Scientific American.

Imponderable Agents---No. 3.

the phenomena of Heat, until since the recent the assumption that heat or caloric is a fluid, having an independent existence, that so far as we know, it is diffused universally throughout space, and that relative heat and cold are produced by the presence of greater or less portions of the calorific fluid. But it has been susceptible of polarization; and as it is governlaws which govern the similar phenomena of light, it becomes necessary for those who adopt the undulatory theory of light to apply a similar explanation to the phenomena of heat. Hence we are now taught that heat, as well as intensity of the vibrations.

But we shall not permit these philosophers to light and heat; the undulatory hypothesis must with fidelity they sever different undulations. be also applied to this. If this be done, one of | From these and other considerations it has two assumptions must be made, either there are long seemed to us that the undulatory hypothediffused throughout all space three elastic me- sis supported though it be by the weight of audia, each capable of vibrating at widely differ- thority in Europe and America is wholly unteent rates of frequency and intensity, or there is | nable, and as the corpuscular theory of Newone medium capable of producing, by its vibraton likewise presents difficulties which we cantions, results as totally distinct as are those of not surmount, we have been obliged to abandon light, heat, and electricity. We think no one | both, and seek by careful and long-continued will propose an assumption so labored as the latter, and we shall therefore consider the former as the one necessarily adopted by those embracing the hypothesis in question.

from theoretical considerations, but from accuner it has been determined that any body in wise now. passing from the solid to the fluid state combines with a certain definite quantity of caloric, which remains in combination with it, so long as it is in the fluid state, but is set free when it again becomes a solid. Let it be remembered this is to propose, we shall defer our remarks concernvibrations of an elastic medium to combine with matter, remain in this state of combination for shall do in the next article. years or centuries, and then to be again set free in an active state! This we think is carrying theory a little farther than the most ardent theorists will be willing to go, yet the advocates of the undulatory hypothesis cannot escape the conclusion.

But this is not all, experiments have shown that heat is capable of increasing the bulk of matter, that a few increments of heat will sensibly increase the length of an iron rod. More than this the three forms of matter known as solid liquid and gaseous, are acknowledged by all to be produced by the presence of greater or pose that the vibrations of a medium so rare as ideemed a discovery. to escape the senses, to elude the most careful investigations, aided by the powers of modern any fraudulent intent, a patentee includes in his experiment and analysis, and known to us only | specification what he has not really invented or through its results, can produce effects by its vibrations so powerful as those here witnessed? is thus included, is good and valid for so much

can only act on a solid body by generating corresponding vibrations in that body. The change can be distinguished from other parts patented of state from the solid to the fluid then must be without right, and suits can be maintained for an actual shaking to pieces of the particles of infringing the valid part of the patent, but costs the solid body! This borders closely on the will not be allowed on recovery, unless before ridiculous, but it is certainly a fair inference suit commenced a disclaimer is filed in the Provinfrom the theory under consideration. But we cial Secretary's office of that part patented withmust be allowed here to inquire why so power- out right. No person bringing a suit shall have ful a vibration should not in some other way the benefit of this section, if he has deferred for become manifested. Why, for instance, is it an unreasonable time to file his disclaimer. not communicated to the air, and revealed to us by sound. If it be said that the vibrations | broad, and clams too much, the patentee may are so frequent that they cannot be caught by file a disclaimer in writing, setting forth the the air, we shall reply that experiment has | true extent of his interest, which disclaimer is taught us that bodies have but one tone, and to be recorded in the office of the Provincial are incapable of vibrating in any other, and | Secretary, and shall be considered as part of the

The only theory proposed in explanation of air vibrates, but produces heat instead of sound a defective specification, or in consequence of in heating a current of air, which, passing into by these vibrations, then we have found an elas- claiming too much, and there is no fraud, such discoveries in polarization, was the one even tic medium, capable of producing two different patent may be surrendered and a new one isnow almost universally received, starting with | classes of phenomena by its vibrations, and by sued for the residue of the term named in the | patent have been exhibited, and gave great sathe same mode of argument, the phenomena of first patent, in accordance with the new speci- tisfaction to those who witnessed them. The all the imponderable agents!

Should any one be found bold enough to hazard the assumption that Light, Heat. and Elec-, signees. tricity are all produced by the vibrations of a single elastic medium, it would follow, as we ding a description and specification of an imlately discovery that heat, as well as light, is have found that the air is capable of producing provement more recently discovered by him, he these results, that there were two media capable ed in its reflection and refraction, by the same of producing Light, Heat, and Electricity by their undulations; and as the same arguments "a certain definite number of vibrations in a given time produces light," and the same of light, is produced by the vibrations of an elastic | the other imponderables, it being only necessamedium diffused throughout space, the different ry to suppose the existence of an undiscoverdegrees of heat being produced by the varying ed medium to account for their transmission through space.

