An interesting feature of this installation is the arrangement of the charging hoppers of the producers. As described above, the producers are situated in the basement of the building, and the roof of that part containing the producers is level with the ground above, and constitutes the driveway for trucks, etc. The charging hoppers of the battery of producers project through this roof into this open court or driveway, and the fuel is simply hauled beside the charging hoppers and dumped into the coal boxes contiguous to them.

By this method, the cost of stoking—in addition to being accomplished in the open air—is reduced to a minimum.

The waste gases of the engine exhaust—which are a nuisance in most gas engine plants, owing to the odor and noise—are in this plant discharged at the top of the building, which is four stories high.

The cost of fuel delivered is 19 marks ($4.56) per metric ton. A metric ton corresponds to the English long ton, from which it will readily be seen that the plant is very economical.

The second anthracite gas producer plant visited was that of the Spindlershof Geschaftshaus, Berlin.

This installation is composed of two engines of 110 horse-power, running at 160 revolutions per minute—used for lighting; and one engine 180 horse-power, 140 revolutions per minute, used for power purposes. The anthracite gas producers in this plant are identical with those employed in that described above. The engines and producers have been in constant use for six years, during which time no troubles of any kind have been experienced, and during this period the cost of repairs was remarkably low.

The average consumption of fuel per effective horse-power is 0.4 kg., about 0.88 lbs. The price of coal delivered at this plant is about 19 marks ($4.56).

Caking Bituminous Coal Producer.

The only producer gasifying caking bituminous coal inspected was at the workshops of the Körting Brothers, Hanover, and was utilized as part of the permanent power installation, for generating electricity. This producer is of 150 horse-power capacity, and has been run for a period of six weeks—twelve hours per day—without closing down. The only reason for terminating the run at the end of that period was, an accident to the electric generator. During the entire length of the run, no trouble of any sort was encountered, scarcely any poking of the fuel bed was resorted to, and the gas delivered to the engines was of a uniform quality. While no trouble was experienced in the running of the gas engines on account of tarry matter, an inspection after closing down disclosed the fact that, about 3 mm. of tar and soot were deposited on the walls of the cylinder, and in the entry and exhaust pipes.

The fuel consumption during the run was about one lb. per effective horse-power hour.

The smallest producer which the Körting Brothers guarantee to operate successfully on caking bituminous coal, is of 150 horse-power capacity; any smaller generator will not operate for any length of time, owing to the fusing of the

A UNIQUE GASOLINE ENGINE TESTING PLANT.

By Frank C. Perkins.

The accompanying illustration shows a most complete and thoroughly up-to-date testing room as utilized at Detroit, Michigan, for testing Gray gasoline engines which are run under conditions as near like those in service as possible.

The engines are run in such a way that every possible thing that might be a defect or cause of difficulty at a later date in the hands of a customer, is observed and corrected.

The illustration shows in this testing room eight blocks, or large testing stands, each of which holds two motors. In the centre of the testing stand is a water-cooled brake wheel, and between this wheel and the motor on each end is a friction clutch.

It is stated that this arrangement is to enable each engine under its own power to work out an engine which has just been brought from the testing room, and after an engine has been run under its own power for several hours or long enough to satisfy the inspector and chief tester that it is entirely satisfactory—a final brake test is taken from the water-cooled brake wheel.

It is interesting to note the method of testing employed. The engines are placed on a stand and the first engine is started under its own power and the friction clutch, driving the brake, is thrown in after which the second friction clutch is thrown in, which causes the first engine to drive a second engine.

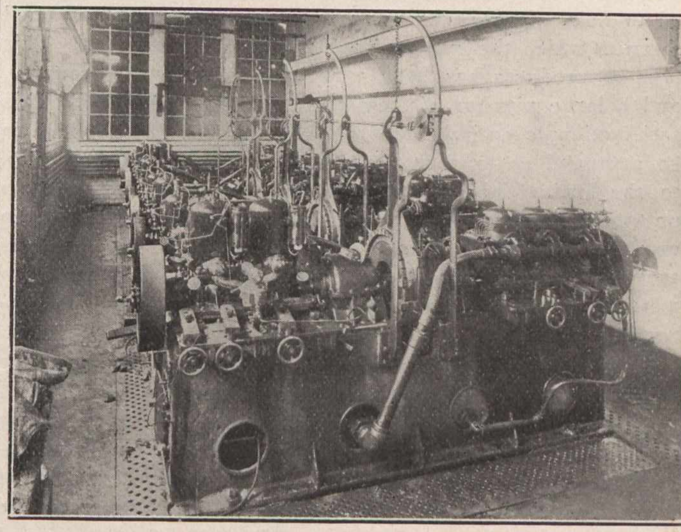
Sufficient load above the drag of the second engine is then added by tightening up the brake to absorb the full power of the engine at its normal speed.

The two engines, one driving and the other driven, are run in this manner for several hours, or until every detail of the outfit has been thoroughly tested and adjusted. A careful brake test on the first engine is then made, full data of which are recorded on a test card.

This engine is then removed and sent to finishing department to be prepared for shipment, and in its place is put the third engine and the second engine is then started up under its own power, driving the third engine, and this method is followed out continuously.

It is claimed that all moving parts are worked to a perfect contact before working strains are applied, and then when the motor is run under its two-power it is always given a load.

It is maintained that the fault with the testing out of



many motors is that they are run without a load and the brake test is taken from the fly-wheel; the fly-wheel soon heats and expands and requires frequent adjustment of the brake band, and practically makes it impossible to take a long test, but by using a water-cooled brake wheel the test can be given for as long as desired.

It will be noted that the beam of the brake is connected to a dynamometer and all engine power records are carefully taken at a certain speed, registered by a tachometer.

The careful testing of all up-to-date apparatus in engineering practice is now acknowledged to be invaluable, as in the end the added cost and trouble of this work is repaid to the manufacturer as well as the consumer many times over.

STATEMENT OF ACCIDENTS DURING MAY, 1909.

Trade or Industry.	Killed.	Injured.	Total.
Lumbering	27	19	46
Mining	10	3	13
Building Trades	2	32	34
Metal trades	3	27	30
Railway service	23	19	42
Navigation	6	13	19
General transport	3	18	21
Civic employees	1	4	5
Miscellaneous	..	7	7
Unskilled labor	1	6	7