INVALIDITY OF STATE LAWS REGULATING THE SALE OF PATENTS.

In the Circuit Court of the United States, District of Indiana.

Ex-parte Major J. Robinson—Petition for writ of Habeas Corpus.

Be it remembered, that heretofore, to wit, on the 30th day of May, 1870, before the Honorable David Davis, one of the Judges of said Court, the following proceedings in the above entitled cause were had, to wit:

It appears from the papers in this case, that the petitioner, being the duly authorized agent of the owners of certain patents granted to Henry B. Goodyear, administrator, and to John A. Cummings, offered, on the 23d day of May, 1870, to Harrison H. La Fever, a dentist, in the county of Grant, in this State, the right to use the invention patented, for dental purposes, within said county, for the sum of $100, which the said La Fever agreed to pay. Before the sale was completed, the District Attorney of the county instituted proceedings against the petitioner, under the provisions of an act of the legislature of Indiana, entitled "An Act to regulate the sale of patent rights, and to prevent fraud in connection therewith," which took effect on the 23d day of April, 1869.

These proceedings resulted in the petitioner being committed to the jail of the county, because he had failed, before he had offered to sell the patent right, to comply with the terms of the law.

If the law is valid, he was properly held in custody; otherwise, he should have been discharged. This law declares that it shall be unlawful for any person to sell or barter any patent right in any county within the State without first filing with the Clerk of the Court of such county copies of the letters patent duly authenticated, and at the same time swearing to an affidavit before such clerk, that such letters patent are genuine and have not been revoked or annulled, and that he has full authority to sell or barter the right so patented. Which affidavit shall set forth his name, occupation and residence, and, if an agent, the name, occupation and residence of his principal. A copy of this affidavit shall be filed in the office of said Clerk, who shall furnish a copy of the same to the applicant, who shall exhibit the same to any person on demand. Penalties are imposed for any violation of these provisions.

This is an attempt on the part of the Legislature to direct the manner in which patent rights shall be sold in the State, to prohibit their sale altogether, if these directions are not complied with, and to throw burthens on the owners of this species of property, which Congress has not seen fit to impose upon them. I have not time to elaborate the subject, nor even to cite the authorities bearing on the question, and shall therefore content myself with stating the conclusion which I have reached.

It is clear that this kind of legislation is unauthorized. To Congress is given by the Constitution the power "to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries." This power has been exercised by Congress, who have directed the manner, in which patents shall be obtained, how they shall be assigned and sold.

The property in inventions exists by virtue of the laws of Congress, and no State has a right to interfere with its enjoyment, or annex conditions to the grant. If the patentee complies with the laws of Congress on the subject, he has a right to go into the open market anywhere within the United States and sell his property. If this were not so, it is easy to see that a State could impose terms, which would result in a prohibition or the sale of this species of property within its borders, and in this way nullify the laws of Congress which regulate its transfer, and destroy the power conferred upon Congress by the Constitution. The law in question attempts to punish by fine and imprisonment a patentee for doing with his property what the National Legislature has authorized him to do, and is therefore void.

The petitioner is discharged.

Improvement in Pencils.

Mr. Henry T. Cushman, of North Bennington, Vt, has invented an improvement in lead pencils, which consists in providing them with a coating of flock, by means of which they are less liable to be lost, and more easily handled than those now in use. The pencils are covered with glue or other adhesive liquid, and then coated with flock of any desired color. This gives the pencil a coating which causes it to adhere to cloth, and thereby prevents its sliding or slipping from the pocket. This improvement does not add to the cost of the pencil, as the rough coating may be applied as readily and as cheaply as the ordinary varnish or polish.

Germano Sommellier.

The death of this eminent Italian engineer was briefly announced in our issue of last week, and we are now enabled to give a few particulars of his life and works.