The difficulty started by us in our first artistop here: it has been shown that electricity is cle has therefore become greatly increased. likewise capable of polarization, and as its laws The sun must be at each moment vibrating at are very similar to those of light and heat, in such rates as will produce not only the unnumorder to be consistent with themselves, and to bered shades of color, but also the totally and maintain their theory at all; for if any other widely distinct phenomena of heat and electritheory will explain this phenomena of electricicity, and the ethereal medium is at the same ty, it will equally explain the phenomena of instant of time transmitting to remote spheres

research, for an explanation of phenomena which are at the foundation of all physical science, and although we imagine that we have found such explanation, we are not so vain as The doctrine of latent heat is established not to suppose that the philosophical world will at once receive it, for new theories have always rate and indisputable experiments. In this man- | been distrusted, and it is not likely to be other-

We have not yet reviewed the two theories of Electricity, but as we adopt mainly that of Franklin, and as our readers are now prepared to understand the general theory we are about not theory, but fact. It is therefore possible, ing that of Du Foy, as well as a consideration according to the theory of undulations for the | of the subjects of Affinity and Magnetism, until after having given our own views, which we

(To be Continued.) [For the Scientific American.] Patent Laws of New Brunswick.

[Synopsis of an Act of the Legislature of the Province of New Brunswick, passed in the Legislative Session of 1853, entitled "An Act to Regulate the Granting of Patents for Useful Inventions." By PETER STUBS, Barrister at Law, St. Johns, N. B.]

[Concluded from page 27.]

19. Any person discovering an improvement upon a patented invention, may obtain a patent for the improvement, but it shall not be lawful for him to make or vend the original discovery, nor vice versa. Simply changing the form or less portions of heat. Is it reasonable to sup- proportions of any machine, &c., is not to be

20. If by mistake or accident, and without discovered, his patent, although void for what But again, the vibrations of an elastic fluid | as is really his own, provided it is a material and substantial part of the thing patented, and

21. If by inadvertance a specification is too influenced by heat, hence it must be capable of rest possessed by the party making the same.

first patentee and his representatives and as-

23. If an original patentee is desirous of adcan have the same annexed to his original de- furnace, to mix with the carbonic oxyde, and scription and specification, upon like proceedings as in the case of an original application. will apply to all other bodies, as well as air, the The Provincial Secretary to certify upon the correct statement of their theory will be, that annexed, (new) specification, the time of its being annexed.

> 24. Any person in this Province who discovers an original design for a manufacture, or of art, or ornament, is entitled to a patent for a term not exceeding seven years.

> 25. No patent granted in England shall have any effect in this Province, until after copies of the original specification and drawing, or duplicates of the original models are filed, or lodged in the Secretary's office.

> 26. Before the expiration of a patent, the patentee may apply for an extension of it, when his application is referred to a board of three persons, who are to take into consideration the receipts and expenditures of the patentee.

> 27. If the board is of opinion that the patent should be extended, they will report to the Lieutenant Governor accordingly, who will direct the Provincial Secretary to indorse an extension of the patent. Such extension to extend to assignees and grantees of the original patent.

sucing for the same.

29. Patentees are required to affix on patented articles the date of the patent under a penalty of £5.

30. Defines the mode of pleading in suits to be brought.

31. Quakers may affirm oaths; when administered here, to be administered by a Judge or Commissioner of the supreme Court. In Great Britain or Ireland, before the Mayor of a city or borough, to be certified under Corporation Seal; in a foreigh country by a British Consul or Vice Consul, and certified under his Seal.

32. Fees to be the same as a schedule.

33. Letters patent to be void, if within three years from their date, the patentee shall not establish the manufacture of it in this Province, er in case the materials for manufacturing the same are not here to be had, introduce the patented article into the Province.

TABLES OF FEES.

If a British subject, whether original inventor or assignee of an invention in the Province, or of any letters patent abroad, in full for obtaining letters patent, exclusive of recording assign-£5 7s. 6d.

1110111	20		oc
If a foreigner, whether original in-			
ventor or assignee	5 0	0	0*
Fee for adding to a patent specifi-			
cation a subsequent improvement	4	0	0
On surrendering an old patent to			
be re-issued to correct mistake of			
patentee	4	0	0
For a disclaimer	3	0	0
On application for a design .	3	0	0
Copies of patents, or other pa-			
pers 2s. per 100 words			
Recording assignments not over			
		_	_

Every additional 100 words . 1 0 Copies of drawings and models to be matter

* This heavy expense may, to a considerable extent, be avoided by American citizens, who can assign parents taken out by them in the United States, under Section 7, to subjects here, who can re-assign at a triffing cost.

New Furnace.

A patent for a smokeless furnace has been recently secured by Mr. Lee Stevens, of England. which the hot cinders from the fire-box, falling on next.

taking up these vibrations. If it be said the | 22. If a patent becomes invalid by reason of a grate underneath, are there turned to account the furnace, prevents the generation of smoke. Two favorable examples of the working of the fication. The new patent is available to the arrangement is applicable to all furnaces, and involves only a trifling expense. It has the advantage of striking at the root of the smoke nuisance, and preventing instead of curing it.—[Exch.

