

illustrated by Figs. 2 and 5, the latter showing the adjustable electrical contact arm carried by the spindle of the gauge behind the dial, and adapted to complete the electric circuit by engagement with a fixed contact piece. The details of the hydraulic lock are shown in Figs. 9 and 10. Figs. 8 and 11 show the hollow metal slab construction more particularly used in vaults, etc., while the remaining views show the complete jail structure ready for use.

It is obvious that this system may be applied to cells and vaults already built, or it may be placed around a cell block, whether it consists of modern steel cells or brick cells. In the application of this system to vaults and cells already in existence, the tubular walls may be erected around the whole structure, but the inventor prefers to place the tubular walls inside of the existing vault or depository.

This improvement in prisons is the invention of Mr. P. Emerson Glafcke, of Cheyenne, Wyoming. It is protected by patents both in this country and abroad, the patents being owned jointly by the inventor and Mr. T. A. Kent, a prominent banker of Cheyenne. This system has been approved by some of the foremost bankers, wardens and prison boards in the United States. Without doubt, the economy of construction and the effectiveness of the device will lead to its adoption where safety and protection are required.

Artificial Silk.

United States Consul Loomis, of St. Etienne, France, has recently sent to the State department a report giving information in regard to the Chardonnet process for converting wood pulp into what he calls silk. M. De Chardonnet has built a mill at Besançon, where the "silk" is now being manufactured.

The raw material is made from wood pulp, which is carefully dried in an oven and plunged in a mixture of sulphuric and nitric acids, then washed several times in water and dried by alcohol. The product thus prepared is dissolved in ether and pure alcohol, and the result is collodion, similar to that used in photography. This collodion, which is sticky and viscous, is inclosed in a solid receptacle, furnished with a filter in the lower end.

An air pump sends compressed air into the receptacle, and by its pressure the collodion is passed through the filter, which removes all impurities and flows into a tube placed horizontally. This tube is armed with 300 cocks, of which the spouts are made of glass and pierced by a small hole of the diameter of the thread of a cocoon as it is spun by the silk worm. The spinner opens the cock and the collodion issues in a thread of extreme delicacy (it takes six to make a thread of the necessary consistence for weaving). This thread is not, however, fit to be rolled on the spools, by reason of its viscosity and softness.

To produce the necessary hardness, the glass tube already mentioned is surrounded by a small reservoir, constantly filled with water. When the thread issues from the aperture in the manner described, it traverses this water, which takes up the ether and alcohol, and then the collodion becomes solidified; that is to say, it is transformed into an elastic thread as resisting and as brilliant as ordinary silk. The stuff manufactured was found to be dangerously inflammable. M. De Chardonnet has apparently removed this difficulty "by plunging the spun thread into a solution of ammonia, thus rendering it as slow of combustion as any other material."

The consul adds: "This discovery seems to have a great future. I have talked with great men, silk merchants, brokers, dyers, and men who manufactured silk goods, about the Chardonnet method of producing raw silk from wood, and it is universally admitted that the process will eventually yield large practicable and profitable results."

It is proper for us to add that this so-called artificial silk is a very different substance chemically from that produced by silk worms, and there is not likely to be any substitution of the one for the other in trade.

THE directors of the Grusonwerk of Magdeburg-Buckau, Germany, have issued a circular in which they state that the firm of Friedrich Krupp, of Essen, has obtained the right of working the enormous plant of the Grusonwerk. In return for this the Krupp firm guarantees a fixed annual dividend to the shareholders of the Grusonwerk. This combination is of great importance, as the two firms virtually control the armor plate manufacture of Europe. The Gruson factory manufactures not only guns of all sizes, from small quick fire guns up to large size cannon, but they also make all kinds of armor, armored turrets, gun carriages, ammunition, etc. The Grusonwerk has been equally successful in the peaceful arts, and it manufactures a large variety of metallurgical and mining machinery, hydraulic machinery, gas engines, distilling plants, railway material, etc. The enormous factory at Magdeburg-Buckau contains 75 steam engines, 1,100 machine tools, 10 steam hammers, including one of 100 tons, 18 cupolas and 29 open hearth furnaces.

Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN.

A. E. BEACH.

TERMS FOR THE SCIENTIFIC AMERICAN.

One copy, one year, for the U. S., Canada or Mexico.....\$3 00
One copy, six months, for the U. S., Canada or Mexico..... 1 50
One copy, one year, to any foreign country belonging to Postal Union. 4 00
Remit by postal or express money order, or by bank draft or check.
MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

The Scientific American Supplement

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size with SCIENTIFIC AMERICAN. Terms of subscription for SUPPLEMENT, \$5.00 a year, for the U. S., Canada or Mexico. \$6.00 a year to foreign countries belonging to the Postal Union. Single copies, 10 cents. Sold by all newsdealers throughout the country. See prospectus, last page.
Combined Rates.—The SCIENTIFIC AMERICAN and SUPPLEMENT will be sent for one year, to one address in U. S., Canada or Mexico, on receipt of seven dollars. To foreign countries within Postal Union, eight dollars and fifty cents a year.

Building Edition.

THE ARCHITECTS AND BUILDERS EDITION OF THE SCIENTIFIC AMERICAN is a large and splendid illustrated periodical, issued monthly, containing floor plans, perspective views, and sheets of constructive details, pertaining to modern architecture. Each number is illustrated with beautiful plates, showing desirable dwellings, public buildings and architectural work in great variety. To builders and all who contemplate building this work is invaluable. Has the largest circulation of any architectural publication in the world.
Single copies 25 cents. By mail, to any part of the United States, Canada or Mexico, \$2.50 a year. To foreign Postal Union countries, \$3.00 a year. Combined rate for BUILDING EDITION with SCIENTIFIC AMERICAN to one address, \$5.00 a year. To foreign Postal Union countries, \$6.50 a year. Combined rate for BUILDING EDITION, SCIENTIFIC AMERICAN and SUPPLEMENT, \$9.00 a year. To foreign Postal Union countries, \$11.00 a year.

Spanish Edition of the Scientific American.

LA AMERICA CIENTIFICA E INDUSTRIAL (Spanish trade edition of the SCIENTIFIC AMERICAN) is published monthly, uniform in size and typography with the SCIENTIFIC AMERICAN. Every number of *La America* is profusely illustrated. It is the finest scientific, industrial trade paper printed in the Spanish language. It circulates throughout Cuba, the West Indies, Mexico Central and South America, Spain and Spanish possessions—wherever the Spanish language is spoken. \$3.00 a year, post paid to any part of the world. Single copies 25 cents.

MUNN & CO., Publishers,
361 Broadway, New York.

The safest way to remit is by postal order, express money order, draft or bank check. Make all remittances payable to order of MUNN & CO. Readers are specially requested to notify the publishers in case of any failure, delay, or irregularity in receipt of papers.

NEW YORK, SATURDAY, APRIL 8, 1893.

Contents.

(Illustrated articles are marked with an asterisk.)

Aluminum, new solder for.....	213	Molasses, utilization of.....	213
Armor plate works, German.....	210	Paint for racers.....	212
Baltimore, cruiser, in dry dock.....	216	Patent Commissioner, a new.....	211
Bancroft, cruiser, plans of.....	216	Patent decisions, legal.....	211
Bed, safety attachment for.....	213	Patent grant, weekly record of.....	221
Birds nesting in cavities and burrows.....	218	Piano stringing, improved.....	214
Boilers of cruiser Cincinnati.....	216	Polecat, hunting the.....	218
Books and publications, new.....	219	Prison construction, Glafcke's method of.....	209
Borings in Broadway, New York.....	217	Railway appliances, some new.....	219
Car coupling, Smith's.....	213	Railway block signal, Peters'.....	214
Car, sleeping, Suckenger's.....	213	Railway exhibit, English, at Chicago.....	212
Edison when he was young.....	210	Railways agricultural.....	210
Engineering building, Penn. State College.....	214	Screws, swedged.....	215
Filter, the McConnell.....	214	Silk, artificial.....	210
Fountain, St. George and Dragon, Vienna.....	217	Tin, metallic, on cloth.....	211
Honey, crystallization of.....	215	Towing, magnetized chain wheels for.....	212
Inventions, recently patented.....	219	Trees, large, in Australia.....	217
Kingfisher's nest.....	218	Vision, persistence of.....	215
Knife grinder, the Buffalo.....	213	War ship New York, trial of.....	211
Lantern slide improvements.....	212	Woodpecker's nest.....	218
Library, the Brooklyn.....	214	World's Fair Notes.....	211
Locomotive, large, unloading.....	212	World's Fair, Yucatan exhibit at.....	217

