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**LIST OF PATENT CLAIMS**

Issued from the United States Patent Office for the week ending December 16, 1851.

To J. W. Drummond, of Skaneateles, N. Y., (assignor to Smith Ely, of New Brighton, N. Y., for improvement in Chair Seats.

I claim the above combination of the frame and web, being the mode of securing the web to the frame, as set forth, by glueing or cementing the web into a groove in the frame.

To Elisha, Charles, and Warren W. Dutcher, of North Bennington, Vt., for improvement in Weaver's Temples.

We claim the roller temple, constructed as set forth, the roller working in a concave, so that the cloth is held at that line of the periphery of the roller which is nearest the reed, at which time the roller is enabled to perform its duty with the greatest efficiency.

To R. M. Ferris, of New York City, for improvement in combining Organs with Pianofortes.

I do not claim combining the organ and pianoforte, irrespective of the manner in which the combination is formed; but I claim, first, the whole or any number of the tubes of an organ with a distinct set of keys, in combination with a pianoforte having its own proper set of keys, in such a manner that either the pianoforte or organ can be played separately, or both at the same time, by the two sets of keys, or both coupled and played by one set of keys, by means of either of two couplers and eccentric bars, or other equivalent devices, substantially as described.

Second, coupling either or both the organ and piano with a pedal action, and uncoupling them from it, by means of couples acting on the keys and eccentric bars, or their equivalents, so that either the organ and pianoforte, or both, can be played upon by the pedals, substantially as set forth.

To G. L. Haussknecht, of New Haven, Ct., for improvement in Carriages.

I claim, first, the employment of segments C D, and fifth wheels F G (or parts corresponding thereto), attached as described; the one segment, D, and fifth wheel, F, working on pivots secured at points between the front and hind axle; such parts acting in combination with arms, constructed substantially as described, for coupling the movements of two axles, or their turning appurtenances, for the purposes set forth.

To H. W. Hayden, of Waterbury, Ct., for machinery for making Kettles and articles of like character from Discs of Metal.

I do not claim any of the gear wheels or pinions, nor their arrangement, except as hereafter set forth, some of these being common in ordinary lathes; but I claim, first, the application of a rotary metallic form or mould, or successive forms or moulds, in combination with a proper tool or tools, roller or rollers, sustained, moved, and directed, in a proper path, by competent mechanical means, for the purpose of operating on a disc, blank, or plate of metal, so as to reduce it gradually from the centre to the edge, at the same time forming it with straight sides, by successive stages, into a complete kettle, or into any similar article, to the forming of which the apparatus can be applied, substantially as described.

Second, the construction of the mandrel, part of which is cylindrical and part fitted with a short screw, to take the screw of the hand wheel so that great pressure may be made at the point desired, while, at the same time, the mandrel can be easily and quickly moved through a long distance, for the purpose as described.

To Wm. and Wm. H. Lewis, of New York City, for improvement in Adjusting Lenses.

We do not claim to be the inventors of any of the parts described and shewn; neither do we mean to limit the application of these means to camera, but to use the same, to adjust the focal distance of lenses in optical instruments wherever the same may be made available.

We claim the combination of the pins, spring, and groove, with the two cylinders, for the purpose as described.

To N. B. Marsh, of Cincinnati, Ohio, for improvement in Stethoscopes.

I claim the double branch connected with the main trunk, so as to enable persons to use both ears simultaneously, as set forth and described.

To J. P. Pepper, of New Britain, Ct., for improvement in Mineral Composition resembling Jasper.

I claim the manufacture of a mineral composition, having the external characters above described, by the fusion of clay with alkali, soda, lime, and sulphate of copper, as described, or their equivalents, and working the composition into articles of utility and ornament, in the manner described.

To D. R. Richards & J. F. Flanders, of Newburyport, Mass., for improvements in rotating Tumbler Locks.

We do not claim a combination of geared change wheels and notched circular plates applied together in one common arbor, so that the said change wheels and circular plates, shall lay side by side on the said arbor, by which arrangement they require to be removed from the arbor, in order to change the catch of any one wheel from any notch or hole of its circular plate, into and other of the notches or holes of the said plate.

But we claim combining with the rotary tumblers and change gears, arranged as set forth, the projection or tooth, or its mechanical equivalent, and the sliding frame, or its equivalent, for holding and guiding the tumblers during their rotations, and for moving them out of or into connection with the change gears, all substantially as specified.

And we also claim the arrangement of the tooth or bit, and the stud, on a sliding and turning shaft, in combination with the arrangement of the arm and the tumblers, so that when a person tries to move the tumblers, he cannot get end-play on the bolt, and vice versa.

