

**SMUT MACHINE**—D. P. Shaw and F. C. Brown, of Rochester, Ind. : We do not claim a curved blast spout, K, nor do we claim separately any of the parts. But we claim the arrangement of the blast spouts, K, L, with the scouring device enclosed within the cylinder, and the fan-box, C, in connection with the tubes, J, J, substantially as shown, whereby the grain is subjected to a continual blast during the whole of its passage through the machine, to wit, prior to its advent into the cylinder, I, while being acted upon by the scourer, and after it leaves the scourer, substantially as described.

[This invention consists in the employment of a blast spout, fan and scouring device, arranged relatively with each other, so that a very compact and efficient machine is obtained, the grain being subjected to a blast before entering the scourer, while passing through the same, and also after leaving the scourer just previous to leaving the machine.]

**WASHING MACHINE**—Wm. N. Slason, of South Reading, Mass. : I claim the arrangement and combination of the squeeze gratings or bowls with the reciprocating dasher or washer, or both, in the wash chamber. I also claim the application of the separate soap-chamber to the wash or rinsing chamber, in manner and for the purpose set forth.

I also claim the arrangement of the windlass with reference to the box, A, and brake, C, and for the purpose as specified.

**WATER WHEELS**—Jacob Stear, of Smicksburg, Pa. : I claim the combination of the cylinder, i, inclined ribs, k, and disk, L, with its buckets, L', the whole constructed and operating essentially as described.

**HEARTH FOR WORKING AND REFINING IRON**—R. D. Stewart and John Christopher, of Digonier, Pa., and Ross Edwards, of Somerset, Pa. : We do not wish to be understood as claiming the steam chamber and perforated hearth described of any particular shape or dimensions as applied in the various ways set forth, but claim its application in any shape or size required for the purpose mentioned.

What we specifically claim is, the steam chamber, C, and perforated hearth, B, as in the specifications and drawings described for the uses and purposes set forth.

**APPARATUS FOR SLAUGHTERING HOGS**—G. W. B. Story, of Carlisle, Pa. : I claim the arrangement of the vertical shafts, E, Q, lever, G, and bar, R, with the vertical rotating shaft, N, and the rectangular frame, B, C, D, and P, the whole being constructed as and for the purpose set forth.

**MASHING**—N. G. Thorn, of Dayton, Ohio : I claim, first, The perforations in the pipes, e, e, &c., attached to the hollow arms, d, d', or any analogous device, by which water, steam or air is admitted into the mashing, in such manner as to distribute it equally, or nearly so, to all parts of the mash.

Second, The spiral agitators, when attached to any revolving machinery for the purpose set forth.

Third, The surface agitators of whatever form when attached to revolving tubs for the purpose set forth.

Fourth, The use of a self-packing joint, applied to mash-tubs when used for the purpose set forth in whatever form it may be constructed.

Fifth, The combination of the surface agitators, with a stationary or revolving blast.

**CORN PLANTERS**—Amos G. Thompson and A. J. Thompson, of Belleville, Ohio : We claim the arrangement of spiral springs, a, a, in combination with cross-bar, E, and straps, o, for regulating the movement of the plungers, B, B, substantially as specified.

**MACHINE FOR SCOURING AND HULLING GRAIN**—Jos. N. Treadwell, of Reading, Conn. : I claim, in combination with a bed-stone and runner for scouring and hulling grain, the grooves, c, and rasping plates, H, I, skid-boards, g, and parts being arranged and operating together substantially as and for the purpose set forth.

**SUGAR CANE MILLS**—A. Van Trump, of Lancaster, Ohio : I claim, first, The combination in a sugar cane mill of two or more intermediate small feed rollers, C, C, with four or more large crushing rollers, B, B', B'', substantially as and for the purposes set forth.

**SKATES**—M. Vandenburg, of Newark, N. J., and F. Berry, of Owego, N. Y. : I claim, first, An elastic front to define the foot to the skate.

Second, Rendering the foot-board adjustable to feet of various widths by constructing it in sections.

**PIANOFORTES**—George Vogt, of Philadelphia, Pa. : I claim the employment of the described rest and bridge, either separately or combined, when the same are constructed and operating substantially in manner and for the purpose set forth.

**WATER METER**—A. W. Von Schmidt, of San Francisco, Cal. : I claim combining with the propeller, B, the radial partitioned feathers, k, k, and the re-acting shutters, m, said feathers and shutters being arranged and operating as set forth.

