

Scientific American

NEW YORK, FEBRUARY 15, 1851.

Grand Supper.—The New York Sun Printing Press.

We were fortunate in being at the splendid Complimentary Dinner given to Col. R. M. Hoe, by the enterprising proprietors of the New York Sun, on the evening of the 29th ult. We intended to have had our article on the subject in the Scientific American of last week, but by an oversight, and a great one, it was not; our great press of matter alone must plead our excuse.

The Dinner was given at the Astor House, Mr. M. S. Beach presiding in a most able manner, and Mr. Alfred Beach doing other honors with ease and grace. In every sense of the word, the dinner was a most splendid one; Mr. Beach made a neat introductory speech, and Col. R. M. Hoe replied. Mr. James, the distinguished novelist, made a few happy remarks, so did Major Noah; also Rev. Messrs. Beecher, Thompson, and Chapin. A number of very good remarks were made during the evening. C. M. Keller replied to a toast respecting Prof. Morse's invention, and stated that his own countrymen had disputed his claims. The allusion was rather out of place, and Mr. H. O'Reilly, who was near him, felt it deeply. When he arose he spoke feelingly upon the subject, and went over a history of his telegraphic operations. Some of his statements were incorrect, or his words conveyed different ideas from those he wished to convey. He was understood to say that no New York merchant could be found, in 1845, to subscribe to a line of telegraph, and the first was subscribed by Mr. Swain, of the Philadelphia Ledger. This was not so: the New York and Philadelphia line was constructed by New York merchants, and this was the first line constructed by private enterprise. Great credit is due to Mr. Swain for what he did for another line; but Dr. Doane, of New Jersey, Mr. Norton, of this city, and a few others, were the leading minds of the first line. This flash at the supper, however, between Mr. Keller and Mr. O'Reilly, passed off smoothly. Quite a number of eminent authors and editors were present, and the Messrs. Beach deserve high praise for bringing such minds so agreeably into contact.

American inventions were deservedly complimented, and although we were not called upon for a speech, not being very gifted that way, no one there responded so heartily to the tributes paid to Mr. Hoe's perseverance and genius than ourselves, and none, perhaps, were better acquainted with the general history of our national inventions. Improvements in the Printing Press claim our admiration and gratitude. It has been well observed by an eloquent writer, "if a planet was blotted out from our system, its place could be well supplied by a Printing Press." Col. Hoe, not content, it would seem, with comparing the printing press to a planet, comes along with his Great Rotary, and hoes out *Suns* at the rate of 20,000 an hour. No wonder all the guests at the Messrs. Beach's Dinner were more than planet struck. The newspaper press deserves great credit for encouragement to mechanical invention, in the way of improvements, and none so much, we believe, as the New York Sun—long may its spirited proprietors live to reap the deserved rewards of their spirit and enterprise. The new press of the "Sun" is the largest and fastest in the world—this is something to boast of, assuredly.

Our Ocean Steamships and their Boilers.

We can always tell who are ignoramuses of science and panderers to public feeling, by the positions they take respecting different questions. It is human nature to hurrah very loud at any partial success, then to shower abuse upon any failure. Whenever we see a man or men toadying to such feelings, it is very good evidence that "there is something rotten in Denmark." This is the case at present with our Atlantic steamers. Brawlers who once boasted the loudest, are now the noisiest in their denunciations. One says the Collins line of vessels are inferior, because

