

Scientific American

NEW-YORK, OCTOBER 11, 1851.

Mechanical Fairs.

Periodical exhibitions for the display and laudable rivalry in works of mechanism, agriculture, and art, are now very common in our country. We are glad of this, they have been the means of doing much good in every country where they have been established, from the days of Grecian glory to the present era. A very few years ago, such exhibitions were few and uncommon in our country, now the States, counties, and cities, have periodical exhibitions where our mechanics meet in the honest rivalry of ingenuity and skill. In ancient days the Grecian Fairs were the resort of all nations, and the Olympic Games were wisely instituted to attract the ingenious and enterprising of all nations. Almost every year some famous fair was held on the Corinthian Isthmus; at Delphi and Thermopylae, a fair was held in Spring and Autumn, and in various other parts of the old world, the same kinds of fairs were not uncommon. There can be no doubt but the principal object of these fairs was barter, but if that is not the ostensible, it is the main object of all our modern fairs. We like the principles upon which our fairs are conducted and no country can profit so much as ours. Pecuniary and honorary recompenses are the true legal modes of encouraging rising manufactures. There can be no doubt but injustice and injury may sometimes be done in the awarding of prizes, but still that cannot destroy the real good done. This consists in the assembling of the ingenious, the spreading out of their works to the public gaze, the emulation to excel which brings them together, and the trials which are sometimes instituted to decide upon the comparative merits of various machines. These things excite ambition, inflame the spirit of emulation, and the concentrated result of all upon the American mind, leads to personal and collective effort to excel—to do still better, to be surpassed by none.

The fair of the American Institute opened at Castle Garden, this city, on Wednesday, the 1st inst. The arrangements, so far, impress us more favorably than any fair which has taken place for a number of years. The managers appear to be the better for our schooling; we trust that it will be conducted throughout with the utmost impartiality, good sense, and dignity, and that neither fear nor favor will guide the committees to partial decisions. The machinery is not by any means complete in its arrangement or working order, we therefore cannot say much about it yet, but next week we shall publish engravings of some machines exhibited, and make comments upon others.

Patent Office Report for 1850.—No. 4.

EXAMINER RENWICK'S REPORT.—He specifies the exact number of applications referred to him for examination, like Examiner Page. The number was 529, for which 204 patents were issued, and 25 were not examined, thus making apparently 300 rejections, out of 504 applications, a great number indeed; but we judge that a number of these have not been finally rejected, as he says "a number of papers have been sent for amendment." He corroborates the opinion expressed by Examiners Page and Fitzgerald, respecting the inadequate force in the Patent Office to keep pace with applications. In respect to rejections for patents, he is quite eloquent "upon the disappointment experienced by an inventor after having been picturing to himself in no faint colors, the honors and profits which are to accrue to him from the production of his brain. A communication to such an effect is to all men a disappointment; others it irritates, and there is a small, I am glad to say, but a small number, who conceive that a decision against them furnishes good ground for a quarrel with this office. These parties generally labor under misapprehension as to the duties of this office, &c." Thus, as quoted, speaks Mr. Renwick; it will be observed that one of the quoted sentences exactly resembles that famous passage in a presidential message, "we are at peace with all the world and the rest of mankind," the worthy Examiner

says a communication of rejection is to all men a disappointment, others it irritates, &c. He is savage upon those who are dissatisfied with his rejections, but their reasons for being dissatisfied, at least many of them—are no doubt just and honest: Mr. Renwick cannot have forgotten one case this very year, upon which, in the first decision, he did not exhibit the right spirit, or a full understanding of the subject. A gentleman, modest, intelligent, ingenious, and long publicly known throughout all the south and west of this State, as a thorough-bred practical architect, made application for a valuable improvement in the construction of bridges. It was rejected, the inventor went to Washington, saw the Commissioner, was referred to Mr. Renwick. His representations were met with a spirit akin to ridicule, and the principles alleged to be embraced in the invention were denied. But quiet though our friend is, he is a determined man in the right, and he stated that he was prepared, as we know he was, with the testimony of the very first engineers in this State to back him up against the decision of the Patent Office. The patent was granted with a very slight modification of his claim.

