



(Reported Officially for the Scientific American.)

**LIST OF PATENT CLAIMS**  
 Issued from the United States Patent Office  
 FOR THE WEEK ENDING JANUARY 10, 1854.

**SPIRAL OR WORM JOINT HINGE.**—P. G. Bates, of Waterbury, Conn.: I claim the spiral or worm joint hinge constructed as described.

**SALIVA PUMPS.**—By F. Davison, of Liberty, Va.: I claim drawing the Saliva from the mouth and keeping it dry during the operation of filling teeth, by means of an instrument constructed with a hollow mouth piece, which connects with a tube and suction and force pump, as described.

**MACHINES FOR PEGGING BOOTS AND SHOES.**—By J. J. Greenough, of New York City: I claim, first, cutting the peg from the peg blank by a lateral motion of the cutter against the side of the blank—the cutter assisting to hold the blank in position, while it is driven as described.

Second, I also claim the combination of parts, consisting of a revolving plate, surmounted by slides, moving at right angles to each other, when this is combined with the resting of the axis of the revolving plate upon a weighted lever, or its equivalent, so as to rise and fall, for producing a universal movement carriage, as described.

Third, also the center guide for directing the movement of the shoe or other article in the course indicated by the groove or other device substantially the same, for the purpose of keeping the line of the pegs, coincident with that of the awl and peg driver.

Fourth, I also claim so constructing, arranging and operating the shoe carriage that each point of the sole which is to receive a peg, shall be brought successively to the same point under the stationary pegging standard, so that the pegging shall be effected automatically and without interruption entirely around the shoe or other article as described.

Fifth, also in combination with the movable carriage, the stationary pegging standard, made adjustable, so that it can be set at any required distance from the center of motion of the carriage, so that a second row of pegs may be driven within the first row, with the same pattern as described.

Sixth, I also claim driving the pegs by a tool having a positive motion as described in both directions. I wish it distinctly understood that I do not intend by the above claim to secure or have granted to myself any device or combination contained either explicitly or substantially in letters patent granted to Joel Robinson, dated October 31st, 1848.

**DIAPHRAM PUMPS.**—By Daniel Hitchcock, of Warren, Mass.: I do not claim the pinching of the diaphragm between plates with parallel sides, as this has been done before, but I claim the securing of an elastic diaphragm between the plates, the sides of which are inclined so as to gradually compress the diaphragm and take up its elasticity by which means it is prevented from cutting as described.

**MANUFACTURE OF BOOT AND SHOE SOLES OF GUTTA PERCHA OR INDIA RUBBER.**—By E. O. Hyatt, and C. Meyers, of Milltown, N. J.: We claim the process of making a sole or other analogous manufacture in india rubber or gutta percha, in one piece having variety of thickness in different parts, by the use of rollers whose surfaces present the reverse of the forms to be produced at a single operation substantially as described.

Second, forming soles of india rubber or gutta percha with shank and heel of different thickness, and of different thickness in one solid piece, and at one operation, as described.

Third, We also claim forming such soles or analogous manufacture in continuous sheets at one operation by rolling as described.

**MACHINES FOR MINCING MEAT.**—By Abraham McInlurf, of Liberty, Va.: I claim the employment of the compound cutters, as herein described in combination with the holders, operating substantially as set forth.

**PILL MACHINES.**—By O. G. Merrill of New Bedford, Pa.: I claim the combination of Machinery described in my specification, as follows, to wit: I claim the revolving segment with the arrangement of lever and ratchet attached moving the knife in the manner described; also the peculiar operation of the fingers which support the pill worm, until the proper time for dropping it between the segment and concave, with the coating box attached and moved as aforesaid, or any other arrangement of machinery substantially the same and which will produce the intended effect.

**APPARATUS FOR INDICATING THE ACTION OF THE FEED PUMP IN STEAM BOILERS.**—T. J. Sloan, of New York City: I claim combining with the motor which operates the supply cock or valve and with the supply, or with either as specified, when the same motor and pump or either fail to operate the valve of the whistle or other alarm to give warning that the apparatus needs personal attention with the view to perfect safety as specified.

