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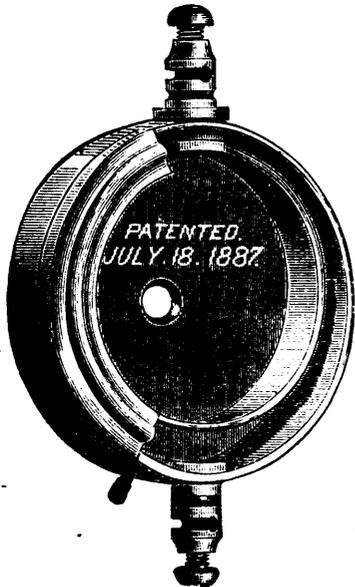
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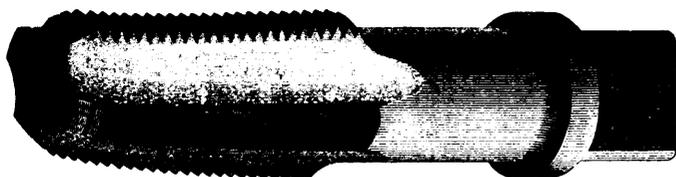
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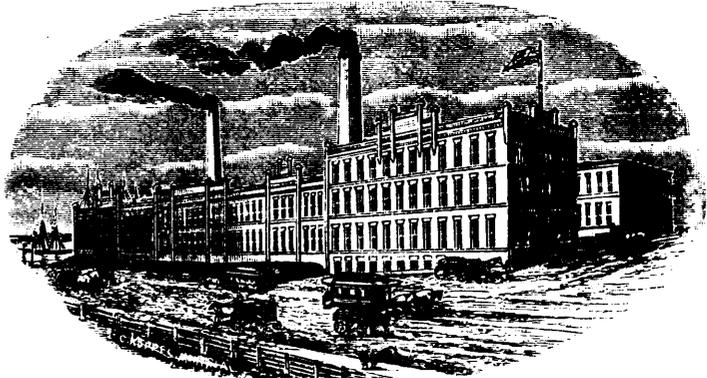
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[The following paper was read by Mr. Cassidey, editor of this journal, at the recent annual meeting of the Canadian Manufacturers' Association. It was unavoidably omitted from our last issue]

TARIFF PROTECTION—ITS BENEFITS.

THERE is nothing that is useful to man or essential to his welfare and happiness that does not possess its value because of the human labor that has been bestowed upon it. Gold is of no value until it has been taken from the earth in which it was imbedded, and the taking of it from the earth involves the expenditure of human labor. Coal is equally valueless in the mine, but when, at the expense of human labor, it is made to produce power—that is heat, light, steam and electricity—its value is immeasurable. The farmer makes his crop by the sweat of his brow, and the fisherman toils long and arduously in his dangerous occupation before the fish he captures attain any commercial value. The value of all raw materials is given by the labor bestowed upon them. Labor is valuable, but it is more valuable in some countries and under some certain conditions, than it is in some other countries and under some other conditions. The money value of the brawn and muscle of the ryots of India, who sweat and toil there in agricultural pursuits, is but a few cents a day, while in some more enlightened countries the labor of some men is worth a hundred times as much. In one instance the labor is not protected by any social, geographical, or political influences, while in the other instance labor is thus protected. If it were not for this protection the Indian ryot might elbow the farm laborer of our own land out of his occupation; and recent occurrences are fresh in the public mind, how the influx of Chinamen into the Pacific States of the American Union was

the signal for much bloodshed—not because the Celestials were heathen, but because they were willing to sell their labor at prices at which the Americans could not live. Free trade in labor meant the leveling down of American labor to the Chinese standard; and the only humane way to save American labor from Chinese competition was to pass an exclusion law, by which protection is afforded to the American laborer.

This exclusion law is but a part of a system by which all who labor in the United States are protected against the cheaper labor of other countries. The National Policy, which happily dominates in Canada to-day, affords similar protection to all who labor in Canada. This protection, forcing the preference of home products over those produced by cheaper labor in other countries, keeps Canadian labor in demand, enhances wages, encourages manufacturing enterprises, guarantees prosperity, and provides revenue for the Government; exacting tribute from foreigners for the privilege of trading with us. As against this protection the policy of free trade is to buy wherever merchandise is the cheapest; and because the value of this merchandise is created by the labor bestowed upon it, discriminates in favor of foreign cheap labor and against the higher priced labor at home.

PROTECTION A THOUSAND YEARS AGO.

More than a thousand years ago, protection somewhat similar to that which now prevails in Canada, existed in England; and England has encouraged some system of protection ever since. It is recorded that in the year 870 England enacted laws regulating the importation of manufactured goods from Germany; that 'dues' or duties were paid on such importations, and that these importations "were not to forestall the market to the prejudice of the citizens." In or about the year 1431, England enacted laws prohibiting the importation of merchandise except in English ships. In 1504 the English Parliament passed an Act to regulate and restrict the importation of foreign silk goods; and the statute as laid down in 19 Henry VII c. 21, prohibits "all persons from bringing into the realm to be sold, any manner of silk wrought by itself, or with any other stuff, in any place out of this realm." A law enacted in 1567 prohibited the exportation of sheep; the punishment for the offence being that the offender "should forfeit all his effects, suffer imprisonment for a year, and then have his left hand cut off in a market town and on a market day, to be there nailed up; and for the second offence to suffer death." Some of the enactments of the British Parliament from 1559 to 1603 were as follows:—Prohibiting the exportation of wool; restricting the coasting trade to English vessels; prohibiting the importation of minerals, finished leather, etc.; encouraging the immigration of skilled artisans; and the imposition of duties on imported cloths. In the year 1700 the importation of calicos, chintzes and muslins was prohibited. In 1720 a law was passed imposing a fine of twenty pounds upon any person found wearing a printed calico dress; and a law, made about that time, prohibiting the exportation of machinery for manufacturing flax, was not repealed until the opening of all British ports to free trade in 1842. In 1646, after noting in preamble the benefits arising from customs received from imports from the plantations in Virginia and other places in America, Parliament inaugurated restrictive measures on goods exported from British colonies, the law

providing that "none, in any of the ports of the said plantations, do suffer any ship to load any goods, of the growth of the plantations, and carry them to foreign ports, except in English ships;" and in 1731 an Act of Parliament prohibited, under forfeiture of ship and cargo, the carrying into any port of the American colonies, any sugar, rum or molasses, the product of any foreign nation. Under the Commonwealth Cromwell inspired laws which forbade the importation of foreign products except in English vessels, or in those of the country from whence such products came; the objects being to encourage ship-building in England; to cripple the carrying trade of Holland, who at the time possessed a great commercial marine, and to build up a great English commercial marine and a great English navy. When this policy effected these purposes it was abandoned, but not before. In 1719 Parliament declared, "The erecting of manufactories in the colonies tend to lessen their dependence upon Great Britain." In 1732 the British Board of Trade, in a report made to Parliament, noting the fact that "In New England, New York and Pennsylvania the people have fallen into the manufacture of woolen and linen cloths," said: "It is to be wished that some expedient might be fallen upon to direct their thought from undertakings of this nature; because these manufactures, in process of time, may be carried on in greater degree, unless an early stop be put to their progress. Moreover, we find that certain trades and manufactures set up there are detrimental to the trade, navigation and manufactures of Great Britain." This suggestion, and the petitions that were sent up from the English manufacturers, induced Parliament to pass an Act prohibiting the exportation from the colonies of all such articles as interfered with like articles manufactured in England. In 1750 an Act was passed prohibiting the erection in the colonies of mills for rolling iron, or works for the manufacture of steel; and any such establishments found there were to be declared nuisances and destroyed accordingly. By an order-in-council made in 1763, it was decreed that the Cromwellian Navigation Act, which had been re-affirmed under Charles II., was to be vigorously enforced; and the enforcement of it, as stated by Edmund Burke in his speech in the Commons on American taxation, was "not only to tie, but to strangle the commerce of the colonies"

UNDER OLIVER CROMWELL.

When Cromwell captured the Government and formed the Commonwealth, England was in an impoverished condition, with but few important workshops or factories. It was seen that the position of the country was insular, the territory small, and that it was impossible for England to become rich and powerful except through manufactures and commerce. The great men of that day, in desiring to achieve greatness for England, did not attempt to do so through the agency of free trade with all the world. They saw that such a policy would be ruinous in the face of the fact that Holland was then a great maritime nation, with a large commercial marine and an important war navy; and that such a policy would have been more to the advantage of their Dutch neighbors than to their own country. They saw that the path to greatness lay in the encouragement and building up of great manufacturing establishments at home, and the exclusion from the home market of the products of the great manufacturing establishments of other

nations; in the embarkation of capital and skill in the creation of manufactures which all the world might desire, and the invitation to British shores of the capital and skill of other nations. They passed laws admitting free of duty such raw materials as they could not produce at home; prohibiting the importation of many articles, and laying heavy discriminating duties on others; the greatest importance being attached to their Navigation Act. The provisions of that Act were the most stringent and highly protective, both of manufactures and commerce, that it was possible to form; and the effect was all that its projectors could desire. With most wonderful rapidity England advanced in national importance, becoming a hive of manufacturing industry. Of course she had entire control of her home market; and soon she was competing successfully with her rivals in the markets of the world. Her commercial marine grew and increased with wonderful rapidity, and it was a nursery which supplied her war navy with skilled sailors; and her march to greatness was not accomplished until she was the most important manufacturing, the most important commercial, the most powerful and the richest nation in the world. This greatness saw her standard carried far in advance of advancing civilization throughout the world, and with such persistency that the sun never set upon her possessions, the drum-beats of her garrisons following the sunrise in its ceaseless march around the globe. England acquired all this power, prestige, wealth and grandeur entirely through her National Policy of Protection.

MISTRESS OF THE WORLD.

Having made herself mistress of the commerce of the world, and having rounded out the structure of her greatness, she no longer felt the necessity of maintaining the scaffolding upon which her workmen had stood in their operations of building, and the process of its demolition was begun. Under protection she had drawn largely upon the knowledge and skill of the world in establishing workshops and factories, in which every article of commerce required by the world could be produced of unequalled excellence, and at the very lowest cost of production. To give continued employment to these industrial establishments, customers must be found for their products; and having nothing to fear from the competition of any other nation or people, her policy was changed and the theory of free trade accepted. Accepted, but never fully adopted; for even at this day England raises a large portion of her revenue by import duties much higher than are imposed by Canada or the United States. Sir Robert Peel's tariff, enacted in 1842, is claimed to have been a long step in the direction of free trade. Perhaps it was; but Mr. Gladstone, while Chancellor of the Exchequer, said of it that "It was an attempt to make a general approach to the following rules:—First, the removal of prohibitions; secondly, the reduction of duties on manufactured articles, and of protective duties generally, to an average of twenty per cent. *ad valorem*; thirdly, on partially manufactured articles to rates not exceeding ten per cent; fourthly, on raw materials to rates not over five per cent." Sir Robert himself said of his measure, "I do not abolish all protective duties. On the contrary, the amended tariff maintains many duties that are purely protective, as distinguished from revenue duties." Under her system of protection, England levied a duty of a shilling a quarter on grain; and although the collec-

tion of this duty was virtually abandoned in 1849, the law itself was not repealed until twenty years later. This law was repealed because England was not able to feed her population from the products of her own soil. And because she could not thus feed them, and because of the comparatively high cost of living, thousands of her skilled artisans and mechanics, and many of her manufacturers also, were emigrating to other countries where the cost of living was cheaper, the celebrated Corn Laws were repealed. It was not until 1874 that the duties upon sugar were abolished, which Act gave a staggering blow to the refining industry there, from which it has never recovered; for whereas at that time there were some twenty immense refining establishments in the city of London alone, to-day there are but five, the business having been transferred principally to Germany. The duties upon grain were removed because England could not feed her people from her own fields; and because it was discovered that she could buy food cheaper than she could raise it; and the duties upon sugar were removed, because she expected to sell sugar cheaper than any other country. In 1879 England levied duties on fifty-three different articles of commerce, in the imposition of which marked protective discrimination was shown in favor of her home manufactures. On over forty per cent. of the total dutiable imports of Great Britain, her tariff discriminates between manufactured and raw material by duties from twenty to forty per cent. higher on the first than on the last. And even to day, while gold and silver bullion is admitted free, a specific duty of \$4.08 per ounce is imposed on gold plate, and thirty-six cents per ounce on silver plate. This is much higher than the Canadian duties on the same articles.

AN OPEN QUESTION.