> We do not see how this can prevent the smoke nuisance; it requires more air than is fed into the this ignited, to consume the smoke. Hot air to supply furnaces is nothing new; Mr. Stevens, however, may have made a good improvement in heating his feed air.

The Science of the Fire Annihilator.

An experiment was lately made at Buffalo, with a building one and a half stories high, having dry sticks and shavings in it. Three annihilators put out the fire. The house was built and all prepared for the application of the annihilators at the right time. One of our cotemporaries thus explains the principle of the annihilator:-

"The Annihilator operates on strictly scientific principles, and must of necessity, to a greater or less extent, produce the intended effect. The largest size is constructed so as to contain a cubic foot of water, which during the process is converted into steam-expanding to 1,700 cubic feet. This alone is a powerful agent in subduing flame. In the center of the machine is the gas producing compound, weighing about thirty pounds. This is composed of nitrate of potash and charcoal or carbon, so arranged as to be capable of being instantly ignited. The combustion decom-28. Imposes a penalty of £25 for affixing poses the nitrates setting the nitrogen free, which such words as "patent," "patented," or other is an extinguisher of itself. The oxygen combines words of similar import to unpatented articles, with the carbon, forming carbonic acid gas, which to be recovered in Supreme Court, one half the is destructive of combustion as well as of animal penalty, when recovered, to be paid into the Pro- life. This process generates heat, which converts vincial Treasury, the other moiety to the party the water into steam, when all these three annihilating agents are projected upon the fire which cannot survive the embrace.'

[It follows from this, then, that the steam generated by one annihilator is only sufficient for a room twelve feet square. The carbonic acid gas generated is surely not different from the gas generated by a fire itself—it is the very same. It is not known to many that although carbonic acid gas readily puts out flame, it has but little effect upon red-hot embers or other material, hence the necessity for steam or water in some state, to act along with the carbonic acid; this is something older than Phillip's Annihila-

Singular Electrical Effect.

The following extract from a letter from Capt. Tessier, of the ship Austria, to her owners, describes an effect of electricity which we do not remember ever to have seen mentioned before. It is of some practical interest, and shows the necessity of isolating instruments on shipboard as much as possible-—[Charleston Mercury.

LIVERPOOL, Sept. 2d, 1853.

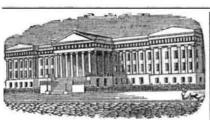
"My chronometer stopped, as I informed you in my last, on the fourth day out from Charleston. The cause of it has been ascertained beyond the possibility of a doubt. On its being taken to pieces, the balance spring was heavily charged with electricity, and actually bent, and all the other works composed of steel more or less injured. At the time it stopped a heavy storm of thunder and lightning was passing over the ship, the surrounding atmosphere was in such a state of commotion that the Austria fairly trembled in her every timber, and we distinctly heard the lightning has as it struck the water in rather uncomfortable proximity to our sides. All our compasses were also slightly injured, and had to be sent on shore for correction, on the arrival of the ship in Liverpool."

Sewing Machine Claims.

E. Howe claims to be the inventor of the needle with an eye near the point for sewing. He threatens in a card to sue all who use such needles without his consent. This information will be of interest to many who have written to us on this subject.

We shall devote some attention to the Fair more than this, that the air is capable of being original specification, to the extent of the inte- The invention consists in an arrangement by of the American Institute, and report in our

Scientific American.



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

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 2, 1853.

CAR WHEELS—By J. Baker, of Boston, Mass. : I claim in car wheels the connection and intersection of the convex and rim plates by independent and interlacing branches, as set forth.

Franches, as set forth.

SLAT MACHINES FOR WINDOW BLINDS—By E. R. Benson, of Warsaw, N. Y. I claim, first, the arrangement for my control of the following set of the state of

means of hooks and givers, as specified.

CORN PLANTERS—By G. A. Bruce, of Mechanicsburgh, Ill.: I do not claim the dropping slide nor any peculiar arrangement thereof, as they are used in many girlls, and are constructed and operated as described.

I claim the employment or use of the balance beams, with the rods attached to them, and operating as described, for the purpose of properly adjusting the seed in the holes of the dropping slide, and also to prevent the clogging of the same, as described.

[This is a very good improvement: a description was

[This is a very good improvement; a description was published on page 252, Vol. 8. Sci. Am.]

Machines for Topping Cotton in the Field—By A. Dickson, of Griffin, Ga.: I claim the employment of two sets of cutters, one set being adjustable, and revolving in a horizontal direction and the other being fixed, and revolving in a vertical direction, and both sets being set in operation through the action of the driving of propelling wheel, in any manner as specified.