And in combination with the change gears and the arbor, we claim the friction spring or springs and plate, for the purpose described.

To F. A. Rockwell, of Ridgefield, Ct., for improvement in Candlesticks.

I do not claim the employment of a movable detached cork, or other elastic substance, over which a sliding socket is allowed to move; nor do I claim the employment of a sliding socket, but I claim the employment, in the sliding socket candlestick, of elastic packing attached to the standard of the candlestick, substantially in the manner described, whereby I am enabled to support the sliding socket, prevent the leaking of the grease, and also am not obliged to use so long a sliding socket, as where a cork is inserted loose in the socket.

To C. W. Russell, of Washington, D. C., for improvement in Chimney Caps.

I do not claim either the arch on the end plates, or the inclined plates, and irrespective of the devices in connection with them, but I claim, first, the flanges, applied to the arch in combination with the end plates, substantially in the manner set forth.

Second, the inclined plates applied to the arch, substantially as specified.

To Henry Skinner, of Attica, N. Y., for improvement in Churns.

I make no claim to originality of invention in any of the individual parts of the churn, except the dasher, and this I claim only when it is constructed with inclined perforated paddles and tapered elbow tubes, combined, for directing the cream or milk upward, and also throwing it centrifugally against the ribs and concave surface of the churn tub, during the operation of churning, in the peculiar manner set forth.

To N. W. Speers, of Cincinnati, Ohio, for Blind and Shutter Operator.

I claim the combination of the extension handle, provided with taper ends, with the lever and the studs, or their equivalent, by which the handle can, by extension, be made

to possess the requisite leverage, and by which, when the lever arrives at that portion of its sweep corresponding to the required position of the blind or shutter, it is firmly secured in its position, and the handle placed out of the way, by being thrust home against the studs, the whole being arranged substantially in the manner described.

To J. W. Thorp, of South Weare, N. H., for improvement in Apparatus for Pressing Garments.

I claim suspending the goose in a tailor's pressing machine, from a carriage travelling on rails, on the end of a vertical spindle; also arranging said spindle so that it may be moved vertically, and swivel or turn upon its axis, substantially as set forth.

I also claim arranging said goose upon the rod passing through the forked end of said spindle, so that it may slide forward and back upon said rod, as set forth.

Furthermore, I claim the combination of a goose, arranged substantially as described, so as to move in the several directions specified, with a platform box, susceptible of adjustment, as specified, and heated substantially as set forth.

To S. F. Tracey, of New York City, for improvement in processes for Smelting Copper Ores.

I claim the use, as a flux for ores, combined with an excess of silica, of the sub-silicate of iron obtained from the second smelting, or from iron turnaces.

The grinding of the Regulus or mat to a powder, instead of merely breaking it into lumps or fragments, so that a perfect oxydation can be obtained, and leaching with water, which aids the oxydation and extracts the sulphuric acid, when generated, as that acid greatly retards the refining process when combined with the metallic copper.

To Edward Virtue, of Philadelphia, Pa., for improvement in Tailors' Measures.

I claim the mode of cutting coats and vests by making all the principal parts to depend, in length, on the length of the breast measure, substantially as described.

To T. B. Wheeler, of Albany, N. Y., for improvement in Grain Sieves.

I claim forming sieves for separating grain from straw, chaff, and all extraneous matter, and for the analogous purposes, of sheet metal, with apertures cut or otherwise made in it, and inclined leaves under the said apertures of corresponding form with the apertures themselves, substantially as set forth.

[NOTE.—In the above list of patents granted last week, five of the applications were prepared in this office.

**Lignin.**

THE WOODY FIBRE.—This most important proximate principle of vegetables exhibits itself in a variety of forms, constituting the different textures of hard and soft wood and various fibrous products, such as flax, hemp, cotton, &c. When by fine mechanical division it is reduced to a pulpy state, it is formed into paper. When, by different reagents, all the soluble matters are extracted from wood, the insoluble residue is lignin: its ultimate components are charcoal, oxygen, and hydrogen, the latter elements being in the same ratio as in water: so that wood may be considered as a compound of carbon and water, and according to Dr. Prout's experiments, almost exactly in equal weights. Lignin is very imperishable; but under certain circumstances it is attacked by the dry rot, arising out of the parasitic fungus, which causes a rapid decay. Damp timber, in situations where air has not free access, is particularly subject to its attacks; and when once it has made its appearance, the well-seasoned timber in its neighborhood becomes liable to the same disease. The dry rot may be prevented by impregnating the timber with certain saline solutions, and of these a solution of corrosive sublimate has been found most effectual: the chloride combines chemically with lignin, and the compound is very indestructible. Lignin has also a strong attraction for alumine; and hence linen, cotton, paper, and other forms of this fibre, may be aluminized by steeping them in hydrated alumine, diffused through water; or, more effectively by soaking them in certain aluminous solutions, drying them, and afterwards washing out the excess of the salt. It is in this way that cotton goods are impregnated with alumine for the purpose of dyeing

and calico printing. Other metallic oxides exhibit similar attractive powers, especially the oxide of iron.