Mr. Collins would not adopt and pay for the "Montgomery Boiler;" another blames the paddles, another the engines, another the whole management, another the build of the vessels. Who among them all knows what he is talking about. The most unlearned in these things are always trying to show their erudition, and this they do most effectually—to their own satisfaction, but not to that of others. It is not possible for any person to be a judge, comparatively at least, unless he be acquainted with the build of the hulls, their form, the engines, boilers, and the whole management of both the Cunard and Collins' steamers. Now we believe that no one man, —neither an engineer nor other person, here or on the other side of the water, is perfectly informed of all these points. We want facts—facts, not speculations, and until these are furnished, it is best to suspend all definite judgment, excepting upon those points which are prominent and manifest to those who are acquainted with them. As it respects the form of the Collins' steamships, the English writers, who have no warm side to the builders of the Cunard line, stated that the Atlantic was far superior to the Asia. Many of our ship captains, to our knowledge, have expressed the same opinion; but even the judgment of these men is not always correct, for we once saw a number of certificates of sea captains, speaking in the highest terms of certain improvements in life-boats which turned out a most miserable failure. It was generally asserted, that as the Collins' steamships had tubular boilers, they had an advantage over the Cunard line with their flue boilers. This was held up to be a great improvement by some English engineers, and a number of our own, also. It was stated that these boilers effected, or would effect a great saving of fuel. Whether this is so or not, we cannot tell, for there is an absence of facts, but where there is plenty of boiler-room, we believe that no boiler is like the long cylinder one with return flues. It is the safest and best. For compactness the tubular boiler is best, but then it needs pure water, for it has so many joints that it is difficult to prevent leakage, owing to the expansion and contraction; incrustations are also sure to play the mischief towards the end of a tedious sea voyage. Tubular boilers are peculiarly liable to priming and great danger arises from this cause. A scale of about 1-16th of an inch is formed in the interior of the boilers of our ocean steamers, during one passage between New York and Liverpool, and the evil of this is far greater in tubular than it can be in any other boiler. It is very difficult to maintain the feed of tubular boilers at a uniform height, owing to the smaller quantity of water in them than in the common boilers; the only remedy is carefulness on the part of the engineers—when this is wanting then there is danger. There can be no doubt but the Collins' Mail Line are the fastest steamships we have, but our rivals can do better than they have yet shown us, and it is right we should all know it. A steamship, making an average of fifteen knots an hour, would go to Liverpool in eight days and a half; not one of the ocean steamers have ever done this, and yet the British Admiralty, in their conditions with the Holyhead Mail steamboats, running between England and Ireland, stipulate for an average passage of fifteen knots per hour. There can be no doubt, but almost everything depends on the engineers—other things being equal—and our engineers, especially in the use of fuel, may have yet much to learn.

It has been established beyond a doubt that it is very foolish to push through a steamship, on a long passage, by dint of coal. It is a fact, that, as the speed of a steamship is increased, the consumption of fuel is increased about four-fold. If a steamship adds one-fourth to her maximum speed, by steam pressure, she will have to consume just double the amount of coal. This is a very important consideration. It is thus very easy to run short of coal in stormy weather without gaining much advantage in general speed. The draught of the funnel—the velocity of heated gases, is another important consideration, about which we are much in the dark, but it

has much to do with the general economy of using fuel. As we have stated once before, it would be well for science if regular registers of the whole workings of ocean steamships were fairly kept and published every six months or so. Then there would be some grounds, sure and steadfast, for comparison. This would lead to the correction of evils, and no doubt to many valuable improvements.

A Wallet Full of Inventions.

GREENCASTLE, Pa., Feb., 1851.

GENTS.—I herewith send you nine inventions of my own, and would like to have you examine them and give your opinion upon them; I send you nothing for your trouble, expecting that if I get any of them patented, that you will make enough out of me to pay your trouble. I have a lot more inventions on hand, that are in my mind, but I think this batch will answer for this time. Very respectfully, yours, E. P.

- No. 1, Car Wheel Brake.
- No. 2, Railroad Signal.
- No. 3, Spark Arrester.
- No. 4, New Mode of Building Vessels.
- No. 5, New Paddle Wheel.
- No. 6, A Cut-off Valve.
- No. 7, Bedstead Fan.
- No. 8, Bedstead Fastening.
- No. 9, Drying Machine for Grain.

P. S.—Can you tell me the effect that would be produced by pumping part air into a steam boiler with the water.

[We publish the above for the purpose of giving a little of an advice. The last question we shall answer first. The effect produced would be the filling of the boiler with water and air.

We have got through with five of the inventions, and have not yet found any of them patentable. It will be some time before we get through with the others, and if we don't find any of them patentable, we suppose that our correspondent will conclude that we have been well paid for our trouble, for he has made no provision for our labor, excepting we find something patentable, and then, he states, we will make enough out of him to pay for all. How exceedingly generous and considerate! It would indeed be a new way to pay debts, by making the plowman and sower responsible for their wages on good and bad seasons. In short, if we cannot make our correspondent's articles patentable, then, sirs, you don't deserve any pay for your labor. We are quite willing and ready to do any reasonable service in that line, according to our practice—for this, no doubt, assists us in business. We make this confession candidly, but we do not wish the public, nor any one of our subscribers to understand, that we make a practice of over-charging for patent business either to pay for E. P.'s unpatentable examinations, or those of any other person. We charge for every specification a price based upon the labor and skill required to execute it, and no more. Our prices are reasonable—in fact quite low, because we have a great deal of business, and we are not guided by the old lawyer's rule, of making one day's work pay for the next day's idleness. The skill, talent, knowledge, patience, and experience requisite to execute patent papers, as they should be, is not possessed but by very few.

