difficulty, the U. S. S. Massachusetts was recently fitted out at the New York navy yard with a coal transporter, which will enable her to take coal either when at anchorage off a blockaded port or when steaming at slow speed in moderately calm water.

The Temperly Transporter is the name by which this new form of hoisting and conveying device is known. The large engraving represents the battleship Massachusetts taking coal from a barge which she is towing abeam, at a distance of twenty or thirty feet, and at the rate of six or seven knots an hour. It will be seen that the device consists of a traveler running on a suspended beam, which reaches out over the barge and is carried from one of the boat cranes of the battleship. This beam, which is 60 feet in length, and weighs about 3,000 pounds, is suspended from a strap, attached to the crane by four steel guys, and it is prevented from swinging fore and aft by means of other guys which lead inboard and are made fast to the deck of the vessel. A novel form of self-locking carriage is employed, which travels upon the lower flanges of the beam, and is capable of traversing its entire length. The beam is pitched at an angle sufficient to cause the carriage to run out by gravity, and a single hoisting rope coiled about the barrel of the steam winch serves at once to operate the carriage and hoist the load. The rope after leaving the drum is led to a sheave which is secured at the point of suspension of the beam, from thence to a pulley at the higher end of the beam inboard, and from there it passes around a sheave in the carriage and terminates in a hook to which the bags of coal are attached.

In operation we will suppose that the carriage is at the lower end of the beam over the barge, where it is locked automatically to one of the stops on the under side of the beam, the locking gear of the carriage being then in the position shown in the first figure. After the hook is secured to the coal bag, the hoisting rope is drawn in by the winch, the load rises rapidly to the carriage, where a catch on the hoisting chain, striking a lever, automatically locks the load to the carriage and releases the car from the stop above mentioned on the under side of the beam. This position is shown clearly in the second figure. The further inhauling of the hoisting rope causes the carriage to travel rapidly up the beam. The stops on the under side of the beam are spaced five feet apart, and the carriage is drawn up until it passes that one which is located over the point where it is desired that the bag shall be delivered. The winch is now stopped and reversed, and the carriage moves back until it is arrested by the engagement of the latch, which is shown at the top of the carriage with this particular stop. The dropping of the latch into the stop automatically releases the load from the carriage, and it is forthwith lowered to the deck. The bag is then unhooked, an empty bag is put on in its place, and the operation is reversed, the empty bag being run down the full length of the beam and delivered to the barge. The whole operation is performed in less than a minute, and it requires no skill upon the part of the operator. The long reach of the beam permits coal to be taken from a vessel of any description, which may stand off from the battleship a distance of from twenty to twenty-five feet, and the operation may be carried out in any sea in which it would be safe for two boats to lie at anchor at that distance apart. As the transporter is supported entirely from the battleship, no part of it can be injured by the rolling from the two vessels.

To appreciate the full advantages of such a machine we have only to suppose that the White Squadron is blockading the harbor of an enemy and that every vessel is required for the purpose. Under such conditions the coal boats could be brought directly to the scene of the blockade, and the coaling carried out upon the ground. Of course the coal barges or ships would have to be escorted by a convoy, but this ship would be necessary in any case for the transport of supplies and dispatches.

It will be evident that the coaling ship may be towed at a moderate speed parallel with the warship, and that the operation may be carried out with equal success under such conditions. The French navy, which uses this system of coaling extensively, made a successful trial of coaling the Richelieu while she was steaming under the headway of six and a half knots an hour, and they were able on this occasion to transfer one hundred tons of coal in three hours. The British Admiralty, during a series of tests, has handled forty tons an hour in bags by this same device, and it was so well satisfied with the performance that one hundred and fifty of the transporters have already been furnished to the British navy. We are informed by Mr. Spencer Miller, C.E., to whom we are indebted for the data and drawings from which our engravings and description have been prepared, that in addition to the two powerful navies above mentioned, this device has been adopted in the navies of Germany, Austria and Italy.