It is an open question whether England under free trade, such as it is, is as prosperous as she would have become under her protective policy. Some of her statesmen think not. Sir J. B. Byles, in his "Sophisms of Free Trade," published in 1880, says: "No nation has ever adopted the theory and practice of protection to the same extent as England; no nation has, at the same time, enjoyed so extensive and lucrative a foreign trade. For centuries the greatest protection in the world has coincided with the greatest foreign trade in the world. Under a strict and jealous system of protection we have seen the rise of Manchester, Birmingham, Sheffield, Bradford and other cities. Protection has not blunted the invention or superseded the ingenuity of our countrymen. On the contrary, our cottons, our woollens and our hardware were the best in the world. What England might have been without protection from foreign manufacturers, we know not. She might have been what Ireland is now, without protection from English manufacturers. But it is certain that with protection the means of purchase have been created and multiplied in a degree marvellous, and transcending all anticipation."

ABSOLUTE FREE TRADE DOES NOT EXIST.

Free traders endeavor to create the impression that as it is with England of to-day, so it is with all the other nations of Europe—that they have either free trade, pure and simple, or that their tariffs are for revenue only. A recent declaration of the British Chamber of Commerce was to the effect that "in Russia the importations of foreign articles is practically prevented by a scale of duties higher than any in the world."

Austrian duties range from twenty-four to sixty-seven per cent. Henry C. Carey says that the great progress of Germany, from poverty to wealth, in the past thirty five years, "is owing to the great and simple operations of the Zollverein, which is among the most important measures ever adopted in Europe." Frederick List, who labored assiduously to make Germany a great manufacturing nation speaking of the operations of the Zollverein, said: "It affords protection of twenty to sixty per cent. on manufactures," and that it had "wrought a wonderful and excellent change;" and Bismark, in a speech before the German Reichstag, on May 14th, 1882, advocating a protective tariff for his country, alluding to the operations of the protective tariff of the United States, said: "The success of the United States in material development is the most illustrious of modern times. The American nation has not only successfully borne and suppressed the most gigantic war of all history, but immediately disbanded its army, found employment for its soldiers and marines, paid off most of its debt, given labor and homes to all the unemployed of Europe as fast as they could arrive within its territory, and all by a system of taxation so indirect as not to be perceived, much less felt. Because it is my deliberate judgment that the prosperity of America is mainly due to its system of protective laws, I urge that Germany has now reached that point where it is necessary to imitate the tariff system of the United States." Sir Edward Sullivan, an eminent English writer, says: "Protection is as firmly drawn around all the native industries of Europe and America as it was twenty years ago; and generations will elapse before there is any sensible move in the opposite direction. If the English operative classes are to wait till universal free trade over-spreads the world, England must be turned into a Sleepy Hollow, to be awakened every hundred years to see how foreigners are learning their duty to their neighbors as well as to themselves. We are told that free trade principles are spreading; why, in Prussia, Austria, Belgium and Switzerland, the idea of even opening their ports and markets, and inviting competition with their own industrial population, has never yet been mooted. France, Belgium, Switzerland and Prussia have increased materially in wealth and prosperity during the last twenty years; capital has flowed steadily and with increasing rapidity into them; new manufactures have sprung up; existing industries have been increased; trade has flourished; speculation and enterprise have taken the place of apathy and want of confidence. All this has taken place under a system of protection." Two hundred years ago Turkey was a rich and important nation, and she produced large quantities of wool, silk, corn, cotton, coal, iron and copper. But she made a treaty with England by which she bound herself not to charge more than five per cent. duty on imports of English merchandise, and to exempt English vessels from port charges; whereupon, England forbade the exportation of manufacturing machinery, and the emigration of English mechanics to Turkey, and soon the manufacturing industries of that country were destroyed. That unfortunate country, about the only free trade state in Europe, has long since lost her prestige and power.

PROTECTION IN THE UNITED STATES.

It would be difficult to state with exactness the time of the inception of the protective idea among the people of what is

now the United States. But the growth of that sentiment was rapid; and one of the great causes that led to the abandonment of the confederation of the thirteen States, and the formation of that "more perfect union" which was afterward created, was that the Congress—the central power—might be clothed with the necessary authority to levy duties upon imports from foreign countries. Before the union was perfected New York, Pennsylvania and Massachusetts were clamoring for protection; and when Congress met in 1785, it found itself besieged by influential petitioners who demanded that some system of protection should be adopted. Four years later—in 1789—when the first Congress chosen under the new constitution met in New York, petitions for protection were showered upon it from all sections, from Boston to Charleston; and in response to this expression of public sentiment, the first important law passed by the first Congress was a Tariff Act. This Act was prepared by James Madison—who afterwards became President—and in the preamble it was clearly stated that one object of the act was 'the encouragement and protection of manufactures.'

It is not necessary to recur to the ups and downs of protection in the United States. When its friends were in power the country was prosperous, and when they were out of power the country was not prosperous. The element that antagonized protection was the element that precipitated the country into rebellion; and it was to raise the means to pay the cost of the rebellion that the Morrill Tariff Act was passed.

PROSPERITY UNDER PROTECTION.

How the United States has prospered under its system of protection is shown by a statement made by Michael G. Mulhall, the great English statistician, to a recent meeting of the British Association. Speaking of the growth of the resources of the United States—its wealth, population and industries—in a single generation, from 1850 to 1888, one of his computations showed the relative progress in ten principal items of national greatness during this period of thirty-eight years. These elements and their advance during the period alluded to were as follows:—

ELEMENTS.	ADVANCE.
Railways.....	1580 per cent.
Banking.....	918 "
Steam Power.....	685 "
Wealth.....	680 "
Manufactures.....	408 "
Commerce.....	315 "
Agriculture.....	252 "
Education.....	206 "
Population.....	170 "
Shipping.....	74 "

It should be borne in mind that no distinctively protective tariff was in force in the United States at the earlier of the dates mentioned by Mr. Mulhall—1850—and that the great and exhaustive rebellion occurred during the period; therefore nearly all the advances here alluded to occurred after the war, and by and through the influences of what its enemies are pleased to call the "war tariff."

CANADA PROFITS BY EXAMPLE.

With all of the illustrious precedents here alluded to—with all the teachings of history before her—it is not strange that Canada should have adopted a National Policy of Protection herself; it is somewhat remarkable that she should not have adopted it sooner. What that policy has already done for Canada, and what it is doing, is current history.

DIFFERENT KINDS OF PROTECTION.

There are those, perhaps, who do not comprehend the fact that there are many interests in this country which, while not coming directly under the influence of the tariff, enjoy even greater protection than any tariff laws could possibly give. It is not necessary for a person to be an actual resident of Canada to enjoy the protection afforded by our patent laws; and any Canadian who may have acquired the right to use any patent, domestic or foreign, possesses a privilege which excludes all the rest of the world from its use. Thus the patentee of any useful machine may manufacture the same in Canada without fear of competition either from any other manufacturer in Canada or any where else in the world; and this without reference to any tariff laws—his patent is his protection. The owner of the copyright of a book, or picture, or trade mark, enjoys similar immunity from competition from any source—his copyright is his protection. Another aspect of protection is the system by which merchants and store-keepers in cities, towns and villages are protected from the competition of transient vendors by the imposition of licenses. The resident trader pays taxes for the support of government; and if the stranger desires to share the trade, he, too, must take some of the burden upon his own shoulders. The license is the protection against free trade. It has been said that the laboring man enjoys no protection: that the carpenter, bricklayer, mason, metal worker and all those employed in the construction of houses are not "protected" in any way. But they are. All classes of buildings from the cottage of the laborer to the palace of the wealthy—the modest little country church and the stately city cathedral—all stand as monuments of the fact that the workmen who erected them were protected in their labors—protected because of the impossibility of importing such structures from abroad. If it were possible to load buildings on to ships and to transport them from place to place, some of us to-day might be living in houses, and worshipping in churches, built in England or the United States; and it would be found that our tariff laws imposed specific or *ad valorem* duties on them. But because such buildings are not thus transportable there is no necessity for any such law. The impossibility of moving houses from place to place is the protection workmen have in their labor.

PROTECTION PROTECTS THE AGRICULTURIST.

There are other phases of the question in which it might be shown that workingmen have a vital interest in protection; and in the term "workingmen" are included all who perform manual labor for their living. In the United States about ninety-two per cent. of the products of agricultural pursuits are consumed at home, only about eight per cent. going abroad. This shows the value of the home market to that class; and what may be said of this interest in the United States may also apply to Canada. Of course the producers are not the consumers; but the products go to satisfy the wants of those engaged in other pursuits. Thus the market gardener near a manufacturing city finds quick remunerative sale for his products close at hand. But it is certain that if there was no large aggregation of hungry men, women and children close at hand there would be no home demand; and if the products were sold at all it would necessarily be to those at a distance. Of what avail would it be to this agri-

culturist if, failing to find sale for his products, that the price of anything that he might want to buy was only half what he would otherwise have to pay for it? No market, no sale; no sale, no money; no money, no necessaries of life for his family, no clothing for his own back.

PROTECTION MEANS TALL CHIMNEYS.

Free traders argue that the duty is always added to the price, and that this duty goes into the pocket of the manufacturer. The answer to this is, that under protection factories with tall chimneys multiply, and that competition forces down prices to the lowest possible living limit. It is rarely the object of the tariff to exclude foreign goods absolutely. Competition between home manufacturers reduces the price of goods to a minimum; and if the foreign manufacturer desires, after meeting the requirements of the tariff and the competition of the home manufacturers, to enter the home market, he is welcome to do so, and the consumer has the variety from which to choose. On the other hand, without protection the home manufacturer could not exist; and the market would be in the control of the foreign manufacturer. Does any sane person suppose that any feelings of tenderness or philanthropy would induce him to take less for his goods than the last cent that he could squeeze out of his victims? Human nature is not of that texture.

THE FARMER BENEFITED BY PROTECTION.

Under protection in the United States the growth of manufactures has been so great, and the reduction in cost so great, that there is nothing that the American farmer needs, from a mowing machine to a garden rake—from a cook stove to a pair of mittens—that cannot be had of as good or better quality and at a lower price than before the inauguration of the present protective system there. And not only this, for to-day American agricultural implements, American cotton goods, American hardware, American vehicles and Yankee notions, are sold in England in large quantities. Protection makes this possible.

EXPORTS UNDER PROTECTION.

The exportation of American agricultural products does not begin to keep pace with the increased exports of American manufactures; not because the production of farm products is falling off, but because these products are consumed at home, while the increase in the production of manufactures not only gives the agricultural classes the benefit of the decreased cost of all things they require, but enables the manufacturers to enter the markets of the world even bearding the British manufacturing lion in his own den.

HOW LABOR REFORMERS VIEW PROTECTION.

Viewing protection from the standpoint of the artisan and mechanic, Mr. H. J. Pettifer, secretary of the Workingmen's Association for the Protection of British Industry, states that his association "bases its demands on the direct injury that foreign competition does the working classes in England, especially in the agricultural districts." "Foreign competition," he says, "during the last ten years, has thrown about two million acres of arable land into pasture, and about one hundred thousand men out of work. They go to the towns for employment. We give foreign competition the credit for bringing on pretty much all the distress there is at present in

England. There are about nine hundred thousand wage-earners out of employment at present." Mr. George Shipton, as chairman of a recent Trades Union Congress, held at Bradford, England, stated: "As to free trade, they had had the old nostrums trotted out that they should buy in the cheapest market and sell in the dearest, regardless of the consequences or the conditions under which the cheapness was obtained. If that principle was a good one they might as well import oriental labor, indorse the sweating system, and approve the slave trade." At the same Congress, Mr. Broadhurst, after reading the report of the Parliamentary Committee, discussing the matter, said: "There are various degrees of sweating, but the demon of cheapness has permeated our whole social system; and, while the cheapness of goods has been a matter for wonder, purchasers seldom or never give a thought to the human blood and muscle that have been ground up in the production of the articles supplied to minister to their necessity, to add to their luxury, or to gratify their vanity." Mr. T. V. Powderly, Grand Master Workman of the Knights of Labor: "I am a high tariff man and a protectionist, and for the reason that I am an American and a friend of American laborers. No workingman has ever called for a reduction of the tariff, and no reduction should be made until it is demanded by the people. We want protection from one end of the country to the other. Touch not the tariff. Raise the tariff so high that not a single article of foreign manufacture can come through it."

ENGLAND VERSUS CANADIAN IRON WORKS.

Anti-protectionists argue that the removal of protection, or important modification of our tariff laws, would not only benefit consumers in Canada, but that Canadian manufacturers would be enabled to offer serious competition with other manufacturing countries in the markets of the world. How England views the matter is shown by a memoranda given to the Secretary of State for the Colonies, by a deputation of the House of Commons rather more than a year ago. In this memoranda it was stated:

"A proposal is now pending to increase the rates of duty paid on iron and steel imported into Canada.

"This increase is so enormous that it is manifestly designed for protection.

"In so far as any increase of duty on manufactures imported into Canada is protective and prohibitory, it must be so almost exclusively as against England.

"The proposal to increase the duties on iron and steel must operate very detrimentally . . . against England, because Canada is now, and has for many years, been one of our principal markets, exclusion from which would be certain to withdraw a large part of our trade.

