wrought-iron pipe, that does not come with the use of cast-iron pipe, to say nothing of the annoyance of explaining the necessity of doing so much cutting to the ever officious boss carpenter or architect, who always make a "royal kick" whenever cutting is to be done.

The next point I wish to consider for a few moments is the difference of support given the water-closets in one system in comparison to that given in the other. To give this a fair explanation I will take you down into the cellar and ask you to accompany me in your mind's eye from the one-quarter bend or soil-pipe ell, according to the kind of pipe you may be using, and get a few common sense facts. It has been claimed by some one, that with wrought-iron pipe a system can be constructed entirely independent of the floors or walls of a building, so that in the event of floors or walls settling the pipe would remain intact. The one-quarter bend or soil-pipe ell, either one, must necessarily have a footing. Usually it is secured on the footings of the wall itself. Now, if one settles the other must follow. But suppose it has a separate foundation, it will be so near that of the foundation itself that if the wall should settle the other must be affected by its settlement. The water-closet being bolted to this by means of flanges free and clear of the floor, would not be affected by such settlement. Let us see how this looks to a practical man, forgetting for a moment the theoretical part of the plumber's trade, of which there is so much and still more to follow.

The closet set on a flange that cannot settle with the building must necessarily rise above the floor when it takes a drop of a few inches over night, if such a thing were possible. The closet tank is always fastened in some manner to the walls of the building; at least I have never yet seen any that were fastened to the soil-pipe, either cast or wrought. The closet bowls and connections being brass and earthenware, do not make a support capable of resisting very much strain, and being connected to the tank with a stiff lead pipe, made more stiff by numerous tags, the plumbers delight (I say delight because they love to throw away valuable time so well that they often put on a lot of

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