Every correspondent should be guided by reason in asking information; he should describe clearly, definitely, and as briefly as possible, his objects. The great majority of our subscribers have the real good sense and gentlemanly appreciation of what is right, in this respect, but oftentimes, we own, our feelings are not a little hurt by having such cases as the above, especially when our correspondent's description of his inventions concludes as follows: "If none of the foregoing inventions should prove worth anything, I may perhaps trouble you with a few more not of the same sort." We beseech our correspondent to spare us the infliction.

Norfolk Steamships.

A bill has been introduced in the Virginia Legislature for chartering a company to construct steamships and establish a line of steamers to run from Norfolk to some point in Europe.

Art Union Lotteries, &c.

There are many kinds of gambling, but the most wicked kind is that which has a tone of morality and respectability about it, that which has respectable men for its parasites, and mealy-mouthed moralists for its panderers. As a counterfeit coin is the more dangerous the nearer it resembles a genuine one, so is that kind of deception which wears the most honest-looking countenance, and this is the case with your "Art Union Lotteries," for pictures, statues, &c. The success of some "Art Unions" has so fully developed the truth of our premises, that we now have lotteries for furniture in Tripler Hall, accompanied with fine concerts, and for fear that any one should question the morality of such proceedings, why, some of the funds are given in the boundless generosity of the toadying lotterists' hearts to charitable Institutions. A raffle for poultry in a dram shop, a raffle for an old teapot, at an Irish dance, to assist poor Judy Larkins, is virtue itself compared with these respectable gambling lotteries. The greater the amount of intelligence and of respectability there is about any evil, the more heinous that evil is. High and low like to copy after that which is respectable. Vice often becomes fashionable, because practised by those who are termed "honorable and respectable." To throw odium on the character of a drunkard, the Spartans often made their helots drunk, as a warning to the young patrician race. As it was in days of old, so it is now; human nature is the same all the world over; men are naturally led to despise what is low in others beneath them, while the low themselves palliate their evil practices, by appealing to the same being practised by the respectable. Oh! out upon all such respectability. But this is an age of philanthropy. We may be told that Art Unions encourage a taste for the fine arts, and enable many people to possess fine pictures, who otherwise never could. We may also be told that furniture lotteries enable poor people to possess house furniture of a quality far superior to what they ever could otherwise. This is all very fine—robbing Peter to pay Paul. How benevolent the managers of those schemes are. It reminds us strongly of the days when respectable church members used to have their tavern signs decorated with the heads of Calvin, Edwards, Fletcher, John Wesley, and such worthies. All schemes of chance—this catering to that morbid passion of the human mind—a high strike for making a good bargain—is evil, and evil only. No one can limit its consequences. It begins with a respectable draw for a "would-be good picture," and ends with the secret gambling table.

We speak against these practices, combating with a principle, for we care not how fair these schemes are said to be conducted—they are founded in evil, and we cannot expect pure waters from a turbid fountain.

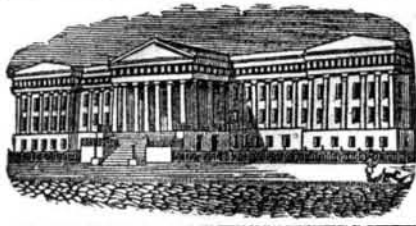
Attention, Patentees.

Messrs. Editors—As I am a subscriber of your valuable paper, and you are willing, as far as you can, to give information respecting patents on different improvements, I would ask about a purchase I made, of a patent right on an article of some value. The patentee, before the right expired, put in a disclaimer for part, and has taken out Letters Patent for that of which he is the inventor; by this, his patent is continued for the full term of fourteen years, when his original patent would have expired in three years. Purchases were made of him before he put in his disclaimer, now, have I a right in the patent last taken out by him for the fourteen years? Please answer in your next paper, and oblige A. F.