We are inclined to attribute such hasty decisions to the too great amount of labor required of the Examiners, but it would be much better to let cases lie over, than make such improper decisions. It requires great research, and much study in many cases, to decide upon the novelty and correctness of advanced principles, and this requires no small amount of time. But we find great fault with the Examiners for putting so many inventors to much unnecessary trouble and expense, by causing them—when there is really no just occasion for it, a journey to Washington from distant parts of our country, to have rejected applications reconsidered. It is generally understood by inventors that the alteration of a few words in the claims will be allowed, and which do not alter the sense nor the spirit of an exhibition of more weakness than good sense. This has naturally created considerable prejudice against the Patent Office. A very respected old friend of ours—a gentleman long known as a public man in this State, and distinguished for his inventions, his intelligence, great practical knowledge and skill—made application this year for an improvement in tools. He had made out his own papers, but was rejected out and out. He went to Washington, and, without being required to do anymore than merely alter a few words of his claim, omitting nothing, but embracing all he first claimed, Mr. Fitzgerald ordered the patent to be issued. We hope there will be a decided reform in such matters; for we know it cost each of these gentlemen about double the amount of their patent fees to go to Washington. There are, perhaps, hundreds of rejected applicants who cannot go there, or who dread to go there, and who have as just claims to patents as the gentleman referred to. We know that, in a pecuniary sense, arising from the merits of the two inventions referred to, the inventors have justly realized considerable profit, which, without patents, they would not have done, as their inventions would have been pirated throughout the whole land. How much real injury has been done to inventors by such hasty decisions, we cannot tell—no doubt a very great deal. Mr. Renwick had certainly a fine field here for an expression of sympathy, but this would have compromised the character of the Patent Office.

There is just one other part of this Report to which we can allude at present. He says, "true inventors are often rejected, having their claims disallowed many times, merely on account of their not claiming that to which they are entitled. By examination of references furnished by this office, at each time it rejects, they at last perceive, and are able to define the precise point in which the invention consists; their way to a patent is then a clear one, and the propriety of withholding the same up to that time, would appear to be obvious,"—so says Mr. Renwick; we think he misapprehends his duties, as do the other Examiners who act upon the same principles. One thing about him is, he is transparent in his Report, and would never be able to make a treaty with a Clive. We have here a clue to the great amount of useless trouble Examiners give

themselves, and we may thus express it—"An inventor makes application for a patent, he does not claim the exact new points; Examiner Renwick sees them, and knows a true inventor, but it is none of his business to tell him what the new points are; he refers the applicant to this work and that work (but we beg to state here, that such works are referred to only in cases of rejection, not for the purpose stated by Mr. Renwick) until the applicant makes a new discovery—the new points—when Mr. Renwick at once orders a patent to issue." If Mr. Renwick sees the new points at once (and he does so, or he contradicts himself) why does he not point them out immediately, and thus save himself and the inventor further trouble? Why does the Patent Office refer to books, which few inventors have the means of examining? The object, evidently, is more to mislead than assist.

The object of organizing the Patent Office upon its present basis was for Examiners to give applicants the very information refused, and referred to above. We have not set down aught in malice, but presented the two salient points of this Report in respect to rejected applications fairly before our readers. By the Reports of Examiners Fitzgerald and Renwick, we see that it gives them a great deal of trouble to make the community believe they have been upright and just in their decisions, but their arguments are strong against themselves, and the spirit exhibited is that of justifying an accusing conscience, which is, indeed, a very bad spirit.

Propeller Steamships.

The "Glasgow," a new propeller, arrived at this port on Tuesday week, in fourteen days from Glasgow, Scotland. This passage is about equal to thirteen days from Liverpool, and may be considered the fastest ever made across the Atlantic by a screw steamer. It is not a long time since we made this remark of the time is not far distant when every vessel which navigates the ocean will use steam, either as an auxiliary or prime propelling power." This prediction required no prophetic vision to insure its correctness in respect to fulfillment: since that time the increase of ocean steam vessels, has been extraordinary, and in no one particular so much as in screw propellers. The first direct communication which we had with that small but wonderful European country, Scotland, was by the "City of Glasgow," last year; that vessel was sold to the Liverpool and Philadelphia Co., and to fill up the gap occasioned by her removal from this route, the new steam vessel just arrived has been built. Her builders are the same gentlemen who constructed the "City of Glasgow" and the "City of Manchester," and she is constructed on the same lines as the latter, but as we have never seen her, we can only say a few words about the "Glasgow," which is, we have been informed, the pioneer of a permanent new line to run regularly between the two cities rendered famous by the first successful experiments of two great names in the mechanic world—Watt and Fulton. The "Glasgow" is 1,962 tons, being much larger than her predecessor, the "City;" her engines are 400 horse-power, screw 14 feet diameter; her length of main deck is 225 feet, breadth 36 feet; she has four masts, (two of them hollow iron tube), and is fully rigged. She is a vessel of great capacity, beautiful model, and possesses good accommodations; her hull is iron. Her builders are Messrs. Todd & Macgregor, of Glasgow, practical engineers of great celebrity. The screw is of three blades, and when we looked at the result produced by the one small propelling device of 14 feet diameter, and compared it with two huge paddle wheels of 30 feet diameter, we could not but conclude, all things considered, that the screw was the superior propelling device. To show how quick the engineers do business on the other side of the water, (a fact which we must and shall profit by) from the day in which this steamship was launched until the day she sailed to New York, only three weeks elapsed: her boilers, engines and cargo were all put in during that brief space.

