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VOL. XVII., No. 26....[NEW SERIES.]....*Twenty-first Year.*

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Contents:

(Illustrated articles are marked with an asterisk.)

THE LAST NUMBER OF VOLUME XVII.

We give in this number a full index of the volume of which this is the last issue. No doubt this will be more satisfactory to our readers—those at least who preserve their numbers for binding, and probably most do—than publishing the index in a separate sheet. The list of claims in this number will be found to be unusually full, a gratifying evidence that dullness of business does not cripple the resources nor abate the industry of our inventors. With a parting word of good will to our present subscribers and a welcome to those who begin with our new volume, we wish for all a HAPPY NEW YEAR.

COMMENCEMENT OF A NEW VOLUME.

With the next number the SCIENTIFIC AMERICAN enters upon its twenty-third year. Probably no publication extant will furnish a more complete and exhaustive exhibit of the progress of science and the arts in this country for the past twenty-two years than a complete file of the SCIENTIFIC AMERICAN. It is a curious and interesting pastime to compare the condition of the mechanic arts as presented in some of our first volumes with that shown in our more recent ones. During all this time, nearly a quarter of a century, our journal has endeavored to represent the actual condition of our scientific and mechanical progress and to record the discoveries and improvements in these departments wherever made. The result is a compendium of valuable information unattainable through any other means.

But the SCIENTIFIC AMERICAN has aimed not only to gratify a laudable curiosity by collecting and presenting such information, but to give practical knowledge which could be applied to valuable uses.

We labor for the producers—the mechanics, farmers, laborers—those who build up a country and make the wilderness to blossom like the rose. We believe that the workers are the power, especially in this country; and while we do not wish to detract from the value of the products of merely intellectual speculators, we still think that the world needs specially the laborer. We use the term "laborer" in this connection in its widest sense, comprehending he who uses brain as well as he who employs muscle; scientific investigation and discovery should be followed by and united to practical application.

The improvement exhibited in our past volumes will be no less noticeable hereafter. Keeping pace with the "march of mind" we shall endeavor always to lead rather than to follow. The different departments of our paper are managed by those who are practically acquainted with the subjects they profess to elucidate. "To err is human," but we shall spare no pains nor expense to make the SCIENTIFIC AMERICAN as reliable in its statements as it is interesting in the variety and matter of its subjects. There are none of our people, from the student or professional man to the day laborer, but will find something in every number, of present or future value to him in his business.

A CHANGE AT THE PATENT OFFICE.

T. C. Theaker has resigned as Commissioner of Patents A number of gentlemen are mentioned as candidates for the succession, prominent among whom are B. F. James and Charles Mason. Mr. James has acted in the capacity of primary Examiner in the Engineering Class for a number of years, and has filled his position acceptably. Judge Mason held the Commissionership from 1853 to 1857, and his whole administration was marked with reform and ability. Judge Mason was educated at West Point, and he is a man of sterling integrity, a sound jurist, experienced in patent law, and a splendid executive officer. One thing may be relied upon. if Judge Mason should receive and accept the appointment of Commissioner, inventors will not have to complain long of delay in the examination of their cases. The Judge is as industrious by nature as he is stern and systematic by education and he will have no drones about him. The work of the office under his administration would be brought up and kept up.

A good day for inventors and all persons having business with the Patent Office will dawn when Judge Mason takes the Commissioner's chair again, and we hope the proper influences may be brought to bear to secure his acceptance.

OBITUARY.

EBENEZER WINSHIP, died at his home in this city Dec. 6, 1867, at the age of 67. A long and eminently useful although unobtrusive life entitles his memory to respect. He commenced his career as a mechanic in the steam engine establishment of James P. Allaire, soon after the application of steam for the propulsion of boats and long before its application to ships for the purposes of commerce or war. For fifty-two years, with the exception of one or two brief intervals, he was connected with the Allaire works in this city, and for more than forty years he was the master mechanic and general superintendent of the works. Probably no man now living has had a more intimate connection with the construction of the marine steam engine in all its remarkable changes and improvements, or been so long employed at one engine establishment.