Lewiston, Pa., Feb. 8, 1851

[Our correspondent, A. F., is in error; no disclaimer extends a patent a single day beyond its original term. If A. F. has not lost anything by the disclaimer, the patentee has not gained. Let A. F. see to this, his patent may now be of little worth.—[Ed.]

Some of the London Papers give out that the Crystal Palace will be lighted, during the fair, by the American electrical light. We won't see it: happy those will be who do, eh?



Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING FEBRUARY 5, 1851.

To Delamar Kinnear, of Circleville, Ohio, for improvement in Lard Lamps.

I disclaim the invention of every part of the lamp, except the angular grooves above the reservoir on either side of the wick tubes, for preventing the spilling or waste of the oil, when the stem of the lamp is held in a horizontal or inclined position, and also the dovetailed slide and the aforesaid angular channels or grooves.

I claim, as my invention, in combination with a lamp of the peculiar form and construction represented, or other form substantially the same, said channels or grooves serving also to receive and hold the sliding cover, and for closing the supply opening, instead of the ordinary screw cap, and in combination with the aforesaid angular channels.

I also claim the said sliding cover when made with correspondingly shaped sides to fit and move in said channels, all as herein described.

To Wm. M. Storm, of New York, N. Y., for improved method of obtaining motive power.

I claim actuating an engine, such as are now usually driven by steam, or of any convenient form, by means of the combustion allied to an explosion of a measured or detailed quantity of charcoal (or other solid carbonaceous fuel, similar in nature, and of like effect), in a measured quantity of highly compressed air (or oxygen), said combustion being effected in a vessel, which, at that time, is not in connection either with the reservoir or main source of compressed air, or with that of the charcoal, and the gases resulting from each separate and distinct explosion being allowed to act on the piston, or their equivalents, before the other charges are introduced into the exploding or combustion vessel, the whole operation being effected through the agency of apparatus, in nature substantially such as are herein specified, or apparatus that shall effect the whole operation in the manner claimed.

I also claim, in actuating an engine, as just claimed, using the combustible in a granulated or pulverized form, for the purposes and various reasons made known.

To B. A. Beardley, of Waterville, N. Y., for improvement in Cooking Stoves.

I claim the combination of the adjustable and sliding pistons, by which the draught of the stove, and the distribution of the heated air under the bottom of the lower oven, is varied and controlled at pleasure, adjusting the same to the particular place and circumstances of each stove, the whole being arranged and constructed substantially as set forth and described.

To T. H. Jones, of Philomath, Ga., for improvement in machines for preparing hides.

I claim the method of consolidating and smoothing leather, by drawing it with a continuous motion, beneath a series of stampers, which alternately rise, fall, and rest upon the surface, a portion of the stampers being, at all times, in contact with the leather, so that the smoothing of its surface is constantly going on simultaneously with the consolidation, by the blows of the falling stampers.

To Enoch Burt, of Manchester, Conn., for improvements in Fancy Check Power Looms.

I claim the method, substantially as above described, of regulating the packing ring interposed between the steam wheel and head of

the cylinder or outer casing of rotary steam engines, by combining with the said packing ring a series of segment wedges, operated simultaneously, in the manner substantially as described.

To Leonard Goodrich, of New York, N. Y., for improved Ship's Light.

I claim hanging the screwed socket or frame containing the glass, so as to turn freely within a frame, which swings on a hinge provided with a slot, or its equivalent, whereby the socket can be screwed into or unscrewed from the fixed socket, and when unscrewed be swung back, substantially as herein described.

[See engraving in No. 15, Vol. 6, Sci. Am.]

To S. S. Hurlbut, of Racine, Wis., for improvement Grain Harvesters.

I first claim combining with a reaping machine, a self-acting weighing apparatus for weighing the grain into any required quantity to form sheaves or bundles of a uniform weight, as described, depositing the same upon the ground, in readiness to be tied, whilst the reaping machine is drawn forward and cuts the grain, the said weighing apparatus being made adjustable, so as to increase or diminish the size of the bundles at pleasure, and this I claim, whether the weighing apparatus be made and arranged, as described, or in any other way which is substantially the same, or whether combined with the aforesaid reaping machine, or any other of a similar character.

Second, I likewise claim the combination of the bent holders, with the inclined endless conveyor, for holding the grain thereupon, whilst conveying it to the weighing and depositing apparatus, as aforesaid.

To H. G. Thompson, of New York, N. Y., for improved method of adjusting the packing of rotary engines.

