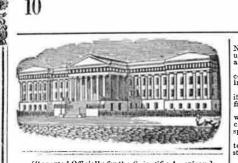
Scientific American.



[Reported Officially for the Scientific American.] LIST OF PATENT CLAIMS

tssued from the United States Patent Office FOR THE WEEK ENDING SEPTEMBER 9, 1856.

SAW SET-Wyllys Avery, of Salisbury Center, N. Y.: I claim a traversing punch, arranged so that it can be vi-brated or turned to suit the form or position of the saw teeth, being set substantially as described. I do not claim a vibrating pin acting upon the teeth of the saw to traverse it endways. But I claim the adjustable stationary pin, M, so ar-ranged as to bring the teeth of the saw into a proper po-sition under the setting punch, when the scores between the teeth of the saw are forced into said pin, substantially as described.

the teet in of the saw are increased. I do not claim a vibrating frame to support the saw hung directly opposite the setting punch and anvil. But I claim two separate frames, one hung each side of the anvil, and setting punch. so arranged that when one is turned back out of the way of the handle the oth-er will support and sustain the saw, substantially as de-scribed

Scribed. I claim the revolving blocks for the above mention frames, which support the saw during the process of s ting, substantially as described.

DRESS OF METALLIC HEMISPHERICAL GRINING MILL —Anson Atwoed, of Troy, N. Y. : I claim the series of radial gese ribs and furrows, in combination with the in-termediate or interposing ribs and furrows, cracking tech. and hemispherical formed grinding surface, com-bined in the manner substantially as described.

LADIES REINEG SADDLES—Henry Adams, of New York City : I claim, first, the arranging of the near side horn, a, with the leaping horn. b, attached directly to it, on the side of the tree or saddle. near the front, and a short distance below the head of the same, substantially as and for the purpose set forth. Second having the leaping horn attached loosely to the near side horn. so as to be capable of being reversed, and thus made to serve as a support or rest for the left leg while riding at a slow gait.

BREECH.LOADING ORDNANCE.-G. W. Bishup, of Brooklyn, N. Y.: I do not confine myself to the partic-ular form of the groove. b c, or of the segments. But I claim the combination of the groove, b c, made around the seat of the breech pin, and the segments, E B, attached to the breech pin, the said segments being operated by a screw and toggle movement, or other equiv-alent means of spreaidng or expanding them into the said groove, or withdrawing them therefrom, substantially as described.

• WOODEN PART OF BRUSHES-Thomas Mitchell, of Lansingburg, N. Y.: I claim the combination of a circu-par saw with a cutting apparatus, formed as described, for the purpose of applying circular saws to the cutting of the curved figures, substantially as set forth. I also claim the combination of the apparatus first claimed with a crown saw attached to an arbor common to both. forming a tool for the selvantageous manufacture offorush handles, or other analogous work, substantially as set forth.

MANUPACTURING DELAINES-John Marland, of West Bridgewater, Mass. I claim the method of operating up-on wool by combing, and subsequently carding, in the manner and for the purpose set forth.

MANGER SHIP'S RUDDERS—Christopher N. Nixon, of Ramsgate, Eng. Patented in England May 12th, 1854 : I claim the use or construction, as a pplied to sailing ves-sels, for steering purposes, of the groove or socket, as de-scribed, whether the same be formed to extend from the top to, or near to the bottom of the stern post, whether the same be continuous or divided into sections or parts. Second, I claim the rod, continuous or in sections, at-tached to the rudder and combined with the groove or other equivalent attached to the stern post.

other equivalent attached to the stern-post. CUTTING AND DRAWING WIRE-F. Noette, of Brook-lyn. N. Y.: First, Iclaim feeding the circular plate, M. to the circular cutters. H L, and gauging the same by means of racks, oo, shaft, Q, with pinions attached, the pawl and ratchet, G U, weighted lever, V. or equivalents, and gauge roller, arranged as shown and described. Second, I claim operating the reel or drum, I', or giv-ing it a vertical vibratory movement by means of the right and left screw rods, 1). with pinions, m m, attached, and made to gear alternately into the pinion, K, on the shaft, A', by means of the block, B', lever, D', bar, G, and weighted lever, H, arranged as shown and described. Third, I claim the reel or drum. I, when constructed as shown, so that it may be compressed or contracted to allow of the ready removal of the wire from its peri-phery.

