



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office
FOR THE WEEK ENDING MARCH 22, 1853.

HYDRAULIC STEAM PUMPS—By H. N. Black, of Philadelphia, Pa.: I do not claim a double cylinder pump or water engine, nor opening a valve at the end of the stroke of a steam piston, and injecting water into a steam cylinder, for producing a partial vacuum; but I claim the combination of the double slotted water and steam cylinder, double pistons, and slotted piston rod, arranged and operating in the manner set forth.

SEPARATING PAPER BY SINGLE SHEETS—By J. P. Comly, of Dayton, Ohio: I claim, first, a table or range of tubes, connecting with an exhaust pump or vacuum, for separating the edge of a sheet from a heap of paper, by atmospheric pressure, in combination with a roller, or its equivalent, traversing to and fro on the upper sheet, for the several purposes of lowering and admitting air between the leaves, presenting the edge of the top sheet to the tubes, and, on its backward stroke, serving to straighten the pile.

Second, the tube or tubes aforesaid, in combination with the vibrating supporting bar, for upholding the forward edge of the sheet when dropped by the tubes, presenting it properly to the fingers, and supporting it from the heap, while being drawn away.

TANNING—Roswell Enos & Bela T. Hunt, of St. Charles, Ill.: We claim the process of tanning with the use of lime, salt, bran, sumac, and cutch, or any other tanning in room of cutch, substantially in the manner described, whereby we commence tanning, at the same time that we commence reducing, as the salt and bran overpowers the lime, the tan takes the place of the lime, and converts the hide into more perfect leather, and in less time than can be made in any other way.

Hides are not liable to get damaged by our process, as we do not use an article that is injurious to leather.

It is not on the materials used that we claim letters patent, but on the manner of applying them to the hide, as set forth.

CHEESE PRESSES—By Mills A. Hackley, of Belleville, N. Y.: I claim the turning table or its equivalent, in combination with the roller in such manner, that whenever the table is adjusted for turning the cheese, there will be a corresponding adjustment of the roller for facilitating the process of turning the same.

KNITTING MACHINES—By Wm. Mansfield, of Draught, Mass.: I claim forming the loops, in knitting ribbed fabrics, by the combination of two sets of needles, made to operate together, as set forth, the same enabling me to give important advantages in the construction and operation of the loom.

DISTILLING ROSIN OIL—By James Riley & Wm. Allen, of Southfield, N. Y.: We claim the process by which we manufacture oil from rosin, by passing it from an alembic, through expanding worms, or their equivalents, surrounded by a jacket of fire-brick or clay, whereby we prevent destructive distillation, carbonization, and greatly economize time, as set forth.

HARNESS—By James Stanbrough, of Newark, N. Y.: I claim the forming of rounds, raises, or rolls, on the different parts of a harness or other leather work, by doubling and stitching together a strap of leather, at its edges, and then binding these edges by a separate piece, and connecting the stitching of such binding, by drawing up and fastening by the side thereof, folds of the strap; and this I claim, whether the single strap only be used for forming a single roll, or a secondary strap be used for forming two or more rolls, as described.

PEGGING BOOTS AND SHOES—By Seth D. Tripp, of Rochester, Mass. (assignor to E. L. Norfolk, of Salem, Mass.): I claim the combination of each frame, with its supporting shaft, by means of a rocker frame, the same being for the purpose of allowing a free vertical, as well as other movements, as described, by either of the frames, so that it may be guided, in its vertical movement, by the curvature of the upper surface of the sole of the boot or shoe, and horizontally by the cam wheel, substantially as specified.

Also the manner of combining the awl and driver with one carrier, made to operate as described, whereby they are alternately presented or brought down against or towards the sole, by the revolution of the carrier, as specified.

Also the combination of the guide with the knife or chisel, and so as to operate therewith, in the manner and for the purpose of guiding said chisel properly against the peg wood, as described.

