

viated, and the rolling stock generally is kept in a state of cleanliness which is impossible on a line where coal is used as a motive power.

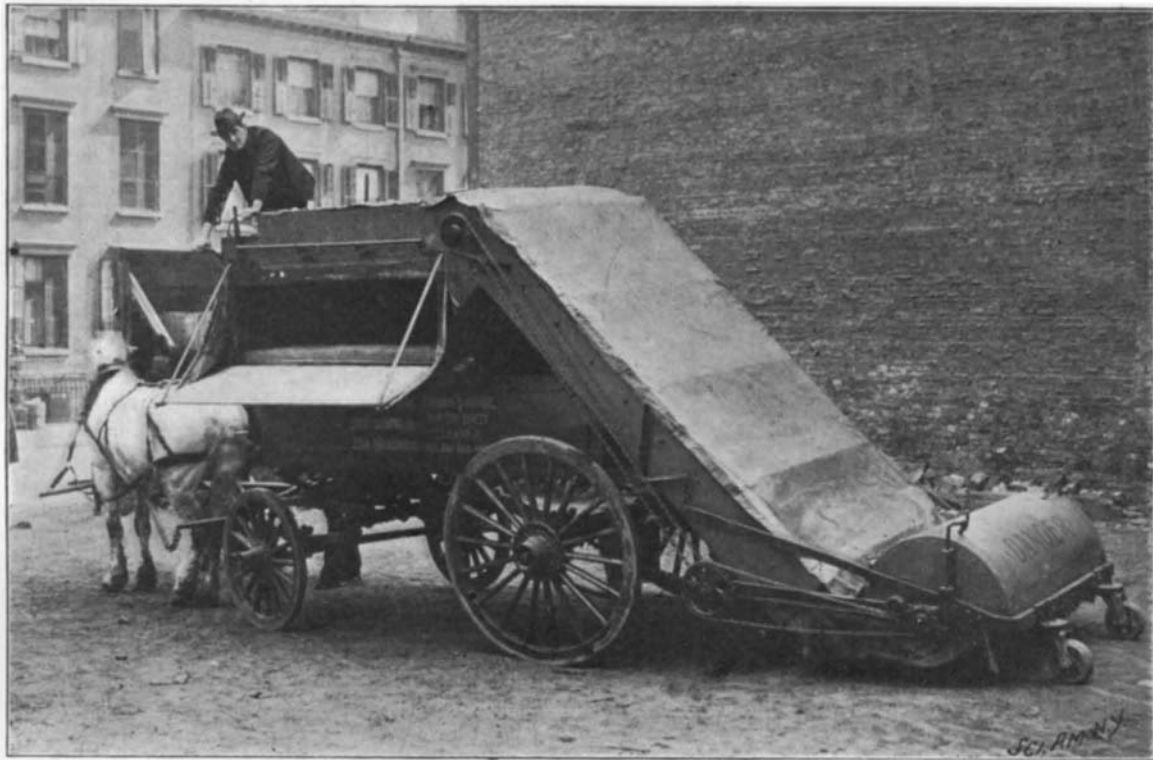
NEW SYSTEM OF STREET CLEANING.

Some of our readers, passing up Fifth Avenue recently, may have noticed the new street-cleaning device used on that thoroughfare. A clear understanding of the machine can be quickly had by a glance at the diagrammatic view shown herewith. The rotary sweeper, *A*, at the rear of the machine is operated by chains and sprockets from the hubs of the rear wheels, and serves to gather up and throw the dirt onto a slide, *B*. Moving over this platform is an endless belt, *C*, on which are a series of scrapers that carry the rubbish upward and forward until from the top of the slide it drops into the dust-proof box, *D*. In order to prevent the rubbish from accumulating at the rear end of this box and choking up the mouth of the elevator a conveyor, *E*, is provided, which moves the dirt toward the front of the box as soon as it has piled up within reach of the paddles on this belt. Both the elevator and the conveyor belts are driven by chain gearing from the rear wheels. A large water tank, *F*, is situated below the rubbish box and, under control of the driver, feeds the sprinkler, *G*, placed directly in front of the sweeper.