He was born in the province of Faucigny, in Savoy, in the year 1815, and his parents, having given him a sound preliminary education, perceived his genius for mathematics, and sent him, in his fifteenth year, to the Polytechnic School at Turin. He took high honors at this school, and after spending a few years in traveling through France, Germany, and England, he published a pamphlet, urging the government of the then king (Charles Albert) to arrange with the French authorities for the construction of a tunnel under the Alps. The expense of the project prevented its immediate success; but Sommellier struggled undauntedly for twenty years, and was at last rewarded by seeing the work finally resolved upon, and intrusted to him for execution. There is no need to add to the many descriptions of this enormous undertaking which have already been published; but the entire credit of its execution is due to Signor Sommellier. It was his own offspring from beginning to end. His inventions for tunneling and ventilating have been described to our readers; and his last achievement was the devising a means of maintaining air currents through the tunnel, so as to render it a safe passage for travelers under all circumstances.

He was able to complete his work before he was taken away; but the pleasure of seeing a train run through the Alps was denied him. He gave his life to this work, and exhausted it in its execution.

THE people of Chicago have appropriated one thousand and fifty-five acres of land on the south and southwest of the city, at a distance of some six or eight miles from the business center, for the purpose of a public park; and Mr. F. L. Olmsted has been invited to examine the land and to prepare a plan for the work. The site consists of two tracts, a mile or a mile and a half apart. One of these tracts contains nearly six hundred acres, lying upon Lake Michigan, on which it has a frontage of a little more than a mile and a half; and the other, three hundred and seventy-two acres, entirely inland. The situation is by no means picturesque, but it is hoped that a liberal use of the resources of landscape gardening, under the direction of a competent artist, will do much to remedy that defect.

ONE GRAIN OF WHEAT.—Mr. Login, of the Indian Civli Service, recently forwarded to the editor of *Nature* a photograph of the produce of a grain of wheat, grown in India on the Egyptian system. One hundred and sixty shoots sprang from the grain, of which one hundred and five became ears of corn. The broad cast system of planting, in general use in India, shows seven ears of wheat as an average yield from one grain.

VERY cheap varnish is dosed with a material in great favor with Ole Bull and all other violinists, which they use to prevent he bow from slipping.

PATENT OFFICE DECISIONS.

In the matter of the application of Daniel Pratt for the extension of letters patent, bearing date July 14, 1857, for improvement in Cotton Gins.—DUNCAN, Acting Commissioner.

The invention covered by this patent is a simple device by means of which a spiral movement is communicated to the cotton within the hopper of the gin, the result of which is, that fresh masses of the cotton are successively presented to the action of the saws, and all portions are equally ginned; and, it is alleged, with less injury to the fiber than in the old machine.

The patentee entered upon the manufacture of the improved gin even before the grant of the patent, investing a large capital in the business. Notwithstanding the interruption of his business occasioned by the late civil war, he has built and put upon the market about seven thousand gins. This fact alone demonstrates the value of the invention to the public, and the numerous affidavits placed upon file in relation to its importance, are simply cumulative evidence. Patentee's business was in Alabama, and, as was to be expected, he has suffered severely by reason of its utter prostration caused by the war, losing thereby, not only the profits that would otherwise have accrued upon the manufacture and sale of machines, but also the interest upon the large amount of idle capital invested in his factory and stock, and the interest during the war upon some $400,000 of outstanding credits. These credits he sold in 1866, at an enormous discount, receiving therefor only $50,000.

Applicant describes himself a peaceful, quiet citizen, who remained at home during the hostilities, taking no part in the war; but whether this be so or not, the interruption of his business consequent upon the war was a matter entirely beyond his control. He cannot be charged with any lack of diligence. On the contrary, he has exhibited unusual energy and capacity in the introduction of his invention. Special favor should be shown to the inventor who, having devised a useful improvement, devotes his time and energy and capital to its manufacture and sale. This often has a far more important bearing upon the industrial prosperity of the community at large than does the mere making of the invention.

The examiner reports the improvement to have been new at the time the patent was granted; and, as the balance sheet shows the patentee to be largely in arrears by reason of the invention, in the introduction of which he has shown such a large measure of diligence, it is deemed both just and proper that the extension asked for be granted.

In the matter of the application of Abel Combs for letters patent for alleged improvements in watches.

This appeal is taken from the decision of the primary examiner, who holds that the application embraces several distinct and separate improvements in watches, which for that reason can be considered only when embodied in as many separate applications.