"There are high economic and State reasons why Government should endeavor to interfere, if possible, to avert this. The number of workmen employed in our iron and steel works has been largely reduced within recent years . . . Much of our most skilled labor has consequently migrated to the United States and other countries, where their knowledge and skill are employed against our home industry.

"The Canadian iron industry is not yet developed to any material extent. The effect of imposing the proposed new duties would certainly be to induce an unnatural, and therefore unhealthy, development of new enterprises on Canadian soil.

"The future, as well as the past, of the Dominion must be mainly dependent on agriculture.

"The present movement for the adoption of a prohibitory tariff is avowedly promoted, if not solely initiated and carried on, by a few interested firms who desire to engage in the iron industry."

The British Iron Trade Association are credited with having drafted this memoranda; and it is interesting to note the fear under which British manufacturers, who have free trade, labor. They fear that protection to the iron industry in Canada would interfere with their business. As any and all Canadian manufacturing enterprises would undoubtedly advance the price of all Canadian agricultural products, through the increase of skilled labor drawn from English industries, the argument fails that free trade industries are not adversely affected by protection.

"TERGIVERSATIBUS TOGA."

It may sound somewhat strange at this time to quote the *Toronto Mail* as an advocate of protection, and to cull from its editorial pages strong reasons why protection is good for the country. A few years ago the New York Free Trade League sent out an illustrated publication entitled "The People's Pictorial Taxpayer," which contained a cartoon entitled "How the tariff robs the farmer and workingman to benefit the monopolist." Defending protection and criticising this and other free trade screeds, under the caption, "Consolations for the Protected Farmer," the *Mail* said:—

"The farmer rises in the morning tolerably refreshed. True, he has been sleeping on a bed, the sheets, blankets and mattresses of which would have been taxed from 60 to 180 per cent. had they been imported from a foreign country. But they are home made, and his dreams have not been disturbed by the free trade bugbear that 'Protection raises the price of the home manufactured article up to at least the price of the imported article, plus the import duty.' Mr. David A. Wells and other agents of the Leeds and Manchester manufacturers, once tried to frighten him with this bogey; but experience has taught him that it is only a make believe. There is an import duty of eight cents a yard on cotton sheeting, but he buys it from the cotton factory in his market town at seven cents a yard; and he sees it going to England in competition with free trade cottons. Moreover, he knows that it is to that import duty he owes the establishment of the neighboring cotton factory, whose operatives give him a profitable home market for his rotation crops. He is well satisfied with his bed. It is home made. It cost him, if anything, less than an imported article; and its manufacture has given employment to artisans who buy the products of his farm almost direct from his wagon.

"He is not alarmed because there is a heavy import duty on foreign cloths, boots and cotton shirts. His suit from head to foot is of domestic make; he thinks this is better for him than if his coat had come from the West of England, his shirt from Manchester, and his boots from Stockport.

"Breakfast over, he takes to his farm implements. Foreign implements, such as shovels, hoes, pails, churns, reapers, etc., are taxed thirty-five per cent.; and when the battle of the Morrill Tariff was being fought in the American Congress, the agents of the great Bedford and Leicester firms predicted that an import duty on their goods would ruin farming in the United States. He has discovered that this is not true; and

that Yankee farm implements have become the cheapest and best in the world.

"The farmer hears the toot of the dinner horn, and sits down to his table, nothing put out by the reflection that tin horns of foreign make are taxed about two cents each. Neither does he lose his appetite when he remembers that furniture, such as the chair he is sitting on, and the table at which he is eating, are taxed thirty-five per cent. when of foreign make. This duty has helped to establish furniture factories and to give employment to thousands of mechanics at home, and in this way has benefited him.

"After dinner he sets out for his market town, and as he journeys pities the Canadian farmer, who, as a rule, has to dispose of his produce to middlemen, who stand like a row of tax gatherers, each levying his tithe between the Kanuck farm and the foreign consumer. He enters the market town at one o'clock, and his sympathy for the Canadian farmer is deepened as he sees troops of Canadian operatives returning to these Yankee factories from their dinner. 'I wonder,' he says, 'if the Kanuck farmer ever sees crowds of Yankee operatives going to work in a Canadian factory. Guess not. Then what do free traders mean by arguing that protection, such as we Yankees are cursed with, ruins industry; while free trade, with which the Kanucks have long been blessed, builds it up and makes a nation great? If that were so, would not those active little French-Canadians be at work in Montreal, and would not our Yankee mechanics be pouring over there also?'

"By this time he has reached the store, and disposes of his tomatoes, potatoes, etc. With the money received in payment he makes his necessary purchases, and finds no small consolation in knowing that almost every dollar he pays out goes to home industries.

"He thinks this over as he travels homeward, and talks Protection *versus* Free Trade with his sons in the evening. One of them works on the farm and the others are at trades in town—Canada has no attractions for them. 'You boys are all here,' says the old man, 'and I guess it is a pretty good country, protection and all.'"

THE PRICE OF PROTECTION.

Eternal vigilance is the price of protection. Under her National Policy Canada has made remarkable advances on her road to greatness; and the men who so nobly and indefatigably served her in this great work are deserving of all praise. But the enemies of protection are vigilant and active, and to retain the policy that we now have requires all of the intelligent exertion that its friends possess. Powerful influences are working to destroy Protection. There are those whose pecuniary interests make them its enemies. There are those who study false political economy, and from it originate fine-drawn theories, and put these in antagonism with the teachings of experience and the judgment of those whose knowledge of affairs lead in another direction. These adversaries of protection are constantly at work; and they must be opposed, fought and conquered. If this is done, smoke will continue to roll out of the tall chimneys of our workshops and factories, and Canada will rank where she belongs, among the most prosperous nations of the world.

COPPER.

THE history of the production and trade in copper during the last five years is not without interest. Five or more years ago the price of copper was in the neighborhood of twenty cents a pound. This was not considered high. Gradually the price dropped to fifteen cents, and it was thought that the bottom had been reached, and that the figures would never be lower, but the completion of the Southern Pacific and Northern Pacific railroads, and the consequent opening up to the world of the mines of Arizona and Montana, tended to a still further depression. The production of the mines was perhaps over-estimated, but the bears had their day in the market, and prices reached the low figure of ten and eleven cents. Improved methods in the extraction of the ore from the crude product of the mines also had their effect. With the abundance of copper and its low price, the consumption increased. It was widely used in the electrical appliances and household utensils. Factories started up throughout the world, notably in England, and the tendency in the price of copper was again upward. In this the French capitalists saw their opportunity. About a year and a half ago they devised the scheme of controlling the markets of the world, and the syndicate was formed and contracts were entered into with the owners of the large producers, principally the Calumet and Hecla and the Anaconda, to take all their products. Some opposition was presented by the French Government to the syndicate, but this was silenced by the argument that their English rivals would be shut out and that France would thus score a victory. Having made their contracts with the mine owners, they forced the prices up to fifteen and sixteen cents. A decline in the use of the metal followed, and there was an increase in the production. The English capitalists and manufacturers saw the new move in the game and did everything in their power to clog its progress. The amount of copper used has declined, the cheaper metals having been substituted in its place wherever it was possible, and the supply of the commodity has been greater than ever before. The result has been a large accumulation of copper—probably 120,000 tons, in the hands of the syndicate—for which they have paid the mine owners thirteen and a half cents.

PRISON LABOR.

ANENT the prison labor question the *Toronto News* suggests that instead of hiring out the convicts to contractors, or working them in prison shops for the sole benefit of the state, they should be kept employed at some remunerative and useful work, and the proceeds therefrom after deducting the expenses of their keep, etc., should be placed to the credit of the convict, to be paid to him at the expiration of his term, thus giving him a small fund with which to again start in life, or to be paid to his family from time to time.

The *News* argues:—"The state certainly has a right when any man commits a crime to remove him from contact with his fellows until he learns that to act honestly and unoffensively is the course fraught with the least unpleasantness to him, but it is a question whether it has any right to lock him in a cell to fret his way to the madhouse, or to hand him over to a contractor who will work him like a slave on slave wages—his food and clothing. It is not the work which makes the punishment, but the thought that he is altogether isolated from the world, that his offence has brought complete deprivation

of personal liberty, which is dear to every man, no matter what his condition. But if he works the fruit of his labor should not be filched from him to swell the purse of some contractor who has sufficient influence with the Government to have this cheap labor placed under his control. No difficulty stands in the way of paying the prisoner a just sum for the work he does in prison, and whatever remains after paying for his keep should be placed to his credit on the prison books or paid to his family. The offender may have been the head and supporter of a respectable family before he went astray, and although his wife and children are innocent of any offence the punishment often falls more severely upon them than upon the prisoner. Rendered helpless by the removal of their supporter, they soon sink into penury and swell the pauper class, yet that would not be the case if the proceeds of the prisoner's labor came to them, instead of going to a prison labor contractor."

EDITORIAL NOTES.

SHIPMENTS of Canadian butter have lately been made to China with very satisfactory results, says the *Manchester Guardian*. The butter is much liked in China, and is eagerly sought after as soon as landed, notwithstanding the relatively high cost of laying it down there. The success of the experiment seems to open up an indefinite prospect for trade in Canadian products *via* the Pacific to the far East.

MR. N. F. DAVIN, M.P., has sent us a copy of his speech delivered in the House of Commons, at Ottawa, on "The Demands of the North-West." In this speech is condensed a most valuable mass of facts regarding the great Canadian North-West, the richness and fertility of which are simply marvellous; and the style in which the facts are set forth is as glowing as was Mr. Davin's description of Erin's Green Isle, at the recent banquet of the Toronto Irish newspaper men.

CARDINAL GIBBONS and this journal are at one regarding our argument that instruction to convicts in prison should not be confined to teaching them manual trades, but should extend to law, medicine and divinity. On a recent Sunday afternoon his Eminence preached to the convicts in the Baltimore penitentiary, exhorting them not to fret, and to make the best possible use of their time. "I was in prison six years myself," he told them. "They called it a college, it is true, but it was not much different from a prison. The discipline was as rigid, if not more so, as at West Point. We had to go, whether we liked it or not, at the sound of a bell to our meals, to bed, everywhere. We had the same round of lessons, marching in procession and services, day in and day out, all the six years. We wore a black uniform, and had to obey a strict discipline. And yet, whatever I have learned of theology, history and other matters, I attribute to the work of those six years."

PR. F. EATON, of the Scientific Department of Yale University, has presented to the legislature of Connecticut strong objections to the granting of a charter to a newly organized company in New Haven, for the running of street cars by electricity conducted through overhead wires. Prof. Eaton says that he is opposed to the use of any naked wire carrying a current of electricity strong enough to run a street car, because of the great danger to life. Electric wires for other purposes are over the streets, and their insulation is so imperfect that to touch them would almost surely mean death. New Haven streets are lined with trees, and if a limb from one of

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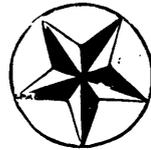
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these should fall across a bare wire used for car traction it would kill anybody who might touch it. Should a telephone or telegraph wire fall across one of the naked wires, the instruments would be burned, and the shock might kill anybody who should touch one. On wet days people might receive shocks from the trees along the line. Prof. Eaton advocates instead of the overhead wire system some system of storage batteries, which, if not advantageous to the company, would insure safety to the public.

THERE will be held at Paris at the Conservatoire des Arts et Métiers, an International Congress of Applied Mechanics, under the patronage of a Committee of Honor, comprising savants and engineers of renown, both from France and from other countries, who will give the work of the Congress the benefit of their influence and the weight of their authority. The President of the Committee on Organization is Monsieur Phillips, ex-Inspector General of Mines (retired). The five members appointed from the United States are, in order of their mention on the official bulletin, Messrs. Robert Grimshaw, President Polytechnic Section American Institute, New York; R. H. Thurston, Director Sibley College of Cornell University, Ithaca, N.Y.; Prof. Egleston, Columbia College School of Mines, New York, and the Presidents of the American Societies of Civil and of Mechanical Engineers. At this Congress, among the important subjects submitted for discussion, are the unification of the horse-power; the choice of materials in machine construction; the mechanical production and utilization of artificial cold; transmission to a distance and distribution of work, by other means than electricity—water, air, steam, cables, etc.; automatic cut-off engines with several successive cylinders; thermo-motors other than the steam engine. Other topics, treated by papers, will be improvements in steam engines since 1878; progress among associations of owners of steam appliances; and improvements in apparatus for the generation of steam, more particularly sectional boilers.

SPECIAL ADVERTISEMENTS.

TISDALE'S BRANTFORD IRON STABLE FITTINGS.—We lose no job we can figure upon. Catalogue sent free. The B. G. Tisdale Co., Brantford, Canada.

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THE Massey Manufacturing Company, Toronto, sold implements and threshing machinery at Deloraine, Man., last year to the amount of \$53,000.