We will soon have five lines of screw propellers running between our country and Britain. At present we have three, namely the Philadelphia and Liverpool, the New York and Glasgow Lines, and Boston and Liverpool Line.

From what we have heard about the vessels of this latter line, we anticipate very successful results: the "S. S. Lewis," the pioneer of it, will soon make her first Atlantic voyage; she was built in Philadelphia, and is a splendid vessel. Her hull was built by Messrs. Birely & Sons, and is most substantially constructed. Her frame is almost entirely of white oak, and the planking and ceiling principally of the same material. The frame is bound together with diagonal iron braces, each 60 feet long, 5 inches wide, and 1 inch thick. These braces cross one another, and let into the timbers, being bolted through them and rivetted on the outside, and at every intersection are bolted together. The hull was planned and superintended by the ingenious Capt. Loper, and she is driven by one of his propellers—the wheel being 18 feet 4 inches, with four fans. Her engines were designed, we believe, by Capt. Loper, and for compactness, beauty, and power, are said to be superior to those of any other propeller steamship afloat. This line will be composed of four fine vessels. Next year we will have four screw steamers for freight and passengers belonging to Messrs. Burns & Co., of the Cunard Line; these, with the four of the Philadelphia Line, and the Glasgow Line of two, together with the "Great Britain" and "Sarah Sands," which, we understand, are to be put on the route between New York and Liverpool, will make twelve large screw propelling steamships that will be running between Europe and our country next year. This looks like doing business in an improved way, for a year ago there was but one such vessel making Atlantic voyages; and from what we have heard from a number of sources, we may confidently assert that half as many more will be added to this list before the first of 1853.

Our fine packet ships will soon be looked upon like the old packets on the Erie Canal, for assuredly the propellers will very quickly take all the passenger trade out of their hands.

South Carolina Institute.

The third annual Fair of the South Carolina Institute takes place next month. It will be opened on the 17th, and continue during the week. The object of this Institution is the promotion of art, mechanical ingenuity, and industry, and the means adopted to secure the desired ends are so good, and accord so like unit to unit with our views, that we cannot but state what they are, in order that some of our mechanical exhibitions at the North, may learn something by them.

Specimens in every branch of mechanism, art, and industry; also of cotton, rice, sugar, tobacco, and all other agricultural products, are solicited, for which suitable premiums will be awarded.

The following special premiums are offered:—For the six best specimens of steel made from Spartanburg or other iron, the product of a southern State, and manufactured into edged tools of any kind—a gold medal.

N. B.—A specimen of the steel in bars to be sent with the tools.

For the largest quantity of cocoons raised on one plantation, not less than ten bushels—a gold medal or \$50.

For the largest quantity of spun silk, the produce of any one plantation, not less than ten pounds—a gold medal or premium of \$50.

For the best sea island cotton gin, on some new principle, superior to that now in general use; or for any real and important improvement on the present one—a gold medal.

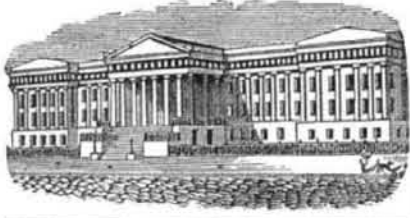
For the invention of a suitable machine for pulverising red pepper—a gold medal.

For the best steam engine—a gold medal.

For the best model steam fire engine—a gold medal.

Contributors who forward articles must send full descriptions of the same.

Here, like our agricultural premiums, specific prizes are to be awarded for specific articles. This concentrates the mind of exhibitors to excel in particular departments. It will be seen that a prize is offered for a new gin to clean Sea Island Cotton, the necessity of which invention was pointed in No. 1 of our present volume, as suggested by the Hon. John F. H. Claiborne. We hope for something good to come out of our notice. We would recommend to our southern friends to offer a still higher prize, and let it be given out this year for the next exhibition.



Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

### LIST OF PATENT CLAIMS

Issued from the United States Patent Office FOR THE WEEK ENDING SEPTEMBER 30, 1851.

To Timothy Gilbert, of Boston, Mass., for improvement in Pianofortes.

I claim the combination of the return screw and button, or equivalent contrivance, or contrivances, with the hammer and fly, and its retractive spring, so as to operate in manner and in connection with the same and other parts, substantially as described.

To Laroy Litchfield, of South Bridge, Mass., for improvement in Weavers' Shuttles.

I claim making the spindle and spring both in one piece, by extending the spindle behind the hole, for the pin that fastens it into the shuttle, and reducing it to a proper thickness, and bending it to form the spring required to hold the spindle in its proper positions in the shuttle, either with or without the catch on the end of the spring, in combination with the pin or its equivalent, against which the spring acts, to hold the spindle in the different positions required, substantially as described, thereby avoiding the inconvenience arising from the loosening of the screw which holds the spring in other shuttles, and saving the additional labor required to fit in, when the spring is made separate from the spindle.

[This is a good improvement.]

To N. B. Livingston, of Portland, Ind., for improvement in Weighing Carts.

I claim the construction and arrangement, substantially as described, by which a weighing apparatus is capacitated for easy removal from place to place, be the adaptation to each other of the containing and weighing apparatus and of the running gear; that is to say, by making the fulcrum for the lever or weighing beam, upon the axle near the wheel, the arm, with its sliding weight lying upon the pole or tongue, and the axle affording, by its bent form, free access to the contents of the box, when discharged, by means of the valve.

To Wm. Moore, of Bellville, Ohio, for improvement in Self-acting Presses.

I do not claim either the cams or the temple joint, when used singly, but I claim the combination of the eccentric cams rolling on each other, so as to avoid friction, in connection with the braces or temple joint, as above described, for the purpose and substantially in the manner aforesaid.

To G. F. Woolston, of the District of Orangeburg, S. C., for improvement in Saws for Sawing Boards.

I claim forming and arranging teeth of saws, substantially as described.

To Robert Bates, of Philadelphia, Pa., for improvement in instruments for the cure of Stammering.

I claim, first, the employment of a tube in the mouth, which will admit of speaking and of the passage of air when either the tongue or lips, would prevent the passage of air, substantially as set forth.

Second, the employment of the adjustable spring pad, substantially as set forth.

Second, the joint employment of the mouth tube and the adjustable spring pad, at the same time curing the guttural, lingual, and labial disease of stammering, substantially as set forth.

To Maria Vaughn, of Greenbush, N. Y., administratrix of Joseph C. Vaughn, deceased, (assignor to J. C. Bell, of Greenbush, N. Y., & Robt. Chrystie, Jr., of the City of New York), for machine for making Wheel Tires.

I claim the combination of the upper and lower dies, with the welders, receiving motion from wedges attached to the upper and falling die; the whole acting to shape a tire, on all parts of its surface at the same time, substantially as described in the specification.

To Thos. Nicholson, of Falmouth, Va., for improved Maze Lock.

I claim the disc, with its concentric and radial passages, or their equivalents, in combination with the bolt end, operated substantially in the manner [and for the purpose described].

To T. J. Sloan, of New York, N. Y., for machine for arranging Screw Blanks and articles of a similar character.

I wish it to be distinctly understood, that I do not limit myself to the precise mode of construction and arrangement specified, as these may be varied without changing the character of my invention. What I claim is the combination of the inclined ways, substantially as described, with a trough, and provided with a pin or pins, or their equivalent, as described, so that, by the motion of the trough towards the ways, or vice versa, the screws or other articles, will be forced up the inclined ways, hanging by their heads, as described.

To L. H. Parsons, of Lambertville, N. J., for improvement in Plotting Scales.

What I claim is not the division into equal parts, with or without subdivisions, of one or more of those parts of the continuous edge of a scale or rule; nor the use of a vernier for measuring or describing right lines, nor the manner of attaching the vernier slide to the main plate of the instrument; nor the use of a lever or slow motion screw for adjusting the motions of the vernier slide, but the combined application, in one and the same instrument, of the graduation upon the edge (to obviate the imperfection and inconvenience attending the use of dividers or compasses) and the slide, carrying with it the several primary divisions of the unit; and those divisions carrying with them, respectively, by means of the vernier, the several secondary divisions, into hundredths or otherwise, so as to enable the operator to distinguish and apply hundredths, or half hundredths, of the smallest unit, with a great rapidity, precision, and ease, as tenths of the same unit, with the scale graduated on the edge, without a slide; and so, also, that whatever parts of a unit are required, or whatever the whole length of line to be measured, the whole amount of motion required, in lengthening or shortening the instrument, is only equal to the number of additional or intermediate hundredths or other subdivisions, never exceeding one-tenth of the unit of measure.