Also the improvement in the construction of the charger, viz. the making of the same, with two or more separate compartments for holding the strips of peg wood, which compartments are to be successively brought forwards under the operation of the piston slide, as the several pieces or strips of peg wood are successively cut up into pegs, meaning to claim a combination of a series of compartments, in the one single piston slide, made to operate as set forth.

Also the combination of mechanism by which the charger is moved, the same consisting in the operating spring, rack, click or pawl, and spring, applied to the upright part of the pawl, the whole to act in conjunction with the piston slide, as described.

Also the combination of mechanism for operating the slide, the same consisting of the rack or ratchet thereof, impelling pawl, spring lever, cam, ratchet wheel, and spring hook pawl, as applied to the frame and the bar, and made to operate substantially as set forth, the same causing peg wood to be shoved through the charger, and keeping the pegs in advance of the peg wood, and successively forcing them into the correct position over the hole made in the sole by the awl.

And, in combination with the pressure spring, I claim the lever, with its bent projection, spring, bent lever, and cam, the same being for the purpose as set forth.

The public debt of the United States due 1st July, 1853, and which the Secretary advertises will be paid on presentation, amounts to within a fraction of six millions of dollars.

Artesian Well.

An artesian well of great depth is being bored at present at St. Louis, for a sugar refinery in that city. It was begun in 1849, and has been worked 1,590 feet, nearly half the depth of the celebrated artesian well in Westphalia, Germany, which is sunk 2,385. The object is to obtain a supply of other than limestone water which is the only sort that can be found by the ordinary channels in that vicinity. At the present depth of 1,590 feet a pretty copious stream of sulphur water flows from the well, having precisely the taste of the Blue Lick water in Kentucky, although perhaps it is not quite so thoroughly impregnated with sulphur. It is, however, concluded from recent indications, that a supply of pure sweet water will be now obtained. The following is a list of the different strata bored through in the course of operations.

1st. Through limestone, 28 feet; 2nd, shale 2; 3rd, limestone, 231; 4th, chert rock, 15; 5th, limestone, 74; 6th, shale, 30; 7th, limestone, 75; 8th, shale, 1½; 9th, limestone, 38½; 10th, sandy shale, 7½; 11th, limestone, 128½; 12th, red marl, 15; 13th, shale, 30; 14th, red marl, 50; 15th, shale, 30; 16th, limestone, 119; 17th, shale, 66; 18th, bituminous marl, 15; 19th, shale, 80; 20th, limestone, 134; 21st, chert rock, 62; 22nd, limestone, 134; 23rd, shale, 70; 24th, limestone, 20; 25th, shale, 56; 26th, limestone, 34; 27th white soft sandstone, 15 feet.

The well was first commenced as a cistern. From the surface of the ground, where it is fourteen feet in diameter, it has a conical form, lessening at the depth of thirty feet to a diameter of six feet. Thence the diameter is again lessened to sixteen inches, until the depth of 78 feet from the surface is attained. From that point it is diminished to nine inches, and this diameter is preserved to the depth of 457 feet. Passing this line the diameter to the present bottom of the well, is three and a half inches.

The lowest summer stand of the Mississippi river is passed in the first stratum of the shale, at the depth of twenty-nine or thirty feet from the surface. The water in the well however, is always higher than the water line of the river, and is not affected by the variations of the latter. The first appearance of gas was found at a depth of 566 feet, in a strata of shale one and a half feet thick, which was strongly imbued with carbonated hydrogen. When about 250 feet below the surface of the earth at the beginning of a layer of limestone, the water in the well became salty.

The level of the sea—reckoned to be five hundred and thirty-two feet below the city of St. Louis—was passed in the same layer—two hundred feet lower still, in a bed of shale, the water contained one-and-a-half per cent. of salt. At a depth of 950 feet, a bed of bituminous marl 15 feet in diameter was struck. The marl nearly resembled coal, and on being subjected to a great heat, without actually burning, lost much of its weight. In the stratum of shale which followed, the salt in the water increased to two-and-a-half per cent. The hard streak passed was a bed of chert, struck at a depth of 1,179 feet from the surface, and going down 62 feet. In this layer the salt in the water increased to full three per cent. The boring at present is, as appears by the statement above, in a bed of white soft sand rock, the most promising that has yet been struck for a supply of water, such as is wanted.