The advantages of this machine are evident. It does its work thoroughly and quickly without raising any dust; for the matter is first sprinkled and then raised through a covered elevator to a dust-proof receptacle. The whole operation is therefore under cover—a point which cannot be too strongly emphasized in any work which stirs up the heterogeneous filth of a city street. The machine holds two cubic yards of dirt, and the whole process of sprinkling, gathering and dumping can be controlled by a single man. The method of dumping the dirt is an interesting one. Referring again to the diagram we notice that the bottom of the rubbish-box is an endless sheet of iron which passes around rollers, *H*, placed along each side of the machine. These rollers are rotated by operating a lever at the driver's seat. Our engraving shows the door of the rubbish-box let down to form a chute for the dirt, and the driver may be seen operating the dumping lever.

By rotating the pulleys the floor is fed forward, forcing the rubbish out onto the chute, whence it slides into a dump-cart or any receptacle placed thereunder.

This machine should work a revolution in the present anti-



A SANITARY STREET-CLEANER.

quated methods of street cleaning. The slow, cumbersome operation of sweeping cobblestones by hand, aside from being expensive, is at the same time most unsanitary; for the rubbish is continually being stirred up

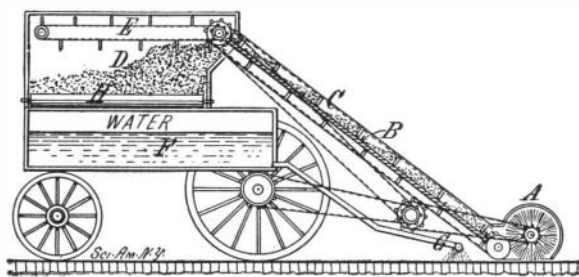


DIAGRAM OF THE STREET-CLEANER.

and laid open to the air, giving off bad odors. This machine, however, seems to fill all requirements; it sweeps on an average seventy thousand square yards of street per day at half the cost of hand labor and

does the work without spreading any dust, odor or disease.

THE TESTING OF HIGH-SPEED ENGINES.