[A notice of this invention was published on page 100

APPARATUS FOR POLISHING ANVILS—By Mark Fisher & J. H. Norris, of Trenton, N. J.: We claim suspending the anvil in the sliding and vibrating frame, and arranging it in respect to the polishing part of the apparatus, and operating as described.

MACHINE FOR RUBBING AND POLISHING LEATHER—By J. F. Flankers, of Newburyport, Mass.: I claim, first, the employment of a vertical shaft with arms extending from its sides, for the purpose of carrying the tools and their accompanying mechanism, in combination with a plane

accompanying mechanism, in combination with a plane surface horizontal table, as described.

Second, I claim the jointed tool holder, either with or without the springs, constructed as described.

Third, I claim the arrangement of a movable table permitting of an endwise and at the same time downward motion, constructed as described.

I do not claim to be the inventor of a rotating shaft with arms extending from its sides, carrying tools for the purpose of dressing leather, only when used in a vertical position and in combination with alphane surface horizontal table; nor do I claim the springs operating to produce the pressure on the leather, nor do I claim to be the inventor of the sliding bolts.

MACHINE FOR GRINDING PLOW CASTINGS—By Joshua Gibbs, of Canton, Ohio: I claim the carriage upon which the casting is fastened, with the weight and groved stand upon which the carriage is moved, arranged as described.

PLOWS—By R. A. Graham, of New Paris, Ohio: I claim, 1st, the screw belt, or its equivalent, for setting out or in the rear edge of the mould board, with respect to the landside, acting in combination with the bolts E and F, which being tightened, attach to each other, the mould-board, sheath, and lipped or flanged share, as described, and which bolts being temporally relaxed, permit the vibration of the mould board about—the bolt, E, without interrupting the continuity of plowing surface, or disconnecting the several parts.

Second, the shifting or adjustable socket attachment of the beam to the sheath, in combination with the dowtall and adjustable connection of the rear end of the beam to the helve, or equivalent devices, so as to var, the direction of the draught of the plow, to suit the requirement of a change in the flare of the mould board and other objects, as explained.

Corn Hosking Mccinke—By T. C. Hargreaves, of Schenectady, N. Y.: I claim, first, the application of the chisel or chisels, and cutter or cutters. In combination with the gate or gates, operated by gearing or other means, as described.

Second, I claim the construction of the circular plate or its equivalent, as described, in combination with the cutters for severing the cob, and the elbow lever for discharging the husis, as set forth.

Third, I claim the combination of a cam, lever, and spring, with a stud for holding the circular plate stationary whilst removing the ear and husk from the machine, or any other equivalent, as specified.

Annunciators for Horsis—By Wm Horsfall, of New York City: I claim, as described, the manner of constructing and arranging the index plates, in combination with the alarm and its necessary attachments, so that each plate can be operated and its number exposed to view, and also the alarm sounded instantly after, by simply employing a rod, having a tripping arm, as specified.

I also claim, as described, throwing the index plates back to their proper position by means of the eccentric od, in combination with the peculiar construction and arrangement of the said index plates, the eccentric being operated in any manner as described.

[This is a very simple and effective apparature, account.]

[This is a very simple and effective apparatus: see no-

tice on page 276, Vol. 8.]

STRAW CUTTERS—By Richard Ketcham, of Seneca Castle, N. Y.: I claim the method, as described, of hanging and operating the cutter by means of its pivotted atachment to the slide, in combination with a guide rod, the latter being made adjustable by the helical spring at the top, or other equivalent device, as set forth.

If urther claim, in combination with the inclined reciprocating knife and simultaneously with the descent thereof, giving to the gauge a lateral curvilinear or oblique downward action away from the rear end of the knife towards the front end thereof and below the cutting edge of the table, substantially as described, whereby the straw is restrained from being erowed towards the book and of the being the interval. by the straw is restrained from being erowated towards the back end of the knife by the inclination of the cut, and a free escape is established for the cutparticles to pass of, as specified.

CAR WHEELS—By Z. H. Mann, of Newport, Ky.: I claim the construction, as described, of a cast-iron railroad car and locomotive wheel, whose web or portion connecting the hub and rim, consists, at the hub, of broad radiating the hub and rim, consists, at the hub, of broad radiating plates in the plane of the axis, whence turning alternately to the right and to the left, they contract in the direction parallel with the axis, and expand proportionally in the direction of revolution, those of each alternate ten uniting as they approach their respective margins of the rim concave, so as to form flanges naving openings left for each intermediate plate on the other side, forning a braced and counter-braced wheel, possessing the rim, together with adequate provision for the strain arising from shrinkage, &c. And this I claim, whether the said web beformed in a cyma reversa curve, as described, or in any way substantially equivalent.

SMUT MACHINES—By Benjamin Rutter & Henry Rowzer, of Fiqua, Ohio: We claim the narrowing of the spout near the grain discharge, in combination with the curved passages, which receive and discharge at their respective apertures the light grain and trash taken from the grain discharge aperture.

