# scientific merican.

## THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS

VOLUME XII.

NEW-YORK, JULY 4, 1857.

CHICHESTER'S ROLLER GIN.

Fig. 2

NUMBER 43.

#### THE Scientific American. PUBLISHED WEEKLY

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#### Improved Roller Gin.

Some of the finest threads ever spun were of cotton. The sizes in common use in the manufacture of cloths vary from about No. 30 to No. 80, the higher number being the finest; but in the report of the great Exhibition of 1851, we find notices of yarns exhibited by one British manufacturer of numbers 200, 400 and 600. Another exhibited a sample of yarn, which, measured by the same standard, would be numbered 900. And the very finest, a thread so extremely small that it would require 167 miles to weigh one pound, would number, by the same gauge, over 5,000. There were no silk or linen threads that would compete with these.

The finest cotton yarns ever made were spun by native artists in India, but the fineness is not uniform. Modern cotton machinery produces a thread of greater average fineness, though not as small at some individual points.

Cotton has been raised in China since the thirteenth century; but the Sea Island, or black seed cotton of our country, the finest and most valued cotton used by civilized nations, was imported from Jamaica and Pernambuco, in 1786, and its culture was fairly established in the three succeeding years. The length of its fiber, and more especially its fin eness and peculiarly delicate character, makes it unfit for ginning or separating from the seeds, in the ordinary manner-tearing it by sawsand the machine still in vogue for ginning this material, consists simply of two small rollers of wood. The first gins ever used, even on upland or short-staple cotton, were on a similar principle. The rollers catch the fibers and draw them forcibly through, while the seeds are excluded on account of their size. To make the angle sufficiently great, however, to repel the seed, it is necessary to make the rollers very small in diameter; and the amount of ordinary cotton ginned by one man or woman before the invention of Whitney's saw gin, was only about eight pounds per day. The long-staple is better adapted to this mode of ginning; still an operator without horse power will gin but about twenty-five pounds per day; and with all the power which can be desired, the action is very slow.

Many efforts have been made to invent rapid gins for Sea Island cotton. One planter is reported to have expended \$5,000 in experiments, and many inventions have been attempted by others with little better success. The great merit of the roller gin is the perfection of the product; it does not rub or damage the staple. The action on the fiber is a simple grasping and pulling. Few of the substitutes have been equally simple in their action; or if so, few or none have siezed the fiber with equally soft fingers. Metallic rollers, pressed together with sufficient force to seize the fine filaments, crush and destroy their texture. The material of the old fashioned rollers is hickory wood, the diameter is but seven-eighths of an inch, and as a consequence, bearings must be provided at intervals of only from 8 to 12 inches, else the rollers would

to the use of these gins are quite numerous, not the least of which is the very serious tendency to take fire from friction; and the bearings are almost invariably changed to charcoal in a very short time.

Fig. 1

The machine represented in the accompanying engravings, Figs. 1 and 2, is the invention of Mr. L. S. Chichester, and was patented on February 3rd, of the present year. It is a roller gin. One roller is steel, the other is iron covered with firm vulcanised india rubber. The surface of the latter gives exactly the desired action on the fiber, but would be very ill-suited to resist seeds. A separate plate, therefore, is provided, the edge of which is near the bite of the rollers, and the seeds, while being stripped, lie in the angle, not between the rollers, but between this plate and the upper roller. By slightly curving upwards the edge of the plate, a much greater angle is made to repel the seed than is secured even by the use of much smaller rollers, in the ordinary manner. To facilitate the action, a slight but rapid movement is given to the plate by a device, which will be described below.

Fig. 1 is a perspective view, and Fig. 2 a section of Mr. Chichester's gin. A represents a steel roller, about 20 inches long, between the bearings, and about one and a quarter inches in diameter. B represents the plate described, and C the india-rubber roller, three inches in diameter. The plate, B, is rigidly fixed upon a shaft, D. On one end of this shaft, D, outside the frame, is mounted a cross-piece, as represented, on which are two rollers D'D'. A wheel, F, mounted on the shaft of C, is slightly scollopped, or camshaped, on its periphery, as will be observed on close inspection; and these successive elevations and depressions acting on the two rollers, D' D', give to the shaft D, and consequently to the plate B, a very rapid and positive vibrating motion, to the extent of nearly one-eighth of an inch at the acting edge. E is a small fan-wheel, which serves to remove any of the fibers which might adhere to C, and G is a stiff brush hinged to the points H, which serves also to strip the roller