To N. A. Prince, of New Gloucester, Me., for improvement in Fountain Pens.

I claim the hollow, flexible, and long extension of the reservoir or tube, to extend up and be secured to the arm of the writer, substantially in the manner and for the purpose as specified.

To Elijah Whiten, of Hingham, Mass., for improvement in machines for Sawing Volutes.

I claim, first, the manner in which I produce the two motions necessary to be given to the block, in order that it may be sawed in the required form, viz., the screw rod, with its right and left screws cut upon it, meshing into the pinions, by which motion is communicated to the horizontal rods, the toothed wheels, pinions, or spurs, grasping the edge of the block and causing it to rotate, in combination with the bevel pinions, screw rods, and arm, by which a rectilinear motion towards the saw is given the carriage and block, producing the result described.

[This is considered a very excellent improvement.]

To Matthew Spear, of Bowdoinham, Me., for improvement in Mitre Boxes.

I claim one or two rotary saw guides, with sliding gauge rests, &c., and mechanism for rotating the guides and fixing them in any desirable position, or positions, as specified, in combination with the improvement of making or applying the uprights, or vertical supports of the saw, to the bars, so as to be capable of being turned down to an angle with the horizon, for the purpose, as described.

To Alex. Jimason, of Parkesburgh, Pa., for improvement in Shields for Valves.

I claim surrounding the valve by a shield, constructed substantially in the manner described, and fitting closely enough to regulate the ingress and egress of the water, or steam, to such a degree as to prevent the slamming of the valve, in opening and closing.

To Joseph Putnam, of Salem, Mass., for improvement in the manufacture of Clay Pipes.

I claim the use of the wire gauge frame,

constructed substantially as described, in moulding clay or earthen pipes, in the manner and for the purpose specified.

I also claim the improvement specified, in the sack, in which said pipes are suspended, to be dried, said improvement consisting in confining said sack to two rails, kept parallel, by means of cross bars, forming, with them, a rectangular frame, as described.

#### DESIGNS.

To Nathan Chapin, of Syracuse, N. Y., for Design for Tables.

To Ezra Ripley, of Troy, N. Y., for Design for Stove Fronts.

#### Aerial Voyage.

Our friend John Wise made his 124th aerial voyage on the 25th ult., at the Ohio State Fair. His balloon Ulysses contained only 9,000 cubic feet of gas, and he made an ascent with his wife and son, after which he came down and left his son, and then went up again with Mrs. Wise, and came down again, after which he ascended alone and attained an altitude of 10,000 feet. In describing his voyage he says:

I entered a stratum of mist—it was highly electrical—agitated by convoluntary air-whirls. In this mist, and above it every thing in and about the balloon became intensely elastic—a spruceness, if I am allowed the term, pervaded the whole mass that rendered it quickening and musical. The touching of the valve cord produced sounds like a guitar—the cords by which the car was suspended gave out sounds like a string instrument at every whirl of the electric medium.

When in the mist it had the appearance of dust, but viewed from above, it had a dingy and gloomy appearance. It was a distinct stratum several hundred feet thick.

Respecting distinctness of hearing in the atmosphere, he says:—

"I was aloft until sunset. The sunset scene was a grand one. The tops of the clouds in the distance were magnificently illuminated and variegated with the colors of the rainbow. While viewing this scene from over a mile high, my attention was suddenly directed to a conversation passing between two individuals. At first I thought it a delusion, but upon close observation it proved to be a fact, for I could distinctly hear words, such as "I don't know," "did you see him." I tried the experiment upon my own voice, and found it to echo distinctly, which also brought shouts from persons below; probably from those whose conversation I heard."

Effect upon his health and curious electrical stratum:—

"Although the air at this point was only 40 deg., my pulse was quickened to not less, I judge, than 90 a minute, and my veins were considerably distended. I felt that I was getting much relief from sickness I had labored under for several weeks; and I now candidly say, that I feel a permanent improvement of health, really astonishing to myself, and altogether ascribed to the electrical invigoration received in a highly charged atmosphere.—This was one object in resuming my voyage after Mrs. Wise and Charles were landed.