**PHOTOGRAPHIC PLATE VICE.**—C. M. Stimpson, of Cleveland, O.: I claim the bed plate, with the rings in combination with the carriage plate, with the projection and T head and lip, E, operating in conjunction with the lip, F, upon the main frame. I also claim the manner of securing the carriage plate to the ways by means of the slot and T head, and moving the same backwards and forwards upon the ways, by means of the eccentric or cam lever, in the manner specified. I also claim the arrangement by which the carriage plates can be changed from one side to another, simply by bringing the lever arm back to its farthest point to the left, or in the direction opposite to the course indicated by the arrow.

I disclaim the lips, and the cam lever separately considered, but I claim the several parts in combination.

**TONGUE INSTRUMENTS.**—Ira Warren of Boston, Mass.: I claim as my invention in an instrument for the excision of the tonsils, and other operations, the crescent shaped blades, constructed and operating in a manner substantially as described and for the purposes set forth.

**AMPUTATING APPARATUS.**—By G. W. Griswold, of Carbonate, Pa.: I claim the combination of the adjustable rest, movable disc, and guide or standard, for holding the bone, retracting the flesh and guiding the saw, in amputating limbs, the whole being as described.

**CLASPS.**—By C. T. P. Ware (assignor to David C. Morehead), of New York City: I claim the spring clasp lock so constructed and arranged that the lugs shall, when closing, depress the wide end of the tongue, and allow it at last to spring outward into the enlarged space between and above the lugs, where it is held firmly by the turned over end of the tongue, or by the thickness of the metal itself, whether used with the projections or without them.

**TRUSSES.**—By L. B. White, of Moscow, N. Y.: I claim the knuckle, the stirrup, the spring, the effect of the bow as set forth.

**DESIGN.**

**LAUNDRY STOVE.**—By Wm. Resor, of Cincinnati, O. [The following claim was omitted at the Patent Office while making up the list for Dec. 6, 1853.]

**GRAIN HARVESTERS AND BINDERS.**—By P. H. Watson & E. S. Renwick, of Washington, D. C. Ante dated June 6, 1853: We claim, first, the combination of a continuously acting rake, with a binding mechanism acting intermittently, as set forth, which, among other things, gives the director of the machine an opportunity to observe the rate at which the grain for each sheaf is accumulating, so that by hastening or retarding the opera-

tion of the binding mechanism by shifting the belt on the cone pulleys, he can make the sheaves nearly of uniform size.

Second, the method of compressing the loose grain into sheaves vertically instead of horizontally, by which, among other advantages, the lateral dimensions of the machine are considerably diminished which adapts it the better to running between stones and other obstructions, and enables it to cut the outside swath round a field with less tramping and waste of the grain.

Third, the shifting conveyor by means of which sheaves of varying length may be bound round the middle, without changing the relative positions of the cutting and tying machine, as set forth.

Fourth, the combination in a grain harvester of two series of hands, one or both armed with teeth, for the purpose of carrying the grain from the rake to the binder, as set forth.

Fifth, the combination of a shifting tripper with a conveyor, as set forth.

Sixth, the combination of the discharging gate or its equivalent, with the receiving platform and the binding crib, as set forth.

Seventh, the traveling cord nippers, or their equivalents, operating as set forth.

Eighth, the combination of the cord clamp, with the cord feeder, as set forth.

Ninth, the method, as set forth of drawing the binding cord round the sheaf with the proper degree of tightness preparatory to tying, by means of a spring operating upon the cord spool, as set forth.

Tenth, the traversing movement of the tying forceps in alternately opposite directions in combination with their opening and closing movement whereby the two ends of the band may be laid together, and may then be grasped by the forceps to be tied, thus dispensing with a finger to thread the cord through the eye of the forceps.

Eleventh, the pronged standard in combination with the tying forceps and the finger, or their equivalents.

Twelfth, the arrangement of the sides and bottom of the binding crib, so that it can be depressed to permit the discharge of the sheaf, as described.

Thirteenth, the arrangement of the cord nippers upon a sliding stock pressed down by a spring which yields to allow the stock to stand still while the compressor which carries it, is moving as set forth.

Fourteenth, the retarding of the cord by means of a brake, or the equivalent thereof applied to some point between the place at which the knot is tied and the extremities of the cord, to ensure the stretching of its ends, across the loop preparatory to their projection through it in the operation of tying the knot, as set forth.

Fifteenth, the arrangement of the sides and bottom of the binding crib, so that it can be depressed to permit the discharge of the sheaf, as described.

Sixteenth, the arrangement of the cutting and binding mechanism on opposite sides of the driving wheel, as set forth.