TABLE OF CONTENTS OF

SCIENTIFIC AMERICAN SUPPLEMENT

No. 901.

For the Week Ending April 8, 1893.

Price 10 cents. For sale by all newsdealers.

I. CHEMISTRY.—Detection of Lead.—An excellent article on the detection of traces of lead, especially in citric and tartaric acid. Recovery of Silver Residues.—How to produce pure nitrate of silver from photographic waste. Starch.—The different kinds of starch and their chemical and structural peculiarities. The Examination of Soap.—By M. E. DEISS.—Notes on the examination and analysis of soap by volumetric methods.....	14405
II. ELECTRICITY.—A New Electrical Furnace.—By M. HENRI MOISSAN.—A furnace worked by the electric arc and producing the most remarkable thermic effects.....	14396
Electric Laboratory Crucibles.—A species of furnace for laboratory experiments, with the heat of the voltaic arc in atmospheres of different gases.—1 illustration.....	14395
Gilbert's "De Magnete."—A review of this remarkable book now published in translation.—The Gilbert Club. Telegraph in War.—By Lieut. JAMES A. SWIFT.—How the telegraph has been and can be utilized in war.—Details of its application.....	14397
III. ELECTRICAL ENGINEERING.—The Perkins Elastic Railway Conduit.—A simple subway conduit for replacing the trolley line.—1 illustration.....	14396
IV. GEOGRAPHY.—Hawaii.—By FRANK H. PALMER.—Description of the Hawaiian Islands and their most prominent features.—6 illustrations.....	14402
V. GEOLOGY.—Estimates of Geologic Time.—By WARREN UPHAM.—An elaborate paper on the different estimates made of geological time by leading geologists.....	14403
VI. HYGIENE.—Precautions Against Cholera.—The German government's paternal advice for the avoidance of cholera.—A common sense collection of rules.....	14401
VII. METEOROLOGY.—A Steel Ship Struck by Lightning.—Details of a lightning stroke received by a steel steamship.....	14397
VIII. MILITARY ENGINEERING.—The Souchet Prism-Telemeter.—A pocket range finder recently adopted in the Russian service.—5 illustrations.....	14399
IX. NAVAL ENGINEERING.—A New Life-Boat.—A life-boat made of canvas, with the flotation chamber filled with reindeer's hair.—1 illustration.....	14392
Double Stern Wheel Passenger Steamer.—A new stern wheel steamer, with central rudder of improved steering qualities.—4 illustrations.....	14392
The 9 de Julio.—A ship recently constructed by the Armstrong Works for the Argentine navy.—1 illustration.....	14391
X. PHOTOGRAPHY.—Instantaneous Photography.—Interesting photographs of horses in motion.—5 illustrations.....	14398
XI. PHYSICS.—Latent Heat.—A review of certain new theories attacking the doctrine of latent heat. The Origin of Color.—By WILLIAM ACKROYD.—A curious speculation on the physics of color. Variations of Gravity.—By M. MASCART.—Curious investigations on the variation of the force of gravity during the day.....	14401
XII. PHYSIOLOGY.—Functions of the Retina.—How the retina acts in appreciating color and white light. Mirror Writing.—By W. W. IRELAND.—Reversed writing and its execution by partially paralyzed or other affected people.....	14398
XIII. TECHNOLOGY.—On Pottery Glazes.—Their Classification and Decorative Value in Ceramic Design.—By WILSON P. RIX.—An important article on the relation of glazing to decorative effects in pottery.—6 illustrations.....	14393

AGRICULTURAL RAILWAYS.