CASTING ARTIFICIAL TOOTH PLATES-John L. New-ell, of Binghamton, N. Y. : I do not claim the electro-type art of depositing metals into casts or molds. Neither do I claim the making of the cast or mold. But I claim constructing the linings in one piece, and simultaneously with the plate, by the electrotype process, as set forth.

similation outsy with the place of the electrotype process, as set forth. I also claim filling the interstices of artificial teeth, when attached to a metallic plate, with a metallic pre-cipitate solidified, in the manner described and for the purpose specified.

CARTRIDGES-Julius Riedel, of Pleasant Hill, Ky. : I laim making the pointed ball cartridge, as described and

claim making the pointed ball cartridge, as described and shown. First, I claim that the shape of my cartridge is such that one end is naturally loaded heavier than the other, as represented by section a c b 4, thereby causing that end to go forward, thus guarding against all revolving motion, except a single winding or peristallic one. Second, I claim as novel the constructing the hemis-herical end of the cartridge stronger and heavier than the conical end, having several objects in visw, viz, that the loading of shot or balls on the inside may be keptto-gether a considerable distance after leaving the gun, that the igner conical end may serve to keep the whole in the given direction till the cartridge is burst, and when burst on or near its base, give free eress to its contents.

Lock-Harly D. Russell, of Naugatuck, Conn. : I claim liberating the knob and its stem from all connection with the main bolt, in freeing the crescent plate, B, by the movement of the smaller bolt. C, as specified, produced by the cross bar, F, or its equivalent, operated by the key of the door, the whole constructed and arranged substan-tially as set forth.

WiNDMIL-John R. St. John. of Lockport, N. Y.: I do not claim, separately and simply by themselves, any of the parts, as they have all been used before. But I claim the arrangement and combination of the parts as described, or their merely equivalents. I claim first, the traverse table and tail piece for car-rying the reduced part of the main shaft, and for sustain-ing the main shaft horizontally on the screw pivot, G, with the arrangement thereon of the rudder vane for its merendicular movement.

with the arrangement thereon of the rudder vane for its perpendicular movement. Second, I claim the main shaft with its hinder position reduced, with the circular cogged rack, d, the collar, n n, and the spiral spring, e, working therewith. Third, I claim the rudder vane, H, as performing the two offices of keeping the sails to the wind, by moving the trayers tables horizontally, also as carrying the rod, i i, and the governor vane or globe, T, for giving a vertical movement.

movement

APPLE PARERS—John D. Brown, of Cincinnati, O. : I claim the returning or reversing action, as described and

WASHING MACHINES-Israel F. Brown, of Colum-bus, Ga.: I claim the slotted cylinder, B, constructed as shown, and having a diagonal or oblique corrugated board, a', at each end, the cylinder being partially im-mersed within the box, A, substantially as described.

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SWEEPING STREETS-Robert A. Smith, of Brooklyn, N.Y., Iclaim, first, placing the main broom cylinder under the axle of the traveling wheels, substantially as and for the purposes st forth. Second, the curved guides, f. of broom cylinder axle, concentric with the driving pulley for keeping the driv-ing band tight in all portions of the said cylinder. Third, hanging the conveyor on its driving shaft, with its lower extremity resting on wheels running on the sur-face of the ground, as specified. Fourth, the arrangement of screw, box, and guides with the shaft of the guiter brush, for regulating the in-clination and preventing the oscillation of said brush, as $\frac{3pecified}{2}$.

clination and preventing the oscillation of said brush, as specified. Fifth, the combination of the cylinder brush and gut-ter brush with the elevator, arranged and operating sub-stantially as specified.

WASHING MACHINES—Riley Smith, of Towanda, Pa. : I am aware that a hand rubbing board has been used in the same machine with a rubbing board operated by le-vers ; this I do not claim But I claim connecting the hand and lever rubbers by a pivoted brace, which serves the double purpose of aguide in operating the lever rubber, and a brace for raising up and holding in a convenient position the hand rubber, the whole being arranged for the purpose and in the manner set forth,

STEAM ENGINES-Wm. A. Clark, of St. Louis, Mo. : I claim the arrangement of two or more pistons on the one piston rod within the one cylinder, divided into compart-ment, the movement of each piston being limited to its respective compartment, and all the pistons traveling in the same direction, as set forth.

FLUID LAWS-WIM. B. Carpenter, of Brooklyn, N. Y.: I claim the divided cap or extinguisher, A A, in combination with the springs, D D, and the ring, c, the whole operating substantially as described.