While passing through the cold electrical stratum, theory would assign to the gas a loss of buoyancy from condensation, but in this case its buoyancy was increased, as I am certain its ascent became accelerated from the time it entered it without discharging any ballast.

For the Scientific American.

#### Machine for Making Ladies' Combs.

Knowing some may be curious to understand something about the machines at present in use for making ladies' combs, I will try and describe one so as to render it easily understood.

The machine is driven by a belt pulley or crank. There are two cutters attached to the lower ends of two mandrils, or one mandril split in two lengthwise, and playing vertically in two metal boxes placed above one another.

The horn of which the combs are made is first cut into the required shape in single pieces, out of each one of which two combs are made, two teeth of each comb being cut during one revolution of the crank. The horn is placed upon a carriage which runs upon ways under the cutters, and, by turning the crank, each half of the mandril, in its turn, is forced down, driving its cutter through the horn, which is made and kept soft by heat from a fire burn-

ing in an iron box beneath the carriage. Two double pointed cams, placed above the mandrils, operate them at the appropriate periods; these cams are so arranged that each of the four points acts alternately—two on each half—thus forming one side of two teeth at every quarter revolution of the crank. After having done its work, it is forced back by a spring, and is ready to be acted upon by the next point of the cam. In the meantime the horn is moved forward by means of a thick double pointed cam operating a steel hand, which acts upon a rack on the carriage. The horn is thus cut in the middle, forming two combs, with backs complete. G. L. F. B.

Portland, Me.

#### Spirit Varnishes.

Almost every workman that uses varnish has his own receipt for making it. These receipts are mostly remarkable for the number of ingredients, some of which are of scarcely any use, and others absolutely hurtful to the wood for effect.

Brown rosin, gum sandarac, mastic, shell lac, seed lac, dissolved in strong spirit of wine, generally form the basis; Venice or common turpentine is added to prevent the varnish from cracking as it dries; camphor, anise, benzoin, alemi, are occasionally introduced; also gamboge, turmeric, dragon's blood, saffron, and lamp black as coloring ingredients.

The common varnish is made by dissolving 4 ounces of sandarac, and 6 ounces of Venice turpentine, in a pint of spirit of wine.

A harder varnish is made by dissolving 2 ounces of mastic, 1 ounce 1-2 of sandarac, and 1 ounce 1-2 of Venice turpentine in a pint of spirit of wine.

A very hard varnish, much used of late by the name of "French Polish for Furniture," is made by dissolving 3 ounces of shell lac, with 1 ounce each of mastic and shell lac in 2 pints 1-2 of spirit of wine in a gentle heat, making up the loss by evaporation by adding more spirit at the end of the process.

The plain solution of either mastic or sandarac in the proportion of about three ounces to a pint of spirit of wine makes very good varnish.

Yellow varnishes are used by the name of lacquers to give a golden color to metals, wood, or leather: the following is, perhaps, that most used: color a pint of spirit of wine with three quarters of an ounce of turmeric, and fifteen grains of hay saffron; filter and dissolve in it two ounces each sandarac and elemi, one ounce each dragon's blood and seed lac, and three quarters of an ounce of gamboge.

Black varnish is made for sale by dissolving half a pound of sandarac, and a quarter of a pound of yellow rosin, in half a gallon of spirit of wine, and then adding two ounces of lamp black to color it. But workmen generally make it by dissolving black sealing wax in spirit of wine.

The making of varnish from copal is a matter of difficulty, as copal is not soluble itself in its raw state in the spirit. One method is to add camphor to a pint of highly rectified spirit of wine until it ceases to be dissolved, and to pour this charged spirit upon four ounces of copal, keeping up such a heat that bubbles may be counted. When cold pour off the varnish, and if all the copal be not dissolved, add more spirit impregnated with camphor. Another method is to heat the copal and let it drop as it melts into water; a kind of oil separates from it, and it becomes soluble in ardent spirit, and still more so if the melting is repeated.

#### Astronomical Observatory in Albany.

An astronomical observatory is to be erected in the north part of Albany, on a spot of high tableland, which is to be connected with the Albany University and be under the charge of Prof. Mitchel, the celebrated astronomer. Through the liberality of Mrs. Chas. E. Dudley, who gives \$10,000 for the purpose, and Stephen Van Rensselaer who gives the land, the institution is enabled to erect the structure.

We are glad to see this; Albany is laying a sure foundation for a good name. She is not situated for much commerce, nor has she natural manufacturing resources; she can be a literary city, and wisely are her inhabitants using their influence and means to make her one, but she has much to do yet.