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NEW MARINE GOVERNOR.

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## American Cotton Gins in India.

In July, 1851, the Eagle Cotton Gin Manufacturing Company, of Louisiana, sent to Calcutta one of their gin stands for making fine cotton, and intending it to enter into competition for the prize of 5000 rupees, offered in 1849 by the government of India, through the Agricultural and Horticultural Society of India. The Society awarded the American gin stand a prize of \$1250 and a handsome gold medal.

# New Marine Governor.

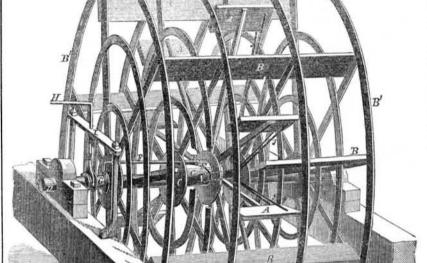
Our engraving illustrates a new invention, which has for its object the regulation of the movements of marine steam engines, such as are used on board of our ocean steamers. When the vessel sails on an even keel, so that both paddle wheels dip simultaneously in the water, no difficulty is experienced in the working of the machinery. But when the ship rolls or rises and falls on the sea, one paddle is apt to be lifted out of water, and sometimes both are raised so that they cannot dip. Either of these circumstances is sufficient to cause a jerking and wrenching of the engine, by a sudden increase or diminution of speed consequent upon the irregularity of the resistance.

It is proposed to overcome these difficulties by the employment of a series of small paddles, A, placed within the ordinary wheel, B B', said small paddles being attached to a drum, C, revolving loosely upon the main shaft, D. A spiral slot, E, is cut in the periphery of drum C, and in this slot the end of a connecting rod, F, fits, so that when the drum, C, is partially turned forward or back. the rod, F, will receive a corresponding horizontal movement. Rod F connects with a sliding collar, G, on shaft D, and collar G is connected by means of rod H, with the throttle valve of the engine. Rod H passes through a swinging bar, I. By this series of connections the throttle valve is opened or closed according to the position of the small paddles, A.

The paddles, A, are held in place mid-way between the large paddles, by the springs, J, the inner ends of which are attached to the main shaft, D.

When the wheel dips properly, the water will press the small paddles, A, up against the faces of B, and the movement of A will turn C, operate rod F, and open the throttle valve, thus letting on a full supply of steam. When the wheel rises from the water, and no longer dips, the force which pressed back the paddles, A, will be removed, and the springs, J, will cause them to resume their position mid way between the large paddles; by this act the drum, C, will receive partial rotation in a contrary direction from that just mentioned, and rod H will be operated so as to close the throttle valve. In this manner the regulation of the engine is effected instantaneously, according to the power required. If the wheels dip, the full force of the steam is applied to the engine, but if the wheel rises out of the water, the steam is instantly shut off. The speed of the engine is thus regulated according to the work required of it at the moment.

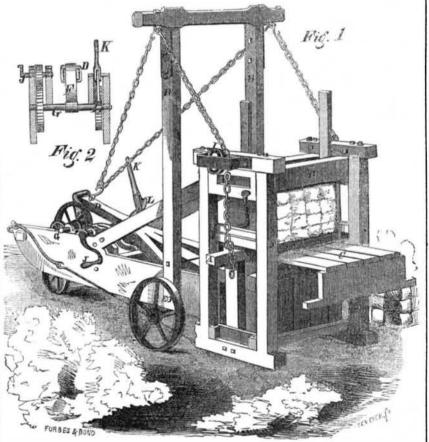
This invention is applicable, at no great ex-



gulation of marine engines is an important or J. A. Knight & Co., 334 Broadway, N. Y. subject, and any improvement relating thereto | Patented May 27, 1856.

pense, to the paddle wheels of steamers now should be carefully examined by engineers. in use. The parts are simple and can be made | For further information address the inventor, as strong as circumstances require. The re- Wm. B. Godfrey, Auburn, Mahaska Co., Iowa,

# COMBINED COTTON PRESS AND POWER.



and hay press, which is so arranged that the Our engraving shows an ingenious cotton mechanism by which the pressure is obtained,

may be separated, at pleasure, from the press, and used, for other purposes, such as moving buildings, raising burdens, extracting stumps,

The press itself is of the usual simple construction, A, being the follower, and B the top board, C the hinged side board. The material to be pressed is placed between A and B. The ends of the follower, A, are raised, and the intervening substance compressed. D is a strong lever, one end of which is pivoted, and the other end is connected by strap, F, with a shaft, G, whose office is to wind up strap F, and pull down the end of lever D. (See fig. 2.) It is by the pulling down of lever D that the follower, A, is raised, for it will be observed that chains extend from the end of D to the top of strut frame H, and thence over friction wheels, I, to the ends of followers A. The lower ends of strut H rest on shaft E.

