

## MUNICIPAL DEPARTMENT

### CAST-IRON PIPES.

The following suggestions for specifications of cast-iron pipes were read before the American Waterworks Association by Mr. F. D. Wanner:

1. The metal used should be a No. 2 X or No. 2 plain foundry iron remelted in a cupola or air furnace, and of such quality and mixture as will produce a strong and even grained pipe or casting that will drill and cut readily, and possess a tensile strength of at least 16,000 lbs. per square inch.

2. Pipe should be cast vertically in dry sand moulds truly cylindrical in shape, uniform in thickness of metal, in sections of 12 feet exclusive of bell, with bell end down. The seat or shoulder of the bell and the spigot end should be even. It is conceded in the art of pipe-making at this time that they should be cast vertically for obvious reasons, such as greater solidity, regularity of metal, and less chance of air bubbles and of dross remaining in the pipe. They should also be cast with bell ends down, as this will produce a more perfect head, more shapely in form and of greater regularity in depth of socket and metal. Definite action in the specifications on this point would be of advantage to pipe-makers, and save them the expense of maintaining a double complement of fixtures. Some engineers are determined, others indifferent, as to this practice. While perhaps a majority of the specifications call for bell ends down, many of them are not enforced, and in the majority of such instances the pipes are cast bell ends up, as a matter of economy and convenience to the pipe-makers.

3. The depth of socket or bell, with a suitable V shaped lead ring, should be from 3.5 to 5 inches, according to the diameter or size of pipe; joint room or lead space from five-sixteenths to one-half inch, with number, year and initials of the manufacturer cast in raised letters and figures upon each pipe or special.

4. The thickness of metal, weight of pipe, with a fair allowance for variation, say from 3 to 5 per cent., should be regulated by the head or pressure to which the pipe is to be subjected, and correspond to the drawings and instructions of the engineer, who should always endeavor to remain on the side of safety, and not forget that it is but small economy, especially during these low prices of pig iron, to recommend light-weight pipe even for the lightest pressure.

5. The pipe and castings, after coming out of the foundry, should be thoroughly cleaned inside and outside, chipped nicely, and then carefully inspected with a light pick-hammer for that purpose. After this inspection, the pipe and specials for water should be properly heated, and while hot dipped into a suitable preparation of coal

tar mixed with a sufficient quantity of dead oil to give it the requisite body and gloss; the coating, after it is applied, should become hard and tenacious, and show no blisters or flakes. The coating on pipe and specials, while an important feature in the trade, is of easy attainment with the proper materials and management.

6. Pipe should be tested by a machine built for that purpose under hydraulic pressure of from 100 to 300 lbs. to the square inch, according to the use intended, giving the pipe while under this pressure a few slight raps with a light iron or wooden hammer.

7. After testing the pipe, they should be weighed, and the weight of each marked in white lead, either in the bell or on the outside. Pipe and castings should be sold by the pound, or the legal ton of 2,000 pounds. There is no so-called gross ton of 2,240 pounds for pipe or castings, and it can be made obligatory only by special contract in writing. This ton should not exist at all, and there is no reasonable excuse for its maintenance by anybody whatever. It is annoying alike to the buyer and the seller, as well as to the railroad companies and other carriers. It is a nuisance that should have been abolished long ago.

8. Time for the beginning of shipment of pipe, quantity per week or month and time for completion should be plainly stated in contract, and without penalty for non-performance of contract on time, because it cannot be enforced at law; and why, then, encumber the contract with it or attempt to frighten the souls of the contractors?

9. Terms of payment should be thirty days cash, unless otherwise agreed, after the delivery of pipe and castings, less 10 per cent. to be retained until the satisfactory completion of the contract.

10. A bond may be required in from one-fourth to one-half of the amount of contract, with sufficient security, rendered by a surety company wherever the same may be practicable.

Parties inviting proposals or bids for pipe and special castings should refrain from asking for bids made on their own proposal blanks or for cash or cheques, because this practice is not binding and is against the policy of law, of no service to them, and frequently annoying and a hardship to the bidders, who are, in any event, dependent upon the favor and tenderness of those inviting them to bid

under the variable reservation or right "to reject any and all bids."

Special castings should be cast upright or on an incline in dry sand or loam moulds, though small specials with care and good management may be cast successfully in green sand moulds.

The fault in specifications too often, outside of provisions that are unreasonable and cannot be fulfilled, lies in their being drawn too rigidly against the contractors and manufacturers, who are treated and seemingly looked upon in the outset as if they were both dishonest and incompetent.

### IRON SHUTTERS.

Chief Bonner, of the New York fire department, has rudely shaken the faith of those who have hitherto placed their trust in iron doors and shutters as the only proper safeguards against the inroads of fire. He says:

"It is claimed that iron shutters are nearly as good as tin-covered wood shutters, if properly made. This is a mistake. Iron shutters, from my experience, have never withstood fire as the 'Underwriter' shutter has, and they are deceptive in many cases, and have possibly caused more damage by permitting an extension of fire than is generally known. In the case of the Cohnfield fire some years ago, at the corner of Greene and Bleeker streets, iron shutters protected the side of the building on the south side of the Cohnfield building, as well as in the west wall of the Bleeker street building; but when the flame from the rear of the Cohnfield building took possession of this yard and its surroundings, it opened those iron shutters as if they were unclapped mechanically from the outside; and this in a measure was responsible for the extension of the fire to each of the buildings. I felt confident previous to the opening of those shutters, that the department could hold the fire in check and confine it to the building in which it originated, and I felt some little confidence in the fact that the shutters on both buildings were closed; but I was sadly mistaken, for the first great volume of flame which passed out of the Cohnfield building opened the shutters, as I have already stated, without the slightest trouble, exposing both buildings at the same time to the mercy of the flames. From that time to this I have not taken any stock in iron shutters, and I believe they are deceptive and should not be used where the risk is of any account.

## Portland Cements...

HIGH GRADE GERMAN BRANDS FOR GRANOLITHIC AND ARTIFICIAL STONE SIDEWALKS.

**Sewer Pipes, Best English Cements. Best Belgian Cements. Culvert Pipes, &c. W. McNALLY & CO., Montreal.**

**BELLHOUSE, DILLON & CO.,** 30 St. Francois Xavier St., Montreal  
Sole Agents for the Compagnie Generale des Asphaltes de Franco (Rock Asphalt).

**PORTLAND CEMENT NORTH'S CONDOR**

Paving and Fire Brick a Specialty

SITTING LION and WHITE CROSS Brands

NORTH'S "CONDOR" BRAND AWARDED FIRST PRIZE AND GOLD MEDAL AT THE ANTWERP EXHIBITION