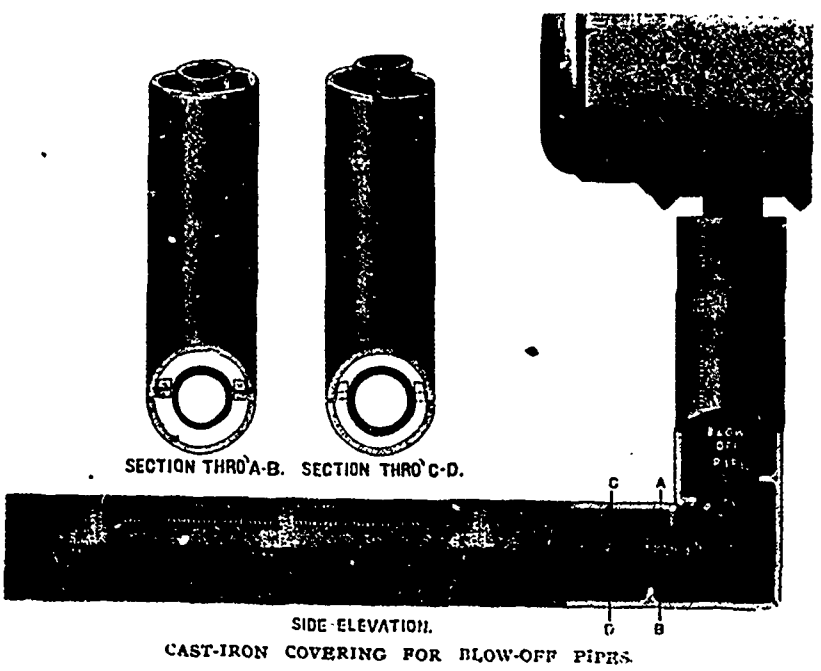
BLOW-OFF PIPES.

AMONG the defects reported by our inspectors many defective blow-off pipes occur, and accidents often arise from this source. The defects are usually due to the burning of the pipes. When sediment is present in the feed water, the pipe becomes partially filled with it, and overheating is the result; and even when the water is pure, the high temperature to which the blow-off pipe is exposed seems to cause the water to attack the iron, and deterioration may be quite rapid.

Much of this trouble seems to be due to the flame striking directly against the pipe, and to overcome it, it is customary to slip a cast iron sleeve over the pipe to protect it. A piece of soil pipe is the usual thing for this purpose. This in turn becomes burned away, and to replace it, it is necessary to disconnect the blow-pipe and run it through the new sleeve. To avoid this trouble, half sleeves with lugs or flanges, fastened together with bolts, have been used, but these have not proved perfectly satisfactory, as the projecting lugs are apt to burn away after a little while.

Steam users have often asked our inspectors for something not expensive, which could be put on without disconnecting the blow-off pipe, and some years ago we made drawings for a sleeve having supporting rings with lugs so arranged that the two halves could be securely fastened together without bolts or nuts. The details of the sleeves will be seen from the cuts. Inside of the sleeve half rings are cast, the internal radius of which is slightly larger than the blow-off pipe. At the ends of these half rings hook-like lugs are cast, which serve to fasten the parts of the sleeve together. In putting this covering on, one-half of it is first laid against the pipe, and the other part is brought down upon it with one end hanging half or three-quarters of an inch over the end of the first half. The two are then slid together until the hooks or lugs inside lock together. The dimensions of the sleeve may be altered at will, but we have recommended the following for a two-inch blow-pipe: Diameter of cast iron sleeve internally, 3⅞ inches; thickness of casting, ¼ inch; distance from one supporting ring to the next, 8 inches. The ends of the horizontal and vertical lengths are, of course, beveled so as to fit together, and care must be taken that the lugs or hooks that secure the parts together do not come within, say, an eighth of an inch of the blow-off pipe or the sleeve itself, as otherwise the parts will be likely to become iron-bound under the intense heat to which they are exposed. If the brick-work is so arranged that a small amount of air can enter the sleeve, a circulation can be maintained through it that will give further protection to both sleeve and blow-off. The rings in the sleeve will prevent the air from drawing freely through, but it will be found that enough will pass by them to be of benefit.