The necessary power for pulling down the end of D is obtained by a train of gear wheels connected with shaft G, in the usual manner, power being first applied at crank J, when the resistance is small and a quick motion admissible. But during the last stages of the operation, when an augmented pressure is wanted, power is appl ed to lever K, which, by means of its pawl, L, acts on a ratchet wheel on one of the gears. Suitable pawls hold the purchase as fast as obtained. After a bale has been compressed it may be removed, and the follower, A, lowered, by reversing the crank, with great rapidity.

All the parts of this press are strong and simple. It possesses the advantages of quickness of operation, unlimited power, cheapness, and portability The fact that the power mechanism can be detached from the press and applied to other purposes, as above indicated, will render the machine doubly valuable. This improvement is the invention of Mr. S. W. Ruggles. Patent applied for. Address Mr. G. D. Harris, assignee of the invention, Fitchburg, Mass., for further information.

### Decease of Distinguished Inventors and Mechanics.

We have recently recorded the decease of Paul Stillman and George Steers, of this city and N. J. Wyeth, of Cambridge, Mass., men distinguished for their inventive genius and mechanical skill, and now we have another name to add to the sad list. James Renton, of Newark, N. J., the inventor of a new furnace for manufacturing wrought-iron direct from the ore, named "Renton's process," died suddenly at Brighton, Pa., on the 26th ult. His furnace was illustrated and described on pages 169 and 172 Vol. IX, Scientific Amer-

# Action of Su2ar on the Teeth.

The Charleston, S. C. Medical Journal states that M. Larez, in the course of his investigations on the teeth, arrived at the following

"1st. Refined sugar, from either cane or beets, is injurious to healthy teeth, either by immediate contact with these organs or by he gas developed, owing to its stoppage in the stomach.

2nd. If a tooth is macerated in a saturated solution of sugar, it is so much altered in the chemical composition that it becomes gelatinous, and its enamel opaque, spongy and easily broken.

3rd. This modification is due, not to free acid, but to a tendency of sugar to combine with the calcareous basis of the tooth."

The foregoing conclusions are correct, and candies and condiments should be avoided. They should be kept from children especially. It is well known that maple sugar renders the teeth tender and sensitive.

# Scientific American.



### [Reported Officiallyfor the Scientific American.] LIST OF PATENT CLAIMS issued from the United States Patent Office FOR THE WEEK ENDING SEPTEMBER 30, 1856

Fire. Arm.—Joseph Ad ms, of Cieveland, Ohio: I am aware that gun and pistol barrels of three or more bores have before been used, but having either a mass of useless metal or an unnicessary space in the cintral portion between the bores; therefore I distinctly use ain such

less netal or an unn-cessary space in the cintral portion between the bores, ther Joe I distinctly clisc ain such an arrangement.

But I claim the employment of a revolving barrel, formed from a single piece of metal, with three bores of equal dameters, or four bores in opposite pairs of unequal dameters, when so arranged that the bores are located as lear together as practicable, to secure the proper strength of dividing metal, while the relative positions of said bores are such that their outermost tangents shall revolve in a common circle around the central polither the proper of the bores are located as lear together as practicable, to secure the proper specified, and the same time of revolve in a common circle around the central polither to the bores, as to dispense with unnecessary metal, for the purpose of securing the utmost compactness, lightness, symmetry, and strength, with a given capacity, and at the same time of retaining perfect convenience in respect to revolving and discharging, substantially as specified.

I also claim the employment (instead of separate breech pins) of a single breech pince, provided with branches or pins fitting the several bores, and secured therein by a right and left nut, for the purpose specified.

I also claim the secket, B. in combination with the breech piece, C, and collar construction, arrangement, and combinasion of the hammer, main spring and trigger, as adapted to the rest of the gun, and operating both to hold the hammer cocked and down upon the nipple until set free by moving the trigger, substantially as set forth.