ROTARY STRAM ENGINES-By John C. fr. Salomon, of

Washington, D. C.: I claim the combination of the elliptic wheel and its cylinder with the sli and abutments or stops arranged in such a manner that a continuous propelling force may be communicated to the wheel without exposing it to the unequal pressure of the finit on opposite sides of its axis throughout the entire revolution in either direction, as specified.

I further claim, in combination with the revolving wheel or piston, the arrangement and operation of the valves described in such a manner that as the effective propelling area of the piston surface exposed to the impelling fluid, between either two abutments aliminishes, the wheel is assisted by an increasing area of piston surface exposed to the action of the fluid, on the opposite sides of the abutments, as specified, whereby the propelling fluid may be worked expansively without impairing the uniformity of the active power of the engine, as set forth.

[Why abandon gas?]

IWhy abandon gas?]

Cooking Ranges—By G. S. G. Spence, of Boston, Mass.: Mass.: I do not claim to combine a hot air fine with a fire place, and a fine extending directly therefrom, to cand undermeath an oven and up the rear end of such oven, that such hot air fine shall pass only in contact with the back of the fire place and with the oven flue. But what I claim is the arrangement of the fire place, and so make flues leading under the oven and in rear of the back thereof, in combination with the peculiar arrangement of the hot air chambers, whereby the fire place and oven flues are not only made to heat the air flues, but the bottom plate of the boiling is also made to impart heat thereto, and the back as well as the front of the upright air flue, is also heated by the 3 noke flue through which it passes, as specified.

Brugglas Alapsus—By Edward Brown of Ringe N. H.

Burglar Alarms—By Edward Brown, of Ringe, N.H., (assignor to Josiah Norcross, M. D., of South Reading, Mass): I do not claim the combination of an alarm clock with a lamplighting apparatus, they being so applied that, on an alarm being sounded by the clockworks, they shall set free the separate machinery by which the lamp and friction match are rotated, the latter being carried against a roughened surface, for the purpose of igniting it.

In my alarmapparatus, the spring which moves the match holder not only performs the operation of moving such match holder, but it elevates the bell and its spring until the slide is brought up against the shaft, which, taking place, the accumulated force on the bell causes the bell to vibrate and sound the alarm.

I therefore claim the improvement of so connecting the match holder, and the bell spring, 0, with the slide, that the spring, F, of the slide, on being set free by the opening of the door shall not only elevate the match holder, but set the bell in motion so as to cause the alarm to be sounded by it, as specified.

MACHINES FOR PARING APPLES—By E. L. Pratt, of Wor-

MACHINES FOR PARING APPLES—By E. L. Pratt, of Worcester, Mass. (assignor to James Sargent & D. P. Poster, of Shelburn, Mass.): Iclaim hanging or connecting the block which carries the knife to the rod, which carries said block, so that the block and knife can vibrate in one or either direction, by means as described, so as to allow the knife to vibrate and accommodate itself to any irregularity in the surface of the apple or vegetable pared, as a described.

Hydraulic Ram—By J. C. Strode, of East, Bradford. Pa.: I claim the application of the brachystochrome urve to the conduit pipes of hydraulic rains, as seconds.

[See notice of this invention on page 156, Vol. 8.]

TURBINE WA'TER WHEELS—By Henry Vandewater, of Albany, N. Y.; I claim the manner of regulating the discharge openings of the buckets from the outside, in combination with the central gate, for adapting the wheel to varying heads of water, and to the nature and amount of work to be done by it, consisting of the circular gate, constructed, arranged, and operated with the whee, as get forta.

AR ENGINES—By J.A. Woodbury. of Winchester, Mass, and Joshua Merrill and George Patten, of Boston, Mass, Patentee in England Jan. 5, 1853: We claim in atmospheric air engines, supplying the air pump from a receiver into which air has been condensed, by a hand pump, auxiliary engine, or otherwise (the hand pump or auxiliary engine, or otherwise (the hand pump or auxiliary engine being used for the purpose of charging and sustaining a uniform pressure in the receiver, from which the air pump is supplied), when the same is done in combination with a second receiver into which the air is to be still more compressed and maintained at a uniform pressure or nearly so, by the application of heat to the air on its passage to the working cylinder, as set forth.

STOP COCKS—By Elizur Wright, of Boston, Mass.: I claim the combination of a ball with an elastic cylindrical ring seat, constructed with or without wire, as described, for the purpose of forming a valve

TEROTTLE VALUE ARRANGEMENT—By J. E. Anderson, of New York City: I claim the combination to serve the purpose of a throttle valve or regulator, of two hollow comerical valves connected together with a lever on opening a comercial valve that the company of the cylindrical valve the several openings being arranged as set forth.

[Mr. Anderson is a practical engineer, and has patented a very simple improvement. See notice on page 332,

Vol. 8.]

