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The Editor invites contributions (which must bear name and address of sender, not necessarily for publication) dealing with progress made in any process or method directly or indirectly connected with mechanical, industrial or commercial work. In no case can rejected copy be returned unless accompanied by addressed envelope bearing half-penny stamp, neither can the Editor enter into correspondence concerning rejected contributions.

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A gas-stove burner was treated in a practical way in a recent paper read by Mr. R. S. Thompson, New York. He said that if a burner secures the combustion of all the gas which passes through it without the production of carbon monoxide, it has done all that can be done. Talk about burners which burn large quantities of air is all nonsense. A cubic foot of gas in complete combustion combines with a fixed quantity of oxygen. This quantity cannot be increased or decreased. If the quantity of air supplied is insufficient, part of the gas will be unburned. If the air is supplied in excess of requirements, the excess of air will not be used. If more air is mixed with the gas than required, combustion will be imperfect, and part of the gas will be unburned. A perfect gas flame is a clear blue and perfectly transparent. A white or yellow flame, or a milky blue flame, indicates imperfect combustion. Sometimes a gas flame seems blue, but by holding an object on the other side it will be found it is not transparent. This indicates imperfect combustion. If the flame "blows" or "lifts" away from the burner it shows too much air, and consequently imperfect combustion. If the fire "streaks up" in long ragged flames there is imperfect combustion. If any portion of the burned gas mixes with the fresh gas, it poisons the latter, and there is imperfect com-

bustion, for a small amount of carbon dioxide mixed with gas renders the whole mixture incom-bustible.

The first Continental steam railway is seventy years old in this year of 1906. George Stephenson's line between Darlington and Stockton had been built ten years before any European State ventured to imitate the daring example. Belgium took the lead, and opened the first short track from Brussels to Malines, about thirteen miles, on May 5, 1835. Engineering records that fearsome predictions were made as to what would happen in consequence of this terrific innovation. It was to "run agriculture and cause the death of cattle grazing in the fields, owing to their digestion being upset by passing trains!" These warnings came, not from the unlettered mob, but from "men of the highest intellectual standing!" Pessimistic croakers are a widely diffused race, and they rarely repent. To-day Belgium has more than 2600 miles of track, and a railway department which employs nearly 63,000 men. Belgium has more railways in proportion to territory than any other country, the lowest rates in Europe, and the Government revenue from the State lines is very considerable. Germany also commenced making railways in 1835. France and Austria in 1838. But next to England, and before any other country in Europe, came the United States, which had the first railway with locomotive traction—the South Carolina railroad—constructed in 1828-30.

About a pound of radium Professor Curie estimates, has resulted from the work of the last three years in Germany and France. America's stock of radium salt, reduced to the strength known as one-million, would half fill a lady's thimble. So far the radium harvest has evidently not been very abundant.

The new Springfield rifle is said to be able, at a distance of fifty feet, to penetrate 55 one-inch boards set one inch apart. It gives a muzzle velocity of 2,300 feet per second, and will project a ball a distance of five miles.

DELICATE INSTRUMENTS REPAIRED BY PRACTISED MECHANICIAN.

HITHERTO scientific instruments of delicate construction have had to be sent out of the colony for repair. Now, however, it is possible for students and professional men in the mathematical sciences to have their instruments repaired by an expert in Wellington. Mr. H. H. Coote, of 65, Willis street, Wellington, has had, in addition to fourteen years' practise in optical work and the care of optical instruments, a great experience in the repair of fine instruments of all descriptions. Mr. Coote is a mechanician-specialist of such long standing that it will repay those who contemplate repairs or alterations to any of their instruments to consult him, rather than to send out of the colony, or commission a local repairer who may prove inexperienced —[Advt.]

J. H. G. ROWLEY,

F.N.Z.A.A.

Accountant, Auditor, and Company Secretary,

COMMERCIAL CHAMBERS,
3 Hunter St., WELLINGTON.

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