We believe this arrangement has proved satisfactory, and any one wishing to use it can make a pattern, one pattern being sufficient if it is made long enough, since shorter pieces may be cast by simply cutting off in the sand mould to the length desired.—*The Locomotive.*

Two additional Brill cars have been ordered for the Spring Ridge, Pandora Street and Beacon Hill Park extension of the Victoria, B. C., Tramway Company's line.

The Erie Glass Co. is being organized at Port Colborne, Ont., by Mr. James Lydiatt, of Toronto. The works, in which natural gas will be used as fuel, are intended to produce gas goods for electric lighting. It is said that the importations of flint glass goods into Canada last year amounted to half a million dollars.

A REALISM.

"At last we are alone!"

It was the man who spoke.

The woman trembled and lifted her eyes to his face.

They were beautiful eyes, but they were tremulous eyes eyes which look out from a heart which is irresolute, fearful.

He stamped with his heavy foot upon the floor of the room.

The echoes brought back in their invisible arms the sound, and let it ripple out again until it struck the walls once more and fell into the vast void of silence.

A bat, disturbed by the unusual activity, darted from a corner and blindly dashed in eccentric convolutions about the dusty building.

Great ropes of cobwebs hung down from the ceiling, and across the corner of the room dead flies swung lightly in the hammocks the spiders had fastened there.

The dust rose in listless clouds from the shock of the heavy *footfall, and sank again, overcome by its own inertia.*

Even the air was resting.

The spirit of the desolation seemed to pervade the place.

The woman looked furtively around upon her dim surroundings and shivered.

The man laughed harshly.

"Alone, I said," he growled.

"Yes," she murmured.

A faint light struggled in through the great windows in front, thick with dust.

"Where are we?" she whispered and shivered as the bat dashed into her hair.

"Listen," he replied hoarsely, "we are in a store which does not advertise."—Detroit *Free Press.*

EXPERIMENTS UPON THE VELOCITY OF STEAM.*

A SERIES of observations upon the peculiar shapes assumed by a jet of steam upon issuing from orifices of different forms, led the writer to the supposition that a discharging nozzle could be so proportioned as to give the maximum efficiency of expansion under *given conditions, and numerous experiments were* therefore made to determine the internal pressure and velocity of the steam at different sections of tubes of various shape. The results obtained at 30, 60, 90, and 120 lbs. initial gauge pressure are shown by diagrams and tables accompanying the paper, and indicate very interesting results, while the characteristics of some of the tubes are quite marked. As might be expected, a cylindrical nozzle is shown to be the least efficient, and the terminal velocity of the steam in this tube is found to be the same as at the initial section of the tubes with divergent taper. In the latter style of tube, the steam has more opportunity for expansion, and the terminal velocity approaches more closely the theoretical value.

A peculiar circumstance is noted in the text and made very apparent by the diagrams, viz: that in a well proportioned nozzle or thin diaphragm, the actual velocity of discharge at the minimum section is very nearly constant for all the pressure of steam used in the tests, and for any other section of the tube, the same condition obtains as long as the expansion is continued. This qualification seems to be necessary, as several instances are given where the expansion within the nozzle falls far below the atmospheric pressure, and subsequent contraction causes a loss of velocity.

This fact of constant velocity of discharge under certain conditions is commented upon at some length and shown to give good grounds for the use of Napier's formula for discharge of weight of steam, with the suggestion that the use of the initial density of steam instead of the absolute pressure might give even more accurate results.

* Abstract of a paper by Strickland L. Kneass, in *The Proceedings of the Engineers' Club of Philadelphia*, Vol. VIII, No. 2.