REPAIRING RAILWAY BARS-James D Cawood, of Marshall, Mich.: I do not claim the anvil block nor its

Marshall, Alch. : 1 do not chain the anvit brock here recesses. I claim the movable press block, D, having its edge formed to the side of the rail, G, in combination with another block, D, with its edge ef a similar but reversed form, the movable block to be operated by two cams, or in any other convenient manner, for the purpose of press-ing between them at T or otherwise shaped rail, thereby facilitating the diffict . operation of welking or renewing the ends of such rails after they have been damaged, in the manner described and for the purpose set forth.

ARTIFICIAL FUEL—Robert Courtney, of Albany, N. Y. I Claim the rendering coaldustor screenings into a merchantable artificial fuel, by combining coal dust with clay, lime, and coal tar, or other bituminous or resinous material, and subjecting them to all the parts of the pro-cess, in manner and form set forth and described.

FEEDING SAWING MILLE—Calvinand Geo. S. Dilkes, of Allowaystown, N. J. . We do not claim operating the feed wheel by means of pawls operated by the saw frame through the medium of a lever. But we claim giving motion to the pawls which actuate the feed wheel by means of the cord, H, and pulley or short cylinder, G, and its stud, q, in combination with the slotted lever arm, F, and its plate. E, the same being con-structed, combined, and operated together substantially as set forth.

LUBRICATING THROSTLE SPINDLES—Geo. W. Daugh-erty, of Crozerville, P.a., and Thomas G. McLaughlin, of Philadelphia, P.a.: We claim the lubrication of throstle spindles, in the manner and for the purpose substantially as described.

SEED PLANTERS-John Fordyce, of Morgantown, Va. I claim in combination with the hopper and its adjustable openings, the hinge board. B, and its blocks and figures for regulating the discharge of the grain from said hop-per, and ensuring regular feeding, substantially as set forth.

ATTACHING HORSES TO VEHICLES-George H. Gray, Sen. of Clinton, Miss. I claim the plates, C, attached to the harness as shown, and the plates, B, on the shafts, A, with loops or clasps, a, attached to the levers, D, with the pins, h, on them, and the dogs, F, levers, G, and rods, H, as described.

LINKS OF HORSE POWERS—Albert W. Gray, of Mid-dletown, Vt. I claim constructing the links composing the endless chain of corringated sheet metal, so that the corrugations shall serve both as hinges for connecting the links and as cogs for gearing with the cog wheel on the driving shaft, substantially as specified.

driving shaft, substantially as specified. PANS FOR EVAPORATING SUGAR-Samuel H. Gilman, of New Orleans, La. : I claim the evaporator formed by the combination of a train of open boilers, $N \bullet P$ Q, the holler, Q, to receive the first and the boiler N. to receive the last fire, and each of the boilers in succession pre-senting an extent of surface to the fire in the reverse ratio of the intensity of the fire, as well as of its, the boiler's, cubic capacity, constructed and arranged substantially as described. I also claim the construction and use of a flue, x, form-ed by a series of open boilers, N O P Q, and being in a series of sections of its length, divided longitudally and vertically by water legs, or strata of juice into two or more flues or spaces, the numbers of flues increasing from ne section to the next, as the distance from the firnace increases, and the numbers of sections into which it is so divided, corresponding to the number than the boiler in which it is placed as oas to leave a space between each section, substantially as described. <u>HAND</u><u>CORN</u> PLANTERS—Herman B. Hammon, of

HAND CORN PLANTERS-Herman B. Hammon, of Bristolville, Ohio: I claim the employment of a hexa-gonal or many-sided revolving wheel, E, having offsets, a4 a4 a4 a4 a4 a4, a plied in connection with the plunger and seed tube, substantially as and for the purposes set forth.

REVERSING GEAR-George Juengst, of New York City: 1 do not claim the described mode of converting motion, as it is well known. Neither do I claim the substitution of the nipping pawl for the ordinary pawl and ratchet, as that is also well known.

for the ordinary pawl and latence, a second known. But I claim the described arrangement of the disks, g, the screw pivots, e, and the springs, f f, or their equiva-lents, whereby the action ofthe nipping pawl is reversed and the motion communicated by it changed in direction without any change of direction or cession of motion in the moving power.

METALLIC CAR SPRING—Danforth Johnson, of Chi-cago, Ill.: I claim the combination and arrangement of a number of springs radiating from a central stud, and secured at the circumference or rim to a box or bed plate. plate. I also claim the arrangement of the convex bed plate a b, over which the springs bend, in combination with the stud or pillar, e, to resist the lateral motion of the cai or carriage, the whole combined, arranged, and operating substantially as set forth.