Practical Electricity, published at 620 Atlantic Avenue, Boston, Mass., is an illustrated journal of current progress in electrical and allied science, and is devoted exclusively to the interests of invest-

ors in electrical plants. It claims to have a larger circulation among American investors and capitalists than all other electrical journals combined.

Once a Week is a journal of fiction, fact, sensation, humor and news, published in New York city by P. F. Collier. It is a bright and racy paper, replete with interesting reading, and profusely illustrated. Each issue contains very clever cartoons relating to current political questions; and the literary matter is from the best authors. It is one of the best papers of its class published, and the subscription price of it—\$4 a year—is exceedingly reasonable.

THE American Artisan, of Chicago, in addition to being one of the very best trade journals published in the United States, has recently been displaying an amount of pugnacity and aggressiveness that might lead one to think that the "Stern" man who directs its batteries is after the scalps of some of its St. Louis and New York contemporaries, which had been doing some alleged underhand lying concerning its circulation. There are not many trade papers that would care to publish fac-similes of their post office receipts of weights of papers sent out through the mails, as the Artisan does.

THE Dominion Illustrated Publishing Company, of Montreal, has been incorporated with \$50,000 capital stock, for the purpose of publishing the Dominion Illustrated, and for engraving, printing and publishing generally. This is the enlargement of the business of Messrs. G. E. Desbarats & Son, heretofore alluded to in these pages; which enables those enterprising gentlemen to more fully and to better advantage carry out their plans regarding what is undoubtedly the best illustrated newspaper enterprise in Canada. The Dominion Illustrated will no doubt become greatly improved under the new order of things, although it has already attained a condition of perfection that must be as gratifying to the publishers as it is delightful to Canadians.

Good Housekeeping is just what its name suggests—a journal for the home and fireside. It does not pretend to produce labored essays on abstruse questions, as some more pretentious magazines do, but confines itself usually to such reading as possesses the greatest interest to those who gather around the evening table when the duties of the day are done; for it is published in the interests of the homes of the world. The literary productions are always of the best order, while the hints and suggestions regarding good housekeeping—those relating to the preparation of food, the care of the sick, the manufacture of home ornaments, etc., are invaluable. Good Housekeeping is published fortnightly, at \$2.50 a year, by C. W. Bryan & Co., Springfield, Mass.

Outing for March, is a very strong sporting number. We note the following principal articles:—"Fox Hunting; A Day in the Shires," by Henry H. L. Pearce ("Plantagenet"), richly illustrated; "Lawn Tennis in the South," by Henry W. Slocum, Jr.; "Snowshoeing in Canuckia," by James C. Allan. "Salmon Fishing on Loch Tay," by "Rockwood," and illustrated by J. & G. Temple, deserves special mention. In addition, we note "Spaniel Training" by D. Boulton Herrald; "How to Cycle in Europe," by Joseph Pennell; "Amateur Photography," by Ellerslie Wallace; and "Winter Shooting in Florida," by F. Campbell Moller. There is, moreover, a well-illustrated account of "Coaching and Coaching Clubs," by Chas. S. Pelham-Clinton, and a "Sonnet," by Howell Stroud England. The Editorial Departments are bright and attractive, and the Records present, in a complete manner, the latest achievements of our athletes. The publication office of Outing is at 239 Fifth Avenue, New York city.

Wide Awake for April is a model number, whether for home reading or supplementary reading in school. For instance, there is an extremely interesting article by John Burroughs—his own story of his boyhood—that will be read with equal pleasure by young and old. And the same may be said of the historical article entitled "Raleigh and the Potato." A novel and graceful Easter game for young people, "The Cascaroni Dance," is beautifully illustrated, by Edmund H. Garrett. The short stories are of unusual interest, especially "A Dash for a Flag," a story of the Civil War, thrillingly illustrated by Sandham. The poems are particularly good, really for children—several very funny, too. Mr. Bridgeman's "Court Calendar," is a decidedly amusing conceit. The helpful series of Public School cookery articles treats this time of "marketing" with diagrams of the various "cuts" of beef. The serials "Five Little Peppers Midway" by Margaret Sidney; and "David Vane and David Crane," by J. T. Trowbridge, are jolly reading. The index page shows a list of over thirty different contributors to this number, and fifty illustrations. The publishers, D. Lothrop Company, Boston, send a sample (back number) for five cents. The price is 20 cents a number, \$2.40 a year.

Manufacturing.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

MR. C. A. LARKIN, Brandon, Man., will erect a planing mill.

FLETT's sawmill at Nelson, N. B., was destroyed by fire March 15th, loss about \$8,000.

MCGREGOR's sawmill at Rankin, Ont., was destroyed by fire March 12th, loss about \$2,000.

MR. GEO. GOODFELLOW, of Fort a la Corne, Sask., is establishing a grist mill to be run by water power.

THE New Brunswick Flour Mill Co., St. John, N. B., will build a mill either in St. John or Portland, N. B.

A PART of the works of the new Williams piano factory at Oshawa, Ont., has been completed and put in operation.

THE new factory of the Brantford Carriage Works, at Brantford, Ont., has been completed and put in operation.

MESSRS. J. & R. STRUTHERS, Sault Ste. Marie, Ont., have recently added saw mill machinery to their planing factory.

A PART of the factory of the London & Petrolia Barrel Works at London, Ont., was destroyed by fire March 18th, loss about \$3,000.

A COMPANY has been formed at Sparta, Ont., to erect a steam grist and saw mill in that village. The site has already been selected.

MESSRS. ACKLAND, who established a carriage factory at Emerson, Man., last fall, are fitting up their building with a lot of new machinery.

MESSRS. KNIGHT BROS., of Popcum, B. C., are rebuilding their sawmill and have purchased additional machinery which will double their output.

THE Ross-McLaren Lumber Company are proceeding to build their long-talked of saw mills at Westminster, B. C. It will be an immense establishment.

THE Dominion Sanitary Pottery Company, St. Johns, Que., have commenced operations in their second pottery, and they are crowded with orders for their goods.

MR. B. T. MILES, of Cleveland, Ohio, has formed a company, and will start a factory in Toronto for the manufacture of carbons for electric lighting purposes.

MESSRS. E. LEONARD & SONS, Brantford, Ont., are supplying a large 80 horse-power engine and boiler for the saw mill of Wm. Ferney, Gilmour station, Ont.

THE council of Elton, Man., will be asked to submit a by-law offering a bonus of \$5,000 in aid of the erection of a 100-barrel flour mill at Douglas, in the municipality.

MR. F. KNELL, who operates a knitting factory at Berlin, Ont., has recently filled an order for a Toronto wholesale house for \$18,000 worth of stockings and socks.

A NEW factory for the manufacture of plush and elastic has been erected in Cornwall, Ont., and will be in operation in a few weeks. It is claimed to be the only one of its kind in Canada.

MESSRS. STAHLSCHMIDT & Co., Preston, Ont., have secured the contract for putting in the office furniture in the handsome new edifice in Montreal erected by the New York Life Insurance Co.

THE Canada Copper Company, backed by the Standard Oil Co., have purchased the Canadian interests of the Vermillion mine. This company has invested over a million dollars in their copper mine.

IRELAND's National Food Company, of Toronto (Limited), has been incorporated, and taken over the business heretofore conducted in this city by Mr. F. C. Ireland, who will continue to manage it.

THE G. & J. Brown Manufacturing Company, Belleville, Ont., have been awarded the contract for building the superstructure of the new bridge across the Bay of Quinte, connecting Belleville and Ameliasburg.

MESSRS. E. LEONARD & SONS, Brantford, Ont., have lately supplied Messrs. A. C. & C. W. Elderkin, Advocate, N. S., with one of their portable Lane saw-mills, a 35 horse power engine, and a 40 horse-power boiler.

THE North American Chemical and Mining Company, of Owen Sound, Ont., who own the valuable gypsum deposits at Shallow Lake, near that place, will erect a \$60,000 plant for the manufacture of Portland cement.

MR. ROBERT WADDELL, of the Trenton (Ont.) Bridge Works, was recently in Belleville, Ont., inspecting the stove foundry property of Messrs. Harte & Smith, with a view to securing larger premises for the purposes of his business.

MR. COCHRANE, proprietor of the Crystal City, Man., mill, is said to be arranging to erect a mill at the station of a greater capacity than the one now in operation at the old town, one mile south of the station.—*Winnipeg Commercial*.

THE Canadian Asbestos and Antimony Company has been formed in London, Eng., with a capital of £160,000. The company propose purchasing the Nicolet, Thedford and Coleraine mines in Quebec, for which £130,000 will be paid.

THE British Columbia Tanning Company has been organized at Nanaimo, B. C., with a capital stock of \$50,000, for the purpose of manufacturing all kinds of leather, belting, leather goods, trunks, etc. Extensive buildings are being erected.

THE Atlantic Glue Works factory of Messrs. J. T. Huber & Co., Berlin, Ont., is 120x40 feet, three stories high, with a wing 60x40 feet. This firm make a specialty of manufacturing the higher grades of glue, for which they have a large trade.

MESSRS. MCGREGOR, GOURLAY & Co., Galt, Ont., have recently made extensive shipments of wood-working machinery to Antwerp and Ghent, Belgium. They are now employed working on a large order for machinery to go to Costa Rica, Central America.

MESSRS. L. J. BREITHAAPT & Co., Berlin, Ont., are one of the largest leather manufacturing concerns in Ontario. They operate several tanneries, that at Berlin having a capacity of 1,000 sides of leather per week, and that at Penetanguishene, Ont., 700 sides.

THE Piccadilly Spool Factory at Penobscus, Que., is under the management of Mr. R. D. Robinson. It employs about 90 men and 22 teams; has 17 spool machines turning out 80 gross of spools per day. The spools are shipped to Liverpool, Toronto and Glasgow.

At the recent annual meeting of William Parks & Son, limited, cotton manufacturer, St. John, N. B., the report was more satisfactory than was anticipated. The two mills are in good working order, employing 513 work people, and distributing \$2,500 weekly in wages.

THE Anthes Manufacturing Company, Berlin, Ont., manufacturers of baby carriages, cane, reed and patent chairs, etc., have their new factory full of work and plenty of orders on hand. The recently erected buildings are, one 120x40 feet, and the other 80x35 feet.

MESSRS. W. E. SANFORD & Co., of Hamilton, Ont., one of the largest clothing manufacturing firms in the Dominion, are negotiating for the lease of Magee's store on Dundas street, with the view of starting a branch of their business in London.—*London, Ont., Free Press*.

ANGUS FRASER has a raft of splendid spars in Howe Sound, which he is bringing into port with the intention of shipping by rail to New York, where they will be used as ship-masts. Each stick is 100 feet long and twenty-four inches in diameter at the top.—*Vancouver, B. C., News*.

A NEW industry has been established in Alberta. The Cochrane Mine Company have got into operation machinery for utilizing the slack at their mines by compressing it into coal bricks. These bricks of compressed coal dust are said to burn in a base burner for twelve hours.—*Calgary Herald*.

THE Portable Car Scale Company, St. Hyacinthe, Que., are manufacturing a portable car scale for which exceptional advantages are claimed. Its weight is only about forty pounds, and it is said that with it the exact weight of loaded railroad cars may be obtained very quickly and without trouble.

MESSRS. AYER & Co., of Lowell, Mass., manufacturers of numerous patent medicines, who do a large business throughout Canada, have secured premises at St. Johns, Que., where they will manufacture all the goods for their Canadian trade. This will be more tall chimneys to be credited to the N.P.

THE members of an eastern firm owning the Montague and Silver Creek mills, at Whitehall, Michigan, are in the city. They propose to erect a roller mill of considerable capacity, and are desirous of ascertaining if the city will offer them any inducement to start their enterprise here.—Vancouver, B. C., *News*.

THE Eagle Sulkey Harrow Company, Brantford, Ont., are a new concern recently started in business there, and who are meeting with very gratifying success in the sale of their implements. Among recent orders booked by the concern are one for one hundred harrows for Winnipeg, and one for a car load for British Columbia.

MESSRS. PHILLIPS & Co. are getting out a new patent. It consists of a heating apparatus somewhat similar to a hot air furnace, which can be fixed to an ordinary box stove. It will be a welcome invention, as by it bedrooms can be heated with hot air generated from the ordinary stoves on the lower flat.—Orillia, Ont., *Times*.

CONSIDERABLE interest was taken in an item in the *Journal* to the effect that the Ontario Silver Co. were making efforts to remove their establishment to St. Catharines. We have the authority of Mr. Townroe, the manager, to state that the rumor is utterly baseless. Nothing has passed that would lead to any such conclusion.—Thorold, Ont., *Post*.

THE Massey Manufacturing Company, Toronto, have purchased the plant, good will, etc., of Messrs. L. D. Sawyer & Co., Hamilton, Ont., manufacturers of threshing machinery, farm steam engines, etc., and a company is being formed for continuing the works, which will be under the management of Mr. H. P. Coburn, of the late firm.