**HARVESTERS**—Russell Warner, of Brattleboro', Vt. : I claim, first, The circular cutters, q, attached to bars, r, at the lower ends of rotating shafts, k, and having an independent rotating motion given them by means of the gearing, s, a.

Second, The combination of the cutters, x, plates, u, p, and shafts, k, with or without the sharpeners, a, or c, arranged as shown to operate as and for the purpose set forth.

[Horizontal rotating cutters are used in this mower, and the machine placed in front of the team. The invention consists in a peculiar construction and arrangement of the cutting device, whereby it is made to act very efficiently, and with but a moderate application of power; also, in a peculiar arrangement of the pole, whereby the machine can be turned with much greater ease than usual.]

**HORSE RAKES**—Wm. H. White, of Garrettsville, N. Y. : I claim the employment of the two levers, A, C, when crossed diagonally and pivoted together at d, in combination with the turning rake head, D, frame, C, and seat, B, B' substantially as and for the purposes set forth.

**PLOWS**—J. M. Whitney, of Bolton, Mass. : I claim the arrangement of the hinged arms, C, D, adjustable brace, E, and standard, A, with the wheel, H, and plow-beam, G, the whole being constructed for operating substantially as and for the purpose described.

**CULTIVATORS**—J. M. Whitney, of Bolton, Mass. : I claim the arrangement of the teeth, a, adjustable mold-boards, D, frames, A, A', and cross-beam, B, with the branched swivel bar, L, and frame, H, the whole being constructed as and for the purpose described.

**GAGE COCK**—John E. Wooten, of Philadelphia, Pa. : I claim the arrangement of the tube, A, in combination with the cam, c, rod, F, and valve, E, for the purpose and in the manner set forth.

**VALVE GEAR**—A. A. Wood, of New York City : I claim the combinations of the links, D, and E, F', attached to the eccentric rod, and arranged with adjusting gear, as described, or in manner equivalent.

**MANUFACTURE OF STEEL**—F. A. Lohage, of Unna, Prussia, assignor to E. L. Benzon of Boston, Mass. : I claim the new or improved art of manufacturing steel of any desired temper, or hardened according to the various purposes or uses for which the steel may be required, by arresting the decarbonization of the mass of metal in the furnace at certain points or stages thereof, ascertained and recognized by means of certain phenomena, or external indications manifested by the material, substantially as described.

**MAKING BOLTS AND RIVETS**—J. R. Bassett (assignor to himself and A. E. Bateman), of Cincinnati, Ohio : I claim the die, A, A', a, a', l, g, g', f, f', and k, k, substantially as described for the purposes set forth.

**CAST IRON FENCE POST**—P. Stewart (assignor to Auchambaugh Brothers), of New Lebanon, N. Y. : I claim, as a new article of manufacture, a cast-iron fence post, constructed with flanges to protect the ends of the fence rails against being split as well as against moisture, substantially in the manner described.

**PRECIPITATED SULPHUR**—D. E. Paynter (assignor to himself and I. M. Bissell), of Philadelphia, Pa. : I do not claim, broadly, precipitating a boiled solution of sulphuret of calcium.

But I claim manufacturing precipitated sulphur from the ashes resulting from the combustion of gypsum and coal dust, in the manner described and for the purpose specified.

**TEMPERING STEEL SPRINGS**—James Jenkinson (assignor to himself and F. Mandel), of Williamsburg, N. Y. : I claim arranging the wire, c, c, in such a manner that by tying one end of each of the same to one of the arms of the wheel on which the coil is formed, and by extending the ends so tied down to the hub of the wheel, the loose ends of the wire serve to fasten the several rings of the coil substantially as described.

[This is an excellent method of arranging springs for tempering, as it facilitates the process, and prevents accidents.]

**MEASURING FAUCET**—W. W. Hollman, of Eddyville, Ky. : I claim, first, In combination with a faucet-piece, having an induction and ejection pipe, a receiving and variable chamber, so constructed and arranged, that by partially rotating it within the said faucet-piece, the liquid will be alternately received and discharged through a port or ports, substantially as described.

Second, Making the rod, B, polygonal, when used in combination with the variable measuring chamber and its piston, substantially as described for the purposes set forth.

**RE-ISSUES.**

**WINDOW FASTENER**—C. R. Edwards, of Niagara City, Patented July 8, 1856 : I claim the employment of a single shaft, operated internally, and operating externally upon a window blind, when said shaft is made to effect the double purpose of operating both the blind and its slats, and this whether I construct and arrange the hinge and levers in the manner specified or not.