A large body of farmers have united in Kansas for the purpose of building an electric railway across the prairies to enable them to ship their cattle and other products to market, and thus put a million of dollars or more which they now claim to spend annually in transportation into a road which they themselves shall own. The scheme is a pretentious one, more pretentious than the present knowledge of electrical matters and the courage of the financial world would warrant, because the road as proposed is five hundred miles or more in length. Nevertheless a committee has been in Chicago investigating the matter with a view to adopting the storage battery or the trolley system, which ever one seems best adapted to the purpose.

Even if these farmers are somewhat ahead of the times in their purposes, they are foretelling what is soon to take place. At the present rate of electric railway building most of the larger towns and cities which have passenger traffic in sufficient volume to support an electric railway system will be well supplied in this particular in three or four years at the outside. When this field is well covered it is hardly probable that manufacturers of electric railway apparatus will give up the manufacture of a line of material of such unquestioned economic value as theirs, and they will extend their business in other directions, and the transportation of freight would naturally be the desired, in fact is the only, direction which gives promise of satisfactory financial returns. Several electric railways in various parts of the country already do a considerable business in the line of carrying freight, but the possibilities in this direction are by no means fully demonstrated yet. A great necessity in any inhabited section of country is good roads over which the products of the earth can be economically transported to market. In this respect our country is sadly lacking, and the farmers of Kansas and other Western States know how to appreciate this when oftentimes they use the corn they have raised for fuel because excessive freight charges make it impossible for them to ship it East and receive remunerative returns.

The scheme of the Kansas farmers to build an electric road is not so harebrained as it might be by any means. Such electric roads will not take the place of trunk lines of steam roads any more than electric light has taken the place of gas. One supplements the other. A few such electric roads for purposes of transporting freight, if built with regard to commercial needs, would prove valuable feeders to the steam roads and increase their amount of freightage.

When Edison Was Young.

"I was an operator in the Memphis office when Thomas A. Edison applied to the manager for a position," said A. G. Rockefeller, a member of the Reminiscence Club, St. Louis. "He came walking into the office one morning looking like a veritable hayseed. He wore a hickory shirt, a pair of butternut pants tucked into the tops of boots a size too large and guiltless of blacking. 'Where's the boss?' was his query as he glanced round the office. No one replied at once and he repeated the question. The manager asked him what he could do for him, and the future-great proceeded to strike him for a job. Business was rushing and the office was two men short; so almost any kind of a lightning slinger was welcome. He was assigned to a desk and a fusillade of winks went the rounds of the office, for the 'jay' was put on the St. Louis wire, the hardest in the office.

"At this end of the line was an operator who was chain lightning and knew it. Edison had hardly got seated before St. Louis called. The new comer responded and St. Louis started in on a long report, and he pumped it in like a house afire. Edison threw his leg over the arm of his chair, leisurely transferred a wad of spruce gum from his pocket to his mouth, picked up a pen, examined it critically, and started in, about 200 words behind. He didn't stay there long, though. St. Louis let out another link of speed, and still another, and the instrument on Edison's table hummed like an old-style Singer sewing machine.

"Every man in the office left his desk and gathered round the 'jay' to see what he was doing with that electric cyclone. Well, sir, he was right on the word, and was putting it down in the prettiest copper-plate hand you ever saw, even crossing his t's, dotting his i's and punctuating with as much care as a man editing telegraph for 'rat' printers. St. Louis got tired by and by and began to slow down. Edison opened the key and said, 'Here, here! this is no primer class! Get a hustle on you!' Well, sir, that broke St. Louis all up. He had been 'raw hiding' Memphis for a long time, and we were terribly sore, and to have a man in our office that could walk all over him made us feel like a man whose horse had won the Derby. I saw the 'wizard' not long ago. He doesn't wear a hickory shirt nor put his pants in his boots, but he is very far from being a dude yet."—*Practical Electricity.*

THE Minot Ledge lighthouse is of granite; height, 88 feet, the lower 40 feet being solid.