BRICK MACHINES—Henry Brad, of Greencastle, Ind. Lelaim the self-adjusting frame. a for the purpose of re-

BRICK MACHINES—Henry Brad, of Greencastle, Ind. I cla'm the self-adjusting frame, a, for the purpose of removing the brick from the molds on to the apron, b b, after they are pressed, operated by means of spring, t, and projections, O o, on the revolving journal, H, when the above parts are constructed, arranged, and operated as set forth.

GRIDIRONS—Wm. Bennett, of New York City: I do not claim either the gridiron or cover.

But I claim the pinsor elevators attached to the bars or seats of the gridiron. as set forth, used in connection with the ventilating cover, constructed and arranged substantially as described.

tantially as described.

Locks—G. W. Coppernoll, of Ohio, N. Y.: I claim, first, the swinging guards in front of the bolt chamber, actuated by the fixed portion of the key, in combination with the sliding guards, actuated by the secondary key, arranged and operating as and for the purposes specified. Second, the eccentrics, I and J, arranged relative to each other, and the bolt, as set forth, and actuated by the secondary key after the removal of the guards, substantially as and for the purposes specified.

Third, the combination of the swinging guards, tumblers, and spring catches, o erating substantially as specified.

SELF.HEATING SMOOTHING IRONS—William D. Cummings, of Washington, Ky. I claim the trough, g, extending rearward from the bottom of the fire space in the described combination, with the ash receiver, h, open at the side nex: the said space, and provided with a registered top, ij k, for the purposes of cleanly separation and removal of the ashes, &c., as explained.

removal of the asnes, &c., as explained.

Hermetrically Sealing Bottles—M. B. Espy, of Philadelphia, Pa.: I claim the employment of the two-part screw collar, C, for the purpose of drawing down and holding the cover over the mouth of a bottle, so that the said bottle shall be hermet cally closed by the cork, d, or its equivalent, being compressed upon the upper edge of the lip of the same, as described, the said collar being constructed, applied, and operating substantially in the manner set forth and described.

STEAM BOILERS—David H. Fowler, of New Orleans, La.: I claim the arrangement of the central and exterior flues, with the open space, e, e, and apertures, g g, substantially as and for the purposes set forth.

JOURNAL BOX ALLOYS—John Fidler, of New Albany, Ind.: I claim the composition of the ingredients named, in the specified mode and proportions.

WIND MILL—Marcus Frisbee, of Rensselaerville, N. Y.: I claim the combination of the spring on the sails with the adjustable or shifting straps operated by the lever, in the manner and for the purposes set forth.

MIXING WHEAT FLOUR WITH PAINTS—Isaac Gatt. man, of Philadelphia, Pa.: I do not claim exclusively the use of watery solutions for mixing paints.

But I claim the marufacture of paints by grinding crude colors in a composition of water, flour, or its equivalent, rosin, or its equivalent, fish oil, or any drying or undrying oil, in the proportions and manner substantially as set forth, in order that the paint thus manufactured may be produced at a cheap rate, and afterwards thinned with water to the required consistency.

SOFTENING LEATHER—John Greenleaf, of Lowell Mass: I claim the combination of the blade, I, with the cylinder, B and M. and apron carriage, A2 and D2, for softening andgraining leather, when arranged and operated essentially in the manner and for the purposes seforth

BRICK MACHINES—Joseph A. Hill, of Greencastle, Ind.: I claim the drum L. provided with the pinion, i, when constructed as shown, and arranged to operate relatively with the rack bar, K. and pinion, j, as described, for the purpose of reciprocating the carriage, J, in the manner and for the purpose set forth.

PHOTOGRAPHIC INSTRUMENT—Daniel J. Kellogg, of Rochester, N. Y.: I claim my method of converting the canvas itself into a tasin by means of the metal ring, figs. 1 and 2, as described.

SEED PLANTERS—B. Kuhns, of Dayton, Ohio, and M. Haines, of Delaware City, Del.: We disclaim of itself to pocketed roller, and also the cells surrounding the scharge openings

discharge openings
But we claim the combination of the cell and pocketed roller with the pocket clearer, actuated by the rotation of the roller, operating as and for the purposes set forth.

CULTIVATORS—Luther Robinson, of West Cambridge Mass: I claim the arrangement consisting of the vertical cutters, G G J K K, horizontal cutter, H, mold boards, L L, and seed dropper, D, said parts being placed in the relation to each other shown, substantially as and for the purpose set forth.