SUBSIANTIALLY AS Set JOTL. COLLISION APPARATUS FOR R. R. CARS-John Kulm-ski, of Charleston, S. C.: I claim protecting railroad trains against the injurious effects of collision, by the at-tachment to their from and rear of a series of shields, A. B C, kept at a distance from each other by elastic and rigid resistances, E and F, in such a way that a collision taking place, said shields are to fall back successively upon each other from the fore to the rearmost, the re-sistance to yield to the shock alternately and in succession by the operation of tubes and snap locks, H I, or their substantially as and for the purpose specified. Sonew, Curmen, Lehr, W, Luce of Excellen N, Y.

SCREW CUTTER_John W. Lyon, of Brooklyn, N.Y. I claim the use of the slide rest, slide cutter tool, wire holder box, and spring clamp dies, or their equivalents constructed, and combined, for the purpose of cutting and finishing screws, as set forth.

SUSPENDING BY HYDRAULIC PUPPET VALVES-Geo. Flott, R. H. Cole, and Wm. A. Clark, of St. Louis, Mo. We claim the combination of the ball, loose socket, and anti-friction washer, when employed to connect an elas-tic or yielding valve with its stem, substantially as set forth.

form. M_{ABLE} SAWING MACHINES—Jose Toll, of Locust Grove, Ohio. 1 am aware that there have been hereto-fore machines for sawing marble in taper form, and there fore make no claim to such. Butl claim the particular combination and arrange-ment of the iender bars, J J j, with the adjustable guide pieces when the same are constructed and arranged to operate in relation to each other, in the manner and for the purposes set forth.

GRAIN AND GRASS HARVESTER-Wm. P. Maxson, of Albion, Wis.: I claim the wheel, H, attached to the Albion, Wis.: I claim the wheel, H, attached to the driving wheel, F, in combination with the curved sliding lever, G, (on which the driving wheel is hung,) and straight lever, U, when arranged to operate in the man-ner and for the purposes set forth.

ner and for the purposes set forth. WIND MILL-Ephraim Whitman, of Abington, Mass. I I claim the combination and arrangement of the rotary wind flume, A, the series of turning blinds or gates, M, and the wind wheel, G, the whole being applied and made to operate together, substantially as described. And in combination with the wind flume, A, the series of turning blinds or gates, M, and the wind wheel, G, the shole being applied and made to operate together sub-stantially as described. And in combination with the wind flume, A, and its wheel, G, I claim the series of guide plates, L, L, and the concentric thular tapering case, I, arranged sub-stantially in manner as explaind. I also claim arranging the transfering shaft F, in the the lower journal, C, thereof, and thereby enable the wind flume and driving shaft, H, and its beveled gear to revolve around such transfering shaft and the beveled gear thereof, and transmit power through the shaft, F, under any position of the rotary flume. A.

under any position of the rotary flume. A. FORMING HAT BODIES-D. G. Wells, of New York City: I no not claim the use of the secondary currents of air, nor valves to control them. First, I claim the mode of guiding the currents of air from the picking cylinder in their passage to the cone, substantially as described. Second, I claim the mode of regulating the secondary currents of air by means of the wedge-shaped apertures formed by the valves, K K, substantially as set forth.

DRAWING OFF WASTE GASES, STEAM, & c. Robert F. Brower, (assignor to Samuel A, Brower and J, L. Brow-er,) of Bloomfield, N. Y. : I claim the operation of draw-ing off waste steam or gases by mechanism or heated cur-rents, from buildings or apartments where drying, steam-ing, or chemical operations are conducted, after the man-ner substantially as set forth.

JACQUARD LOOMS-J. C. Cooke, (assignor to Hotch-kiss and Merriman, Manufacturing Co...) of Waterbury, Conn. : I claim the combination of the lifting bar with the sliding hook and rockingpiece for operating the needle. Second, I also claim the use of a pattern cylinder, hav-ing a reciprocating horizontal and vertical movement, combined with the movement of rotation on its axis, in the manner, and for the purpose set forth.

SAW GUMMER-L. A. Dole, (assignor to Dole, Silver, and Felch.) of Salem, Ohio : I claim arranging the cam or moving crank below the die, either in or below the die blockso as to draw down the punch or male die block, substantially as described. combination with the opening, c, so constructed and ar ranged as to traverse the bar, C, with a positive motion in each direction, as the lever is vibrated, as described.

