

grondwet (constitution), or not. It is scarcely to be wondered at that the Uitlanders lost all hope of fair play when such things could be done.

(to be continued).

For THE CANADIAN ENGINEER.

#### DESTRUCTIVE DISTILLATION OF SAWDUST.

A series of experiments have been made in Ottawa in October with a machine for the destructive distillation of sawdust, which is designed not only to get rid of the dust, but also to turn it to financial account. These runs were eminently satisfactory, exceeding even the expectation of those who knew most about the machine. Much has been written, and more said, about machines designed for the destructive distillation of sawdust and the products therefrom, but many difficulties have to be overcome before the desired object can be achieved. Sawdust offers so much resistance to the passage of heat through a mass of it that it is necessary to bring successive quantities of dust in contact with the heated plates, or to bring a mass successively into contact with the plates of the retort.

The machine referred to may be described as a cylindrical retort, to the ends of which are bolted flat castings, in the centre of which are holes to allow of the introduction of a short but large hollow shaft. On the outside of the end castings are stuffing boxes and glands to prevent gaseous and liquid matters escaping. Through the end openings pass the shafts, which just clear the end castings and then spread out to form four arm spiders which are bolted to a drum. In the centre of this drum and extending its entire length is a tube which is rigidly fastened to the end spiders.

In the spaces between the tube and the drum, and between the drum and the shell, are arranged plates which encircle respectively the tube and the drum, one forming a right hand and the other a left hand helix or conveyor. This arrangement ensures a continuous circulation of dust through the machine. The machine is fired in a way specially designed to maintain an even temperature throughout. No direct fire is allowed to come into contact with the shell. The machine is carried by lugs in an oven, the hot gases from which pass through the tube above referred to, thereby providing a large internal heating area; from this tube the gases pass into the chimney.

Charging is accomplished through an opening on the upper side of the machine, and the discharge is situated at the bottom or underside, and at one end, and is automatic. It is perhaps hardly necessary to state the nature of the products, but it may be interesting to some who may not have a knowledge of chemistry to know that destructive distillation is a process—broadly described as the decomposition by heat in a closed chamber, of a body the elements of which recombine, on cooling, to form compounds differing chemically and physically from the parent substance. When sawdust is submitted to this process it breaks up into bodies widely different from one another and from the parent substance. These bodies are principally pyroligneous acid or crude acetic acid, wood oil or wood creosote, tar, naphtha, or pyroxalic spirit, a large quantity of combustible gases, mainly carbon monoxide, and a residue of charcoal dust which is unequalled as a form of carbon for the manufacture of calcium carbide, showing as it does 98.95 per cent. carbon and only 1.05 per cent of ash. There are in addition to the above, smaller quantities of furfural, acetone, methyl acetate, ammonia, etc., formed. The chemistry of these products is interest-

ing and offers several alternatives in the methods of preparation for the market.

Although the machine was a proved success nearly a year ago it has been difficult to obtain reliable information in regard to it, as those interested were anxious to be disabused of any doubt as to the details and financial standing such machines would establish for themselves.

Patents have been granted in the U.S.A., Canada and nearly all industrial countries.

The machine has been tried in the utilization of other than mill refuse, but in this respect nothing will be stated till arrangements, mechanical and commercial, have been completed. This invention will be received by the public as a boon, effecting as it will a considerable, if not complete abatement of the sawdust nuisance. The interested parties have wisely avoided anything being printed until the machine had been proved in the presence of one of the largest lumbermen in the country.

The inventor of the machine, who at present desires to remain unknown, is also at work on a new method for the production of acetylene at a cheaper rate than is now possible, and hopes to be able to use the carbon from the machines whilst still hot.

#### A NEW ONTARIO.

It would appear that Ontario is about to come into her own. The courts have just sustained the Government in the matter of the manufacturing clause in the timber licenses, and in future the forests of Ontario will not be cut down solely to create United States millionaires and Michigan saw-mill cities. We will have saw mills of our own which will supply the United States consumer, and the millionaires will be cultivated to the north of the international boundary.

On the day that the decision of the court was handed down in the appeal case of the United States lumbermen, already referred to, the Hon. G. W. Ross, the new Premier of Ontario, announced a somewhat similar policy with regard to the nickel-copper bearing ores which, we have often pointed out in THE CANADIAN ENGINEER, are one of the chief sources of wealth of Ontario and, indeed, of the Dominion of Canada. All mining licenses of nickel-bearing lands granted in future in Ontario will contain a clause prohibiting the export of the ore or matte, and permitting the export of refined nickel only. The Government would take power, also, if deemed expedient, to restrict the operations of the holders of existing licenses in the same way. It also appears that the Ontario Government has for over a year past been endeavoring to interest the Imperial Government in the use of nickel steel armour plate for the royal navy, and that there is a possibility of the Imperial Government assisting in the establishment of works for its production.

We do not wish to add ourselves to the stately procession of influential journals which, in a couple of days following Mr. Ross' announcement, each claimed that it had forced the Government to take what must, on all sides, be conceded as a splendidly advanced position. We are satisfied to point to our discussion of this subject, which has been widely quoted throughout the country. THE CANADIAN ENGINEER wishes to offer its most hearty congratulations to the new Premier of Ontario for the work he is doing in developing our great country; we hope that we may soon be able to offer similar congratulations upon the settlement of the Niagara power question (which still needs to be settled), so that the greatest possible amount of power may be supplied to the largest number of