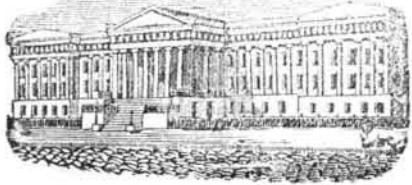


knives serve the double purpose of cutters and feeders, for in the act of cutting they pull the straw forward for a succeeding cut, and so on continually.

This is a very simple straw cutter. Mr. Clinton has devoted much time to experimenting with such cutters, and has succeeded in making the improvement here represented.—The knives can be easily taken out for sharpening, and as easily replaced.

More information may be had respecting it by letter addressed to the patentee, or to E. S. Munson, No. 49 State street, New Haven, Conn.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING OCT. 2, 1855.

**MATERIALS FOR HAT BODIES**—Peter Arneson, Jorgen Pederson, and Hans Rees, of New York City: We do not claim the shell, F, and conical head, G, separately; nor do we claim the box, H, separately, for they have been previously used.

We claim, first, the combination with a feed box, having adjustable partitions therein, so that the material to be used may be proportioned in quantity, in its different apartments, the machinery for taking it therefrom, and thoroughly mixing it in said proportions, preparatory to its being used in hat bodies, as described.

Second, we claim the combination of the two cylinders, C D, and plate e, constructed as shown, viz., the cylinder C having serrated plates, l, attached to its periphery, and the plate, e, provided with a serrated edge, for the purpose set forth.

Third, we claim the combination of the box, H, provided with the endless apron, J, the shell, F, and conical head, G, with the wings or blades, g, at its end, whereby the materials are thoroughly mixed, and discharged from the machine in a loose and light state, and may be delivered, without handling, to the next machine.

**MANUFACTURING HAT BODIES**—Peter Arneson, Jorgen Pederson, and Hans Rees, of New York City: We do not claim the boxes, L, and rollers, P, cylinder, H, and rollers, G, for they have been previously used; neither do we claim the formers, R, nor the fans, P, for they also have been used.

We claim, first, the combination of the endless aprons, E F, cylinders, C D, and plate, b, and brush cylinder, G, arranged substantially as shown, for the purpose of feeding the material, in a proper state, to the series of cylinders, H, and the formers, R.

Second, we claim the weighing apparatus formed of the levers, t, ring, v, and weight, z, or constructed in any other way, when the weighing apparatus is so arranged that the former, while in motion, and the fur is being thrown upon it, may rest upon the weighing apparatus and the former, exhaust, and fur, by their weight, counterbalance or raise the weight, z, when the proper quantity of fur has been thrown upon the former to form a hat body.

Third, we claim the guides or conductors, X, X', constructed of india rubber, and provided with the adjustable frames, Y, Y', at their outer ends, said frames being provided with set screws, g, and arranged substantially as described, for the purpose set forth.

Fourth, we claim the employment or use of the slide or cut-off, W, and the movable bed piece or platform, T, operated automatically, as shown, or in any equivalent way, for the purpose of regulating the blast, and stopping the supply of fur to the formers, as described.

[Both the foregoing patents relate to one invention, although for the purposes of the Patent Office two distinct grants were required.]

In the ordinary manufacture of hat bodies, several different kinds and qualities of fur stuff are used, the desired proportions of each being weighed out by hand, and then carried to a machine, where the fibers are loosened, cleaned, and thoroughly mixed together. At this stage of the process the material is removed and dealt out, by hand weight, into small quantities, just sufficient for single hat bodies. Each quantity is now separately passed through another machine, where the mixing and cleaning operation is completed, and the stuff thrown, by blast, upon the hat former.

The machine of Messrs. Arneson, Pedersen and Rees is so constructed as to receive the raw material at one end, and deliver it at the other, ready made up into perfect unfelted hat bodies; all the various operations of selecting the desired quantities of each kind of stuff, mixing, cleaning, and weighing off the proper amount for each body, being done in the machine, without being touched by hand from first to last. It would require drawings in order to convey a clear idea of the various parts. The invention is one of ingenuity and importance. The quality of work it turns out is said to be better than that done by the ordinary process. We recommend these improvements to the attention of hat body makers generally.]