IT is proposed to raise 10,000,000 francs to restore the Palace of the Popes, at Avignon. It is proposed to create a museum which will illustrate the whole history of Languedoc.

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RESPONSIBILITIES OF THE NEW COMMISSIONER.

Among all the appointments which are made by an incoming President, it would be difficult to find one which calls for the exercise of more careful judgment than the appointment of the Commissioner of Patents. The responsibilities of the office are of a particularly trying character, and the relations of the commissioner to the government, the inventor, and the patent attorney invest him with a degree of discretionary judicial power which finds no parallel in the various courts of law. Inasmuch as he has the final word, so far as the Patent Office is concerned, in the settlement of all difficult cases, it is necessary that he should have, in the highest sense of the term, a judicial mind; and in addition to a general knowledge of the law he should also have a very intimate knowledge of the theory and practice of patent law. His tenure of office and its emoluments should be such as to place him entirely beyond the reach of all external influence, whether commercial, political, or otherwise, and there is no question that the permanent tenure of the position by a commissioner who has proved himself in every way acceptable would be greatly to the advantage of the Patent Office, the patent bar and the great body of inventors throughout the country.

We have spoken of the extraordinary judicial authority invested in the office. It is safe to say that there is no power possessed by the commissioner which brings with it more serious responsibility than that which enables him to disbar any patent attorney who may be guilty of unprofessional practices before the Patent Office. We say "disbar" for the want of a better term. As a matter of fact, there is unfortunately no such thing as a recognized patent bar in this country. Any attorney who conforms to the procedure of the office may file an application for a patent and argue the case before the commissioner or his representative.

It will thus be seen that the door of entrance into patent practice is about as broad as it is possible to make it. The only supervision to which the practitioner is subject is that of the commissioner, who may suspend an offender for notoriously dishonest practices. Just what degree of offense calls for disbarment seems to be left to the discretion of the commissioner. In nine cases out of ten the reason given for disbarment is embezzlement of money; that is to say, the withholding of government fees. In 1871 Commissioner Leggett issued an order that an examiner who borrowed money from an attorney would be in danger of dismissal and the attorney of disbarment. This order was approved by Commissioner Mitchell in 1889; but it does not seem that any attorney has been disbarred for this cause.

In looking over the record of disbarments for the past thirty years, it is noticed that the average number per year has remained practically stationary, in spite of the fact that practice before the Patent Office has enormously increased in the interim. The obvious inference is either that questionable practices in connection with patent soliciting are less frequent than they were thirty years ago or else that commissioners have grown lenient or have no power to act in regard to these matters. We fear that the first alternative is as unlikely as that the others are probable; and to the last, among other causes, is to be attributed the rise and growth of a certain notorious class of practitioners, whose methods are at once a snare to the inventor, a disgrace to the profession, and are liable, if not checked with a strong arm, to cast a shadow upon the Patent Office itself.

In this connection we call attention to an article in Lords' Power and Machinery Magazine which we republish on the adjoining page, in which some of the worst irregularities that have crept into the patent practice are enumerated. How far the powers of the Patent Commissioner enable him to take cognizance of these practices we do not know. If such practices do not constitute cause for disbarment, upon the presentation of charges of irregularity to the commissioner, it is difficult to find any way in which the inventor or the public can be protected.

This is the only method, so far as we can see, by which the practice of the Patent Office can be purged of this glaring and rapidly growing evil. Such a course would be more effective than any action that could be taken by the Patent Bar Association, should one ever be formed.

THE SIX MONTHS RULE IN COURT.