James P. Allaire, the founder of the Allaire Works, died May 20, 1858, at the age of 73. He was an intimate acquaintance of Fulton and from the engine of Fulton's first boat, the *Clermont*, took drawings which he used in the construction of his first marine engines. He built the engines for the *Chancellor Livingston* which ran between New York and Albany. He built also the first marine engines ever constructed in this country, which were put into the steamship *Savannah*, the first steamer that crossed the Atlantic, and also those for the *Pacific* and *Baltic* of the Collins line, which ships surpassed in speed any before constructed.

Under such tutelage and with such advantages Mr. Winship rose successively through the grades of apprentice, journeyman, boss, and foreman, to the position of master mechanic and superintendent. Connected intimately with the progress of marine engineering for over half a century, he was the teacher of a large number of our engineers who now reflect credit upon their instructor. Mr. Winship's professional skill was unsurpassed; his ability in directing and managing others and thorough acquaintance with the minutest details made him invaluable in the position he so long honorably filled. His personal characteristics were faithfulness, industry, earnestness, kindness of heart, and unvarying punctuality and promptness. As master mechanic it was his invariable rule to be at the works an hour before the time for beginning labor to lay out the work for the hands, getting his breakfast in winter by gaslight and returning from dinner in time to see the condition of the work before the men arrived. In short, he made his employers' business his own and neglected nothing which might contribute to their success. He was a connecting link between the present generation of mechanics and that which saw the beginings of that great power, steam, which has revolutionized the world. His funeral on the 8th of December was attended by all the employés of the Allaire Works, by many from other mechanical establishments, and a large number of citizens.

How to Make Intelligent Workmen---Go and Do Likewise.

Mr. H O. Osborn, of Castleton, Vt., in a letter covering an order for a club of subscribers, says:—"It may not be uninteresting to you to learn that the last six names are those of young men in my employ. I have myself been your subscriber for the past four years, and knowing as I did the value of your paper, I felt it a duty I owed to my men to recommend the paper to their notice, and the result is as above. I am proud to think that I have so many in my mill who can appreciate its worth. I hope at no remote date to send you another list of names from among my own men, and I am certain that if every manufacturer would consult his own best interest he would do all he could to place your paper in the hands of his workmen, for I feel it to be a valuable acquisition to all in any way connected with machines."

We believe that employers who wish to improve the condition of their employés can render them no better service than to make each of them a Christmas present of a year's subscription to this paper. Send in the names early, so that we may know how large an edition to print to supply the demand. We close this Volume with over 30,000—nearly 35,000—subscribers, and we wish to commence the new with at least 50,000. Send in your names.

The Iron-Clads at Sea.

In his last annual report to Congress, the Secretary of the Navy thus refers to the cruise of the *Miantonomah* to Europe and her return and of the *Monadnock* to San Francisco, voyages the most remarkable ever undertaken by turreted iron-clad vessels. These vessels encountered every variety of weather, and under all circumstances proved themselves to be staunch, reliable sea-going ships. The monitor type of vessel has been constructed primarily for harbor defence, and it was not contemplated that they would do more than move from port to port on our own coast. These voyages demonstrate their ability to go to any part of the world, and it is believed by experienced naval officers that with slight modifications above the water line, in no way interfering with their efficiency in action, they will safely make the longest and most difficult voyages without convoy.

Steam, turreted iron-clads and fifteen-inch guns have revolutionized naval warfare, and foreign governments, becoming sensible of this great change, are slowly but surely coming to the conclusion that turreted vessels and heavy ordnance are essential parts of an efficient fighting navy.

THE SCIENTIFIC AMERICAN AS A MEDIUM OF BUSINESS.

We seldom publish the favorable opinions expressed by our correspondents when in their letters they allude to this journal. If we chose we could fill columns with notices similar to those which follow.