Magazine Guns—By E. H. Graham, of Biddeford, Mass. I do not claim a rotary magazine connected with the barrel of a fire-arm, such being in common use in repeating guns; nor do I claim to combine a magazine for powder, balls, and priming, with a hollow cylinder or tube made to encompass and revolve on a barrel, while the barrel is provided with holes or passages to receive the load from the magazine when the latter is turned around on it into a suitable position. Nor do I claim the combination of a rotary charge receiver (placed within the barrel or breach of a gun and a stationary loading magazine affixed on the barrel or breach.

What I claim is the arrangement of the series of ball chambers, &c., and the series of powder Chambers, &c., in concentric cireles and on the side of the gun barrel and out of the sight range, and so as not only to revolve and work against a common plate affixed to the side of the gun, but to operate in conjunction with a rotary charge receiver placed within the barrel, as specified, such arrangement of the magazine chambers, not only causing the powder of the charges to be kept in separate chambers so as to lessen the danger of accident, but causing the magazine to be so arranged as to be out of range of the sight in taking aim.

I also claim to so combine the percussion hammer or cock, the rotary charge receiver, and the rotary magazine with the trigger guard, that by the movement of the said guard away from the stock, they may be simultaneously put in motion, and the hammer brought up to full cock, as specified.

full cock, as specified.

PLOW BEAMS—By L. B. Griffith, of Honeybrook, Pa.: I claim constructing a plow beam of four round iron rods, center piece and clamps, in combination, as described, the rods being of uniform size, from end to end curved to the shape specified and welded together at the places designated, the center-piece and rods being held firmly in their nosition by the clamps, as described.

SELF-ACTING SWITCHES—By A.S. Littlefield of Portland, Me.: I claim the combination of the transverserocker lever, the shaft, the toothed sector, and the rack, as applied to the switch, and the main and turn-out tracks, and made to operate, as specified.

And in combination with the toothed sector, I claim

the locking plate, provided with notches, as specified the same being for the purpose of locking the switch as described.

CUTTER FOR BORING WHEEL ITUES—By I., S. Marin Westport, Mass.: I claim the combining the backer the shaft, and the knife, for the purpose set forth.

FILES AND RASPS—By Hiram Powers, now residing in Florence, Italy: I claim forming perforations or throats to the cutting edges of files, or rasps, for allowing the particles cut away, to pass through, and the preventile instrument from clogging or choking, as described.

[Mr. Powers, is our eminent American sculptor.]

MACHINE FOR TURNING SPIRAL MOULDINGS—By Philip P. Ruger, of New York City: I claim combining with a rotary progressive motion of the article to be cut, a series of cutters placed around the article to be cut, of any desired configuration or varieties of configuration to form and complete the pattern upon the article, said cutters being made to revolve in a stationary frame perpendicular to the axis of motion of the article to be wrought,

either in a radial line, or somewhat inclined thereto, so as to form the desired figu e, and under-cut to any de-sired extent.

Gold Washer-By John H. Ward, of Sonora, Cal.: I do not claim washing or agitating the mass or earthy matter containing the gold in a tub, box, or cistern: nor do I claim simply washing the earth without a current. I claim the employment of the reciprocating perforated trough, armed with cutters or breakers, in combination with the sieve and decanting trough, arranged beneath the reciprocating trough, and in combination with said reciprocating trough, and in combination with said reciprocating trough, I claim the percolating plate, arranged above the same. arranged above the same.

PROPELLERS—By T. P. Ware, of New York City: I claim a propeller having one or more blades, the front and rear edges of which are of unequal stiffness, the blade or blades thus constructed being arranged upon anoscillating shaft, and operating as set forth.

Guide for Dowelling Fellors for Where,—By Wal, C. Dean, of Jacksonville, N. Y.: I claim the combination and arrangement of the tube, guides, and set screw, for the purpose of holding the wood and guiding the bit as set forth.

DAGUERREOTYPE PLATE HOLDER—By Marshall Finley, of Canandaigua, N. Y.: I do not claim holding daguerreotype plates to be buffed, by the outward pressure of
spiral springs, against the turned edges of the plates. I claim constructing a solid daguerreotype plate holder orblock having fastenings at each corner made by
spiral springs, in combination with tightening bolts,
having concave heads into which the bent or turned
corners of the plate to be buffed are hooked, so as to admit of a uniform buffing, as set forth.

corners of the plate to be buffed are hooked, so as to admit of a uniform buffing, as set forth.

Machine for Jointing Staves—By C. B. Hutchinson, of Syracuse, N. Y.: I claim, first, the use of the circular guide ways, in combination with the movable piers of bearings, and the cams or levers or other suitable means of moving the same simultaneously and equally along said circular guide ways, so that the saws or other cutersmay be instantaneously adultset for any required width of stave withoutstepping their motion or changing their direction towards a constant central point.