of pressure. J is a table or feeding-board, on which the cotton to be ginned is placed. Α sufficient space is left between the edge of J and the face of B, to allow the seed to drop through and escape. The roller A is driven simply by "rolling contact" with C, and consequently there can be no difference in the velocity of their surfaces. The upper curved edge of the plate B, is about three-eighths of an inch from the bite, or point of contact, of the rollers. On first being pushed forward, the loose fibers of the cotton are drawn through by a simple contact with A, until they are caught by the bite and carefully separated from the seed with just sufficient violence to keep the latter continually turning, an operation which is materially aided by the vibratory movement of B. To increase the effect of the rollers in pulling the fibers, the surface of A is fiuted, as represented in Fig. 1; but the flutings, and, in short, all parts of its acting surface, are kept very highly polished or burnished. This machine has ginned at the rate of 10 pounds per hour, the cotton, as may be supposed, not only possessing the character, but presenting the appearance of having been cleaned by the ordinary roller gin. The appearance of the fiber when exhibited in the market, is at present a matter of great commercial importance, as the purchasers are mainly in England and France, and are prejudiced against new inventions for this purpose, as they have found the product generally inferior.

There are no extraordinary difficulties connected with the raising of Sea Island cotton, except the increased trouble of picking and ginning it. Its pods or bolls are smaller than those of the ordinary Mexican, or short staple-cotton; but the main difficulty, as before observed, lies in the ginning. If this or any other gin is completely successful, the price of the goods may be cheapened, and the production of fine cotton very much increased. The growth of this plant, originally confined to a few islands on the coast of South Carolina and Georgia, has now been found to succeed over a very large tract of country, including spring apart and allow the entrance and A. I, I, are thumb-screws, which serve to nearly or quite the whole of Florida. Although dividend which it pays averages 15 per cent.

crushing of the seeds. The difficulties incident | drive A down upon C with any required degree | partial to sea air, and probably to the employment of salt mud, rushes, &c., as a dressing, it is now raised with profit, under all its disadvantages, at points 150 miles from the sea. Mr. Chichester's gin is pronounced by parties familiar with this material, to be the best yet produced. It certainly appears to us the best within our knowledge. We have seen it in operation, ginning the finest varieties, worth one dollar or more per pound, with great rapidity, and performing the operation in a manner absolutely perfect.

For further particulars, address :-- " The Union Roller Cotton Gin Co., No. 6 Libertystreet, New-York."

#### Nature the Teacher.

Hugh Miller says, in his last great work, The Testimony of the Rocks," that there is scarce an architectural ornament of the Gothic or Grecian styles which may not be found as fossils existing in the rocks. The Illodendron, says Mr. Miller, was sculptured into gracefully arranged rows of pointed and closely imbricated leaves, similar to those into which the Roman architects fretted the torus of the Oorinthian order. The Sigittaria were fiuted columns, ornately carved in the line of channeled flutes; the Lepidodendra bore, according to their species, sculptured scales, or lozenges, or egg-like hollows, set in a sort of frame, and relieved into knobs and furrows; all of them furnishing examples of a delicate diaper work, like that so admired in our more ornate Gothic buildings, such as Westminster Abbey, or Canterbury and Chichester Cathedrals, only far more exquisite in their design and finish. No one can rise from the perusal of Mr. Miller's volume, without feeling convinced that it is one of the most interesting and erudite contributions to scientific literature of modern times.

## Niagara Suspension Bridge.

This bridge appears to be a profitable concern. During the past year, ending April, the report of the company, recently published. states that the revenue amounted to \$41,963, disbursements, \$4,507, thus showing that the working expenses are but small. The

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[Reported officially for the Scientific American.] LIST OF PATENT CLAIMS Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 23, 1857.

GAS GENERATORS—Napoleon Aubin, of Albany, N. Y.: I do not claim the mixing of materials for making gas, nor the introduction of gas making materials into a retort by means of a charger, nor the described method of closing the retort, nor the introduction of highly heat-ed steam into the retort. for such devices have been either known, used or patented before. I claim the use of a charger arranged and operated sub-stantially as set forth.