**OPENING AND CLOSING HATCHWAYS**—Henry Sizer, of New York City, and Elisha Stone, of Lowell, Mass.: We claim, first, the chain wheel, H, the chain, I, the rack, K, the doors, L, with segments of gears, M, or whole gears attached to them, and the gears, N, or the equivalent of any of these, for the purpose of opening and closing hatchway or scuttle doors, essentially as set forth.

Second, we claim the parts mentioned, either or all of them, in combination with the cylinder, B, the rope wheel, O, and the gears, C and D, for the purpose of opening and closing the doors of scuttles and hatchways, essentially as set forth.

**MOLDING CIRCULAR AND UNDERCUT WORK**—Wm. Sellers and James Walker, of Cincinnati, O.: We claim, as the method of molding circular undercut work, as described.

**COOPER'S CROZING PLANE**—Hiramand J. C. Taylor, of Cincinnati, O.: We do not claim adjusting a bit, by a wedge, but we claim casing the stock in one piece, as described, and combining therewith a wedge, for the purpose set forth.

**CORRUGATED REFLECTORS**—Bernard Goetz, of Philadelphia, Pa.: I do not desire to claim reflectors generally, to throw light into darkened rooms, or such as have been used for lamps.

But I claim a reflector, A, B, having the peculiar form of grooved or fluted undulating surface above described, and the converging grooves, a, b, c, d, etc., a', b', c', d', etc., and crossed transversely by the other series of parallel grooves, t, u, v, etc., t', u', v', etc., on plate, H, in the manner and for the purposes substantially as described.

**SCREW WRENCHES**—Jos. Hyde, of New York City: I claim the eccentric shaft, e, and thumb piece, c, as they are arranged in relation to the screw, b, of the movable jaw, so that the screw may be thrown in and out of gear with the bar, and the jaw be moved by sliding it on the bar or through the turning of the screw, as set forth.

**SEWING MACHINES**—James Harrison, Jr., of Milwaukee, Wis.: I claim, first, in connection with the giving of the two needles, a, a', such a movement as will cause both needles, during every revolution of the machine, to be withdrawn from the cloth for a sufficient time to effect the feed movement, the employment of a supplementary needle, b, arranged and operating substantially as described, to supply the place of the needle, a, which operates first after the feed movement, and to retain the loop in the thread which has been put through the cloth by the needle which last leaves the cloth before the feed movement, until the first named needle operates to pass through the said loop substantially as described.

Second, I claim the attachment of the clamps, I, I', which hold the material to be sewed to two swinging guide plates, G, G', or their equivalents, which serve also as guide plates for the needle bars, and thereby cause the needles and the clamps to swing together, substantially as described, whereby the clamps are enabled to coincide themselves to different or varying thicknesses of material, and to be opened to slacken their hold upon the material during the feed movement, and the needles are enabled to be kept in a proper or desirable relation to the clamp.

Third, I claim the connection of the two swinging guide plates, G, G', or their equivalents, in any manner substantially as described, whereby one of them is caused to have a movement so much greater than the other, that the relative movements of the needles and clamps shall be such, that the needles in all positions of the clamps, will cross each other in the plane of, or near as is desired to the plane of the face of one of the clamps, which is the plane of one surface of the material, as fully set forth.

[The object of one part of this improvement is to give the cloth a feed movement independently of the needles, instead of by the needles, as in the Avery sewing machine. For this purpose both needles are, for a time, withdrawn from the cloth, to leave it free to be acted upon by suitable feeding mechanism. Other parts of the invention are to provide means for holding the material to be sewed, and admit of its being liberated before and during the feed movement; also means of causing the interlacings of the two threads when the seam is formed, to be always as close as desirable to one surface of the material, whatever may be the thickness of the material, and notwithstanding any variations in its thickness; also in a self-adjusting arrangement of the feeding apparatus, which permits the sewing of stuff of different or changing thicknesses, without any stoppage of the machine.]

These improvements we regard as valuable. The Avery machine has been somewhat defective in respect to convenience in sewing variable thicknesses. The present invention appears to render it very perfect; instead of requiring considerable mechanical education in order to its proper management, the machines become as easily, if not more handily operated than any of the shuttle sewers. Mr. Harrison is the patentee of several other very peculiar and excellent improvements in sewing machinery; but this last strikes us as one of his happiest efforts.]