THE Longford Manufacturing Company, Orillia, Ont., inform us that they are now turning out large quantities of tubs, pails, etc., and that they are getting their goods pretty well introduced throughout Ontario and Quebec. The company will make considerable enlargement of their works the current season. This is a new and very prosperous concern.

THE Enterprise Foundry Company of Sackville, N. B., have recently increased their facilities for a larger output by the addition of a new steel brick-set boiler, and added other machinery. The foundry is kept running steadily. A new catalogue of the company's wares is now in press, and will show several new lines of the celebrated Charter Oak cook stoves.

THE British Columbia Canning Company has been organized in London, Eng., with a capital stock of £100,000. The company intends to acquire and work four salmon fisheries and canning factories in British Columbia with a total capacity of £60,000 cash per season. A dividend of fifteen per cent. is expected on ordinary shares after providing for the preference dividends.

THE Wanzer Manufacturing Company, of Hamilton, Ont., manufacturers of sewing machines, lamps, Backus' steam heaters, etc., and who have a large branch establishment in London, Eng., are doing a large and lucrative business there. In a recent issue of the *Manufacturer*, published in London, a lengthy illustrated description is given of the Backus heater made by the Wanzer Company.

THE J. B. Armstrong Manufacturing Company, Guelph, Ont., call attention to the "Defiance" gear manufactured by them. It is described as being provided with springs hung in free swinging shackles; exceedingly light, considering its carrying capacity; neat in appearance, stylish, durable and easy riding; every point and part of which is warranted unbreakable in fair usage. Descriptive circulars sent on application.

MESSRS. M. BEATTY & SONS, Welland, Ont., manufacturers of dredges, derricks, steam shovels, hoisting engines, horse-power hoisters, centrifugal pumps, and other contractors' plant, have recently shipped two more of their hoisting engines to Messrs Wm Davis & Sons, Cornwall, making seven that they have sold to that firm in the last two years. Messrs. Beatty are now building a large steam dredge for Messrs. Davis.

A JOINT stock company, composed principally of Canadian Pacific Railroad magnates, has just been formed at Westminster, B. C., with a capital of \$100,000, for the purpose of engaging in halibut fishing on the northwest coast of British Columbia. The company intends to build a steamer for the business, at a cost of \$20,000, bringing the fish to Vancouver, and ship to the East by the Canadian Pacific Railroad.—Victoria, B. C., *Colonist*.

THE Williams Green & Rome Co., manufacturers of shirts, collars and cuffs, at Berlin, Ont., employ upwards of 400 hands. Their premises are large, well lighted, perfectly ventilated, and heated by steam. The machines are run by steam power, and the work is

light and pleasant. They require 100 more hands than are now employed, to whom steady employment will be given. Any industrious girl can earn good wages.

MESSRS. ACKERMAN BROS., Westminster, B. C., are building a planing mill and sash and door factory, having purchased property at that place for the purpose. A full plant of machinery, including engine and boiler, has been ordered from Messrs. Cowan & Co., of Galt, Ont., and it is expected that the new mill will be completed and in active operation by the first of May. A small sawmill will also be built to run in connection with the factory.

MR. GEORGE RUMPEL, Berlin, Ont., manufacturer of felt boots, claims to have been the first person to begin the manufacture of this line of goods in America, and that he is now the largest producer of them. His factory is 80x80 feet, four stories high, and his output is 300 pairs per day. In addition to the manufacture of felt boots and shoes, Mr. Rumpel is putting in new machinery for the manufacture of heavy knitted felt boots, stockings and mitts.

THE enterprising firm of W. & A. Moir, mechanical engineers and machinists, Halifax, N. S., are building a compound engine, boilers, pumps, etc., for a tug boat owned by D. Rudderham, North Sydney, C. B. The well-known reputation of the above named firm is a sufficient guarantee that this work, or any other of a like nature entrusted to them, will be satisfactorily executed, as they have every facility for turning out all kinds of machinery, either for mill, mining or marine application.—Halifax, N. S., *Critic*.

THE Geo. F. Blake Manufacturing Company, Boston, Mass., have just closed a contract with the town of Lachine, Que., for pumping machinery for the waterworks of that town, which will have capacity to deliver 275,000,000 gallons of water per day. The machinery is to be in position and satisfactory operation by September 1st next. The Blake Company have recently supplied the Eddy Company's new fibre mills at Hull, Que., with four pumps, with an aggregate capacity of 1,500,000 gallons per day.

At the meeting of the Canadian Furniture Manufacturers' Association, held in this city March 5th, the following gentlemen were elected officers:—Messrs. George Hess, M. P., Toronto, president; James Hay, jr., Woodstock, vice-president; F. F. McArthur, Bowmanville; R. Dowling, Harriston; F. Burr, Guelph, directors; and T. W. Hollway, Toronto, secretary-treasurer. The Association is organized for the purpose of bringing the furniture manufacturers of Canada together to consider questions of importance to the trade.

A CORRESPONDENT of the Amherstburg, Ont., *Echo* says: "There is a probability now that we have natural gas, that the iron ore beds at Olinda will be developed. The 'old furnace,' which was on the old Bruner farm (township of Gosfield), is less than three miles from the well. Thirty or forty years ago the ore was used extensively in manufacturing stoves, etc., and as many of the old stoves are still in existence, after forty years burning hickory wood, the ore must be of the first class quality. Iron is known to be on several farms in Gosfield South."

MR. PETER BERTRAM, of the edge tool works, Dundas, has made an arrangement with his employes by which each of them receives a bonus in proportion to the amount of his earnings during the year, but forfeiting 25 cents for each day that he absents himself from work, except that he does so on account of sickness. The system has been in force for nine months, and recently the first distribution was made. The fund amounted to nearly \$1,200, and the amounts received by each employe, including apprentices, ranged from \$25 to \$50.

MESSRS. F. E. DIXON & Co., manufacturers of leather belting, in this city, report business as quite brisk. They have lately completed the following orders for large belts: For the Ontario Industrial Loan and Investment Society, for their new building on Lombard street, Toronto, one 20-inch double driving belt, 69 feet long; one 12-inch double driving belt, 37 feet long, and two 10-inch double belts, 66 feet long. For the Sault Ste. Marie Water, Light and Power Co., one 16-inch double driving belt, 67 feet long, and two 12-inch double belts, 98 feet long. They have also just completed a large double driving belt for the Manitoba Electric and Gaslight Co., of Winnipeg, 26 inches wide and 86 feet long; and a double driving belt, 16 inches wide and 57 feet long for the electric light works at Orangeville, Ont. They have now on hand several large orders for belts of various sizes, including some wide ones.

It is a matter for congratulation that Canadian products are highly esteemed in almost all the countries of the world. Few people are aware of the fact that Canadian carriages are widely used in Germany, yet it is so, and Mr. E. Ingleton, of this city, has an

agency established in Hamburg, which does a large trade in that line. He handles the Gananoque carriages, and left this afternoon to select and fill an order from his agent in Hamburg for eighteen wagons. Some of them are intended for display at an exhibition in Cologne -- Brantford, Ont., *Expositor*.

THE pretty semi-transparent paper bags so much used in the candy business are made by lining the interior surface of the bags with a thin film of fine paraffine wax. This is a mineral wax, as wholesome as beeswax, and not only never becomes rancid or changed in quality, but the bags treated with it are well adapted for wrapping every kind of perishable produce. They will preserve coffee, meal, sugar and any other preparation from the atmosphere and from vermin. The use of these waxed bags is rapidly extending through every department of commerce and industry.

A SCHEME is on foot to construct docks at the mouth of the Humber river, just beyond the western limits of Toronto, where coal from the Nova Scotia mines can be unloaded from barges, and where coal brought in cars can also be deposited. The location is in the immediate vicinity of the Ontario Bolt Works, and the plant will be equipped with every convenience suitable for the business. The railroad system of Toronto is such that the cost of laying down fuel in the numerous manufacturing establishments here, particularly from this proposed coal dock, is reduced to the minimum.

MR. ADOLPHE PATRICK has purchased the foundry and machine shop of Messrs. Day Brothers at St. John's, Que., and will considerably enlarge the works and engage in the manufacture of a turbine water wheel which he has invented and patented. Mr. Patrick claims that with half the quantity of water now required by the wheels actually in the market his gives better results. He has large orders on hand, one especially, from the Joliette Water Works & Electric company. He has taken a patent for the United States, and has refused a considerable amount for the right for that country.

MR. R. McKECHNIE, of the newly organized McKechnie Machine Company, informs us that the company have purchased suitable property in Hamilton, Ont., and have let the contracts for the erection of their new works. These works will be on an extensive scale, and specially adapted for manufacturing all kinds of machinery. They will be supplied with the latest improved machinery, and every appliance for turning out work expeditiously. A detailed description of these works will be given in these pages, and some important facts regarding the business of the concern, at another time.

THE chair factory of Messrs. Hess Brothers, in this city, was destroyed by fire March 20th, entailing a loss of over \$50,000, and throwing about 150 hands out of employment. These works, which were in the western part of the city, were originally built for the Canada Car Works, and later used by the Toronto Reaper and Mower Works, passing into the hands of Messrs. Hess Brothers, of Listowel, Ont., and operated by them in connection with their extensive furniture factory at that place; the Toronto factory being confined to the production of chairs, the output of which was about 1,100 a day.

THE Albion Iron Works Company, Victoria, B. C., say that any mining machinery that may be required in that part of the Dominion can be made by them of quite as good and substantial quality and at as low a price as can be had either at home or abroad. The company have recently been adding considerable modern and costly machinery, are employing the best workmen and can turn out any character of iron work, excepting ironclads or locomotives. At this time they are building engines of every kind, including a triple expansion marine engine, and a variety of other complex machinery.

THE Amherst, N.B., *Gazette*, believes it is the first printing house in Canada to adopt the electric power. The proprietor has had constructed a dynamo of two-horse power, by the young and skillful electricians, Messrs. Bliss and Casey, of that town. Though it occupies a space of only two feet square, it requires but the moving of a lever to start it at any moment, and furnish the power for driving a large newspaper press, and a half-medium and an eighth jobber, all at once. It also lights the editorial and printing rooms. The power is derived from the Amherst electric light station at night, and by means of a storage battery is stored at night for use in the day.

THE Globe File Manufacturing Company, of Port Hope, Ont., is a new industry at that place, having formerly and for years been located at Montreal, under the name of Messrs. Outram & Co., the proprietors being Mr. Fred Outram and Mr. Walter Grose. Mr. Outram informs us that, for some time past, they have been very busy removing their old machinery from Montreal and getting in new, but that they are now in good running order, and think they have the neatest and best factory of the kind in Canada, and

second to none in the United States. They now have orders for goods booked, and on which they are at work, which will keep them fully employed for several months to come.

NEXT to binders, the American implements which have had the largest sales in New Zealand are corn drills. A large number of horse hay rakes are yearly sold. The very superior cheapness and lightness of the American nearly gives them a monopoly of this instrument. For the past three seasons a number of cleaning machines have been on the market, and their low price makes them favored by farmers. They are being sold at less than half the price of the English machine. Disk harrows also have a considerable sale. A considerable number of light, handy and cheap hillside plows are sold by Otago agents. These come from various makers in the States. -- *Australasian Ironmonger*.

FOUR acres of land, east of the city, part of the Land Estate, immediately south of the Grand Trunk railway track and opposite Williams' coal-oil factory, have been transferred to R. McKechnie, the well-known manufacturer. Mr. McKechnie will erect on the site large machine shops, for the manufacture of various kinds of machinery for iron and wood work. The buildings, it is understood, will cover two-thirds of the ground. Locomotives may also be manufactured there. Employment will be given to about 400 men. The erection of the buildings will be commenced early this year. It is said that Mr. McKechnie has interested several wealthy capitalists in the enterprise. -- *Hamilton, Ont., Spectator*.

WE are informed by those interested that the U.S. patents for high-pressure water tube boilers have been sold by Allan Stirling, M.E., to the International Boiler Co. (Ltd.), New York. Among its directors are I. Townsend Burden, President of the Port Henry Iron & Ore Co., and half owner of the great Burden Iron Works, at Troy, and his brother-in-law, Robert L. Cutting; also the well-known architect, John Jardine, of the firm of D. & J. Jardine, 1262 Broadway. The names of these prominent gentlemen form a strong guarantee of the great merits of Mr. Stirling's new safety boilers. The Cooke Locomotive & Machine Co., of Paterson, N.J., have ordered a 200-horse-power high-pressure boiler for their own use in their new shops.