From the specification it appears that the various improvements described may be arranged under the following heads:

1. A safety attachment in connection with the main spring and barrel, to prevent damage to the train from the breaking of the main spring or the failure of the ratchet.
2. The central arrangement of the second hand.
3. The change in the escapement devices, by which, it is alleged, the number of escapements in a given time is reduced to one half the former number.
4. The construction and eccentric location upon the dial of a calendar and the connected mechanism to mark the day of the month.
5. The mounting of the second hand staff and the calendar hand staff upon springs, for producing the requisite friction between the staff wheels and the surfaces over which they move.

This is substantially the classification made by the examiner; and after a careful consideration of the argument presented by the applicant's attorney as well as in applicant's own letter, I fail to see that there is any such connection between the improvements specified, as to make any particular one of them necessary to the presence and successful operation of any or all of the others.

The safety attachment would be equally serviceable in a watch provided with the old escapement; and neither the safety attachment nor the improved escapement has anything to do with the calendar mechanism; and a similar remark is applicable to the second hand mechanism, and to the friction springs.

It may perhaps be admitted, as urged by applicant, that the new arrangement of the second hand has necessitated an eccentric system for setting the hands, and likewise a modification in the construction of the canon pinion; and rightly enough, therefore, these devices may be regarded as properly embraced in the same application. But as regards the devices previously named, there seems to be no other necessary connection between them than that they are embraced in the same article of manufacture.

Is this sufficient reason for permitting them to be patented in a single application?

In Bennet *vs.* Fowler, 8 Wall, 445, the Supreme Court recognizes the difficulty of defining by general rules the conditions under which two or more inventions or improvements may be joined in one application; the language used in the decision is as follows: It is difficult, perhaps impossible, to lay down any general rule by which to determine when a given invention or improvements shall be embraced in one, two or more patents. Some discretion must necessarily be left on this subject to the head of the Patent Office. It is often a nice and perplexing question.

In Linus Yale, Jr. *ex parte* Commissioner's decisions, 1869, 110, the Commissioner of Patents, while admitting by implication that under some circumstances two or more inventions may be covered by one application, still demands that this shall not be done whenever it would disturb that established classification of inventions which has been found necessary to facilitate the work of examination and ensure its correctness.

The reasons assigned for applying this rule to cases that would otherwise call for double examination by different examiners seem equally strong in relation to the established sub-classes under the same examiner.

This subdivision of the subjects of invention is not made arbitrarily by the office.

It follows the course marked out by inventors themselves. A man who, being the first to invent a watch, should ask a single patent upon the several distinctive elements of its mechanism, should undoubtedly be entitled thereto; but when, in the progress of the art, the efforts of inventors have been directed to the separate parts of the watch, and at their request patents have been issued upon such separate parts, a corresponding classification of subjects necessarily arises in the office, and must be observed in considering any subsequent applications relating to the general class; otherwise, the work of examination would be rendered far more difficult, and at best would become uncertain and misleading. It is not alone the convenience of the office that is consulted in the classification which is adopted. Inventors themselves are deeply interested in having a prompt and thorough examination upon their applications, which can only be secured through this very means. As the several improvements in the present case fall into sub-divisions already established by the course of invention, and by the previous practice of the offices and as these several improvements have no necessary community of operation, it is held that they form the subject matter for separate applications; and therefore that the present application cannot properly be proceeded with until the applicant shall have made such amendment as to confine it to that one of the improvements which he may elect to prosecute therein. Upon this point the examiner's views are affirmed.

SAMUEL A. DUNCAN, Acting Commissioner.

U. S. Patent Office, August 2, 1871.

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

ANTI-INCRUSTATOR—C. G. F.
FLYING MACHINE—T. B.
IS THE BRAIN THE ORIGIN OF THOUGHT?—J. M.
NARROW GAGE CARS—T. D.
NEW MOTIVE POWER—G. H. M.
RAILROAD CARS AND THE WIND—U. B. V.
STEAM ON CANALS—J. McG., M.D.
THE EARTH CLOSET SYSTEM—F. M. H.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 1·00 a line, under the head of "Business and Personal."

ALL reference to back numbers must be by volume and page.