**FEED MOTION FOR PLANING MACHINES**—Seth C. and Westel W. Hurlbut, of Boonville, N. Y.: We claim the application of the worm wheels in connection with the spur wheels attached to the shafts of the feed rollers, to effect their proper revolution, and to admit of their opening apart, to receive various thicknesses of lumber, as above described. This application we claim as novel, and as our invention, in connection with the feed rollers of a planing machine.

**STEAM BOILERS**—Chas. Moore, of Trenton, N. J.: I claim limiting the circulation of the water in a steam boiler by means of a partition, so constructed as to separate the water over the fire, or some portion of it, or the water which is highly heated, or that which ascends through the tubes, from mixing with the water around the sides of the boiler, which is at a lower temperature, substantially as described, for the purposes set forth, and thereby prevent it from descending, so as to enter the tubes again at their lower ends.

Second, I claim so constructing and arranging the tubes in the fire space, that the burning fuel will surround the horizontal parts of the tubes, and a portion of the perpendicular parts, substantially as described, for the purposes set forth.

Third, I claim extending the tubes downwards which pass through the fire space, after they leave said space, and terminating them perpendicularly in the water space, so as to prevent or retard the water, which is highly heated, or the steam generated in the tubes, from escaping at the lower end, substantially as described.

**CHIMNEY STACK**—Benj. F. Miller, of New York City: I claim constructing and placing a solid or hollow cone, or a pyramid, in the mouth of a funnel or smoke stack, with its apex upwards, or pointing outwards from the mouth of said chimney or pipe, in combination with the surrounding shield furnished with flanges as described; constructed and located substantially as set forth.

I do not claim as new, or as my invention, the conical shield or the conical band and circular flange described, they having been already applied or placed at the top of smoke pipes, for the purpose of ventilation. I do not claim placing a single cone with its apex pointing inwards in the smoke pipe or chimney, as new, and first invented by me.

**KNITTING MACHINES**—Jos. Powell, of Waterbury, Ct.: I claim, first, so combining two sets of needles, such as are commonly employed on knitting frames, that they may be brought into joint action, and have loops formed on both of said sets, at one and the same time, and thus form a ribbed fabric, as described.

Second, I claim the arrangement of the needle bars and the two pressure bars, so combined that when both sets of needles are in action, both pressure bars will also act upon the bars of the needles, as described.

Third, I claim the self-setting latches, in combination with the needles and pressure bars, as described.

Fourth, I claim the combination of the regulating bar, u, with the shifting bar and the set screws, for regulating the throw of the sinkers, and depth of the loops, as described.

Fifth, I claim the manner of discharging the loops, that is to say, casting off those of one set of needles a little in advance of those of the other set, and giving to the first set of needles an upward motion, as soon as the cast-off has been effected from them, for the purpose of relieving the strain, as set forth.

**SHIPS PUMPS**—Samuel Pearn, of New York City: I wish it to be distinctly understood that I do not limit myself to the mode of mounting the said pump, and of imparting motion thereto, which may be varied at pleasure.

I claim the combination of the two series of oppositely inclined conical pipes, when the small ends of the pipes of one series are inserted, and project within the body of the pipes of the other series, and vice versa, with sufficient space around the inserted ends for the return of the water, as the apparatus is vibrated, alternately, in opposite directions, substantially as and for the purpose specified.

**CLOCK ESCAPEMENT**—E. K. Reynolds, of New York City: I claim constructing the staff, d, of the balance with spiral groove, e, a, d, so arranging the balance that the point of the lever, C, will work in the said groove, and give the requisite motion to the balance, substantially as described.

[This escapement is more particularly designed for clocks, and other time-keepers, which are intended to run a long time without winding; on account of its very slow movement it is particularly suited to year clocks. It consists in an escapement lever, whose point work in a spiral groove or screw thread, in or upon the staff of the balance; the latter is arranged perpendicularly to the arbors of the lever and escapement wheel. It is a very ingenious but simple improvement, adding but very little to the expense of a time-piece, although greatly increasing its convenience. Applied to a common one-day clock, the latter will run a week without winding, while an eight-day piece will only require to be wound once a month. Year clocks, we are told, can be produced with equal facility. Mr. Reynolds appears to have displayed much ingenuity in the production of this improvement.]