DUPDOSE SET FOR ROADS, &C.—John Robingson. of New Brighton, Pa.: I claim, first. combining the sliding bolt, q. by which the sector on the fore truck is locked, with the rotating shaft, R. which carries the gear which operates upon the sector to turn the fore truck, by means of a loose collir, t, and groove, u, or in a equivalent manner, whereby the bolt may be operated by a longitudinal movement of the said shaft, as fully described.

Second fitting the sprocket wheel. P, to the shaft, K, which drives the fore wheels with a universal joint. to enable it to adapt itself to the direction of the driving chain when the said shaft, K, is not parallel with the engine shaft, and thus to prevent the chain slipping off the wheel, or being twisted or broken, substantially as decrited.

MAYY-WICKED CANDLES—Benjamin D. Sanders, of Holliday's Cove. Va.: I claim a candle constructed as described, with three or more wicks, a when said wicks are arranged angularly to each other or in the path of a circle struck from the center of the candle at equal distances apart or thereabouts, essentially as shown and for the purposes specified.

SAW GUMMERS—Samuel J. Lewis and Wm. Alston, of Bordentown, N. J.; We do not claim separately either of the respective devices constituting the saw gummer, as described.

mer, as described.

But we claim the punch, A, constructed as described, in combination with the die, B, constructed and seated as described, the same being arranged in the carriage, C, so as to rotate and operate together, in the manner and for the purpose set forth and described.

PORTABLE FENCE—G. R. McIlroy, of Oakdale, Ind.: I claim the supporting the panels on the top of the bases or braces in the manner described, so as to allow of their being moved side wise at the totom sufficient to bring them into a perpendicular position on uneven ground, and securing the same by means of pins or wedges passing between the end batten of each panel immediately above the bottom rail or board through one of a number of holes in base or cross board at the bottom of the base, which holes are placed in a circle corresponding to that which the bottom of the panel describes, by moving it sidewise.

EXCAVATORS—S. G. L. Morrow, of Linn, Mo.: Dis-claiming the several parts separately, I claim the ar-rangement as described of the cutter, elevator, and dis-charge chute, with the levers, 11, regulating the same.

ARTIFICIAL LESS—O. D. Wilcox, of Easton, Pa.; I claim the employment of the pulley, P, at the knee joint as a comm. n center of motion of the elastic cords, M. M', and N. N', as described for the purpose of producing a natural movement of the artificial limb, in the manner set forth. I also claim the employment of the sack, O. whether used in this limb or any other.

whether used in this limb or any other.

Steam Wagow—John Percy, of Albany, N, Y.: I claim, first, the two trucks, C U, attached to the underside of the frame, A, connected by the perch, G, and turned by means of the rods, i i, which are fitted in the inner ends of the frames, b. of said trucks, and connected to the rack, H, or an equivalent device.

Second, I claim connecting the axles. d, of the wheels. D, with the connecting rods. e', of the steam cylinders by means of the gearing, e.g., and cranks, h, substantially as described. I claim the arrangements of the trucks, C, C, frame, A, steam cylinders, E, bollers, F, and the device for turning and guiding the trucks, as shown and descibed for the purpose set forth.

FINISHING LEATHER — Joseph Pyle, of Wilmington, el.: I do not claim the form of pin block, or the pin

Del. I do not claim the form of pin block, or the pin block at all.

But I claim the combination of the pin block, h, with its corresponding block, or same as upper block, composed of wood or any malleable metal, the feed rollers, m m. composed of like materials, or of wood c vered by india rubber cloth, as shown, with the corresponding brush rollers, I I, geared and arranged, set and driver as set foith, for the purpose of sottening leather or skins ready for finishing or any other materials substantially the same, upon which it will perform the same operation.

LUBRICATING THE SHEAVE PIN OF SHIP'S BLOCKS—John M. Riley, of Newark, N. J.: I claim the bands, E. F. one or more, interposed between the axis, B, and the eye or band, D, of the pulley, C, the bands, E. F. being perforated as shown, and the axis, b, provided with passages or apertures, fg, for the purpose of lubricating the bands and axle, substantially as described, for the purpose specified.

ATTACHING HUBS TO AXLES—John M. Riley, of Newark, N. J.: I do not claim separately the collar, F H, irrespective of their arrangement, as shown.

Nor do I claim springs interposed between the collar, G, and the inner end of the box, for the have been previously used, although arranged in a different way from that shown.

viously used, although arranged in a different way from that shown. But I claim the collar, F. H., placed upon the arm, B, in combination with the tube, E, nut, C, key, D, and elas-tic ring, K, when the above parts are constructed and ar-ranged as shown, for the purpose specified.

