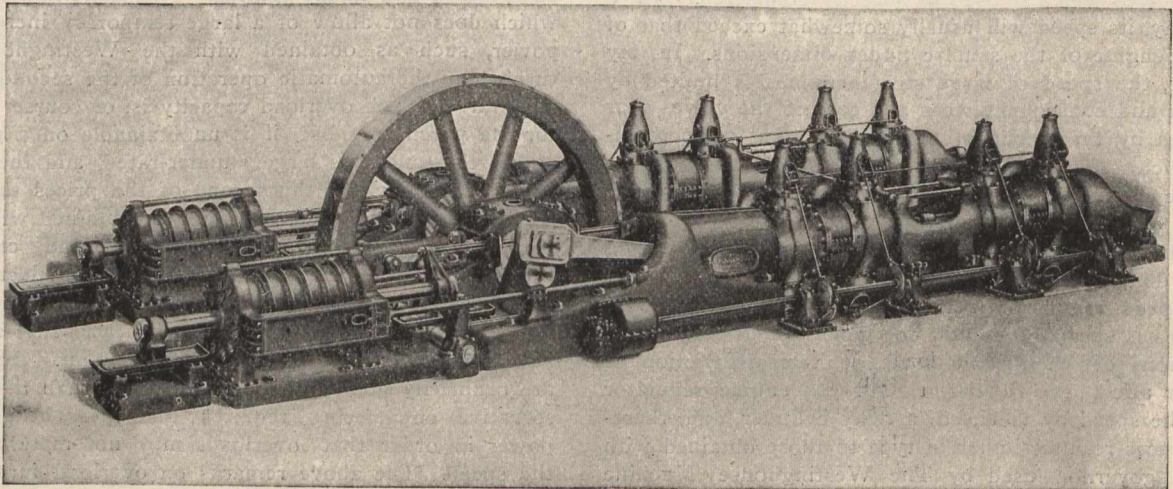


There is an impression rather prevalent that a gas engine is uncertain and hard to start. A properly designed engine, supplied with fairly decent gas, can be started as easily as a steam engine. Large Westinghouse horizontal gas engines are started by means of compressed air, the only operations required being, (1) open the main gas valve; (2) close the igniter circuit; (3) open one compressed air valve similar in construction to an engine throttle. The compressed air puts the engine in motion, which draws the charge into the cylinders and compresses the same, after which the first explosion takes place. Air is shut off and the engine is in full operation. We find no more difficulty in starting our gas engines than a steam engine of comparative size. I desire to lay stress on this point, as one

through the inlet openings and from the bottom through the exhaust openings. The fact that all the valve parts are entirely above the floor line renders these operations much easier than if a large part of the valve gear extended downward into foundation parts. It is not necessary to remove the cylinder heads, except to examine the piston rings themselves, which is not often required. Inasmuch as clean gas cannot always be secured, the importance of such easy entrance to the gas cylinders cannot be overestimated.

The general type of engine commented on above is shown in the two accompanying photographs. The first shows the type of two engines being built by the Westinghouse Machine Company for the Union Traction Company of Kansas, Independence, Kansas, one being of 500 brake



Westinghouse Gas Driven Blowing Engine for Blast Furnace Gas. Heavy Duty Twin Tandem Type.

of the stock arguments against the gas engine is that it is difficult to get into operation.

With certain kinds of gas, inspection of the interior parts of the cylinders is often desirable at regular intervals of, say, a couple of months. This is especially the case with blast furnace gas, and also with producer gas made from certain kinds of fuel. We have taken particular pains to arrange our cylinders so that no parts of the valve gear or valves are below the floor. The inlet valves being located directly on the top of the cylinder, easy access can be had to either end of either cylinder by removing the inlet bonnets. The exhaust valves are also a part of the engine which need occasional attention for regrinding. Especial care has been taken to render these quite easily removable. The cylinders are, therefore, directly accessible from the top

horse-power, and one of 1,000 brake horse-power. The second photograph shows one of two twin tandem furnace gas blowing engines now under construction for the Edgar Thomson plant of the Carnegie Steel Company. For electric railway work, no change would be made except to omit the blowing tubes. As electric units these engines would have a capacity of about 3,500 brake horse-power each.

The large size gas engine has come to fill such an important place in Europe, and has there proven itself to be so reliable and serviceable, that there is no question about its being adopted in this country in the near future, in a form suited to American operating conditions.

It is hoped that these general observations will be found of interest to intending users of gas power in large quantities.

#### CANADA'S HARDWARE EMPORIUM.

The Aikenhead Hardware Company are now installed in their new premises at 17, 19 and 21 Temperance Street, Toronto. The change of address was celebrated by a banquet



held in their new home, the second floor being decorated with bunting and flags, and used as a banquet hall. About eighty sat down to the excellent repast, Mr. T. E. Aiken-

head, the president of the company, presiding. After supper the evening was given to reminiscences, speeches, songs and readings, a most enjoyable time being spent.

In 1832 Ridout Bros. & Co. built a store at the north-east corner of King and Yonge streets, a location which was considered altogether out of the way at that time. Ever since, without any interruption, the business started at that time has been carried on and to-day the firm is regarded as one of the most reliable in Canada. All familiar with the fair dealings and integrity that at all times have characterized the conduct of the old firm, will join in wishing them increased success in their new and splendid quarters.

The new premises have a frontage of sixty-four feet, have five stories and a basement, the whole area of which is four and a half times that of the old stand. The retail store in connection with the business, which occupies all the ground floor and part of the first floor will, when completed, not only present the finest appearance, but will be the most spacious and best equipped hardware store in Canada. Moreover, the central location and convenience with which this store can be reached should win for it in the near future the reputation of being Toronto's leading emporium for cutlery, fine machinists' tools, shelf and builders' hardware and contractors' supplies.