**MACHINE FOR PREPARING RATTANS, &c.**—Chas. C. Reed, of Philadelphia, Pa., assignor to himself and Wm. S. Reinert, of same place: I claim, first, the combination of the adjustable table or plate, G, with the upright leading and guide rollers, H, for enabling the upper surface of said table or plate to be graduated to the grooves in the rollers, substantially in the manner and for the purpose set forth.

Second, I claim arranging the adjustable side bars, L, in such relation to the upper and lower parts of the flexible portions of the springs, K, as to enable them to be graduated so as to arrest the outward movement of the lower flexible portions of said springs, at such points as to allow the rollers to yield sufficiently to receive and embrace the rattan between them, and yet prevent one of them from moving further from the center than the other, so as to keep the rattan, at all times, in the center groove, and at the same time allow a slight and stiff elastic movement to the upper portions of the springs above the bars, to allow either of the rollers to yield to the inequalities on either side of the rattan, as fully set forth.

**THERMO-DYNAMIC FILTER**—Gustavus Weissenborn, of New York City, assignor to Epes W. Sargent, of same place: Patented in England, Nov. 17, 1854. I do not make any claim to the well-known result produced by heating water containing impurities or mineral substances, to cause a deposit of the same; but I am not aware that impurities or mineral matters have ever before been separated from water by commingling the same with steam in a suitable apparatus, to heat the water and cause a deposit of the foreign matter it contains on twigs, brushwood, stones, or other suitable substances, in the manner and for the purposes set forth.

Therefore, I claim the method set forth of separating impurities or mineral substances from water, by so introducing steam and water into a suitable apparatus that they shall commingle, and the water thereby be heated, to fall in a shower upon, or be brought in contact with pebble stones, twigs, brushwood, or other suitable substances or surfaces, where said mineral matter or impurities will be deposited, substantially as specified.

**MACHINERY FOR FILLING SEINE NEEDLES**—Humphrey M. Glines, of Manchester, N. H., assignor to John M. and Simon F. Stanton, of same place: I claim giving the needle a rotary motion around its own center, both longitudinally and transversely, by means of devices, substantially as described, or their equivalents, in combination with a vibrating delivering arm or its equivalent, so constructed, arranged, and operated as to supply and deliver the twine, or other material, to the aforesaid needle, substantially as described.

RE-ISSUE.

**MACHINE FOR SAWING LUMBER**—Pinney Youngs, of Milwaukee, Wis.: Patented Jan. 30, 1855. I claim the employment of two pairs of shifting guides, substantially as described, in combination with a circular saw, alternately in opposite directions, substantially as and for the purpose specified.

I also claim setting the log or timber by means of the two screw-shafts, geared in the manner described, or the equivalent thereof, and operated by gripping pawls which act against stops at the end of the motion of the carriage, in combination with the arms and adjusting slides, to determine the degree or extent of set intended to be given to the log, substantially as specified.

And finally, I claim in combination with the method of setting the log at the end of the several motions of the carriage, substantially as described, the method of throwing the setting apparatus out of gear by the bar which carries the log, substantially as described, to prevent the said bar, with the holding dogs, from approaching too near the saw, as set forth.

Statistics of English Patents in 1854-5.

We have now the means of seeing plainly the wonderful development of the inventive faculty of the times in which we live, aided, as it has been, by the legal changes of 1852.—This insight arises from the new provision as to statistical tables, from which we find that the number of applications for provisional protection recorded within the year 1854 was 2,764; the number of patents passed thereon was 1,876; the number of specifications filed in pursuance thereof was 1,828; and the number of applications lapsed or forfeited, the applicants having neglected to proceed for their patents within the six months of provisional protection, was 888. The number of applications recorded within the first six months of the current year (1855) was 1,493, showing a probable increase as compared to the number of the year 1854.—[Practical Mechanic's Journal.]

New Building Material.

The Cleveland Herald speaks of a new kind of bricks which have been introduced there for building purposes. They have the appearance of granite, and are made of sand and lime, the blocks subjected to a great pressure while nearly in a dry state. In size they are ten by four and five inches, and hollowed, the indented part being seven by one and a half inches. After the bricks are formed into shape and pressed, they are subjected to the action of the atmosphere, and soon become as hard as rocks, and insensible to the frost or rain. These bricks are said to be cheaper than clay bricks, because they furnish so smooth an interior surface that no plastering is necessary, and being hollowed, the walls do not require to be fired.