ARRANGEMENTS are being made to manufacture the Caligraph writing machine in Canada. As there are no Canadian patents, all the money invested would be put into the manufacture of the machines. The Caligraph has the advantage of being a machine which has stood the test for a number of years. It possesses an advantage over some other machines, and without which no machine can be a success, the type all striking the paper squarely. Its construction has proved to be durable, and it is easily adjusted on account of its extreme simplicity. Several improvements on the Caligraph have been suggested, some of which have been embodied in other machines, not, however, without destroying their simplicity, one of the most important points in a typewriter.

IN consonance with their methods of adopting all improvements necessary to turn out their productions economically and in a high degree of perfection, A. Robb & Sons, Amherst, N. B., have lately added two ponderous pieces of machinery. They are placing in their machine shop a horizontal boring machine, specially constructed for boring cylinders and frames for the Hercules engines. It will bore the cylinder and steam chest, face the ends, and drill the bolt holes at one setting, thus producing a very perfect cylinder, with every part exactly in line. It is an expensive machine, and was built specially for the firm by John Bertram & Sons, Dundas, Ont., and ordered after an inspection by D. W. Robb of a large number of machines used for this purpose in the United States. Robb & Son are also placing a heavy steam hammer in their blacksmith shop.

THE Albion Iron Works, at Victoria, B.C., occupies the greater portion of a square. Describing this establishment the *Colonist* says that besides a general machinery business, this company are manufacturing triple expansion and compound engines for tugs and steamers built in Victoria, car wheels, bridging, coal-mining machinery, etc., including 50,000 feet of steel water mains for Vancouver, and another 50,000 for water works extension in Victoria. A fine quality of cooking and heating stoves, ranges, furnaces, etc., are also manufactured. Business has more than doubled this year, and in the various departments 240 men are employed, working a night and day shift, with a monthly pay-roll of \$15,000. During the year \$15,000 additional modern machinery has been added to the plant, and the premises extended. There is the prospect of increased trade during the year 1889, and possibly a large and substantial extension of the works will be made.

THE report recently made by City Engineer Ruttan, of Winnipeg, Man., regarding the possibility of improving the Assiniboine river, shows the levels of that river from Winnipeg to Headingly and from

the Assiniboine, at Baie St. Paul, across to Lake Manitoba via Long Lake. The horse-power from the Assiniboine alone would be 5,626, with a dam above Armstrong's Point, but if a canal were cut from the Assiniboine to Lake Manitoba, a distance of seventeen or eighteen miles (one-third of which is provided by nature in the presence of Long Lake), sufficient water would be obtained to develop 10,000 horse-power. Engineer Ruttan estimates the cost of the dam at \$250,000, and a canal for supplying water to mills at \$50,000. The City Council of Winnipeg is applying for a charter to construct these works, and other parties are also applying for charters for the same purpose.

THE first concern to manufacture pig iron in Canada will probably be the New York and Nova Scotia Iron and Railway Company, which proposes to erect two furnaces at New Glasgow, N.S., one for Bessemer and one for foundry pig iron, one of which will have a capacity of 25,000 tons per annum, employing several hundred men in mining the required 50,000 tons of ore, 50,000 tons of coal and 25,000 tons of limestone. Tunnelling will be commenced this month to analyze and ascertain the extent of the deposits, but the outcrop gives good indications. A staff of ten engineers has been surveying railroad routes from the mines to New Glasgow and the Intercolonial Railway since December, and the citizens have offered 100 acres within the town limits to any company working the mines. Bessemer pig iron is made from non-phosphoric ore, of which there are several veins along the East river.

A MONTREAL correspondent of the *Monetary Times*, speaking of the manufacture of rolled iron in that city, says:—"The Montreal Rolling Company is putting in a complete set of new rolls and all necessary plant for rolling merchant bars, their previous output having been spike bars and rolled nail plates for their own use as manufacturers of nails and spikes. Peck, Benny & Company are now engaged in rolling merchant bars, and will increase their already large and varied output of iron, in the shape of nail-plates, nails, and spikes. Another iron firm, that of Abbott & Hodgson, whose rolling mill made iron and steel nail plates, has dissolved, and has become Abbott & Co., in the same business. It is understood to be the intention of the partner who has retired, Mr. John Hodgson, to associate himself with his brother and engage in making sheet iron and plates, which have never hitherto been made in this country."

MR. W. H. HOWELL, Ottawa, has embarked largely in the manufacture of paper from the sawdust made at the sawmills in that vicinity. The whole of the sawdust from one of the Bronson mills is used as material for manufacturing the paper, and Mr. Howell seems well satisfied with the quality of the article produced. The paper forms admirable sheeting and is fit for building purposes after being tarred and dried. In the production of the better quality of paper one quarter of waste paper is used, the remainder being sawdust. The machinery cost \$15,000, and is mostly of American make, except the grinders, which are Mr. Howell's own patent. This mill is the only one in Canada where paper is made from sawdust. Electric light is utilized for lighting purposes, and the machinery is kept going night and day. It is run by water power; and it is estimated that about 12,000 tons of sawdust will be converted into paper annually.

THE button factory of Messrs. J. G. Shantz & Son, Berlin, Ont., says the *Toronto World*, is three and four stories high, and covers an area of 44,000 square feet; 260 hands are employed, and two engines, one twelve and the other eighty horse-power, drive the works. They manufacture vegetable ivory, composition and covered buttons. The ivory is made from the nuts brought from Central America, and twelve circular saws cut them up in different sizes for turning, and twenty-eight turning lathes are constantly running turning them out. After this they are milled, colored to the shades desired, and polished. The composition buttons are made in steam heated dies and pressed. A great deal of ingenious machinery is seen here, and much of it automatic. They have a machine shop in the building, with an average of six machinists, for making and keeping in repair their own machinery. On the last semi-monthly pay-roll were 256 hands, and \$2,300 was paid out in wages. They have a branch establishment at Buffalo, N. Y.

THE iron rolling mills of the J. Harris & Company (Ltd.), at St. John, N. B., were destroyed by fire March 12th, loss about \$125,000. There were two buildings destroyed—the old mill, and the new bar mill, which was erected only about a year ago. Work has been very active at this establishment for a considerable time past. The old mill was built in 1862, since which time it has been frequently remodeled and enlarged, and, at the time of its destruction, was one of the finest and best equipped in Canada. Last fall a large amount of new machinery was put into the mill, including steel boilers and two powerful engines. The new bar iron factory

was a substantial building, 80x50, fully supplied with the latest improved machinery, and was being run to its full capacity night and day. This company was but recently incorporated, with a capital stock of \$325,000, the incorporators being members of the old and well-known firm of Messrs. J. Harris & Co. The work of rebuilding this valuable establishment has been already commenced.

THE Dominion Safety Boiler Company, Montreal, manufacturers of the celebrated Field-Stirling boilers, are in receipt of a letter from Messrs. A. W. Morris & Brother, that city, in which they express their opinion regarding the Field-Stirling boiler which they have had in use in their cordage factory ever since last spring. They call attention to the fact that they were the first to adopt that style of boiler in Montreal, and they declare that they have no hesitation in saying that they have never regretted having done so. When it had been in operation but a few months it had paid for itself through the great economy of fuel and abundance of steam made. As an evidence of their appreciation of this boiler they state that they have in their factory two 100 horse-power horizontal boilers, almost new, standing idle, while they have ordered two Field-Stirling boilers of 200 horse-power each for the same works. They mention as special features of this boiler, rapidity of obtaining steam, economy in quantity of fuel consumed, and general saving of labor, without taking into consideration the safety and general efficiency of it.

THE *Pictorial World* devotes a page of illustrations to the factories and processes at Wm. Barbour & Sons' thread works at Lisburn, Ireland, near Belfast. The art of linen thread making was introduced into Ulster by the late John Barbour, a Scotchman, towards the close of the last century, and it is his descendants who now control the Lisburn mills, the largest of their kind, and whose productions have a world-wide reputation. The works at Lisburn were originally built in 1840, but have been greatly added to since, and now cover an area of thirty-four acres. Around them are built some 500 workers' cottages. The 38,000 spindles at work require about 100 tons of flax, etc., a week. Together with the other mills of the firm in Ireland, they employ 5,000 hands. At Paterson, N. J., and Allentown, Pa., the company also have large works, established to meet the conditions of competition established by the United States' protective tariff. The flax, between the time it enters the mill and when it is ready for shipment, undergoes nine processes, in all of which machinery takes the chief part. The productions of the firm are thoroughly known to the trade.

THE Williams, Green & Rome Company, Toronto, have a large factory at Berlin, Ont. The articles manufactured are shirts, collars, cuffs, flannel and linen, ladies' and gents'. The factory is 108x80 feet, and three stories high, with basement. 430 hands are employed, about three-quarters being girls, and, in addition to these, work is given out in the town sufficient to employ about 100 more. There are 255 sewing machines and 255 operators, and work is carried on all day and up till nine o'clock at night. In the basement are the engine and boilers, and here the ironing, starching and washing is done. On the second flat are the turning rooms, flannel shirt department, offices, machine ironing, packing and shipping. On the third flat are the cutting rooms, stamping room, white shirt and collar department. The fourth flat is used for the offices of the forewomen, who give out the work, charge it to the party receiving it, receive it back finished, and give credit for it and what it comes to. Everything is done by piece-work. The business done amounts to about \$250,000 per annum; \$7,000 are paid out monthly for wages. The proprietors are pushing, enterprising Americans, who came from Troy, N. Y., in 1882.

It is understood that Mr. E. L. Fenerty, of the Halifax Shovel Company, Halifax, N. S., has leased to the Sequatcher Hoe and Tool Company, of South Pittsburg, Tennessee, the exclusive right to manufacture shovels, etc., under his patent, for the whole of the Southern States, for a substantial royalty; which carries the sole right to use his patented machinery for that section. A socket machine is now being built in the shops of the Halifax Shovel Company, with all possible dispatch, for shipment to South Pittsburg, to the order of the Sequatcher Hoe and Tool Company. Negotiations have been in progress for some months, the company examining the merits of a number of other shovels with the result that Mr. Fenerty's was selected, and Mr. Downing, the President of the Company, who is also President of the extensive South Pittsburg Pipe Works, came to Halifax last September to examine the machinery and equipment of the Halifax Shovel Company, which was specially invented, designed and built by Mr. Fenerty for the manufacture of their shovels, and reported to his Company with the above result. Negotiations are progressing for rights to manufacture in the Northern and Western States, as well in the Pacific States and Territories.—*Critic*.

THE Stellarton Brick and Tile Company, Stellarton, N.B., intend to enlarge their works and manufacture on a more extensive scale. They purpose next summer to build kilns according to the most modern plans. They are satisfied that the material they have at their works at Sylvester, Middle River, is as good as any in the Old Country, which, with the insight manager Wm. A. Cameron had gained during his recent visit to Great Britain, along with the experience of the past twenty years, will enable them to turn out an article that will be second to none in the world.—*Halifax Critic.*

THE Polson Iron Works Company, of this city, have just secured the largest single order for steam power placed in Canada. The Royal Electric Company, of Montreal, having entered into a large contract for lighting the streets of that city, are greatly enlarging their plant, and, to furnish the requisite power, have ordered six large Brown Automatic engines. Their order consists of four engines with cylinders sixteen inches diameter by forty-two inches stroke, and two engines having cylinders eighteen inches diameter by forty-two inches stroke—aggregating 1,100 horse-power, which, added to the present engine power, will amount to nearly 2,000 horse-power in this one establishment, furnished by "Brown" engines. The Royal Electric Company, having used the "Brown" in competition with other styles of engine, and found it so satisfactory, now select that engine in preference to all others, and in this way give the best possible evidence that they consider it the most economical, most reliable and perfect-working engine in the market. That a Montreal concern should come to Toronto for engines is a tribute to the enterprise of our Western manufacturers, and especially to the Polson Iron Works Company, and the placing of the order with them is a guarantee that it will be filled in a style that will be creditable to themselves and to Toronto.

SAUNDERS' PATTERN WHEEL PIPE-CUTTER.



MESSRS. BUTTERFIELD & Co., Rock Island, P.Q., call the attention of their customers and the trade to this new improved Wheel Pipe-Cutter, confident that a thorough examination of the design, workmanship and general adaptability to the requirements of the steam and gas fitter will be fully answered. Following are some of the points wherein they claim this cutter to be superior to any wheel cutter that has ever been offered to the trade:

1. Its simplicity, strength, lightness, and the facility with which it can be adapted to the various sizes of pipe.
 2. The body is provided with rollers for the pipe to rest on, producing a rolling instead of a sliding motion, thereby lessening the friction on the pipe. They also roll down the burr that is raised by the wheel in cutting the pipe.
 3. The hinged block with the cutter wheel is so arranged that it will not become detached and mislaid; the wheel is held and moved to its work in a most substantial way, preventing the breaking of the wheel.
 4. The handle is a hollow malleable iron casting riveted to the rod, and not liable to come off in the ordinary usage.
 5. All the wearing surfaces—rollers, pins and wheel—are made of the best tool steel and hardened, thus increasing the durability and lessening the friction to the least possible amount.
 6. Pipe one inch and larger, can be cut off in one-third less time than with the ordinary pipe-cutter.
- All its parts can be duplicated.

