

cially in several ways; in addition to the trouble of having frequently to regulate the flame at the burners, a large amount of gas passes through them unconsumed, whereby the quality or illuminating power of the light is impaired, and the atmosphere of the room made unhealthy, besides causing the meter to work irregularly. A simple governor, called the Imperial Regulator, which may be screwed on to any meter, has been especially designed to equalise the flow of gas, and so put an end to the above-named difficulties. It governs the pressure of the gas so perfectly, that the cocks of the burners may be turned full on when the gas is lighted, not requiring any subsequent adjustment: and whether one light or fifty be in use, a quiet, steady light with full even flame is maintained, while a saving of from 15 to 20 per cent. is effected. Fig. 4 shows a dry meter, and fig. 5, a wet meter fitted with the governor, an enlarged section of which is given at fig. 6. It will be observed that the orifice is conical, and that the plug or valve working in it is so arranged that the greater the pressure of gas on the diaphragm, the smaller is the annular orifice allowed for its passage.—*Iron.*

### A LOCOMOTIVE SET UP IN THREE HOURS.

The days of deliberate and long considered labor are departing and the substitute is work at lightning speed. The most remarkable feat on record in connection with locomotive building has been performed at the shops of the Michigan Central Railroad at Jackson, Mich., where, it is alleged, two new engines were completely put together and set in motion in a few minutes less than three hours from the moment the naked boilers were hauled into the shop.

Thursday evening, November 15th, there stood in the Michigan Central yard at Jackson two locomotive boilers, complete in all respects, upon trucks, while within the shops were the levers, the valves, the cylinders, the connecting rods, the bolts, the nuts, the wheels, the frames, and all the other pieces of machinery required to construct two perfect locomotives, all finished and ready for use, but not one of which had ever been fitted to its neighbour or subjected to any test or measurement other than those applied to every similar piece before being pronounced good and fit for service. A notice was given that these parts were going to be combined in two harmonious wholes, and that those persons who desired to see a locomotive put together in the shortest possible time were invited to be present on Friday morning.

At seven o'clock to the minute the shop doors were opened, the boilers hauled in and the two gangs of 14 men each sprang to their work. The spectators, numbering about 200 men, stood far enough away not to interfere with the workers, and the contest went on.

The jacks were applied, the huge boilers were raised and bolted on their frames, then they were placed on their wheels with all possible expedition, while simultaneously work was progressing on every portion of the machines, which were rapidly assuming perfect form. Water was let into the boilers, and even while the men were working at the grates the fires were kindled and the "infants" began to warm up for their work. All this time not an unnecessary word was spoken and every man worked as though his very existence hung upon the uninterrupted prosecution and speedy completion of his task. Great drops of sweat gathered on their heated faces and trickled down in streams; but no thought of rest suggested itself to a man, and a feeling of anxious pride pervaded all alike, workmen, shopmates, officers and spectators. At last one of them is ready for the smoke-stack, and is pulled along the track until she stops beneath the one designed for her, which hangs above her. A few moments more and the last screw is turned, the last bolt is fastened, the engineer stands in his place, and in just two hours and fifty-five minutes from the time the signal to commence was given, the throttle is pulled and the first of the twins moves off completed, followed a moment later by her mate, amid the cheers of all who have been fortunate enough to witness the most wonderful feat ever known in the history of locomotive building.

In considering this extraordinary achievement, it must not be forgotten that the most wonderful feature of the whole, is that no mistake of any kind was made, and that every portion was so perfect that there was not the delay of a second in fitting or adjusting.

We read also that the Pennsylvania railroad shops, upper and lower, at Altoona employ 3,000 hands. With the facilities at hand an eight-wheeled hopper-bottom car can be constructed in an hour, and recently 112 of this class were turned out in a week of ten hours a day. An eight-wheeled box-car can be made in nine hours, including one coat of paint, and a passenger car can be built in two days.

### PROF. HUXLEY ON TECHNICAL EDUCATION.

Professor Huxley has recently delivered a lecture on Technical Education before an English workingmen's association, in the course of which he gives his views as to what working men should know. He defines technical education as the teaching of handicrafts, and the requirements thereof he sums up to be reading, writing, and ciphering, a taste for one's calling, an acquaintance with the elements of physical science, a knowledge of a foreign language, and the scrupulous avoidance of the practice known as "cranning."

As to the means for carrying out this ideal education, Professor Huxley strongly advocates the more extended teaching of natural science in the public schools, and he thinks that the mode of instruction should be especially practical and experimental. He also recommends some special means for utilizing in the public interest unusual talent or genius found in schools.

It was Edward Everett, we believe, who regarded anyone who could read, write, and cipher as well educated, and if to that a knowledge of a foreign language was added, the education he considered fine. Professor Huxley goes a step beyond this, it would seem; and besides his recommendations, while excellent, appear rather too general to be susceptible of ready practical application.

### TAR WATER FOR INSECTS.

For the last five years I have not lost a cucumber or melon, vine or cabbage plant. Get a barrel, with a few gallons of gas tar in it; pour water on the tar; always have it ready when needed, and when the bugs appear give them a liberal drink of the tar-water from a garden sprinkler, or otherwise, and if the rain washes it off and they return, repeat the dose. It will also destroy the Colorado potato beetle, and frighten the old long potato bug worse than a thrashing with a brush. Five years ago this summer, both kinds appeared on my late potatoes, and I watered with the tar-water. The next day all Colorados that had not been well protected from the sprinkling were dead, and the others, though their name was legion, were all gone, and I have never seen one of them on my farm since. I am aware that many will look upon this with indifference, because it is so cheap and simple a remedy. Such should always feel both their own and their neighbors' bugs, as they frequently do.—*Chicago Tribune.*

**FATAL PARASITIC WORMS IN DOGS.**—The New York *Independent* condenses from Chinese newspapers an account of a discovery why dogs in China are liable to sudden and apparently unaccountable death. This is often found to be due to the plugging of the pulmonary artery, or to mechanical interference with the action of the valves of the heart, by a mass of filariae, or worms, occupying the artery and cavities on the right side. On opening the heart the worms are found massed together in a bundle, like a coil of thick cat-gut that has been some time steeping in water. The few sluggish movements they exhibit after the death of the dog form a striking contrast to the liveliness of their minute progeny, which wriggle about in the neighborhood and in the blood throughout the system. On unraveling and extending the parent worms, they can be separated into two kinds. One sort, the larger and plumper, measure from 8 to 13 inches in length by 1.30 of an inch in diameter; the other, the smaller, five to seven inches in length by 1.40 of an inch in diameter. Their progeny are about 1.100 of an inch in length by 1.3,000 of an inch in breadth. A similar disease to this is known in America, France, Italy and other countries. Dr. Manson, in his report on these Hematozoa, is inclined to believe that the great frequency of aortic aneurism among Europeans in China might possibly be traceable to the existence of these worms in the heart and blood-vessels. With the practice he has acquired in the detection of these worms in the blood of the dog, he searched for them in man. No selection was made of cases; but the first patient or healthy person who presented himself and was willing to have his fingers pricked was examined, six slides of blood, at least, being carefully searched. In this way he of 190 cases found the worms in 15 or about 8 per cent.

**VARNISH PUTTY**, for filling the pores of the wood after the first coat of priming, is made of quick-drying varnish and Paris white; the addition of a little ochre improves it for rubbing down. First-class varnishes stain more easily than the inferior grades. Slight stains may be removed by rubbing the spot with rotten stone and water, and, after thoroughly drying the part, rubbing it with sweet oil, applied by the hand.