The analogy that exists between the composition of sugar, gum, starch, and even vinegar and lignin, suggests the possibility of the conversion of those proximate elements into each other; and it has accordingly been found that by carefully roasting pure and fine sawdust, it is rendered partially soluble in water, and that a part of it is converted into a nutritious substance, probably intermediate between sugar and starch; and which when mixed with a little flour, yields a palatable bread, not very unlike that made by some of the inhabitants of the northern parts of Europe of the bark of trees. Mixed with sulphuric acid, lignin passes into gum; and from this sugar may be obtained by boiling it for some hours in a very dilute sulphuric acid; this sugar, when purified, much resembles grape or honey sugar. By this process rags may be converted into nearly their own weight of this peculiar saccharine matter.

The production of vinegar by the destructive distillation of the wood was originally suggested about the middle of the 17th century, by Glauber, a celebrated German chemist of that time; it has lately become a very important branch of manufacture in this country.

It is much used in calico printing and dyeing, by making two mordants out of it—viz., red mordant and black mordant. The first is used for red and yellow dyes and colors; the latter for black and purple. The former is made by adding alum to the wood vinegar, and sometimes a little acetate of lead; and the black mordant (iron liquor) is made by dissolving clean pieces of iron into it; it is the acetate of iron. A manufactory of this liquor, we believe, exists in North Adams, Mass.

Upon the whole, there are very few natural products equally important with lignin in their applications to the useful and ornamental arts.

**Population and Extent of the United States.**

The late census presents the following important table of statistics, giving the number of inhabitants in each State and Territory, the area of each State, and the number of inhabitants to the square mile:

State.	Area in sq. miles.	Population in 1850.	No. of inhabitants to sq. m.
Maine . . . . .	30,000	583,189	19'44
New Hampshire . . . . .	9,280	317,964	34'26
Vermont . . . . .	10,212	313,611	30'07
Massachusetts . . . . .	7,800	994,499	126'11
Rhode Island . . . . .	1,360	147,544	108'05
Connecticut . . . . .	4,674	370,791	79'33
New York . . . . .	46,000	3,097,394	67'66
New Jersey . . . . .	8,320	489,555	60'04
Pennsylvania . . . . .	46,000	2,311,786	50'25
Delaware . . . . .	2,120	91,535	43'64
Maryland . . . . .	9,356	583,035	62'31
Virginia . . . . .	61,352	1,421,661	23'17
North Carolina . . . . .	45,000	868,903	19'30
South Carolina . . . . .	24,500	668,507	27'28
Georgia . . . . .	58,000	905,999	15'68
Alabama . . . . .	50,722	771,671	15'21
Mississippi . . . . .	47,156	606,555	12'86
Louisiana . . . . .	46,431	511,974	11'02
Texas . . . . .	237,321	212,592	'89
Florida . . . . .	59,268	87,401	1'47
Kentucky . . . . .	37,680	982,405	26'07
Tennessee . . . . .	45,600	1,002,625	21'98
Missouri . . . . .	67,380	682,043	10'12
Arkansas . . . . .	52,198	209,639	4'01
Ohio . . . . .	39,964	1,980,408	49'55
Indiana . . . . .	33,809	988,416	29'23
Illinois . . . . .	55,405	851,470	15'36
Michigan . . . . .	56,243	397,654	7'07
Iowa . . . . .	50,914	192,214	3'77
Wisconsin . . . . .	53,924	305,191	5'65
California . . . . .	188,981		
Minnesota . . . . .	83,000	6,077	'07
Oregon . . . . .	341,463	13,293	'03
New Mexico . . . . .	210,744	61,505	'28
Utah . . . . .	187,923		
Nebraska . . . . .	136,700		
Indian . . . . .	187,171		
Northwest . . . . .	587,564		
Dist. of Colum. . . . .	60	51,687	861'45
		3,231,595	23,080,793

To this number should be added about 200,000 for California and Utah.

We will endeavor to present more information, pertaining to the last Census, in future numbers.