SHIGLING BRACKET-L. A. Goodell, of Southington, Conn., assignor to himself and D. H. Holt: I claim a com-bination of the foot or feet, D D, the claw or pin pointed base, and the hinged braces, E F, made fast and adjusta-ble to each other by the catches and dovetail tongue, re-ceivingthe wedge, J, the whole constructed, combined, and operating as set forth.

and operating as set forth. HARVESTERS—W. H. Seymour and Henry Pearce, (as-signors to himself and \mathbb{D} . S. Morgan,) of Brockport, N. Y. : 1 claim the particular arrangement of the clutch and clutch lever, with regard to the conductor's seat and platform, and the shaft, b, from which motion is com-municated to both the rake and sickle, as that the opera-tor from his seat, having a distinct view of the platform, can engage or disengage said rake with his foot, whilst the sickle continues to run, substantially as set forth We also claim the combination of the universal joint i, for connecting the shaft, b k, the sleevel, 1, and plate, Q, with its guide, mm, and gimbal joint, o, for giving the rake its transverse movement, as described. We also claim the bow and rake head, so formed as to incline towards their outerends, and so acting as to cause the bent or entangled straws to slide off on to the plat-form, substantially as described.

FAUCET-Joseph Goodrich (assignor to the Boston Fau-cet Co.) of Boston, Mass. I claim arranging between the caoutchouc spring, and the screw cap of the neck of the faucet, a metallicannuls or guard ring, in or to prevent the adhesion of the cap to the india rubber spring, not meaning to claim a metallic washer, as ordinarily used, but the specific application of a metallic ring to prevent a difficulty incident to the peculiar relation of parts, as

described. I also claim the arrangement of the annular groove in the stem of the valve, and with reference to the sides of the spring or valve chamber, in manner and for the pur-pose, or so as to produce the new and useful result, as specified, the said groove being intended to receive the ioot of the spring made tapering, or frusto-conical, in man-ner and for the purpose of preventing it from being caus-ed to adhere to the sides of the said chamber by oxyda-tion of the metal, under circumstances, as expressed.

SEWING MACHINES-C. R. Gardner, of Detroit, Mich-I claim, first, the sharp pointed needle having a flexible beard, as described, for sewing in woven or other close fabrics, in the manner set forth. Second, the adjustable slide, C. so arranged as to close the beard of any sized needle that may be used in the machine.

Second, the adjustable sine, c., so arranged as to crose the beard of any sized needle that may be used in the machine. Third, also the guide, G, consisting of the thread chan-nel, C', and the needle passage with the side thereof, either slightly inclined, as described, or provided at the top with the inclined groove, J, and so operating that the feed motion given to the oldth shall carry the thread in proper position that it shall be caught by the hook or beard of the needle, as described. Fourth, also the f.lding plate, or its mechanical equiv-alent for the purpose specified. I do not claim running sweral folds or corrugations on the needle at the same time, as it is done in machines for sewing with a running stitch. Nor do I claim sewing binding, and forming welts, where the length of the stitch is parallel with the fold. I claim sewing with a machine through one fold or corrugations of the material at a time, the cloth being fed along ar right angles or nearly so, to the line of the fold, substantially as described.

LAMPS FOR BURNING FLUIDS-Salmon Bidwell, of Rochester, N. Y.: 1 claim the mode of compressing the wick in the manner described, so as to prevent any change in the light caused by the jar of the lamp, and to prevent the escape of the burning fluid fastor than is desired, and to secure the gas generated from the same, and to enable the use of any desirable fluidfor lamp purposes.

HARVESTERS-Wm. H. Seymour and Henry Pearce's (assignors to himself and D. S. Morgan.) of Brockport, N' Y. 1 claim, in combination with the main wheel, H, and removable wheel M, a frame capable of allowing the shifting of the former, and the removing or replacing of the latter, when the machine is to be converted from a reaper to a mower, or vice versa, substantially as set forth. forth.

FURNACE SMOOTHING IRONS-John Taggart, of Rox-bury, Mass., assignor to himself and Vernon Brown, of Boston, Mass. : I claim arranging the bellows between the handle and furnace or body of the flat-iron, as circum-

handle and furnace or body of the flat-iron, as circum-stances may require. I also claim making the bellows tube or conductor, H, in two separate pieces, m n, and attaching them respec-tively to the cover and body of the furnace, so as to oper-ate together when the cover is down, and to be separated when the cover is raised, substantially in manner and for the purpose as specified.