[This material was patented Jan. 16, 1855, as a new article of manufacture by the heirs of John A. Messinger, deceased, of Milwaukee, Wis. Bricks thus made are composed of one part of lime and twelve of sand, mixed with water and compressed in molds.]

Chief Justice of the District of Columbia.

The Hon. George H. Hopkins, of Virginia, has been appointed Chief Justice of the District of Columbia, to fill the vacancy caused by the death of Judge Cranch. This is the Judge before whom appeals from the Commissioner of Patents will be tried. Mr. Hopkins is now a Judge in Virginia, and has been a Member of Congress. He is known to be an able lawyer, and one well qualified to fill the important office to which he has been appointed.

Restoring Fibrous Iron.

It has already been noticed in our columns that the huge wrought-iron gun of Nasmyth in England, from which so much was expected, had proved an entire failure, owing to the wrought iron returning to a crystalline condition. Prof. Noad—the distinguished English chemist—states, that its fibrous character can perhaps be restored by the common process of reheating and slow cooling. The tendency of fibrous or wrought iron to pass to the brittle or crystalline state is promoted by various causes, but more especially by vibrations. To the latter cause, no doubt, is to be attributed the fall of many iron bridges, and structures dependent on chains, which from frequent concussions, assume a crystalline form, and become very brittle. While on a visit, a short time since, to an iron work in Wales, Prof. Noad noticed a large quantity of iron chain lying about, which could easily be broken by a smart blow from a hammer. Some of these links he took, and had heated strongly in a furnace and then cooled slowly under a bed of fine sand. After the lapse of twenty-four hours, they were examined, when the metal was found to have recovered its tenacity, and could no longer be broken to pieces by the blow of a hammer as before. After repeated blows, however, one was broken, and it was found to have returned to the fibrous state—every trace of crystalline character had disappeared. He therefore concludes that the iron of Nasmyth's huge gun had returned to a crystalline state, not from having been kept long in an incandescent state (as has been asserted,) but because of long-continued and violent hammering. He therefore recommends the gun to be submitted to a very high heat, and then allowed to cool very slowly, anticipating thereby that the fibrous texture and tenacious character of its metal will be restored. These hints will be useful for others beside Mr. Nasmyth, in pointing out what may be effected in restoring brittle wrought iron to tenacity by annealing it.

Those Prizes Once More.

We would state for the benefit of those who are engaged in procuring Clubs of subscribers to the SCIENTIFIC AMERICAN, and to any who yet propose to compete for our Prizes, that, as yet, there is ample chance for an ordinarily energetic person to step in and take the highest palm. We have received several lists of names, but they are so short, comparatively that they may be easily excelled. A list of the Prizes we publish in another column. There are fourteen in all, and the highest is for the sum of \$100. All of them are payable in hard cash on the 1st of January next. Wake up, young men, and see what you can do.

Flying Ants.

Foreign papers state that a singular phenomenon was lately remarked at Brenets, on the frontier of Switzerland. About half an hour before sunset myriads of insects, supposed to be winged ants, were seen to rise from the banks of the Doubs, in dark triangular swarms, and to fly southward, occupying a space of nearly a league in extent. They were sufficiently compact to intercept the view of the country at intervals. A similar phenomena has been witnessed this season in many parts of our country. The ant tribes require further investigation by entomologists.

Since the application of steam on our Western waters, there have been 39,672 lives lost by steamboat disasters, 381 boats and cargoes lost, and 70 boats seriously injured, amounting in the aggregate to the enormous sum of \$67,000,000.—Ex.

Professor Emmons, the State geologist, of New York, has traced in the valley of the Adirondac, for a distance of two and a half miles, a bed of rich iron ore. He says there might be procured within two feet of the surface, seven million tons of ore, which would make three million tons of superior iron.

It is officially announced in the *Moniteur* that the French Exhibition is to remain open until the 20th of November.

The venerable Alexander Humboldt celebrated his eighty-sixth birthday on the 14th ult., and this in the full enjoyment of all his intellectual powers.