**Why do Teeth Decay.**

All the theories that time and again have been advanced in answer to this enquiry, have long since vanished before the true doctrine of the action of external corrosive agents. The great and all-powerful destroyer of the human teeth is acid, vegetable or mineral, and it matters not whether that acid is formed in the mouth by the decomposition of particles of food left between and around the teeth, or whether it is applied directly to the organs themselves: the result is the same, the enamel is dissolved, corroded, and the tooth destroyed. Much, very much of the decay in teeth may be attributed to the corrosive effects of acetic acid, which is not only in common use as a condiment in the form of vinegar, but is generated by the decay and decomposition of any and every variety of vegetable matter. When we consider how very few persons comparatively, take especial pains to remove every particle of food from between and around their teeth immediately after eating, can we wonder that diseased teeth are so common, and that their early loss is so frequently deplored!—[Practical Dentist.

**Quartz Crusher Experiments.**

We were present, a few days since at some experiments made at the Allaire Iron Works, to test the capability of Collyers's Quartz Crusher, illustrated by us in No. 15 of the present Volume. It was employed in crushing a quartzose rock from Lake Superior, very hard and tough, and it performed its duty admirably.—The powder produced was almost impalpable, and it seemed capable of performing a large amount of labor.

**Californian Mastodon.**

The bones of a mastodon were recently found in the neighborhood of San Francisco, at a depth of eighteen feet from the surface. They were imbedded in sand and gravel. At a distance of 80 feet from the surface the remains of a tree were found, and about twenty feet lower was a deposit of blue clay, with stones, rounded by the action of the water, showing that this was once, in all probability, the bed of the ocean.

**Old Coins.**

The New Haven "Register" says that in pulling down a very old house in New Haven, belonging to Harvey Stiles, coins were found in the crannies, one of which, a little larger than a silver dollar, is of a mixture of metals, but looks like iron—having a lion (rampant) for a device, and bears date 1047. A small gold coin, supposed to be of the reign of George First, and several old coppers, are among those found.

The Ten Hour Labor Law has passed the Kentucky House of Representatives.

The City of New Bedford is to be lighted with oil instead of gas hereafter, as a matter of economy.

[For the Scientific American.]  
**Illumination—Gas Light.**

Allow me to offer a few remarks upon the subject of artificial illumination, suggested by the communication of Mr. Mascher. Sir Humphrey Davy proved, many years since, that the illuminating power of flame depends upon the number of particles of solid carbon which are suspended in, and intensely heated by the burning gas. All the illuminating gases being carburets of hydrogen, the power of combustion is as follows: where the supply of air is limited, so that the gas cannot all be consumed as it issues from its source of supply it undergoes decomposition, the hydrogen is immediately consumed, while the carbon is set free in the flame and assumes its natural or solid form. The burning hydrogen heats the floating particles of carbon, and if the supply of air is sufficient to consume them, they burn without smoke and with the evolution of white light. The intensity of the light depends, of course, upon the quantity of carbon set free, and this explains why it is that oil gas, benzole, camphene, &c., the heavy carburets, or those which are highly charged with carbon, give off the whitest light in combustion, whenever the combustion is so regulated as to prevent smoke. If, however, the supply of air is unlimited, as is the case when air and gas are mixed, instead of there being carbon deposited in the flame, and the combustion of the two substances, taking place in succession, the hydrogen and carbon are burned *simultaneously*; no carbon assumes the solid form before combustion, and the flame instead of giving off white light, is consequently but faintly luminous. As the combustion is complete and immediate, the heat evolved must be more intense than in the first case, when white light was produced. Where the proportion of air is less than was supposed in the first case, the hydrogen is still consumed and the carbon set free; but as there is not a sufficient supply of oxygen present, much of the carbon rises from the flame unconsumed in the form of lampblack, while the flame itself assumes a dirty yellow color.

These being facts in relation to artificial light, let us see whether or not they will furnish a satisfactory explanation of Mr. Mascher's experiments.