Staniary as set form. PRINTING PRESERS.—F. L. Bailey, of Boston, Mass.: I claim the combination and arrangement of the nipper, and holding springs applied to the sheet carrier, and made to operate therewith, substantially as described, and whether said springs be made stationary or adjusta-ble laterally on their shaft. I do not claim a sliding platen or plate moving out a sheet to be printed. But I claim the sliding carrier or plate D', when made to move in an an inclined or vertical direction for the purpose set forth. I also claim the combination of the sheet carrier or

purpose set forth. I also claim the combination of the sheet carrier or plate D, with ways placed on the platen or vibrating frame D, on which it slides, so that it may assume the positions for receiving the sheet to be printed, and also for giving the impression to the same.

for giving the impression to the same. REDUCING TOPSAILS—Thomas Batty, of Brooklyn, N. X: I claim, first, The arrangement of one or more bunt pennants, H, connected with the front of the sail, passing up the front thereof, and connected with the yard, and of a crane neck piece I, or is equivalent attached to the yard to work up and down said pennant or pennants, substantially as set forth, so that in lowering the yard, the wind may be expelled from the bunt of the sail towards the sides in the manner substantially as rep-resented in fig. 2. Second, The arrangement of the flat blocks, c c, through which the reef pennants run on the top of the yard, substantially as and for the purpose set forth.

[In the many reefing devices for sails hitherto employ ed, they have a tendency to gather the bunt or slack o the sail towards the center, and thus it catches the wind and bulges out, rendering it difficult to tie the reefing cords. By this improvement, as the yard is lowered, the wind is pressed entirely out of the center of the sail towards the edges, causing it to come snug up to the yard, in which condition it is easily held, and the reef oints or cords tied round the yard to secure it. It is an excellent improvement.]

POLISHING RAW HIDE WHIPS-Eugene Blattner, of Philadelphia, Pa.; I do notconfine myself to the precise means described of driving the nocked spindles, as that may be accomplished in a vargety of ways. But I claim the grinding pulley, I, and spindles d and m, when a simultaneous rotary motion is imparted to the same, and when they are arranged for joint operation, substantially in the manner set forth and for the purpose specified.

HOLDING AND ADJUSTING PLANE IRONS IN THEIR STOCKS-W. W. Chipman, of Lowell, Mass. I claim the use and application of the apparatus for holding and ad-justing the plane iron, substantially as and for the pur-pose described.

pose described. GRINDING MILL-Ezra Coleman, of Philadelphia, Pa.; I am aware that concaves have been adjusted ec-centrically in order to grind finer or coarser, but not to grind faster or slower, therefore I do not claim an eccen-tric adjustment of the concave of a grinder. I claim having the concave of a cob cutter adjusted in a circular line concave of a cob cutter adjusted in a circular line concentric with its axis and relatively to the mouth of the feed hopper, by means substantially as specified, so that it may be set to grind faster or slower, substantially as and for the purposes set forth. The means specified for ensuring the rotation of the cob cytter with the grinder and its retention in proper place where the grinder is adjusted longitudinally, sub-stantially as and for the purposes set forth.

[This mill is very peculiar in its construction both as regards the mechanism for cutting up corn stalks into feed, and that for grinding grain so as to produce flour or The ribs of the grinding cylinder are so con meal. structed that they cut for one half their length, and act as mortars or pestles along the other haif, and thereby operate more effectually upon the grain. The concave of the cob grinder is made adjustable, concentric with its axis, and can be set to cut faster or slower according to the power at hand. The grinding cylinder and cob cutter are on the same shaft, and both rotate together, but are independent in their longitudinal adjustment, and the two are partially separated by an elastic guard, so that nails cannot pass from the grinding hopper to the knives or stalk cutters. This mill, as a whole, is a very perfect machine, occupying but little space, and with a fanner can cut up feed and grind and bolt flour very rapidly an perfectly.]

SAW SET-Jacob Erdle, of West Bloomfield, N. Y. Saw Srr-Jacob Erdie, of West Bioonneid, N. Y.: 1 do not claim feeding the saw teeth to the punch by means of a pawl or hand, irrespective of the arrange-ment of the same. for that is a well-known mechanical device, and has been previously used for such purposes, But I claim the two plates or hands. F M, when con-nected to the bar II, as shown, he bar H being actuated by the lever J, and the whole arranged substantially as described for the purpose of feeding the saw teeth to the punch in either direction as described.

[The devices claimed are very simple and efficient for the purpose of feeding the saw teeth to the punch both ways, and the punch is so adjusted that a perfect or true bearing action of the punch on the teeth is obtained to give it the proper set.]