MARINE GLUE.—J. H. P. must take of coal naphtha, 1 pint, pure (not vulcanized) rubber, 1 ounce, cut in shreds; and macerate for 10 or 12 days, and then rub smooth with a spatula on a slab; add at heat enough to melt, 2 parts of shellac by weight, to one part of this solution. To use it, melt at a temperature of about 248° Fahr.—E. H. H., of Mass.

ELECTROTYPING ON WOOD.—Dip your wood in melted wax, then brush over with black lead until you get a polish, insert a wire of copper, and see that it also is covered with the plumbago, and in contact with that already on the wood; now attach to the pole of your battery, and immerse in the solution of sulphate of copper. The battery should not be of too strong intensity.—E. H. H., of Mass.

CEMENT FOR EITHER LEATHER OR RUBBER STRAPS.—This may be of service to some of your readers, and it is, I know, a useful thing. Gutta percha, 16 oz.; india rubber, 4 oz.; pitch, 2 oz.; linseed oil, 2 oz. Cut the rubber in shreds and add the oil, which in a few days will have softened the former. Melt carefully the gutta percha and pitch together, and stir in the rubber solution, or paste, apply hot, and press joints.—E. H. H. of Mass.

VISE BOX.—S. A. wishes to know how to fasten threads in a vise box. Take clay 3 parts, cow dung, 1 part, mix them intimately and work into a stiff uniform mass. Into the open end of the box fit a stout cardboard washer, the hole in it being less than the inside diameter of the thread, into the hole fit a taper wooden plug. Imbed the box in the prepared clay an inch thick, all over, withdraw the plug and set the clayed box away. When dry, put in by the plug hole sufficient tough brass and borax, and keeping the opening highest, introduce the box into a smith's fire; move the box about so it may be equally hot all over; increase the heat till the brass, seen through the plug hole, melts; take the box from the fire and roll it on the ground till the brass is set. When the fire color has left the inside, put a little clay round the plug and push it tight in the hole, and plunge the whole in water. When cold, break the "batch" and dress up.—P. D., of Ca.

CONE PULLEYS.—The sizes for the pulleys of the cones of a foot lathe may be found as follows: Decide on the sizes for the pulleys, say on the small cone, and on the size of one pulley on the large; then make a full size drawing of the pulleys decided upon, with the distance between centers the same as they are intended to run at; also draw the pulleys on large cone whose sizes are sought, with the difference in their diameters a little less than the difference in the diameters of the decided pulleys on the small cone. Now draw tangent lines representing the course of the belt on the two mating decided pulleys, and draw radii, cutting these tangents at right angles with the center. Measure the length of the lines representing the belt between these cutting radii, and set their sum down as part of the length of the belt. Now, with a protractor, measure the number of degrees in the arcs bounded by the radii, and covered by belt of the two pulleys; and if the whole circle or 360° = so much, then one degree = the 1-360 of the whole circle; and multiplying the amount in one degree by the number of degrees, we have the length of the arc; adding the lengths of these two arcs found to the lengths of the two tangent lines found, we have the total length of belt. Now, measure the tangent lines and arcs representing the belt on the second set, to see if the circuit is of the same length as the first; if not, change the size of assumed pulley according as the circuit is more or less than the length of belt, and measure a second time, when, if careful to consider how much more or less in change it would take, you will come very close, and a third trial will be close enough for all practical purposes. Find the size of second assumed pulley in the same way, also third, etc. If it happens that you have to decide on the sizes of the large pulley instead of the small, the operation would be the same, except that you would have to make the difference in diameter of the assumed pulleys a little more than the difference in diameter of the large pulleys, instead of a little less as when you decided the small first. I used this method in making a foot lathe, and although it is a little tedious to work out, it pays for the trouble. My belt runs beautifully, and the operation is easily seen through; it is simply finding the length of belt on one circuit, and bringing the others all up to the same length of circuit. Changing the distance between centers of cones of this description would change their relations to each other.—D. L. B., of Pa.