Observations have been made with a Celsius thermometer of the temperature of the well. At the mouth of the orifice, the thermometer marks 50 degrees; at the depth of 45 feet, the heat is regular, neither increasing nor diminishing with the variations above, and at the distance of 351 feet, the heat has increased to 60 degrees. The calculations in the books give an increase of one degree in the temperature, for every additional 100 feet of depth, so that at the depth of 5,000 feet, the heat is supposed to be so intense as to melt iron.

[The greater part of the above is extracted from the "Missouri Republican," we therefore do not take upon ourselves to endorse the opinion therein mentioned of a gradual rise of temperature on getting deeper from the earth's surface, such hypothesis is a favorite one among some geologists, but we must have some-

thing more than theory before we can affirm that the phenomenon last mentioned is sure to occur at the depth indicated.

Poison Fang of Serpents.

The instrument with which the cobra and other venomous serpents are armed in so deadly a manner, consists of several parts, namely, the tooth or poison fang, the movable stock or handle in which it is fixed, called the jaw, the muscles or moving powers of the jaw, the bag containing the deadly liquid called the poison sac, the pipe which carries the venom into the tooth or poison duct, and the squeezer or muscle that drives the venom from the bag, along the duct, through the tooth into the wound which the latter inflicts. The tooth is not implanted in a socket like ordinary teeth, but is firmly soldered, as it were, to the jaw bone, which commonly has no other tooth to support, and is singularly modified in size and shape, to allow of the movements requisite for the deep plunge of the tooth into the object aimed at. The tooth, in structure resembles what is called the canine tooth, which consists of a hard, pointed, long and slender cone, with a hollow base, and if we suppose such a slender and partly hollow cone to be rolled out flat, the edges then bent towards each other, and soldered together so as to form a canal open at both ends, we shall form a good idea of the general form and structure of a poison fang. The edges of the flattened tooth wheel we have supposed to be so approximated, are bent round the end of the poison duct, which closely adheres to and lines the canal, and the line of union of the two edges runs along the front and concave side of the slightly curved fang. The barrel aperture of the poison-canal is oblique and its opposite or terminal outlet is still more so, presenting the form of a narrow elliptical longitudinal fissure at a short distance from the fang's point, this is left solid and entire, and fit for the purpose of perforation. It is only the upper jaw that is so armed, and it is so formed that the upper jaw of the venomous serpent is not fixed, but plays or rotates backwards and forwards, having special muscles for those movements which, when they push forward the jaw bring the tooth attached to it into a vertical position, ready for action, and when they draw back the jaw, replace the tooth in a horizontal position, where it rests, with the point backwards, hidden in a bed of soft and slimy gum. The wound is inflicted by a blow rather than by a bite, the poison fangs, when erected, are struck like daggers into the part aimed at, and as the action of the compressing muscles of the bag is contemporaneous with the blow by which the wound is inflicted, the poison is, at the same moment, injected with force into the wound from the apical or terminal outlet of the perforated fang.

The New Silver Coin.

The weight of the new silver coinage authorized by the recent act of Congress, which goes into operation in June next, as compared with that coinage since the passage of the act upon the same subject in 1837, is as follows:

	Act of Jan., 1837.	Act of Feb., '53.
Dollar	412½ grains.	No change.
Half Dollar, 206¼	"	192 grains.
Quarter do. 103¼	"	96 "
Dime, 41½	"	38.40 "
Half Dime, 20¾	"	19.20 "

Spiders' Thread.