BASKET HANDLES—Anthony Faas, of Philad Pa.: I claim basket handles as above described. f Philadel

Pa.: I claim basket handles as above described. VAPOR BURNERS-Horatio Fairbanks, of South Brookfield, Mass.: I do not claim a burner formed with a vapor reservoir, and one or more secondary jets or jet pipes, for the purpose of vaporizing the liquid of the wick, so that the vapor so produced from said liquid may be burned as they may issue from a gas burner or jet pipe leading out of the upper part of the vapor chamber. I claim my improved hydro-carbon vapor burner, as constructed with a secondary burner K, pipe H, recess D, formed as described, and a closing slide M, arranged to rotate on the body of the burner concentrically there with, and constructed so as to be capable of either entirely or partially closing the recess D, so that air may be excluded more or less from the same, and heat be condary jet or burner, to operate as explained. CENTRAL DRAFT JOINT OF CARRIAGES-Luther O.

CENTRAL DRAFT JOINT OF CARRIAGES-Luther O. CENTRAL DRAFT JOINT OF CARRIAGES-Luther O. Rice, of Calstorville, C. W.: I do not wish to confine my-self to the procise arrangement and construction herein set forth, but would include all modifications which sub-stantially cmbrace my invention. I claim the central draft joint, P. when constructed, arranged and used substantially as described.

VANE GOVERNOR FOR STEAM ENGINES, &c.-Fran-cis Gustine, of Medford, Mass.; I claim the disks or vanes E, operating directly upon the valve rod toes as de-scribed, whereby the valve is actuated by the varying deflections of the vanes, as set forth.

VALVULAR ARRANGEMENT FOR FAUCETS, &C.-Ed-ward Hamilton, of Chicago, III. I do not claim broadly the employment of conical valves in water cocks. nor broadly the arrangement of valves in such a manner as that the pressure of the fluid shall keep the valves tight in their seats-an example of both of these features may be seen in C. A. Fautz's faucet, 1853. But I claim the employment of a hollow conical per-fortated valve, b, in the manner substantially as de-scribed.

[This valvular arrangement in faucets, while it se cures the keeping of them tight by fluid pressure easily prevents them from sticking or becoming fast, and enables them to endure much longer than other valves, by byiating much friction.]

obviating much friction.j
PUMPS-W. H. Harrison, of Philadelphta, Pa.: I do not desire to confine mysell to the precise form of valve or bucket shown, as the same may be considerably varied without changing the result.
Neither do I claim the employment of two buckets moved simultaneously in different directions. But I claim the combination of the chamber, A, barrels aand a', valved buckets land I, rock shaft C, lever E and rods G and F, when the whole are arranged and constructed for joint operation, substantially in the manner and for the purpose specified.

PICKER SAWING MACHINES-John Haw, of Old Church, Va.: l claim as an improvement in picker saw mills the overhanging of the saw between braced guides, d and e, the space between which is adjustable by wedges, i i, and slotted braces, l and m, operating as spe-cified.

cined. CONSTRUCTING STORES-W. L. Johnson, of Peytons-ville, Tenn. I am aware that stores or other buildings have been before constructed in such manner as that the fronts could be thrown open, being hinged at their sides as doors, and that the shelves, counters, &cc.. have been built on trucks running or resting on rails laid in the floor of the building, and do not wish to be understood as lay-ing any claim thereto. I claim constructing the fronts, A A, with rails, b, cor-responding to those on the floor, and hinged or pivoted thereto for the purpose of throwing down the said fronts in the plain of the floor, and forming a continuous road or track on which the trucks containing the counters, goods, &c., may be readily run out or clear of the build-ing as described.

MANUFACTURE OF IRON-Wm. Kelly, of Lyon Co., Ky.: I claim blowing the blasts of air, either hot or cold, up and through a mass of liquid iron, the oxygen in the air combining with the carbon in the iron causing a greatly increased heat and boiling commotion in the fluid mass, and decarbonizing and refining the iron.

mass, and decarbonizing and reinning the iron. SAWING MILL-J. G. Kennedy, of Cincinnati, O.: I do not claim any parts of the machinery composing the improvement when taken separately for purposes set forth. But I claim the arrangement of the several parts of machinery and saw employed in one frame, by which I am enabled to change and run the saw carriage in either direction or sawing both ways, or if desired, saw in one direction, and run the carriage back, as usual, in the other direction, wilnout sawing, all as represented, and for purposesspecified.

BORING MACHINES—L. B. Lloyd, of Warwick town-ship, Pa.: I claim the combination of spring draw rod and table, arranged and operating to limit the depth of hole as described.

