

Air Power with Combustion of Gas.



HIS power of a new description, has been invented in Paris, two years ago, by Mr. E. Lenoir. Here is the principle on which it acts. If in an

air tight receiver, a mixture of combustible gas and air be introduced and inflamed, the gas will burn, generally with explosion, and produce a considerable elevation of temperature. The gas mixture, suddenly heated, will tend to expand, pressing with a heavy weight on the sides of the receiver.

Mr. Lenoir attempted to benefit the manufacturing community with this new expansion of the air by heat. His power has very much the same external appearance as the steam power, with the exception of the boiler and furnace, which are dispensed with. It consists of a strong cast iron cylinder, with a corresponding piston and rod attached to the axle of a fly wheel, along with the claps put in motion by excentrics. On each side of the cylinder is a clap, connecting on the one side the cylinder with the gas receiver, and on the other the receiver with the outside, allowing the issue of the air after having performed its work by expansion on the piston.

In order to illustrate the action of the whole machine let us suppose the piston ready to give a full stroke. The gas clap will be then opened, and the piston in moving will intro-

duce the gas along with the air, by opening³ made in the clap, so that air is supposed to be in the piston in alternate layers with the gas. This arrangement makes its combustion less explosive, meantime the power is increased. When the piston will have advanced one third of the stroke, the clap shuts, and through an electric spark the mixture is inflamed. The air expanding with a power equal to the high temperature thus produced, will drive the piston to a full stroke, when an outlet is procured to the expanded air, through the particular clap. The fly wheel will keep up the motion and the piston will return, introducing a fresh supply of gas and air, which will be inflamed when the third of the stroke will be performed, and so on at each extremity of the cylinder alternately. As this combustion of gas, kept on for some time, might increase the temperature of the cylinder to a high figure, a double cylinder is used as a covering to the first, leaving a certain distance between the two, so as to allow a constant run of fresh water.

These powers are now extensively used in Paris. A single horse power will give twelve hours work at \$1.50. The advantage is in the facility afforded to use the city gas, without the annoyance and expense of a particular man to drive it. By turning the gas the machine is at once ready to work, and it can be stopped with the same facility. There is no danger from either fire or explosion. One of these machines, $\frac{1}{2}$ horse power, has been imported as a model by Mr. E. H. Parent, civil engineer, Quebec, who will receive and answer all communications on the subject, with all dispatch, and due attention. 3

COMMERCIAL REVIEW.

The last steamer for Liverpool has brought a new fall in the foreign market prices, and the home buyers regulate their offers accordingly. Cold weather had lately threatened the loss of the coming crops in England and in France, and an alarm had been given. But the rise which resulted through this panic did not outlive its cause, and with renewed fine weather prices have again fallen where they now stand. The prospects of the crops here are good. Winter wheat is successful, and spring work is progressing rapidly with fa-

vourable weather. Pastures and meadows are equally good looking. Considerable shipping is going on at Montreal, and our exportation trade in breadstuffs and corn is increasing considerably through the facilities now afforded in the harbour for loading and unloading in the shortest possible time. For this we are very much indebted to the Harbour Commissioners, who are entitled to the highest praise for their untiring efforts to make Montreal one of the most important grain markets of America.