R. S. Miller of Logansport, Ind., under date of Dec. 2d, says:—

I have a club of 10 or 12 engaged, and will send names and money about the 20th inst. I have been reading the SCIENTIFIC AMERICAN for several years and frequently I find items in it of more value than the year's subscription. In No. 9, present volume, you illustrated a plan for setting steam boilers. I was much pleased with it and showed it to a friend of mine who was about re-setting a 60-horse power boiler in his machine shop. He adopted the plan. Four week's use of the improved furnace proves all you claimed for it. My friend will be one of your new subscribers. I shall, in a few days, re-set my 15-horse power boiler according to the plan. Every live mechanic should take your valuable journal.

The Lamb Knitting Machine Manufacturing Co, Chicopee Falls, Mass., say:—

In payment of your bill please find inclosed draft, etc. Please insert our advertisement every other week hereafter. We are compelled to this being overrun with orders. Unless they hold up we shall be obliged to withdraw it entirely. So much for the advantages of your medium for advertising.

C. W. Le Count, Manufacturer of lathe dogs and steam engine governors, South Norwalk, Conn., writes concerning his advertisement in these columns:

What business I have I can trace three-quarters of it directly to your journal.

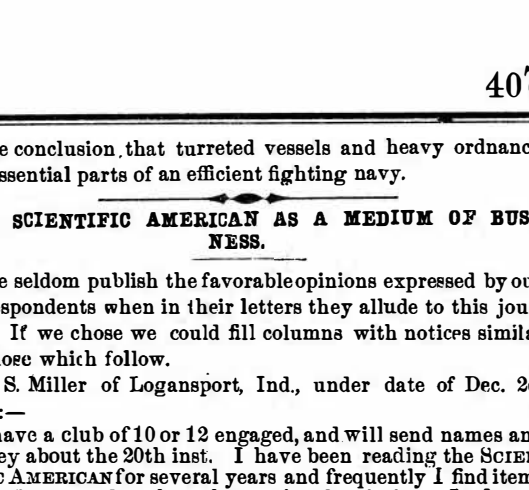
An agent of the Hinkley Knitting Machine Co., whose invention was illustrated in these columns some weeks ago, writes:

It is now but ten days since its publication, yet without a single advertisement in any paper I have been obliged to engage extra assistance to simply inclose my circulars to parties, who are writing and even *telegraphing* for agencies and machines, while many have traveled long distances to personally engage agencies. The Superintendent of the Company makes similar *complaints*.

HUNT'S IMPROVED STEAM PACKING PISTON.

Engineers are aware that there are more or less objections to the use of the ordinary spring pistons, owing to the changing tension of the springs, the necessity of frequent adjustment, and the impossibility of the packing rings adapting

Fig. 1



themselves to the varying pressures of the steam on the piston. A number of attempts have been made to produce a self packing or steam expanding piston, which will act always with the pressure of the steam and the velocity of the engine. The advantages of such a piston will be readily appreciated by practical engineers, especially drivers of locomotives, working, as they nearly all do, at a very high pressure of steam. The general complaint against the several packings in use on our railroads is, that they "pack too tight," and rapidly wear out the rings, while the only remedy has

Fig. 2

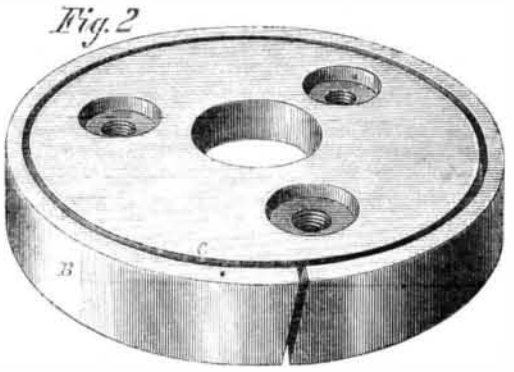


Fig. 3