Notes from the World's Columbian Exposition.

The chiefs of departments at the World's Columbian Exposition recently held a protracted meeting, at which they fully discussed the progress of completing the buildings and of installing exhibits. The condition of each department was fully discussed and the needs of some were considered, in order that they might catch up with others that are well along. After the whole situation had been fully analyzed, it was the general opinion of the meeting that if exhibitors are prompt in sending in their exhibits and energetic in installing them, there is no reason why the Exposition should not be opened on May 1 in most excellent condition.

A glance at the way work is being pushed now will show that no time is being lost. As many men are employed as can possibly be made use of. The great Manufactures and Liberal Arts Building resounds to the echo with the sound of driving nails and sawing lumber, with the rumble of freight cars which are bringing in cases of exhibits, and the tread of horses drawing truckloads of exhibits and lumber. The Japanese pavilion is completed and makes a very attractive show with its Oriental style of architecture and its bright colors. Several prominent manufacturers have nearly completed their pavilions, and Great Britain, Germany and France are well along with their work. The Austrian pavilion has just been laid out, while Canada, Denmark, Brazil, the Netherlands, Spain, Italy and other nations are fast bringing their pavilions into attractive shape. Staff is quite extensively used in ornamenting these pavilions, thus giving a more finished effect than was generally seen at the Centennial Exposition.

In the Agricultural Building a dozen or more State pavilions are nearly completed and give promise of very interesting displays, particularly in the line of natural woods, corn, grain and other products. In the Palace of Mechanic Arts the work of completing the building and of installing the power plant goes on side by side with the building of pavilions and installing of exhibits. In the Electricity Building several of the larger and more important of the exhibitors have already done considerable work. Workmen are now preparing for an exhibit in this building which will attract much attention. This will be a subterranean mine, completely fitted with electric mining machinery. In the Mining Building more has been accomplished proportionately toward completing the work of installing exhibits than perhaps in any other building. In the Transportation Building there is a good showing of work, and every day brings a change from the previous one. In Horticultural Hall a large number of men are at work on the flower and plant exhibits, and work has been begun building an immense mound under the dome. Within this mound there will be a perfect model of a cave recently discovered in the Black Hills. The stalactites and stalagmites for use in this cave are already on the ground. The Women's Building, although one of the first structures completed, is somewhat behindhand, as no exhibit has yet been installed.

Work on the State buildings is nearly up with that on the Exposition buildings proper, and quite a number of the State buildings are completed. The North Dakota building is having put in place a fine exhibit of the State products, and the building is quite elaborately trimmed in the interior with corn and other native products. In the Kansas building is a fine display of animals, both wild and domestic, and also a showing of the State's products. These animals are exhibited by the State University. Iowa is making a very elaborate show, after the style of the corn palaces which have been built before in that State. The building is finely located at the extreme northeastern corner of the grounds on the lake shore, and the large hall is elaborately decorated with corn. There are cross sections of ears which are nailed on the wall in quite elaborate patterns, the background being some bright color; while under the roof are long festoons of ears of corn, while bundles of grain and other native products are displayed with fine effect. There are, as yet, no exhibits in any of the other State buildings, but the buildings of the following States have been completed: Wisconsin, Ohio, Colorado, South Dakota, Nebraska, Arkansas, West Virginia, Utah, Montana, Maryland, New Jersey, Connecticut, New Hampshire, Maine, Virginia, Massachusetts, Rhode Island, Delaware, New York, Pennsylvania, Florida, Louisiana, Illinois, and Minnesota. The Virginia building, which is an exact representation of Washington's home at Mount Vernon, attracts much attention from visitors. The Massachusetts building is a fine reproduction of an old colonial mansion. The codfish weather vane attracts the Western eye. The New York building is a large, imposing structure, and is perhaps the most pretentious of any of the State buildings. The Florida building is unique and interesting, being a reproduction of the old fortification at St. Augustine. Considerable work yet remains to be done on the buildings of the following States: California (a reproduction of the old mission station at Santa Barbara), Indiana, Michigan, Washington, Texas, Kentucky, Ida-

ho, Vermont, Missouri, and the Territorial buildings of New Mexico, Arizona, and Oklahoma.