The United States Supreme Court has recently made a decision through Chief Justice Fuller which has the effect of sustaining the six months rule which was established and enforced in the Patent Office by the late Commissioner, Mr. Seymour. The decision was rendered in the case of Hyne against the Court of Appeals of the District of Columbia. Hyne applied for a writ of mandamus to compel the court to hear and decide an appeal taken more than forty days from the decision of the Commissioner of Patents, the forty days rule being one of the rules of the Court of Appeals. Hyne claimed that, under the patent laws, he was allowed two years in which to take this appeal as provided for in the revised statutes. He claimed the conflict between the

court rule and the statutes and that the former was consequently invalid and asked for the writ of mandamus to set the decision of the court aside. The Supreme Court decided that the court rule was valid. This has the effect of practically establishing the Patent Office rules limiting the appeals which can be taken from one tribunal in the office to the other to six months. It should be borne in mind in this connection that on January 1, 1898, the new statutes recently enacted by Congress will be in force, and one year will be allowed under this new law in which to file amendments and take appeals. The six months rule was a Patent Office rule which was established by the ex-Commissioner of Patents, Mr. Seymour, and was in violation, apparently, of the statutes which allowed two years within which to take such action.

AMERICAN INDUSTRIAL SUPREMACY.

A recent issue of the Iron and Coal Trades Review (England) discusses editorially the relative condition of the wire industry in England and America. The facts which are given afford a striking proof of the rapidity with which a new industry is developed in the United States when once it has gained a firm footing, and they indicate also the rapid decrease in the cost of manufacture which has characterized our entrance into such industries.

According to our contemporary the English manufacturers of wire rods, wire, and wire nails are threatened with the loss of their business in consequence of the successful competition of Germany and other Continental countries and of the United States. The rivalry of Germany is of long standing and has become an accepted fact; whereas that of the United States is a more recent and has grown to be a much more formidable feature.

Thirty years ago there was no such thing as a wire industry in this country. During the progress of the Paris Exposition of 1867 Mr. Abram S. Hewitt stated, in a report on "the production of iron and steel in its economic and social relations," that the manufacture of puddled wire rods was a very extensive business in Great Britain, but that no one had succeeded in naturalizing it upon American soil. With the best grades of charcoal iron it was, indeed, possible to make good puddled wire rods in the United States, but at a cost too high to compete with the foreign article, in the production of which no charcoal was employed.

In the thirty years which have passed since Mr. Hewitt made his report, Bessemer steel has revolutionized the industry, and the United States now holds a commanding lead over all competitors. We find that a single Garrett rod mill in the United States is producing 7,808 gross tons of wire rods in a single month, which would mean an output of 100,000 tons of finished product in a single year.

The total output in Great Britain is only 200,000 tons per year, so that two such American mills would, to-day, equal the annual production of the very country upon which, thirty years ago, we were dependent for this article.

The statistics of the wire nail industry are equally striking. A single establishment, the Joliet Steel Works, produced 300,000 kegs of wire nails in 1895 and it is capable of exceeding that amount if necessary. The wages which are paid in the mills per keg of material appear to our contemporary to be "incredibly low," but it is noted very justly that the figure quoted, about 83 cents per keg, refers to a mill which is capable of producing a larger output of rods than any in England. It is the improved machinery, the careful attention to detail in the matter of saving time, and the intelligent resourcefulness of the American workman that enable our manufacturers to turn out a cheaper article, although the operatives take home a larger weekly wage than they do in England. The wonderful progress in economical production is shown by the following figures: In 1870 the average output of the mills was 14 tons of rods per double shift; in ten years this had doubled to 28 tons; during the next five years, or in 1885, as the result of the introduction of the Garrett mill, it had grown to 100 tons; and in 1895 the average output was 280 tons per double shift. Extraordinary as these figures appear to English manufacturers, our contemporary draws attention to the fact that there is no reason to doubt them, "since the prices quoted for sales speak for themselves, and it is well known that our American rivals are now offering wire rods and wire nails in most outside markets at such low prices that our home manufacturers admit their inability to understand how it is done."

That we should be able to undersell the English manufacturers in outside markets is the more remarkable when it is remembered that most of their mills are situated on or near the seaboard, whereas many of our large mills are situated inland, and a haul, sometimes of hundreds of miles, is necessary before the commodity in question can be loaded for foreign ports; moreover, when it has been carried to the seaboard, we are at a further disadvantage on account of the cheap sea freights and the vast carrying facilities of our competitor.