Austrian papers state that a merchant of Vienna has lately presented to the Industrial Union of that capital the details of a series of experiments made by him to manufacture spiders' thread into woven tissues. The thread is wound on a reel, and two dozen spiders produce in six minutes a beautiful and delicate thread, two thousand feet in length. The stuffs manufactured are spoken of as being far superior to those of silk in beauty and delicacy of fabric.

Cotton in Africa.

Thirty varieties of cotton have been found growing spontaneously in Africa, A missionary says he has stood erect under the branches of a cotton tree in a Goulah village so heavily laden with bolls that it was propped up with forked sticks to prevent it from breaking under its own weight. The cotton was equal to that of any country. The natives manufacture cotton goods extensively.

Miscellaneous Items.

The block of marble for the Washington Monument, ordered by the Common Council of New York is now finished, and is larger than any that has yet been sent, being eight feet wide, and five feet six inches in height. It weighs about four tons. The design is the arms of the city of New York, cut in very high relief, surrounded by a beautiful wreath of oak and laurel leaves. The whole is surmounted by a large eagle standing on a globe. The block bears the following inscription in raised letters:—"Corporation of the City of New York." The border is composed of bundles of rods, encircled by a ribbon, to denote that in union there is strength. The cost of the block will be about \$2,500.

The Pacific Railway in Missouri, has one of the most remarkable (though not the longest) tunnels in the world. For 930 feet in one part, and 400 in another, it is cut through the solid rock. The approaches to it, for long distances are cut fifty feet in depth, faced with the rock. The tunnel itself is sixteen feet high, arched over.

No less than 40,000 pine logs have been cut, and 25,000 have been put into the river at a point sixty-five miles from Potsdam, St. Lawrence Co. A quantity sufficient to make 25,000,000 feet of lumber, which, to be brought to market, will pay a toll of \$9,000 to the State.

The annual amount of lead produced from the Wisconsin Lead Mines, is about 40,000,000 pounds, which, at five cents a pound (a low enough estimate now,) amounts to \$2,000,000.

The Pennsylvania Railroad Company have reduced the rate of freight on bacon, beef, pork, whiskey, lard and lard oil, to 50 cents per 100 lbs. from Pittsburg to Philadelphia or Baltimore.

The Manchester (England) Chamber of Commerce have advanced a loan for experimenting in the culture of cotton in Trinidad, for which purpose a model farm is to be laid out.

The deliveries of tea recently in London, for one week were 509,218 lbs.

The ice merchants say there will be a large deficiency in the supply of that article the coming summer. Only about half the average annual crop has been stored. But about 100,000 tons are said to be stored. Last year it was 200,000 tons and over.

One Hundred Miles Per Hour.

"A Maine Yankee" announces through the "National Intelligencer," the invention of a form of road and improved locomotive, which, he says, will safely transport the mails and passengers at the rate of one hundred miles per hour! The writer further says he has been made acquainted with the details of these improvements, "which are so palpably correct in theory, and feasible in practice, that every civil engineer and railroad man will, on examination, at once recognize them as the desideratum, even to the extent of safety and speed above indicated." The next Congress, it is said is to be invited to secure its adoption, and give to the world the result of the first experiment.—[Exchange.]

[Let us know the plan and then we can form some opinion of its correctness. It may be good and may be perfectly futile. We would state that 100 miles per hour have been run by a locomotive already.]

The Great Chestnut Tree.

On one side of Mount Etna there is a famous chestnut tree, which is said to be one hundred and ninety six feet in circumference, just above the surface of the ground. Its enormous trunk is separated into five divisions, which gives it the appearance of several trees growing together. In a circular space formed by these huge branches a hut has been erected for the accommodation of those who collect the chestnuts.

New Iron Works.

The furnaces at the Mt. Savage establishment, Md., are now in blast, and the rolling mill continues, as it has done for some time, to turn out daily a large amount of superior rails. Over nine hundred hands are now kept busily employed, and the population of the place is not far from five thousand.