The Bureau of Music is laying out a programme that will cover the whole period after the Fair is opened until the close. The scheme upon which the programme is based contemplates outdoor music by the finest bands of America and Europe, so arranged that there shall be plenty of music each day. In addition to this it is proposed to have concerts every day, and society and festival concerts every week, in which leading organizations from all parts of the country will participate. Every conductor and society of note throughout the country has been assigned a definite time for furnishing music. The concerts proper will be held in Music Hall, while the bands will play in outdoor pavilions.

There will be no high tower at the Exposition to compare with the Eiffel tower that was built for the Paris Exposition, but some grand vistas have been provided for, one of the last being a promenade on the roof of the Manufactures and Liberal Arts Building. The concession has just been granted and contract awarded for four elevators to carry the passengers up to it. This roof is 237 feet high, and will command a grand view of the whole Exposition. The top of the dome of the Administration Building is some 30 feet higher, but does not have the area to accommodate people. Provision is also made on two other buildings at least for visitors. These two buildings are the Transportation Building, which will have a restaurant on the roof over the golden entrance, as has been stated before in these columns, and the Women's Building, which will also have a restaurant on the roof. The concession for this last restaurant has just been awarded to a woman.

Mr. Frederick Sargent, who was made general manager of the combined electrical and mechanical departments only a few weeks ago, has handed in his resignation, and it has been accepted. Mr. Sargent has served the Exposition faithfully, and much credit is due him for the efficient and comprehensive manner in which the power plant has been laid out.

The number of visitors within the Exposition gates has become quite a burden, now that work is being so rushed, and in order to restrict if possible the multitude, the price of admission has been increased from twenty-five to fifty cents, and the desired result seems to have been accomplished, for the time being, at least.

The White Horse Inn, made so famous by Dickens, has been reproduced in staff, and an immense white horse has just been put in position over the entrance way. This building is to be formally dedicated by Dickens' admirers on May 10. The building is to be headquarters of the Columbian Pickwick Club.

All crafts or vessels run in connection with the World's Columbian Exposition will fly two flags, the national flag and the Columbian maritime flag. The maritime flag is of white bunting with a wreath of oak leaves in the center, with a blue anchor in the center of the wreath. The gondolas will fly a flag modeled after those used in the fourteenth century. The lagoons, basin, and other interior waterways have all been dredged so that six feet is the minimum depth. This provides ample waterway, as the launches and other small boats will not draw over three feet. The fire boat which was built last year for use at the Exposition, and which has lain in the canal all winter under steam, to be ready for service at an instant's notice, draws so little water that it can run in any part of the waterways. A covered way designed only for the use of the fire boat gives it entrance from the basin into the South canal.

An interesting memorial of the Exposition is being prepared which is to be placed permanently in the Art Institute of Chicago. This will comprise the models for much of the art work at the Exposition, including the statues, reliefs, and paintings.

One vote out of a total of sixty-one has stemmed the tide of a threatened strike of switchmen on the railroads focusing at Chicago. Had the strike taken place the World's Columbian Exposition would have been seriously injured, so far as its financial success is concerned. The escape was very narrow, but was only one of many vicissitudes through which the Exposition has passed. In most other instances it has had to make the best of untoward circumstances, and considering all these circumstances it is a wonder that the Exposition has not been badly shaken. More obstacles have been thrown in the way by those who should have been its best friends than the general public is aware of. This is true with labor, and the fact that the switchmen's strike has been, for the time at least, avoided is a relief. Labor organizations have demanded all the work to be done upon the grounds and buildings, and whenever there has been a remonstrance at unjust demands, there have been immediate threats of a strike and boycott. If there could have been harmony instead of antagonism between labor and the Exposition officials, all work, so far as the buildings and grounds are concerned, could have been completed some time ago. But with an eight hour working day and almost prohibitive prices for overwork or night work, while thousands of men have been idle in all our

large cities, it has been impossible to accomplish more than has already been done. But the laboring man has not been the only one that has hampered the efforts of the Exposition officials. Congress has not been over-generous in its support, financial and otherwise, and one or two railroads have endeavored to wring excessive charges out of the Exposition, while combinations in the business world have in several instances endeavored to make enormous profit out of the Fair. And perhaps most surprising of all, the local press has made occasional virulent attacks on the Exposition which have not had the slightest foundation in truth or fact.