BRIDGES—Isaiah Rogers, of Cincinnati, Ohio; I claim first, the formation substantially as described, of an arch whose voussoirs consist of one or more ranges of tubes in vertical planes, held in position by the described radial plates, with confining flanges; the tubes of each component are being gradually displayed and enlarged from the crown of the arch, each way, the enlargement in one direction, and the contraction in the other direction; being such as to preserve a circular section throughout, or gradually ovaling from the haunches by a vertical enlargement towards the ends, and a corresponding contraction toward the center of the arch, according to circumstances.

Second. I claim in combination therewith, the described mode of staying and bracing together, the several ranges of such tubular voussoirs.

ranges of such tubular voussoirs.

Tailors' Measures.—Amos Stocker, of Rome, N. Y. I do not claim such an instrument as the one patented to B. J. Lewis, Nov. 19, 1°33; nor do I claim the instrument as described by Samuel T. Taylor, rejected Nov. 18, 1840, Nor do I claim the instrument referred to as patented to W. J. Wells, April 20, 1852; nor do I claim as new, the use of a tape measure, as seen in fig. 12. Nor do I claim the use of the hooks, as new.

But I claim the instrument as seen in fig. 1, with the arrangement of its eyelet-holes, eyelets, and letters, substantially as described and for the purpose set forth.

STEAM BOILER GRATES—Asbury M. Searles, of Cincinnati, Ohio: I claim, first, the described conical grate, k n o, formed by diverging radial bars, and having the described re-curved margin, or otherwise, or equivalent devices, for the purposes explained.

Second. I claim in the described connection with a conical grate, the radial series of pokers, n, or its equivalent, having the explained shearing action between the grate bars.

TRUNKS—Stephen F. Summers, of St. Louis, Mo.: I claim the inside metallic strips, D, arranged in combination with the casters, substantially in the manner and for the purpose set forth.

ORE-WASHER—Samuel Thomas, of Allentown, Pa.: I would state, I am aware that an inclined revolving vessel has been used in washing ores, and that a single shaft provided with shovels, and spiral flanges has been used. I do not claim either of these things separate or combined.

used. I do not claim either of these things separate or combined. But I claim, in combination with a stationary inclined box, the double shafts with spiral flanges thereon, and turning in opposite directions, for litting up and carrying forward the ores to the delivery, in the manner set forth.

Putting Pillows and Bolsters into their Cass—David B. Tiffany, of Xenia, Ohio: I claim the instrument having the peculiar construction, substantially as described, for the purpose of inserting the pillows and bolsters into their cases.

HYDRO-CARBON VAPOR LAMPS.—Thos. Varney, of San Francisco, Cal.: I do not confine myself particularly to the convolute arrangement of the passage, h h, in the vaporizer, as there are other forms in which a passage or

raporizer, as there are other forms in which a passage or bassages may be arranged to cause the air to take a cir-cuitous route through the liquid.

But I claim the combination of the reservoir B, by means of a seal pipe C, with the stationary vaporizer C, containing a circuitous passage, under any arrangement, whetantially as described. substantially as described.

substantially as described.

DISCONNECTING RAILHOAD CARS AND APPLYING BRAKES—Joab Buck, of Fitchburgh, Mass., (assignor to Joab Buck, H. S. Buck, J. W. Kimball, and D. H. Thompson): I do not claim the application of all the brakes by the engineer; nor do I claim the mere combination of arke and coupling apparatus, as that is well-known.

But I claim the within described combination and arangement of the shaft R, dogs Z, hooks Y, and levers H and V, operating in the manner substantially as set forth, for the purpose of uncoupling whichever car may be last in the train, simultaneously with the application of its brakes, as set forth.

brakes, as set forth.

REGULATING VALVES FOR STEAM ENGINES—Henry F. Shaw, of Woburn, Mass., (assignor to H. F. Shaw and Geo. F. Shaw, of same place): I claim the regulating-gates m, as connected with the valve D, and the government. nor, for the purpose set forth.

FURNACES FOR ZINC WHITE—Samuel Wetherill, of Bethlehem, Pa.: I claim making the whole or a portion of the bed of the furnace to vibrate for the purpose and in the manner, substantially as described; but this I only claim when the bed is perforated with numerous small holes, and when used in combination with a forced blast of atmospheric air, which passes to the charge of mixed ore and fuel, in numerous small forced jets, substantially as and for the purpose specified.

