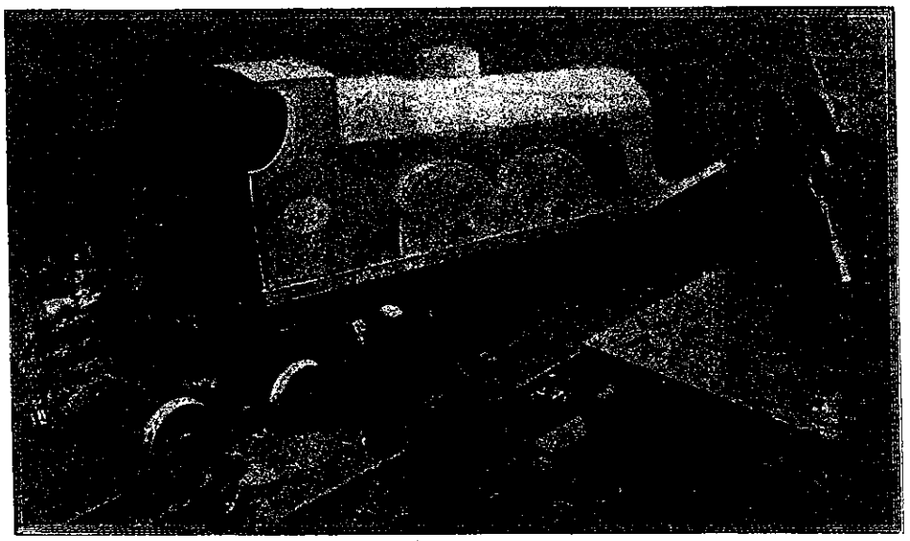
Wadestown Tramway.

We show a couple of views of the work going on upon the Wadestown tramway. It is a scheme which illustrates the methods by which Greater Wellington is being pushed ahead. The district is a very attractive residential district, and tramway communication will be just the spur required to send it ahead as a refuge for people flying from high rents and stiff rates. Another auxiliary is a water scheme, and already the Council has built a tank on the top of the Wadestown hill, from which the water pipes will soon be reticulated. When drainage is added this suburb will boom.

Railway Accidents.

A recent accident on our railways which came to nothing in the way of damages, comparatively, serves to remind readers of the contrast presented by late accidents in Europe and America. The moral is that trains ought to carry a supply of tools for breaking up wreckage to free the victims pinned down by broken stuff; that carriages ought to be built of steel and strong enough to resist telescoping, which is the cause of these terrible happenings; that electricity ought to be the invariable light on railways; and steam the only warmer.



Derailed Locomotive.

Machinery Made of Muslin.

Those who know that for years paper has been used in the manufacture of car-wheels will not be surprised at this heading. Any material of this sort, used for such a purpose, must of course be cemented, layer by layer, into a mass and consolidated by pressure. In a paper read before the National Machine Tool Builders' Association in New York recently, and printed in *The Iron Age* (New York, November 10), Mr. John Riddell tells of some noteworthy results that have been obtained with muslin gears and pinions which are not only very strong, but almost noiseless. This latter feature is of no small importance. The machine-shops of to-day are much noisier than those of ten or twenty years ago, owing to the fact that the machines for cutting and planing iron are run from three to six times as fast as formerly.—

"These gear noises are very unfortunate, but we hope by improved machinery and the use of various other materials which have recently been introduced, that this trouble will gradually disappear.

"We have at the Schenectady works introduced gears and pinions made of a high grade of muslin which have been applied to a great variety of uses. We have used one of them on a boiler-maker's punch and shear which previously gave considerable trouble, not only on account of noise, but in the actual breaking of the gears; due to excessive back lash and fly-wheel action on the machine. We had such wonderful success with that particular pinion, which has been running now for some two years, that we gradually extended the use until now we are using them on two 10-foot planing-machines, which are operated by electric motors and compressed-air clutches, as intermediate pinions for the reverse motion. Heretofore we have tried various substitutes, including bronze, which would go to pieces in two or three weeks; steel would last longer, but made an intolerable noise; rawhide would seem to shrink and burn out quickly, and we very seldom could find anything that would stand the work longer than three or four weeks at the most."

Mr. Riddell goes on to describe an exhaustive test made with these cloth pinions in which so severe a shock was applied as to break nearly half the teeth in a gun-iron pinion, while the muslin pinions were uninjured. He concludes:—

"I point this out to show the actual strength of pinions made of this material. So we have reason to believe that with time the noises in machine-shops will gradually disappear as they came, without, however, a corresponding reduction in output."

Concrete Tanks.

Concrete tanks are rapidly supplanting reservoirs and cisterns of every other type. Wood decays and iron and steel will rust. Concrete is the ideal material for tanks when they are properly constructed. They are described at length in a bulletin issued with the above title by the Association of American Portland Cement Manufacturers, Land Title Building, Philadelphia, Pa. The bulletin sets forth the advantages of concrete for the purpose specified and then presents working drawings, tables, etc., in conjunction with general descriptive matter illustrating proper methods of construction. It is one of the especially valuable books issued by the Association, as it meets the needs of thousands who are not contractors, but who require improvements of this character.

The Motor Ship.

Rumours, old, new, and oftentime ridiculous, have been circulated recently in the press with regard to the British Admiralty laying down a "motor battleship." The scribes, without waiting for the internal combustion engine to be fully tested in small warships, must needs discuss the "motor Dreadnought" straight away. It is known that a good deal of quiet work has been done in England and Germany with various types of internal combustion engines, and in placing an order for a 9000 ton vessel, with Diesel engines, giving 3000 h.p., the Hamburg-America Line has undoubtedly hastened in progress. The development of motor ships has, however, been going on for several years steadily. There are 2000-ton tank lighters, driven by motors, in the River Volga. In the States, also, there are big motor vessels.—*Maritime Review.*

In England the Admiralty have gained valuable data from several small vessels, and Messrs. Vickers, Sons and Maxim are said to be developing a 2-cycle engine, of which great things are expected. We are thus on the threshold of a very interesting period in naval architecture. Much has yet to be learned as to the most suitable form of engine, and at present there is choice of heavy oil engines, motors of the Diesel type, and suction or producer gas engines.

The name of Mr. Thomas D. West, of Cleveland, Ohio, has long been familiar to foundrymen on both sides of the Atlantic as an authority on foundry practice, and on the peculiarities of cast iron in particular. Mr. West is at present engaged in an inquiry as to the real cause of the globules which occur in gas cavities, of the solidly encased shot iron observed in other cases, and of hard streaks of white iron which are at times found inside of grey and soft iron. But little is yet known as to how these mischances arise, nor as to the best methods of avoiding them. Mr. West is accordingly collecting and studying samples of the defects enumerated, and is anxious to secure specimens from British as well as American sources. He is, therefore, making an appeal to foundrymen in this country to send him interesting samples of the defects enumerated, together with as full data as practicable as to the conditions in which they made their appearance. The character of the pig iron and of the scrap should be stated, also that of the fuel and flux, as well as particulars of anything unusual occurring during the heat. If possible, an analysis of the casting should be added, but in any case the specimen should be accompanied by a statement as to the grade of casting produced, whether medium, soft, or hard. A rough sketch of the casting, having marked on it the location of the sample, would, Mr. West says, prove valuable, as would also particulars as to the character of the mould, and of the methods adopted for gating and pouring. To these data should be added a statement as to the conditions in which the metal was tapped, and in which it was poured, whether hot, medium, or dull. Mr. West intends to make the results of his inquiry the subject of a paper to be read before a leading technical society. His address is 10,511 Pasadena Avenue, Cleveland, Ohio.