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the top props, A. I also claim the perpendicular rods, E E, in combina-tion with the laterai rod, D D, and the back of the seat for the purpose of throwing back or raising up the top, while seated in the carriage, substantially as set forth.

RE-188UE. HARNESS SADDLES-John F. Denniston, of Lyons, N. Y. Originally patented Nov. 20th, 1846 : I claim making

the upper or saddle part of harness saddles of metal, giv-ing the required form thereof, by molding, when such saddles are so formed, substantially as described, that the leather parts, such as the skirts, can be secured thereto, withoutstitching, as set forth, or by equivalent means. I aiso claim forming the upper or saddle part, and the under or crotch part in combination, so that the skirt and jockeys, if jockeys are used, will be embraced between them, and secured in the manner substantially as de scribed. scribed.

ADDITIONAL IMPRONEMENT.

ADDITIONAL IMPRONEMENT. ROTARY BRICK MACHIVES.—George Crangle, of Phil-adelphia, Pa. Patented June 3, 1556 i Claim, first, the substitution of the single square toothed ratchet wheel, D, and the pendulous lever, E, with its spring, e, in the apparatus described in my former specification, " for ro-taing and stopping the cylinders in rotary brick ma-chines," the square toothed ratchet wheel, lever, and spring, being constructed, applied, and operating, sub-stantially as set forth. Second, I also claim a single cylinder, A, with two se-ries of molds in the same, when the said cylinder is con-structed as described, that is to say, with the partition, b, in the middle, and open at each end : the movable bot-toms of the molds thereofbeing supported at each of their ends by the rims, e, e, which are partially supperted by the rollers, tt, whilst the roller, h, and its bearings, it, operate bstween the said two rims, when the above parts are constructed, arranged and operated substantially in the manner and for the purposeset forth.

Virginia Gold Mines.

The New York Tribune of the 19th inst. contains a letter from J. Winchester on the mining capabilities of Virginia. The follow ing are a few extracts from it :-

"There are mines on which \$100,000 and \$300,000 have been expended, and it would puzzle any person to tell what had been done with the money to any better purpose than throwing it into the sea.

California is scarcely a more inviting field for the miner than this very State, not a day's journey from the commercial capitol of the Union. Facts in proof are not wanting.

I am well satisfied that, considering the recent improvements in metallurgical science, especially in the treatment of pyritiferous ores, which form so large a portion of the gold and copper lodes of the Southern States, a new era is about to be opened, in which capital will find the reward hitherto not realized.

The mine at which I am stopping-the Woodville-after years of perseverance under the direction of Dr. S. F. Ambler, has become a success. Dr. Ambler has recently invented and erected a new and admirable contrivance for working sulphurets. I have seen its operation, and have no doubt whatever that he has hit upon a desidesideratum in the reduction of sulphur ores, and the release of the gold It needed but such a discovery to render all the auriferous sulphurets profitable which have ever before stubbornly refused to yield up their treasures."

The whole letter leaves an impression on the mind that gold itself exists in the state of an ore—as sulphurets and pyrites—whereas gold is only associated with the pyrites of copper and iron in some Virginian mines, and is never found as an ore, strictly speaking, but commonly as an alloy, with metallic silver, copper, and some other metals. It is plainly stated that the working of auriferous pyrites -gold associated with iron and copper pyrites -in Virginia has hitherto been unprofitable, but by a new invention of Dr. Ambler the gold can be released profitably, and "a new era is about to be opened, in which capital will find reward not hitherto realized."

Virginia is rich in gold quartz, but her auriferous sulphurets have always been considered poor ores, because they require smelting, which is a far more expensive process than that of amalgamation by mercury, where the gold is found unassociated with the sulphurets of other metals. The statement that auriferous sulphurets have ever before stubbornly refused to yield their treasures, is not correct. Dana, our greatest mineralogist, states that it has been found profitable where metallic sul phurets and other ores are abundant in gold rocks, to work them by smelting, and he describes the profits obtained by smelting such ores in Russia, in comparison with the simple treatment of them by amalgamation. If, by the process of smelting, the gold can be profitably reduced from the auriferous pyrites, this can be easily demonstrated without very expensive apparatus in any of the Virginia mines. The ores of each mine should be fairly tested before expensive reducing apparatus is fitted up, because their character and quality-even when separated but a short distance -differ so much from one another. It would

be hazardous, in our opinion, to invest capita largely in any mine for the reduction of gold from auriferous pyrites, until it was fairly de-25 monstrated that such investment was beyond a doubt, safe and profitable.

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