In the first experiment with the bladder, moderate pressure produced white light, as the supply of oxygen was insufficient to consume both hydrogen and carbon at once, but sufficient to consume them in succession. In the second experiment where the pressure was increased, the effect was, by forcing the gas out further into the air, to increase the supply of air, hence the carbon and hydrogen were both consumed immediately, and as no carbon was set free there was no light. The same reasoning applies to the case where air and the gas were mixed in the bladder. The effect of the sieve burner is, to cause air to be mixed with the gas before it is consumed above the wire gauze, so that the combustion occurs under precisely the same circumstances that it does when air is mixed with the gas; the use of the sieve burner is to secure immediate and complete combustion of the gas, by which smoke is avoided, and the maximum heat is obtained. If a simple gas jet is used to heat with, the substance to be heated must either be held so high above the flame as to lose a great deal of heat, or it must be put down upon the flame, when lampblack is immediately deposited. In the latter case the combustion ceases to be complete from the fact that the heating body excludes more or less air, hence the lampblack, and hence the lack of power in the flame to heat. There is as much difference between the sieve burner and the common one in the production of heat, as there can be between two furnaces for the production of steam; a perfect furnace consumes all of its fuel, and the boiler receives the benefit of it, while the poor one sends a large percentage of its fuel into the air as smoke—the sieve burner burns all its gas, and gives all its heat to the substance to be heated, but the moment a common jet is used for the same purpose, flakes of lampblack are deposited.

I would suggest, in conclusion, that as gas companies may at any time supply a gas of weak illuminating power, and may also adulterate it

by mixture with air, gas consumers should protect themselves by having their gas examined occasionally by a competent chemist, to ascertain first what is the percentage of olefiant gas, and secondly to determine whether there is any admixture of air, and if so, to what extent. A few exposures would put an effectual check upon gas companies, and insure consumers getting what they pay for. Wm. Gilham.  
 Virginia Military Institute, Lexington, Va., Jan. 2, 1854.

**Cancer Cured.**

We have frequently noticed the remarkable cures of cancers, by Dr. Gilbert of this City (formerly of New Orleans) because this is a very peculiar and terrific disease, and any information which may be of benefit to the afflicted sons of men, we consider should be propagated far and wide. The success which has attended, Dr. Gilbert in curing this malady induces us to publish the following letter:—

NEW YORK, January 9th, 1854.

DR. GILBERT: Dear Sir—Laboring under—as I thought—an ulcerous affection, which, after consulting with a talented physician, I had exhausted all the remedies usually applied in such cases without the least relief, but all rather aggravating or increasing the disease, I determined to apply to you, having heard of and knowing from cases which came under my own observation of your unparalleled success in the treatment of such diseases. On your first examination you pronounced it "Fungus Cancer," and convinced me of the correctness of your opinion. Your application removed it by the root, without the use of the knife, which is the perfection of your treatment. Since which time it has healed rapidly, and my general health, which was fast failing, is improving, and better than it has been for years. I consider you the instrument in the hands of God of saving my life, and relieving me of the most direful disease that flesh is heir to. I could truly wish you might live forever to relieve suffering humanity. Accept my warmest thanks for your kind attention and success in my case, and with them the silver pitcher, which I request you to place in your office, as a grateful memento.—My residence is Lynchburg, Virginia, and will be glad to give to any person information in regard to your method of treatment and extraordinary success.

Yours, truly W. P. ALLISON, M. D.

It will be perceived that the gentleman who writes the above letter is himself a physician, and well qualified to judge of the merits of Doctor Gilbert's treatment. We can only advise our readers, and physicians particularly, to call at the doctor's rooms, No. 483 Broadway, and see for themselves the wonderful cures he is effecting.

**Awards of our Prizes.**

MESSRS. MUNN & Co.—Yours of Dec. 31st, 1853, came to hand, bearing the gratifying intelligence of my name being one of the lucky ones, in regard to the prizes offered by you for the largest lists of subscribers to the "Scientific American."

I will here take the liberty of saying, without intending to flatter, that I think some of our mechanics and manufacturers do not consult their own interests in not encouraging a journal like the "Scientific American," devoted as it is almost exclusively to the interests of the "Mechanic, Manufacturer, and Inventor." In this city there are some establishments where there are one hundred hands, and very few of them subscribe for your paper; but I would not have you think that all of our machine shops are of this character—there are some honorable exceptions.

As regards the \$75 subject to my order, I would say that I expect to be in your city in April, and will then attend to the matter.

Respectfully yours, BENJ. RANKIN.  
 Louisville, Ky., Jan. 14, 1854.

We are indebted to Hon. F. K. Zillicoffer, and Hon. W. H. Seward, for Congressional favors Mr. Zillicoffer having been reduced from the position of an Editor, to that of member of Congress, knows the value of Congressional publications, to the Editorial profession.