In short, the Exposition has had very little cordial support from many upon whom it most depends for success. It has had from the first to fight off barnacles of one sort or another.

An Important Patent Decision by the Supreme Court.

A ruling upon the validity of patents granted in the United States under foreign patents of the same invention was made by the Supreme Court of the United States March 27, in the case of Henry Huber et al. agt. the N. O. Nelson Manufacturing Company, appealed from the Circuit Court for the Eastern District of Missouri. Mr. Justice Blatchford delivered the opinion. A patent for an "improvement in water closets" was issued April 7, 1874, in Great Britain. The patent was to run for fourteen years, with a proviso that if a stamp duty of £100 was not paid within seven years of date of issue, the patent would at the expiration of that term become void. Application for a patent in the United States under assignment was made November 29, 1881, and the patent granted June 27, 1882. The £100 stamp duty was not paid in Great Britain within the time required, and the patent there became void April 7, 1881. Under these facts the circuit court held that the patent granted in the United States was void, because it was granted after the British patent had ceased to exist, and judgment to this effect in favor of the defendants was affirmed. This decision, it is believed, destroys Edison's quadruplex telegraph patent and also his three microphone patents, which were not patented here until after the foreign patents had been taken, leaving the Bell company, after January next, to stand wholly on the Berliner patent.

The New American War Ship New York.

Within a few weeks the United States navy has had enrolled in its ranks as a reserve ship the New York of the American line. Almost coincidentally with this event, which meant the securing of the fastest ships afloat, to be used if necessary in war, came the account of the unofficial trial trip of the new armored cruiser New York, which has just been finished at the Cramps' ship yard, in Philadelphia. The trip showed that the namesake of the naval reserve ship resembles or perhaps surpasses her in one respect—in speed the new cruiser appears to rank among the fastest ships of her class.

On Tuesday, March 21, the ship left Cramps' yard and proceeded down the Delaware, under her own steam, attaining about 17.5 knots, and anchored near the breakwater. On Saturday, March 25, the ship was taken out to sea. Two runs were first taken from five fathom lightship to northeast end lightship and return. The first run to the northward took 29 minutes 38 seconds, the second run to the southward took 29 minutes 51 seconds. The distance covered in each run was 9.88 nautical miles, giving rates of 20.03 and 19.87 nautical miles per hour. Next the ship was run out to sea into deeper water. Basing her record on the data obtained from the two distance trials, on a four hour run, a speed of 20.38 nautical miles per hour was maintained. As the water deepened, a speed of 20.57 miles was reached.

Metallic Tin on Cloth.

A new process, invented in Germany, allows a brilliant and flexible stratum of tin to be deposited upon cotton fiber. A paste is first made of the powdered zinc of commerce and white of egg and spread on the material by means of a brush. This is then coagulated after drying by a current of superheated steam and the tissue is then introduced into a bath of perchloride of tin. The metal precipitates on the zinc in a finely divided state, and after rinsing and drying the cloth, it is passed through cylinders or calenders which give brilliance to the coat of tin. Beautiful metallic designs may be obtained in this way. It is stated that the process may be substituted entirely for the ordinary method of ornamenting cloth with tinfoil.

A New Commissioner of Patents.

John S. Seymour, nominated to be Commissioner of Patents, is a lawyer, 45 years of age, and a resident of Norwalk, Conn. Two years ago he was elected State Senator, which was his first public service. He is reputed to be a man of much ability and doubtless will make an efficient Commissioner of Patents.