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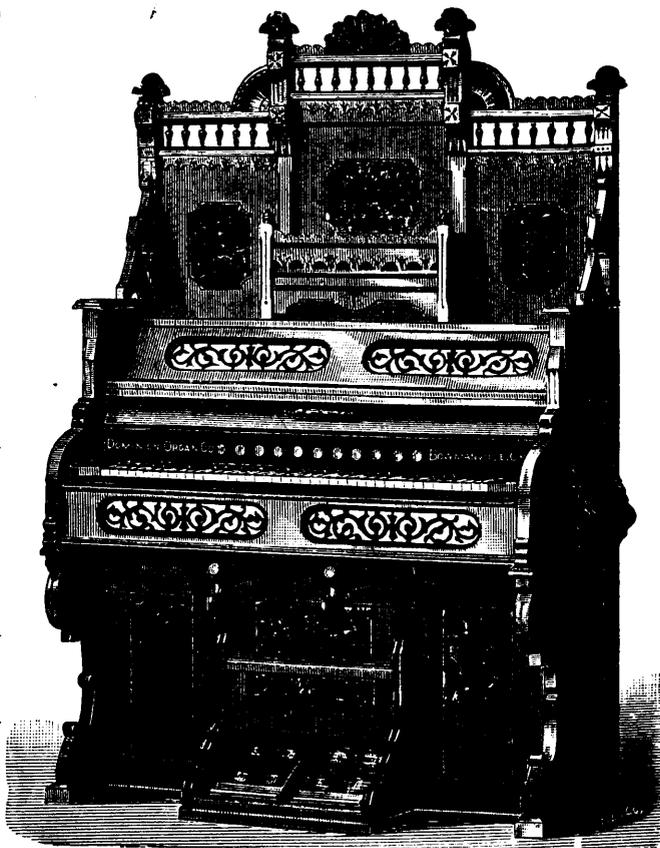
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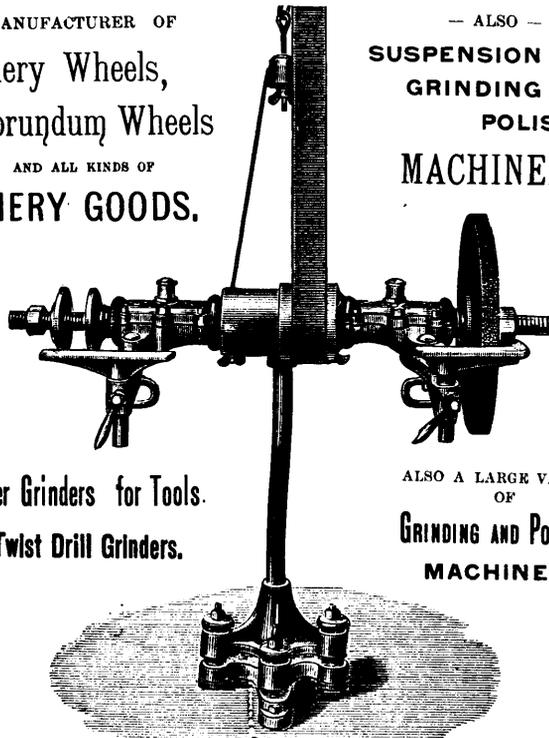
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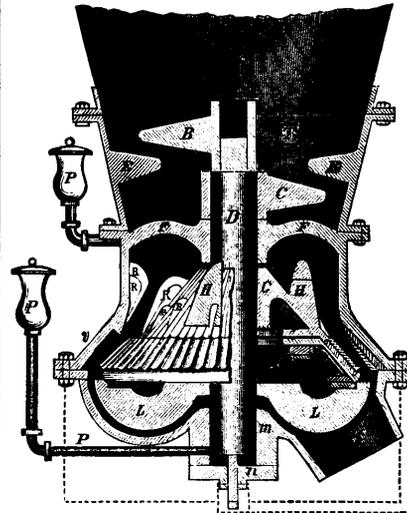
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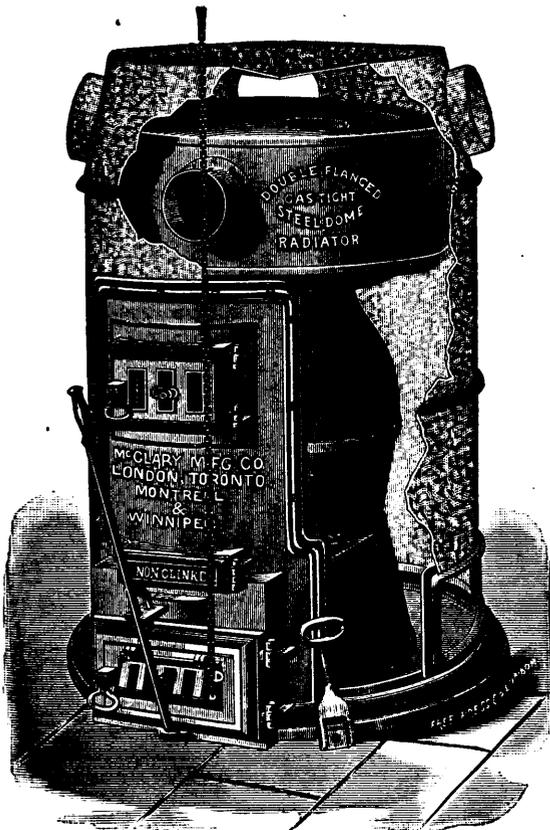
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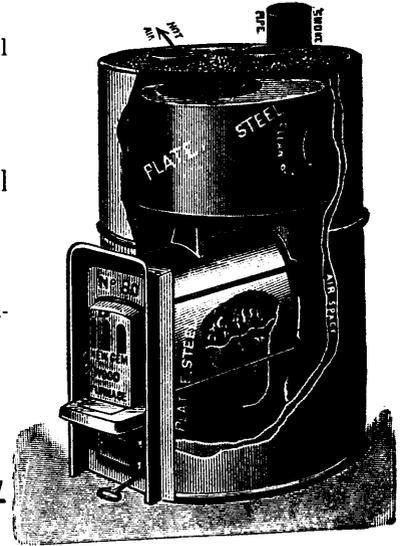
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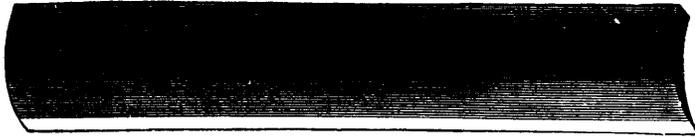
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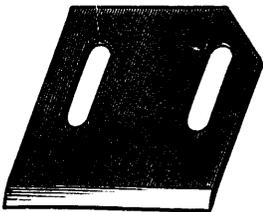
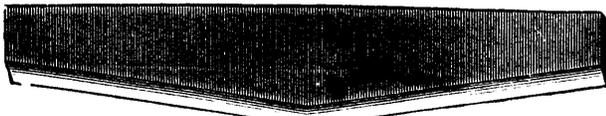
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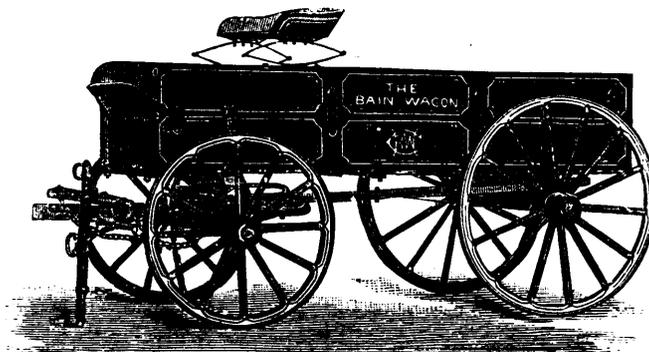
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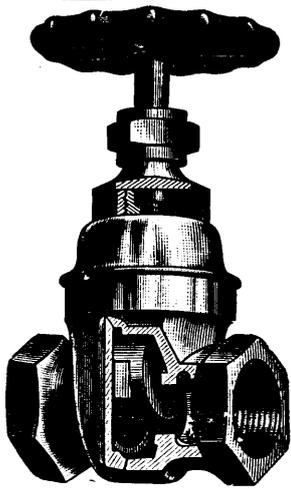
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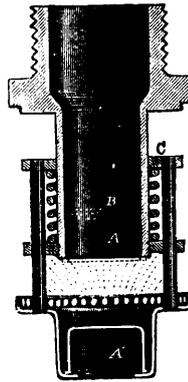
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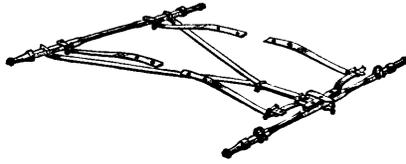
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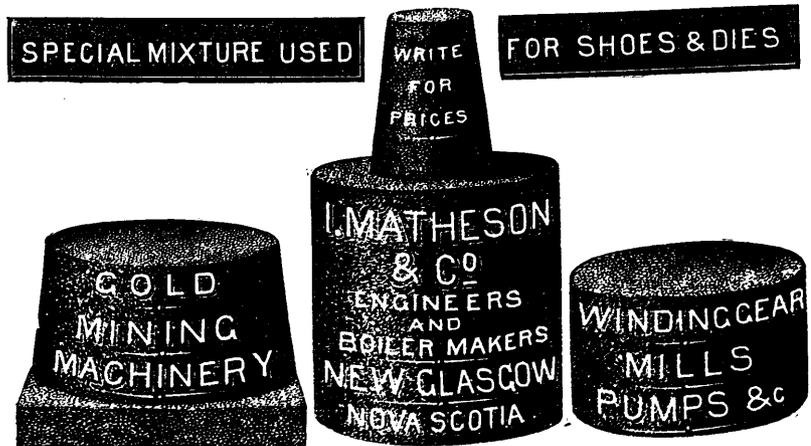
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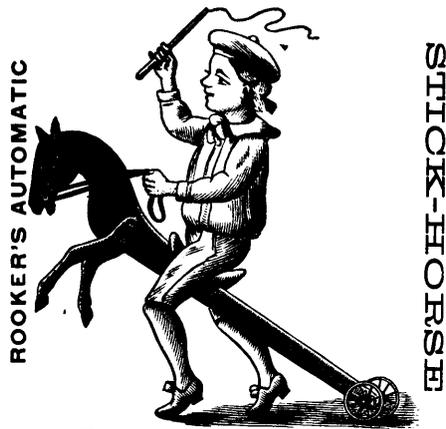
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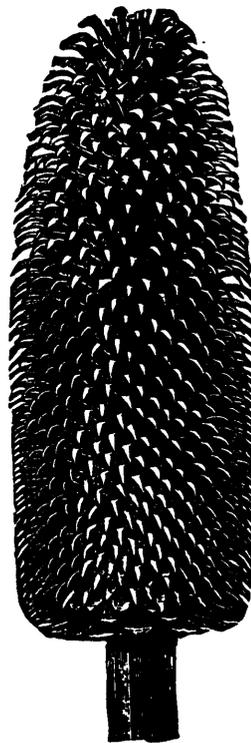
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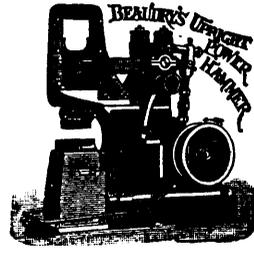
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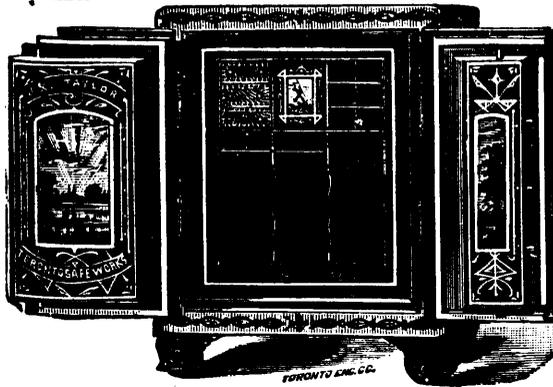


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Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.

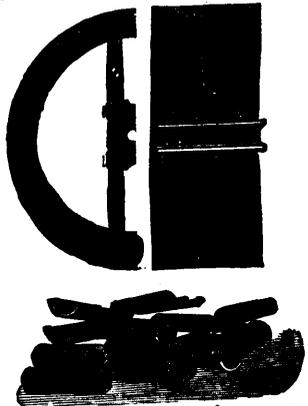
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And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.