**GRINDING MILL**—G. Sanford, of Poughkeepsie, N. Y., Patented March 9, 1856 : I claim constructing a grinding mill with flat plates dressed on both sides, having a longitudinal reciprocating vertical and oscillating motion, in combination with flat stationary plates likewise dressed on both sides, the whole constructed and operated substantially as described.

Second, I claim the notched form of the upper edges of the plates, for the purpose of preventing the mill from choking and to facilitate the feeding of the article to be ground between the grinding surfaces.

**ADDITIONAL IMPROVEMENTS.**

**TOOL FOR TENSIONING SPOKES**—J. J. Crox, of Caledonia, Mo. Patented Feb. 3, 1857 : I claim, first, The adjustable gage, D, attached to the tube, A, substantially as and for the purpose set forth.

Second, The employment or use of the temper or set screws, B, C, applied to the tube, A, as and for the purpose set forth.

Third, The gages, H, fitted in the bars, F, F', of the clamp cutter head, all the above parts being arranged and operating as specified.

**LOCKS**—H. W. Covert (assignor to M. Briggs), of Rochester, N. Y. : I claim the combination of the disc, D, and centre V, toothed V, toothed or corrugated substantially as represented, for the purpose of fastening them securely together; but I do not confine myself to any particular size, or shape, or number of teeth, nor to any particular position on the disc or center.

**FLY-TRAP**—William Riley, of Madison, Miss. Patented April 27, 1856 : I claim the cover or slide, a, the rim or front marked e, and the pan marked p, as described.

**DESIGN.**

**STEREOSCOPE CASE**—Alex Beckers, of New York City.

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**The True Source of Information.**

MESSRS. EDITORS—I became a reader of the SCIENTIFIC AMERICAN in 1849, and have carefully perused every number issued since that date. I doubt not there are many others who can say this much. I can also say I am more and more pleased with it. It is invaluable to me; and I regard its influence upon the material interests of the country as superior to that of any other journal now published. I like your criticisms; they have always seemed to me to be dictated by a candid independence, and bear the impress of reliability—a feature somewhat peculiar in modern journalism. I rejoice in your success; and I commend your journal to all friends of solid progress as well worthy of their support.

Cambridge, Mass., March, 1859.

[The above compliment to the SCIENTIFIC AMERICAN is gracefully expressed, and most highly appreciated. When we assumed the management of this paper in 1846, we determined to make it a sound and reliable medium for the propagation of useful information. How far we have succeeded in our endeavors, we must leave the public to decide. The SCIENTIFIC AMERICAN is the only journal of the kind in this country which has met with any success; and since its commencement, we feel safe in asserting that at least twenty pretended rivals have been brought

into existence, and expired after the issue of a few numbers. Our circulation has steadily increased from the beginning up to the present time; and we have special reason to thank our friends for their earnest exertions to aid its circulation.

We intend that the contents of our columns shall be perfectly reliable, so that our readers may know what to depend upon. If we stumble upon Hot-air or Static Pressure Engines, Paine's Gas, Fire Annihilators, or any other discoveries or inventions of doubtful utility, we shall, as heretofore, deal with them as they deserve, and invariably give scientific reasons for our position.

The columns of the SCIENTIFIC AMERICAN are at all times open to contributions from practical men upon the various industrial interests of the country. We invite such communications; and we only reserve to ourselves the right (which all editors must carefully exercise) to amend or reject them entirely, if, in our judgment, the interests of our readers will be promoted thereby.

**The Preservation of, and Season to Cut, Timber.**

MESSRS. EDITORS—In your paper of the 5th ult. I noticed an article and your remarks on the time to cut timber. The assertion is correct that July and August are the best months for cutting timber, according to the early or later maturity, south or north. I will endeavor to give an explanation of this: Physiologists inform us that the characteristics of sap are different at the various seasons of the year, and also that the contents of the cells of the wood and buds share in the same change, according to the seasons. Thus we learn that in the Fall, the energies of the tree are used in filling the cells and buds with starch, sugar, &c., which remain there all winter; that by the genial influences of spring these supply the material for the evolution of leaves and twigs, which grow so rapidly in the spring months; and that, with little interruption, these materials for the formation of woody fiber, leaves, and fruit, are to be found in the sap until the process for the year is completed in July or August, and nature reposes in the full glory of her perfect work.