Our easy supremacy in the manufacture of wire is only typical of our progress in a score of other leading industries. The fact that we are able to undersell our competitors in outside markets at a time when we are producing, or are capable of producing, a large surplus above the needs of the home markets, suggests that our future commercial growth must take place chiefly in outside fields. There is no reason to doubt that our foreign trade could be greatly and rapidly extended if a systematic, thoroughly well organized effort were made to open up new markets and enlarge those that exist. If our consular service were strengthened, and if its efforts were supplemented by the establishment of local bureaus for the display of our products and for gathering and disseminating information likely to foster our trade with foreign countries, it is likely that we could soon open a market for our surplus product and bring back something of the industrial activity of the early years of the present decade.

A CIRCULATING PICTURE GALLERY.

It is strange that the thought of an enterprise should have slept through all the ages to become a reality in these last days of our century. To whom the conception is due we know not, but its materialization we owe to the Hull House settlement, Chicago, says the Critic. The gallery at Hull House consists of about fifty framed reproductions. Some of them are the publications of the Arundel Society, but in addition to these there are colored prints of Fra Angelico's angels, and many photographs of paintings by the old masters Modern art is not entirely neglected either, Millet, Bastien Lepage, and Abbott Thayer being the most important of the latter painters represented.

A few water colors are also included, though the gallery is mainly photographic. Each of these pictures may be taken out for two weeks at a time, a privilege which may be once renewed; but this limitation is not too rigidly adhered to. No charge is made, and no security required, except a certain knowledge of the subscriber and his address. Men and women of the working classes take a lively interest in the gallery, but its most enthusiastic patrons are children.

The pictures are all framed, and they are well cared for by the temporary owners. The most popular of them are Fra Angelico's Paradise, the Sistine Madonna, and several other Raphaels, the Presentation in the Temple of Carpaccio, and, curiously enough, Bastien Lepage's Jeanne d'Arc. Imagine that beautiful, serene, exalted face in a bare, ugly room on West Halstead Street. It could not remain there two weeks without having some subtile, uplifting influence. And for this reason the new enterprise seems one of the most beneficent that Hull House has undertaken, outranking even the library, for the reason that everything the gallery contains is of fine quality, is true art.

That is what we need—to have art brought close to the people, to make them see it and feel it and live with it. It should be a part of themselves, as necessary and inevitable as food and shelter. To rich and poor alike in this country it is still alien, still a thing apart, too much of a luxury to be taken into our daily lives, too exalted to become a part of our daily thoughts. We talk about it, we criticise and patronize it; we even, when much aroused, admire it; but we do not love it. It is like a foreign language to us, and we have yet to learn to think in it.

DANUBE-MOLDAU-ELBE CANAL.

The agitation in favor of a canal which, starting from Vienna and proceeding in a northwesterly direction to Budweis, on the Upper Moldau, then utilizing the Moldau and the Elbe, would connect the Black Sea with the North Sea, now finds support in the Monatschrift für den Offentlichen Baudienst, the official organ of the Austrian ministry of the interior. The idea, of course, goes back to remote times. Charles IV, the stepfather of the German empire and father of his own country, Bohemia, made a cutting through the Rosenberge as a starting point for the canal in 1366. Two hundred years later a full project providing locks was drawn up. The Austrian government has as yet dreaded the expense, and not taken any steps. But a committee has long been appointed, and of three projects submitted, that of Lanna-Vering has been approved of. The survey and the preliminary work have been done. It is now a question of funds. It is estimated that 2·1 meters of water (nearly 7 feet) could be secured all the way from Vienna to Ausrig on the Elbe (near the frontier of Saxony), with the expenditure of 100 million florins (about $50,000,000); and it is pointed out that Germany might help, since the distance Hamburg-Sulina would be diminished by 55 per cent and Hamburg-Constantinople by 41 per cent. That may not be a strong argument, but Germany contributed nearly $5,000,000 to the St. Gothard railway funds—a somewhat similar case of indirect interests.