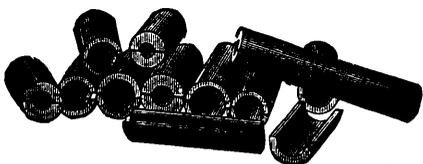
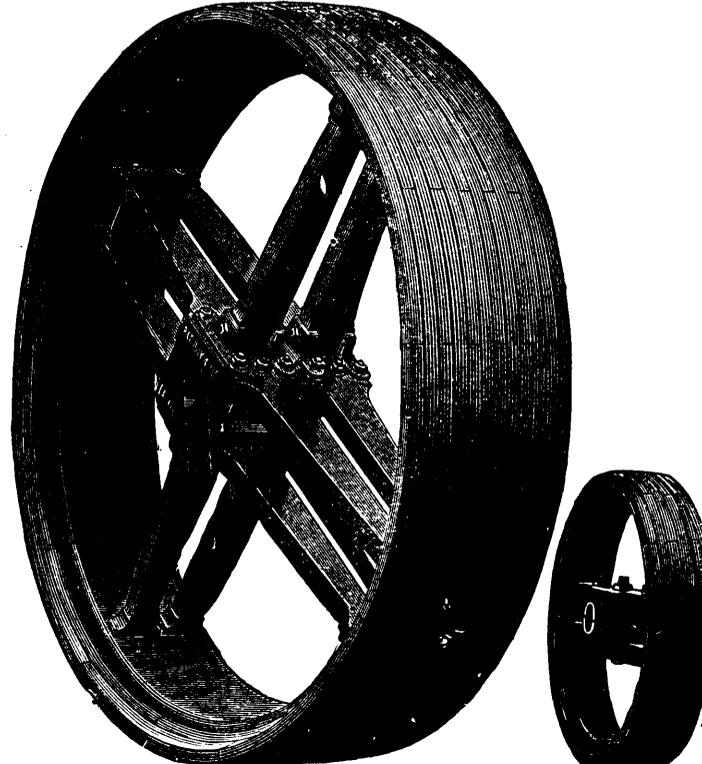
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Gentlemen: You ask why we use the Dodge Patent Pulley. I answer because we consider them the cheapest, most convenient and satisfactory in all particulars.
 Yours truly, S. R. STIMSON, General Manager.

OFFICE OF NEWTON WAGON CO., BATAVIA, ILL., Feb. 17, 1885.
 C. L. RICE, AGENT, CHICAGO, ILL.
Dear Sir: Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use them hereafter in preference to any other we know of.
 Yours truly, NEWTON WAGON CO.

We have sold these pulleys for one year, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; R. M. Pratt & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Willford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.
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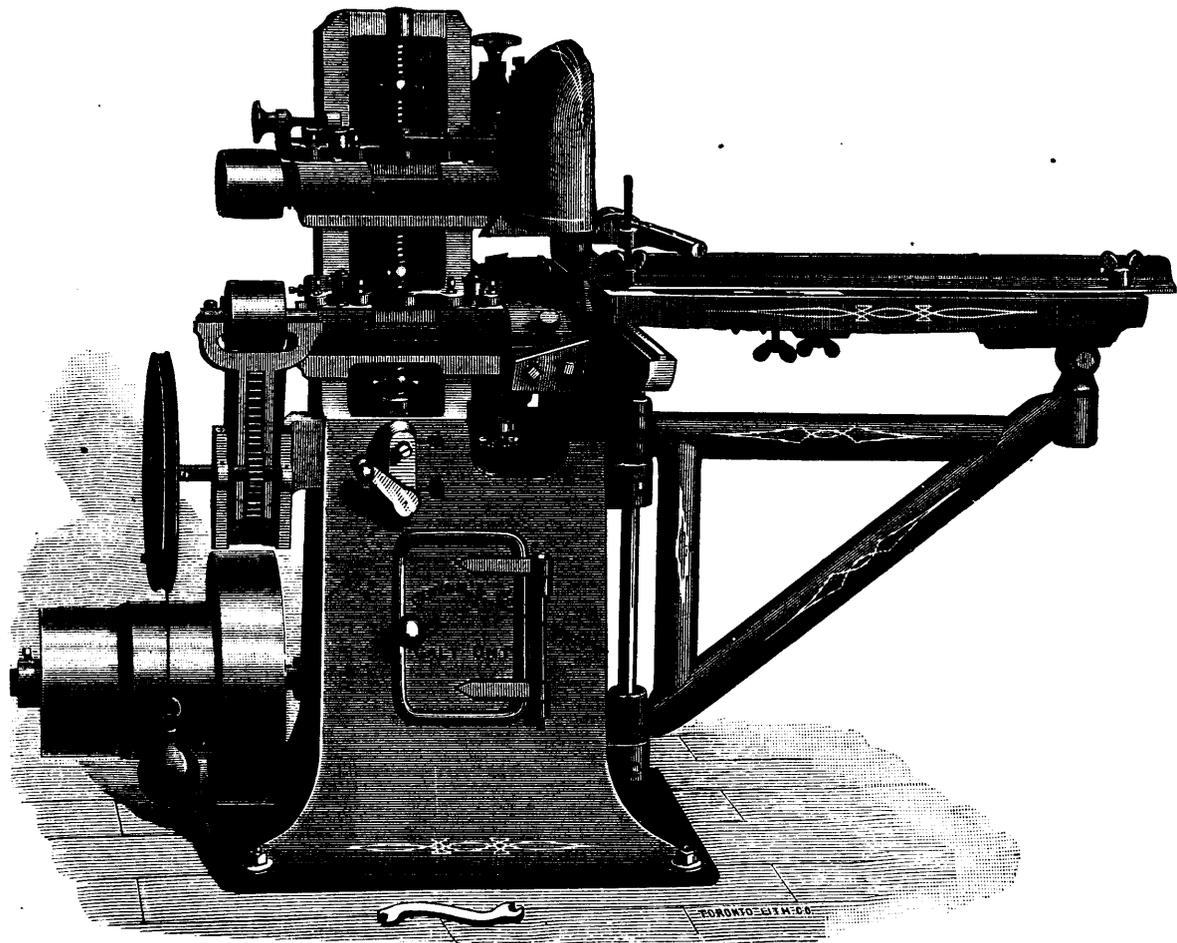
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 We beg you will note this fact when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

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This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

The Cutter and Cope Heads are connected and are moved all together, or separately, as required. The Upper Head and Boxes also adjust horizontally to suit shoulder of tenon, the Cope Knives moving with the Heads to prevent re-adjustment.

A special feature in this machine is the Bed, or Carriage, which is at once light and strong. The outer end works on rollers and is moved very easily.

In cutting the tenon the Bed and Carriage move entirely past the Heads and Cutters, the operator having full control of the work. It has also the advantage of leaving the Heads and Cope Knives clear, and of ready access by the operator.

The Carriage is so arranged that it cannot tip over the Slides nor be thrown into the Cutters, and is also supplied with extension bar for long Saw, as in all Tenoning Machines.

This Machine is supplied with single or double Copes, as ordered, and for furniture work it is without Copes, and with an adjustable cut-off Saw.

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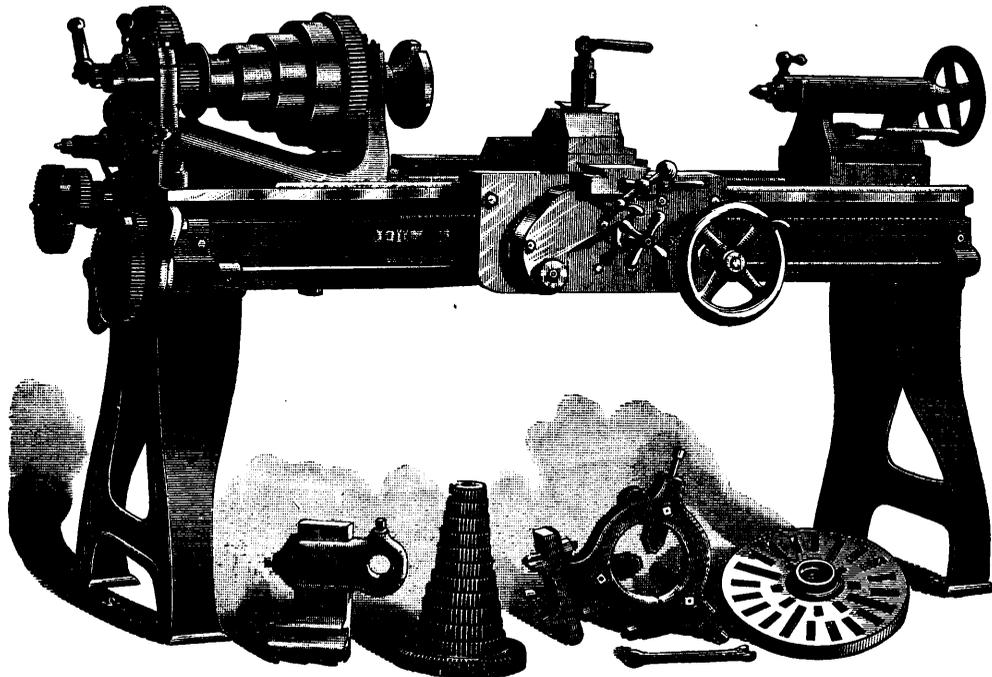
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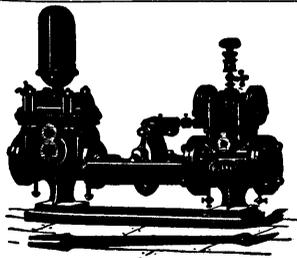
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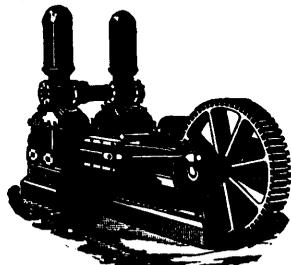
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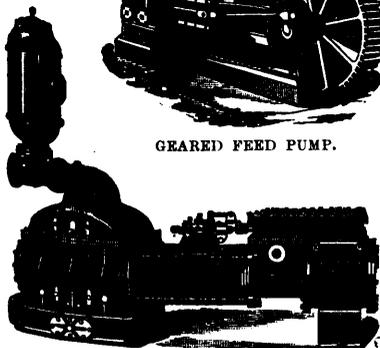
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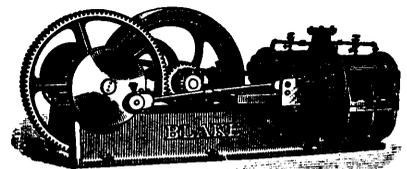
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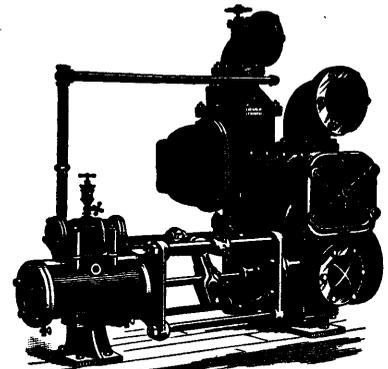
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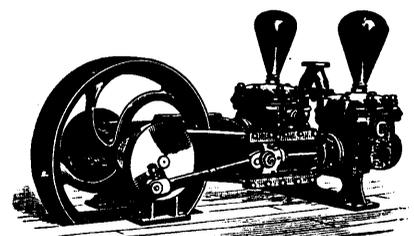
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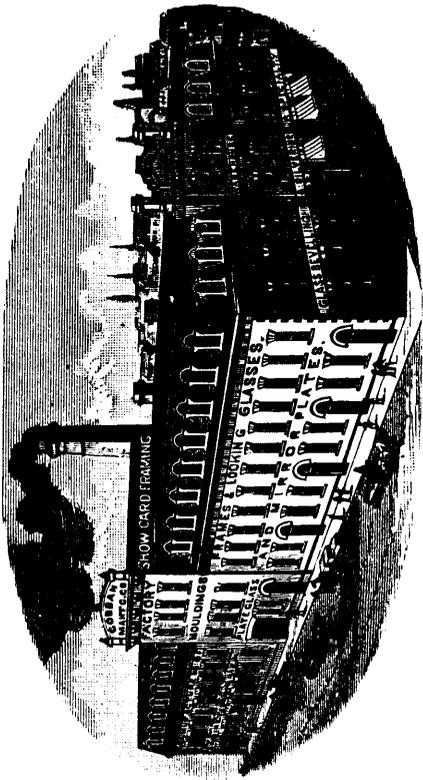
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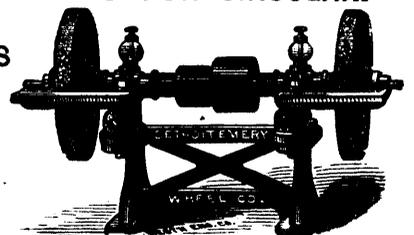
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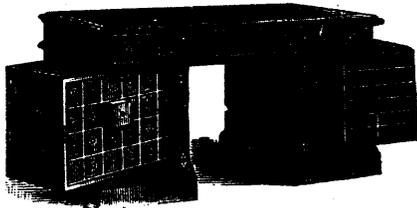
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