I claim the method substantially as above described, of regulating the packing ring interposed between the steam wheel and head of the cylinder, or outer casing of rotary steam engines, by combining with the said packing ring, a series of segment wedges, operated simultaneously in the manner, substantially as described.

DESIGNS.

To S. A. House, of Mechanicsville, N. Y., for a Design for Cooking Stoves, and also a patent for a Design on Parlor Stoves.

[What are the Commissioner and his eight Examiners about, these days? The list above shows but a small week's work for the twenty-five men who are attached to the Office in its various departments. Well, we hope they will make up a good long list some of these nights.]

(For the Scientific American.)

Thick and Thin Belts.

Several weeks since I wrote you, making inquiry as to whether the thickness of belts can make any difference in the speed of machinery. My reasons for asking the question arose from the fact that I have always noticed in substituting a thick for a thin belt, and vice versa, particularly on machines where the calculations are nice—such as the cone belts on speeders—that a change in the working of the machine always ensued. From the remarks you made at the time, in answer to my question, I was inclined to think you misapprehended my meaning entirely; and you disposed of the matter in a very summary manner by saying: "The machinist of good perceptive faculties has what is called a 'knack' in adapting everything under his care to perform its duty in the best possible manner; this 'knack,' like the skill of the painter, cannot be taught by any rule." Now it was not as to the practicability of thick and thin belts, that I made the inquiry; nor was I desirous to be enlightened as it regards any particular "knack," but it was in relation to the principle involved in the matter, that I wanted light. I supposed this subject might be quite familiar to scientific men, but, on considerable inquiry, I find that this thing has hardly been thought of; and, in some instances, where it has been presented for the first time, it has been met by a strange incredulity; it seems exceedingly difficult for many to conceive it possible that the thickness of a belt can make any difference in speed, as a matter of principle. Since I wrote you I have instituted a series of experiments, and am prepared to speak with confi-

dence and considerable precision, in relation to this matter. Besides, I observe that your New Haven correspondent has been thinking on the subject, and is, in the main, on the right track. To make the thing plain, let us suppose a driving pulley 20 inches in diameter, and a driven pulley 10 inches in diameter, and the belt going round both two-eighths of an inch thick, and that each pulley is half covered by the belt—which is not the fact, quite, but it will not affect the argument. Now, the circumference of the 20-inch pulley is 62.832 inches, and that of the 10-inch, 31.416 inches. The length of belting which lies continually on the 20-inch pulley, which we have supposed covered one half the circumference, viz., 31.416 inches, in being transferred to the 10-inch pulley, whose entire circumference, of course, is just half that of the 20-inch pulley, is found to be insufficient to produce one revolution of this pulley, or to carry it through 31.416 inches of space, for the obvious reason that this length of belt describing the large circle, on being transferred to the small one, will not cover the same number of inches in consequence of its having to contract so much more than on the large pulley. Let us attempt to make this still more plain: we wish to cover a pulley 6 inches in diameter, with leather two-eighths of an inch thick; the circumference of a 6-inch diameter is 18.849 inches; but this length of straight belting will not reach round the pulley. Why? Because we have added four-eighths of an inch to the diameter of the pulley, by the covering; and we shall find that, by adding the circumference of this additional diameter to the original circumference, we shall have the length of two-eighth-inch thick leather required to cover the pulley. Example:—The circumference of a four-eighth-inch diameter is 1.571 + 18.849 = 20.420 inches; hence it is plain to see how thick and thin belts affect the relative speed of machines. It is not pretended that belts, generally, will affect the speed the entire amount of their thickness; it will depend upon the quality of the belts.

Some of our best and most practical manufacturers, here, add "the thickness of the belt to the diameter of the pulley," and this rule is probably not far from just in the majority of cases; but I am persuaded that more than this should be added where the pulleys are very small. Perhaps the rule laid down by your correspondent, Mr. Chaffee, is not far out of the way, viz., "That the belt increases the size of the pulley by so much of the thickness of the strap as is not strained."

Let it be remembered that the greater the disparity in the driver and driven pulleys, the more difference, in time and power, is perceived, and if the two pulleys are the same size, the thickness of the belt cannot make a hair's difference in the speed, of course. Mr. C. seems to have groped in the dark on this point.

E. B. M.

Manchester, N. H., Jan. 30, 1851.