Second, I claim the use of the wing or leaf gauge, in combination with the index moving over a graduated are or dial, both moving in connection with the saws, so as to indicate at a glance the width between the saws, and to guide the operator in setting the stave on its bed plate and in adjusting the saws.

Third, I claim the mode or jointing staves to any required bilgeand bevel without bending or springing them by rotating them enables, in a plane perpendicular to their width, between saws or other cutters, so inclined as to give the correct bevel, whether adjustable as above or not, said rotation being upon a circle or other proper curve, such as to present each part of the stave to the action of the inclined cutters at the precise point or high threquisite to give it its exact proportionate width or bilgs, the rotation being obtained by means of a central arch piece moving over rollers about a constant center of motion, as described.

This is a very excellent improvement, and we hope took the correct bevel.

[This is a very excellent improvement, and we hope oon to illustrate it.]

DECHIERINATING BLEACHED FABRICS—By J. A. Roth, of Philadelphia, Pa.: I claim the process of removing chlorin efroutfabrics by means of the solution described, and denominated at ti-chlorine, or by means of any other solution substantially the same, as described.

Looms for Weaving Coach Lace—By J. H. Merrill, of Richmond, Va.: I claim, first, the revolving plier, Q. constructed as described, and operated by the spindle, W. whirl, O. connecting rod, S. lever, W. and cams, U and V. in combination with the finger, A. constructed and operated as specified, wedge M and cylindrical stand, M. by which combination the needles upon which the pile is formed are seized, removed from the finished portion of the fabric, carried up, inserted under the colored warp selected by the jacquard for the figure and, released, substantially as specified.

Second, the construction of the stationary shuttle boy as described, having its ont

stantially as specified.
Second, the construction of the stationary shuttle box, as described, having its i ont sustained by and movable about the projecting rod, so as to operate the ungearing appar at us upon a miss-throw of the shuttle, in the manner specified.

ner specified.

Third, the combination of the sliding reed with the stationary shuttle box, when constructed and operating as Specified.

scattonary shuttle box, when constructed and operating as specified.

Fourth, the combination of the notched wheel, Z, rock shaft, Y, and arms, T and P, with the lever, N, spring, C, shaft, L, rod R, and bar, M, arranged as described, for operating the unkearing apparatus, asspecified, when a derangement occurs in the machinery operating the needles.

needles.

Fifth, the spring, K. as arranged upon, in combination
with the rods, D, by means of which the strain upon the
eyes of the harness is diminished, as specified.

CORKING RANGES—By John P. Hayes, of Boston, Mass.: I claim, first, the receiving box flue, formed under the oven, as specified.

Second, I claim so combining a movable oven slighing upon a stationary bottom through which the hot air is admitted, with the smoke flues about the same, as to cause the smoke, &c., to pass about and over the oven, and the hot air: topass into the same, as described.

MACHINE FOR PUNCHING METAL—By O. J. Davie & T. W. Stephens, of Erie, Pa.: We claim disconnecting the punch stock from the machine and matically at each operation of the punch, by means of the weighted lever and key, or their equivalents, for the purpose of affording the operator time to place his sheets without regard to the motions of the machine, when, by a slight movement of the ball or lever upon the rising of the punch, the connection can be again formed, as described.

CAMPENSE LAMP-By John Newell, of Boston, Mass.: I claim, first, the silvering of the perforated metal or brass, copper, or iron wire gauge used in safety lamps and cans, or other vessels designed to prevent explosions from the vapor of camphene burning fluid, &c. the silvering being applied for the purpose of preventing the corrosion of the metal or wire gauze, as described, by the most economical process.

corrosion of the metal or wire gauze, as described, by the most economical process.

Second, the introduction of perforations, as described, in the caps of lamps, used for burning camphene, burning fluid, &c., so small as not to admit the communication of finnethrough them, for the purpose of allowing the escape of the vapor formed within the lamp, from camphene, burning fluid, &c., and thereby preventing the bursting of the lamps by the pressure of the vapor. I do not claim the use of any perforations in lamps for burning fluid, &c., except such as are constructed, so as to prevent the passage of flame on the principle of Sir Humphrey Davy's discovery relative to the passage of flame through perforated metal.

[This excellent safety lamp is fully illustrated on page

This excellent safety lamp is fully illustrated on page 268, Vol. 8. It is now in general use.]

PLANING MACHINE—By R. II. Prindell, of Fayette, Co., Ky. (assignor to Wim. J. Thurman, of Washington, Ky.) I claim, first, the combination of the differential velocities of feed motion, and the motion of the knives; that is, when their relative speed is such that the knives shall cut on their back as well as on their forwardmotion, as set forth.

Second, giving to straight-eged planes for dressing lumber, a partial reciprocating rotary motion about their

own center, for the purpose as fescribed.

Third, I claim a yielding pressure roller placed in front of the stocks, in combination with an engless planing bed, for the purpose of feeding planks, &c., to the planes, as set forth.