FINISHING BRUSH HANDLES—Thomas Mitchell, of Lansingburg, N. Y.; I claim the arrangement and com-bination of mechanical devices set forth and described in the above specification, constituting a machine to be used for the purposes and in the manner set forth, viz., platform D. with revolving cutters shaped and operat-ing as described, crown saw O, with the arms, d d, and the adjustable platform and cutter wheels, K and M, with their cutters, substantially as set forth in the speci-fications and drawings.

HYDRANT-G. P. Perrine and J. E. Boyle, of Rich-mond, Va.: We claim the hollow piston rod and nozzle when so constauted and arrauged in combination with cylinders of unequal diameters, and their corresponding pistons or plungers, that they will be elevated by the pressure of the water from the supply pipe upon the under surface of the piston, p, and the water withdrawn therefrom for the purpose specified.

SHIPS' WINDLASSES\_J. Peevy and Abraham San-born, of Bangor, Me.; We disclaim the mere placing of the pawls above and below the fulcrum of the lever. But we claim the attachment of the pawls to the slides a a', operated as and for the purpose specified.

a a, operated as and for the purpose specified. STR AIGHTENING KNIFE BLADES-H. Pierce, of Clare-mont, N. H.: I do not claim the device for raising and dropping theweight, and I do not wish to confine myself to the rendering of the upper die only adjustable, as that may be permanent, aud the lower die self-accommodating to the tapering form of the blade, or both dies may be made adjustable. But I claim the employment. in conjunction with a drop weight of self-adjusting dies, in the manner and for the purpose set forth.

ENAMELING IRON PIPES AND HOLLOW WARE-Ed-ward Pierce, of Philadelphia.: I claim the enamel-ing of the interior sariaces of pipes or cast iron ware by placing a vitrifiable compound on the core before the core is inserted into the mold, in the manner and substan-tially as described.

tally as described. SAFETY STEAM BOILERS-W. G. Pike and Isaac R. Scott, of Waltham, Mass: We do not claim regulating the intensity of furnace fires by closing the dampers in the draft and smoke pipes by means of a float within a water chamber. But we do claim the described arrangement of the bent mercury tube, D, with its float and the parts immedi-ately connected therewith and the steam pipe, f, where-by the pressure within the boiler is indicated to the eye, the dampers are regulated to suit the pressure re-dured, and when the pressure within the boiler becomes excessive, the fire is extinguished by the escaping steam, thereby forming a safety regulating apparatus not re-quiring the supervision of the attendant. Ligurgue Safety Case\_John Resea and Chas. N

LIGHTING STREET GAS-John Reese and Chas. N. Tyler, of Washington, D. C.: We claim the gas lighter described, consisting of the sliding shade, D, spring E, and guard, e, arranged and operating in the manner and for the purposes set forth.

HARDENING AXES, &c.-J. N. Rockwell, of Napan-ock, N. Y. I do not claim broadly the hardening of axes or other tools by admitting a stream of water upon their surfaces, as such methods have been long known. I claim in axtempering devices, providing the box or holder B, in which the ax is placed with one or more valves, b, arranged and operating substantially as de-scribed.

The ordinary pro cess of hardening them in a highly heated condition into cold water cause ome of the water to assume the spheroidal state on th surface of the metal, which prevents it from equal and sudden cooling, thereby causing soft spots in it. The object of this improvement is to obviate this difficulty. The heated ax to be hardened is confined in a close box having one or more valves; this box is lowered into a tank of water to a certain depth ; the valves are sudden ly opened, and the water rushes in, cooling all parts o the metal suddenly. This is a good improvement, and applicable to various tools.]

CANDLESTICKS-Timothy Rose, of Courtlandville, N. Y-: I claim, first, Making the socket of the candle-stick and the sliding cup within it of greater diameter than the candle intended to be used therein, for the pur-pose set forth.

pose set forth. Second, I claim the spur in the bottom of thc cup combined with the stays on the inside of the top rims for the purpose of holding the candle in proper position, having space around it for the melted tallow to pass down into the cup, substantially as described.

SECURING AND ADJUSTING PLANE IRONS IN THEIR STOCKS-WID. Stoddard, of Lowell, Mass.: I claim the grooved stand, I, double headed bolt, H, in combination with the cam, A, and its stand, C, for the purposes set forth and described.