Furnaces—Richard Wells, of Baltimore, Md.: I claim in the construction of furnaces, the introductinofsprings between the supporting plates and the fastenings of the tie-rods, substantially as and for the purposes set forth.

SEED PLANTERS—John F. Seaman, of Walcott, N. Y.: I claim the shares I., arranged substantially as shown, so that they may rotate intermittently, in order to free hemselves of weeds, grass, and other incumbrances.

SAWING MARBLE-M. M. Manly, of South Dorset, Vt.; I claim a machine for sawing mathle in angular or tapering forms by means of two horizontal saw frames or gates with adjustable guides, run in connection, one above the other, with the saws running and working in one plane, for the purposes set forth.

plane, for the purposes set forth.

MACHINES FOR SEPARATING GREEN CORN FROM THE COD—Henry Walsh, of Philadelphia, Pa., (assignor to if. Walsh and M. N. Espy, of same place): I claim, in machines for removing green corn from the cob, first, the screw-shaft, B, and spring lever E, arranged and operating together as described, when the same are used in combination with the stationary block, G', and the self-adjusting spring-block G; and its cutter, F; the said blocks holding the cob between them, as it is rotated, and at the same time gradually and regularly moved forward by the progressive rolary action of the screw, and so that the said cutter, F, shall also at the same time operate against the lower ends of the grains of corn in succession, and remove them from the cob in a whole or periect state, or without crushing or otherwise injuring them, substantially as set forth.

Second. I claim the combination of the ferrule, b', with the pointed screw-end of the shaft, B', the same being constructed, combined and operating, substantially and for the purpose set forth and described.

Dash-Wheel, for Washing and Bleeching.—Jas

DASH-WHEEL, FOR WASHING AND BLEACHING.—Jas Wallace, Jr., of Glasgow. North Britain. Patented in England, June 25, 1855: I disclaim having invented the principle of bleaching or washing by the combination of mechanical agitation simultaneously with chemical action.

But I claim the use of the dash-wheel, substantially as described, in connection with the use of the chemical ingredients, and steam for the purpose of bleaching, was hing or cleansing textile fabrics, and other materials, as described.

#### RE-ISSUES.

MACHINERY FOR MAKING HAT BODIES—Chas. St. John, Henry A. Burr, Albert H. Wright, and James M. Riblet, of New-York City, (assignees of Henry A. Wells, dec'd.) Patented April 25, 1946. What is claimed as the invention of the said Henry A. Wells, is, forming bats of fur fibres, by throwing the fur in properly regulated quantities, substantially as described, against a section of the circumference of a perforated cone, or other form, as the same is rotated to present in succession every part of the circumference thereof to the current of impelled fur, to obtain the required thickness of bat, substantially as described, and for the purpose specified. substantially as described, and for the purpose specified.

ROTARY PUMPS—John Broughton, of Chicago, Ill.
Patented originally June 10, 1855: I claim the rotary
eccentric piston, working within an oscillating barrel
within any arrangement of inlet and outlet passages
substantially as set forth, and this I claim whether my
invention be applied to a pump or a rotary steam engine

## ADDITIONAL IMPROVEMENT.

FIRE-PLACES AND FENDERS—John W. Truslow, of Lewisburg, Va.: I claim the construction of a fire-place wherein recesses, D D<sub>2</sub> are formed in the jamts thereof, with hinged folding and expanding wings or flaps, A A, and F2 attached thereto, forming a fender, and a screen, with the springs, E E, together with the double sliding panels, F F, fig. 1, and G G, fig. 3, substantially as described.

## Opinions on the new Pocess of Manufacturing Iron.

M. Truran, author of "The Iron Manufacture of Great Britain," in a letter to the London Mechanic's Magazine, severely criticises Mr. Bessemer's paper, which he read before the British Scientific Association, describing his process for manufacturing malleable iron and steel from crude iron. He asserts that Bessemer is neither correct in his theory nor his conclusions; also that iron produced by this process neither possesses the qualities of wrought-iron nor steel.

He says :-- "The mere removal of a portion of the impurities in the iron by fusion does not, of itself, convert cast into malleable iron; castings with a slight degree of malleability at low temperature, are common in England and in other countries; at high temperatures they lose this quality, are equally brittle with other cast-irons, and are utterly devoid of the welding principle. . . . The cast steel of excellent quality which it is to produce—cheap as finers' metal-has yet to be made and exhibited in articles of cutlery. A few pieces of refined iron were exhibited at the meeting, but these were no more like bars of iron or steel than chilled cast-iron is like tempered steel."