WATER WHEEL POWER.—In No. 6, current volume, W. A. W. makes a somewhat curious inquiry. It reads as though his stream might afford forty square inches of water under a head of thirty feet. If so, is the actual opening forty square inches? or, is the opening large enough so that the section of the stream (or vent), measures forty square inches? Perhaps it is over a weir forty inches long and one inch deep, or twenty inches long and two inches deep. Or is it flowing along the bed of a stream? Or, is it a smooth sluiceway? Call it the utmost allowable, there is no wheel venting forty square inches of water, under thirty foot head, that can drive the four foot stones as fast and as strong as they may be driven with safety; although a first class wheel would give out over fifty effective horse power, and grind at least fifty bushels of corn per hour into merchantable meal, or make from nine to ten barrels of family flour in the same time. One hundred horse power could, without doubt, be used on a properly constructed pair of stones in making corn meal. The same amount may be applied to a circular board mill also. However, forty inches of water, under thirty feet head, would do as fast grinding and ginning as W. A. W. would be likely to wish for. If his stream is only forty square inches over a weir, it is an entirely different affair, and would be only equal to one third of one horse power constantly, or equal to eight horse power one hour in the twenty-four. That would do a good business driving the pair of stones, or the sixty saw gin, if no water is allowed to waste during the other twenty-three hours.—A. M. S.

BORING CYLINDER.—What does G. A. Y. mean by "under the leverage of his lathe pulleys?" "The tool backs the metal," does it? "and the cut is more of a break." That's a fact in most shops, both inside and out, too, as well as on plane surfaces. It is scraping and tearing and grinding, instead of peeling the shavings off, and out, in little quirls.—A. M. S.

DRIP PIPE OF STEAM HEATER.—A. S. will see the necessity for introducing the drip pipe into the boiler below the water line, if he reflects that any other arrangement would leave the condensed steam between two equal pressures, and so leave it suspended in the pipe instead of returning it to the boiler. The plan about which he asks ensures the return of the drippings to the boiler, and so keeps the system of pipes free from water.—D. B., of N. Y.

TABLE CUTLERY.—To give R. S. S. H. a plain reply to this query, let me say that boiling water cannot possibly draw the temper of steel. There is something in the knives or the treatment of them that has not yet been stated.—D. B., of N. Y.

WALNUT STAINS.—In answer to W. H. B, in July 18, I would say that the juice of ripe tomatoes will remove the stain of walnuts from the hands, without injury to the skin.—J. S. B., of Ill.

BAND SAWS.—I have had no practical experience with band saws, but we all know that a steel band will not conform to, or be affected, as much by the pulleys, as a leather or other elastic band. I think a band saw would run to the largest part of the pulleys, provided the pulleys were made of some substance that would not let the saw slip and slide about and wriggle itself out of a tight place, particularly at that point where it is entering on the pulley. J. W., you know it is the nature of things when drawn over a slippery bunch to slide off if possible.—S. G. D., of Pa.

A CORRESPONDENT ASKS:—"Can I subscribe for the SCIENTIFIC AMERICAN for a shorter period than one year?" This is a frequent enquiry, and in reply we say: yes, you can subscribe for any period not less than three months, at the yearly rate, which is $3. Send 75 cts. for 3 months, $1.50 for 6 months, $2.25 for 9 months, or $3 for a year.

Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—SONOROUS STONE.—Situated about three miles from Pottstown, Pa., is a spot called Ringing Rocks, being a place about 100 feet square, filled with rocks piled on one another. These, if struck with a hammer or stone, give out distinctly musical sounds, but if removed from the locality lose this property. Two stones, however, that have been taken away still ring. Can any of your readers explain the phenomenon?—W. S. R.

2.—HARDENING GUTTA PERCHA.—Will you please inform me if there is any substance that can be mixed with a solution of chloroform and gutta percha that will render the gutta percha less sensitive to heat, and at the same time not interfere with its adhesive nature?—H. L. B.

3.—BELTS.—I would ask J. W., I. B. L., F. E. H., and particularly M. D. C., of Mass., why it is that when a belt runs on straight faced pulleys, and a straight faced tightener pulley is used on slack side of belt, and close to the receiving pulley on to which the belt is running, the belt will run to the end of the tightener which is applied most forcibly? And, when crowning faced pulleys are used, the opposite results are produced.—S. G. D.