CLEANING RICE-John F. Taylor, of Charleston, S. C.: I do not claim separately the screw, F, for that has been previously used. Neither do I claim the peculiar form of the vessel, A, for both have been previously used for the same or analo-rous purposes.

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[Under the outer husks, rice has a coarse floury coating, which has to be removed to clean it perfectly. Heretoforethis has been done by beetling it in mortars-a slow operation—by which the grains are liable to be bruised and broken. This invention consists in giving motion, by means of a screw cylinder, to a quantity of rice placed in a proper formed vessel, whereby the kernels are made to rub against<sup>\*</sup>one another, and are thus rapidly cleaned, without breaking them.]

Cleaned, without breaking them.] CALIGRAPHS—Chas. Thurber, of Worcester, Mass. I do not wish to be undergroad as making claim broadly to the combination of kwo pens or markers by levers of equal length and jointed rods, and these features com-bined with a table or desk by universal joints, as such combination has long been known and used in an instru-ment termed polygraph, for writing two eract copies simultaneously, and has been entirely superseded by the copying press for taking impression copies, and the mode of operation resulting from the said combination is sub-stantially different from my invention, and could not pro-duce the result for which my said invention was de-signed. Nor do I wish to be understood

signed. Nor do I wish to be understood as making claim to the combination of a stylus or tracer with a pen or marker by levers of different lengths connected by jointed rods, as such a combination has long been known and em ployedas a pantograph for copying drawings, so as to re-produce them on an enlarged or reduced scale, and could not alone achieve the purpose for which my invention is designed.

produce them on an enlarged or reduced scale, and could not alone achieve the purpose for which my invention is designed. But I claim combining a stylus or tracer with a pen or marker, by means of levers of different lengths, connect-ed by jointed rods, substantially as described, that the pen or marker may follow accurately, but on a reduced scale all the movements imparted to the stylus or tracer, in combination with the connection of this mechanism with a desk or table, by means of an universal joint, sub-stantially as described, to give freedom of motion in all directions to the stylus or tracer and to the pen or marker. Y tracing characters of a large size, as set forth. I also claim the stylus or tracer, and the pen or marker combined, substantially as described, with the apparatus or its equivalent for shifting the paper, whereby the pa-per is shifted to the distance equal to the space between two lines, by carrying back the stylus or tracer prepara-tory to tracing another line, substantially as set forth. STEAM BOILERS-Harry Whitaker, of Buffalo, N. Y.

tory to tracing another line, substantially as set forth. STEAM BOILERS-HARRY Whitaker, of Buffalo, N. Y. I do not claim generally surrounding the fire by a water jacket. An example may be seen in E. Andrus' with-drawn application May 27, 1800. Nor do I claim, irrespective of the arrangement I have described, the employment of ascending and descending fire flues. Examples of such flues may be seen in the withdrawn applications of Thomas Greer, Oct., 1847. and Thomas E. Warren, July 19, 1852; but the arrangement of flues and parts therewith connected, in the abeve ex-amples is guite different from mine. I claim the arrangement in an upright cylindrical boiler of an annular fire chamber. P, a series of descend-ing fire tubes, F F, a smoke box, Q, and a series of as-cending fire tubes, H H, substantially as described, to convey the products of combustion from an external fire through the center of the boiler. I The object of this improvement in steam boilers is to

IThe object of this improvement in steam boilers is to obtain a very large amount of heating surface with a small body of water, and a proper circulation of the water, so that no part subjected to a high heat shall be left uncovered with water.]

PREFARING INDIA RUBBER CLOTH—Chas. Winslow of Lynn, Mass.: I claim the method of preparing elastic cloth for use by the application thereto of parallel line in the direction of the shortest diagonal of the meshe formed by the threads of the cloth.

in the direction of the shortest diagonal of the meshes formed by the threads of the cloth. EXCAVATING TUNNELS—Chas. Wilson, of Springfield, Mass. 1 do not claim a single set of one or more rotary disk cutters applied to a common revolving shaft, and made to pass across a stone, and to take a succession of othigs or cuts from it, essentially as represented and de-described. I do not claim the drill, W 'Y 'Y', as the same might be used by hand, or in any other machine, and becomes a separate invention, that may hereafter be secured by Letters Patent. I claim first, Forming grooves in stone or other min-eral substance by means of rolling disk cutters on axis, set in alternate opposite directions, and acting substan-tially as and for the purposes specified. Second, I claim arranging a series of rolling disk cut-ters revolving in such a manner as to cut a deep annular groove into the rock, substantially as specified. Third, I claim the arrangement of the scoops, A2, and buckets. B2, in combination with the cylindrical wheel, I, and rotary cutters, to free the annular groove of the and for the purposes specified. Fourth, I claim a bed plate secured in place by the iack screws, L2 M2, or their equivalent, projected as the cutting progresses by means of a screw acting the fixed and moving parts, substantially as and for the purposes specified. BACKGROUND FOR PHOTOGRAPHES ON GLASS—J, W., Warkes of Whealing Ya.