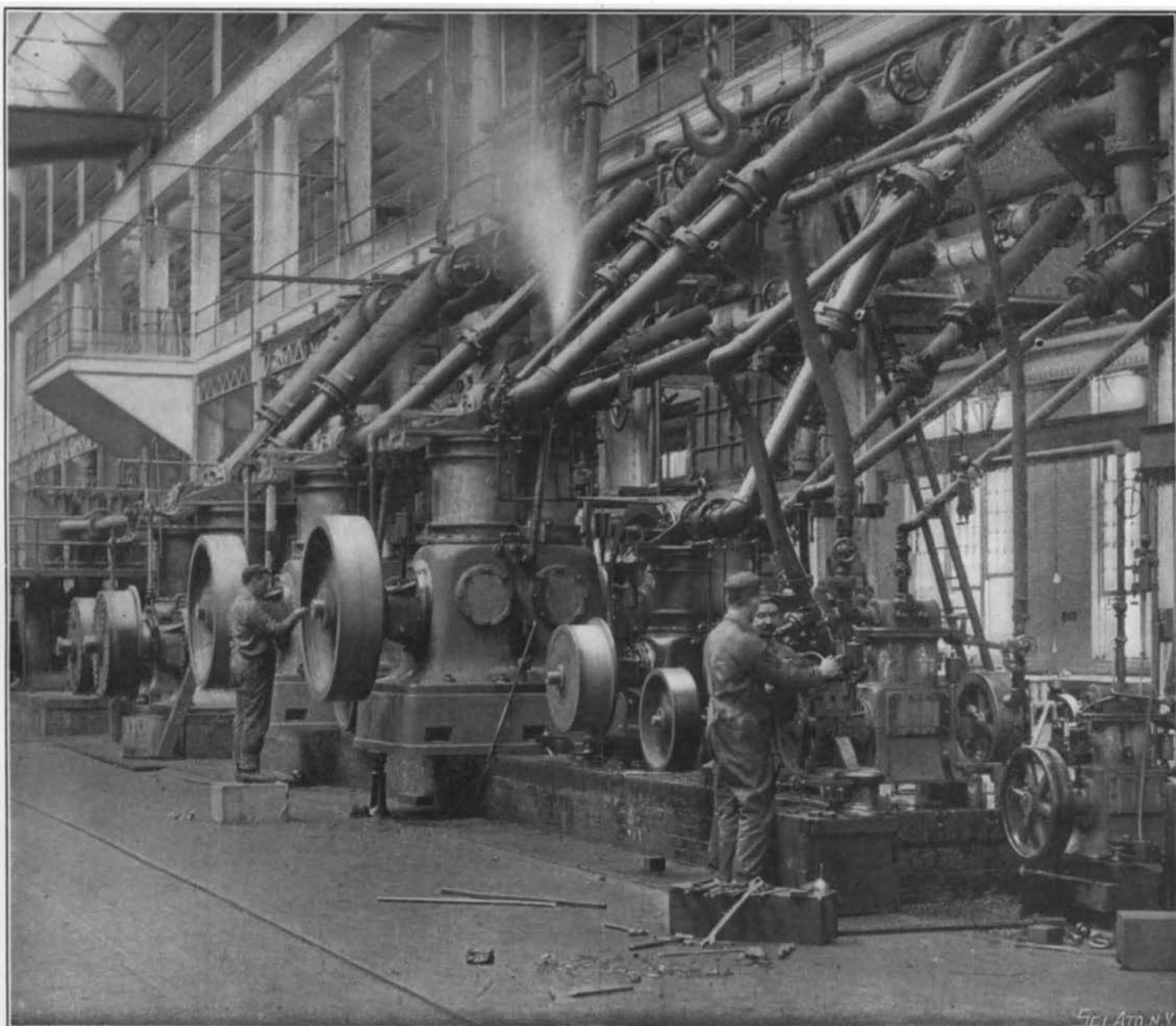
The testing room of the Westinghouse Machine Company's works is one of the most important and interesting features of the establishment. Extending down one side of the room is a long foundation bed, capped with plates which are slotted for holding-down bolts, which is capable of accommodating at one time as many as a dozen engines of sizes varying from 5 to 500 horse power. Above the testing bed, and at sufficient height to accommodate the larger engines, is a main steam pipe to which is connected a series of adjustable pipes, with swinging and extension joints. Behind the foundations are three surface condensers varying from 300 to 1,000

horse power capacity, while beneath each condenser, and mounted on platform scales, are two weighing tanks with suitable connections for delivering the water to one or the other, as desired. Each condenser is supplied with a vacuum pump, to enable the test to be made with the engine exhausting into a vacuum; should a test of this nature be called for.

Every engine that is made in the Westinghouse shops is ultimately sent to the testing department, where it is set up and connected to steam and exhaust. A friction brake is put on the crankshaft and the engine is given a service test of from 20 to 60 hours, the duration depending upon the size of the engine. The object of this test is to regulate the governor and to develop any latent defects which might have escaped inspection at the erecting shops. When the run is ended the indicator is applied and the exhaust is turned into one of the surface condensers, the brake load and the steam pressure being maintained at a constant figure. This test is known as the duty test, its object being to determine steam consumption at rated load, and also at half and quarter load. During

the test, indicator diagrams are taken, and the water coming from the condenser is weighed at frequent intervals and the results computed and entered on a record blank.

The system of testing is carried out with a view to determining both the steam consumption per indicated horse power and also the steam consumption per net or delivered horse power, the latter being the indicated horse power less the friction losses in the engine itself, and, therefore, the power actually available on the crankshaft. The tests as thus carried out are in no sense "laboratory tests." The conditions, moreover, are not



SECTION OF THE WESTINGHOUSE HIGH-SPEED ENGINE TESTING FLOOR.