4.—RADIATION OF HEAT.—I have a dry house heated by means of exhaust steam passing through a six inch galvanized iron pipe. Will the pipe radiate or throw out more heat if I paint the outside of the pipe black?—J. R. L.

5.—LIQUEFYING TALLOW.—Can you tell us of any substance that will liquefy tallow and keep it fluid without impairing its good lubricating properties?—T. & M.

6.—FOUNTAIN.—I wish to build a fountain in my door yard, the water to be supplied by a hydraulic ram. I have four foot fall at a distance of four rods, with surplus water. Distance from ram to fountain, 200 feet; elevation from ram to top of fountain, 25 feet. I wish to spurt the water up from fountain through small jets, for ornamental purposes only. Can that be done direct from the ram, supposing I use 1¼ inch pipe for the supply and ½ or ⅜ inch for the discharge, or must there be an elevated reservoir? Would there be danger of bursting small lead pipe when a jet is put on, as they would be frequently changed? What size and what kind of pipe (lead or iron) is best to use with No. 4 ram?—G. M. G.

7.—WRITING ON CHINA.—Will some of your many readers give me a formula by which I can put names on china or stoneware, so that they will not wash off? Can it be done after the ware has been glazed?—R. S.

8.—ROLLING THIN METAL.—Has any metal ever been rolled thinner than 4,800 sheets to an inch in thickness?—C. H.

9.—FORM OF VEHICLE.—Which will run the easiest, a thimble skein or an iron axle wagon, the wheels being the same size and both wagons capable of carrying the same load?—C. H.

10.—CLEANING MEERSCHAUM.—How can I clean a meerschaum pipe, that is colored very nicely, without spoiling the color?—F. H.

11.—GETTING WOOL OFF DRY SALTED SHEEP SKINS.—Can any of your readers inform me what to do with dry salted sheep skins, so that I can pull the wool off without injuring the skin? I can wet them in water and sweat them, but this rots the skins.—A. R. S.

12.—KILLING TREES.—Is there not something that, by giving a sapling a hack with an axe, and depositing it in the cut, will kill the tree, top and root at the same time? It should be cheap, and not of such a nature as to poison stock that might lick it. There are wood preservers, and I think there ought to be destroyers also. If these saplings are cut down they sprout again, and the roots do not begin to rot for a long time and to girdle them would take too much time.—J. H. L.

13.—SAND BELTS.—How are sand belts for finishing spokes made? What kind of sand is used, and how is it put on? What is the proper length and width for belts? What is the right diameter and speed for the pulleys?—E. T. C.

14.—COAL CUTTING MACHINE.—I am anxious to learn what coal cutting machines are, and what they are used for. Can I see any in this country, whether in use or not? and have there been any articles written describing them?—W. W. W.

[They are used in getting coal in mines, and one was fully described in SCIENTIFIC AMERICAN, Vol. XVII., Nov. 16, 1867, page 312.—EDS.

15.—GRINDING CLAY.—What is the best and cheapest machine for grinding wet clay, so as to crush any gravel contained therein?—D. H. S., Jr.

16.—WATERPROOF CLOTHS FOR BRICK HACKS.—Are cloth covers ever used to protect hacks of bricks from storms? And if so, what is the best and cheapest cloth to use for that purpose? Is there any composition or paint with which I can render common cotton sheeting waterproof, and still have it pliable and not liable to stick when rolled?—D. H. S., Jr.

17.—BURNING BRICK.—In burning brick with wood, which will produce the most even burn with the smallest consumption of fuel, two or three brick benches? What are the usual quantities of oak cord wood or pine slabs used, per thousand in burning? And can brick be well burned with the soft and sulphurous bituminous coal of Iowa and Illinois? And if so, what is the proper method of setting, and amount of coal to use per thousand?—D. H. S., Jr.

18.—PRINTER'S INK.—Will you give me a recipe for making black printer's ink?—O. S. C.

19.—MOUNTING CHROMOS.—Can you tell me how to mount chromos?—L.

20.—STAINING BUTTERNUT.—What is the best method of staining butternut and other woods so as to imitate black walnut? Can the grain of the walnut be successfully imitated?—E. S. H.