

The new shop is located within six minutes' walk of the railroad depot and within ten minutes' walk of the business center of Providence.

The demand for the Harris-Corliss engine is such that one thousand horse power per month in engines of different sizes have been shipped from this establishment for many months consecutively.

A good idea of the appearance of the machine shop of this establishment may be had from the lower view in our large engraving on the front page.

The accuracy of the work done in this establishment, as well as the excellent quality of the materials used, is attested by every engine sent out.

We found in these works engines in process of construction for all portions of the United States, and we were informed that many of them have been exported for use in foreign countries.

The great success of the Harris-Corliss engine lies chiefly in the simplicity and precise action of the governing elements; the governor is an independent mechanism, saddled with no extraneous load, and free to instantly respond to variations in the angular velocity of rotating parts.

In the Harris-Corliss engine, when the steam port is opened for admission of steam to the cylinder no obstruction exists to the free flow of steam from the boiler, and when the connecting pipe is of proper size, with few bends and well protected from loss of heat by radiation, the initial pressure in the cylinder is within a pound or two of the pressure in the boiler.

A Large Cog-Wheel.

A cog-wheel, said to be the largest ever made in Paterson, N. J., has lately been finished. It is of iron, 20 feet in diameter, the periphery 10 inches wide, and it weighs 12 tons.

HUSNIK's plan for causing a chromated gelatine film to adhere to a zinc plate is to coat the zinc plate with a solution of three grammes of chromic acid in one thousand grammes of water; when the acid has acted upon the zinc, wash off the solution and first coat the plate with plain gelatine, and then with the chromated gelatine.

AN extraordinary statement is made by the Chief Government Engineer of the Province of Liège in his trade report for 1878. He alleges that during last year a good deal of hardware manufactured in Belgium was exported to England, whence it was shipped to British colonies after the Belgian trade marks had been obliterated and replaced by spurious English ones.

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THE AMERICAN ASSOCIATION.

Notice has been taken in other columns of the general proceedings of the American Association at its Saratoga meeting. On the whole it was an enjoyable convention, well attended by members, and well supplied with papers, though no part of the proceedings may be described as of extraordinary interest or importance.

No great scientific discovery or invention, that the readers of the SCIENTIFIC AMERICAN would consider entirely novel, was brought before the meeting. The main results of Mr. Michelson's investigation of the velocity of light had already been made public. The details of his work, however, were known to but few, and his paper was justly regarded as of superior value and merit. Professor Marsh's address was a masterly review of a great subject, crammed with information which will give it permanent value.

Major Powell's treatment of Mythologic Philosophy was not only intensely interesting and suggestive, but singularly original, and freighted with a wealth of information with regard to the mental conditions of American savages. No better evidence could be given of Major Powell's fitness for the great work he is engaged in under the auspices of the Smithsonian Institution.

Mr. Edison's researches in connection with the behavior of highly heated metals in vacuo are certainly promising; possibly they mark the opening up of a new department in the practical treatment of metals, as well as in scientific metallurgy. Whatever may be the issue of Mr. Edison's efforts in the direction of electric lighting, the results of his investigations are certainly important in furnishing valuable contributions to science.

We take great pleasure in laying before the readers of the SCIENTIFIC AMERICAN and the SUPPLEMENT full and exact reports of the papers and addresses mentioned, with others of value.

PATENT YOUR INVENTIONS ABROAD.

In a report to the Department of State on the International Machine Market recently held in Leipsic, Germany, the United States consul to that place calls especial attention to the national and personal loss which results from the too common neglect of our inventors to take out foreign patents. Not only is the direct export of American manufactures to Germany and other European states seriously diminished by such neglect—the manufacturers of those countries flooding the market with cheap and ill-made imitations—but, still worse, such imitations are often exported to neutral markets to compete with or ruin the sale of the genuine articles of American make.

The consul mentions several American inventions whose market in Germany has been spoiled by local imitations after a large trade in the genuine articles had been built up. He also instances one which, thanks to a German patent, has been able to command the field in spite of many local imitations. He says:

"There are twelve manufactories throughout Germany engaged in the manufacture of reapers and mowers, after the model of those constructed by W. A. Wood, of Seneca Falls, N. Y. But the Wood reaper and mower being patented in Germany, the imitators have avoided infringement thereon by a variation from the original. This variation enables Mr. Wood to keep the field in Germany with his machines, notwithstanding the fact that the imitations are offered at 40 per cent less than the original."

The moral is evident. A few years ago it did not matter so much whether the inventor's control of his invention abroad was secured or not. American products were little known in foreign countries and imperfectly appreciated; besides the cost of manufacturing here was so great that any considerable export trade was out of the question. But all that has been changed. Even if the article is one that cannot profitably be exported the right to manufacture it in any European state can be profitably disposed of in the vast majority of cases. The eagerness with which American inventions are snapped up by foreign makers liable to unlimited competition in the production and sale of them is evidence enough, were all other evidence lacking, that the exclusive privilege of manufacturing under a patent would be easily salable at a good price. There is much to be done, it is true, toward organizing, developing, and simplifying the means required for handling to the best advantage American patent rights abroad; but even now the possession of a good patent right in any of the leading European states is a valuable property. And foreign patents are much more easily obtainable than most people imagine. Excepting England and Russia the official fees for patents in Europe are now not very much greater than those in the United States; and when we take into consideration the value of the markets thus to be controlled, the costs become comparatively trifling.

For this reason we are forced to think that Commissioner Paine is misreported in a late dispatch to the Evening Post, in which he is charged with saying that American inventors quite generally prefer not to secure patents in Europe in consequence of the high and discriminating fees there exacted.

That American inventors do largely neglect to secure the advantages offered by foreign patent laws is evident enough; but it is not due, we think, to any deliberate balancing of cost and possible profit. More frequently the American in-