BACKGROUND FOR PHOTOGRAPHS ON GLASS-J. W. Wykes, of Wheeling, Va. I do not claim the blacking of the glass behind the image. Neither do I claim the reflecting background, such be-ing well known. But I claim the application of the described enamel to collodion and albumen pictures on glass, substantially in the manner and for the purposes specified.

ATTACHING AIR CHAMBERS TO PUMPS-Charles N Lewis, (assignor to Geo. C. King,) of Seneca Falls, N. Y., I donot claim arranging the air chamber, C, as that it may be turned on the cylinder, and the spout, D brought in any desired position. for that has been pre-visual done.

brought in any desired position. As a provided on the stuffing box of the stuffing box G, and follower H, applied to the pump, and arranged relatively with the several parts as shown and described, for the purpose and forth

[This improvement relates to single-acting cast iron pumps with air chambers, whereby their construction is greatly simplified. The parts are so made relatively that by screwing the follower in the stuffing box, the air chamber is fastened to the cylinder and the spout turned n any direction.]

WATER METER-Peter H. Niles, (assignor to himself and Alfred Douglass, Jr.,) of Boston, Mass.: I claim the two pistons operating in a single cylinder, in the manner substantially as set forth, in combination with the dif-ferential piston as described. Second, I claim the air chamber, F, between the pis-tons, U C', operating in the manner substantially as set for the differential piston as set

forth. Third, I claim float valve, w, in combination with the two-way-cock, U, whereby, when the water is shut off, all the chambers of the meter are emptied, as set forth.

all the chambers of the meter are emptued, as set forth. BREECH LOADING FIREARM-Gilbert Smith, of But-termilk Falls, N. Y. : I do not claim generally the pack-ing fire atms, by the expansion or other action of a por-tion of a cartridge consequent upon the explosion of the charge, as I an aware that the but or rear portion of the cartridge has been used to pack the joint in that way when the said joint has been made at the extreme rear of the chamber and close to the face of the breech. Neither of I claim generally the retention of the cartridge case in the chamber until after the discharge.

But I claim making the chamber to receive the charge in the form of a cartridge partly in the barrel and partly in the breech, and so much larger than the general bore of the barrel as to have a shoulder in front to retain the cartridge case thereon till after the discharge, whereby the joint between the breech and the barrel is brought mear the middle of the chamber, and not in a corher at the extreme rear or in front thereof, and is caused to be packed by the lateral expansion of an elastic cartridge cartridge though I do not claim the clamping layer rears.

packed by the lateral expansion of an ensure cartridge case. And though I do not claim the clamping lever repre-sented, for securing the barrel to the breech, I claim fur-nishing the said clamping lever with a projection, I, so arranged as to be acted upon by the hammer in the act of cocking the latter, for the purpose of insuring locking the breech and barrel logelner before the discharge, and effecting the operation of cocking the hammer and lock-ing the breech and barrel by one movement. If urther claim the sight, m, constructed with a round stem, n, flatened on one side, and having a spring, p, ap-plied toit, substantially as described, for the purpose of enabling it to be adjusted and secured at various eleva-tions, as set forth.

[It is difficult to construct breech-loading firearms so as to make the breech joint tight; after a few shots the joint is liable to leak. This improvement provides a cartridge case, which serves as a packing to keep the breech joint always tight when the charge is exploded. A device is also employed which insures the locking of the barrel and breech together atthe time of discharge.]

TAPS AND DIES FOR CUTTING SCREWS-ITA A. Richards, (assignor to Silas Stevens.) of East Brookfield, Mass : I claim first, Cutting away the toeth of taps and dies on one side, substantially as and for the purposes set

dies on one side, substantially as and for the purposes set forth. Second, Making the opposite scores, which are parallel with the slides in which the two parts of a die work, or at right angles to the partition of the die, both on the same side of the line drawn through the center of the die, substantially as and for the purposes set forth.