[Note-Eight of the patents issued in the above list reresecured through the "Scientific American Patent Agency." Besides the large amount of home business we have secured, since the first of last October, over sixty foreign patents, and have lost only one applica tion. The Prussian Government refused to grant us a patent for a very useful invention applied for through our Agency in Berlin: no reasons were given, and no satisfaction could be obtained from the "old fories" who preside over that Department. Prussia is evidentlyde termined on the stand-still policy.]

RE-ISSUE.

SPARK AND GAS CONSUMERS—By David Matthew, of Philadelphia, Pa.: I claim the manner in which I have constructed and arranged the respective parts that constitute the inner and outercases of the apparatus which is placed at the top of the chimney; also, I claim the manner of constructing and arranging the trumpermouthed tube within the inner case, said tube being di-

vided into two or more parts, and being made to depo-sit and discharge the larger portion ut the sparks by the aid of the opening between said parts, as descri-

the an of the opening between the state of the opening between I also claim the manner in which I connect the apparatus at the top of the chimney, with the furnace or fire-box, by means of the tube or pipe G, the cases, and the openings thence into the fire-box or in nace, for the porpose as set forth.

I also claim the manner of preventing the entrance of water into the fire chamber, by the employment of the tubes, M, in combination with the tubes, H G.

DESIGNS.
BEDSTEADS—By J. H. Barth, of Indianapolis, Ind.

Cooking Stove—By Julius Holzer (assignor to North, Chase & North), of Philadelphia, Pa. STOVES-By G. H. Tryday (assignor to North, Chase & North), of Philadelphia, Pa.

Stoves—By G. Smith & H. Brown (assignor to North, Chase & North), of Philadelphia, Pa.

COOKING STOVES—By H. H. Huntley (assignor to D. F. Goodhue), of Cincinnati, O.

STOVES-By C. Smith & H. Brown (assignors to C.W., Warnick & F. Liebran dt), of Philadelphia, Pa,

Steam Boiler Explosions

MESSRS. EDITORS-My attention has been drawn to some strictures by "An Engineer," in your paper of Sept. 24, intended as criticisms on a communication which I read before the American Association for the Advancement of Science, at Cleveland, in August last. There is a lack of courtesy and an offensive dogmatism of the engine room in these remarks which relieve me from all obligation to notice them. I think it due, however, to your more candid readers to copy from Liebig and Kopp's Report on Chemistry, &c., for 1847, a single paragraph which may be more convincing than anything I could say :-

"Donny has shown (Am. Ch. Phys. [3] XVI. S. 167) by a series of well devised experiments, that water possesses a tendency to evaporate only when exposed to a vacuum or a space filled with gas, and that the process of ebullition is induced by the air alone, which is present in the water. He succeeded in heating water previously freed from air with great care to 135° cent. (equal to 275° Fah.) without inducing ebullition. His experiments certainly prove, in a

most convincing manner, that a space filled with gas or a small bubble of air, is absolutely necessary for the evolution of steam in the body of the water, and that accordingly the process of ebullition, in its principle, coincides with that of evaporation."

No one who has examined Donny's experiments, can doubt his conclusion as thus stated. Perhaps this may be entitled to more weight than even the assertion of "An Engineer," and perhaps if he had understood me, in some slight degree, he might have saved me this labor of citation.

I am unfortunate, Messrs. Editors, in having been imperfectly reported, and also in having been put first in the Topographical Engineers and then in the Navy, whereas I am simply a Lieutenant in the Corps of Engineers, U. S. A., and would not have our honored Navy or the Topographical Engineers held responsible for any short-comings of mine. Yours, &c.

Renton's Process of Making Iron.

E. B. Hunt.

The papers at Cleveland, Sandusky, and Detroit, are much occupied with a discussion of the results arrived at by the introduction of Renton's new process of making wrought iron direct from the ore by the use of mineral coal instead of charcoal. It appears that a quantity of the Lake Superior iron ore was sent by the Cleveland Iron Company to Cincinnati, where it was manufactured into iron by a new process, in a furnace built by W. C. Davis & Co., under the superintendence of the patentee. A few weeks ago, a trial was made, and during the first six hours 1,249 pounds of blooms were made out of 2,436 pounds of ore. A portion of theiron was rolled into bars, and was found, by severe test, to be an article remarkable for toughness. Similar results were attained with Ohio and Virginia limestone iron ores. According to the Cleveland Herald, the new process economizes fuel, as by measurement it only takes one and a halftons of mineral coal to make one ton of blooms. By this method the Ohio ores will yield about forty per cent. of iron and the Lake Superior ore from fifty to sixty per cent., and the cost of making a ton of iron will be considerably reduced.

Gen. Talmadge, who has been for so many years President of the American Institute, is dead. 'He died very suddenly in this city, on Thursday, the 30th ult. He was no ordinary man, and at one time possessed considerable political influence in this State.