Foreign Correspondence.

GLASGOW, Jan. 16, 1851.

COTTON.—NEW STEAMER.—An error of 70,000 bales of cotton, in the year's account, at Liverpool, has been discovered. The error is in the wrong way for the United States. The exports from Bombay are for the year, to 30th November, nearly 376,000 bales, of which 266,000 came here, and 110,000 went to China. The receipts from the East Indies are treble of last year's quantity. In the previous statement, of course, shipments from Calcutta and Madras are not counted. The fever is very bad at Lahore, Punjab; half of the First Fusiliers, and three-fourths of another regiment, are in barracks. Having beaten the Sikhs we shall now have to combat the fever.

The new steamers building here, for the Glasgow and New York line, are to be larger than the City of Glasgow, or, at least, more powerful, but propellers. Two new steamers are building for the Cunard line, larger than the Africa and Asia. They have been named, in some journals, the Arabia and Persia; this is an error; I understand one of them is to be known as the Scotia,—so they should call the other the Anglia. The Asia's last passage is said to be the shortest crossing ever made—10 days 4½ hours. An American ship, the

Oriental, made a splendid run from Canton to London. It was deemed the quickest, until an Aberdeen house looked up their ledger and found that their ship, the John Bunyan, (worthy name,) had done better. **

A new article of boots and shoes has just come up in England. It is called the Panama Corium, the leather cloth, and was invented by a person named Hull. The material is cotton, but has the mass and general appearance of leather, and receives a polish from ordinary blacking, and in the same way. It is used only for the upper, the sole being leather. It is said to be as durable as leather, never cracks or splits, and possesses the advantage of not drawing the foot.

California Gold.

A machine is in preparation in this city designed for crushing quartz, which it is said will break up one hundred tons per day. It is intended for the Rocky Bar Mining Company, and will be sent out by the steamer Pacific, in May next.

We have no word of the Atlantic yet.

TO CORRESPONDENTS.

"C. C., of N. J."—The advertisement for a draughtman belongs to the same parties who require answers to be directed to box 664, P. O., this city. Your volume of the Scientific American was directed to you, and left at 73 Courtlandt street about two weeks ago.

"T. G. S., of Pa."—Your apparatus is no doubt a good one, and will accomplish all that it is recommended to, but to engage in the sale of patent rights is not in our line of business. We should be pleased to insert an advertisement for you in accordance with our published terms; see heading over advertisements in another column.

"L. B. G., of Pa."—We think you may be obliged to alter your claim slightly, but we see nothing to prevent your obtaining your patent, if you have properly described the machine throughout and furnished the office suitable drawings. An engraving will cost you \$8.

"E. R. B., of N. Y."—It is too late already to enter for the World's Fair. You should have got your model ready earlier.

"E. G., of Ga."—Your letter of the 4th has been passed over to the parties interested in that advertisement.

"L. F. H., of Vt."—We have no more copies of Minifie's Drawing Books on hand. We advise you to address Wm. Minifie & Co., Baltimore, Md., who will give you information on both the subjects of your enquiry.

"H. S., of Mass."—Your suggestions in regard to placing plates of iron alternately in opposite directions, so as to destroy the regularity of the grain, is correct, as concerns increasing the strength of a boiler, but it is a theory too well known by all boiler makers to admit of its being patentable.

"R. L., of O."—The specifications and drawings of your press have been forwarded to the P. O., and fees paid. It is not possible for us to inform you at what time the application will come up for examination but we presume it will not be "LONG" hence.

"M. D., of Pa."—We have not complete sets of volume 4, but can furnish about 30 numbers (not consecutive) for \$1.

"T. D. D., of Vt."—Blanchard's patent was originally granted in 1843, and has since been re-issued. A. K. Carter, of Newark, N. J., is the agent for Blanchard's machine, and you had better address a letter of enquiry to him.

"G. W., of O."—The converting of a common fire place or box stove into a steam boiler is certainly a new idea but not a patentable one.

"R. S. S., of Pa."—Your friend's model has been received but it is impossible for us to conceive the least advantage he derives from his arrangement and manner of operating the pitman. Let the inventor express his views by letter.

"J. T., of Pa."—Your mode of constructing the tubes we believe to be new and patentable, and your theory is in most respects correct. Perhaps however you would do well to consult some of your practical engineers upon the subject of the boiler's operation on a large scale.