These are the same views as those expressed by Mr. Sanderson, which we presented two weeks ago. The editor of the Birmingham Journal entertains the same opinions, but thinks the process will prove to be a great improvement.

We believe that Mr. Bessemer exaggerated not only the importance of the process, but also misstated the results he obtained. In all and each has its admirers—McCormick's, Husblast furnaces the refining of the metal in a sey's, Manny's—yet it says:—"We want degree is now performed by streams of air; stronger machines. The machines sent to this the new process only carries out this feature a little farther.

J. G. Martien does not advance the idea in his patent that he can make wrought-iron by his process; he only specifies it to be an improvement in refining the iron preparatory to puddling. We have previously informed our readers that the descriptions of this process, by Bessemer and the London daily papers, appeared to us more like Oriental fable than sober facts.

In our last number we stated that when the facts of the case in relation to Mr. Martien's claims were known by the public, Mr. Bessemer would find his plumes considerably ruf-

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fled. It affords us much gratification to pay a marked tribute of respect to the acknowledged honesty of the British Press, in relation to this case. Since we penned that article we have received several British papers, which defend Mr. Martien's claims. The London Land and Building News says:-

"Of Mr. Bessemer we know nothing individually. He stands prominently forward as an illustration and instrument of that injustice we have before alluded to, (unscrupulous Englishmen who appropriate foreign inventions) otherwise his name would not be found under our pen. The British Association has robbed the true inventor of his fair fame, and given credit to one to whom it is not due. If Mr. Martien be proved to be the first inventor, to him be all the honor, glory, and profit thereof. If not to him, to some other who may have preceded him, but not Mr. Bessemer, who has succeeded him."

The Birmingham Journal, whose editors understand the subject completely, asserts that the intelligent application of jets of steam to the manufacture of iron has yet to he made, but speaks favorably of air. It gives the credit to Reuben Plant, of Dudly, for using a pressure blast, blowing through molten iron in the puddling furnace, in 1849, but says: "The blowing of air in small jets through molten iron after it has left the blast furnace, is clearly the property of Mr. Martien."

David Mushet, the well-known scientific metallurgist and author, also defends Mr. Martien's claims in a searching article in the London Mining Journal.

## Feats with Wood on Railroads.

The N. Y. Tsibune of the 2nd inst., describes the feats of some locomotives in running great distances with a small quantity of wood. It states that a locomotive on the Pacific Railroad (Mo.) lately hauled three passenger trains with 106 passengers, and one baggage car, 125 miles in 7 hours with one cord of oak wood. On the Ohio and Mississippi Railroad, a locomotive recently hauled the night express train 149 miles with one and a quarter cords of wood; the time not given. On the Norwich and Worcester Railroad a locomotive regularly hauls the accommodation train, back and forth—12 miles—making 32 stops, and standing one hour at Worcester, with only seven feet and a half of wood-or 8 cubic feet less than one cord. It also states that the average performance of locomotives is only from 25 to 50 miles per cord of wood.

We have noticed the performance of the locomotive, on the Pacific road in a former number, and allude to it again in connection with the other two, to say that the feat was not a great one, as the speed was not quite eighteen miles per hour. The consumption of fuel by locomotives, is in proportion to their speed, the load hauled, and the resistance overcome. A locomotive may be run 150 miles with one cord of wood, while another equally economical will require one cord for 20 miles. It is the work done, and not the distance run, which is the true test of the economy of fuel on railroads. The account of the running on the Pacific Railroad is somewhat satisfactory, because the speed and size of the train are given, but the statements respecting the other two locomotives-neither speed nor load being given-amounts to an absurdity so far as it relates to their economy.

# Reapers in California.

The California Farmer states that various harvesters are employed in that great State, country were made for grain that yielded sixteen or twenty bushels per acre, with short, light straw; here we have tall heavy straw, and grain yielding twenty-five, forty, or even sixty bushels per acre, and often straw six or eight feet hight, and sometimes higher, consequently we need stronger machines."

We hope our manufacturers of reapers will take this as a sufficiently strong hint how to make their machines intended for California.

The children of the Church Education Schools in Ireland-90,000 in number-have been instructed by their teachers to destroy every weed they see. Good instruction.