[This invention consists in cutting away every tooth of a tap or die on one side, or cutting away the successive teeth on opposite sides alternately, by which means each tooth cuts on one side only, clears itself better, and in cutting screws the stripping of the thread is prevented, should the dies continue to be turned after a full thread is obtained. By forming the opposite scores of a two part die, as set forth in the second claim, the die cuts the bolt much easier in the screwing operation.]

Much easier in the screwing operation.] STEAM W HISTLES\_Sylvester W. Warren. (assignor to himself and Dexter N. Force.) of Brooklyn, N. Y.: I claim the cap. d, and whistling mouth or mouths, e, con-nected to the steam pipe, substantially as specified. I also claim placing two or more whistling mouths or edges in the whistle at different distances from the ori-fices, for the escape of steam, so as to adapt one whistle to different pressures, without changing the position of any of the parts, substantially as specified.

BENCH PIANE—Thos. D. Worrall, of Lowell, Mass., (assignor to Thos. F. Caldicott, of Charlestown, Mass. : 1 claim the improved manufacture of carpenters' bench plane or jointer, as made with its handle, its wooden stock to which said handle is affixed, and a separate metallic cutter holder and cutter clamping devices ar-ranged together, substantially as specified.

CVLINDRICAL THROTTLE VALVES—James H. Sim-mons, of Erwin, N. Y.: I claim the arrangement of the latch, h, upon the stem of the valve, playing in the re-cess, k, within the interior of the head of the cylinder as set forth

BORING MILLS-WM. Sellers, of Philadelphia, Pa.: I claim revolving the face plate of boring or turning mills in a support, as near as convenient to the peri-phery thereof, substantially as described. I also claim the adjustable step or center bearing, when this is combined with an outer support, substantially as described.

BREECH-LOADING I'IR KARMS-John Shcenkl, of Bos-ton, Mass. : I claim first, The method described of stop-ping the hammer at half cock, by the pressure of the thumb, as set forth. Second, I claim the bar, K, constructed as described, and operated by the pin, n, and lever, I, for the purpose of cocking the gun and of returning the barrel into line with the thimble, C, and locking it therewith, substan-tially as set forth.

ADDITIONAL IMPROVEMENTS.

SPOKE AND AX HELVE MACHINE—Owen Redmond, of Rochester, N. Y. Patented Oct. 38, 1855; I claim the jointed guides having slots, c d e, in combination with the slots having the relative position, as set forth.

SAWING MACHINE-Wm. P. Wood, of Washington. D.C. Patented Feb. 26, 1656. Re-issued March 25, 1856 : I claim the vertical guides, D, and guide rollers, m and n, in combination with the swivel link saw bearings, I, arranged and operating in the manner set forth. DESIGNS

COAL COOKING STOVES—Conrad Harris and Paul W. Zoiner, of Cincinnati, O.

- WOOD PARLOR STOVES—Conrad Harris and Paul W. Zoiner, of Cincinnati, O.
- DINING ROOM STOVES-Conrad Harris and Paul W. Joiner, of Cincinnati, O.

COOKING STOVES-S. W. Gibbs, of Albany, N. Y., (as-ignor to North, Chase & North, of Philadelphia, Pa

STOVES-N. S. Vedder, of Troy, N. Y., (assignor to North, Chase & North, of Philadelphia, Pa. STOVES-Jacob Beesley & E. J. Delaney, (assignors to Cresson, Stuart & Peterson.) of Philadelphia, Pa.

Enormous Gold Boulder Found.

The Marysville Herald says that the Downieville Tunnel Co., at Centerville, have found the largest boulder containing gold perhaps ever struck in California. Up to last accounts they had extracted \$17,000, and had not yet ascertained its full value. They estimate the amount of gold it contains at not less than \$100,000. This boulder is a fair set off to one from Australia, which the English papers have recently mentioned as being on exhibition in London, and which weighs-quartz and gold-four hundred pounds, and is valued by some sanguine individual at \$100,000. It is very rich in gold, but not near so large as the one found at Centerville.

#### Antidote to Mosquitoes.

A certain preventive to attacks of mosquitoes, black flies, &c., is said io be : glycerine 4 ounces, oil of peppermint 2 1-2 drachms, oil of turpentine 4 drachms. The face, neck, hands, in fact, all parts exposed, to be rubbed with the mixture. This was given me by an eminent American physician, previous to going into the State of Maine on a hunting expedition. I never knew it used without perfect success.-Correspondence of Philadelphia Ledger.