

practicality as a sort of appendix. The sense of the business, money value of an invention. Oh, no, I didn't have it naturally. It was pounded into me by some pretty hard knocks. Most inventors who have an idea never stop to think whether their invention will be salable when they get it made. Unless a man has plenty of money to throw away, he will find that



ONE TYPE OF THE COMPLETED TURBINE.

This relatively small machine produces 400 h.p. more than the other engines shown on this page.

making inventions is about the costliest amusement he can find. Commercial availability is the first thing to consider.

"In working out an invention, the most important quality is persistence. Nearly every man who develops a new idea works it up to a point where it looks impossible then he gets discouraged. That's not the place to get discouraged, that's the place to get interested. Hard work and forever sticking to a thing till it's done, are the main things an inventor needs. I can't recall a single problem in my life, of any sort, that I ever started on that I didn't solve, or prove that I couldn't solve it. I never let up until I had done everything that I could think of, no matter how absurd it might seem as a means to the end I was after. Take the problem of the best material for phonograph records. We started out using wax. That was too soft. Then we tried every kind of wax that is made, and every possible mixture of wax with hardening substances. We invented new waxes. There was something objectionable about all of them. Then somebody said something about soap. So we tried every kind of soap. That worked better, but it wasn't what we wanted. I had seven men scouring India, China, Africa, everywhere, for new vegetable bases for new soaps. After five years we got what we wanted, and worked out the records that are in use to-day. They are made of soap—too hard to wash with and unlike any other in use, but soap just the same.

"The second quality of an inventor is imagination, because invention is a leap of the imagination from what is known to what has never been before.

"The third essential is a logical mind that sees analogies. No! Not not mathematical. No man of a mathematical habit of mind ever invented anything that amounted to much. He hasn't the imagination to do it. He sticks too close to the rules, and to the things he is mathematically sure he knows, to create



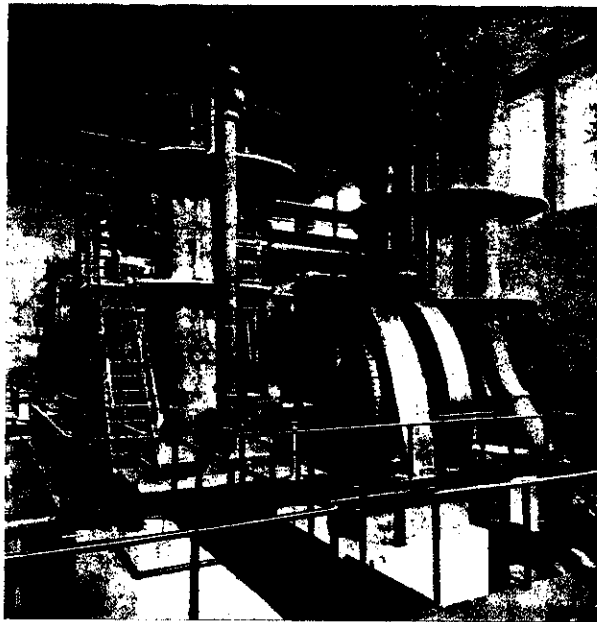
MAKING RECORDS OF ONE OF MR. EDISON'S EXPERIMENTS.

anything new. I don't know anything about mathematics; can't even do proportion. But I can hire all the good mathematicians I need for £3 a week."

This last point is illustrated by an incident that occurred in his laboratory. He needed to know the exact capacity of a vessel of very irregular shape. He called in two of his mathematicians to work it out. They made innumerable careful measurements with various finely graduated instruments, and after an hour's work went away with a mass of figures to work out the capacity. As soon as they had left, Mr. Edison filled the vessel with water, poured the water out into a measure and noted how many cubic inches it held. Two days later the mathematicians brought in the result of their complicated figuring, and it tallied exactly with Mr. Edison's five-minute measurement.

In the practice of his profession Mr. Edison has to save time. There is a pretty well developed suspicion among his assistants that his deafness is largely a ruse to avoid hearing things that he

sub-assistants, on phonograph improvements. Mr. Edison may not see him for two weeks at a stretch, but when he does come, he is full of enough ideas to keep that room busy for a month. In another room is his chief chemist, himself an inventor of proved merit, working out Mr. Edison's ideas on some new chemical compound. Across the hall, in a room filled with batteries, each of a different composition, two men and a boy are taking records of how the batteries work. In another room, improvements are being worked out for Mr. Edison's new storage battery. There are often a dozen inventions under way at once, each requiring the work of an expert; and through the great laboratory Mr. Edison moves from room to room, keeping check on the progress of each, suggesting radical changes in the work, always full of ideas, and impressing so profoundly on his men his own mental curiosity, and eagerness, and energy that they, as they say themselves, work much harder for him than they would be on their own ideas.—From the "World's Work."



BEFORE THE INVENTIONS DEPARTMENT WORKERS DEVELOPED THE TURBINE.

The huge reciprocating engines that are necessary to drive a generator producing 1600 h.p.

does not care to pay attention to. When Mr. Edison sat for the photograph in this article, in one of the poses his eyes were dropped, looking at his hands. It was a time exposure, and the instant the shutter of the camera closed with a click, he looked up and exclaimed "Over-exposed." His attorney shouted to him: "Did you hear that click?"

"Eh?"

"How did you know that he had finished that exposure?"

"Oh, I had an intuition."