THE electrical works and laboratory of Mr. Harry Barringer Cox, at St. Albans, Eng., which were totally destroyed by fire on Feb. 22, contained a valuable collection of electrical and other instruments, with the records of Mr. Cox's ten years' research into the problem of the cheap direct conversion of heat into electricity. Every one of his experiments had been photographed, and all these photographs were lost. We understand that Mr. Cox has been attempting to make a thermopile which would be commercially practicable as a generator of electric current.

A WARNING TO INVENTORS.

In this nineteenth century the profession of patent solicitors is degenerating from the professional to the commercial. Inventors and patentees have their attention arrested by flaming announcements, with the object of catching unwary inventors and patentees. One class of these agents offers medals as certificates of value of inventions, and large lottery prizes, amounting to thousands of dollars, to inventors who place their applications for patents in their hands. However, before a medal or prize is awarded these inventors, in order to become acceptable competitors, they are compelled to pay into the hands of these agents certain fees.

These competing inventors are induced to believe that a scientific and mechanical corps of experts in the employ of these agents makes crucial examinations of their inventions, in the light of the prior state of the art, and the inventions of all others who are competing for a medal or the prizes, and in due time they respectively receive a communication from their agents, accompanied by a medal, certifying that they have been awarded the medal by a corps of experts, on the ground that the invention is determined to be the best of all others presented to them for patents. At some subsequent period it is announced that the money prize has been awarded to A, B or C.

It would seem that intelligent men would not fall into such traps in this enlightened age; but alas! they, like innocent lambs, are led to enter and made to suffer, or are dealt with in the same manner as are unsophisticated rural citizens who fall into the hands of "green goods" merchants.

For many years the story of the gold [gilded] medal awarded by a French scientific society to United States patentees has been well known, and yet victims are constantly being made. When the announcement is received from Paris that the gold [gilded] medal has been awarded to a United States patentee for his invention, after an examination by its savants, and that it has been found to be the best of the kind patented, there is a demand for a considerable sum of money to pay the expenses of the transmission of the medal to this country.

The expectation of receiving this sum of money is the secret of all the interest that this French association manifests in regard to United States patentees. A bald attempt to get money for a gilded medal, issued by a set of questionable persons, ought to be understood by intelligent patentees when they read the word "gilded" in small letters, inclosed in brackets, following the word gold. Such medals, whether American or foreign issues, should not be accepted by inventors, or investors in inventions of others, as proof of merit. They are nothing more than sawdust sold by "green goods" men.

Recently an inventor applied to one of the United States medal awarding patent agents and received a medal, but no patent; and after he had expended about $175 as fees to this agent and to the Patent Office, he made a visit to Washington, D. C., and called on the chief of police in respect to his patent business, and finding that his money was wasted and beyond recovery, requested him to refer him to an honest, reliable and capable patent counselor and solicitor, and being given the name of a respectable house in Washington, he visited the same, and on entering the door he said: "I am referred by the chief of police to you, as the kind of patent solicitor I am seeking. I do not want a medal awarded me, for my medal has cost me $175, and no patent has been granted me. I want such an honest, reliable attorney, that, when he takes my case, and I pay him my money, I can go home and feel satisfied that all will be done squarely, and I shall get a patent for my invention from the United States Patent Office, instead of a mere medal from my agent." The experience of this inventor ought to be a warning to others, and the course that he pursued should be followed by them.

Another trap set for patentees is the one that the Inventive Age, of Washington, D. C., has for many months been warning patentees against. This trap is set by the patent right selling agent, who sends to every patentee a letter, which letter says: "Your patent has been examined by our scientific board or corps of mechanical experts, and it has been pronounced to be worth $25,000, or $50,000, or $100,000, and we would like to have the agency for selling your patent." Furthermore, offers are made to take out foreign patents on already issued United States patents for one-half the usual fees, etc. It is only necessary to say that patents in many foreign countries for United States patented inventions, which have been published in the United States Patent Office Gazette fully enough to be understood by practical mechanics, are invalid, even if granted by such foreign government.—Lords' Power and Machinery Magazine.