Researches have proven (and we can easily repeat them) that at nearly every period of the year but this, starch, sugar, &c., can be extracted more or less abundantly, but that at this time neither the sap nor a decoction or infusion of the wood will afford these matters. We are also informed that fermentation is usually the first step towards decay, and that the substances I have mentioned are vastly more susceptible of fermentation than the well-ripened woody fiber; hence, if you can cut timber at a season most free from fermentable substances, you best secure its durability.

Soaking wood for a long time in running water is followed by an increase of durability, owing to the water dissolving and carrying off fermentable matters. Kyanizing or saturating with mineral ingredients of various character prevents fermentation, and thus secures the object.

This subject is one of immense importance to railroad and telegraph companies. My experience in posts is very much in favor of July cut timber from deciduous trees. I am not sure about evergreens. Q. E. D.

Roswell, Ga., March, 1859.

**Gas-light Tubes.**

MESSRS. EDITORS—I was pleased with a suggestion in your paper not long since in relation to the importance of some provision for the escape of the products of combustion in gas-burners. I suppose that few persons have any suspicion that it is a matter of any consequence. Can you not give some statements in regard to the nature and amount of these products? L. L. P.

Hartford, Conn., March, 1859.

[The products of gas in combustion are carbonic acid and water; and as a portion of it generally escapes without perfect combus-

tion, it forms carbonic oxyd, which is a deadly poison. The hydrogen of the gas unites with an equal volume of oxygen, and forms water, hence we have water, carbonic acid and oxyd as the products of combustion. It requires eight cubic feet of air for the perfect combustion of one cubic foot of gas; these produce three feet of carbonic acid. A burner consuming one and a-half cubic feet per hour requires twelve feet of air, and forms four and a-half feet of carbonic acid, two per cent of which, in any atmosphere, renders it unfit for healthy respiration.—Eds.

**To make Cooped Hens Lay.**

MESSRS. EDITORS—It is pretty well known that hens will not lay, except occasionally, when "cooped up." It should be extensively known that a small daily allowance of raw meat of any kind will restore not only the power to the hen, but the necessity to lay every day, supposing, of course, that the other portion of the food is of the ordinary kind. No fowl lives exclusively on a vegetable diet; and when running at large, domestic fowls will be found searching for insects with great avidity. Those of your farmer readers who are not aware of this fact, may obtain a better supply of eggs by following this advice. R. H. A.

**Produce of Corn in Ancient Times.**

The returns of seed sown, as mentioned by ancient authors, are very remarkable. A hundredfold, Varro informs us, was reaped about Garande, in Syria, and Bysacium, in Africa. Pliny adds, that from the last place there were sent to Augustus from his agent, nearly 400 stalks, all from one grain, and also 340 stalks. He says he has seen the soil of this field, "which when dry, the stoutest oxen cannot plow; but, after rain, I have seen it opened up by a share, drawn by a wretched ass on one side, an old woman on the other." The returns in Italy were much less extraordinary. Varro says, "There were sown on a jugerum four modi (pecks) of beans, five of wheat, six of barley, and 10 of far (maize), more or less, according as the soil is rich or poor. The produce in some places ten after one, but in others, as in Tuscany, fifteen after one." This, in round numbers, is at the rate of 21 and 32 bushels on an English acre. On the excellent soil of Leontinum, in Sicily, the produce, according to Cicero, was no more than eight to ten for one. In Columella's time, when agriculture had declined, it was still less.

**Prizes for Inventions and Discoveries.**

The Society of Arts in London offers premiums in gold medals and small sums of money, for the discovery of a substitute for cotton, an incombustible paper for the books of commercial men and bankers, an economic system of railway transit applicable to common roads to connect thinly populated districts with the main lines of railroads, and the introduction of a system of railways for common roads and in the streets of towns.

This latter system is in common use in our American cities, and all that has to be done in England, is just to adopt it. In noticing the daily tumbling, jamming, and cramming of horses in our streets, we really think it would be a decided improvement in point of cleanliness and comfort, to adopt iron horses for stages, could this be done with equal safety and economy; upon humanitarian principles the change would be a most benevolent one.

**THE NICARAGUA CANAL.**—The mysterious Frenchman, Monsieur F. Belly, announces in the Paris journals that his organization of the Nicaragua Canal Company is completed; that the money necessary is secured; that the vessel has been freighted to carry out the engineering material, and that this vessel, with himself, some of the engineers and clerks—sixty persons in all—will sail from Havre for Greytown in three weeks. We have no doubt that this energetic personage will get his stomach full of this job before he has been in Greytown three weeks.