To Mr. Edison, time is so valuable that he does not waste it even by taking account of it. Time to him is only the chance to get things done; and no matter how long it takes, they must be got done. In his office safe there is carefully locked away a £540 Swiss watch, given him by a European scientific society. It is never used. He buys a stem-winder costing a dollar and a half, breaks the chain ring off, squirts oil under the cap of the stem, thrusts it into his trousers pocket—and never looks at it. When it gets too clogged with dirt to run, he lays it on a laboratory table, hits it with a hammer and buys another.

MR. EDISON AT WORK.

Where a man in the profession of law or of medicine has a suite of offices, Mr. Edison's profession requires a great building containing many laboratories. In this building are many rooms set apart for different kinds of experiments. In one, an assistant who came to him in 1889 from the laboratory of the German scientist, Helmholtz, works alone, or with his

is editor; but the proprietor's name is quite a dissolving view. He was originally Mr. Edward Levy; he then became Mr. Edward Levy Lawson, then Sir Edward Lawson, Bart.; now he is Lord Burnham. The "Daily Mail" is owned and edited by two Irishmen, Lord Northcliffe of Shanghai, and Mr. Thomas Marlowe, and is busily engaged in slandering Irishmen. It advocates "Territorialism," presumably in order that Englishmen may be hired to shoot down the countrymen of its editor and proprietor. The "Standard" is edited by Mr. H. A. Gwynne, who is an Irishman; and its virulence against the Irish nation is only equalled by the "Daily Mail." Lastly, there is Mr. L. J. Maxse, editor of the "National Review," another Jingo with an "all-British" name.

The "Stage" is another organ used by this precious collection of "Englishmen." "An Englishman's Home" is a play written by a patriotic "Englishman," who has modestly concealed his identity. We understand he rejoices in the truly English name of "Du Maurier." The song, "Bravo, Territorials!" is composed by Mr. Herman E. Darewski; the ballad, "An Englishman's Home" is composed by Mr. Edward Teschemacher; and "A Call to Arms" is written by Miss Ethel de Fonblanque. The number of foreign ladies and gentlemen who are lecturing the British workman and clerk on their duty to their country is really very remarkable.

By Royal Command.

Englishmen are an extraordinary race, and one would have thought that England could have bred an English king. The present ruler, Edward VII of Saxe-Coburg and Gotha, belongs to the House of Hanover, which may account for his pronunciation of the English language. He is an interfering individual, as will be seen from the following incident:— M. Pellissier (when shall we come across an English name in this article), of the Folies, desired to produce a skit on "An Englishman's Home" in his well-known series of "Potted Plays." In this "Potted Play" everything was to be labelled "Made in Germany"—like the House of Hanover,—but the Play Censor stepped in, and forbade the production. Here is a summary of the play's conclusion: When the invaders arrive, the officer in charge recognises Mr. Brownwurst as his long-lost uncle; and Mr. Brownwurst asks his nephew what he is doing in England. "We have come to take England," is the reply. He retorts, "You are too late; we have taken England years ago." Finally, the invaders agree to settle down and become naturalised Englishmen because it will be cheaper than warlike operations. Mr Redford, as censor of plays, wired to M. Pellissier forbidding the production. The next day the London Press had a number of interviews with M. Pellissier. On Thursday afternoon the King, through Lord Knollys, sent a message direct from the Palace to M. Pellissier requesting him to cease making communications to the Press. M. Pellissier promptly obeyed the King's orders. It is clear, therefore, that the Lord Chamberlain refused the license at the direct behest of the King. Why this anxiety on the King's part to prevent a harmless skit? What business has the King to intervene in a matter of this kind? It was a gross and unwarrantable infringement of personal liberty.

The British workman is being deluded by this unholy alliance of Jew financiers, American and Irish journalists and peers, into the belief that conscription is a worthy ideal.

Facts.

We propose to quote some facts, for which we are indebted to "John Bull's Army from Within," by Robert Edmondson, ex-sergeant 21st Hussars, and ex-squadron-sergeant-major 35th Imperial Yeomanry. Lord Roberts has demanded 300,000 men to protect the Indian frontier. Mr Edmondson's book reveals what the condition of the Indian Army is, according to the Army medical reports: "In 1902, though there were only 60,540 European troops, all told, in India, there were 65,288 admissions into hospital with general diseases. Of these 889 men died, whilst no fewer than 2254 were invalided home. . . . Mark, now, the part that sexual disease by itself plays. In 1902 in India the enormous number of 12,646 men were admitted into the hospital suffering from this disease alone. . . . Turn now to the Home Army. The strength in 1902 was 93,665.

A Bastard Patriotism.

(By C. H. NORMAN.)

The time has come for all lovers of the honour of their country to stand fast against the dangerous militarist agitation now being engineered by a reptile Press, out-of-work Generals, non-combatant Whig lawyers, and a corrupt Court. The object of these men, few of whom are Englishmen, is to deprive the citizens of Britain of their liberties.

Patriots.

It will be understood why the persons who advocate conscription, tariff reform, Irish and Indian coercion, and anti-alien legislation all hang together, when one discovers that their birthplaces are chiefly of English soil. First of all comes a noble patriot, the editor of the "Daily Express," Mr. Ralph D. Blumenfeld, born in Wisconsin (U.S.A.). From that interesting journal of the Press Club, "The Club Lyre," we quote the following "Agony": "Tariff Reformers wanted. —Naturalisation fees paid. Address (in confidence), Blumenfeld, Bride-street." This American gentleman with the German name is noted for his bitterness against the unfortunate alien. The "Daily Telegraph" has been conspicuous for its advocacy of "the four shams," Mr. Le Sage, a striking "English" name,